



CALIFORNIA  
High-Speed Rail Authority

# DRAFT 2026 BUSINESS PLAN

*Technical Supporting Document*

## Capital Cost Basis of Estimate Report

MARCH 2026

San Diego





# CALIFORNIA High-Speed Rail Authority

## Memorandum

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**SUBJECT:** Capital Cost Basis of Estimate

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## 2 Acronyms and Abbreviations

Term	Definition
ATS	Automatic Train Supervisor
B-P	Bakersfield to Palmdale
BESS	Battery Energy Storage System
BNSF	Burlington Northern Santa Fe Railroad
BP	Business Plan
CAHSR	California High Speed Rail
CM	Contract Manager
CP	Construction Package – <i>Used to describe Civil Contracts in the Central Valley 119 Segment</i>
CVS	Central Valley Segment (119 miles)
DCM	Design Criteria Manual
EAC	Estimate at Completion
EOS	Early Operating Segment
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
G-Wye	Gilroy to the Wye Segment (inclusive of lower leg of Wye)
HMF	Heavy Maintenance Facility
K-L	Burbank to LA Union Station
LA-A	Los Angeles to Anaheim
LGA	Locally Generated Alternative (Bakersfield Extension)
LMF	Light Maintenance Facility
M-B	Merced to Bakersfield Segment
M-M	Merced to Madera Segment (Merced Extension)
MOWF	Maintenance of Way Facility
MOWS	Maintenance of Way Siding
MPS	Master Program Schedule
OCS	Overhead Catenary System
PDB	Progressive Design Build
PDS	Project Delivery Services
PEPD	Preliminary Engineering for Project Definition

Term	Definition
P-K	Palmdale to Burbank
PUR	Project Update Report
RM	Route Miles
ROW	Right of Way
SABCE	Stripped and Adjusted Base Cost Estimate
SCC	Standard Cost Category
SF-SJ	San Francisco to San Jose
SPUR	Supplemental Project Update Report (supplemental report issued in Aug 2025 with estimate updates for optimized SF to Palmdale scenarios)
SWS	Switching Station
T & S	Track and Systems
TF	Track Feet
TSCC	Track and Systems Construction Contract
TPSS	Traction Power Substation
UPE	Unit Price Element
YOE	Year of Expenditure

### 3 Introduction

The purpose of this document is to provide technical details of the capital cost estimate for the 2026 Business Plan (BP) including design optimizations consistent with current California High-Speed Authority (Authority) strategies.

This Basis of Estimate supports the Authority's goal of advancing the Merced to Bakersfield project as the early operating segment (EOS) and outlines costs for Merced to Bakersfield, and two scenarios with an interim stage. Each estimate has been developed as a self-contained package of infrastructure, service, and operations that provides needed service while supporting the next step of expansion. The estimates are:

- Merced to Bakersfield
- San Francisco to Bakersfield
- San Francisco to Los Angeles/Anaheim (Phase 1)
  - Interim Stage: San Francisco to Palmdale

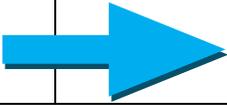
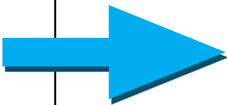
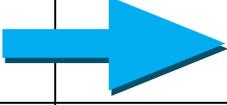
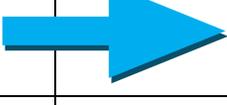
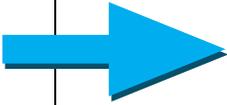
To ensure a rigorous and cost-effective methodological foundation for these estimates, a bottom-up cost estimating approach has been applied to develop the discrete and geographically segregated segment estimates. This approach ensures that all design data feeding into the estimates are rigorously and methodologically reviewed.

Each estimate has been developed as standalone, independent of other estimates. In some cases, common segment estimates have been utilized across estimates, and in others new segment estimates were developed where scope elements were added to support operational needs and passenger demands. For example, differences between segment estimates from scenario to scenario were due to changes in the length of passing tracks, station build-out size, power demands, and/or maintenance facility size. Each segment estimate is further broken down into discipline-based quantity driven estimates which are shown in Year of Expenditure (YOE) based on the Master Program Schedule (MPS).

Segment and discipline estimates were subsequently entered into the Authority's risk evaluation process using standard industry accepted tools & models, such as the FTA/FRA beta modelling to develop project contingency.

**Table 1** shows the geographical segments as rows and scenarios as columns. Check marks indicate unique estimates, the arrows in the table indicate where an estimate is common across scenarios.

**Table 1: Scenarios and Estimating Segments**

Segment	Merced to Bakersfield	San Francisco to Bakersfield	San Francisco to Los Angeles / Anaheim (Phase 1)	Interim Stage: San Francisco to Palmdale
San Francisco to San Jose		✓	✓	
San Jose to Gilroy		Estimated, but excluded from scenario totals		
Gilroy to the Wye		✓	✓	
Merced to Madera	✓	✓	✓	
CV-119	✓	✓	✓	
LGA (Bakersfield Extension)	✓	✓	✓	
Bakersfield to Palmdale			✓	
Palmdale to Burbank			✓	
Burbank to LA Union			✓	
LA Union to Anaheim			✓	

**3.1 Scenarios and Estimate outcomes**

This section introduces a summary of the scope revisions that define M-B and each scenario. A table summarizing the estimate outcomes for each section is provided. Values shown are P30 with the difference between P65 and P30 carried within the program-wide line item in the cost tables included the

2026 Business Plan and this Basis of Estimate document and are further expanded upon later in this document.

**Merced to Bakersfield**

Merced to Bakersfield (M-B), the first segment under construction, will serve the Central Valley and form the spine of the Phase 1 alignment from San Francisco to the Los Angeles Basin. As part of the Authority’s cost-saving strategy, this early operating segment prioritizes lower capital costs through streamlined station designs, infrastructure choices, and service levels. The M-B segment will include the infrastructure needed to run eight daily trains in each direction. Details of M-B 1 can be found in **Chapter 4**.

**Table 2: 119-Mile Central Valley Segment (YOE \$ in millions)**

Scope Element	2025 SPUR Estimate	2026 BP Estimate	Expenditures Dec 31, 2025
<b>Central Valley Segment</b>			
Central Valley Construction	11,334	11,494	8,993
Central Valley Right-of-Way	1,857	1,827	1,554
State Road Projects – (SR99 & SR46)	468	468	317
Track & Systems and Commodities	2,745	3,486	96
Project Reserve	46	46	0
Interim Use	162	162	54
Unallocated Contingency	318	318	0
<b>Subtotal Central Valley Segment Construction:</b>	<b>16,930</b>	<b>17,800</b>	<b>11,013</b>
Project Development, Management, and Support	177	177	177
Program Wide Support and Other	2,091	2,137	937
<b>Total Central Valley Segment:</b>	<b>19,198</b>	<b>20,115</b>	<b>12,127</b>

1. Totals may not sum due to independent rounding and represent a probability of confidence level of 65% in accordance with historic practices.

**Table 3: Merced to Bakersfield (YOE \$ in millions)**

Scope Element	2025 SPUR Estimate	2026BP Estimate	Expenditures Dec 31, 2025
<b>Merced to Bakersfield</b>			
Central Valley Segment	19,198	20,115	12,127
Project Development Balance	127	127	127
Merced Extension	3,177	2,539	102
Merced Extension – Utility Relocation	336	287	0
Merced Extension – Right-of-Way	555	565	6
Bakersfield Extension	3,135	1,984	71
Bakersfield Extension – Utility Relocation	396	276	0
Bakersfield Extension-Right-of-Way	739	280	10
Stations	1,051	1,106	59
Track & Systems and Commodities Balance	1,478	1,427	0
Solar and Utility Interconnection	75	162	0
Trainsets and Facilities	839	976	0
Program Wide Support and Contingency Balance	1,550	1,726	600
<b>Subtotal Merced to Bakersfield:</b>	<b>32,654</b>	<b>31,568</b>	<b>13,103</b>
Project Development Balance (Phase 1)	543	543	524
Program Wide Support and Other	2,254	2,252	341
Bookend	1,298	1,298	854
<b>Total<sup>1</sup></b>	<b>36,750</b>	<b>35,662</b>	<b>14,823</b>

1. Totals may not sum due to independent rounding and represent a probability of confidence level of 65% in accordance with historic practices.

## San Francisco to Bakersfield

The San Francisco to Bakersfield (SF-B) scenario builds on the M-B early operating segment by extending high-speed rail (HSR) infrastructure northwest to Gilroy and enabling through-service to San Jose and San Francisco via upgraded shared corridors. Through service will be achieved with targeted infrastructure improvements such as electrification, signaling upgrades, track capacity improvements, and station upgrades. This approach provides early access to the Bay Area market, creating significant revenue opportunities, at a fraction of the cost of a fully dedicated alignment. Details of SF-B can be found in **Chapter 5**.

**Table 4: San Francisco to Bakersfield (YOE \$ in millions)**

Scope Element	2025 SPUR Estimate	2026 BP Estimate	Expenditures Dec 31, 2025
<b>San Francisco to Bakersfield</b>			
San Francisco to Gilroy Blended Approach <sup>2</sup>	593	1,273	-
Gilroy to Central Valley Wye	18,702	18,619	-
Merced to Bakersfield	29,552	31,568	13,103
Merced to Bakersfield Balance <sup>3</sup>	-	900	-
Program Wide Support, Trainsets, and Other Balance	9,256	8,872	1,720
<b>TOTAL<sup>1</sup></b>	<b>58,102</b>	<b>61,232</b>	<b>14,823</b>

1. Totals may not sum due to independent rounding and represent a probability of confidence level of 65% in accordance with historic practices.

2. Cost for the San Jose to Gilroy segment is not included. Estimates for this shared benefit project segment range from \$2 billion to \$5 billion.

3. The M-B balance is comprised of additional scope to expand the system to accommodate additional riders

## San Francisco to Los Angeles/Anaheim (Phase 1)

The Phase 1 San Francisco to Los Angeles/Anaheim (SF—LA/A) scenario builds on the SF-B scenario with an extension of high-speed rail (HSR) infrastructure through Bakersfield to Palmdale and an interim infrastructure solution to access the Los Angeles Basin. Phase 1 marks a dramatic shift in service with the operation of two trains per hour during operating hours between San Francisco and the Los Angeles Basin, totaling 36 trains per day. Half of these would provide hourly SF—LA/A express service and that would not stop between Gilroy and Palmdale. Details of SF-LA/A can be found in **Chapter 6**.

**Table 5: San Francisco to Los Angeles/Anaheim (YOE \$ in millions)**

Scope Element	2024 BP Estimate <sup>4</sup>	2026 BP Estimate	Expenditures Dec 31, 2025
<b>San Francisco to Anaheim</b>			
San Francisco to Gilroy Blended Approach <sup>2</sup>	15,140	1,291	-
Gilroy to Central Valley Wye	19,363	18,866	-
Merced to Bakersfield	30,784	31,568	13,103
Merced to Bakersfield Balance <sup>3</sup>	-	4,325	-
Bakersfield to Palmdale	20,740	26,351	-
Palmdale to Burbank	24,428	15,936	-
Burbank to L.A.	3,405	861	-
L.A. to Anaheim	3,352	7,607	-
Program Wide Support, Trainsets, and Other Balance	10,722	19,527	1,720
<b>TOTAL<sup>1</sup></b>	<b>127,933</b>	<b>126,331</b>	<b>14,823</b>

1. Totals may not sum due to independent rounding and represent a probability of confidence level of 65% in accordance with historic practices.

2. Cost for the San Jose to Gilroy segment is not included. Estimates for this shared benefit project range from \$2 billion to \$5 billion.

3. The M-B balance is comprised of additional scope to expand the system to accommodate additional ridership with connection to San Francisco, such as additional build-out of power generation, station(s), track and systems, and maintenance facilities.

4. 2024 Business Plan costs presented by scope element are based on prior parametric methods for capital cost. Using current bottom-up methodology, costs of the 2024 Business Plan full Phase 1 scope are estimated to have increased to \$231.3 billion.

## Interim Stage: San Francisco to Palmdale

As a potential interim stage, if the segment between Bakersfield and Palmdale is completed before a route into the Los Angeles Basin, high-speed rail service could begin between San Francisco and Palmdale. All the features of SF-LA/A would be the same with two hourly high-speed trains but would operate from San Francisco to Palmdale, one as a limited stop express.

With completion of the High Desert Corridor, one train per hour could continue to Victor Valley, where passengers could connect with Brightline West service to Rancho Cucamonga and Las Vegas. At Palmdale, a connecting Metrolink via the Surfliner express service to Los Angeles and San Diego could give passengers a preview of a truly statewide service.

**Table 6: Interim Stage: San Francisco – Palmdale (YOE \$ in millions)**

Scope Element	2025 SPUR Estimate	2026 BP Estimate	Expenditures Dec 31, 2025
<b>San Francisco to Palmdale</b>			
San Francisco to Gilroy Blended Approach <sup>2</sup>	593	1,291	-
Gilroy to Central Valley Wye	18,702	18,866	-
Merced to Bakersfield	31,692	31,568	13,103
Merced to Bakersfield Balance <sup>3</sup>	-	4,302	-
Bakersfield to Palmdale	25,602	26,351	-
Program Wide Support, Trainsets, and Other Balance	14,258	14,492	1,720
<b>TOTAL<sup>1</sup></b>	<b>90,847</b>	<b>96,870</b>	<b>14,823</b>

1. Totals may not sum due to independent rounding and represent a probability of confidence level of 65% in accordance with historic practices.

2. Cost for the San Jose to Gilroy segment is not included. Estimates for this shared benefit project range from \$2 billion to \$5 billion.

3. The M-B balance is comprised of additional scope to expand the system to accommodate additional ridership with connection to San Francisco, such as additional build-out of power generation, station(s), track and systems, and maintenance facilities.

**Shared Benefit Elements.**

During the scope evolution for the 2026 Business Plan the Authority identified certain shared-benefit elements, such as roadway grade separations, for joint investment by partner state and regional agencies. These scope items were estimated; however, costs are not captured in the CAPEX estimates for the scenarios. **Table 7** below provides a summary of the shared benefit costs with details provided later in the document.

**Table 7: Phase 1 Shared Benefit Element Costs at P65 (YOE \$ in millions)**

Segments	P65
Gilroy to the Wye	\$43
Merced Extension	\$406
119-Mile CVS	\$410
Bakersfield to Palmdale	\$607
Palmdale to Burbank	\$180
Los Angeles to Anaheim	\$7,445
<b>TOTAL <sup>1</sup></b>	<b>\$9,092</b>

*1. Totals may not sum due to independent rounding.*

**3.2 A New Estimating Approach**

The estimate development methodology has transitioned from parametric, and unit rate-based modeling techniques used in the previous Business Plans to a more detailed “bottom-up” approach that brings with it transparency and estimating robustness. The “bottom-up” approach utilizes detailed quantities driven by detailed quantities from the engineering.

The high-speed rail system concepts have undergone significant design optimizations since the 2024 Business Plan and have been refined since 2025 Supplemental Project Update Report (SPUR). The design updates reflect efficiencies from the Design Criteria Manual (DCM) version 6.1. The revised DCM aligns with modern international high-speed rail standards, and incorporates lessons learned from the ongoing construction packages.

Year of Expenditure estimates have been updated to reflect revisions to the Master Program Schedule.

Contingencies account for differences and, in some cases, a higher degree of design completion along with increased confidence in a business-minded project delivery approach. Beta factors have been adjusted based on input from subject matter experts (SMEs). The estimate utilizes the Federal Railroad

Administration (FRA) risk beta model outcomes of P65, however the program will be managed and controlled to a much tighter budget and will use the P30 values to manage and control against – the difference between the P65 and P30 being carried as a program wide contingency.

This 2026 Business Plan establishes a fully integrated EOS baseline schedule and budget that the project will control and manage against. Contracts and procurement scopes have been identified with budgets and schedule milestones.

## 4 Estimating Methodologies and Development

The following provides the methodologies used to develop the basis of estimate for current projects.

### 4.1 Estimating Approach and Methodology for Current Projects

An Estimate at Completion (EAC) value is used to estimate completion costs of major current contracts for civil construction packages. The EAC is the total forecast value of each contract plus a risk informed allocated contingency value, calculated using a Monte Carlo model. The total forecast value is derived from the value of remaining work. It is calculated by taking the current contract value and subtracting the expenditure to date. Then the value of the certain portion of all pending change orders, potential change orders, trends and risks whose probability exceed 90 percent, are added to this remaining work value to arrive at the total contract forecast value. This methodology relies on the program management team's extensive experience and management of the current contracts changes as well as the negotiation history with design build contractors.

In addition to determining the total contract forecast, allocated contingency is estimated by building a stochastic risk model based on the estimated value of risks and the value of the uncertain portion of all potential change orders, and trends. Monte Carlo simulations are run against the stochastic model to arrive at recommended contingency values across a range of confidence levels.

### 4.2 Estimating Approach and Methodology for Future Projects

The following provides the approach and methodologies used to develop the basis of estimate for current projects.

#### 4.2.1 Basis of Quantities

The development of an accurate and credible capital cost estimate starts with the estimation of quantities that adequately reflects the scope of a project. The quantities in each geographic segment for M-B and each scenario were estimated using calculations of quantities of construction elements as depicted on the preliminary engineering drawings (i.e., volumetric quantification) or as assumed by experienced engineering staff where required details were insufficient on the preliminary engineering drawings. A detailed listing of engineering documents forming the technical baseline for the 2026 Business Plan Capital Cost Estimate is included in **Appendix A.**

## **4.2.2 Basis of Cost**

The basis of any cost estimate is unit costs used to price different construction elements, such as embankments, viaducts, tunnels, earth retaining structures, track, grade separations, etc., that are referred to as Unit Price Elements.

The unit costs were developed using standard industry practices based on historical bid data validated by unit cost analysis. Bid prices were used for more common construction elements while the unit cost analysis method was applied for complex construction elements. The unit price elements were subsequently updated using a current Caltrans cost database, as applicable, and applying recorded historic Los Angeles construction cost escalation indexes published by Engineering News Record (ENR).

Contractor operating overhead is added on top of fully burdened direct construction cost to have a complete, in-place cost estimate. This approach is based on the contractor's field staffing which includes indirect costs such as office space, field consumables, bonds, insurance, and the contractor's home office operating overheads.

## **4.2.3 Estimate Compilation for Direct Cost Estimates**

The following diagram defines the "bottom-up" estimate compilation approach for all estimates developed for work elements not started.

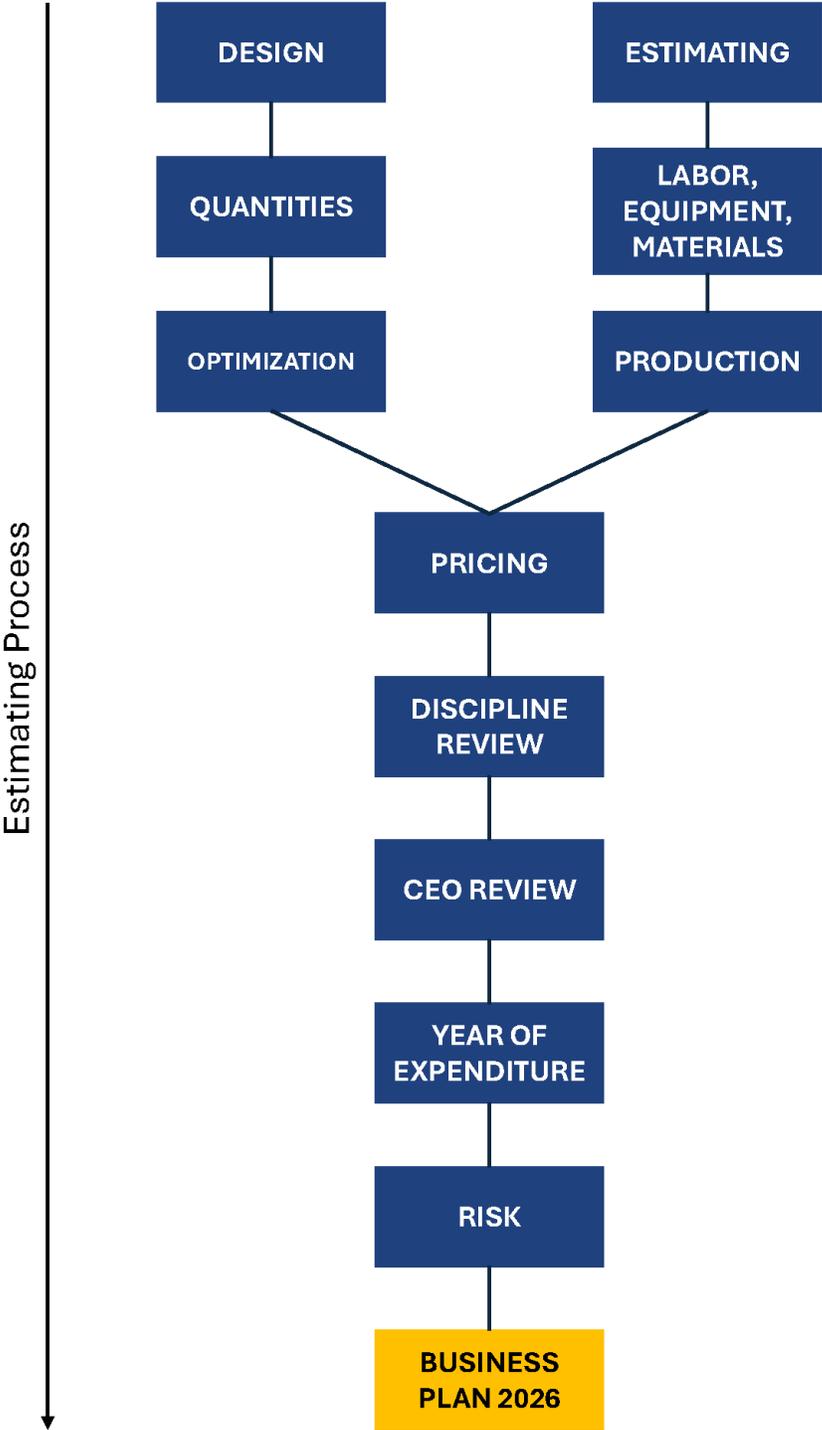
The diagram depicts the interactive process between the design and estimating teams that begins with developing the quantities and optimizations to which the estimating team can apply a consistent approach to labor, equipment, material, and production.

Through the process described above, the Authority achieves pricing and, once quality control checked, does a discipline review with the construction chiefs, a segment sponsor from the field, and engineering and estimating representatives.

Any feedback is discussed, applied to the collective approach, and then a formal review occurs with the executive team for feedback, concurrence, and/or suggested changes.

Stripped cost estimates once completed are populated within the FTA/FRA beta model whereby stripped costs are time phased. The resultant outcomes provide year of expenditure (YOE) and contingency (risk) values.

**Figure 1: Integrated “Bottom-Up” Estimate Development Process - Pathway to the 2026 Business Plan Estimates**



## 4.2.4 Allowances and Other Costs

In addition to estimating the contractor direct and indirect costs, allowances and other costs had to be included to allow for program costs as described below, these allowances change as the project progresses through stages).

### 4.2.4.1 Environmental Mitigation

For estimates where work has not commenced, environmental mitigation costs have been established based on actual commitments on the Central Valley projects (CP 1, CP 2-3, CP 4, and SR99) that have already received environmental clearance and are now under construction. These costs were used as the baseline in determining what environmental mitigation costs may be expected on the other segments within scenarios. Environmental mitigation covers that mitigation required to satisfy monitoring during construction and post-construction reclamation and replacements (e.g. wetland replacement, animal husbandry etc.) and monitoring after substantial completion.

### 4.2.4.2 Temporary Facilities

For estimates where work has not started, an allowance is used to account for the cost of temporary facilities, indirect costs, and mobilizations in the capital cost estimate. This allowance was assumed as a percentage of the total cost of track structures, station buildings, maintenance facilities, roadway modifications, and highway grade separations.

### 4.2.4.3 Right of Way

The right-of-way estimate for the 2026 Business Plan was developed by the Statewide Regional Office covering the scope of the purchase of real property required for the California high-speed rail system (HSR System) from San Francisco to Los Angeles/Anaheim.

The estimate development was divided into geographical segments from north to south as follows:

1. San Francisco to San Jose (SF-SJ)
2. San Jose to Gilroy (SJ - G)
3. Gilroy to the Wye (G-Wye)
4. Merced to Madera (M-M)
5. Construction Package 1 (CP 1)
6. Construction Package 2-3 (CP 2-3)
7. Construction Package 4 (CP 4)
8. Locally Generated Alternative (LGA)
9. Bakersfield to Palmdale (B-P)
10. Palmdale to Burbank (P-K)
11. Burbank to LA (K-L)

## 12. Los Angeles to Anaheim (LA-A)

Each of these segments has a diversity of real property needs. Utilization of already established rail lines in the San Francisco to San Jose and Burbank to Los Angeles Station segments is expected to result in almost no real property need, whereas other segments (e.g., G-Wye and Bakersfield to Palmdale), required an analysis of the full costs of the acquisition of property for the high-speed rail corridor at various assumed widths.

Each segment is broken down into subsegments that reflect real property needs, including maintenance facilities, traction power substations (TPSSs), stations, and requirements for expansions along already developed rail lines.

Due to the various current levels of design for each of these segments, the Statewide Regional Office team developed various methodologies for estimating costs across the alignment.

### **Costs for Acquisition of Real Property for HSR**

The acquisition of real property for the HSR System requires two categories of costs: Capital Costs and Non-Capital Costs.

**Capital Costs** are payments made directly to property owners for the acquisition and relocation of real property needed for the HSR System. These costs cover negotiated settlements through right-of-way contracts, as well as the costs of acquisition and relocation through condemnation proceedings.

**Non-Capital Costs** are all costs other than Capital Costs that are associated with acquiring real property on behalf of the Authority. At this time, the Statewide Regional Office utilizes consultants to complete a significant portion of the field work required to acquire property, and to supplement state resources. The following are categories of active contracts that are utilized in the acquisition of real property and that are considered as part of this estimate:

- Right-of-Way Engineering Consultants (deliverables include appraisal maps, record maps, as-builts, and exhibit documents)
- Appraisal Consultants (includes Environmental Site Assessments Phase 1 and 2)
- Appraisal Reviews Consultants
- Acquisition and Relocation Consultants (includes costs of title reports, escrow, and closing)
- Property Management Contracts (for one year or less)
- Demolition and Environmental Clearance Contracts (only if

needed or for emergencies, construction contractors will do a significant portion of the demolitions)

**Table 8: Estimate Summaries of Right of Way (YOE \$ in millions)**

Scope	P30
Merced to Bakersfield	\$2,834
San Francisco to Bakersfield	\$6,060
San Francisco to Los Angeles/Anaheim (Phase 1)	\$16,218
San Francisco to Palmdale	\$11,460

#### 4.2.4.4 Utility Interconnects, Clean Energy, Traction Power Substations

The planning and engineering team have reconfirmed the design requirements for the Traction Power Substations (TPSS) options. By utilizing primary and secondary feeds from either Pacific Gas & Electric (PG&E) or Southern California Edison (SCE), the program has developed a melded approach providing a range of options to evaluate the Early Operating System (EOS) and future system buildout under SF-B and SF-LA/A.

Estimates of utility interconnects, clean energy, and TPSSs have been updated based on the latest quantity and pricing information available. For estimating purposes solar farms have been used as the clean energy basis, however the Authority is exploring all clean energy alternatives. The estimate scope and make-up of the TPSS includes:

- Traction Power Substation
- 2 x Utility interconnects feeders from the utility provider (1 utility interconnect is omitted from the CAPEX estimate and carried in the share benefit cost tables)
- Solar Farm (where applicable)
- Battery Energy Storage System (BESS) (where applicable)

The overall traction power count and requirements remain unchanged from the 2024 Business Plan. **Table 9** below provides a matrix of the TPSSs required for each scenario.

**Table 9: Matrix of TPSS Locations and Requirements**

TPSS #	Merced to Bakersfield	San Francisco to Bakersfield	San Francisco to Los Angeles / Anaheim	Interim Stage: San Francisco to Palmdale
<b>Gilroy to the Wye</b>				
TPSS 5	--	X	X	X
TPSS 6	--	X	X	X
<b>Merced Extension</b>				
TPSS 7	X	X	X	X
<b>Central Valley – 119</b>				
TPSS 8	--	X	X	X
TPSS 9	X	X	X	X
TPSS 10	X	X	X	X
TPSS 11	--	X	X	X
TPSS 12	X	X	X	X
<b>Bakersfield to Palmdale</b>				
TPSS 13	--	--	X	X
TPSS 15	--	--	X	X
<b>Palmdale to Burbank</b>				

TPSS #	Merced to Bakersfield	San Francisco to Bakersfield	San Francisco to Los Angeles / Anaheim	Interim Stage: San Francisco to Palmdale
TPSS 16	--	--	x	--
TPSS 17	--	--	x	--

4.2.4.5 Maintenance Facilities & Trainsets

Maintenance facility design evolution has matured to a point whereby semi-detailed quantities have been used to develop maintenance facility estimates across the scenarios. The Central Valley Maintenance Facility expands with HSR System to meet the trainset and usage demands. Similarly, the northern Brisbane Maintenance Facility in the San Francisco to San Jose segment expands from when service extends to SF-LA/A for the same reasons. Additionally, in SF-LA/A the southern maintenance Hobart facility is introduced in the Los Angeles to Anaheim segment.

The trainset count has been updated for M-B and each scenario based on the operational modelling. Trainset pricing was escalated from the 2025 SPUR to bring the base year pricing up to June 2025 base year (from base year 2022). Additionally, Year of Expenditure has been updated for M-B and each scenario.

**Table 10** provides the total trainsets required for each scenario.

**Table 10: Trainset Count Estimate**

Scope	Number of Trainsets
Merced to Bakersfield	6
San Francisco to Bakersfield	11
San Francisco to Los Angeles/Anaheim (Phase 1)	33
San Francisco to Palmdale	21

All scenarios include an estimate for two prototypes with the remaining trainsets being estimated at a standard unit cost.

**Table 11: Maintenance Facilities, Operation Control Centers (OCC), and Trainsets Estimate at P30 (YOE \$ in millions)**

Scope Elements	P30
<p><b>Merced to Bakersfield</b></p> <ul style="list-style-type: none"> <li>- Fresno - Initial Maintenance Facility and OCC for EOS</li> <li>- Wasco - Back-up OCC</li> <li>- 6 x Trainsets</li> </ul>	\$976
<p><b>San Francisco to Bakersfield</b></p> <ul style="list-style-type: none"> <li>- Brisbane Maintenance Facility - SF-SJ segment</li> <li>- Gilroy MOWF</li> <li>- Gilroy – Back-up OCC</li> <li>- Fresno - Maintenance Facility and OCC</li> <li>- 11 x Trainsets</li> </ul>	\$2,221
<p><b>San Francisco to Los Angeles / Anaheim (Phase 1)</b></p> <ul style="list-style-type: none"> <li>- SF-SJ - Brisbane Maintenance Facility</li> <li>- Gilroy MOWF</li> <li>- Gilroy – Back-up OCC</li> <li>- Fresno - Maintenance Facility and OCC</li> <li>- Lancaster MOWF – Bakersfield – Palmdale Segment</li> <li>- LA-A - “Hobart” Maintenance Facility</li> <li>- 33 x Trainsets</li> </ul>	\$4,826
<p><b>Interim Stage: San Francisco to Palmdale</b></p> <ul style="list-style-type: none"> <li>- SF-SJ - Brisbane Maintenance Facility</li> <li>- Gilroy MOWF</li> <li>- Gilroy – Back-up OCC</li> <li>- Fresno - Maintenance Facility and OCC</li> <li>- Lancaster MOWF – Bakersfield – Palmdale Segment</li> <li>- 21 x Trainsets</li> </ul>	\$3,741

1. Costs include Professional Services  
 2. Costs include ROW where required

#### 4.2.4.6 Professional Services

The Authority continues to evaluate professional services estimates for all segments not yet under construction. During the 2025 SPUR estimate, the percentage applied for professional services was reviewed and lowered based on a more efficient approach to program oversight. The 2026 Business Plan estimates carry the same percentage allocations. For certain segments, design forecast estimates were provided. These estimates replace the standard percentages for preliminary and final design. Professional services estimating methodology does take into consideration Transit Cooperative Research Program Report 138 – Estimating Soft Costs for Major Public Transportation Fixed Guideway Project, which is endorsed by the FRA as a methodology of evaluating professional services costs.

#### 4.2.4.7 Program Wide Support Costs

Program wide support costs were developed on a burn rate basis determined by reviewing historical spending and future need based on assessments by the Authority's contract managers and leadership team. The program-wide scope covers supporting consultant contracts including but not limited Project Delivery Services (PDS), legal, financial, rail oversight, insurances, and other support costs not included in the professional service categories noted above.

Each scenario builds on the program wide support estimates for the M-B early operating segment. The program wide support costs are forecasts through the end of 2032.

Subsequent program wide scenarios utilize M-B program wide costs and add additional time-based forecasts starting in 2033 running through to completion of the scenario. **Table 12** below shows the completion of each scenario.

**Table 12: Program Wide Cost and Schedule Estimate at P30 (YOE \$ Millions)**

Scope	Start	Finish	P30
Merced to Bakersfield	Ongoing	End 2032	\$4,614
San Francisco to Bakersfield	Ongoing	2039	\$5,671
San Francisco to Los Angeles/Anaheim (Phase1)	Ongoing	2039	\$5,828
Interim Stage: San Francisco to Palmdale	Ongoing	2039	\$5,768

*1. Schedule estimates are not overarching scenario timelines*

This table excludes the contingency differentials between P65 and P30 that are included in all other cost tables for Program wide support in the 2026 Business Plan and this Basis of Estimate.

**4.2.4.8 Local Assistance Bookends**

Local Assistance Bookends are a passthrough cost that has a determined dollar value. These projects are not managed by the Authority, and the estimates have not changed.

**Table 13: Bookends (YOE \$ Millions)**

Bookend	Estimate	Expenditures Dec 31, 2025
Northern	\$798	\$798
Southern	\$500	\$56
<b>TOTAL</b>	<b>\$1,298</b>	<b>\$854</b>

#### **4.2.5 Year of Expenditure (YOE) Methodology**

Year of Expenditure (YOE) estimates are based on a Stripped and Adjusted Base Cost Estimate (SABCE) which is a current (base) year number that is free of all latent and patent contingency. Future inflation is applied to the SABCE to account for escalation in costs through the delivery phases from the base year forwards to calculate the YOE.

Risk is applied to this inflated (YOE) figure. Since the segments outside of M-B are unfunded, for purposes of cost estimation, the schedules for segments outside of M-B commence in July 2026 and complete at different times. The longest segments are Gilroy to the Wye and Los Angeles to Anaheim, both completing in late 2039. M-B timeline has been updated based on the Business Plan 2026 Baseline schedule with M-B completion set for Q4 of 2032.

For all scenarios and an interim stage, the base year date for the 2026 Business Plan is June 2025 (Q2). All estimated costs for Central Valley works are brought up to a consistent starting base of June 2025 (Q2), and inflation is applied forwards based on the program schedule. The YOE model non-escalated values were profiled based on the schedule durations and assumed expenditure profiles for each project. To arrive at the YOE escalated values, the risk model values were then adjusted using forecasted escalation factors. This resulted in a SABCE (YOE) to which risk was then added. Inflation factor assumptions applied in the model are based on the sources and forecasts shown below:

**Table 14: Inflation Factor Assumptions**

Calendar Year	2026	2027	2028	2029	2030	2031	2032	2033	2034-38
Inflation Factor	3.65%	3.10%	2.55%	2.00%	2.00%	2.00%	2.00%	2.00%	2.00%
Data source	CA DOF	CA DOF	CA DOF	US Federal Reserve					
Data Series	CPI-UCA Index	CPI-UCA Index	CPI-UCA Index	FOMC - PCE Inflation					
Data date	Apr-25	Apr-25	Apr-25	Mar-25	Mar-25	Mar-25	Mar-25	Mar-25	Mar-25

#### 4.2.6 Risk Assessment and Contingency Modeling

Risk assessments were conducted in accordance with the Authority's risk management process outlined in the Authority's Project Controls Manual. At the project level, project risks are tracked in risk registers managed by the Project Construction Manager and overseen by the Project Controls Execution Branch. Risk registers are updated monthly with focused workshops held quarterly or as needed.

For projects in the planning and engineering phase, the Authority utilized a Federal Railroad Association (FRA) risk modeling template and FRA's Oversight Procedure 40 (OP40) to derive estimate contingencies.

#### 4.2.6.1 Risk Model

Cost risk assessment for M-B and the scenarios predominantly use the following modeling method:

FRA Top-Down Model: The Top-Down (Beta Factor) model methodology for evaluating cost risk uses broad parameters derived from historical project information adopting the FRA's Oversight Procedure 40 (OP40) - Risk and Contingency Management. The FRA Top-Down model uses beta factors as a multiplier of the cost of individual project elements to determine the cost for the worst plausible probable scenario cost taken as the 'upper bound'. The beta factors are applied to the SABCE which excludes any contingency (representing a 10th percentile, lower-bound confidence level). With the two known points, lower bound and upper bound, it is possible using a beta-PERT distribution to characterize the risk profile for each project cost element and to estimate the risk exposure at any confidence level between the 10th and 90th percentiles. The beta factor is a composite number made up of individual assessed risk values for each cost element based on risk exposure at the different stages of the project. The beta factors are applied at Standard Cost Category (SCC) level 2 (i.e. 10.01, 10.02 etc.).

The FRA Top-Down model is based on characterization of risk under five discrete categories referencing the project risk register, which is coded to SCC, and is enhanced where appropriate by the application of generic beta factors applied for specific project risk exposures applying to more than one SCC element. The FRA Top-Down model provides guidelines on assignment of 'typical' (generic) beta factors per SCC element, based on historic data. The beta factors and resulting contingencies were reviewed by the Authority's subject-matter experts and adjusted based on improved and more efficient execution and oversight, design and construction advancement, detailed quantity takes off for future work and the development of the 2025 SPUR estimate update using "bottom-up" estimating techniques.

The five risk categories are:

- Requirements Risk
- Design Risk
- Market Risk
- Construction Risk
- Post-Construction Risk

## **Requirement Risk**

Requirement risk is the component of the beta factor related to the risk that occurs at the early conceptual stage of the project and is comprised primarily of scope risk. At this stage the risk can be fairly high because the scope of the project has not been defined. Typically, these risks are associated with basic elements such as the length of a project, the performance requirement (i.e. number of lanes, vehicles, etc.), the number of elements (i.e. stations, interchanges), the type of technology, the type of structures, etc. Risks characterized as 'requirements risks' in the Risk Register would generally influence the addition and size of a requirement's risk beta as that 'risk' would not be included in the generic standard beta of other risk categories.

## **Design Risk**

Design risk is the component of the beta factor related to the risk that occurs during the "design" phase after the preliminary engineering phase. The risks are still fairly high at this stage because not all the technical details are not known and there is still an opportunity to make numerous project scope changes. Some of the typical risks include scope changes required for political or technical reasons, geotechnical soil conditions, design complications, environmental mitigation, and design errors and omissions.

## **Market Risk**

Market risk is the component of the beta factor related to the risk that occurs after the project design is completed and the contract is out to tender. The market or bidding risk will continue to exist until a firm price has been provided and a contract agreement executed. Typically, the market bid risk is not as high as the requirement or scope risk; however, depending on the stability of certain markets, it could have a significant impact on certain project cost elements such as those that would be affected by oil, steel, concrete, and labor prices.

## **Construction Risk**

- **Early Construction Risk**

Early construction risk is the component of the beta factor related to the risk that occurs at the start of construction. Most construction risk occurs at the start of construction when the contractor mobilizes. These risks typically include unexpected soil conditions, utility relocation conflicts, timing and cost of utility relocations, property clearance and access to property, mobilization issues, material availability, etc.

- **Mid Construction Risk**

Mid Construction Risk is the component of the beta factor related to the risk that occurs during the term of the contract. These risks are typically associated with scheduling, weather conditions, construction operations, labor relations, traffic staging, etc.

- **Late Construction Risks/Testing Risks**

Late construction risk is the component of the beta factor related to the risk that occurs at the end of construction. Usually associated with the final approvals, punch lists, testing, commissioning, and/or handover conditions. These risks are typically higher in transit projects as compared to highway projects due to the complexity of integration of the “system” and vehicle elements of transit projects.

### **Post Construction Risk**

Post-Construction Risk is the component of the beta factor related to the risk that occurs after substantial completion and allows for agreement of claims and settlement of change orders and final accounts. Also called the Beta Range Model, the top-down cost risk assessment method has been developed through implementation on many transportation projects and is the required approach to be used on all Federal Transit Administration (FTA) and FRA Transit Grant funded projects nationally. The OP40 requires that Grant Applications have sufficient funding to support a 65 percent confidence level (P65).

The beta factors and resulting contingencies were reviewed by Authority SMEs and adjusted based on improved and more efficient execution and oversight, design and construction advancement, detailed quantity take-offs for future work and the development of BP and PUR estimate updates using bottom-up estimating techniques.

#### 4.2.6.2 Risk Models Used for Estimate

The selection of modeling method is based on the stage of the project and maturity of the estimate, as summarized in **Table 15**.

**Table 15: Risk Model Method Applied to Geographic Segments**

Project	Beta Model	Monte Carlo Model
CP 1, CP 2-3, CP 4	X (Other Costs)	X (DB Costs)
SR99	N/A	N/A
SR46	X	--
Central Valley Track, Systems, Traction Power	X	--
Rail Facilities	X	--
Trainsets	Contingency as per SPUR 2025	--
Merced Extension	X	--
Bakersfield Extension	X	--
San Francisco to San Jose Extension	X	--
San Jose to Gilroy	N/A	N/A
Gilroy to the Wye Extension	X	--
Bakersfield to Palmdale Extension	X	--
Palmdale to Burbank Extension	X	--
Burbank to Los Angeles Extension	X	--
Los Angeles to Anaheim Extension	X	--
Central Valley Stations	X	--
Project Development	N/A	--
Program Wide Support	N/A	--
Program Wide Unallocated Contingency	N/A	--

Project	Beta Model	Monte Carlo Model
Bookend and Local Projects	N/A	--
Program Wide model	X (Other Costs)	X (DB Costs)

4.2.6.3 Risk Workshops

The 2026 Business Plan estimate was built upon the estimates and risk models developed for the 2025 SPUR. Throughout the development of the 2026 Business Plan Stripped and Base Cost Estimate Development, the Risk Team met with Design Team stakeholders across all of the different segments and disciplines to understand the state of design, gather and update the design percentages by SCC level 2 code and broadly become more informed where the project is in time and lifecycle. In addition, the Risk Team reviewed the risk registers to understand if any discrete risks needed to be applied within the FRA risk modeling tool. Professional judgement was used to determine if the risks from the register were covered in the beta modeling parameters and outcomes. As the risk models were developed, the Risk Team held discussions with experts from the different segments and disciplines as needed and gathered their input to validate that the contingency model outcomes reflect a level of contingency commensurate with the known design, risks and their broad expert assessment of the status of scope execution for their respective area.

4.2.6.4 Program-Wide Risk

The 2026 Business Plan estimate incorporated the potential impact risks and uncertainties within each geographic segment estimate as well as additional contingencies to account for pricing and quantity uncertainty. At the program-wide level, risks tracked in current Enterprise Risk Register were reviewed with key personnel, disregarded risks that were already captured in the geographic segments top-down models and beta factors and eliminated risks that were no longer applicable. Individual risks which were similar were grouped to ensure risks were not double counted.

The discrete list of risks was used to populate a Monte-Carlo risk model and generated risk output at P30 and P65 confidence levels which were used to inform program-wide costs for the 2026 Business Plan. Additional program wide risks have been captured for risks associated with quantity and material pricing variation.

#### 4.2.6.5 P-values and Budget Control and Management

P-values are a measure of probability stated as a percentage, used to estimate the likelihood of cost remaining below a certain threshold. This information can be used to make decisions about how to allocate contingency funds and plan for potential cost overruns. The selection of P-value is typically guided by risk appetite and funding source constraints.

In alignment with FRA guidance, P30 and P65 confidence levels were presented to the Authority. The 2026 Business Plan Basis of Estimate bottom line values for various scenarios utilizes a P65, however the discrete SCC level 2 estimated values are presented as P30 values. The variance in estimate value between the SCC Level 2 P65 and P30 values is carried out as a program contingency and captured on the program wide line estimate line items.

This approach to contingency management enables a higher degree of control for budget and contingency management.

## 5 Estimate General Assumptions and Exclusions

### 5.1 Estimate Development

The estimate has been developed using the estimating framework within the Authority's Project Controls Manual-1029. In addition, risk management updates for the 2026 Business Plan follow the US Department of Transportation, Federal Transit Administration - Oversight Procedure 40 - Risk and Contingency Review.

### 5.2 Bottom-Up Approach and Methodology

#### **Approach**

A revised estimating approach has been used whereby estimates have been developed using a bottom-up estimating approach for civil, stations, and track and system related elements. The bottom-up estimating approach essentially builds the estimate from the lowest level of work decomposition whereby design elements and their associated quantities (e.g., bridges, structures, embankments) are discretely broken out, and quantities, craft labor resources, materials, and equipment are estimated for each design element. This approach has been applied to most direct capital cost estimates making up this 2026 Business Plan estimate update.

#### **Methodology**

The specific means and methods of estimate development vary between estimating and consultants. The below methodology statement is applicable to the bottom-up estimates that make up the 2026 Business Plan Basis of Estimate.

The bottom-up methodology is a deterministic estimating approach to costing the construction scope. Pricing is developed for construction items and activities and includes labor, materials, equipment, and subcontracted cost elements with markups for indirect costs, overhead, and profit (where applicable).

The scope of each construction activity is determined by an estimator review of the subject design and technical information in which discrete construction elements are identified and evaluated, including all support activities reasonably associated with each particular element. Pricing for each construction element is based on labor costs, material costs, and equipment costs associated with the construction activity and applied against a direct measurement of quantities. Where design development did not allow for the deterministic pricing of construction elements, a lump sum allowance is often used.

For each construction activity, an estimator, often with the support of construction representatives, establishes an appropriate crew mix inclusive of the labor (i.e., craftsmen, journeymen, foremen, etc.) and construction equipment needed to perform the work. Each crew mix offers the labor and equipment costs to be incurred during a work-shift, and the estimated production rate of that crew and applies those crew costs against the quantity of temporary and permanent materials purchased and installed with the work.

## 5.3 Optimizations/Design Evolution

### 5.3.1 Updated Design Criteria Manual

The Authority undertook a detailed review of the DCM civil and rail chapters to determine changes that influence all aspects of the system. This review identified specific criteria that, when adjusted, still provide high-speed rail operating infrastructure but provide greater flexibility to design teams to deliver vertical track alignment options predominantly. These criteria included rail vertical profile, operating and design speeds, track center spacing and platforms, track geometry criteria, tunnel structures, bridge structures, and earthworks. The criteria changes included in DCM 6.1 have been incorporated into the design mark-ups that inform this estimate.

### 5.3.2 Characteristics and Design Optimizations

The design teams working across the civil infrastructure, alignment, rail operations, and stations in the Merced to Bakersfield segment collaborated on a series of optimizations to revise the base design in support of M-B early operating segment requirements. This collaboration identified high value civil infrastructure, such as viaducts, intrusion protection barriers (IPB)'s shooflies, and embankments that could be eliminated or reduced along with optimizing track and systems. The estimate sections below capture the optimizations that were made to the 30 percent design. In many cases the design set drawings will need reworking to incorporate the revised configurations that have been estimated. All segments outside of M-B went through similar optimization efforts based on the 15 percent Preliminary Engineering for Program Development (PEPD) designs.

The design optimization of segments is presented in Table 16 including a comparative summary of infrastructure elements, service characteristics, and geographic scope across M-B and the scenarios evaluated in the 2026 Business Plan.

Organized from north to south along the corridor — from the Bay Area through the Central Valley, across the Tehachapi Mountains, and into the Los Angeles Basin — the table reflects the incremental growth of the program

with each scenario expanding upon the last. Entries marked "N/A" indicate elements outside a scenario's geographic scope; "defer" identifies elements designated for future scope; and "same" indicates the element is carried forward from M-B or the prior scenario without modification. Key differentiators from M-B and the scenarios include passing track extent, passing loop configuration and turnout speeds, station platform counts, maintenance facility development, and systems installations including OCS electrification, TPSSs, and operations control centers.

**Table 16: Comparison of Infrastructure Elements and Service Characteristics by Geographic Segment**

<b>Characteristic / Element</b>	<b>Merced – Bakersfield</b>	<b>San Francisco – Bakersfield</b>	<b>Interim Stage: San Francisco - Palmdale – HDC – VV</b>	<b>San Francisco – Los Angeles / Anaheim</b>
Construction Schedule Start		July 2026	July 2026	July 2026
Geographic Scope	Merced to Bakersfield	San Francisco – San Jose – Gilroy – North Bakersfield	San Francisco – San Jose – Gilroy – Palmdale	San Francisco – San Jose – Gilroy – Anaheim
Service Plan	8 trains/day	1 train/hour	2 trains/hour (1 expr. / 1 local)	Same as prior
Trains Per Day	8	18 (+ 18 Shuttles to Merced)	36 / 18 continuing to VV (+ 18 Shuttles to Merced)	36 + 18 Shuttles to VV (+18 Shuttles to Merced)
Number of Trainsets	6	11	21	33
Gilroy to Palmdale Passing Track Quantities (miles)	18	34	108	108

Characteristic / Element	Merced – Bakersfield	San Francisco – Bakersfield	Interim Stage: San Francisco - Palmdale – HDC – VV	San Francisco – Los Angeles / Anaheim
<b>GEOGRAPHICAL SEGMENTS</b>				
<b>Bay Area SF-SJ</b>				
Track and Civil	N/A	Existing track and systems – defer speed and capacity upgrades	Same	Same
“The Portal Project” to Salesforce Transit Center	N/A	Defer (Consider as Variant)	Defer	Defer
4 <sup>th</sup> and King Station	N/A	2 Platforms PEPD	Same	Same
Brisbane LMF	N/A	Initial LMF	Full LMF	Same
Millbrae Station	N/A	Yes, as per PEPD, including additional station tracks	Same	Same
Palo Alto Station	N/A	Defer	Defer	Defer
San Jose Diridon Station	N/A	One platform of PEPD	Same	Same
<b>San Jose to Gilroy (Omitted from CAPEX Estimate)</b>				
Caltrain Stations	N/A	Morgan Hill & San Martin - Additional platform, Pedestrian bridge and fencing	Same	Same

Characteristic / Element	Merced – Bakersfield	San Francisco – Bakersfield	Interim Stage: San Francisco - Palmdale – HDC – VV	San Francisco – Los Angeles / Anaheim
Track and Civil	N/A	Full double track Enhanced grade crossing protection	Same	Same
Electric & Systems	N/A	Renewed signal system OCS electrification TPSS #4 Gilroy	Same	Same
Improved Grade Crossings	N/A	Yes	Same	Same
<b>Gilroy to the Wye</b>				
Gilroy Station	N/A	- 2 platform tracks shared with Caltrain - 2 HSR platforms - 2 Caltrain platforms - third Caltrain/freight track	Same	Same
Track and Civil	N/A	Optimized track TPSS #5 Los Banos TPSS #6 SR152	Same	Same
Caltrain Storage Tracks	N/A	Yes	Same	Same
Gilroy MOWF	N/A	Yes	Yes	Yes

<b>Characteristic / Element</b>	<b>Merced – Bakersfield</b>	<b>San Francisco – Bakersfield</b>	<b>Interim Stage: San Francisco - Palmdale – HDC – VV</b>	<b>San Francisco – Los Angeles / Anaheim</b>
Gilroy BOCC	N/A	Yes	Yes	Yes
Los Banos MOWS	N/A	Yes	Yes	Yes
Passing Loops		Gilroy (10 mile) Passing Loop	Same Gilroy Passing Loop Los Banos (15 mile) Passing Loop with 142 turnouts	Same
Southern Corridor Alternative	N/A	Yes	Yes	Yes
<b>Merced to Wye</b>				
Track and Civil	Single track spur from wye to Merced station TPSS # 7 Merced	Same with turnout to Merced Spur	Same	Same
Merced Station	South Merced station location	Same	Same	Same
<b>Wye to Madera</b>				
Track and Civil	PEPD	Same TPSS #8 Madera	Same	Same
Passing Loops	Not Included – Two tracks at Madera station only	Northern part of Long Madera (12.5 miles) Passing Loop	Same	Same
<b>Madera to Wasco (CV-119)</b>				

<b>Characteristic / Element</b>	<b>Merced – Bakersfield</b>	<b>San Francisco – Bakersfield</b>	<b>Interim Stage: San Francisco - Palmdale – HDC – VV</b>	<b>San Francisco – Los Angeles / Anaheim</b>
Track and Civil	Optimized track per TSCC contract TPSS #8 Madera	One train/hour passing tracks	Increased amount of passing track High-speed turnouts Express tracks added at Madera, Fresno, Kings-Tulare	Same
Passing Loops	Madera Station Short (4.5 mile) Loop Fresno (4 mile) siding Kings-Tulare (4.5 mile) siding	Long Madera (12.5 mile) Passing Loop – Fresno (4 mile) siding – Kings-Tulare (4.5 mile) siding –	Long Madera (12.5 mile) Passing Loop Fresno (18 mile) passing loop Kings-Tulare (4.5 mile) siding Kern (15 mile) passing loop	Long Madera (12.5 mile) Passing Loop Fresno (18 mile) passing loop Kings-Tulare (4.5 mile) siding Kern (15 mile) passing loop
Madera Station	2 platforms 2 express tracks serve as platform tracks	Same with an additional West platform track	Walled off 2 express tracks 2 platform tracks	Same
Fresno Station	2 platforms – 2 platform tracks No express tracks	Same as prior	2 platforms and tracks + 2 express tracks	Same
Fresno MOWF	Yes	Yes	Yes	Yes
Central Valley LMF/HMF	Yes	Yes	Yes	Yes
Fresno OCC	Yes	Yes	Yes	Yes

<b>Characteristic / Element</b>	<b>Merced – Bakersfield</b>	<b>San Francisco – Bakersfield</b>	<b>Interim Stage: San Francisco - Palmdale – HDC – VV</b>	<b>San Francisco – Los Angeles / Anaheim</b>
Kings-Tulare Station	1 East side platform at permanent location on separate substructure  1 platform track	2 side platforms at permanent locations each on separate substructures  2 platform tracks	2 platforms and tracks  + 2 express tracks	Same
Corcoran MOWS	Yes	Yes	Yes	Yes
<b>Wasco – Bakersfield (LGA)</b>				
Passing Loops	N/A	N/A	Bakersfield (21.8 mile) Passing Loop	Same
LGA Segments 1 & 2	Yes	Yes	Yes	Yes
Interim Bakersfield North Station	Yes	Yes	N/A	N/A
TBD Location BOCC	Yes	N/A	N/A	N/A
LGA Segment 3	Defer	Defer	Yes	Yes
Bakersfield Downtown Station	Defer	Defer	2 platforms – no express tracks  – consider platform screen doors	Same
<b>Bakersfield - Palmdale</b>				

<b>Characteristic / Element</b>	<b>Merced – Bakersfield</b>	<b>San Francisco – Bakersfield</b>	<b>Interim Stage: San Francisco - Palmdale – HDC – VV</b>	<b>San Francisco – Los Angeles / Anaheim</b>
Passing Loops	N/A	N/A	– Southern Part of Bakersfield (21.8 mile) Passing Loop – Palmdale (32 mile) Passing Loop	Same
Bakersfield to Edison	N/A	N/A	PEPD – Optimized track	Same
Edison MOWS	N/A	N/A	Yes	Yes
Edison to Mountains	N/A	N/A	PEPD – Optimized track	Same
Tehachapi Mountain Crossing	N/A	N/A	PEPD with optimized vertical alignment - One tunnel + escape tunnel	Same
Tehachapi MOWS	N/A	N/A	Yes	Yes
Mountain to Palmdale	N/A	N/A	PEPD – Optimized track Passing Loop TPSS #16 Palmdale	Same
Lancaster MOWF	N/A	N/A	Yes (featuring passenger train storage)	Same (no storage)

Characteristic / Element	Merced – Bakersfield	San Francisco – Bakersfield	Interim Stage: San Francisco - Palmdale – HDC – VV	San Francisco – Los Angeles / Anaheim
Palmdale Station	N/A	N/A	2 platforms and 2 platform tracks per PEPD Separate track for HDC Separate platform and track for Metrolink	Same
<b>Palmdale to Burbank</b>				
PEPD Palmdale to Soledad	N/A	N/A	N/A	Deferred
Metrolink Palmdale to Soledad	N/A	N/A	N/A	Existing speeds Metrolink with additional passing tracks and OCS Ped bridge at Vincent Grade Acton Civil works to daylight 2 short tunnels
PEPD Soledad to CP Sheldon / CP McGinley	N/A	N/A	N/A	Optimized track in single long tunnel with escape tunnel parallel to it New connection to

<b>Characteristic / Element</b>	<b>Merced – Bakersfield</b>	<b>San Francisco – Bakersfield</b>	<b>Interim Stage: San Francisco - Palmdale – HDC – VV</b>	<b>San Francisco – Los Angeles / Anaheim</b>
				Metrolink Valley Line
Metrolink from CP Sheldon / CP McGinley to Burbank	N/A	N/A	N/A	Metrolink with additional passing tracks and OCS Trench and cover for Burbank Airport Runway Additional one-track bridge over Hollywood Road S. of Station TPSS #17 Near CP Sheldon
PEPD from CP Sheldon / CP McGinley to Burbank Airport Station	N/A	N/A	N/A	Defer
Burbank Airport PEPD Station	N/A	N/A	N/A	Defer
Burbank Airport Metrolink Station	N/A	N/A	N/A	Existing side Metrolink platform Center HSR platform Second track

Characteristic / Element	Merced – Bakersfield	San Francisco – Bakersfield	Interim Stage: San Francisco - Palmdale – HDC – VV	San Francisco – Los Angeles / Anaheim
				Second side Metrolink platform  Pedestrian bridge with connections to each platform and extending across both sides of N San Fernando Boulevard
<b>Burbank to LA</b>				
PEPD from Burbank Airport PEPD Station to LA Union Station	N/A	N/A	N/A	Defer
Burbank Station to LAUS Track / Systems / Civil	N/A	N/A	N/A	Defer full PEPD infrastructure  Full double track - existing  OCS for existing two main tracks to West Bank of LA River  Third center passing track at Burbank Downtown and Glendale Stations
Burbank Downtown	N/A	N/A	N/A	Addition of pedestrian bridge and

Characteristic / Element	Merced – Bakersfield	San Francisco – Bakersfield	Interim Stage: San Francisco - Palmdale – HDC – VV	San Francisco – Los Angeles / Anaheim
Metrolink Station				vertical circulation, fencing
Glendale Metrolink Station	N/A	N/A	N/A	Construction of Metrolink new side platform Addition of pedestrian bridge and vertical circulation, fencing ROW for west side ped bridge tower and as needed for side platform
Relocated Metrolink Maintenance Facility	N/A	N/A	N/A	Defer
New Freight Tracks	N/A	N/A	N/A	Defer
Los Angeles Union Station – LINK US	N/A	N/A	N/A	Yes. LinkUS MOU contribution OCS, track and systems by CHSRA Platform costs similar to San Jose Station
<b>LA to Anaheim</b>				

<b>Characteristic / Element</b>	<b>Merced – Bakersfield</b>	<b>San Francisco – Bakersfield</b>	<b>Interim Stage: San Francisco - Palmdale – HDC – VV</b>	<b>San Francisco – Los Angeles / Anaheim</b>
PEPD Line to Anaheim	N/A	N/A	N/A	As presented in latest PEPD TPSS #18 LADWP TPSS #19 Anaheim
Relocated Freight Yard	N/A	N/A	N/A	Yes
Los Angeles LMF (Hobart)	N/A	N/A	N/A	Yes
Anaheim Station	N/A	N/A	N/A	PEPD – Two 1400-foot platforms and two tracks

### 5.4 Labor Pricing

Labor costs were developed using research of craft rates, fringe benefits, and applicable employer payroll taxes to determine the rate paid by a contractor for trade services. The cost estimate utilizes wage and benefit information provided by State of California Department of Industrial Relations as of June 2025 (Q2).

Labor rates are further developed to include federal and state payroll taxes due from the employer, including Federal Insurance Contributions Act (FICA), Federal Unemployment Tax (FUTA), and State Unemployment Insurance (SUI). Worker’s Compensation Insurance is also estimated as part of the developed labor rate.

Premium wage and benefit rates for overtime and non-standard work hours are developed and maintained in accordance with the California Prevailing Wage Schedules and are applied in the estimate where required to conform to project work rules and regulations as well as the opportunities and constraints of the construction schedule.

## 5.5 Equipment Costs

Construction equipment pricing is based on a combined hourly rate inclusive of both equipment rental and operating costs. Rates are based on research from Caltrans rental rates as of June 2025 (Q2) and Equipmentwatch.com.

## 5.6 Material Costs

Permanent and consumable material prices are estimated using pricing obtained through product research based on the descriptions provided in the scope documents and vendor outreach for specialty items. Material pricing is representative of June 2025 (Q2) pricing and is predominantly made up of vendor quotes.

## 5.7 Contractor Markups

Estimates for typical contractor add-on costs are included to bring each cost deliverable to a bid level pricing structure.

Estimated markups include:

- Mobilization & Demobilization
- General Conditions/Requirements
- Contractor's Overhead (i.e., Home Office costs such as payroll, human resources, legal, training, etc.)
- Contractor's Profit (where applicable)
- Contractor's Construction Insurances
- Contractor's Payment and Performance Bonds (where applicable)
- Testing, Training & Documentation

## 6 Merced to Bakersfield

### 6.1 Introduction

Merced to Bakersfield, the first segment under construction, will serve the Central Valley and form the spine of the Phase 1 alignment from San Francisco to the Los Angeles Basin. As part of the Authority's cost-saving strategy, this early operating segment prioritizes lower capital costs through streamlined station designs, infrastructure choices, and service levels. This M-B segment will include the infrastructure needed to run eight daily trains in each direction.

Stations in Merced, Madera, Fresno, and Kings/Tulare will be designed to meet operational needs for initial service with full buildout planned as the system grows. While Madera and Fresno stations would initially have two platforms, Kings-Tulare Station will initially have only one. A temporary Bakersfield Station will be located at 7th Standard Road directly adjacent to the LGA alignment. The interim station will not obstruct future work to complete the LGA to the permanent Bakersfield F Street Station.

Efficiencies during design and construction have aligned track and systems to what is needed to meet the anticipated market for electric power high-speed train operations, while not precluding future completion of the full system. Merced to Bakersfield includes the necessary passing track sections from Madera, Fresno and Kings-Tulare station to support eight round trip trains per day. Civil infrastructure consists of the 119-mile first construction segment and extensions to Merced and Bakersfield.

Design of Merced and Bakersfield extensions have progressed beyond the PEPD used in environmental clearance. The Bakersfield extension will be built with an optimized track design. An initial train and right-of-way maintenance facility will be located in the central valley along with the Operations Control Center (OCC) and a backup OCC at to be determined location. The following sections provide a discipline-based breakdown of estimates that make up M-B.

The M-B estimate used Q3 2032 as the completion timeline. All YOE values are developed using schedules presented in Appendix D of the Business Plan 2026.

**Figure 2: Merced to Bakersfield Track and Passing Loops**



## 6.2 Scope Elements Estimated

**Table 17: Merced to Bakersfield Estimated Scope Elements**

119-Mile CVS	Merced Extension	Bakersfield Extension
<b>Civils</b>		
Estimate At Completion (EAC) Updates for CP's	Revised bottom-up 2025 SPUR Estimate eliminating scope north of mission avenue <i>Grade Separations not in CAPEX (Carried in shared benefits cost tables)</i>	Revised bottom-up 2025 SPUR Estimate eliminating scope south of new Bakersfield North Station
<b>Track &amp; Systems</b>		
Bottom-up Estimate Updated quantities based on 60% Design and track schematic updates based on operational needs	Bottom-up Estimates Updated quantities based design characteristics that can be copied from CV-119 design and track schematic updates based on operational needs	
<b>Stations</b>		
Bottom-up Estimates Madera ( <i>Not in CAPEX, carried in shared benefit costs tables</i> ) Fresno Kings-Tulare	Bottom-up Estimate Merced – New Station at Mission Avenue	Bottom-up Estimate Bakersfield North – New @ 7 <sup>th</sup> & Standard
<b>Maintenance Facility</b>		
Fresno	N/A	N/A
<b>OCC</b>		
Semi Detailed Estimates Fresno – Main Wasco - Back-up	N/A	N/A

Utility Interconnections & Clean Energy Farms/BESS		
Semi Detailed Estimate TPSSs 9, 10 & 12 – Clean Energy + Utility interconnects <i>(Second utility feed omitted from CAPEX, carried in shared benefit cost tables)</i>	Semi Detailed Estimate TPSS 7 – Clean Energy + Utility interconnects <i>(Second utility feed omitted from CAPEX, carried in share benefit cost tables)</i>	N/A

### 6.3 Key Quantities and Variance

**Table 18: Merced to Bakersfield Key Quantities**

SCC	Descriptions	Unit	2025 SPUR	2026 BP	Variance
10.00	Aerial Guideway	RM	9	0	9
10.00	At-Grade Guideway	RM	54	54	0
10.00	Bored Tunnels	RM	0	0	0
10.00	Track	TF	957,478	949,803	7,675
20.00	HSR Stations	EA	4	4	0
30.00	Maintenance of Way Facility	EA	1	1	0
30.00	Operational Control Center	EA	1	1	0
30.00	Back up Operational Center	EA	1	1	0
50.00	Traction Power Substation	EA	4	4	0

Units: RM: Route Mile, TF: Track feet, EA: Each

### 6.4 Merced to Madera and LGA Civil

The M-M and LGA civil scopes were significantly reduced as a result of reducing the alignments at the northern and southern ends of the Merced to Bakersfield alignment. **Table 19** below shows the savings against the 2025 SPUR due mostly to reduced alignment. Costs for M-M grade separations are now excluded from the CAPEX and captured within the shared benefit costs tables.

**Table 19: M-M and LGA Civil Estimates at P30 (YOE \$ in millions)**

Scope Element	2025 SPUR Estimate	2026 BP Estimate	Expenditures Dec 31, 2025
M-M Civils <sup>1&amp;2</sup>	\$3,177	\$2,539	\$102
LGA Civils <sup>1&amp;2</sup>	\$3,135	\$1,984	\$71
<b>Total<sup>3</sup></b>	<b>\$6,312</b>	<b>\$4,523</b>	<b>\$173</b>

1. Excludes Right of Way and Utility Relocations  
 2. Professional Services

### 6.5 Track and Systems

#### Quantity Basis and Changes from 2025 SPUR Estimate for M-B Early Operating Segment

The 2026 Business Plan estimate for M-B track and systems increased from the 2025 SPUR. The estimate change reflects a series of quantity refinements driven primarily by design maturity and updated system specifications. The primary cost increases when compared to the 2025 SPUR are attributable to signaling cabling for axle counters, Overhead Contact System (OCS) quantity growth, and the inclusion of sound walls as a new scope item. A further breakdown of quantity and estimate growth is below.

#### Track

Refinement of track layout, particularly passing loop lengths and locations, resulted in a net increase of approximately nine track miles. The track formation design matured considerably between the 2025 SPUR and 2026 Business Plan estimates, transitioning from the DCM and early design assumptions to a detailed design basis. This evolution produced both positive and negative quantity adjustments across multiple line items. Notable decreases were realized in drainage aggregate, ballast, sub-ballast, and geotextile quantities; however, these were offset by increases in other drainage materials, bridge deck waterproofing, and guideway fill material.

Bridge deck waterproofing is a new scope element added to the 2026 Business Plan estimate. Passing track mileage estimated for M-B is 18 miles.

**Overhead Contact System (OCS)**

OCS quantity growth is attributable to two distinct factors: the increase in track mileage noted above and the transition from a generic OCS design assumption to the detailed SNCF S220 system specification. The detailed design incorporates additional operational and maintenance features including OCS switches and sectioning required to support robust system operations. Collectively, these factors resulted in an increase in OCS poles and associated foundations and a large increase in OCS switches. OCS conductor quantities also increased, partially reflecting the above factors and partially correcting an under-accounting of conductor overlaps in the 2025 SPUR assumptions.

**Telecommunications**

No quantity changes were identified for the Telecommunications discipline.

**Train Control**

Minor quantity adjustments across several Train Control line items reflect the refinement of track layout, particularly changes to loop length and location. The most significant change in this discipline is the increase in lineside cabling quantities for axle counters, which grew from 9 miles to 138 miles. This increase reflects the evolution of Train Control system architecture introduced between the 2025 SPUR and 2026 Business Plan design stages, which materially altered the cabling requirements for the axle counter detection system.

**Miscellaneous Scope Additions**

Emergency walkways, manholes, and sound barriers have been introduced as new scope items in the 2026 Business Plan estimate. These items have been introduced as a result of design development evolution.

**Table 20: Track and Systems Estimate at P30 (YOE \$ in millions)**

Scope Element	2025 SPUR Estimate	2026 BP Estimate	Expenditures Dec 31, 2025
119-mile CVS Track & Systems and Commodities <sup>1&amp;2</sup>	\$2,745	\$3,486	\$96
Track & Systems and Commodities Balance <sup>2</sup>	\$1,478	\$1,427	\$0
<b>Total<sup>3</sup></b>	<b>\$4,298</b>	<b>\$5,075</b>	<b>\$96</b>

1. CVS – Track and Systems and Commodities lines include the Solar and Utility interconnections located in the central valley

2. Professional Services

3. Totals may not sum due to independent rounding

## 6.6 Stations

The stations engineering team have advanced the station estimates and preliminary design assumptions factoring in differing station requirements and estimates based on the service level of M-B and each scenario.

Station estimates relating to an initial 30 percent design for the Merced, Fresno, Kings-Tulare, and Bakersfield Central Valley Stations were presented in the fall of 2024. The estimate value, coupled with the station program requirements, resulted in significant design iterations and optimizations through to June 2025 to address cost savings and system optimizations.

Right-of-way estimates for stations are now captured in the station estimating section. In the 2025 SPUR estimate were captured in the civil estimate section. This right-of-way estimate migration better captures the full costs of stations and supporting costs within the stations estimating section.

The following list presents the key design and optimization updates from the fall 2024 submittals:

- **Station-Wide**

- Platform length reduction to 800 feet for early operating service.
- Reduction of viaduct heights and width (Merced and Bakersfield).
- Canopy simplification.
- Reduction of trackwork within station (Merced and Bakersfield).
- Reduction of program requirements and implementation of phased approach to future station expansion as needs evolve.
- Development of station typology baseline for initial operating stations that builds what is required for initial service and allows for expansion as ridership increases.

- **Merced Station**
  - New station and location near E. Mission Ave south of downtown Merced
  - Introduced as a an overarching cost savings measure coupled with schedule timeline risk reductions. In addition the newly proposed location supports Merced's long term growth plan along with providing a clear fundable path to high-speed rail delivery
  - Station changed to a simple at-grade station, with a single side platform, with transit facilities, surface parking, and a small station support building.
- **Madera Station**
  - Estimated and captured in shared benefit cost tables – omitted from CAPEX. An \$80 Million funding infusion has been granted for station development outside of HSR funding.
  - The Madera Station design is a shared station with SJJPA to host Gold Runner (formerly known as San Joaquin) Amtrak service.
    - SJJPA has developed station concepts for the CHSRA portion of the station for environmental clearance.
    - The presented design for initial operations in the Central Valley was estimated and costed based on those designs.
- **Fresno Station**
  - Moved platforms to exclude the need for bridging over street grade separations and rework to existing streets. Previous design required a bridge over Tulare Street.
  - Condensed station track alignment to reduce overall station footprint per system-wide requirements optimization.
  - Reduced site intensities to meet early operating service (specific to parking, access, utilities relocations).
  - Reduced station finishes and requirements in line with station typology decision.
  - Reduced and consolidated station building to the west side of the tracks with a connection to both the Downtown and Chinatown sides of the station.
- **Kings-Tulare Station**
  - Single side platform face for initial operations and defer a second boarding platform to later scenarios when bypass tracks are required at the station.
- **Bakersfield Station**
  - New Bakersfield interim station north of 7<sup>th</sup> Standard Road on a property site adjacent to the (LGA).
  - Introduced as an overarching cost saving measure coupled with schedule timeline risk reductions, with benefits including:
    - Provides strategic airport connectivity to Meadow Field Airport

- Accommodates future project expansion, station sits adjacent to future track alignment that would continue to downtown Bakersfield and Palmdale
  - Direct Highway 99 Access: A station at 7th Standard Road provides immediate, high-capacity access from Highway 99. It leverages existing improved infrastructure for connecting bus to LA and park-and-ride options
  - Good Regional Access: Proximity to Kern County's second-largest city, Delano, and very good access for Shafter and Wasco.
- Introduced as an overarching cost saving measure coupled with schedule timeline risk reductions
  - Station would serve as a terminus until further extension of the mainline through Bakersfield (to the location at Chester Ave and SR-204) – Phase 1 San Francisco to Anaheim
  - Station would serve as a transfer point connecting with bus service to points further south in the state.
  - Station design assumes the mainline stops prior to the viaduct structure that would be required to cross Coffee Road and 7<sup>th</sup> Standard Road.
  - Station facility would be an at-grade station with a single side platform.

Additional price variances from the 2025 SPUR also include reallocating the station viaducts into the stations' sections. This is where design is occurring and meets the needs of better cost control during the design phase. Station viaducts were captured in the corresponding civil segment in the 2025 SPUR. Additionally, right-of-way costs for stations have been reallocated to stations. In the 2025 SPUR, right-of-way costs for stations were captured under the civil section within M-B.

**Table 21: Merced to Bakersfield Early Operating Segment Stations Costs at P30 (YOE \$ in millions)**

Scope Element	2025 SPUR Estimate	2026 BP Estimate	Expenditures Dec 31, 2025
Merced Station <sup>1</sup>	\$221	\$137	\$14
Fresno Station <sup>1</sup>	\$277	\$339	\$20
Kings Tulare Station <sup>1</sup>	\$319	\$327	\$12
Bakersfield Station <sup>1</sup>	\$234	\$217	\$13
Station Right of Way <sup>2</sup>	-	\$87	\$0
<b>Total<sup>3</sup>:</b>	<b>\$1,051</b>	<b>\$1,106</b>	<b>\$59</b>

1. Costs include professional services

2. Station ROW costs in the 2025 SPUR were included in the ROW estimates for the CVS and Extensions

2. Totals may not sum due to independent rounding

## 6.7 Traction Power Substations, Utility Interconnects, and Clean Energy

The scope and estimate for the utility Traction Power Substations (TPSS) interconnects and clean energy for M-B have been updated with the latest quantity and pricing information available, which reflects an increase compared to the 2025 SPUR.

Merced to Bakersfield includes four TPSSs: TPSS 7, 9, 10 & 12. A requirement was identified for two direct utility feeders in addition to the clean energy/BESS feeder for each TPSS. The second utility feeder is omitted from the CAPEX estimate and carried in the shared benefit cost tables.

**Table 22: Utility Interconnects and Clean Energy Costs at P30  
(YOE \$ Millions)**

Scope Element	2025 SPUR Estimate	2026 BP Estimate	Expenditures Dec 31, 2025
119-mile CVS Solar and Utility Interconnections	224	427	0
Merced Extension Solar and Utility Interconnection	75	162	0
<b>Total:</b>	<b>299</b>	<b>589</b>	<b>0</b>

## 6.8 Maintenance Facilities and Trainsets

The maintenance facility concept design for M-B has matured since the 2025 SPUR. Updated, semi-detailed quantities have been developed and estimated against. The scope of the maintenance facility also includes a primary Operational Control Center (OCC) within the main maintenance facility. In addition, a back-up OCC has been identified at a location to be determined.

Cost variances from the 2025 SPUR to 2026 Business Plan are made up of pricing differentials based on quantity-based estimates for the maintenance facilities. Trainsets have been updated to reflect a base year price of June 2025 and YOE updates in line with the 2026 Business Plan Baseline Schedule.

Trainsets for M-B remain the same as the 2025 SPUR at a count of six.

**Table 23: Maintenance Facilities and Trainsets Costs at P30  
(YOE \$ in millions)**

Scope Element	2025 SPUR Estimate	2026 BP Estimate	Expenditures Dec 31, 2025
Trainsets and Facilities*	\$839	\$976	0
<b>Total:</b>	<b>\$839</b>	<b>\$976</b>	<b>0</b>

*\*Includes professional services for maintenance facilities*

## 6.9 Program Wide Support, Project Development, Program Wide Contingency

Program wide support costs have been updated to reflect an increase in time based on the M-B completion date of Q4 2032.

This category also captures project development, unallocated contingency, and the contingency variance between P30 and P65 for all of M-B.

**Table 24: M-B Program Wide Support Costs at P65 (YOE \$ in millions)**

Scope Element	2025 SPUR Estimate	2026 BP Estimate	Expenditures Dec 31, 2025
Project Development, Program Wide Support, and Other	\$7,269	\$7,488	\$2,761
<b>TOTAL</b>	<b>\$7,269</b>	<b>\$7,488</b>	<b>\$2,761</b>

## 7 San Francisco to Bakersfield

### 7.1 Introduction

The San Francisco to Bakersfield (SF-B) scenario builds on the M-B early operating segment by extending high-speed rail infrastructure northwest to Gilroy and enabling through-service to San Jose and San Francisco via upgraded shared corridors. Through-service will be achieved with targeted infrastructure improvements such as electrification, signaling upgrades, track capacity improvements, and station upgrades. This approach provides early access to the Bay Area market, creating significant revenue opportunities, at a fraction of the cost of a fully dedicated alignment.

San Francisco will serve as the northern terminus at the existing Caltrain 4<sup>th</sup> and King Street Station with a potential extension to the Salesforce Transit Center once the Transbay Joint Powers Authority's (TJPA) planned infrastructure connection is complete. The service is planned to include up to 18 trains daily, with service patterns to be coordinated with Caltrain to ensure efficient use of shared infrastructure.

To deliver the SF-B segment, a coordinated state solution in partnership with regional agencies will be required to improve the Union Pacific Railroad line between San Jose and Gilroy to enable HSR service to connect San Jose and San Francisco.

SF-B used much of the estimating efforts from M-B with the following segments and scope added:

- San Francisco to San Jose – Estimated bottom-up.
- San Jose to Gilroy – Estimated bottom-up but omitted from the CAPEX Estimate. Shared cost opportunity as noted in the 2026 Business Plan.
- Gilroy to the Wye – Estimated bottom-up. New southern alignment estimated south of San Luis Reservoir.
- Further additions to the Merced to Bakersfield alignment include additional passing tracks, TPSSs, and additional stations and maintenance facility buildouts.

This scenario completes in Q4 of 2039 with the longest duration segment being Gilroy to the Wye. Additional schedule details can be found in **Appendix D of the 2026 Business Plan.**

## 7.2 Segment Specific Scope Details:

Below provides specific scope details for the segments that make up SF-B.

### **San Francisco to San Jose**

Two existing platforms will be rebuilt for HSR at Caltrain's existing San Francisco 4<sup>th</sup> and King Station consistent with PEPD. Millbrae Station with an additional two tracks and an island platform will also be completed consistent with PEPD. A single existing platform serving two tracks at San Jose station will be rebuilt for HSR. A minimal Brisbane light maintenance facility will be constructed which can also be expanded.

### **San Jose to Gilroy**

Consistent with PEPD, the existing UPRR line would be upgraded with two tracks with overhead catenary electric power and improved at-grade crossings. Freight operations would be accommodated on the electrified tracks with catenary set to a high clearance.

### **Gilroy to Wye**

Gilroy Station will be completed, consistent with PEPD, with two tracks for HSR and Caltrain that would each have a high-level HSR platform and a low-level Caltrain platform. An additional east track on the other side of the low-level platform would serve Caltrain and freight movement. Space will be preserved in the center between the two HSR platforms for future express tracks.

The HSR line to the Central Valley from Gilroy station includes a 10-mile passing loop to the Diablo Mountains, and a single tunnel through the Diablo Mountains. A maintenance of way facility would be built next to the right-of-way to the southeast of Gilroy. Caltrain layover tracks would be added adjacent to the line in Gilroy.

### **Merced to Wye**

This segment would remain as outlined in M-B.

### **Wye to Madera**

There would be limited changes to this segment compared to M-B. A Madera (12.5 mile) passing loop is added, as well as the west platform track at Madera Station for a total of three tracks.

### **Madera to Wasco**

There would be limited changes to this segment compared to M-B. At the Kings-Tulare Station, a second platform and platform track will be added.

### **Wasco to Bakersfield**

There would be no change to this segment from M-B.

### 7.3 Schematic

**Figure 3: San Francisco to Bakersfield Track and Passing Loops**



## 7.4 Scope Elements Estimated

San Jose to Gilroy has been estimated but omitted from CAPEX and is a shared opportunity segment as noted in 2026 Business Plan.

**Table 25: San Francisco to Bakersfield Estimated Scope Elements**

SF-SJ	G-Wye	M-B
<b>Civils</b>		
N/A	New Bottom-up estimate for Southern alignment	M-B with minor additions
<b>Track and Systems</b>		
Bottom-up estimates based on scenario track layout requirements		
<b>Stations</b>		
Bottom-up Estimate 4 <sup>th</sup> and King Millbrae San Jose	Bottom-up Estimate Gilroy	Bottom-up Estimate Merced Madera ( <i>Not in CAPEX, carried in shared opportunities</i> ) Fresno Kings-Tulare Bakersfield
<b>Maintenance Facilities</b>		
Semi-Detailed Estimate Brisbane – Light facility	Semi-Detailed Estimate MOWF	Semi-Detailed Estimate Fresno Maintenance Facility
<b>OCC's</b>		
N/A	Semi-Detailed Estimate Gilroy – Back-up	Semi-Detailed Estimate Fresno - Main
<b>Utility Interconnections &amp; Clean Energy Farms/BESS</b>		
N/A	Semi Detailed Estimate TPSS 5 & 6	Semi Detailed Estimate TPSS 7, 8,9, 10,11 and 12

SF-SJ	G-Wye	M-B
	<i>(Second utility feed omitted from CAPEX, carried in shared opportunities)</i>	<i>(Second utility feed omitted from CAPEX, carried in shared opportunities)</i>

### 7.5 Key Quantities and Variance

**Table 26: San Francisco to Bakersfield Key Quantities and Variance**

SCC	Descriptions	Unit	2025 SPUR	2026 BP	Variance
10.00	Aerial Guideway	RM	20	18	2
10.00	At-Grade Guideway	RM	112	117	-5
10.00	Bored Tunnels	RM	7	4	3
10.00	Track	TF	1,446,300	1,445,044	1,256
20.00	HSR Stations	EA	8	8	0
30.00	Maintenance Facilities	EA	2	2	0
30.00	Maintenance of Way Facility	EA	1	1	0
30.00	Operational Control Center	EA	1	1	0
50.00	Back up Operational Center	EA	1	1	0
50.00	Traction Power Substation	EA	6	6	0

Units: RM: Route Mile, TF: Track Feet, EA: Each

## 8 San Francisco to Los Angeles/Anaheim (Phase 1)

### 8.1 Introduction

The San Francisco–Los Angeles/Anaheim (SF-LA/A) scenario builds on the SF-B scenario with an extension of high-speed rail (HSR) infrastructure through Bakersfield to Palmdale and an interim infrastructure solution to access the Los Angeles Basin. SF-LA/A marks a dramatic shift in service with the operation of two trains per hour between San Francisco and the Los Angeles Basin, totaling 36 trains per day (number of trains based on operational window). Half of these would provide hourly SF-LA/A express service that would not stop between Gilroy and Palmdale. Phase 1 includes all major stations delivered as part of M-B and SF-B, as well as additional stations at Palmdale, Burbank Airport, Los Angeles Union Station, and Anaheim.

The interim solution to reach the Los Angeles Basin makes use of upgraded existing rail lines for through-service operation in combination with a dedicated HSR tunnel through the San Gabriel mountains and other HSR elements. Through-service on existing rail lines will be achieved with targeted infrastructure improvements such as electrification, signaling upgrades, track capacity improvements, and station upgrades. This approach provides early access to the Los Angeles market, creating significant revenue opportunities at a fraction of the cost of a fully dedicated alignment.

This scenario completes in Q4 2039, with the longest duration segments being Gilroy to the Wye and Los Angeles to Anaheim. Additional schedule details can be found in **Appendix D of the 2026 Business Plan**.

#### **Segment Specific Scope Details:**

The following segments make up the Phase 1 system scope.

#### **San Francisco to Gilroy**

There would be limited changes to this segment from SF-B. The Brisbane Maintenance Facility would be expanded to a larger size on the same parcel of land.

#### **Gilroy to Madera and to Merced**

There would be limited changes to this segment from SF-B. An additional Los Banos (15 mile) passing loop would be added.

#### **Madera to Wasco**

There would be limited changes to this segment from SF-B. An increased amount of passing tracks would be added with high-speed turnouts to allow

for two trains per hour and express trains. Passing loops would be added at Fresno (18 miles), and in Kern County (15 miles). The second east station track (for a total of four tracks) would be added at Madera and express tracks would be added at Fresno and Kings-Tulare. The Fresno maintenance facility would be expanded.

### **Wasco to Bakersfield**

In this segment full double track would be built to and through Bakersfield (22 miles), and the downtown Bakersfield station would be constructed consistent with the modified PEPD.

### **Bakersfield to Palmdale**

The line would be constructed consistent with PEPD and include the necessary track infrastructure and passing loops from the southern part of Bakersfield through the Tehachapi Mountains, and corresponding tunnels.. A passing loop would extend from the mountains to Palmdale (32 miles). A maintenance-of-way base would be built next to the right-of-way in Lancaster.

### **Palmdale to Burbank**

The initial solution for reaching Los Angeles involves improving and leveraging Metrolink's Antelope Valley Line, similar to the Authority's Caltrain investment in the Bay Area. The Authority's analysis found that use of the Antelope Valley Line from Palmdale to Soledad Canyon with a dedicated HSR tunnel section from Soledad to Sun Valley, incremental delivery of successful high-speed rail service is possible prior to completion of the full Phase 1.

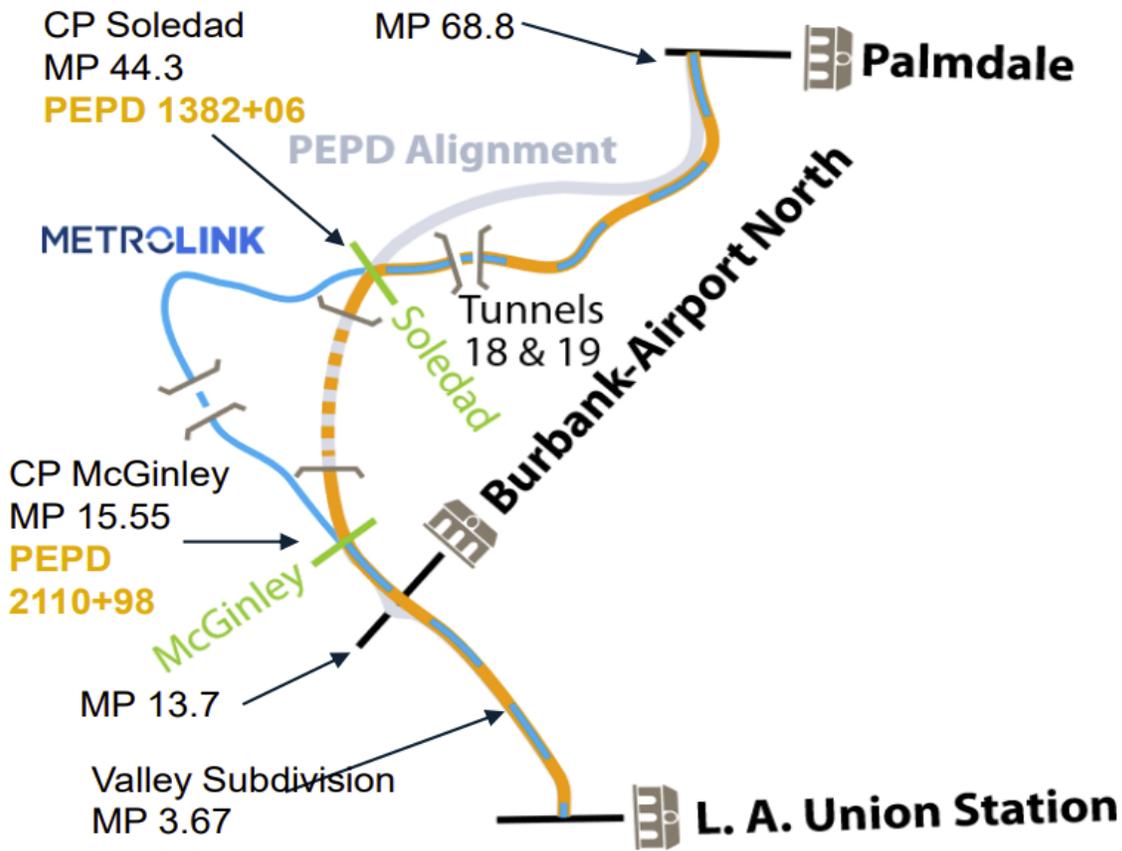
The Palmdale Station consistent with PEPD will serve as a connection point to the proposed High Desert Corridor, which would link the Antelope Valley to Victor Valley. In combination with Brightline West services to Las Vegas and Rancho Cucamonga, these projects will collectively form the backbone of a broader Southwest HSR network.

In the Los Angeles Basin, the Authority would rely on upgraded existing lines used by existing regional, intercity, and freight rail to connect riders from Burbank to Los Angeles and Anaheim.

The existing Metrolink station at Burbank Airport would be expanded into an interim HSR station at the along San Fernando Road. It would have two tracks with one center high platform for HSR, two side platforms for Metrolink, pedestrian bridges with vertical circulation, and site improvements. The Burbank junction would be reconfigured for increased volume and speeds.

The orange line in **Figure 4** below depicts the chosen Burbank to Palmdale option for Phase 1.

**Figure 4: Palmdale to Burbank Alignment Options**



### **Burbank to Los Angeles**

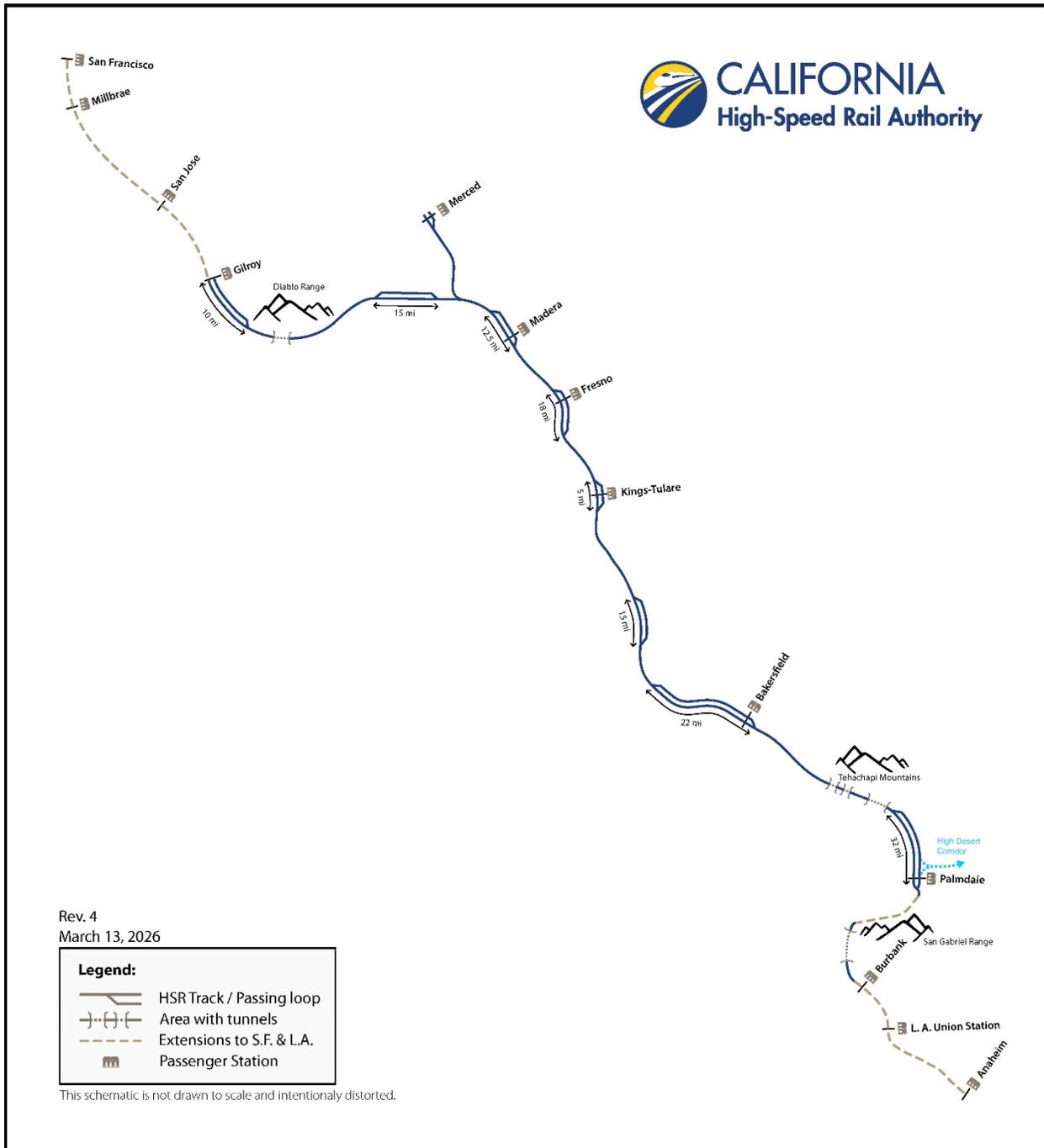
From Burbank to Los Angeles the existing double-track Metrolink line would be improved with overhead electrification. This would follow the West Bank Line to Los Angeles Union Passenger Terminal where the LINK US project would be implemented.

### **Los Angeles to Anaheim**

The simplified version of PEPD improvements being circulated for environmental review is the basis for this estimate. A train maintenance facility would be constructed in the vicinity of BNSF's Hobart Yard.

## 8.2 Schematic

**Figure 5: San Francisco to Los Angeles/Anaheim Track and Passing Loops**



### 8.3 Scope Elements Estimated

The segment scope elements in **Table 27** are additive to those presented in SF-B, Section **5.3**.

**Table 27: San Francisco to Los Angeles / Anaheim Estimated Scope Elements**

Bakersfield to Palmdale	Palmdale to Burbank	Burbank to Los Angeles	Los Angeles to Anaheim
<b>Civils</b>			
Bottom-up Estimate New civil estimate based on track alignment updates	Bottom-up Estimate Civil and tunnels estimates developed	None	Bottom-up Estimate <i>Full scope estimated (Scope split between HSR are shared benefit cost tables)</i>
<b>Track &amp; Systems</b>			
Bottom-up estimates based on scenario track layout requirements			
<b>Stations</b>			
Bottom-up Estimate Palmdale Station <i>Full scope estimated (Scope split between HSR are shared benefit cost tables)</i>	Bottom-up Estimate Burbank Station	None	Bottom-up Estimate Anaheim Station
<b>Maintenance Facilities</b>			
Semi-Detailed Estimate	None	None	Semi-Detailed Estimate

Bakersfield to Palmdale	Palmdale to Burbank	Burbank to Los Angeles	Los Angeles to Anaheim
Lancaster MOWF			Hobart Maintenance Facility
<b>OCC</b>			
None	None	None	None
<b>Utility Interconnections &amp; Clean Energy Farms/BESS</b>			
Semi Detailed Estimate TPSS 13 & 15 <i>(Second utility feed omitted from CAPEX, carried in shared benefit costs tables)</i>	Semi Detailed Estimate TPSS 16 & 17 <i>(Second utility feed omitted from CAPEX, carried in shared benefit cost tables)</i>	None	None

### 8.4 San Francisco to Los Angeles / Anaheim Key Quantities and Variance

**Table 28: San Francisco to Los Angeles / Anaheim Key Quantities and Variance**

SCC	Descriptions	Unit	2024 BP	2026 BP	Variance
10.00	Aerial Guideway	RM	48	31	17
10.00	At-Grade Guideway	RM	213	195	18
10.00	Bored Tunnels	RM	53	23	38
10.00	Track	TF	3,315,840	2,883,427	432,413
20.00	HSR Stations	EA	12	11	1

SCC	Descriptions	Unit	2024 BP	2026 BP	Variance
30.00	Light Maintenance Facility		3	3	0
30.00	Maintenance of Way Facility	EA	3	2	1
30.00	Operational Control Center	EA	1	1	0
50.00	Back up Operational Center	EA	1	1	0
50.00	Traction Power Substation	EA	12	12	0

Units: RM: Route Mile, TF: Track Feet, EA: Each

## 9 Interim Stage: San Francisco to Palmdale

### 9.1 Introduction

As a potential interim stage, if the segment between Bakersfield and Palmdale is completed before a route into the Los Angeles Basin, high-speed rail service could begin between San Francisco and Palmdale. All the features of SF-LA/A from San Francisco to Palmdale would be the same for this interim stage. As with Phase 1, two hourly high-speed trains would operate from San Francisco to Palmdale (SF-P), one as a limited stop express.

With completion of the High Desert Corridor, one train per hour could continue to Victor Valley where passengers could connect with Brightline West service to Rancho Cucamonga and Las Vegas. At Palmdale, a connecting Metrolink/Surfliner express service to Los Angeles and San Diego could give passengers a preview of a truly statewide service. This option provides the Authority's executive team with an option that should, for example, the High Desert Corridor (HDC), 54-mile, Palmdale to Victor Valley Project, with access to Brightline West (218 mile) Victor Valley Station, with links to Las Vegas or Ontario significantly advance their business plans.

This scenario completes in Q4 2039 with the longest duration segment being Gilroy to the Wye. Additional schedule details can be found in Appendix D of the 2026 Business Plan.

## 9.2 Schematic

**Figure 6: Interim Stage: San Francisco to Palmdale Service Map**



## 9.3 Key Quantities and Variance

**Table 29: Interim Stage: San Francisco to Palmdale Key Quantities and Variance**

SCC	Descriptions	Unit	2024 BP Estimate	2026 BP Estimate	Variance
10.00	Aerial Guideway	RM	41	30	11
10.00	At-Grade Guideway	RM	176	181	-5
10.00	Bored Tunnels	RM	26	10	16

SCC	Descriptions	Unit	2024 BP Estimate	2026 BP Estimate	Variance
10.00	Track	TF	2,587,200	2,289,465	297,735
20.00	HSR Stations	EA	9	9	0
30.00	Maintenance Facility		3	2	1
30.00	Maintenance of Way Facility	EA	3	2	1
30.00	Operational Control Center	EA	1	1	0
50.00	Back up Operational Center	EA	1	1	0
50.00	Traction Power Substation	EA	10	10	0

Units: RM: Route Mile, TF: Track Feet, EA: Each

# 10 Shared Benefit Costs

The following is a cost breakdown of estimating elements that have been classified as shared benefit costs. **Table 30** below represents SF-LA/A Phase 1. The value of the shared benefit cost does change from scenario to scenario.

**Table 30: Phase 1 Shared Benefit Costs at P65 (YOE \$ in millions)**

Category of Shared Benefit	P65
<b>San Francisco to San Jose</b>	
None	\$0
<b>Gilroy to the Wye</b>	
Second Utility Feeder to TPSS 5 & 6	<b>\$43</b>
<b>Merced to Madera</b>	
Second Utility Feeder to TPSS 7	\$29
Grade Separations in southern segment of M-M	\$376
<b>TOTAL</b>	<b>\$406</b>
<b>Central Valley 119-miles</b>	
Second Utility Feeder to TPSS 8, 9, 10, 11 & 12	\$121
Madera Station	\$288
<b>TOTAL</b>	<b>\$409</b>
<b>Bakersfield Extension</b>	
None	\$0
<b>Bakersfield to Palmdale</b>	
Second Utility Feeder to TPSS 13 & 15	\$48
Palmdale Station (assumes High Desert Corridor commences first) elements include early station infrastructure requirements and early Right of Way parcels	\$559
<b>TOTAL</b>	<b>\$607</b>
<b>Palmdale to Burbank</b>	

Category of Shared Benefit	P65
Second Utility Feeder to TPSS 16 & 17	<b>\$179</b>
<b>Burbank to LA-Union</b>	
None	\$0
<b>LA Union to Anaheim</b>	
Costs by others - Civil infrastructure early action projects	<b>\$7,445</b>
<b>TOTAL</b>	<b>\$9,092</b>

### Additional Shared Cost Opportunities

<b>San Jose to Gilroy</b>	
<i>Track replacement and electrification, additional grade crossing protection and other infrastructure upgrades.</i>	\$2,000-5,000
<b>TOTAL</b>	<b>\$11,092 - \$14,092</b>

## 11 APPENDIX A – TECHNICAL BASELINE DOCUMENTS

Geographic Segment / Other Component	Baseline Documentation	Additional Documentation
<b>All</b>	N/A	2026 Business Plan Scenario Characteristics for Basis of Estimate
<b>San Francisco to San Jose</b>	Final EIR/EIS for San Francisco–San Jose, Jun. 2022	- Track and systems: SF to SJ (Millbrae) Quantities Estimate Supporting Assumptions
<b>San Jose to Gilroy</b>	Final EIR/EIS for San Jose–Merced, Feb. 2022	- Track and systems: San Jose Diridon to Gilroy Quantities Estimate Supporting Assumptions
<b>Gilroy to the Wye</b>	a) Gilroy–Carlucci Rd.: Final EIR/EIS for San Jose–Merced, Feb. 2022 b) Carlucci Rd.–CV Wye: Final Supplemental EIR/EIS for Central Valley Wye, Aug. 2020	- Civil: Gilroy to Central Valley Wye – Conceptual Cost Refinement Summary Report - Track and systems: Gilroy to Central Valley Wye Quantities Estimate Supporting Assumptions
<b>Merced to the Wye</b>	Final EIR/EIS for Merced–Fresno, Apr. 2012 Final Supplemental EIR/EIS for Merced–Fresno Central Valley Wye, Aug. 2020	- Civil: Memo on M-M design changes - Track and systems: Merced to Bakersfield Quantities Estimate Supporting Assumptions
<b>Central Valley Wye to Madera</b>	Final EIR/EIS for Merced–Fresno, Apr. 2012 Final Supplemental EIR/EIS for Merced–Fresno Central Valley Wye, Aug. 2020	- Civil: Memo on M-M design changes - Track and systems: Merced to Bakersfield Quantities Estimate Supporting Assumptions

<p><b>Madera to Poplar Ave.</b> (CPs)</p>	<p>Final EIR/EIS Merced–Fresno, Apr. 2012 Final EIR/EIS Fresno–Bakersfield, May 2014</p>	<p>- Track and systems: Merced to Bakersfield Quantities Estimate Supporting Assumptions</p>
<p><b>Poplar Ave. to Bakersfield</b> (LGA)</p>	<p>Final Supplemental EIR/EIS for Fresno–Bakersfield Locally Generated Alternative, Nov. 2019</p>	<p>- Memo on LGA design changes - Track and systems: Merced to Bakersfield Quantities Estimate Supporting Assumptions</p>
<p><b>Bakersfield to Palmdale</b></p>	<p>Final EIR/EIS for Bakersfield–Palmdale, Jun. 2021</p>	<p>- Civil: Bakersfield to Palmdale – Conceptual Cost Refinement Summary Report - Track and systems: Bakersfield to Palmdale Quantities Estimate Supporting Assumptions</p>
<p><b>Palmdale to Burbank</b></p>	<p>Final EIR/EIS for Palmdale–Burbank, May 2024</p>	<p>- Civil: Palmdale–Burbank–Los Angeles Business Plan 2026 Concept Study - Track and systems: Palmdale to Burbank Quantities Estimate Supporting Assumptions</p>
<p><b>Burbank to Los Angeles</b></p>	<p>Final EIR/EIS for Burbank–Los Angeles, Nov. 2021</p>	<p>- Track and systems: Burbank-LAUS Quantities Estimate Supporting Assumptions</p>
<p><b>Los Angeles to Anaheim</b></p>	<p>Draft EIR/EIS for Los Angeles–Anaheim, Dec. 2025</p>	<p>- Track and systems: Los Angeles Union Station to Anaheim Quantities Estimate Supporting Assumptions</p>
<p><b>Stations</b></p>	<p>EIR/EIS of each segment (see above)</p>	<p>Each station Basis of estimates</p>

<p><b>Facilities</b></p>	<p>EIR/EIS of each segment (see above)</p>	<ul style="list-style-type: none"> <li>- Fresno Train Care Facility: Fresno Maintenance Facility Concept Layout Stage 3 &amp; Maintenance of Way facilities requirements</li> <li>- Other facilities: Systemwide Maintenance Tracks Distribution</li> </ul>
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## 12 APPENDIX B – CONTINGENCY OUTCOMES AT P30

SCC Minor	Description	F2J	G-Wye	CVS Rail & Facilities	M-M	LGA	B-P	P-K	K-L	LA-A
10.01	Guideway: At-grade exclusive right-of-way	N/A	N/A	N/A	14%	N/A	16%	17%	N/A	N/A
10.04	Guideway: Aerial structure	N/A	17%	N/A	14%	14%	N/A	17%	N/A	16%
10.05	Guideway: Built-up fill	N/A	17%	N/A	N/A	14%	16%	17%	N/A	N/A
10.06	Guideway: Underground cut & cover	N/A	N/A	N/A	N/A	N/A	N/A	17%	N/A	N/A
10.07	Guideway: Underground tunnel	N/A	17%	N/A	N/A	N/A	17%	17%	N/A	N/A
10.08	Guideway: Retained cut or fill	N/A	N/A	N/A	14%	N/A	N/A	17%	N/A	16%
10.09	Track: Direct fixation	N/A	16%	11%	13%	14%	16%	16%	N/A	N/A
10.11	Track: Ballasted	N/A	16%	11%	13%	14%	16%	16%	16%	16%
10.12	Track: Special (switches, turnouts)	N/A	N/A	11%	13%	14%	16%	16%	16%	16%
20.01	At-grade station, stop, shelter, mall, terminal, platform	16%	16%	14%	17%	N/A	16%	16%	17%	16%
20.02	Aerial station, stop, shelter, mall, terminal, platform	N/A	N/A	14%	N/A	14%	N/A	N/A	N/A	N/A

SCC Minor	Description	F2J	G-Wye	CVS Rail & Facilities	M-M	LGA	B-P	P-K	K-L	LA-A
30.01	Administration Building: Office, sales, storage, revenue counting	N/A	16%	18%	N/A	N/A	N/A	N/A	N/A	N/A
30.02	Light Maintenance Facility	16%	N/A	18%	N/A	N/A	N/A	N/A	N/A	16%
30.04	Storage or Maintenance of Way Building	N/A	N/A	N/A	N/A	N/A	16%	N/A	N/A	N/A
40.01	Demolition, Clearing, Earthwork	N/A	N/A	N/A	21%	16%	16%	16%	N/A	N/A
40.02	Site Utilities, Utility Relocation	16%	17%	N/A	14%	13%	16%	16%	N/A	16%
40.03	Hazardous material, contaminated soil removal/mitigation, ground water treatments	N/A	17%	N/A	15%	15%	16%	16%	16%	16%
40.04	Environmental mitigation e.g. wetlands, historic /archeologic, parks	16%	16%	14%	15%	15%	16%	16%	17%	16%
40.05	Site structures including retaining walls, soundwalls	N/A	17%	11%	N/A	15%	16%	16%	N/A	16%
40.06	Pedestrian/bike access and	N/A	N/A	N/A	N/A	N/A	16%	N/A	N/A	N/A

SCC Minor	Description	F2J	G-Wye	CVS Rail & Facilities	M-M	LGA	B-P	P-K	K-L	LA-A
	accommodation, landscaping									
40.07	Automobile, bus, van access ways including roads, parking lots	N/A	17%	N/A	14%	14%	16%	14%	N/A	14%
40.08	Temporary Facilities and other indirect costs during construction	16%	17%	14%	16%	16%	16%	16%	16%	16%
50.01	Train control and signals	N/A	16%	15%	15%	15%	16%	16%	16%	16%
50.03	Traction power supply: substations	N/A	16%	15%	16%	15%	16%	16%	16%	16%
50.04	Traction power distribution: catenary and third rail	N/A	16%	11%	13%	14%	16%	16%	16%	16%
50.05	Communications	N/A	16%	15%	15%	15%	16%	16%	16%	16%
60.01	Purchase or lease of real estate	19%	21%	17%	17%	17%	21%	22%	19%	23%
80.01	Project Development	11%	11%	12%	12%	9%	11%	11%	11%	11%
80.02	Engineering (not applicable to Small Starts)	13%	14%	12%	12%	13%	14%	14%	11%	11%
80.03	Project Management	12%	14%	17%	17%	14%	15%	14%	14%	15%

SCC Minor	Description	F2J	G-Wye	CVS Rail & Facilities	M-M	LGA	B-P	P-K	K-L	LA-A
	for Design and Construction									
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.	13%	13%	14%	12%	12%	13%	13%	12%	12%
80.08	Startup	N/A	12%	16%	16%	16%	12%	12%	12%	12%

## 13 **APPENDIX C: SCC LEVEL 2 ESTIMATES**

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APPENDIX C.1: Merced to Bakersfield  
Early Operating Segment

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## APPENDIX C.1.1: Central Valley – Civil, ROW, T&S, Stations & Facilities

SCC Minor	SCC Description	2026 BP Estimate
<b>Central Valley 119-miles – Civil, ROW, T&amp;S, Stations &amp; Facilities</b>		
10.00	Central Valley Civil	\$10,047,731,029
10.09	Track: Direct fixation	\$76,328,896
10.11	Track: Ballasted	\$1,006,138,619
10.12	Track: Special (switches, turnouts)	\$62,975,794
20.01	At-grade station, stop, shelter, mall, terminal, platform	\$317,325,473
20.02	Aerial station, stop, shelter, mall, terminal, platform	\$269,574,731
30.01	Administration Building: Office, sales, storage, revenue counting	\$13,361,396
30.02	Light Maintenance Facility	\$385,405,460
40.04	Environmental Mitigation, e.g. Wetlands, Historic/Archeologic, Parks	\$218,974,044
40.05	Site Structures including Retaining Walls, Sound Walls	\$45,955,889
40.08	Temp Facilities and Other Indirects	\$24,385,616
50.01	Train control and signals	\$423,836,327
50.03	Traction power supply: substations	\$637,397,283
50.04	Traction power distribution: catenary and third rail	\$391,735,944
50.05	Communications	\$412,148,435
60.01	Purchase or lease of Real Estate	\$1,878,873,806
80.01	Preliminary Engineering	\$88,365,591
80.02	Engineering	\$222,995,247
80.03	Project Management for Design and Construction	\$154,374,823
80.04	Construction Administration & Management	\$938,736,439

SCC Minor	SCC Description	2026 BP Estimate
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.	\$803,358,170
80.08	Start up	\$7,130,044
<b>TOTAL</b>		<b>\$18,427,109,056</b>

## APPENDIX C.1.2: Merced Extension – Civil, ROW, T&S, & Stations

SCC Minor	SCC Description	2026 BP Estimate
<b>Merced Extension - Civil, ROW, T&amp;S, &amp; Stations</b>		
10.01	Guideway: At-grade exclusive right-of-way	\$392,612,017
10.04	Guideway: Aerial structure	\$797,094,928
10.08	Guideway: Retained Cut or Fill	\$243,172,499
10.09	Track: Direct fixation	\$9,700,016
10.11	Track: Ballasted	\$254,173,975
20.01	At-grade station, stop, shelter, mall, terminal, platform	\$105,252,203
40.01	Demolition, Clearing, Earthwork	\$12,563,401
40.02	Site Utilities, Utility Relocation	\$273,798,150
40.03	Haz. Matl, Contaminated Soil removal/mitigation, Ground Water Treatments	\$4,599,981
40.04	Environmental Mitigation, e.g. Wetlands, Historic/Archeologic, Parks	\$128,009,927
40.07	Automobile, bus, van accessways including roads, parking lots	\$510,310,216
40.08	Temp Facilities and Other Indirects	\$78,732,971
50.01	Train control and signals	\$132,744,032
50.03	Traction power supply: substations	\$210,503,678
50.04	Traction power distribution: catenary and third rail	\$95,466,924
50.05	Communications	\$117,759,566
60.01	Purchase or lease of Real Estate	\$571,793,481
80.01	Preliminary Engineering	\$150,012,197
80.02	Engineering	\$212,316,450
80.03	Project Management for Design and Construction	\$131,573,253

SCC Minor	SCC Description	2026 BP Estimate
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.	\$13,942,976
80.08	Start up	\$1,939,565
<b>TOTAL</b>		<b>\$4,448,072,406</b>

## APPENDIX C.1.3: Bakersfield Extension - Civil, ROW, T&S & Stations

SCC Minor	SCC Description	2026 BP Estimate
<b>Bakersfield Extension - Civil, ROW, T&amp;S &amp; Stations</b>		
10.04	Guideway: Aerial structure	\$476,819,786
10.05	Guideway: Built-up fill	\$265,280,966
10.09	Track: Direct fixation	\$81,621,486
10.11	Track: Ballasted	\$124,869,632
10.12	Track: Special (switches, turnouts)	\$8,465,738
20.01	At-grade station, stop, shelter, mall, terminal, platform	\$176,320,533
40.01	Demolition, Clearing, Earthwork	\$32,001,501
40.02	Site Utilities, Utility Relocation	\$297,852,587
40.03	Haz. Matl, Contaminated Soil removal/mitigation, Ground Water Treatments	\$5,382,994
40.04	Environmental Mitigation, e.g. Wetlands, Historic/Archeologic, Parks	\$89,867,721
40.05	Site Structures including Retaining Walls, Sound Walls	\$736,318,307
40.07	Automobile, bus, van accessways including roads, parking lots	\$108,069,535
40.08	Temp Facilities and Other Indirects	\$42,828,029
50.01	Train control and signals	\$81,733,461
50.03	Traction power supply: substations	\$48,707,989
50.04	Traction power distribution: catenary and third rail	\$46,142,053
50.05	Communications	\$66,939,980
60.01	Purchase or lease of Real Estate	\$323,760,651
80.01	Preliminary Engineering	\$139,749,264
80.02	Engineering	\$194,361,471

SCC Minor	SCC Description	2026 BP Estimate
80.03	Project Management for Design and Construction	\$109,675,154
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.	\$12,028,298
80.08	Start up	\$1,191,421
<b>TOTAL</b>		<b>\$3,469,988,555</b>

## APPENDIX C.1.4: Program Wide Support, Project Development & Trainsets

SCC Minor	SCC Description	2026 BP Estimate
<b>Program Wide Support, Project Development, &amp; Trainsets</b>		
40.04	Environmental Mitigation, e.g. Wetlands, Historic/Archeologic, Parks	\$22,298,739
60.01	Purchase or lease of Real Estate	\$60,019,954
70.03	Commuter Rail	\$530,209,529
80.01	Preliminary Engineering	\$880,787,972
80.03	Project Management for Design and Construction	\$2,898,989,650
80.05	Professional Liability and other Non-Construction Insurance	\$110,694,500
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.	\$171,692,603
80.07	Surveys, Testing, Investigation, Inspection	\$7,524,143
90.00	Contingency	\$3,336,215,830
<b>TOTAL</b>		<b>\$8,018,432,919</b>

**APPENDIX C.1.5: Bookend**

SCC Minor	SCC Description	2026 BP Estimate
<b>Bookend</b>		
20.01	At-Grade Station, Stop, Shelter, Mall, Terminal, Platform	\$423,335,000
40.06	Pedestrian / bike access and accommodation, landscaping	\$874,608,400
<b>TOTAL</b>		<b>\$1,297,943,400</b>

## APPENDIX C.1.6: Merced – Bakersfield Early Operating Segment

SCC Minor	SCC Description	2026 BP Estimate
10.00	Central Valley Civils	\$10,047,731,029
10.01	Guideway: At-grade exclusive right-of-way	\$392,612,017
10.04	Guideway: Aerial structure	\$1,273,914,714
10.05	Guideway: Built-up fill	\$265,280,966
10.08	Guideway: Retained Cut or Fill	\$243,172,499
10.09	Track: Direct fixation	\$167,650,398
10.11	Track: Ballasted	\$1,385,182,225
10.12	Track: Special (switches, turnouts)	\$71,441,532
20.01	At-grade station, stop, shelter, mall, terminal, platform	\$1,022,233,209
20.02	Aerial station, stop, shelter, mall, terminal, platform	\$269,574,731
30.01	Administration Building: Office, sales, storage, revenue counting	\$13,361,396
30.02	Light Maintenance Facility	\$385,405,460
40.01	Demolition, Clearing, Earthwork	\$44,564,902
40.02	Site Utilities, Utility Relocation	\$571,650,737
40.03	Haz. Matl, Contaminated Soil removal/mitigation, Ground Water Treatments	\$9,982,974
40.04	Environmental Mitigation, e.g. Wetlands, Historic/Archeologic, Parks	\$459,150,431
40.05	Site Structures including Retaining Walls, Sound Walls	\$782,274,195
40.06	Pedestrian / bike access and accommodation, landscaping	\$874,608,400

<b>SCC Minor</b>	<b>SCC Description</b>	<b>2026 BP Estimate</b>
40.07	Automobile, bus, van accessways including roads, parking lots	\$618,379,751
40.08	Temp Facilities and Other Indirects	\$145,946,616
50.01	Train control and signals	\$638,313,820
50.03	Traction power supply: substations	\$896,608,950
50.04	Traction power distribution: catenary and third rail	\$533,344,921
50.05	Communications	\$596,847,981
60.01	Purchase or lease of Real Estate	\$2,834,447,892
70.03	Commuter Rail	\$530,209,529
80.01	Preliminary Engineering	\$1,258,915,023
80.02	Engineering	\$629,673,168
80.03	Project Management for Design and Construction	\$3,294,612,879
80.04	Construction Administration & Management	\$938,736,439
80.05	Professional Liability and other Non-Construction Insurance	\$110,694,500
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.	\$1,001,022,048
80.07	Surveys, Testing, Investigation, Inspection	\$7,524,143
80.08	Start up	\$10,261,030
90.00	Contingency	\$3,336,215,830
<b>TOTAL – M-B Early Operating Segment</b>		<b>\$35,661,546,336</b>

## APPENDIX C.2: San Francisco to Bakersfield

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## APPENDIX C.2.1: San Francisco – San Jose

SCC Minor	SCC Description	2026 BP Estimate
<b>San Francisco - San Jose</b>		
20.01	At-grade station, stop, shelter, mall, terminal, platform	\$600,795,946
30.02	Light Maintenance Facility	\$215,039,133
40.02	Site Utilities, Utility Relocation	\$193,017,115
40.04	Environmental Mitigation, e.g. Wetlands, Historic/Archeologic, Parks	\$13,195,961
40.08	Temp Facilities and Other Indirects	\$3,860,342
60.01	Purchase or lease of Real Estate	\$127,146,470
80.01	Preliminary Engineering	\$18,203,862
80.02	Engineering	\$55,331,225
80.03	Project Management for Design and Construction	\$41,819,241
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.	\$4,676,150
<b>TOTAL</b>		<b>\$1,273,085,447</b>

## APPENDIX C.2.2: Gilroy – Wye

SCC Minor	SCC Description	2026 BP Estimate
<b>Gilroy - Wye</b>		
10.04	Guideway: Aerial structure	\$4,944,098,728
10.05	Guideway: Built-up fill	\$2,407,457,042
10.07	Guideway: Underground Tunnel	\$1,516,929,578
10.11	Track: Ballasted	\$1,157,189,047
20.01	At-grade station, stop, shelter, mall, terminal, platform	\$512,739,271
30.01	Administration Building: Office, sales, storage, revenue counting	\$226,600,724
40.02	Site Utilities, Utility Relocation	\$215,478,737
40.03	Haz. Matl, Contaminated Soil removal/mitigation, Ground Water Treatments	\$51,212,432
40.04	Environmental Mitigation, e.g. Wetlands, Historic/Archeologic, Parks	\$200,651,659
40.05	Site Structures including Retaining Walls, Sound Walls	\$412,995,473
40.07	Automobile, bus, van accessways including roads, parking lots	\$846,119,561
40.08	Temp Facilities and Other Indirects	\$220,230,938
50.01	Train control and signals	\$316,513,156
50.03	Traction power supply: substations	\$574,622,336
50.04	Traction power distribution: catenary and third rail	\$315,720,801
50.05	Communications	\$39,236,666
60.01	Purchase or lease of Real Estate	\$3,097,307,959
80.01	Preliminary Engineering	\$235,389,450
80.02	Engineering	\$720,426,319

SCC Minor	SCC Description	2026 BP Estimate
80.03	Project Management for Design and Construction	\$543,893,759
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.	\$59,797,792
80.08	Start up	\$4,216,259
<b>TOTAL</b>		<b>\$18,618,827,688</b>

## APPENDIX C.2.3: Merced Extension – Civil, ROW, T&S & Stations

SCC Minor	SCC Description	2026 BP Estimate
<b>Merced Extension - Civil, ROW, T&amp;S &amp; Stations</b>		
10.01	Guideway: At-grade exclusive right-of-way	\$392,612,017
10.04	Guideway: Aerial structure	\$797,094,928
10.08	Guideway: Retained Cut or Fill	\$243,172,499
10.09	Track: Direct fixation	\$68,251,555
10.11	Track: Ballasted	\$259,689,500
20.01	At-grade station, stop, shelter, mall, terminal, platform	\$105,252,203
40.01	Demolition, Clearing, Earthwork	\$12,563,401
40.02	Site Utilities, Utility Relocation	\$273,798,150
40.03	Haz. Matl, Contaminated Soil removal/mitigation, Ground Water Treatments	\$4,599,981
40.04	Environmental Mitigation, e.g. Wetlands, Historic/Archeologic, Parks	\$129,124,446
40.07	Automobile, bus, van accessways including roads, parking lots	\$510,310,216
40.08	Temp Facilities and Other Indirects	\$80,006,706
50.01	Train control and signals	\$132,744,032
50.03	Traction power supply: substations	\$210,503,678
50.04	Traction power distribution: catenary and third rail	\$110,494,960
50.05	Communications	\$117,759,566
60.01	Purchase or lease of Real Estate	\$571,793,481
80.01	Preliminary Engineering	\$151,506,495
80.02	Engineering	\$216,850,524
80.03	Project Management for Design and Construction	\$135,012,193

SCC Minor	SCC Description	2026 BP Estimate
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.	\$14,325,081
80.08	Start up	\$2,014,340
<b>TOTAL</b>		<b>\$4,539,479,951</b>

## APPENDIX C.2.4: Central Valley – Civil, ROW, T&S, Stations & Facilities

SCC Minor	SCC Description	2026 BP Estimate
<b>Central Valley 119-miles – Civil, ROW, T&amp;S, Stations &amp; Facilities</b>		
10.00	Central Valley Civil	\$10,047,731,029
10.09	Track: Direct fixation	\$909,763,860
10.11	Track: Ballasted	\$284,163,399
10.12	Track: Special (switches, turnouts)	\$66,911,781
20.01	At-grade station, stop, shelter, mall, terminal, platform	\$317,325,473
20.02	Aerial station, stop, shelter, mall, terminal, platform	\$414,493,673
30.02	Light Maintenance Facility	\$497,222,408
40.04	Environmental Mitigation, e.g. Wetlands, Historic/Archeologic, Parks	\$223,495,592
40.05	Site Structures including Retaining Walls, Sound Walls	\$45,955,889
40.08	Temp Facilities and Other Indirects	\$26,746,573
50.01	Train control and signals	\$423,836,327
50.03	Traction power supply: substations	\$922,077,173
50.04	Traction power distribution: catenary and third rail	\$428,054,620
50.05	Communications	\$412,148,435
60.01	Purchase or lease of Real Estate	\$1,879,833,565
80.01	Preliminary Engineering	\$92,862,793
80.02	Engineering	\$250,631,465
80.03	Project Management for Design and Construction	\$171,514,131
80.04	Construction Administration & Management	\$938,736,439
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.	\$805,178,557

SCC Minor	SCC Description	2026 BP Estimate
80.08	Start up	\$7,313,150
<b>TOTAL</b>		<b>\$19,165,996,331</b>

## APPENDIX C.2.5: Bakersfield Extension - Civil, ROW, T&S & Stations

SCC Minor	SCC Description	2026 BP Estimate
<b>Bakersfield Extension - Civil, ROW, T&amp;S &amp; Stations</b>		
10.04	Guideway: Aerial structure	\$476,819,786
10.05	Guideway: Built-up fill	\$265,280,966
10.09	Track: Direct fixation	\$101,829,445
10.11	Track: Ballasted	\$111,547,581
10.12	Track: Special (switches, turnouts)	\$8,465,738
20.01	At-grade station, stop, shelter, mall, terminal, platform	\$176,320,533
40.01	Demolition, Clearing, Earthwork	\$32,001,501
40.02	Site Utilities, Utility Relocation	\$297,852,587
40.03	Haz. Matl, Contaminated Soil removal/mitigation, Ground Water Treatments	\$5,382,994
40.04	Environmental Mitigation, e.g. Wetlands, Historic/Archeologic, Parks	\$89,988,659
40.05	Site Structures including Retaining Walls, Sound Walls	\$736,318,307
40.07	Automobile, bus, van accessways including roads, parking lots	\$108,069,535
40.08	Temp Facilities and Other Indirects	\$42,966,244
50.01	Train control and signals	\$81,733,461
50.03	Traction power supply: substations	\$48,707,989
50.04	Traction power distribution: catenary and third rail	\$46,142,053
50.05	Communications	\$66,939,980
60.01	Purchase or lease of Real Estate	\$323,760,651
80.01	Preliminary Engineering	\$139,880,843
80.02	Engineering	\$194,756,206

SCC Minor	SCC Description	2026 BP Estimate
80.03	Project Management for Design and Construction	\$109,974,548
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.	\$12,061,564
80.08	Start up	\$1,191,421
<b>TOTAL</b>		<b>\$3,477,992,591</b>

## APPENDIX C.2.6: Program Wide Support, Project Development & Trainsets

SCC Minor	SCC Description	2026 BP Estimate
<b>Program Wide Support, Project Development &amp; Trainsets</b>		
40.04	Environmental Mitigation, e.g. Wetlands, Historic/Archeologic, Parks	\$22,298,739
60.01	Purchase or lease of Real Estate	\$60,019,954
70.03	Commuter Rail	\$891,955,275
80.01	Preliminary Engineering	\$880,787,972
80.03	Project Management for Design and Construction	\$3,883,663,744
80.05	Professional Liability and other Non-Construction Insurance	\$183,713,008
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.	\$171,692,603
80.07	Surveys, Testing, Investigation, Inspection	\$7,524,143
90.00	Contingency	\$6,756,731,283
<b>TOTAL</b>		<b>\$12,858,386,720</b>

**APPENDIX C.2.7: Bookend**

SCC Minor	SCC Description	2026 BP Estimate
<b>Bookend</b>		
20.01	At-Grade Station, Stop, Shelter, Mall, Terminal, Platform	\$423,335,000
40.06	Pedestrian / bike access and accommodation, landscaping	\$874,608,400
<b>TOTAL</b>		<b>\$1,297,943,400</b>

## APPENDIX C.2.8 – Full San Francisco to Bakersfield

SCC Minor	SCC Description	2026 BP Estimate
10.00	Central Valley Civils & State Roads	\$10,047,731,029
10.01	Guideway: At-grade exclusive right-of-way	\$392,612,017
10.04	Guideway: Aerial structure	\$6,218,013,442
10.05	Guideway: Built-up fill	\$2,672,738,007
10.07	Guideway: Underground Tunnel	\$1,516,929,578
10.08	Guideway: Retained Cut or Fill	\$243,172,499
10.09	Track: Direct fixation	\$1,079,844,859
10.11	Track: Ballasted	\$1,812,589,527
10.12	Track: Special (switches, turnouts)	\$75,377,519
20.01	At-grade station, stop, shelter, mall, terminal, platform	\$2,135,768,426
20.02	Aerial station, stop, shelter, mall, terminal, platform	\$414,493,673
30.01	Administration Building: Office, sales, storage, revenue counting	\$226,600,724
30.02	Light Maintenance Facility	\$712,261,542
40.01	Demolition, Clearing, Earthwork	\$44,564,902
40.02	Site Utilities, Utility Relocation	\$980,146,590
40.03	Haz. Matl, Contaminated Soil removal/mitigation, Ground Water Treatments	\$61,195,406
40.04	Environmental Mitigation, e.g. Wetlands, Historic/Archeologic, Parks	\$678,755,056
40.05	Site Structures including Retaining Walls, Sound Walls	\$1,195,269,668
40.06	Pedestrian / bike access and accommodation, landscaping	\$874,608,400
40.07	Automobile, bus, van accessways including roads, parking lots	\$1,464,499,312

<b>SCC Minor</b>	<b>SCC Description</b>	<b>2026 BP Estimate</b>
40.08	Temp Facilities and Other Indirects	\$373,810,802
50.01	Train control and signals	\$954,826,976
50.03	Traction power supply: substations	\$1,755,911,176
50.04	Traction power distribution: catenary and third rail	\$900,412,434
50.05	Communications	\$636,084,647
60.01	Purchase or lease of Real Estate	\$6,059,862,081
70.03	Commuter Rail	\$891,955,275
80.01	Preliminary Engineering	\$1,518,631,415
80.02	Engineering	\$1,437,995,739
80.03	Project Management for Design and Construction	\$4,885,877,616
80.04	Construction Administration & Management	\$938,736,439
80.05	Professional Liability and other Non-Construction Insurance	\$183,713,008
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.	\$1,067,731,747
80.07	Surveys, Testing, Investigation, Inspection	\$7,524,143
80.08	Start up	\$14,735,170
90.00	Contingency	\$6,756,731,283
<b>TOTAL</b>		<b>\$61,231,712,127</b>

APPENDIX C.3: San Francisco to Los Angeles/Anaheim

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## APPENDIX C.3.1: San Francisco – San Jose

SCC Minor	SCC Description	2026 BP Estimate
<b>San Francisco - San Jose</b>		
20.01	At-grade station, stop, shelter, mall, terminal, platform	\$600,795,946
30.02	Light Maintenance Facility	\$230,918,662
40.02	Site Utilities, Utility Relocation	\$193,017,115
40.04	Environmental Mitigation, e.g. Wetlands, Historic/Archeologic, Parks	\$13,195,961
40.08	Temp Facilities and Other Indirects	\$3,860,342
60.01	Purchase or lease of Real Estate	\$127,146,470
80.01	Preliminary Engineering	\$18,495,193
80.02	Engineering	\$56,215,198
80.03	Project Management for Design and Construction	\$42,489,704
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.	\$4,751,477
<b>TOTAL</b>		<b>\$1,290,886,069</b>

## APPENDIX C.3.2: Gilroy – Wye

SCC Minor	SCC Description	2026 BP Estimate
<b>Gilroy - Wye</b>		
10.04	Guideway: Aerial structure	\$4,944,098,728
10.05	Guideway: Built-up fill	\$2,407,457,042
10.07	Guideway: Underground Tunnel	\$1,516,929,578
10.09	Track: Direct fixation	\$1,321,660,780
10.11	Track: Ballasted	\$18,914,428
20.01	At-grade station, stop, shelter, mall, terminal, platform	\$512,739,271
30.01	Administration Building: Office, sales, storage, revenue counting	\$226,600,724
40.02	Site Utilities, Utility Relocation	\$215,478,737
40.03	Haz. Matl, Contaminated Soil removal/mitigation, Ground Water Treatments	\$51,212,432
40.04	Environmental Mitigation, e.g. Wetlands, Historic/Archeologic, Parks	\$203,731,820
40.05	Site Structures including Retaining Walls, Sound Walls	\$412,995,473
40.07	Automobile, bus, van accessways including roads, parking lots	\$846,119,561
40.08	Temp Facilities and Other Indirects	\$198,381,207
50.01	Train control and signals	\$316,513,156
50.03	Traction power supply: substations	\$574,622,336
50.04	Traction power distribution: catenary and third rail	\$369,097,968
50.05	Communications	\$39,236,666
60.01	Purchase or lease of Real Estate	\$3,097,307,959
80.01	Preliminary Engineering	\$239,814,292

80.02	Engineering	\$733,849,839
80.03	Project Management for Design and Construction	\$554,073,143
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.	\$60,916,419
80.08	Start up	\$4,468,448
<b>TOTAL</b>		<b>\$18,866,220,008</b>

### APPENDIX C.3.3: Merced Extension – Civil, ROW, T&S and Stations

SCC Minor	SCC Description	2026 BP Estimate
<b>Merced Extension - Civil, ROW, T&amp;S, &amp; Stations</b>		
10.01	Guideway: At-grade exclusive right-of-way	\$392,612,017
10.04	Guideway: Aerial structure	\$797,094,928
10.08	Guideway: Retained Cut or Fill	\$243,172,499
10.09	Track: Direct fixation	\$119,653,924
10.11	Track: Ballasted	\$261,406,651
10.12	Track: Special (switches, turnouts)	\$4,239,471
20.01	At-grade station, stop, shelter, mall, terminal, platform	\$105,252,203
40.01	Demolition, Clearing, Earthwork	\$12,563,401
40.02	Site Utilities, Utility Relocation	\$273,798,150
40.03	Haz. Matl, Contaminated Soil removal/mitigation, Ground Water Treatments	\$4,599,981
40.04	Environmental Mitigation, e.g. Wetlands, Historic/Archeologic, Parks	\$130,122,269
40.07	Automobile, bus, van accessways including roads, parking lots	\$510,310,216
40.08	Temp Facilities and Other Indirects	\$81,147,076
50.01	Train control and signals	\$132,939,624
50.03	Traction power supply: substations	\$210,503,678
50.04	Traction power distribution: catenary and third rail	\$110,494,960
50.05	Communications	\$117,759,566
60.01	Purchase or lease of Real Estate	\$571,793,481
80.01	Preliminary Engineering	\$152,595,976
80.02	Engineering	\$220,156,275

SCC Minor	SCC Description	2026 BP Estimate
80.03	Project Management for Design and Construction	\$137,519,491
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.	\$14,603,670
80.08	Start up	\$2,015,299
<b>TOTAL</b>		<b>\$4,606,354,804</b>

## APPENDIX C.3.4: Central Valley – Civil, ROW, T&S, Stations & Facilities

SCC Minor	SCC Description	2026 BP Estimate
<b>Central Valley 119-miles – Civil, ROW, T&amp;S, Stations &amp; Facilities</b>		
10.00	Central Valley Civil	\$10,047,731,029
10.09	Track: Direct fixation	\$292,100,964
10.11	Track: Ballasted	\$943,208,117
10.12	Track: Special (switches, turnouts)	\$78,719,743
20.01	At-grade station, stop, shelter, mall, terminal, platform	\$383,734,514
20.02	Aerial station, stop, shelter, mall, terminal, platform	\$414,493,673
30.02	Light Maintenance Facility	\$536,426,161
40.04	Environmental Mitigation, e.g. Wetlands, Historic/Archeologic, Parks	\$225,573,134
40.05	Site Structures including Retaining Walls, Sound Walls	\$45,955,889
40.08	Temp Facilities and Other Indirects	\$27,834,817
50.01	Train control and signals	\$431,589,596
50.03	Traction power supply: substations	\$922,077,173
50.04	Traction power distribution: catenary and third rail	\$446,542,883
50.05	Communications	\$412,148,435
60.01	Purchase or lease of Real Estate	\$1,879,833,565
80.01	Preliminary Engineering	\$94,994,245
80.02	Engineering	\$263,530,132
80.03	Project Management for Design and Construction	\$179,543,700
80.04	Construction Administration & Management	\$938,736,439

SCC Minor	SCC Description	2026 BP Estimate
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.	\$806,031,881
80.08	Start up	\$7,444,178
<b>TOTAL</b>		<b>\$19,378,250,268</b>

## APPENDIX C.3.5: Bakersfield Extension – Civil, ROW, T&S & Stations

SCC Minor	SCC Description	2026 BP Estimate
<b>Bakersfield Extension - Civil, ROW, T&amp;S &amp; Stations</b>		
10.04	Guideway: Aerial structure	\$1,360,779,609
10.05	Guideway: Built-up fill	\$341,134,537
10.09	Track: Direct fixation	\$183,512,719
10.11	Track: Ballasted	\$212,208,307
10.12	Track: Special (switches, turnouts)	\$8,512,720
20.02	Aerial station, stop, shelter, mall, terminal, platform	\$682,844,232
40.01	Demolition, Clearing, Earthwork	\$64,947,220
40.02	Site Utilities, Utility Relocation	\$373,763,919
40.03	Haz. Matl, Contaminated Soil removal/mitigation, Ground Water Treatments	\$9,124,145
40.04	Environmental Mitigation, e.g. Wetlands, Historic/Archeologic, Parks	\$177,100,578
40.05	Site Structures including Retaining Walls, Sound Walls	\$837,905,272
40.07	Automobile, bus, van accessways including roads, parking lots	\$122,112,653
40.08	Temp Facilities and Other Indirects	\$198,961,943
50.01	Train control and signals	\$81,853,890
50.03	Traction power supply: substations	\$48,707,989
50.04	Traction power distribution: catenary and third rail	\$127,616,343
50.05	Communications	\$66,939,980
60.01	Purchase or lease of Real Estate	\$1,084,190,727
80.01	Preliminary Engineering	\$145,459,648
80.02	Engineering	\$257,828,125

SCC Minor	SCC Description	2026 BP Estimate
80.03	Project Management for Design and Construction	\$204,044,775
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.	\$22,358,463
80.08	Start up	\$1,592,386
<b>TOTAL</b>		<b>\$6,613,500,181</b>

## APPENDIX C.3.6: Bakersfield – Palmdale

SCC Minor	SCC Description	2026 BP Estimate
<b>Bakersfield - Palmdale</b>		
10.01	Guideway: At-grade exclusive right-of-way	\$5,802,651,290
10.05	Guideway: Built-up fill	\$4,420,777,289
10.07	Guideway: Underground Tunnel	\$2,666,408,938
10.09	Track: Direct fixation	\$104,804,787
10.11	Track: Ballasted	\$1,326,672,536
10.12	Track: Special (switches, turnouts)	\$11,866,551
20.01	At-grade station, stop, shelter, mall, terminal, platform	\$150,220,472
30.04	Storage or Maintenance of Way Building	\$212,129,343
40.01	Demolition, Clearing, Earthwork	\$104,856,620
40.02	Site Utilities, Utility Relocation	\$693,061,256
40.03	Haz. Matl, Contaminated Soil removal/mitigation, Ground Water Treatments	\$50,938,845
40.04	Environmental Mitigation, e.g. Wetlands, Historic/Archeologic, Parks	\$291,874,403
40.05	Site Structures including Retaining Walls, Sound Walls	\$936,943,051
40.06	Pedestrian / bike access and accommodation, landscaping	\$146,391,050
40.07	Automobile, bus, van accessways including roads, parking lots	\$763,385,943
40.08	Temp Facilities and Other Indirects	\$331,278,041
50.01	Train control and signals	\$435,481,626
50.03	Traction power supply: substations	\$607,007,220
50.04	Traction power distribution: catenary and third rail	\$383,043,419

SCC Minor	SCC Description	2026 BP Estimate
50.05	Communications	\$73,752,193
60.01	Purchase or lease of Real Estate	\$4,640,023,336
80.01	Preliminary Engineering	\$332,419,778
80.02	Engineering	\$1,008,706,608
80.03	Project Management for Design and Construction	\$765,060,679
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.	\$85,798,867
80.08	Start up	\$5,567,625
<b>TOTAL</b>		<b>\$26,351,121,767</b>

## APPENDIX C.3.7: Palmdale – Burbank

SCC Minor	SCC Description	2026 BP Estimate
<b>Palmdale - Burbank</b>		
10.01	Guideway: At-grade exclusive right-of-way	\$47,738,427
10.04	Guideway: Aerial structure	\$243,591,976
10.05	Guideway: Built-up fill	\$171,258,095
10.06	Guideway: Underground cut & cover	\$8,772,357
10.07	Guideway: Underground Tunnel	\$6,616,461,241
10.08	Guideway: Retained Cut or Fill	\$5,404,657
10.09	Track: Direct fixation	\$106,833,074
10.11	Track: Ballasted	\$256,518,394
10.12	Track: Special (switches, turnouts)	\$69,451,575
20.01	At-grade station, stop, shelter, mall, terminal, platform	\$250,901,891
40.01	Demolition, Clearing, Earthwork	\$100,191,553
40.02	Site Utilities, Utility Relocation	\$134,476,564
40.03	Haz. Matl, Contaminated Soil removal/mitigation, Ground Water Treatments	\$634,791,654
40.04	Environmental Mitigation, e.g. Wetlands, Historic/Archeologic, Parks	\$169,176,942
40.05	Site Structures including Retaining Walls, Sound Walls	\$380,223,379
40.07	Automobile, bus, van accessways including roads, parking lots	\$103,783,990
40.08	Temp Facilities and Other Indirects	\$176,823,484
50.01	Train control and signals	\$276,152,743
50.03	Traction power supply: substations	\$681,933,025
50.04	Traction power distribution: catenary and third rail	\$261,199,651

SCC Minor	SCC Description	2026 BP Estimate
50.05	Communications	\$95,879,256
60.01	Purchase or lease of Real Estate	\$3,958,674,165
80.01	Preliminary Engineering	\$179,182,041
80.02	Engineering	\$544,031,617
80.03	Project Management for Design and Construction	\$412,482,582
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.	\$45,801,379
80.08	Start up	\$3,767,687
<b>TOTAL</b>		<b>\$15,935,503,397</b>

## APPENDIX C.3.8: Burbank – Los Angeles

SCC Minor	SCC Description	2026 BP Estimate
<b>Burbank - Los Angeles</b>		
10.11	Track: Ballasted	\$54,158,792
10.12	Track: Special (switches, turnouts)	\$3,149,580
20.01	At-grade station, stop, shelter, mall, terminal, platform	\$73,725,137
40.03	Haz. Matl, Contaminated Soil removal/mitigation, Ground Water Treatments	\$113,014,925
40.04	Environmental Mitigation, e.g. Wetlands, Historic/Archeologic, Parks	\$7,265,872
40.08	Temp Facilities and Other Indirects	\$3,379,957
50.01	Train control and signals	\$77,122,632
50.03	Traction power supply: substations	\$89,953,447
50.04	Traction power distribution: catenary and third rail	\$116,187,114
50.05	Communications	\$8,338,184
60.01	Purchase or lease of Real Estate	\$249,120,955
80.01	Preliminary Engineering	\$9,894,513
80.02	Engineering	\$29,947,707
80.03	Project Management for Design and Construction	\$21,811,537
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.	\$2,523,687
80.08	Start up	\$1,364,145
<b>TOTAL</b>		<b>\$860,958,185</b>

## APPENDIX C.3.9: Los Angeles – Anaheim

SCC Minor	SCC Description	2026 BP Estimate
<b>Los Angeles - Anaheim</b>		
10.04	Guideway: Aerial structure	\$1,582,358,594
10.08	Guideway: Retained Cut or Fill	\$866,123,311
10.11	Track: Ballasted	\$1,236,278,363
10.12	Track: Special (switches, turnouts)	\$227,396,832
20.01	At-grade station, stop, shelter, mall, terminal, platform	\$218,522,305
30.02	Light Maintenance Facility	\$166,723,081
40.02	Site Utilities, Utility Relocation	\$46,234,863
40.03	Haz. Matl, Contaminated Soil removal/mitigation, Ground Water Treatments	\$3,309,584
40.04	Environmental Mitigation, e.g. Wetlands, Historic/Archeologic, Parks	\$141,066,204
40.05	Site Structures including Retaining Walls, Sound Walls	\$237,905,543
40.07	Automobile, bus, van accessways including roads, parking lots	\$423,153,749
40.08	Temp Facilities and Other Indirects	\$89,800,963
50.01	Train control and signals	\$353,545,931
50.03	Traction power supply: substations	\$222,354,606
50.04	Traction power distribution: catenary and third rail	\$426,795,932
50.05	Communications	\$70,981,570
60.01	Purchase or lease of Real Estate	\$550,024,890
80.01	Preliminary Engineering	\$112,296,643
80.02	Engineering	\$338,703,014
80.03	Project Management for Design and Construction	\$259,862,621

SCC Minor	SCC Description	2026 BP Estimate
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.	\$28,542,102
80.08	Start up	\$4,896,774
<b>TOTAL</b>		<b>\$7,606,877,474</b>

## APPENDIX C.3.10: Program Wide Support, Project Development & Trainsets

SCC Minor	SCC Description	2026 BP Estimate
<b>Program Wide Support, Project Development &amp; Trainsets</b>		
40.04	Environmental Mitigation, e.g. Wetlands, Historic/Archeologic, Parks	\$22,298,739
60.01	Purchase or lease of Real Estate	\$60,019,954
70.03	Commuter Rail	\$2,491,253,562
80.01	Preliminary Engineering	\$880,787,972
80.03	Project Management for Design and Construction	\$3,883,663,744
80.05	Professional Liability and other Non-Construction Insurance	\$340,349,866
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.	\$171,692,603
80.07	Surveys, Testing, Investigation, Inspection	\$7,524,143
90.00	Contingency	\$15,665,979,181
<b>TOTAL</b>		<b>\$23,523,569,764</b>

## APPENDIX C.3.11: Bookend

SCC Minor	SCC Description	2026 BP Estimate
<b>Bookend</b>		
20.01	At-Grade Station, Stop, Shelter, Mall, Terminal, Platform	\$423,335,000
40.06	Pedestrian / bike access and accommodation, landscaping	\$874,608,400
<b>TOTAL</b>		<b>\$1,297,943,400</b>

## APPENDIX C.3.12: San Francisco to Los Angeles / Anaheim Full Scenario

SCC Minor	SCC Description	2026 BP Estimate
10.00	Central Valley Civils & State Roads	\$10,047,731,029
10.01	Guideway: At-grade exclusive right-of-way	\$6,243,001,734
10.04	Guideway: Aerial structure	\$8,927,923,835
10.05	Guideway: Built-up fill	\$7,340,626,963
10.06	Guideway: Underground cut & cover	\$8,772,357
10.07	Guideway: Underground Tunnel	\$10,799,799,757
10.08	Guideway: Retained Cut or Fill	\$1,114,700,466
10.09	Track: Direct fixation	\$2,128,566,248
10.11	Track: Ballasted	\$4,309,365,589
10.12	Track: Special (switches, turnouts)	\$403,336,474
20.01	At-grade station, stop, shelter, mall, terminal, platform	\$2,719,226,740
20.02	Aerial station, stop, shelter, mall, terminal, platform	\$1,097,337,905
30.01	Administration Building: Office, sales, storage, revenue counting	\$226,600,724
30.02	Light Maintenance Facility	\$934,067,903
30.04	Storage or Maintenance of Way Building	\$212,129,343
40.01	Demolition, Clearing, Earthwork	\$282,558,795
40.02	Site Utilities, Utility Relocation	\$1,929,830,605
40.03	Haz. Matl, Contaminated Soil removal/mitigation, Ground Water Treatments	\$866,991,565
40.04	Environmental Mitigation, e.g. Wetlands, Historic/Archeologic, Parks	\$1,381,405,921
40.05	Site Structures including Retaining Walls, Sound Walls	\$2,851,928,606

<b>SCC Minor</b>	<b>SCC Description</b>	<b>2026 BP Estimate</b>
40.06	Pedestrian / bike access and accommodation, landscaping	\$1,020,999,450
40.07	Automobile, bus, van accessways including roads, parking lots	\$2,768,866,113
40.08	Temp Facilities and Other Indirects	\$1,111,467,829
50.01	Train control and signals	\$2,105,199,199
50.03	Traction power supply: substations	\$3,357,159,473
50.04	Traction power distribution: catenary and third rail	\$2,240,978,270
50.05	Communications	\$885,035,851
60.01	Purchase or lease of Real Estate	\$16,218,135,502
70.03	Commuter Rail	\$2,491,253,562
80.01	Preliminary Engineering	\$2,165,940,301
80.02	Engineering	\$3,452,968,514
80.03	Project Management for Design and Construction	\$6,460,551,975
80.04	Construction Administration & Management	\$938,736,439
80.05	Professional Liability and other Non-Construction Insurance	\$340,349,866
80.06	Legal; Permits; Review Fees by other agencies, cities etc.	\$1,243,020,548
80.07	Surveys, Testing, Investigation, Inspection	\$7,524,143
80.08	Start up	\$31,116,542
90.00	Contingency	\$15,665,979,181
<b>TOTAL</b>		<b>\$126,331,185,316</b>

## APPENDIX C.4: Interim Stage – San Francisco To Palmdale

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## APPENDIX C.4.1: San Francisco – San Jose – Facilities & Stations

SCC Minor	SCC Description	2026 BP Estimate
<b>San Francisco - San Jose - Facilities &amp; Stations</b>		
20.01	At-grade station, stop, shelter, mall, terminal, platform	\$600,795,946
30.02	Light Maintenance Facility	\$230,918,662
40.02	Site Utilities, Utility Relocation	\$193,017,115
40.04	Environmental Mitigation, e.g. Wetlands, Historic/Archeologic, Parks	\$13,195,961
40.08	Temp Facilities and Other Indirects	\$3,860,342
60.01	Purchase or lease of Real Estate	\$127,146,470
80.01	Preliminary Engineering	\$18,495,193
80.02	Engineering	\$56,215,198
80.03	Project Management for Design and Construction	\$42,489,704
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.	\$4,751,477
<b>TOTAL</b>		<b>\$1,290,886,069</b>

## APPENDIX C.4.2: Gilroy – Wye

SCC Minor	SCC Description	2026 BP Estimate
<b>Gilroy - Wye</b>		
10.04	Guideway: Aerial structure	\$4,944,098,728
10.05	Guideway: Built-up fill	\$2,407,457,042
10.07	Guideway: Underground Tunnel	\$1,516,929,578
10.09	Track: Direct fixation	\$1,321,660,780
10.11	Track: Ballasted	\$18,914,428
20.01	At-grade station, stop, shelter, mall, terminal, platform	\$512,739,271
30.01	Administration Building: Office, sales, storage, revenue counting	\$226,600,724
40.02	Site Utilities, Utility Relocation	\$215,478,737
40.03	Haz. Matl, Contaminated Soil removal/mitigation, Ground Water Treatments	\$51,212,432
40.04	Environmental Mitigation, e.g. Wetlands, Historic/Archeologic, Parks	\$203,731,820
40.05	Site Structures including Retaining Walls, Sound Walls	\$412,995,473
40.07	Automobile, bus, van accessways including roads, parking lots	\$846,119,561
40.08	Temp Facilities and Other Indirects	\$198,381,207
50.01	Train control and signals	\$316,513,156
50.03	Traction power supply: substations	\$574,622,336
50.04	Traction power distribution: catenary and third rail	\$369,097,968
50.05	Communications	\$39,236,666
60.01	Purchase or lease of Real Estate	\$3,097,307,959
80.01	Preliminary Engineering	\$239,814,292

SCC Minor	SCC Description	2026 BP Estimate
80.02	Engineering	\$733,849,839
80.03	Project Management for Design and Construction	\$554,073,143
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.	\$60,916,419
80.08	Start up	\$4,468,448
<b>TOTAL</b>		<b>\$18,866,220,008</b>

## APPENDIX C.4.3: Merced Extension – Civil, ROW, T&S & Stations

SCC Minor	SCC Description	2026 BP Estimate
<b>Merced Extension - Civil, ROW, T&amp;S, &amp; Stations</b>		
10.01	Guideway: At-grade exclusive right-of-way	\$392,612,017
10.04	Guideway: Aerial structure	\$797,094,928
10.08	Guideway: Retained Cut or Fill	\$243,172,499
10.09	Track: Direct fixation	\$119,653,924
10.11	Track: Ballasted	\$261,406,651
10.12	Track: Special (switches, turnouts)	\$4,239,471
20.01	At-grade station, stop, shelter, mall, terminal, platform	\$105,252,203
40.01	Demolition, Clearing, Earthwork	\$12,563,401
40.02	Site Utilities, Utility Relocation	\$273,798,150
40.03	Haz. Matl, Contaminated Soil removal/mitigation, Ground Water Treatments	\$4,599,981
40.04	Environmental Mitigation, e.g. Wetlands, Historic/Archeologic, Parks	\$130,122,269
40.07	Automobile, bus, van accessways including roads, parking lots	\$510,310,216
40.08	Temp Facilities and Other Indirects	\$81,147,076
50.01	Train control and signals	\$132,939,624
50.03	Traction power supply: substations	\$210,503,678
50.04	Traction power distribution: catenary and third rail	\$110,494,960
50.05	Communications	\$117,759,566
60.01	Purchase or lease of Real Estate	\$571,793,481
80.01	Preliminary Engineering	\$152,595,976

SCC Minor	SCC Description	2026 BP Estimate
80.02	Engineering	\$220,156,275
80.03	Project Management for Design and Construction	\$137,519,491
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.	\$14,603,670
80.08	Start up	\$2,015,299
<b>TOTAL</b>		<b>\$4,606,354,804</b>

## APPENDIX C.4.4: Central Valley – Civil, ROW, T&S, Stations, & Facilities

SCC Minor	SCC Description	2026 BP Estimate
<b>Central Valley 119-miles – Civil, ROW, T&amp;S, Stations, &amp; Facilities</b>		
10.00	Central Valley Civil	\$10,047,731,029
10.09	Track: Direct fixation	\$292,100,964
10.11	Track: Ballasted	\$943,208,117
10.12	Track: Special (switches, turnouts)	\$78,719,743
20.01	At-grade station, stop, shelter, mall, terminal, platform	\$383,734,514
20.02	Aerial station, stop, shelter, mall, terminal, platform	\$414,493,673
30.02	Light Maintenance Facility	\$516,498,649
40.04	Environmental Mitigation, e.g. Wetlands, Historic/Archeologic, Parks	\$225,573,134
40.05	Site Structures including Retaining Walls, Sound Walls	\$45,955,889
40.08	Temp Facilities and Other Indirects	\$27,834,817
50.01	Train control and signals	\$431,589,596
50.03	Traction power supply: substations	\$922,077,173
50.04	Traction power distribution: catenary and third rail	\$446,542,883
50.05	Communications	\$412,148,435
60.01	Purchase or lease of Real Estate	\$1,879,833,565
80.01	Preliminary Engineering	\$94,646,074
80.02	Engineering	\$262,455,810
80.03	Project Management for Design and Construction	\$178,729,015
80.04	Construction Administration & Management	\$938,736,439
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.	\$805,941,360

SCC Minor	SCC Description	2026 BP Estimate
80.08	Start up	\$7,444,178
<b>TOTAL</b>		<b>\$19,355,995,058</b>

## APPENDIX C.4.5: Bakersfield Extension – Civil, ROW, T&S & Stations

SCC Minor	SCC Description	2026 BP Estimate
<b>Bakersfield Extension - Civil, ROW, T&amp;S, &amp; Stations</b>		
10.04	Guideway: Aerial structure	\$1,360,779,609
10.05	Guideway: Built-up fill	\$341,134,537
10.09	Track: Direct fixation	\$183,512,719
10.11	Track: Ballasted	\$212,208,307
10.12	Track: Special (switches, turnouts)	\$8,512,720
20.02	Aerial station, stop, shelter, mall, terminal, platform	\$682,844,232
40.01	Demolition, Clearing, Earthwork	\$64,947,220
40.02	Site Utilities, Utility Relocation	\$373,763,919
40.03	Haz. Matl, Contaminated Soil removal/mitigation, Ground Water Treatments	\$9,124,145
40.04	Environmental Mitigation, e.g. Wetlands, Historic/Archeologic, Parks	\$177,100,578
40.05	Site Structures including Retaining Walls, Sound Walls	\$837,905,272
40.07	Automobile, bus, van accessways including roads, parking lots	\$122,112,653
40.08	Temp Facilities and Other Indirects	\$198,961,943
50.01	Train control and signals	\$81,853,890
50.03	Traction power supply: substations	\$48,707,989
50.04	Traction power distribution: catenary and third rail	\$127,616,343
50.05	Communications	\$66,939,980
60.01	Purchase or lease of Real Estate	\$1,084,190,727
80.01	Preliminary Engineering	\$145,459,648
80.02	Engineering	\$257,828,125

SCC Minor	SCC Description	2026 BP Estimate
80.03	Project Management for Design and Construction	\$204,044,775
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.	\$22,358,463
80.08	Start up	\$1,592,386
<b>TOTAL</b>		<b>\$6,613,500,181</b>

## APPENDIX C.4.6: Bakersfield – Palmdale

SCC Minor	SCC Description	2026 BP Estimate
<b>Bakersfield - Palmdale</b>		
10.01	Guideway: At-grade exclusive right-of-way	\$5,802,651,290
10.05	Guideway: Built-up fill	\$4,420,777,289
10.07	Guideway: Underground Tunnel	\$2,666,408,938
10.09	Track: Direct fixation	\$104,804,787
10.11	Track: Ballasted	\$1,326,672,536
10.12	Track: Special (switches, turnouts)	\$11,866,551
20.01	At-grade station, stop, shelter, mall, terminal, platform	\$150,220,472
30.04	Storage or Maintenance of Way Building	\$212,129,343
40.01	Demolition, Clearing, Earthwork	\$104,856,620
40.02	Site Utilities, Utility Relocation	\$693,061,256
40.03	Haz. Matl, Contaminated Soil removal/mitigation, Ground Water Treatments	\$50,938,845
40.04	Environmental Mitigation, e.g. Wetlands, Historic/Archeologic, Parks	\$291,874,403
40.05	Site Structures including Retaining Walls, Sound Walls	\$936,943,051
40.06	Pedestrian / bike access and accommodation, landscaping	\$146,391,050
40.07	Automobile, bus, van accessways including roads, parking lots	\$763,385,943
40.08	Temp Facilities and Other Indirects	\$331,278,041
50.01	Train control and signals	\$435,481,626
50.03	Traction power supply: substations	\$607,007,220
50.04	Traction power distribution: catenary and third rail	\$383,043,419
50.05	Communications	\$73,752,193

SCC Minor	SCC Description	2026 BP Estimate
60.01	Purchase or lease of Real Estate	\$4,640,023,336
80.01	Preliminary Engineering	\$332,419,778
80.02	Engineering	\$1,008,706,608
80.03	Project Management for Design and Construction	\$765,060,679
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.	\$85,798,867
80.08	Start up	\$5,567,625
<b>TOTAL</b>		<b>\$26,351,121,767</b>

## APPENDIX C.4.7: Program Wide Support, Project Development & Trainsets

SCC Minor	SCC Description	2026 BP Estimate
<b>Program Wide Support, Project Development, &amp; Trainsets</b>		
40.04	Environmental Mitigation, e.g. Wetlands, Historic/Archeologic, Parks	\$22,298,739
60.01	Purchase or lease of Real Estate	\$60,019,954
70.03	Commuter Rail	\$1,615,815,598
80.01	Preliminary Engineering	\$880,787,972
80.03	Project Management for Design and Construction	\$3,883,663,744
80.05	Professional Liability and other Non-Construction Insurance	\$280,029,996
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.	\$171,692,603
80.07	Surveys, Testing, Investigation, Inspection	\$7,524,143
90.00	Contingency	\$11,566,189,850
<b>TOTAL</b>		<b>\$18,488,022,598</b>

**APPENDIX C.4.8: Bookend**

SCC Minor	SCC Description	2026 BP Estimate
<b>Bookend</b>		
20.01	At-Grade Station, Stop, Shelter, Mall, Terminal, Platform	\$423,335,000
40.06	Pedestrian / bike access and accommodation, landscaping	\$874,608,400
<b>TOTAL</b>		<b>\$1,297,943,400</b>

## APPENDIX C.4.9: Interim Stage – San Francisco to Palmdale Full Scenario

SCC Minor	SCC Description	2026 BP Estimate
10	Central Valley Civils & State Roads	\$10,047,731,029
10.01	Guideway: At-grade exclusive right-of-way	\$6,195,263,307
10.04	Guideway: Aerial structure	\$7,101,973,265
10.05	Guideway: Built-up fill	\$7,169,368,868
10.07	Guideway: Underground Tunnel	\$4,183,338,516
10.08	Guideway: Retained Cut or Fill	\$243,172,499
10.09	Track: Direct fixation	\$2,021,733,175
10.11	Track: Ballasted	\$2,762,410,040
10.12	Track: Special (switches, turnouts)	\$103,338,486
20.01	At-grade station, stop, shelter, mall, terminal, platform	\$2,176,077,407
20.02	Aerial station, stop, shelter, mall, terminal, platform	\$1,097,337,905
30.01	Administration Building: Office, sales, storage, revenue counting	\$226,600,724
30.02	Light Maintenance Facility	\$747,417,311
30.04	Storage or Maintenance of Way Building	\$212,129,343
40.01	Demolition, Clearing, Earthwork	\$182,367,242
40.02	Site Utilities, Utility Relocation	\$1,749,119,177
40.03	Haz. Matl, Contaminated Soil removal/mitigation, Ground Water Treatments	\$115,875,402
40.04	Environmental Mitigation, e.g. Wetlands, Historic/Archeologic, Parks	\$1,063,896,903
40.05	Site Structures including Retaining Walls, Sound Walls	\$2,233,799,684

SCC Minor	SCC Description	2026 BP Estimate
40.06	Pedestrian / bike access and accommodation, landscaping	\$1,020,999,450
40.07	Automobile, bus, van accessways including roads, parking lots	\$2,241,928,374
40.08	Temp Facilities and Other Indirects	\$841,463,426
50.01	Train control and signals	\$1,398,377,893
50.03	Traction power supply: substations	\$2,362,918,396
50.04	Traction power distribution: catenary and third rail	\$1,436,795,573
50.05	Communications	\$709,836,841
60.01	Purchase or lease of Real Estate	\$11,460,315,493
70.03	Commuter Rail	\$1,615,815,598
80.01	Preliminary Engineering	\$1,864,218,933
80.02	Engineering	\$2,539,211,854
80.03	Project Management for Design and Construction	\$5,765,580,550
80.04	Construction Administration & Management	\$938,736,439
80.05	Professional Liability and other Non-Construction Insurance	\$280,029,996
80.06	Legal; Permits; Review Fees by other agencies, cities, etc.	\$1,166,062,859
80.07	Surveys, Testing, Investigation, Inspection	\$7,524,143
80.08	Start up	\$21,087,936
90.00	Contingency	\$11,566,189,850
<b>TOTAL</b>		<b>\$96,870,043,884</b>