

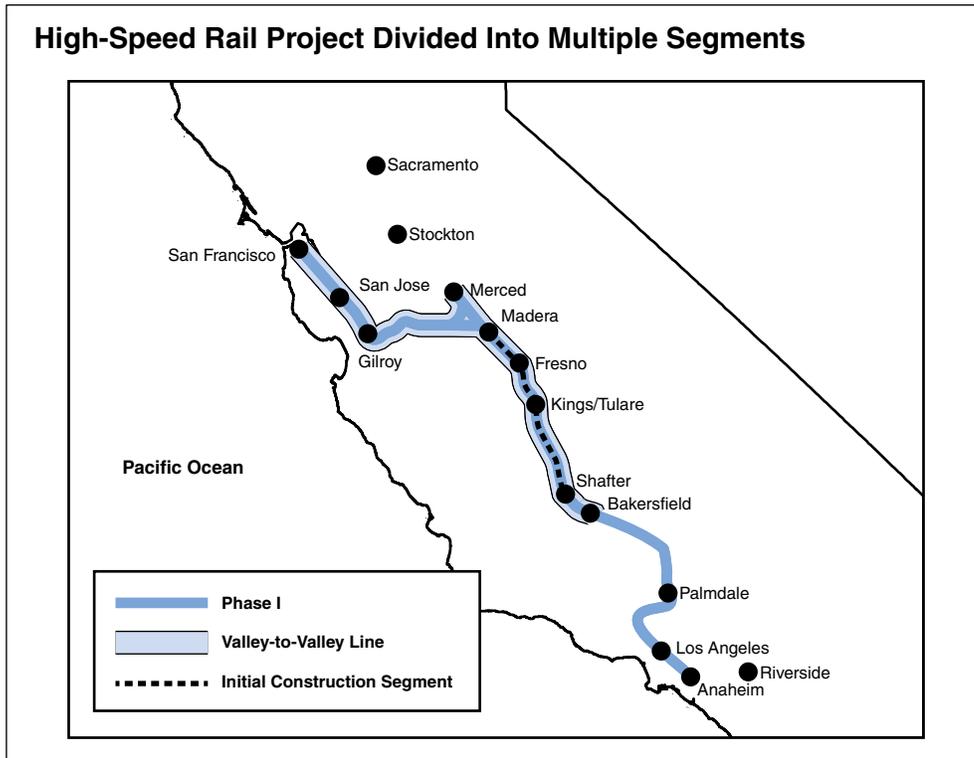
MARCH 9, 2021

High-Speed Rail Revised Draft 2020 Business Plan



LEGISLATIVE ANALYST'S OFFICE

High-Speed Rail Project Overview



Statutory History

- Chapter 796 of 1996 (SB 1420, Kopp) established the High-Speed Rail Authority (HSRA) to plan and construct a high-speed rail system that would link the state's major population centers.
- In November 2008, voters approved Proposition 1A, which authorized the state to sell \$10 billion in general obligation bonds to partially fund the system, as well as related projects.



High-Speed Rail Project Overview

(Continued)

Project Divided Into Multiple Segments, Beginning With Initial Construction Segment (ICS)

- HSRA plans to construct the system in two phases.
- Phase I would provide service from San Francisco to Anaheim.
 - Phase I is divided into segments, including an initial operating segment from San Francisco to Bakersfield—commonly referred to as the Valley-to-Valley line.
 - The Valley-to-Valley line is itself divided into multiple segments, including the ICS, which extends 119 miles through the Central Valley from Madera (south of Merced) to Shafter (north of Bakersfield). This segment is sometimes referred to as the Central Valley Segment.
 - HSRA currently projects Phase I being completed in 2033.
- Phase II would connect the system to Sacramento and San Diego. There is no time line for the completion of Phase II.

Bookend and Connectivity Projects

- In addition, HSRA has initiated a variety of projects on commuter rail lines. These include “bookend projects” along the proposed high-speed rail alignment in the San Francisco Bay Area and Southern California. For example, a significant bookend project is the planned electrification of the Caltrain Corridor in the San Francisco Bay Area.
- Additionally, they include “connectivity projects,” which provide benefits to existing commuter rail systems that connect to the high-speed rail system.



Project Funding and Expenditures to Date

High-Speed Rail Spending by Source^a (In Millions)			
Funding Source	Amounts		
	Authorized	Spent	Remaining
State Funds			
Proposition 1A bonds	\$10.0	\$4.5	\$5.5
Greenhouse Gas Reduction Fund	3.6	1.7	1.8
Federal Funds			
American Recovery and Reinvestment Act	\$2.6	\$2.6	—
Fiscal year 2010	0.9	—	\$0.9
Totals	\$17.1	\$8.8	\$8.2

^a As of December 31, 2020.

Proposition 1A Bonds

- Of the \$10 billion authorized under Proposition 1A, the Legislature has appropriated \$5.6 billion. Of this amount, about \$4.5 billion has been spent—\$3.7 billion on the high-speed rail project (including bookend projects) and about \$780 million on connectivity projects.
- HSRA recently submitted a funding plan to the Legislature signaling its intent to request nearly all of the remaining unappropriated Proposition 1A funds as part of the 2021-22 budget. This includes \$4.1 billion for construction work on the ICS and roughly \$100 million for planning activities.



Project Funding and Expenditures to Date

(Continued)

Cap-and-Trade Auction Revenues

- The state operates a cap-and-trade program intended to limit the emissions of greenhouse gases (GHGs). The program generates revenues from the auctioning of GHG “allowances.”
- In 2014, the state began providing cap-and-trade auction proceeds for the high-speed rail project. Beginning in 2015-16, the project has received a continuous appropriation of 25 percent of cap-and-trade revenues. Currently, cap-and-trade is authorized through 2030.
- Through December 2020, the project has received about \$3.6 billion in cap-and-trade revenues and spent about \$1.7 billion of these funds.

Federal Funds

- The federal government has awarded HSRA two grants totaling \$3.5 billion.
- First, the state received \$2.6 billion in American Recovery and Reinvestment Act (ARRA) funds in 2009. HSRA fully expended the ARRA funds.
- Second, the state received a \$929 million grant from the federal High-Speed Intercity Passenger Rail program in 2010 (FY 10 Federal Grant), which expires at the end of 2022. The state must meet certain conditions under this grant agreement, including (1) using funds to support construction of a segment usable for intercity passenger rail by 2022 and (2) completing all environmental reviews for Phase I by 2022.
- In May 2019, the federal government terminated the FY 10 Federal Grant and indicated that it was considering all options for seeking the return of the ARRA grant. HSRA is challenging the termination decision in court. (We note that with the recent change in federal administration, HSRA indicates that it is hopeful it will be able to retain both federal grants and is seeking an extension of grant deadlines.)



Project Status

Status of Key Project Deliverables^a	
Environmental Review Documents	
San Francisco to San Jose	Q2 2022
San Jose to Carlucci Road	Q1 2022
Central Valley Wye balance	Complete
Merced to Madera	Complete
Madera to Poplar Avenue	Complete
Poplar Avenue to Bakersfield	Complete
Bakersfield to Palmdale	Q2 2021
Palmdale to Burbank	Q4 2022
Burbank to Los Angeles	Q4 2021
Los Angeles to Anaheim	Q4 2022-Q2 2023
Right-of-Way Acquisitions	
Parcels acquired	1,771
Parcels remaining	519
Construction	
Construction Package 1	December 2023
Construction Package 2-3	December 2023
Construction Package 4	April 2022
Completion of track and systems	2025
^a Based on Revised Draft 2020 Business Plan. Q = Quarter.	

- **Environmental Reviews.** The California Environmental Quality Act and the National Environmental Policy Act require HSRA to assess the extent to which the project could cause significant environmental impacts. HSRA has completed the environmental reviews for roughly 200 miles of the project alignment in the Central Valley.
- **Right-of-Way Acquisition.** As of December 2020, HSRA has acquired about three-quarters of the parcels necessary for construction of the ICS and projects that the remaining acquisitions along the ICS will be complete in December 2022.



Project Status

(Continued)

- **Project Construction.** In 2015, HSRA initiated construction on the ICS. (The ICS is divided into four construction packages.) To date, HSRA has completed several major structures, such as overpasses and the Garces Highway Viaduct, as well as the realignment of a portion of State Route 99. HSRA estimates it will complete the civil works for the ICS by the end of 2023 and complete track and systems work on the ICS by 2025.
 - **Track and Systems Contract.** HSRA is currently in the process of selecting a contractor to complete the track and systems contract on the Valley-to-Valley line, which would include the construction of track and associated systems (such as electric catenary systems and signal systems), as well as 30 years of maintenance on the track and systems infrastructure. The contract would be broken into geographic segments—starting with the ICS—and the contractor could not begin with each one until it receives a notice to proceed from HSRA. The contract is expected to be awarded in August 2021.



Draft Business Plan Updates— Project Delivery Plan

Most Recent Draft Business Plan Is Update of 2020 Plan

- State law requires HSRA to prepare a business plan every even year that provides certain key information about the planned high-speed rail system.
- On February 12, 2020, HSRA released a draft of its 2020 business plan. (See our analysis of that draft plan, [Review of the Draft 2020 High-Speed Rail Business Plan](#).)
- Subsequent legislation (Chapter 17 of 2020, [AB 90, Committee on Budget]), extended the deadline for HSRA to adopt the 2020 business plan to December 15, 2020. According to HSRA, the Newsom administration and legislative leadership subsequently agreed to extend the deadline for adoption of the business plan to April 15, 2021.
- On February 9, 2021, HSRA released its revised draft 2020 business plan with the goal of seeking board approval of this plan in advance of the April 2021 deadline.

Major Elements of the Revised Plan Similar to First Draft 2020 Plan

► Continues Plan to Extend to Merced and Bakersfield

- The plan continues the approach first presented in 2019 of focusing the state’s efforts on construction of a segment from Merced to Bakersfield. This includes construction of the ICS—which is currently underway—as well as extensions to Merced and Bakersfield.
- HSRA proposes to launch interim high-speed passenger service on the Merced-to-Bakersfield segment by the end of the decade. HSRA does not anticipate being the operator of the interim service. Instead, it expects to lease the right to use its track to the San Joaquin Joint Powers Authority, which currently oversees the Altamont Corridor Express and San Joaquins services.



Draft Business Plan Updates— Project Delivery Plan

(Continued)

▶ **Continues to Plan for Other Segments of Phase I**

- HSRA continues to work towards completing the environmental reviews for the remainder of Phase I.
- The plan continues to envision the Valley-to-Valley line being completed after the ICS, followed by the Southern California segments.

Key Scope Changes From First 2020 Draft Plan

▶ **Begins With Single Track, Envisions Adding Double Track Later**

- The revised draft business plan envisions the track and systems contractor constructing a single track rather than two tracks, as originally envisioned. The contractor would initially complete this single track along the ICS, and then the Merced and Bakersfield extensions. HSRA expects to use the single track for interim service on the Merced-to-Bakersfield segment.
- Ultimately, HSRA expects to add a second track as part of a future project phase. Accordingly, HSRA has asked the track and systems bidders to include bids for both single and double track options. This phased approach would reduce costs in the near term but increase costs in the longer term.



Draft Business Plan Updates— Project Delivery Plan

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▶ **Considers Leasing Trainsets**

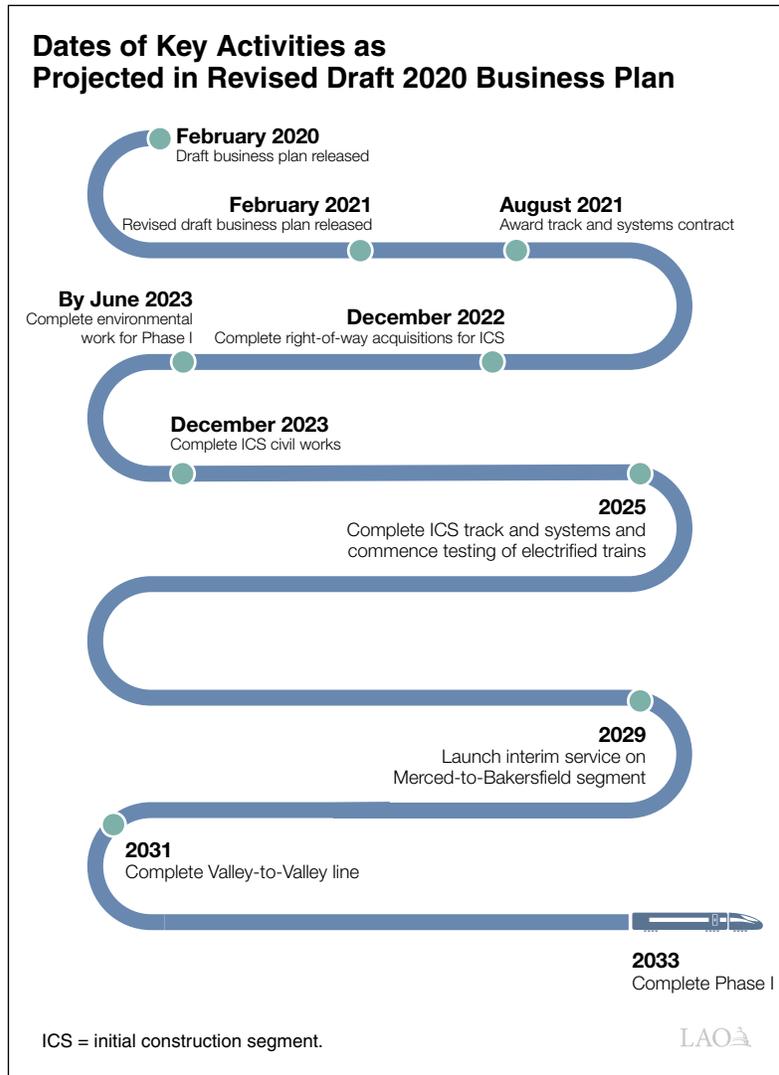
- The revised plan assumes the purchase of six trainsets for interim service. However, the plan also presents the possibility of leasing trains instead. These leased trains likely would not reach 220 miles per hour (the speed envisioned under Proposition 1A). Under this approach, the HSRA would purchase trains that reach 220 miles per hour at a later date. This change, if implemented, would reduce near-term acquisition costs, but result in additional costs in the future.
- The schedule for procuring the trainsets is uncertain but could occur as soon as 2021-22.

▶ **Advances Design Work for Phase I**

- HSRA proposes to advance the schedule of some design work on future Phase I segments, including mapping right-of-way and conducting geotechnical evaluations. HSRA indicates that advancing this work will improve its understanding of potential engineering and construction issues, as well as potential risks and costs.



Revised Draft Business Plan Updates— Schedule Projections



Revised Draft Business Plan Updates— Schedule Projections

(Continued)

- ***Reflects Delays in Some Activities Compared to First Draft Plan.***
The revised plan identifies roughly one-year delays in the completion of the Phase I environmental work, ICS civil works, and the award of the track and systems contract. With these delays, the revised schedule for completing the ICS is now beyond the existing 2022 federal grant deadline for completing a segment usable for intercity passenger rail.
- **Does Not Revise Schedule Beyond Merced-to-Bakersfield Segment.** The revised plan still assumes completion of Valley-to-Valley line by 2031 and Phase I by 2033.



Revised Draft Business Plan Updates— Cost Projections

Estimated Funding Available and Merced-to-Bakersfield Costs <i>(In Billions)</i>	
	Amount
Projected Funding	
Federal Funds	
American Recovery and Reinvestment Act	\$2.6
Fiscal year 2010 federal grant	0.9
Subtotal, Federal Funds	(\$3.5)
State Funds	
Proposition 1A	\$8.5
Cap-and-Trade received through November 2020	3.6
Future Cap-and-Trade	5.0-7.5
Subtotal, State Funds	(\$17.1-\$19.6)
Total Funding Available	\$20.6-\$23.1
Estimated Costs^a	
Initial Construction Segment	\$13.8
Incremental costs for Merced to Bakersfield ^b	3.1-4.5
Bookends and other Initial Construction Segment baseline costs ^c	3.1
Proposed enhancements to project baseline ^d	1.3
Advance design work	0.6
Total Costs	\$21.9-\$23.3
^a Assumes single track. ^b Includes Merced and Bakersfield extensions, four trainsets, and funding for some stations. ^c Includes bookends, program support, and environmental work. ^d Includes program-wide support costs, two trainsets, and some design costs associated with the Merced and Bakersfield extensions (including some station costs).	

- **Identifies Funding From Various Sources.** HSRA estimates that available funding sources will provide a total of between \$20.6 billion and \$23.1 billion, depending on future cap-and-trade auction revenues.



Revised Draft Business Plan Updates— Cost Projections

(Continued)

- **Reflects Higher Cost Estimates for Completing ICS.** The revised draft plan estimates the cost of constructing the ICS at \$13.8 billion, which is \$1.3 billion higher than the first draft 2020 plan (and \$3.2 billion higher than the 2018 business plan). HSRA indicates that the increase in costs since last year reflects known cost increases (\$330 million) as well as the inclusion of a larger contingency to account for additional potential cost increases (\$1 billion).
- **Available Funding Roughly Same as Estimated Merced-to-Bakersfield Costs.** HSRA estimates total costs to complete Merced-to-Bakersfield segment—along with bookend projects, all environmental work for Phase I, and some additional Phase I design work—to be between \$21.9 and \$23.3 billion.
- **Reflects Higher Costs for Completing Remainder of Phase I.** The revised draft plan estimates total estimated costs to complete Phase I at \$83.1 billion, an increase of \$2.8 billion over the first 2020 draft business plan (and \$5.8 billion over the 2018 business plan).
 - The increased costs since last year reflect the higher estimated ICS construction costs, as well as additional costs from phasing track installation and conducting design on remaining Phase I sections.
 - The revised plan does not reevaluate the cost estimates for other segments of Phase I—specifically, connecting the Central Valley segments to San Francisco and Southern California—to account for factors such as cost escalation due to possible schedule changes.



Key Fiscal Uncertainties for Legislative Consideration

Unclear if Sufficient Funding to Complete Merced-to-Bakersfield Segment

- **Costs Could Increase.** The project has a history of cost increases, and there is inherent cost risks associated with large and complex construction projects. In particular, the Merced and Bakersfield extensions are still at the early stages of design and costs for these portions of the project are likely to be subject to a greater uncertainty than the portions that are closer to completion.
- **Some Expected Funding May Not Materialize.** For example, there is still some uncertainty regarding whether the state will be allowed to retain the \$3.5 billion of federal funds, particularly given that the schedule identified in the revised draft business plan will not enable HSRA to meet its existing federal grant deadline to construct a usable segment by 2022. Additionally, the funding plan relies on estimates of future cap-and-trade revenues through 2030, which, while reasonable, are subject to uncertainty.
- **Insufficient Funding Could Leave State With Infrastructure of Limited Stand-Alone Value.** HSRA plans to require completion of all the work necessary for electrification of the ICS in the first notice to proceed for the track and systems contract. Therefore, entering into a contract with that provision would effectively commit the state to electrification of the segment. However, unless connected to a larger system, an electrified ICS would be of minimal value because it likely would be impractical to run electrified service only on the ICS.
 - An electrified segment between Merced and Bakersfield would likely have more stand-alone utility than an electrified ICS. However, the utility of this segment would depend heavily on whether future transportation investments are made, including adding a second track and more trainsets. Utility would also depend on how well the Merced-to-Bakersfield segment was connected to existing rail service. Notably, the existing San Joaquins service serves a station in Merced that is 1.2 miles from the HSRA’s planned station in Merced, so additional investments would need to be made to improve connectivity.



Key Fiscal Uncertainties for Legislative Consideration

(Continued)

No Funding Plan Beyond Merced-to-Bakersfield

- HSRA's current estimate is that the additional costs to complete Phase I would be about \$60 billion, and it appears that about \$15 billion of these costs would be needed to complete Valley-to-Valley line. However, these estimates are subject to substantial uncertainty.
- At this time, HSRA has not identified how the construction costs for the portions of Phase I beyond the revised scope for the Merced-to-Bakersfield segment would be funded.
- HSRA has raised the possibility of securitizing its cap-and-trade appropriation and seeking additional funding from the federal government. However, these funding sources are unlikely to be sufficient to fully fund Phase I.



Legislature Faces Difficult Choices in Light of Fiscal Uncertainties

Appropriation Request Provides Key Opportunity for Legislature to Shape This Project

- HSRA's upcoming Proposition 1A appropriation request for 2021-22 presents a natural opportunity for the Legislature to evaluate the proposed direction of the project and ensure that it aligns with legislative priorities. Another such natural opportunity may not emerge for several years.

Two Key Considerations for Next Legislative Action

- ***Commitment to Building Future Segments.*** The Legislature will want to consider its level of commitment to fully funding the project—not just the Merced-to-Bakersfield segment, but also future project segments.
 - If the Legislature is committed to funding Merced-to-Bakersfield segment and future project segments, then HSRA's approach could make sense.
 - However, if the Legislature does not want to commit to providing the funds necessary to connect high-speed rail in the Central Valley to other parts of the state, it might want to pursue an alternative approach that would have greater stand-alone value. Otherwise, the state would maintain an electrified, high-speed segment that only runs on a single track 171 miles from Merced to Bakersfield and does not connect to the existing San Joaquins service absent additional infrastructure investments.
- ***Confidence that Available Funding Will Support Merced-to-Bakersfield.*** The Legislature will also want to consider the fiscal uncertainties around completing Merced-to-Bakersfield segment.
 - As discussed earlier, some of the key uncertainties are the ultimate cost of completing the ICS and Merced-to-Bakersfield segment, the likelihood that the state will be able to retain its federal grants, and availability of future cap-and-trade funding.



Legislature Faces Difficult Choices in Light of Fiscal Uncertainties

(Continued)

- To the extent the Legislature is concerned about these uncertainties, it could consider modifying the Merced-to-Bakersfield scope in such a way as to better ensure that costs stay within available funding and whatever infrastructure is completed has the most possible stand-alone value.

If Committed to Merced-to-Bakersfield and Beyond, Approve Expected Proposition 1A Request

- If the Legislature is comfortable with HSRA's proposed approach and is committed to fully funding the project, it makes sense to appropriate funding as is expected to be requested by HSRA.
- There would be risk that the state would need to identify additional funding in future years to complete the current Merced-to-Bakersfield scope, if there are additional cost increases and/or some expected funding does not materialize. Thus, taking this approach would imply that the Legislature has a greater willingness to accept risk that additional funds will be required to complete this segment.
- At some point, a longer-term funding plan still would need to be developed for the remaining segments of Phase I.

If Not Committed to HSRA Plan, May Want to Consider Other Actions

- ***Legislature Could Direct HSRA to Pursue an Alternative Approach.*** If the Legislature would like to pursue a different approach from the one proposed by HSRA, it should provide statutory direction and allocate funding accordingly. For example, it could direct HSRA to narrow the project scope in the Central Valley to only that required by the federal grant agreements—usable but non-electrified track—and use any remaining funding elsewhere on the alignment.



Legislature Faces Difficult Choices in Light of Fiscal Uncertainties

(Continued)

- ***Legislature Could Act to Preserve Flexibility in Near Term.*** If the Legislature does not want to commit to a specific approach now, it should take actions to preserve its flexibility. This could be accomplished through a combination of providing more explicit statutory direction as well as modifying the Proposition 1A appropriation, including:
 - Passing statutory language barring HSRA from entering into a contract for electrified rolling stock at this time. This would provide flexibility to provide non-electrified service.
 - Passing statutory language requiring HSRA to modify its approach to the track and systems contract to (1) limit the contract to only the scope required under the federal grant agreements (track and basic systems for the ICS, but not electrification) or (2) include an “off-ramp” clause that would require a separate notice to proceed for any work beyond what is required to meet the federal grant agreements. These modifications would provide flexibility to provide non-electrified service.
 - Delaying taking action on the appropriation of some or all of the requested Proposition 1A funds would provide flexibility because the Legislature would retain a natural decision-making point and could determine how to allocate funds within the Phase I alignment at a later date.

