November 20, 2025

The Governor of California
President pro Tempore of the Senate
Speaker of the Assembly

State Capitol
Sacramento, California

Dear Governor and Legislative Leaders:

This report summarizes a review conducted, in accordance with Public Utility Code §187038 (a), by the Office of the Inspector General, High-Speed Rail (OIG-HSR) of the California High-Speed Rail Authority's (Authority) August 2025 Supplemental Project Update Report (supplemental report). With some minor exceptions, we found that the supplemental report contains the information required by state law that had not been included in the March 2025 Project Update Report. Specifically, the supplemental report includes an updated cost estimate, schedule, and benefit-cost analysis for the Merced-to-Bakersfield (M-B) segment, as well as for various other scenarios within the larger alignment between Gilroy and Palmdale. We also found that, with few exceptions, the information we reviewed was accurate and adequately supported.

In the supplemental report the Authority provides four additional scenarios for an initial high-speed operating system beyond the M-B segment, some of which do not include the Merced extension. However, the Authority's federal grant agreements that are currently the subject of litigation include Merced in the project scope. Further, state law requires the Authority to use dedicated state funds to prioritize construction of the M-B segment and imposes a $500 million cap on the use of those funds outside the segment. Although the Authority presents a case in the supplemental report for removing or adjusting this cap and at least raises the prospect of changes to current project scope, our review identified significant risks with such an approach.

First, if the Authority prevails in its recent lawsuit to retain $4 billion in previously awarded federal grants, the Federal Railroad Administration (FRA) may not be willing in the near term to revise the project scope defined in the Authority's grant application. Therefore, scenarios presented in the supplemental report that do not include Merced do not appear to be viable options to pursue at this point. Second, although state lawmakers and the Governor extended the Cap-and-Invest program through 2045 and designated $1 billion from this program each year to the high-speed rail project, giving the project a total budget of $43 billion that will potentially cover the current estimated cost of the M-B segment of $37 billion, this apparent $6 billion funding surplus may not be as large as it currently seems for the following reasons:

- The total budget of $43 billion includes the aforementioned $4 billion in federal grants that the State is attempting through litigation to retain. Thus, a major portion of the funding surplus is still in question.

- The cost of financing necessary to keep the project on schedule is not yet known. Although the statutory minimum of $1 billion per year from Cap-and-Invest funding until 2045 is a very positive development for the project, the timing of this funding stream does not align with the more immediate timing of planned project expenditures. Thus, if financing is not secured, the schedule may not be achievable, and costs may escalate above the amount currently estimated. The cost of this needed financing will take up a significant, but as-yet-unknown, portion of any budget surplus.

- The Authority reduced the M-B segment cost estimate contingency, which is the amount added to account for uncertainties and unforeseen conditions, from levels federal guidance provides as a starting point. Although contingency is expected to decrease as a project advances and federal guidance allows for project-specific adjustments to contingency, the magnitude of the Authority's reductions place the resulting cost estimates considerably below—approximately $1.2 billion by our calculations—what historical data indicates a project at the M-B segment's current development stage may ultimately cost.

- The schedule presented in the supplemental report assumes key risks that have challenged the project in the past, such as delays in acquiring right of way, will be successfully mitigated going forward. However, some of the interventions needed to mitigate these risks are outside the Authority's control and likely require near-immediate action from state lawmakers. For example, the Authority proposes, and the schedule assumes, that state lawmakers devote additional judicial resources to expedite right-of-way acquisition. As such, if the State does not take these and other policy actions described later in this report, the M-B segment could be delayed and carry a consequent increase in costs.

The extension of the Cap-and-Invest program and the minimum annual $1 billion provided to the project makes completing the M-B segment within the 2033 schedule envelope possible. However, for this landmark effort to be achieved, state lawmakers will likely need to enact further reforms as suggested by the Authority in its supplemental report. Even so, because of the issues described above and discussed in detail throughout this report, shifting the project's focus beyond the M-B segment could place further strain on the limited resources available for completing the segment and compound existing risks to its timely completion. A steadfast focus on successfully building and operating this initial operating system—as currently defined in state law and in the Authority's federal grant agreements—is the clearest near-term path to demonstrating the benefits of high-speed rail in California and subsequently extending those benefits to other parts of the State.

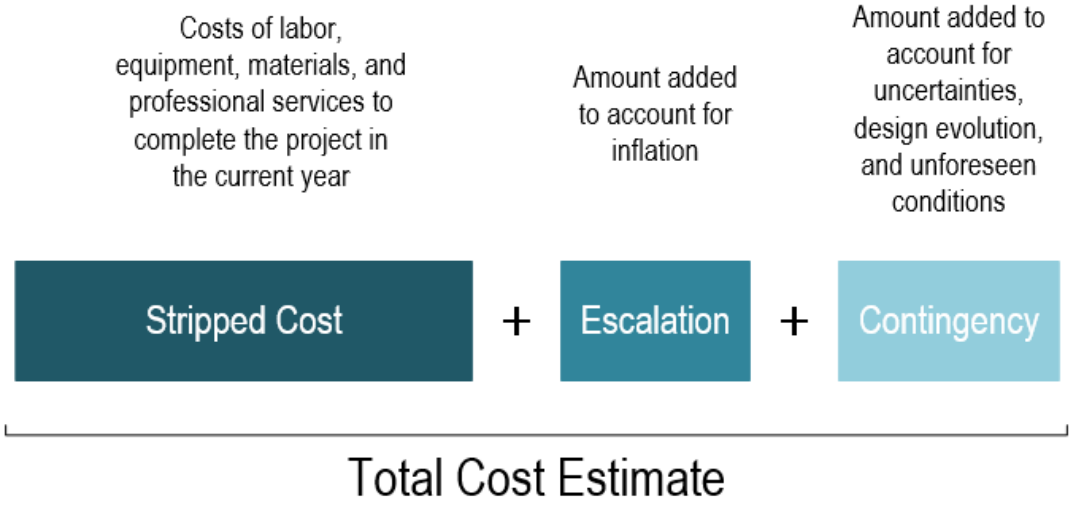
Although Within the Parameters of Best Practices, the M-B Cost Estimate Includes Less Contingency than May Be Warranted

The Authority's approach for estimating construction costs and escalating those costs to account for expected inflation was consistent with federal guidelines and policies established by its Board of Directors (Board). However, the Authority's approach to quantifying risk resulted in an overall M-B segment cost estimate that is about $1.2 billion lower than it would be had the Authority maintained contingency amounts at default levels established by federal guidance. Although federal guidance allows for the lowering of contingency, it is not clear that the risks posed to the project have been mitigated to such an extent that reducing contingency at this time is warranted.

Elements of the Authority's Cost Estimate

The Authority is required by state law to provide a cost estimate of the 171-mile M-B segment in its biennial project update reports. As indicated in Figure 1, the Authority does so by first calculating the project's stripped cost and then increasing that amount to account for inflation and contingency. A project's "stripped cost" is the amount it would cost to complete the entire project in one year—generally the same year in which the estimate is conducted. Using the project's anticipated construction schedule, stripped cost is then distributed over time and increased (escalated) to account for future inflation. Lastly, contingency is added to the escalated costs to account for uncertainties, possible future changes to design, and unforeseen conditions such as poor soil conditions or higher than expected prices for real estate acquisitions. Table 1 shows the Authority's current $36.75 billion cost estimate for the M-B segment, broken down into stripped cost and the amounts added for escalation and contingency, compared to the same three cost components from the previous 2023 Project Update Report cost estimate.

Figure 1. The Components of a Cost Estimate



Source: Federal guidance and the Authority's cost estimate documentation.

As Table 1 shows, the stripped cost estimate for the M-B segment has increased by $3.3 billion (13 percent) since 2023. However, the Authority took a new "bottom-up" approach to estimating stripped costs for the 2025 supplemental report that it intended to result in a more accurate and robust estimate. The Authority has also made design changes to certain parts of the project, including using a single track on portions of the M-B segment and scaling down stations, which we discuss in more detail later. As such, the results are not strictly comparable to those from the 2023 Project Update Report, in which the Authority calculated stripped costs using the parametric cost estimating method—also known as a "top-down" approach—that relies less on the project's specific design than on historical data from comparable projects.

One exception where the approach to the estimates was the same and the results are directly comparable is the 119-mile section currently under construction in the Central Valley. Comparison of those costs to 2023 shows that the stripped cost for civil construction in the Central Valley has increased by approximately $1.8 billion, representing over half of the $3.3 billion increase in stripped cost. The Authority explained that the increase in the Central Valley stripped cost, which includes executed change orders, was driven by changes to scope of work, differing site conditions, and construction delays resulting from third-party issues. We discuss the Authority's methodology for calculating each of the three components—stripped cost, escalation, and contingency—in further detail below.

Table 1. Comparison of Cost Estimates for the M-B Segment, 2023 to 2025 (In Millions)

	2023	2025	Increase/ Decrease	% Increase/ Decrease
Stripped Cost	$26,490	$29,802	$3,312	13%
Escalation	$1,980	$1,268	$(712)	-36%
% Added for Escalation[1]	*7%*	*4%*		
Contingency	$6,854	$5,681	$(1,173)	-17%
% Added for Contingency[2]	*24%*	*18%*		
Total[3]	$35,323	$36,750	$1,427	4%

Source: The Authority's 2023 and 2025 cost estimate data.

[1] This percentage is derived by dividing the amount of escalation by the amount of stripped cost.
[2] This percentage is derived by dividing the amount of contingency by the total amount of stripped cost combined with escalation.
[3] Total may differ due to rounding.

The Authority's Process for Calculating Stripped Cost Aligns with Best Practices

In our review, we found that the Authority's process for generating the stripped cost estimate was supported and aligns with best practices. Our review compared the Authority's cost estimating methodology with best practices and guidance from the FRA and the U.S. Government Accountability Office (GAO) and

found that the Authority generally followed these federal guidelines. While we did not conduct a comprehensive review of the methodology for every project element due to time constraints, we reviewed the Authority's estimating process for a selection of project elements that constitute about 70 percent of the Authority's cost estimate: Central Valley construction, civil construction and right-of-way capital costs for the Merced and Bakersfield extensions, and track construction.

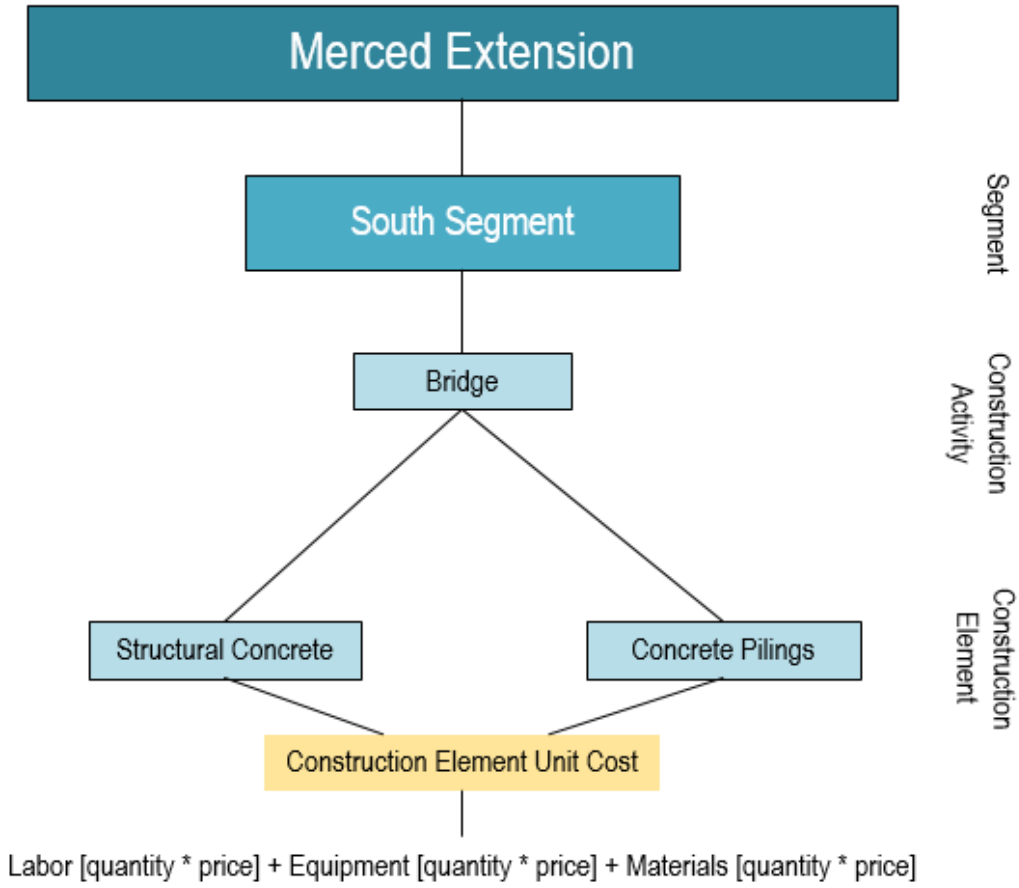
The Authority estimated the Central Valley construction stripped cost using *estimate-at-completion* reports. To calculate a total cost, the estimate-at-completion reports consider actual expenditures to date, the current cost of remaining but unbuilt scope items under contract, and potential future change orders. The Authority's use of estimate-at-completion to generate cost estimates aligns with best practices from the GAO. We also verified that the Authority's estimate-at-completion reports accurately traced to its stripped cost estimates for Central Valley construction.

For civil construction of the Merced and Bakersfield extensions, as well as for track construction, the Authority developed a stripped cost estimate using a bottom-up estimating approach. According to the FRA's capital cost estimating guidance, the bottom-up estimating approach is an appropriate method given the extensions' current level of design. Referenced above, this approach generally builds the estimate by dividing the project into geographical segments, which are then further divided into the construction activities that will compose the segment, such as bridges or guideway.[1] A given construction activity is then broken down into discrete construction elements. For instance, structural concrete and concrete pilings are two construction elements that may be used in constructing a bridge. Figure 2 illustrates an example of the breakdown for a bridge planned on the Merced extension. The Authority's design contractors determined a unit cost for each construction element based on its labor, material, and equipment costs multiplied by the quantity of each they believe will be needed. In doing so, the design contractors made certain assumptions regarding quantities and costs, such as that right of way will be procured prior to the start of construction and there will be no labor or equipment availability constraints.

The design contractors for both the Merced and Bakersfield extensions based unit costs on information obtained from the Department of Industrial Relations, the California Department of Transportation, and other industry sources. The Authority itself estimated the cost of track construction using quantities provided by its track and systems design contractor. The Authority was able to provide us underlying documentation for the unit costs in its stripped cost estimate for the Merced and Bakersfield extensions, as well as for track construction. Although we did not verify the accuracy of each unit cost nor therefore the total sum of all unit costs, we reviewed a selection of labor, equipment, and materials costs from the Authority's underlying documentation and found that it adequately supported those costs.

[1] The stripped cost estimate also includes other costs, such as administration and professional services.

Figure 2. Example of Stripped Cost Breakdown for the Merced Extension



Source: Merced extension cost estimate documentation.

To reduce costs on the M-B segment, the Authority incorporated certain design changes, which it terms "optimizations," into its stripped cost estimate.[2] As part of optimizing the design of the M-B segment, the Authority identified high-cost civil infrastructure that it believed could be eliminated or reduced, including certain viaducts and embankments. We reviewed 13 such design changes mentioned in the supplemental report and found them to be supported by underlying documentation from design contractors. We did not, however, seek to determine whether the optimizations described in the supplemental report would require changes to existing agreements that the Authority may have with third parties.

[2] In the supplemental report, the Authority stated that through resequencing work, refining design criteria, and adopting innovative engineering methods, it was able to offset $14.28 billion in cost increases for the M-B segment. We did not verify this amount because we focused our review on assessing the cost estimates for the segment as currently defined.

The supplemental report contained only limited descriptions of the design changes, which did not make clear exactly how the project was changing. For example, the supplemental report mentions adopting a "phased approach to station development" to save costs. However, the report did not specify that the Authority reduced the dimensions of the station platforms and office and functional space. The underlying documentation we reviewed indicated that the Authority is prioritizing building the elements it believes are necessary for safe and comfortable passenger service for the initial estimated ridership of the M-B segment. The Authority would still have the option to later add extra space and elements, such as functional spaces and transit facilities.

The Authority also changed the track and systems from a double- to single-track operation in certain areas of the M-B segment to save costs. However, the supplemental report did not clearly describe the extent of these changes or where they occur. For example, on the Bakersfield extension a single track has been integrated into the embankments that were once planned to have double tracks. The Authority also intends to initially lay only a single track on structures such as viaducts, although the structures themselves were not redesigned for single track and will remain able to accommodate double tracks. Also, the Merced extension was changed to have a single track rather than two tracks for 19.7 miles in the northern portion as the route approaches Merced. The Authority was able to provide us evidence of engineering reviews through which it verified the quantities used in the design changes that had been implemented in the cost estimate. Nevertheless, the Authority should take steps going forward to ensure that it provides sufficient description of design changes for stakeholders to understand what the cost estimate represents in terms of these important public-facing elements of the high-speed rail system.

The Authority's methodology for determining stripped cost for right of way on the Merced and Bakersfield extensions appeared reasonable. To generate the stripped cost estimate of right-of-way costs for the Bakersfield and Merced extensions, the Authority estimated capital costs at the level of individual parcels as well as various consulting costs, such as appraisal and acquisition services. We focused our review on the methodology for determining capital costs, which comprise about 83 percent of the estimate. Capital costs include relocation of existing occupants; acquisition of the property following a negotiated offer; and the costs of condemnation—the legal process through which eminent domain is executed. To estimate capital costs for its current estimate, the Authority used market research it conducted in 2023 of parcels it deemed comparable based on their location. Additionally, the Authority adjusted parcel costs using professional judgment to account for potential litigation. We requested, and the Authority was able to provide to us, some of the inputs it used to estimate these costs, which included the 2023 market research. According to the Authority, future potential design changes to the Merced and Bakersfield extensions could materially affect the parcels it needs to acquire, and therefore the capital cost estimate.

The Authority Used Acceptable Rates for Escalation, but the Estimate's Accuracy Depends on Maintaining the Schedule

The Authority used acceptable sources to account for expected inflation costs, but to the extent the project does not stay on schedule, the resulting costs are more likely to be higher than estimated. Table 1 showed that the 4 percent added to account for inflation was lower in the current estimate than the 7 percent added

in 2023. This decrease is likely due in part to a shorter duration of time between the year of the current estimate and the planned completion of construction. In other words, the Authority is planning to construct the remainder of the M-B segment over the course of fewer years than it did previously, leading to less compounding of costs. In addition, the inflation rate sources that the Authority used are now forecasting lower inflation for upcoming years than when the Authority used them in 2023.

In 2024, the Authority's Board adopted a policy outlining certain cost estimating practices, including that the Authority should employ a methodology for inflation and escalation estimates that is credible and uses appropriate sources, to include the California Department of Finance and the Federal Reserve Bank. In its estimate, the Authority used these two sources, specifically the Department of Finance's Consumer Price Index for urban consumers (CPI-U) and the Federal Reserve Bank's Personal Consumption Expenditure price index (PCE). The Authority used Department of Finance CPI-U projections through June 2028, with that inflation forecast ranging between 2.5 and 2.8 percent annually. The PCE forecasts an even two percent inflation for 2029 and beyond. We verified that the Authority used an FRA template when applying inflation to its cost estimate. We also found that the Authority did not update its inflation forecast when estimating the cost of trainsets and instead used the estimate it developed in 2023, in which inflation rates were higher. The Authority explained that it reviewed the existing trainset estimate and determined that no new cost estimate was needed. When we updated the existing estimate with the rates in the Authority's current inflation forecast, the estimate decreased less than one percent as a result.

Other sources for forecasting inflation exist. In addition to the sources named above, the Board policy states that the Authority may use sources more specific to construction projects. As recently as the cost estimate in the 2022 Business Plan, the Authority reported using an inflation forecast that included general consumer price index factors as well as a specific construction cost index. However, in the cost estimate for the 2023 Project Update Report, the Authority used only the CPI-U and PCE consumer indices as its sources for its inflation forecasts. The 2022 forecast included inflation rates for out-years that were higher than those in the current forecast—three percent versus two percent—but it is not clear whether that would be the case if the Authority reproduced the 2022 forecast today. Authority staff acknowledged that opportunities exist to use construction-specific indexes but stated that the Authority chose to be consistent with the sources it used in its prior 2023 estimate.

Although the Authority used acceptable sources to escalate costs, the reliability of its estimate depends on the ultimate accuracy of projected inflation rates, as well as the accuracy of its forecasted schedule. Projected inflation rates are a prediction, and there is always the risk that the prediction may be wrong. If the actual inflation rate is higher than predicted, all else equal, the Authority's current cost estimate would be too low. Furthermore, the Authority applies inflation based on when it anticipates spending funds according to the project schedule. Delays in the schedule will cause increases in the impact of inflation because the effect of inflation is cumulative. When costs occur later than expected, they are subject to the effects of inflation for a greater length of time and are thus higher than estimated. For example, the Authority's forecasted escalation multiplier for dollars in 2030 is 15.1 percent, compared to 12.8 percent for 2029. If the Authority experiences a schedule delay that leads to later-than-planned spending on construction costs, such as purchasing concrete or steel in 2030 that it currently plans to purchase in 2029,

those costs will be greater than currently estimated. In a subsequent section of this report, we discuss risks that the Authority must address to stay on schedule.

Contingency May Be Insufficient to Cover Actual Construction Costs

The Authority decided to lower its budgeted contingency because of what it described as progress on the oversight, design, and construction of the project. However, the resulting contingency amounts reflect a confidence that is complicated by the project's past experience and the challenges it still faces. As we describe earlier, the Authority adds contingency to the cost estimate to account for risks to completing the project at the baseline, escalated costs. In its 2023 Project Update Report, the Authority's total contingency added to the M-B segment was about 24 percent of total costs. By comparison, the contingency added to the current estimate is 18 percent.

To determine the contingency needed and allocate that contingency across the project, the Authority uses a Federal Transit Administration (FTA) risk model. The FTA developed the risk model based on actual cost data collected during studies of past transit projects it has overseen. The FTA uses this data to develop default risk factors, which act in the estimate as cost multipliers. The default risk factors are based on the level of design or construction progress of specific cost categories, like civil construction, track, and right-of-way acquisition. All else equal, the further along a project is in design or construction, the lower the risk factor and the less additional cost needed to establish the contingency amount. As such, some amount of reduction in contingency would be expected for the M-B segment as construction progresses in the Central Valley and as design of the extensions, track, and systems moves forward.

However, we determined that the reductions in overall project contingency had another cause, which is that, although the Authority increased the default risk factors applicable to the current level of design and therefore contingency costs for some project elements, it more often lowered risk factors below these default levels. The cumulative result was an overall contingency cost considerably below what the default levels would produce. The FTA's instructions for the model direct the user to adjust default risk factors upward or downward to reflect project-specific conditions. The Authority explained that its cost estimating team held workshops with subject matter experts working on the project to assess the level of contingency that would be most appropriate for various cost categories. As a result of these workshops, the cost estimating team made adjustments to the FTA's default risk factors. We selected a range of specific categories, including track and environmental mitigation for hazardous materials, in order to determine the reasoning for lowering the associated risk factors. Authority staff emphasized the role of professional judgment in setting risk factors, and we found that the Authority could generally provide specific rationales for the reductions in perceived risk, such as improved understanding of soil conditions that provided more certainty for aspects of civil construction.

We question the reliability of setting contingency amounts lower than the default levels the FTA provides, in part because the history of the project thus far has included significant cost overruns. The Authority's process for lowering contingency is allowable under FTA guidance, and the amount of contingency available for those elements of the M-B segment still in the design phase remains slightly above the

minimum level suggested by the FTA. Authority staff indicated that lessons learned on the 119-mile segment in the Central Valley give them more confidence in lowering contingency because they have developed strategies to mitigate the risks that led to past cost overruns. As we discuss in the next section, some of these risks stem from problems that will likely require solutions beyond the Authority's direct control. As such, setting contingency amounts in a manner that suggests the project will fare better than other projects have historically carries some budgetary risk.

To quantify the specific effect of these changes on the project budget, we compared the contingency amounts in the Authority's cost estimates to what they would have been had the Authority instead used the default risk factors from the FTA. In doing so, we recalculated contingency using the default risk factors for all project segments, including the Merced and Bakersfield extensions. In some cases, such as for trainsets, the result was a lower amount of contingency than the Authority actually applied. Overall, however, the results were higher. In fact, had the Authority maintained the default risk factors, it would have added more than $1.2 billion to its $36.75 billion M-B cost estimate. The Authority stated that its intention is to limit actual project costs below even the contingency amount included in its budget. However, given the project's overall budgetary situation outlined above, this $1.2 billion cost difference is one of several reasons we believe the Authority and state lawmakers should temper expectations regarding a potential funding surplus that could be used outside of the M-B segment.

The M-B Segment Schedule Assumes the State Will Take New Actions to Reduce Risk of Delay

The schedule information presented in the supplemental report is consistent with the Authority's underlying timeline for completing the M-B segment, but certain schedule assumptions rely on the success of mitigation efforts that remain uncertain. We reviewed the published schedule in the supplemental report and found that the dates generally aligned with the most recent revised baseline schedule, which is the Authority's mechanism for planning and monitoring progress toward completing the M-B segment. For example, the dates in the supplemental report for completing the civil construction of the 119-mile section, the acquisition of right of way on the Merced and Bakersfield extensions, and the overall completion of the M-B segment aligned with those in the revised baseline schedule.

For some dates in the supplemental report that did not align with the revised baseline schedule, the Authority provided other support that we generally found to be appropriate.[3] For example, the dates in the supplemental report for procuring certain construction materials are earlier than those in the revised baseline schedule. The Authority explained that it based those procurement start dates in the supplemental report on the procurement strategy it is in the process of developing, as opposed to the previous procurement strategy that the revised baseline schedule reflects. We verified that the Authority recently released an invitation for bids for certain track materials, which supports that the Authority is actively pursuing the earlier procurement dates shown in the supplemental report. However, as this example also demonstrates, the Authority continues to develop its new procurement strategy. Until the strategy is

[3] We identified some other discrepancies that required clarifications, which we provide later in this report.

finalized and aligned with its baseline schedule, the Authority will have limited ability to ensure that its procurement timeline is realistic or track its performance against the schedule. Consequently, the Authority should prioritize finalizing its procurement strategy, as we previously recommended. Appendix B lists the status of past recommendations we made to the Authority.

Notwithstanding its general alignment with the baseline schedule, the supplemental report does not make sufficiently clear that delay is likely without new policy action by state lawmakers. The supplemental report presented a schedule envelope for the M-B segment. A schedule envelope is the target end date plus schedule contingency, which is additional time built into the project schedule to absorb delays caused by risks. The FTA has developed guidance that indicates that schedule contingency should be calculated by conducting a statistical simulation of the schedule that accounts for risk, also known as a schedule risk analysis. This analysis produces a value that shows the statistical likelihood of meeting a range of completion dates when the impacts of key schedule risks are modeled. The guidance recommends considering the date that falls in the 65th percentile of a statistical distribution—known as *P65*—to develop a schedule envelope. In a previous review, we reported that the Authority had not yet conducted such an analysis for the M-B schedule and recommended it do so. Although not discussed in the supplemental report, the Authority has since completed this risk analysis to determine a P65 completion date of December 2033, or about two years beyond the target M-B end date of January 2032.

The Authority's risk analysis and resulting P65 date of December 2033 assume timely and effective implementation of mitigations to reduce the potential impacts of known risks to the schedule. Practically speaking, these assumptions have the effect of shrinking the envelope and moving the P65 date earlier than it would otherwise be. As such, the analysis indicates that the Authority is unlikely to complete the M-B segment within that envelope if mitigations for key risks of delay are implemented later or less effectively than the Authority assumed.

M-B Schedule Risk Mitigations that Require Action from the State

1. Seek options to increase judicial capacity and streamline proceedings for program-related property acquisition cases.
2. Partner with the State to enhance engagement and enforcement by ensuring third parties actively participate in scheduled meetings with the Authority and adhere to established timelines.
3. Work with the State to expand oversight and accountability measures to address bottlenecks and hold third parties responsible for meeting commitments.
4. Pursue exemptions or waivers to elements of the existing California Environmental Quality Act requirements that can better enable clean power interconnection.
5. Partner with the Legislature to streamline environmental permitting through fair and reasonable legislative alternatives or compromises.

Source: The Authority's enterprise risk management documentation and schedule risk analysis documentation.

Some of the Authority's assumptions that make the 2033 date possible are of concern because they are not within the Authority's control and would require action from the State. As indicated in the text box, one of the Authority's mitigation plans for risk related to acquiring right of way includes the State increasing judicial capacity and streamlining proceedings for the project's property acquisition cases, which would in turn provide the project with timely resolutions and cost savings. The Authority cannot implement this mitigation without State intervention, and although the supplemental report lists this and some other mitigations as needed policy changes, the report does not explain that the projected M-B schedule would be impacted—perhaps significantly—if the interventions do not occur.

We will review the efficacy of some of these proposed mitigation efforts as part of our fiscal year 2025-2026 annual work plan and, based on the results of our review, recommend possible solutions for the Authority or state lawmakers to improve the efficiency and effectiveness of the project's delivery.

The Authority Has Not Provided Key Details About Its Plans for Completing and Operating the M-B Segment

We determined that the supplemental report accurately presents the funding available for the project. This funding includes $15 billion in Cap-and-Invest program revenues from 2031 to 2045. However, the supplemental report does not provide information about the amount or timing of financing the Authority will likely need to keep the M-B segment on schedule for completion by 2032. The supplemental report also omits required information about the planned operations of the M-B segment, including the timing of entering operating agreements and which rail lines will connect with the high-speed rail system. For the M-B segment and other planned segments of the system, the supplemental report presents forecasts of anticipated benefits, costs, and net operating profit or loss once the system is operational. We found that the Authority used a reasonable and consistent approach to develop those forecasts.

The Supplemental Report Omits Information on Financing, Which Will Be Necessary to Control the M-B Cost and Schedule

We determined that, in general, the supplemental report's identified funding and expenditure amounts are accurate and supported. In doing so, we verified the amounts with significant changes since our review of the Project Update Report that the Authority released in March 2025. Specifically, the Authority incorporated in the B.3 funding table new information about Proposition 1A capital outlay support and administration funds. The Authority did not include that information in its tables on funding and expenditure in past annual reports, which focused only on funds available to spend on project costs, but it explained in the supplemental report that it included these totals in the table to provide a more holistic view of all commitments against realized and forecasted funding. The table also included a line item for future Cap-and-Invest funding from 2031 through 2045. Although that funding was not yet certain when the Authority released the supplemental report, in September 2025 the Legislature approved and Governor Newsom signed legislation reauthorizing and extending the renamed Cap-and-Invest program and dedicating an annual $1 billion from the program's revenues to the Authority through 2045. Our review and these

subsequent events therefore confirm the supplemental report's included budget of $43.16 billion in identified funding compared to a total estimated cost of $36.75 billion.

However, the supplemental report does not provide information about the amount or timing of financing the Authority will likely need to use to access newly approved funds sooner, allowing it to keep the M-B segment on schedule. Although the Authority secured $15 billion in new future revenues, it acknowledges in the supplemental report that a "pay-go" approach wherein the Authority receives and uses the annual $1 billion as it is collected through the Cap-and-Invest program will not allow the Authority to complete construction as currently scheduled. Indeed, the majority of the new funding (about $13 billion) would not be available until after the currently projected completion date of 2032. To the extent this approach draws out completion for years beyond those scheduled, it would also subject the project to additional inflationary costs. In our review of the Authority's 2024 Business Plan, we reiterated our recommendation that the Authority, for each unfunded component of the M-B segment, provide a range of dates by which funding must be identified and secured to construct the segment on schedule. The Authority agreed with the recommendation and stated that the 2025 Project Update Report would include further updates. However, the supplemental report does not include dates and amounts of financing that would need to be secured against future funding.

The supplemental report does not specify the anticipated costs of such financing, but they are likely to be significant. The supplemental report's Table 3.0 portrays total financing costs (presented as annual funding commitments under various timeframes) for a range of scenarios other than the M-B segment. The Authority's analysis that supports this table indicates that the total costs are based on interest rates associated with issuing tax-exempt municipal bonds. However, the table does not include the equivalent information for M-B as a standalone segment. When we asked the Authority if it had performed an equivalent analysis for financing the standalone M-B segment, it provided us results of a financing scenario indicating that—under the same interest rate assumptions as the rest of Table 3.0—financing $8.6 billion for the M-B segment would incur about $4 billion in interest costs.

Although the ultimate costs of financing depend on factors yet to be resolved, such as specific amount, term, and interest rate of debt, the potential magnitude of these costs demonstrates that it is important for stakeholders to have clear and reliable information about the anticipated costs of financing. In part, this information should be used to understand how much less the segment may cost with financing than under a "pay-go" approach. By publishing its plans for financing the segment using the new funding source as support, the Authority would also provide certainty about the timing by which it needs to secure the upfront cash that the new funding makes possible. This information will be particularly important in a scenario where additional state action or approval is required to issue the corresponding debt. Finally, certainty around the magnitude of financing costs is key to understanding the overall sufficiency of its identified funding for the M-B segment.

Information About Eventual M-B Operations Is Limited

The supplemental report provides limited information on envisioned operations for the M-B segment. It defers providing any schedule for completing agreements with regional partners for operating the M-B

segment, which is one of the statutory requirements that we outline in Appendix A. The Authority stated it would provide more information about these agreements in the 2026 Business Plan. Related, the supplemental report does not clearly describe changes in the Authority's assumptions about the M-B segment's service connections with other regional rail systems. In previous annual reports, the Authority's depiction of the ultimate operating segment incorporated connections to both the San Joaquins and the Altamont Corridor Express (ACE) rail lines connecting to Sacramento and San Jose, respectively. However, the Authority's analysis underlying the supplemental report now assumes that the M-B segment will connect only to the San Joaquins rail line. However, in addition to the missing schedule for completing agreements, discussed above, the report does not include a map or explicit discussion of the planned M-B segment connections.

According to the Authority, it excluded the ACE connection in Merced for the M-B segment because that connection depends on the completion of the Valley Rail project, which it does not expect to be operational by 2030. According to the Authority, current projections show the elimination of the ACE connection as having minimal impact on projected ridership for the M-B segment. Nonetheless, if the State's vision remains to connect high-speed rail to both the San Joaquins and ACE rail lines, the Authority may need to develop forecasts for the M-B segment that assume both connections to provide adequate ridership and service planning information for decisionmakers.

The Authority's Approach to Providing Benefit and Cost Information for the M-B Segment Was Generally Reasonable and Consistent with That Used for Other Potential Scenarios

The supplemental report presents forecasts of anticipated net revenue and other benefits for different scenarios for the future operational high-speed rail system. Although we did not validate all the specific benefit amounts presented in the supplemental report, we reviewed the process the Authority used to develop forecasts for the M-B segment and, as we discuss below, did not identify any issues of concern. We also concluded that the Authority applied the same process to develop its forecasts for the additional rail system scenarios that the supplemental report presented. As part of our review, we determined that key factors driving the differences in the amounts of projected benefits between the M-B segment and other presented scenarios were the results of projected ridership and labor markets.

Net revenue forecasts, provided in Table 1.5 of the supplemental report, present the anticipated financial outlook for the high-speed rail system once it is operational. The Authority calculated net revenue for the M-B segment by subtracting operations and maintenance costs from total revenue, which includes revenue from riders who buy tickets and additional revenue from other income-generating activities, like advertising and sponsorship, referred to as *ancillary revenue*. We confirmed that the Authority derived the operations and maintenance costs in the supplemental report, as well as ridership revenue projections, from the data produced by modeling future high-speed rail system operations, which we discuss further below. Ancillary revenue is not a product of the Authority's ridership and operations modeling. Instead, the Authority's records indicate that those projections are based on research into potential revenues from activities like advertising and naming rights, some of which was focused on transportation systems in California and other states. The Authority acknowledged in the supplemental report that the ancillary revenue projections reflect only a preliminary analysis of potential revenue-generating sources; we confirmed that these

projections do not reflect offers from or preliminary agreements with potential financial partners. As such, we focused our review on confirming the reported ancillary revenue figures are supported by the Authority's revenue model.

Beyond the financial outlook, the Authority also analyzed the value of other benefits that it anticipates the future high-speed rail system will provide to riders and communities and presented the projected dollar values of those benefits in comparison to the system's costs in Table K.0 of the supplemental report. The Authority calculated benefits using ridership projections and economic indicators like the job markets of cities to be connected by the system. For purposes of this broader comparison, the system's costs include operations and maintenance costs as well as the cost of constructing the system. To generate ridership projections, the Authority used the same model it used for the 2024 Business Plan. To calculate the monetary value of benefits, the Authority used federal Department of Transportation (DOT) criteria that establishes standard methodology for various benefit categories. We verified the Authority's approach by reviewing a selection of benefits, which the text box lists. For example, the Authority calculated vehicle operations and maintenance cost savings, which reflect reductions in vehicle-related expenses such as fuel consumption for privately owned cars and light-duty trucks. The Authority calculated these savings by multiplying the expected reduction in vehicle miles traveled, estimated through transportation modeling, by the DOT-recommended dollar value per mile.

Benefits Reviewed by OIG-HSR

- Travel and transfer times
- Vehicle operations & maintenance
- Residual value
- Firms' wider economic benefits
- Wages wider economic benefits

In addition to estimates for DOT-defined benefits, the Authority included an estimate of a category of benefits that is not yet established in federal guidance. The Authority terms this category *wider economic benefits* in Table K.0 of the supplemental report. The Authority's process for calculating wider economic benefits includes two categories, wages wider economic benefits (wage benefits) and firms' wider economic benefits. The calculation of wages benefits estimates the increase in wages for certain California workers that high-speed rail would generate by improving accessibility between geographical labor markets. The Authority based its approach to estimating these benefits on research of the impact that the ACELA train system had on wages in the northeast labor markets it connects. The Authority applied the wage impacts from that research to data from the U.S. Bureau of Labor Statistics to develop its benefit forecasts for the M-B and other segment scenarios.

Wages benefits accounts for the vast majority of all wider economic benefits quantified in the report. According to the Authority, the DOT's published guidance on benefit-cost analysis does not provide specific direction for applying a wider economic benefit analysis, and we identified no discussion of the benefit—or guidance for calculating it—in the federal materials we reviewed. As such, although we reviewed the Authority's rationale for measuring the benefits and that logic is fundamentally sound, we do not conclude on the appropriateness of its approach. However, we did note that the Authority vetted its approach by presenting the results of its analysis at academic and industry conferences, including the Society for Benefit

Cost Analysis Annual Meeting. Importantly, the Authority also included a version of its wider economic benefits analysis in its 2023 Federal-State Partnership for Intercity Passenger Rail Program grant application and that application was successful in obtaining a nearly $3.1 billion commitment in federal funds—although the FRA is seeking now to withdraw from that commitment.

Because of their magnitude relative to other calculated benefits, the results of the wage benefits analysis significantly influence the overall ratios of benefits and costs presented in the supplemental report for the M-B and other segments. Indeed, this benefit represented the highest dollar-value benefit in nearly every system scenario presented in Table K.0. However, it contributed relatively less to the M-B scenario than to the others. For the M-B scenario, the benefit was approximately $2.9 billion, compared to estimated benefits of $20.4 billion to $28.7 billion for the other versions of the high-speed system presented in the table. Because the M-B segment connects labor markets in relatively few metropolitan areas, the projected wage benefits were substantially lower than in other scenarios for segments that include more metropolitan areas and larger labor markets.

Certain Information Included in the Supplemental Report Requires Clarification

Although the supplemental report is for the most part supported and accurate, we identified several areas that require correction or additional context to ensure readers interpret them correctly. One such area pertains to the Authority's enterprise risk management process, which is designed to identify and prioritize risks to the project. The Authority's discussion of the process in the supplemental report leaves out some key information related to the Authority's efforts to address or mitigate these enterprise-wide risks. The Authority listed in the supplemental report all the risks it identified through its enterprise risk process and elaborated on several of the top priority risks and the steps to mitigate them. However, we observed that the supplemental report did not clearly describe the status of the mitigations in the same way the 2024 Business Plan and the 2025 Project Update Report did. Specifically, those prior reports stated which controls had been established and which were in progress, thereby giving the reader more complete information about the relative urgency of the risks discussed; the supplemental report omits this information. As we have previously stated, the Authority should provide a thorough discussion of risks in all annual reports as required by state law.

Although the schedule in the supplemental report is generally accurate, as discussed above, we identified some dates that did not match the baseline schedule or other appropriate support. First, the supplemental report shows that right-of-way acquisition on the 119-mile segment will be completed by the end of 2025. That date is earlier than the completion date that the Authority presented in the 2025 Project Update Report and that its current internal forecasts show, which is completion in mid-2026. Second, the completion dates for station construction in the revised baseline schedule are earlier than those presented in the supplemental report. Authority staff stated that they chose to present the later station completion date in the published report to allow for a buffer that would make the date more reliable.

The summary of costs and benefits detailed in Table K.0 of the supplemental report contains an error. The scenario labeled San Francisco-Gilroy-Bakersfield (with Merced) presents figures that do not in fact include Merced. Additionally, the scenario labeled San Francisco-Gilroy-Bakersfield in Table K.0 reflects a scenario, according to the Authority, where between Gilroy and San Jose, instead of building high-speed rail track, high-speed rail trains will run on existing rail tracks. Consequently, the Authority's summary of costs and benefits does not include a scenario that captures a San Francisco-Gilroy-Bakersfield (with Merced) scenario, despite the table's suggesting otherwise.

Finally, Tables B.1 and B.2 in the supplemental report do not clearly explain that only the total row for the 2025 PUR Estimate column is presented at the P65 level of contingency while the other 2025 PUR Estimate rows are presented at a lower level. As such, only the total row is comparable between the BP 2024 column and the 2025 PUR Estimate column. Although the underlying strategy behind this change in the presentation is sound, the Authority could have provided a basic description of the change in its report.

Recommendations:

To address concerns that we identified in the supplemental report, the Authority should provide the following in its 2026 Business Plan, or sooner:

- A description of the actions it has taken, or that it needs to take, to secure financing to complete the M-B segment as scheduled, including the cost and timing of such financing.
- A description of the actions it has taken, or that it needs to take, to engage lawmakers to put in place mitigations it has identified as critical to ensuring the schedule is achievable.
- A description of significant design changes that affect the cost estimate.
- Ridership and service planning information that includes the ACE rail line.

Respectfully submitted,

Benjamin M. Belnap, CIA
Inspector General, High-Speed Rail

Appendix A

Table A.1. Summary of Statutory Requirements per Public Utilities Code §185033.5	Requirement Met
(a) Summary of the overall progress of the project.	Yes
(b, c) The baseline, current, and projected budget for all project phase costs.	Yes
(d) Expenditures to date for all project phase costs.	Yes
(e) Current and projected work schedule and the baseline schedule.	Yes
(f) Summary of milestones achieved and future milestones to be reached (two-year period).	Yes
(g) Issues identified and actions taken to address those issues (two-year period).	Yes
(h) Risks to the project and steps taken to mitigate those risks.	Yes

Table A.2. Summary of Statutory Requirements per Public Utilities Code §185033.7 (SB 198 Requirements)	Requirement Met
(2)(b)(1) Schedule related to the delivery of each of the following:	
• 119-mile dual track segment from Madera to Poplar Avenue	Yes
• Right-of-way, planning, and advance engineering for the Merced and Bakersfield extensions	Partially[1]
• Agreements between the Authority, the State, the San Joaquin Joint Powers Authority, and the San Joaquin Regional Rail Commission related to the Merced extension and high-speed rail operations	No[2]
• Updated cost estimate related to the Merced and Bakersfield extensions	Partially[3]
• Funding plan for the M-B segment	Yes
• Additional milestones for completing the Merced-to-Bakersfield segment and Phase 1	Yes
(2)(c)(1) (A-E) Estimated and actual costs, including but not limited to the following:	
• Civil works for the Merced-to-Bakersfield segment	Yes
• Right-of-way, acquisitions, utilities, and other third-party agreement costs	Yes
• Rolling stock, interim use, and stations	Yes
• Contract costs, including contingencies to cover change orders (estimates only)	Partially[3]
• Costs reported in a manner that can be comparable across reports	Partially[3]
(2)(c)(1)(F) Updates on progress achieving project milestones	Yes
(2)(c)(1)(G) Funding commitments, sources, and spending beyond the Merced to Bakersfield segment	Yes

Source: Analysis of the supplemental report.

[1] Planning for extensions to Merced and Bakersfield is not a component broken out in the schedule; however, the Authority clarified that the design-build approach combines planning and construction.
[2] Although the supplemental report provides an update on discussions with the California State Transportation Agency and the San Joaquin Regional Rail Commission regarding agreements that must be established prior to operation, it does not include a schedule related to the delivery of these agreements.

[3] The supplemental report presents costs in year-of-expenditure dollars throughout the report. However, it does not always clearly specify contingency levels, as illustrated in Table B.1: 119-Mile CVS Capital Cost Estimates and B.2: Merced-Bakersfield Capital Cost Estimates, so the reported costs may not be comparable across reports.

Appendix B

Table B.1. Status of OIG Recommendations	Requirement Met
1. Analyze the prospects of receiving federal funds in time to keep the M-B segment on schedule.	Not Applicable
2. Provide information on whether and when additional funds must be identified to keep the M-B segment on schedule.	Partially[1]
3. Update funding plan with information about when and how much funding it needs to meet the earliest and latest dates for completing the M-B segment according to the most current schedule envelope. To the extent the Authority includes funding dates that account for its schedule contingency, it should disclose and explain those considerations.	Partially[1]
4. Present the following regarding federal funding prospects: a. Current remaining funding for targeted grant programs b. Limits on grant award sizes for targeted programs c. Assumptions about future funding being approved by the federal government; and d. Prospects for receiving adequate grant funding, including a range of possible dollar amounts and timeframes.	Not Applicable
5. Provide information about the feasibility of loans, including the results of its consultations with federal lenders, anticipated timeframe, and interest costs for potential loan amounts and any changes to the project's state funding necessary to qualify.	Not Addressed
6. Conduct a risk analysis of the M-B schedule and publish the results, including the Authority's confidence level in its target date for completing the M-B segment and how it determined the amount of contingency time added to establish an envelope for uncertainty and risk.	Partially[2]
7. Review and revise the schedule for completion and operation of the M-B segment.	Addressed
8. Review and revise the associated schedule envelope, identifying opportunities to mitigate delays that have already occurred and prevent future delays.	Addressed
9. Provide information about options for initiating service on a limited section of the M-B segment by 2033, if necessary, and the estimated costs to realize them.	Not Applicable
10. Refine and publish the results of its ridership model, along with other information necessary to provide the most reliable data about the likely need for operating subsidies for the service.	Addressed
11. Present the new procurement timeline established by incorporating its reconsidered procurement strategy, along with a discussion of the likely impacts on the M-B schedule.	Partially[3]
12. Provide information on the implementation status of recommendations stemming from the independent review of its construction quality assurance and quality control processes.	Not Addressed

Source: Analysis of the supplemental report.

[1] The supplemental report includes a funding plan that identifies that additional funding is needed but not when it is needed to keep the M-B segment on schedule.
[2] A schedule risk analysis was done by the Authority; however, it was not described in the supplemental report. We describe the contingency time added in the body of our report.

[4] The supplemental report includes discussion of the procurement strategy and some new procurement timeline information for track and systems and certain construction materials, but it does not include the timeline for procuring construction of the extensions for the M-B segment.

CALIFORNIA
High-Speed Rail Authority

Gavin Newsom
GOVERNOR
Toks Omishakin
SECRETARY
Ian Choudri
CHIEF EXECUTIVE OFFICER

November 13, 2025

Benjamin Belnap
Inspector General, California High-Speed Rail
770 L Street, Suite 920
Sacramento, CA 95814

Dear Mr. Belnap:

We are in receipt of your draft report of the Office of the Inspector General's review of the 2025 Supplemental Project Update Report (SPUR), and this letter provides our responses to that review.

We appreciate your draft report finding that the SPUR provided accurate information that was adequately supported and that the report filled in necessary state law requirements for the Authority's project update, with minor exceptions. While the extension of the Cap-and-Invest Program and the minimum annual $1 billion per year provided to the project makes completing the Merced to Bakersfield Initial Operating Segment within the 2030 to 2033 envelope possible, we appreciate the acknowledgment that for this effort to be achieved within the cost and schedule presented, state lawmakers will need to enact further reforms as suggested by the Authority in our report.

The 2025 SPUR also included additional pathways beyond just the Merced to Bakersfield initial operating segment, presenting opportunities to achieve commercial success at the earliest stages and getting beyond the Central Valley to maximize revenue and ridership potential. While not highlighted in your review, the SPUR also outlines significant opportunities through ancillary revenue generation and asset commercialization beyond just the operation of passenger service that can support the project.

With the addition of the Authority's new CEO in September 2024, we launched a holistic reassessment of the entire program, looking internally at the organization itself as well as the project's design criteria, scope, cost, sequencing, risk and procurement strategy, among others. The SPUR is a reflection of those efforts.

While we believe your review provides an accurate assessment of the project, your review questions the amount of contingency that is included in the Merced to Bakersfield cost estimate, noting that it has been reduced from levels federal guidance provides as a starting point—approximately $1.2 billion lower than what historical data indicates a project at the current development stage may ultimately cost. We believe this warrants further clarification.

Throughout the estimate development process, the level of design completeness, quality and level of quantification detail available, and the bottom-up estimate development were continually

assessed throughout SPUR development to understand the level of maturity of the estimating product being developed from its core components.

The bottom-up estimate has yielded higher stripped costs as compared to a like for like estimate from the prior 2024 Business Plan. The SPUR 2025 estimate reflected the latest information from 2025, including updated base year pricing for labor, equipment, and materials.

The estimate of risk is an evolving process throughout the lifecycle of a project and maintaining default values would also not be following federal guidelines on assessing contingency amounts. In addition, we have taken several initiatives to de-risk the delivery of the program.
1 One such strategy was the development of the Early Works Program, not mentioned in your report, but a new strategy that outlines a process of gaining more certainty on design, geotechnical analysis, procuring right-of-way and relocating utilities prior to constructing major civil infrastructure—a lesson learned from the past.

Therefore, the Authority conducted several workshops on how best to represent the remaining risk and uncertainty and updated the beta modeling factors accordingly. Based on this review there were also instances where contingency values and associated beta factors were increased due to project specifics. The Authority strives to provide the most accurate forecast of risk and uncertainty that is reasonable and grounded in best practices; and while uncertainty is an element of a project that will ultimately be known in the future, the process and ultimately the valuation of risk is sufficiently supported—as your report concludes.

We appreciate your review of our 2025 SPUR and will consider your recommendations as we develop our 2026 Business Plan.

Sincerely,

Mark Tollefson

Chief of Staff

California High-Speed Rail Authority

OIG-HSR Comments on the Authority's Response

1. Because our report includes references to the elements of this apparently new "Early Works Program", we are not concerned by the term itself not being mentioned in our report. The Authority briefly mentions the existence of an "early works program" during the supplemental report's discussion of bottom-up capital cost estimation. We describe the Authority's bottom-up estimation approach and its estimation of stripped costs in detail in this report and conclude that its approach aligns with best practices. However, neither in the supplemental report—nor at any point during our review—did the Authority further describe the program as a stand-alone effort or explain why it would specifically justify lower contingency amounts.

   Even so, our report discusses all the elements—as defined in the Authority's response—of this program. For example, the Authority references greater certainty about geotechnical design; on page 9 of this report, we specifically cite improved understanding of soil conditions as one of the Authority's rationales for lowering contingency amounts for certain construction costs. In addition, the need to complete right-of-way acquisition and relocate utilities in advance of beginning construction mentioned in the response is not a new strategy for the Authority. As we discuss in detail in our February 2025 report, *Pre-Construction Activities for the Merced and Bakersfield Extensions,* the Authority had previously drafted a policy establishing that acquiring right of way and commencing utility relocations must happen prior to construction. The Authority believed that by doing so for the Merced and Bakersfield extensions, it would avoid the cost and schedule risks that occurred on the initial segment. Nonetheless, as we make clear in the February review and this report, the Authority's ability to complete those tasks efficiently and on schedule will likely require policy interventions beyond its direct control.