CALIFORNIA High-Speed Rail Authority

California High-Speed Rail
BRIEFING: February 18, 2020, Board Meeting Agenda Item #2

TO: Chairman Mendonca and Board Members

FROM: Frank Vacca, Chief of Rail Operations

DATE: February 18, 2020

RE: **Early Train Operator Side-By-Side Study**

Background

Prior Studies

In 2018, the Authority tasked the Early Train Operator (ETO) with preparing a study of the potential ridership, revenue and operation of an interim service on two different standalone lines, one between Merced and Bakersfield in the Central Valley (Central Valley Corridor Study) and the other between San Francisco's 4th Street/King Street Station and Gilroy on the Peninsula (Peninsula Corridor Study).

Central Valley Corridor Study

This study found that the introduction of an early operation high-speed rail service in the Central Valley between Merced and Bakersfield will produce significant value and benefits to communities, public transportation passengers and operators as well as to the State of California.

When connected to the existing state passenger rail network, this spine would connect seamlessly at the Merced Station to existing passenger services north to Sacramento via the San Joaquin and Altamont Corridor Express (ACE) rail services and west via ACE and south at Bakersfield Station to Amtrak Thruway Bus connections into the Los Angeles Basin.

The study showed that high-speed rail service would significantly reduce travel times through the Central Valley, allow for much more frequent service, and generate significantly higher ridership and reduced greenhouse gas (GHG) emissions, while potentially reducing the required level of subsidy for the combined corridor of high-speed rail, ACE, and San Joaquin services.

Peninsula Corridor Study

The conclusion for the Peninsula Corridor Study indicated that early high-speed rail operation in the Peninsula shared corridor as a standalone service does not provide enough ridership benefits and revenue to justify early standalone operation because most of the benefits will be already captured with Caltrain's electrification project and ongoing improvements in the corridor. The study also concluded that the benefits from this investment would materialize when the Central Valley is connected to the Peninsula Corridor as part of the Silicon Valley to Central Valley Line.

Based on these conclusions, Authority staff made a policy recommendation to use the remaining available funds, beyond the $15.6 billion 2019 Program Baseline Budget which is associated with meeting the federal

and regional commitments and Phase 1 environmental clearance, to complete the 171-mile line connecting Merced, Fresno, and Bakersfield.

Additional Studies requested after the May 1, 2019 Project Update Report
Subsequently, the Authority Board of Directors requested that additional studies be performed to help inform its decision making on adopting an expanded Program Baseline Budget and Schedule based on available funds. These studies included:

- **ETO Central Valley Segment Management & Operations Interim Financial Plan Study**
  The Authority requested that the ETO prepare an expanded Central Valley study in consultation with CalSTA, the San Joaquin and ACE Regional services including a more detailed operations plan, an integrated timetable, optimized bus connections as committed in the May 2019 Project Update Report and adjustments to the Business Model to reflect the recommendations included in KPMG's Business Case. This study is available on the Authority's website including updated ridership and revenue forecasts, updated operations and maintenance costs, and infrastructure requirements identified for connecting the ACE and San Joaquin services with the high-speed rail line in Merced.

- **ETO Side-by-Side Study**
  The Board requested the ETO prepare an analysis comparing the costs and benefits of the Merced-Bakersfield investment policy recommendation to other comparable early investment options in the San Francisco to Gilroy and the Burbank to Anaheim corridors. This Study evaluated a range of costs and benefits including capital and operating costs, ridership, revenue, GHG reductions, and congestion relief. The study was performed in two stages, an initial Qualitative Phase (published October 31, 2019) and a second Quantitative Phase (published on February 12, 2020) including the numeric outputs from the different models used. The Side-by-Side Study was also informed by the results of the ETO Central Valley Segment Management & Operations Interim Financial Plan Study described above.

Summary of the Side-by-Side Study:

The focus of the Side-by-Side Study was to undertake an analysis to answer two fundamental questions:

- Question 1: How do the benefits of early high-speed rail service compare in the three corridors (impact of running high-speed rail trains in the three standalone corridors); and
- Question 2: How do the benefits of early high-speed rail investment compare in the three corridors (impact of Investing $4.8 billion in high-speed rail eligible infrastructure components to improve regional service without high-speed trains service).

The Side-By-Side Study covered three different standalone segments of the Phase 1 System:

- San Francisco / Bay Area (NorCal): Fourth& King Street Station – Gilroy
- Central Valley Segment (CVS): Merced – Bakersfield
- Los Angeles/Anaheim (SoCal): Burbank Airport – Anaheim

This study reflects a completely different situation of three standalone corridors compared to the integrated future Silicon Valley to Central Valley Line and Phase 1 when all corridors will be interconnected.

In the study, the ETO defined four investment scenarios to evaluate the benefits in each of the corridors:

- Scenario 1: Today's operation for purposes of data analysis and as a reference point;
- Scenario 2: Committed future regional projects using approved regional funds and high-speed rail committed bookend investments as a baseline for comparison;
- Scenario 3: Assumed additional regional funds paired with early high-speed rail eligible infrastructure investments; and

- Scenario 4: Complete high-speed rail investment to provide full high-speed rail standalone service in each corridor.

Constraints used to define the Scenarios:
Each corridor provides a number of possible infrastructure projects where high-speed rail eligible funding might be invested, depending on the assumed available funds and certain litigation risks, with a large range of potential benefits. This challenge, combined with the fact that three independent corridors with different characteristics had to be evaluated, caused the ETO to limit the study to a reasonable number of alternatives that provide a fair comparison between the three regions and considered the following constraints:

- The high-speed rail eligible investment that could be diverted is in the order of magnitude of $4.8 billion and meaningful investment alternatives of high-speed rail eligible investment were defined to be used as a threshold to evaluate related benefits;
- High-speed rail eligible investments require that high-speed rail funds can only be invested in high-speed infrastructure within the scope of the Phase 1 system (aligned with Proposition 1A); and
- Additional regional investments are needed to increase regional service; information was used from existing plans and information published and available in the three corridors. This includes ACE, San Joaquin, and Caltrain operations as well as the Metrolink Proposal (dated 09/26/2019) provided to Authority that outlines an early improved service in the Burbank - Anaheim corridor using Zero-Emissions Vehicle (ZEV) technology.

Other information sources:
The ETO also used other publicly available financial and ridership information to inform the analyses and to validate the approaches and estimates. The ETO was not able to verify the accuracy of such information and relied on the information as is and as presented in the various source documents. Ridership and revenue estimates were made using the State Rail Plan model and the ETO used existing information and data provided by stakeholders to estimate operating costs for each scenario. Where data was not available for each scenario, the ETO prorated operating costs based on assumed train miles and existing public base year information.

The scenarios and related costs shown in the ETO Side-by-Side Study are based on ETO estimates and assumptions solely for the purpose of this study. They do not represent a commitment or a request by regional rail operators or other entities to procure, finance, or fund these services. They also do not take into account commitments made in the Cooperative Agreements with the Federal Railroad Administration.

Conclusions:
The quantitative analysis leads to the following conclusions:

- From the high-speed rail program perspective, only Scenario 4 in Central Valley (Merced-Bakersfield) enables high-speed rail operation and provides higher benefits as compared to the other corridors.
- From the operations and maintenance cost perspective, the Central Valley Segment offers the highest reduction in operating subsidy requirement. In contrast, the other two corridors will potentially require an increased subsidy to cover the additional operating costs for improved service.
- From the perspective of the investment needs (capital cost), benefits from early high-speed rail investments can be realized only with considerable additional regional investments in Northern and Southern California. The Central Valley Segment requires a moderate investment of up to $500 million of regional funding commitment to implement the proposed service plan.
- Considering the environmental impacts, the Central Valley Segment Scenario 4 offers the highest environmental benefits and provides the most congestion reduction benefits due to significant reduction in vehicle miles traveled (VMT) in the corridor.

- The Merced to Bakersfield line (CVS Scenario 4) yields the greatest benefits compared to the other two corridors related to the following criteria:
  - Highest Ridership Performance: Measured by the highest increase in Annual Passenger Miles Traveled (PMT);
  - Congestion Relief: Measured by the greatest reduction in Vehicle Miles Traveled (VMT);
  - Green House Gas Reduction: Measured by the greatest reduction in metric tons of CO_2;
  - Operational expenses: Measured in terms of the highest reduction of required subsidies for operation and maintenance; and
  - Capital Investment: Measured in terms of the lowest additional investment required

Legal Approval

N/A

Budget and Fiscal Impact

This is an informational item on the ETO Side-By Side Study, and by itself, does not have a budget or fiscal impact.

REVIEWER INFORMATION	SIGNATURE
Reviewer Name and Title: Brian Annis Chief Financial Officer	Signature verifying budget analysis: Original Signed on 2/12/2020
Reviewer Name and Title: Alicia Fowler Chief Legal Counsel	Signature verifying legal analysis: Original Signed on 2/12/2020

Recommendations

This item is informational only; staff does not recommend any Board action at this time.

Attachments

- ETO Side-By-Side Study