



Memorandum

AGENDA ITEM 6

DATE: June 16, 2022
TO: Transportation Authority Board
FROM: Maria Lombardo - Chief Deputy Director
SUBJECT: 07/12/22 Board Meeting: Accept the Pennsylvania Avenue Extension Project Initiation Report

<p>RECOMMENDATION <input type="checkbox"/> Information <input checked="" type="checkbox"/> Action</p> <p>Accept the Pennsylvania Avenue Extension (PAX) Project Initiation Report.</p> <p>SUMMARY</p> <p>The PAX project will grade-separate existing Caltrain passenger rail operations from local vehicular and pedestrian traffic patterns between the Mission Bay and Potrero Hill neighborhoods. When completed, PAX will replace existing at-grade Caltrain crossings at Mission Bay Drive and 16th Street with a rail tunnel, as recommended in the 2018 Railyard Alignment and Benefits (RAB) Study prepared by the San Francisco Planning Department. The proposed project will serve Caltrain and future California High-Speed Rail (CHSR) operations, connecting to the Downtown Rail Extension (DTX) near the future 4th and Townsend Station. We have completed the PAX Project Initiation Study (the Study), which developed and evaluated a range of conceptual alignment alternatives for the project. These alternatives reflect different tunnel configurations and construction methods, with varying implications for existing and potential future station locations along the alignment. Based on a preliminary evaluation of constructability, cost, schedule, risk, environmental considerations, and benefits, the PAX Project Initiation Report identifies three broad alternatives to be further refined and evaluated through the next phase of planning, design, and public outreach, prior to advancing the project into the environmental review phase.</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Fund Allocation <input type="checkbox"/> Fund Programming <input type="checkbox"/> Policy/Legislation <input checked="" type="checkbox"/> Plan/Study <input type="checkbox"/> Capital Project Oversight/Delivery <input type="checkbox"/> Budget/Finance <input type="checkbox"/> Contract/Agreement <input type="checkbox"/> Other: _____
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BACKGROUND

In 2018, the San Francisco Planning Department, in partnership with the Transportation Authority and other partner agencies, concluded the RAB Study. The RAB Study assessed options for the alignment of the Caltrain corridor through San Francisco and identified the City's preferred alignment as a tunnel beneath 7th Street and Pennsylvania Avenue, which would connect directly to the DTX and extend the below-grade rail alignment southward. The Transportation Authority Board endorsed this alignment in September 2018 through approval of Resolution 19-12.

The PAX project will connect to the DTX's southern limits adjacent to the existing Caltrain railyard at 4th and King streets and will continue south beneath 7th Street and Pennsylvania Avenue. The southern limit of PAX will vary depending on the eventual selected alternative.

The primary purpose of the PAX project is to eliminate existing at-grade rail crossings at Mission Bay Drive and 16th Street. PAX will serve Caltrain and CHSR trains traveling between the Peninsula and Salesforce Transit Center. In the future, Caltrain and the California High-Speed Rail Authority (CHSRA) plan to operate up to a combined 12 trains per peak hour per direction, for a bi-directional total of 24 train movements per peak hour in the corridor.

This volume of train movement and interruption to traffic flow will result in unacceptable impacts to transit and other surface modes. Placing rail in a tunnel beneath 16th Street and Mission Bay Drive will improve safety, support the speed and reliability of bus transit on the 16th Street corridor, and expand street grid connectivity between the Mission Bay/Dogpatch and neighborhoods to the west and northwest.

In November 2019, the Transportation Authority Board appropriated \$1.6 million in Prop K sales tax funds for the PAX Project Initiation Study. In June 2020, the Board approved the award of a consulting contract to McMillen Jacobs Associates to undertake the Study's technical work program.

DISCUSSION

The purpose of the Study was to identify viable rail alignment alternatives to advance into the subsequent phases of planning and environmental review.

Study Approach and Activities. Transportation Authority staff conducted the study with the consultant team and with the support and input of project partners. We have undertaken technical engagement with Caltrain, CHSRA, the Transbay Joint Powers Authority (TJPA), Caltrans, multiple City departments, and other partners. Study activities included:

- *Alternatives development and evaluation* - identification of potential PAX alternatives, screening assessment, and concept design and evaluation for promising options;
- *Initial technical studies* - development of a range of studies and analyses to understand the project corridor and support evaluation, including initial



environmental studies, desktop-level geotechnical assessment, traffic analysis, and risk assessment, among others;

- *PAX interfaces and related projects* - design and planning for interfaces of the PAX project with the DTX, 4th and King Railyard, and station planning;
- *Cost and schedule* - development of planning-level estimates of capital cost and implementation schedule; and
- *Initial public outreach* - preliminary engagement with stakeholders and the public, through coordination with broader public outreach undertaken for related studies.

The PAX Project Initiation Report documents Study activities, presents the evaluation of alternatives, and makes recommendations regarding subsequent phases of project development.

Alternatives Development and Evaluation. The Study developed a range of alternatives within the broad alignment of 7th Street and Pennsylvania Avenue, as established by the RAB Study. The Study's range of alternatives reflect differing approaches to alignment length, tunnel methodology, and impacts on existing infrastructure and corridor operations. Some alternatives allow for the preservation of the existing 22nd Street Caltrain Station, whereas others would require a replacement station to be constructed.

The Study developed a technical evaluation process to screen and evaluate the alternatives through design development, technical analysis, risk assessment, cost estimation, partner input, public engagement, and a third-party peer review. The Project Initiation Report identifies three broad alternatives as follows:

- A. Long Alternative - Alternative A would provide a tunneled rail alignment from DTX to a point immediately north of Cesar Chavez Street. This alternative requires replacement of the existing 22nd Street Caltrain Station.
- B. Mid-Length Alternative - Alternative B would provide a tunneled rail alignment from DTX to a point immediately north of the 22nd Street Station. This alternative would require some modifications to the existing 22nd Street Station, as well as a more complex interface with existing Caltrain tunnels.
- C. Short Alternative - Alternative C is a "split-tunnel" configuration, with southbound and northbound tunnels separated, with the northbound tunnel within the existing Caltrain right-of-way, and an interface point north of the 22nd Street Station. This alternative would have a more significant impact on Caltrain operations during construction.

The Study evaluated these alternatives across several criteria guided by project goals. Alternative A (long tunnel) would result in the greatest improvement to rail operations and would minimize certain construction impacts; however, it would require decommissioning the



22nd Street Station and has the greatest estimated capital cost among the studied alternatives. Alternative B (mid-length tunnel) offers the opportunity to avoid a need to replace the 22nd Street Station, but it has a more complex and potentially risky interface with existing infrastructure. Alternative C (short tunnel) allows the existing 22nd Street Caltrain Station to remain with minimal modifications, and it is the least-cost alternative; however, it would have the greatest construction impacts, including to existing rail operations.

Initial Technical Studies. The Study developed various preliminary technical studies to support the evaluation of alternatives and understanding of project impacts and challenges. These studies included: desktop studies for geotechnical engineering and hydrology; a traffic impact study to consider the construction phase and operational phase; initial analysis of environmental benefits and constraints; and development of a preliminary risk assessment and risk register. Notable project delivery risks include: tunneling construction and ground settlement; utility conflicts and relocations; impacts to rail operations during construction; and interfaces with DTX and Caltrain railyards.

PAX Interfaces and Related Projects. The Study effort included intensive design coordination and engagement with related projects. In particular, the interface between PAX, DTX, and the Caltrain Railyard represents a critical location for managing the development of multiple infrastructure projects over time. The Study identified a feasible option for this interface point, which is informing the DTX preliminary design process and is providing input to ongoing planning for the Railyard. Future phases of PAX work will continue to carefully consider this interface, in collaboration with TJPA, Caltrain, CHSRA, and other partners.

The PAX Study was developed in parallel to the San Francisco Planning Department's Southeast Rail Station Study (SERSS), which considered potential future station locations along the PAX alignment. The next phase of PAX work will incorporate the SERSS work to date, in order to incorporate station design and cost considerations into the further refinement and evaluation of PAX alternatives.

Cost and Schedule. The Study developed planning-level capital cost estimates and schedules for the three PAX alternatives. The estimated capital cost of these alternatives is approximately \$2.0-2.5 billion, excluding potential costs to replace the 22nd Street Station. With respect to schedule, advancing the project through further planning, environmental review, design, procurement, and construction is expected to take a minimum of approximately 12-15 years. Progression through these phases on such a timeline is subject to available funding. The next phase of PAX work will include an effort to refine or modify alternatives, with an eye to opportunities to reduce cost.

Initial Public Outreach. The Project Initiation Study was primarily a technical effort, in order to define an initial range of project alternatives and explore constraints and interfaces with related projects. In Fall 2021, the Study Team participated in public outreach sessions in coordination with the City and Caltrain, to share information on PAX, SERSS, and Caltrain's



nearer-term planning for access to the 22nd Street Station. Key areas of interest for the public with respect to PAX include implementation timeframe, coordination with related projects, the opportunity to better connect neighborhoods, and the management of construction phase impacts. The next phase of PAX planning will incorporate more extensive public outreach and stakeholder engagement.

Next Steps. To follow the Project Initiation Study and to continue to develop the PAX projects, we recommend undertaking a Pre-Environmental Study, working closely with Caltrain and other project partners. The purpose of the Pre-Environmental Study will be to prepare for the environmental review, in particular by identifying 1-2 most viable alternatives and developing the organizational and technical approach to the environmental phase. Key activities for the Pre-Environmental Study are anticipated to include:

- Development of a refined understanding of the comparison of alternatives, through additional analysis of constructability, interfaces, and rail operations;
- Assessment of opportunities to materially reduce cost and risk, including through consideration alternative technical concepts;
- Integration of design and cost considerations for replacement of 22nd Street Station, to the extent required;
- Preparation of a strategy for the environmental phase, including consideration of state and federal requirements, technical approach, and multi-agency governance;
- Further technical and design coordination with the Railyard and DTX; and
- Project-specific public outreach and stakeholder engagement.

We are currently developing the scope of work for the Pre-Environmental Study phase. We plan to bring forward a Prop K appropriation request for the Pre-Environmental Study to the Transportation Authority Board in the fall.

FINANCIAL IMPACT

The recommended action would have no impact on the proposed Fiscal Year 2022/23 budget.

CAC POSITION

The Community Advisory Committee will consider this item at its June 22, 2022, meeting.

SUPPLEMENTAL MATERIALS

- Attachment 1: PAX Project Initiation Report - Draft