

**STAFF REPORT FOR CALENDAR ITEM NO.: 15
FOR THE MEETING OF: July 12, 2018**

TRANSBAY JOINT POWERS AUTHORITY

BRIEF DESCRIPTION:

Presentation of the status, schedule, cost estimate, and funding plan for Phase 2 of the Transbay Program.

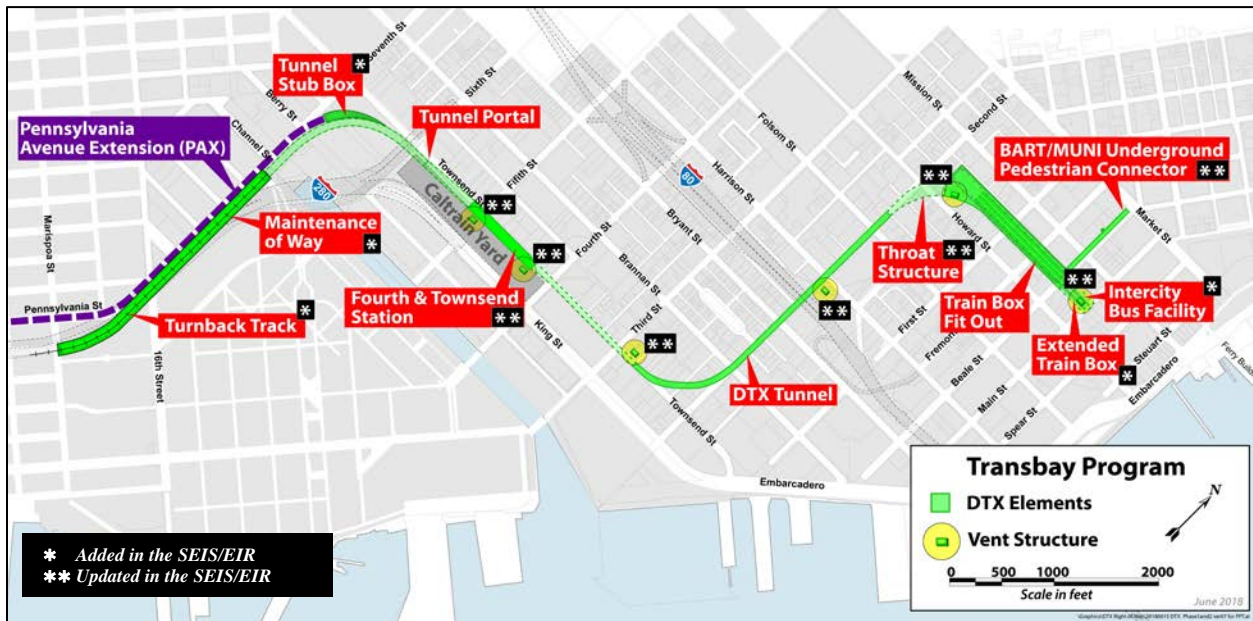
REPORT:

The Transbay Program (Program) will connect eleven bus and rail transit agencies under one roof in a state-of-the-art multimodal transit center in downtown San Francisco, to be constructed in two phases. Upon completion of Phase 1, eight local and regional bus agencies will begin operations at the Salesforce Transit Center (transit center). Commuter and high-speed rail will be added in Phase 2, which will complete the design and construction of the Downtown Rail Extension (DTX) tunnel and the build-out of the below-grade train station facilities at the transit center. Phase 2 will also build a new underground station along the DTX alignment, an intercity bus facility, and a pedestrian tunnel between the transit center and the Embarcadero BART/Muni Metro station.

Phase 2 Components and Current State of Design

The Program's Phase 2 infrastructure is shown in Figure 1 below and described in the following sections. Also shown is the future Pennsylvania Avenue Extension (PAX), which is discussed at the end of this report.

Figure 1, Phase 2 Components and the Pennsylvania Avenue Extension



Downtown Rail Extension. The DTX will extend Caltrain commuter rail from its current terminus at Fourth and King streets, as well as provide the tracks to deliver California High-Speed Rail Authority's (CHSRA) future high-speed service to the new transit center. The three-track, 1.3-mile rail extension (1.95 miles total) will be constructed principally below grade underneath Townsend and Second streets. The alignment includes a "U-wall" section, which is a retained cut to bring the trains from current at-grade level into the underground tunnel section, and a "tunnel stub," located in the Caltrain yard at Fourth and King streets, as a connection point to allow construction of the future underground PAX southward. The DTX also includes six structures for emergency exit and ventilation along the alignment (four of which are colocated with stations), at-grade trackwork, utility relocations, and rail systems work.

Preliminary engineering (PE) (30% design level) for many components of the DTX was completed in July 2010; however, subsequent requirements by CHSRA, as well as other factors, either added or modified elements of the DTX. These additions and modifications are included in a draft Supplemental Environmental Impact Statement/Environmental Impact Report (SEIS/EIR). Over the past year, the design consultant completed 30% PE on components of the DTX that were common to the alignments being evaluated by the City's Rail Alignment and Benefits (RAB) Study, which was ongoing at the time.

Fourth and Townsend Street Station. The new underground station at Fourth and Townsend streets will serve Caltrain commuters. The street level station entrances and exits along the north and south sides of Townsend Street will lead to two levels below grade: a concourse mezzanine and a train platform level. The concourse mezzanine level will accommodate passenger amenities such as ticketing machines, maps and schedule information, and restrooms. This level will also house mechanical and electrical rooms and Caltrain staff areas. The train platform level will feature a center platform with one passing track on the south side.¹ The relatively shallow depth of the station will provide efficient passenger walk times and high flow volumes between entrances and the platform.

The design was at 30% PE in 2010, but has been modified in response to requests from the City and Caltrain. The modifications are described in the draft SEIS/EIR, and the current design will require further design work to bring it to the 30% PE level.

Transit Center Fit-out. The transit center's two below-grade levels will be built out during Phase 2; the structural shell of the below-grade levels was completed as a part of the Phase 1 work. The lower concourse will house rail ticketing, passenger waiting areas, and support spaces for Caltrain and CHSRA, the primary tenants, as well as leasable retail space. One level down, the train platform level will contain six tracks and three platforms for commuter and high-speed rail service. Back-of-house support spaces will also be built on this level to support rail service.

The transit center fit-out design was completed to a 50% construction documents level in 2011. Modifications to the design will be necessary to incorporate changes in Phase 1 that impact Phase 2, and programmatic requirements by CHSRA and Caltrain once they are available.

¹ The San Francisco County Transportation Authority recently conducted a peer review of the DTX rail operations study and recommended reviewing the opportunity to add another platform face for the passing track. This will be analyzed during the next phase of design work.

Intercity Bus Facility. The intercity bus facility (IBF), across the street from the east end of the transit center between Beale and Main streets, will be dedicated to intercity bus services, such as Greyhound and Amtrak. These bus services will initially operate from the transit center bus deck during Phase 1 and will relocate to the IBF in Phase 2 to accommodate the operational needs of the transit center's primary bus agency tenant. The IBF's main public entrances will be located along Beale and Natoma streets, and the building will include a bus canopy on its north side where a bus parking and passenger-loading zone are planned. The facility will house a passenger waiting area, ticketing counters, retail space, transit agency operations space, and mechanical space. An escalator and elevator located in the lobby will lead to the lower concourse of the transit center, giving passengers direct access to rail ticketing and waiting areas. An exterior escalator and elevator on Beale Street will descend directly to the transit center's lower concourse.

The IBF is currently at the schematic design level and included in the draft SEIS/EIR.

BART/Muni Pedestrian Connector. The BART/Muni Pedestrian Connector will connect the east end of the transit center's lower concourse with the Embarcadero BART/Muni Metro station, providing passengers with a direct connection between the two stations. The block-long pedestrian tunnel will run down the center of the Beale Street right-of-way, entering the Embarcadero Station at the mezzanine level outside paid fare zones.

The design is currently at the conceptual level. Staff have been coordinating with BART and the San Francisco Fire Department regarding the design of the connector. In recent meetings, the Metropolitan Transportation Commission (MTC) emphasized the importance of the connector to the Program. The connector's current alignment is included in the draft SEIS/EIR.

Phase 2 Recent Activity

In the past two years, in addition to the partial update of the 30% PE design, there have been several important accomplishments that will help Phase 2 progress. In 2016, the Phase 2 cost estimate was refreshed to current market rates and the right-of-way acquisition cost estimate was updated. A tunnel options study to evaluate options to limiting cut-and-cover construction was completed, with promising results that could reduce the impacts of cut-and-cover construction on city streets. The San Francisco County Transportation Authority (SFCTA) completed a peer review of the rail operations study, resulting in all stakeholders confirming that a three-track alignment is required to ensure reliable service on the DTX.

MTC's Regional Measure 3 (RM3), which will increase tolls on the region's seven state-owned bridges, was passed by the voters in June. RM3 funding will provide \$325 million for Phase 2, which may allow the Program to bring the DTX to shovel-ready status. Staff also applied for funding from the State's Transit and Intercity Rail Capital Program, and while the Program was not awarded funds this year, staff plans to apply again during the next cycle.

The draft Final SEIS/EIR has been prepared and is being reviewed by the Federal Transportation Administration (FTA) for compliance with the National Environmental Policy Act. Staff expects the FTA to issue its Record of Decision this fall, when the the TJPA Board holds its meeting to certify the SEIR.

Phase 2 Milestones and Schedule

Looking forward to achieving full funding and delivering Phase 2, staff has identified several major milestones that must be met:

- Request entry into the FTA’s New Starts Capital Investment Grant (CIG) program.
- Complete the 30% PE design.
- Bring DTX design and documentation to a “shovel ready” level of completion, i.e., construction can begin soon after full funding is achieved.
- Obtain full funding for Phase 2, which will allow for project construction.

Each of these milestones is discussed in the following sections.

Request Entry into FTA’s New Starts Program. Plan Bay Area 2040, MTC’s Regional Transportation Plan, lists the DTX as one of the region’s priorities for New Starts funding. To maintain the project schedule and secure the \$1 billion in New Starts funding included for Phase 2, the TJPA will request entry into the FTA’s New Starts program as soon as feasible, while ensuring that Project Development phase activities will be complete within the FTA’s required two-year timeline. To acquire a Full Funding Grant Agreement (FFGA) to fund construction of Phase 2, staff will navigate the following New Starts phases:

1. Request entry into the New Starts program.
2. Project Development phase – *At least 30% of non-CIG funds must be committed.*
3. Engineering phase – *At least 50% of non-CIG funds must be committed; New Starts funding amount set; financial plan for obtaining all non-CIG funding must be in place.*
4. Request the FFGA – *18 month timeline; requires inclusion in the President’s budget proposal and congressional and U.S. Department of Transportation approval; 100% of non-CIG funds must be committed.*
5. Receive the FFGA.

To enter the New Starts program will require a written request to the FTA, which may request additional information and review the finalized request for 45 days before approving entry into the Project Development phase. The following documentation required by New Starts will be completed during the Project Development phase:

- Certified SEIS/EIR (anticipated in Sep. 2018)
- Program Management Plan:
 - Project Delivery Plan
 - Construction Management Plan
 - Configuration Management Plan
 - Real Estate Acquisition & Relocation Plan
 - Safety & Security Management Plan
 - QA/QC Plan
 - Project Controls
 - Startup and Testing Plan
 - Mitigation Monitoring Plan
- Design Criteria
- Geotechnical Baseline Report
- Procurement Contract Packages
- Constructability Review
- Value Engineering Analysis Report
- Risk Assessment/Management Plan
- Project Cost Estimate
- Project Schedule
- Third-party Agreements

Funding for Project Development activities must be committed upon entry into the Project Development phase. Staff has submitted a funding request to the SFCTA and anticipates approval at the SFCTA Board's July 24, 2018, meeting. Funds from this request will be used in part to address the required documentation. Staff anticipates that the remainder of the funding for this scope will come from RM3 funding.

Complete 30% Preliminary Engineering Design. The requested SFCTA funding will also be used to continue work on the 30% design on the balance of the Phase 2 elements described in the SEIS/EIR. Findings from the tunnel options study completed in March 2018 indicate that there are feasible options for reducing cut-and-cover construction along the DTX alignment. The TJPA plans to produce to a 30% design level an alternate design for the mined tunnel portion using a combination of a tunnel boring machine and sequential excavation method mining and a design for a mined crossing of Howard Street to further reduce surface impacts in the vicinity of the throat structure, where the alignment turns into the transit center. The Fourth and Townsend Street Station will also be examined further to determine the impacts of an additional platform face on rail operations, as recommended by the SFCTA's peer review completed in April 2018. Additionally, to meet the desired implementation schedule for the DTX, the TJPA will need to prepare design and bid documents for advanced construction packages, which will include utility relocation and some facility relocation in the Caltrain Fourth and King Railyard to make way for U-wall construction.

Shovel Ready. To bring the DTX to shovel ready status, the TJPA will need to complete acquisition of the necessary right-of-way. One property has been acquired to preserve right-of-way for Phase 2. Additional right-of-way to be acquired includes a parcel to be transferred from Caltrans and multiple permanent underground easements along the mined tunnel segment and at the throat structure of the tunnel. The TJPA will also need to begin construction of the advanced packages, including utility relocation, and complete the Phase 2 design and bid documents for the transit center train station, main guideway tunnel, track, and systems construction packages.

The activities and associated estimated costs to provide a shovel ready project are shown in Table 2 under *Phase 2 Cost Estimates*.

Full Funding and Construction. With the completion of the New Starts program requirements for the Project Development phase, the TJPA will request entry into the New Starts Engineering phase. Thirty percent of non-CIG funds must be committed upon entry into the Engineering phase, and 50 percent, at the time the TJPA requests the FFGA. In addition to acquiring 50 percent of non-CIG funds by the end of the Engineering phase, prior to requesting the FFGA from the FTA, the TJPA must complete a financial plan for obtaining all of the non-CIG funds, a comprehensive review of all documentation prepared during the Project Development phase, and any design work continued during the Engineering phase.

According to FTA's annual cycle, the FFGA request must be made in late August/early September. The application must pass through the Presidential and congressional budgeting and approval process before the FTA can issue the FFGA, approximately 18 months after the request has been submitted, and all non-CIG funds must be committed by the time the FFGA is received. Once the FFGA is received, the main construction packages can be awarded, which will allow construction to commence.

Figure 2 shows the Phase 2 schedule with no funding constraints, based on design-build procurement. The schedule shows that train operations at the transit center could commence in 2028 if funding for design, right-of-way acquisition, and construction is available when needed.

Figure 2. Phase 2 Schedule (unconstrained funding)



Phase 2 Cost Estimates

A refreshed cost estimate was presented to the TJPA Board of Directors in June 2016. The 2016 estimate reflected the level of design at the time and was produced by reviewing scope elements from the 2010 and 2011 DTX cost estimates line item by line item, and updating the costs for labor and materials based on current market rates. The estimate included all Phase 2 components and incorporated recommendations from the MTC’s November 2015 Phase 2 cost review.

However, at the time of the 2016 estimate not all Phase 2 components were at the same level of design completion (refer to *Phase 2 Components and Current State of Design*). For components that were not at the 30% design level, either their designs from the 2010 PE estimate were used to update the labor/materials to current market rates (widened throat structure, Fourth and Townsend Street Station), or rough-order-of-magnitude costs were provided (BART/Muni Pedestrian Connector, ventilation/emergency egress structures, tunnel stub, and turnback and maintenance-of-way tracks). A complete estimate can be produced once the TJPA undertakes further engineering on these components and completes design of the mined tunnel sections to reduce the extent of the cut-and-cover construction.

In addition, the estimate of the right-of-way costs will be affected by the tunnel methodology and cannot be updated until further engineering is completed.

Table 1 shows a summary of the 2016 Phase 2 cost estimate refresh, which assumed a year of operation of 2025 and a 5% escalation rate.

**Table 1. Summary of 2016 Phase 2 Cost Estimate
(in millions, year of expenditure dollars)**

Construction*	\$1,614
Design Contingency	\$211
<i>Subtotal Construction</i>	<i>\$1,825</i>
Escalation 5% to mid construction (2023)	\$620
<i>Total Construction Cost</i>	<i>\$2,445</i>
ROW	\$266
Programwide (21%)	\$517
Program Cost	\$3,228
Construction Contingency @ 10%	\$245
Program Reserve @ 15%	\$462
Subtotal Contingency and Reserve	\$707
Total Program Cost**	\$3,935

* Includes the BART/Muni pedestrian connector

**Includes recommendations from MTC's 2015 cost review

Note: Total contingency (design+construction) and Program Reserve (28.4%) = \$918m

The current estimate to provide a shovel ready project is shown in Table 2.

Table 2. Shovel Ready Costs (in year of expenditure dollars)

A. Advanced Construction Package (Utilities)	\$2,312,640
B. ROW Remaining Acquisition	\$204,000,000
C. Support Costs (from July 2018 until start of tunnel construction in 2022)	\$95,100,000
<i>Update of 30% design documents</i>	
<i>Advance packages design</i>	
<i>Design support during construction</i>	
<i>Design-build documents</i>	
<i>Advance packages construction management services</i>	
<i>Transit center building design and bidding documents</i>	
<i>Program management/controls services thru advance packages construction</i>	
<i>TJPA, other professional services thru advance packages construction</i>	
<i>City and other agencies</i>	
D. Program Reserve (15%)	\$45,180,360
Total Shovel Ready Costs	\$346,593,000

Funding Plan

The Phase 2 funding sources will become available to TJPA both during the construction period and over a considerable length of time after substantial completion of Phase 2. Currently, it is assumed that Phase 2 will have a construction start date of 2022 for the main packages, with revenue commencement and operations starting in 2028. Table 3 summarizes the current funding plan:

Table 3. Potential Funding Sources Identified for Phase 2 (\$ millions)

Source	Total Funds	Net Proceeds	Status
San Francisco County Sales Tax	\$83	\$83	Committed and partially spent
San Mateo County Sales Tax	\$19	\$19	Committed and spent
Committed MTC/BATA Bridge Tolls	\$7	\$7	Committed and spent
Regional Transportation Improvement Program	\$18	\$18	Committed
Federal Alternatives Analysis Grant	\$1.3	\$1.3	Committed and spent
Mello-Roos Special Tax	\$503-\$542	\$503-\$542	Committed
Tax Increment (after repayment of existing TIFIA loan)	\$665-\$735	\$200-\$340	Committed
New MTC/BATA Bridge Tolls (RM3)	\$325	\$325	Committed
FTA New Starts	\$1,000*	\$1,000*	Subject to federal approval
Future San Francisco County Sales Tax	\$350	\$350	Subject to SFCTA or voter approval
SB1/TIRCP	\$400	\$400	Subject to state approval
Future California High Speed Rail Funds	\$550**	\$550**	Subject to federal/state approval
Land Sales (Block 4)	\$45	\$45	Contingent upon sale
Passenger Facility Charges or Maintenance Contribution	\$3,089-\$7,822	\$749-\$1,482	Subject to CHSRA and/or Caltrain approval
Total	\$7,055-\$11,897	\$4,250-\$5,162	

*Amount in Plan Bay Area 2040

**Amount in California High-Speed Rail Authority's 2018 Business Plan

Committed funding is being spent on the design, predevelopment, environmental work, and early acquisition of right-of-way for Phase 2. These amounts have been funded by committed bridge tolls from MTC, and sales tax receipts from SFCTA and San Mateo County Transportation Authority.

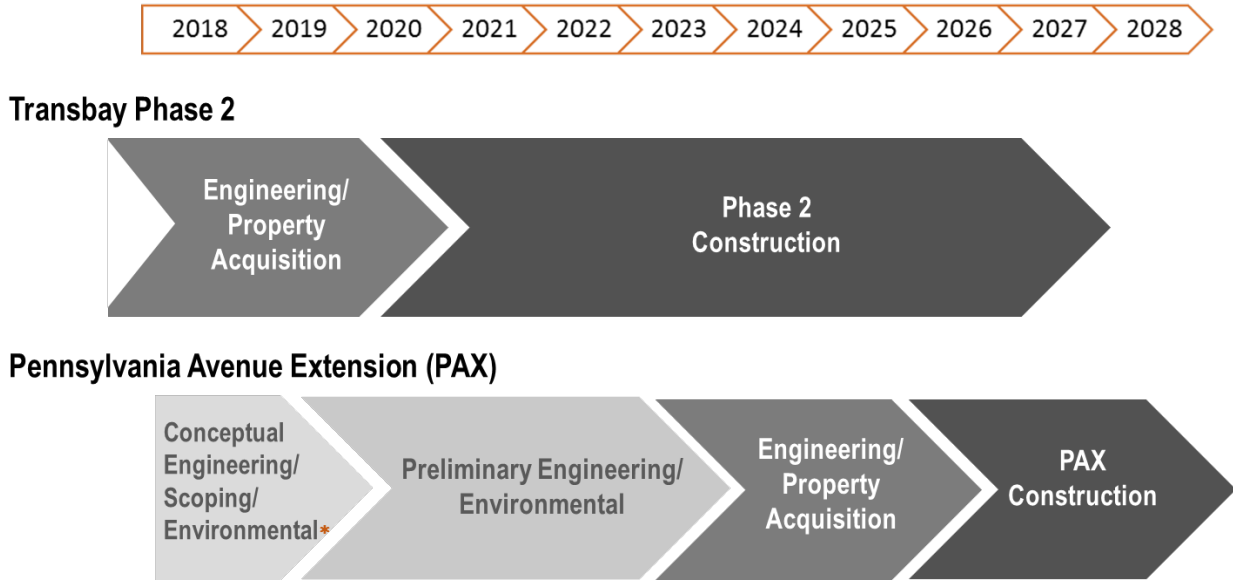
Staff has submitted a funding request to SFCTA and is anticipating approval in July. The amount requested is sufficient to complete the updated PE through draft submittals for the 30% design effort and some of the New Starts documentation. Staff expects the balance of work to bring the project to a shovel ready state will be funded by RM3.

Pennsylvania Avenue Extension

The City's recently completed RAB Study concluded that a rail alignment consisting of the DTX and an extended tunnel under Pennsylvania Avenue (the Pennsylvania Avenue extension or PAX) is the preliminary preferred rail alignment to address level of service deficiencies at two at-grade intersections, among other issues. The PAX would move trains underground near the 22nd Street Caltrain station. All rail would then travel through an underground tunnel beneath Pennsylvania Avenue and adjacent to and underneath the current tracks up 7th Street, connecting to the DTX tunnel stub box. Trains would use the DTX to pass through the new underground Fourth and Townsend Street Station toward a final destination at the transit center. The DTX alignment, as designed and environmentally cleared, would not change. Trains will operate from the Salesforce Transit Center on the DTX during construction of the PAX. Once the PAX is connected to the DTX tunnel stub box, the trains will travel underground in the new PAX tunnel.

The Planning Department has asked the TJPA to take over conceptual engineering, scoping and environmental work for the PAX, and staff plans to present this scope of work to the TJPA Board for approval this fall. If approved, this work will begin in late 2018. Figure 3 is a high-level overview of the anticipated timelines for Phase 2 and the PAX.

Figure 3. Program Schedule



*The Planning Department has asked the TJPA to take over conceptual engineering, scoping and environmental work for the PAX; staff plans to present this scope to the TJPA Board for approval this fall.

Staff will continue to work with the TJPA’s funding partners and designers to move Phase 2 forward to construction while developing the PAX.

RECOMMENDATION:

Information only.