

STAFF REPORT FOR CALENDAR ITEM NO.: 12
FOR THE MEETING OF: April 8, 2021

TRANSBAY JOINT POWERS AUTHORITY

BRIEF DESCRIPTION:

Approving an acceleration modification to the Comprehensive Work Plan for the Downtown Rail Extension (DTX) as supported by the Executive Steering Committee (ESC) under the terms of the San Francisco Peninsula Rail Program Memorandum of Understanding (MOU).

EXPLANATION:

Background

The San Francisco Peninsula Rail Program MOU with the Metropolitan Transportation Commission (MTC), the San Francisco County Transportation Authority (SFCTA), the Peninsula Corridor Joint Powers Board (Caltrain), the California High Speed Rail Authority (CHSRA), and the City and County of San Francisco (Mayor's Office), effective June 5, 2020, described, in part, an organizational structure to support the efforts of the TJPA to develop the DTX project to ready for procurement status.

Among the elements of the MOU is a Summary Work Program that describes various tasks to be conducted in the project development process. The Summary Work Program further identifies which partner agency would lead or co-lead, contribute to, concur with, or approve each task. For each task, the Summary Work Program indicates whether a report to or approval from the TJPA Board would be required.

Among the tasks to be completed was the creation of a detailed Comprehensive Work Plan providing the appropriate level of detail so that each task and the activities to complete it are clearly defined, its relationship to other tasks described, and the resulting deliverable defined. A companion Master Schedule (attached to the Comprehensive Work Plan at Appendix B) is also required in order to place the tasks in a logical order, reflecting dependencies between the tasks. The Master Schedule indicated submission of a Federal Transit Administration (FTA) Full Funding Grant Agreement (FFGA) request in August of 2024 and achieving the FFGA in Spring 2026, subject to availability of funding. That schedule was constrained by available funding and scope as defined by SFCTA Funding Resolution No. 20-49, commonly referred to as Notice to Proceed 1 (NTP1), approved April 28, 2020.

The MOU indicates that preparation of the Comprehensive Work Plan would be led by the TJPA, require the concurrence of the partner agencies, and require the approval of the TJPA Board. On November 20, 2020, the ESC, established under the terms of the MOU, unanimously approved recommendation of the Comprehensive Work Plan, including the Master Schedule. At the December 10, 2020 meeting, the TJPA Board of Directors approved the recommended Comprehensive Work Plan, including the accompanying Master Schedule.

Discussion

Work on the DTX has been progressing in accordance with the authorized and funded elements of the approved Comprehensive Work Plan and Master Schedule. As reported to the TJPA Board of Directors at the March 11, 2021 meeting, that work is proceeding on schedule and within budget.

In the several months since the Board of Directors' approval of the Comprehensive Work Plan and Master Schedule, the ESC has requested staff to identify alternatives that could accelerate the project schedule with the goal of implementing service to rail patrons earlier and reducing project escalation costs.

Staff has developed such a plan working in close collaboration with SFCTA. The acceleration plan is referred to as NTP2A. NTP2A encompasses advancing certain elements within the approved Comprehensive Work Plan in an accelerated fashion when compared to the currently approved Master Schedule. The primary specific work elements that would be advanced include:

- Project Delivery and Contract Strategy
- Qualitative Risk Management Assessment and Risk Management Plan
- Third Party Agreements Plan and begin Third Party Agreements Negotiations
- Preliminary Safety Hazard Analysis
- Updated Ground Motions Report
- Limited Utilities field investigations
- Updated Geotechnical Data Report and augmented Geotechnical Data Report
- Design development for Utilities
- Design development for U-Wall and Tunnel Stub box
- Program Management and Controls

The acceleration of these activities is supportive of multiple objectives, including:

- Rationalize delivery of the technical work program over the next approximately 12 months. By advancing certain development activities, NTP2A will reduce the bottleneck of project work originally planned to occur following the phasing decision. This will utilize mobilized resources more evenly and better sequence the detailed set of work activities identified in the approved Comprehensive Work Plan.
- Support project readiness for near-term funding opportunities. There is potential for federal investment in the coming months in infrastructure projects. NTP2A work will increase the readiness of the project to pursue these opportunities, including for potential early or advance construction packages, as well as for subsequent phases of project development and design.
- Provide the ability to target an August 2023 submittal of a FFGA request to FTA. The federal government receives New Starts submittals on a once-per-year basis in August. The 2023 date would permit FTA review and Congressional authorization to occur within the term of the current administration. Advancing the NTP2A work will enable but not

guarantee achieving the 2023 target date for funding application to FTA as additional funding will be required for Comprehensive Work Plan tasks beyond those funded by NTP2A.

At its March 19, 2021 meeting, the ESC received a presentation on the elements of the acceleration plan, how the acceleration would support the 2023 submittal of a FFGA request to FTA, and what further steps would be required to move through the FTA Capital Investment Grant process. The ESC expressed support for the plan.

At its March 23, 2021 meeting, the SFCTA Commissioners unanimously approved SFCTA staffs' NTP2A recommendation to release \$6,210,000 in funding required to conduct the work associated with the acceleration plan.

As described above, the MOU indicates that preparation of the Comprehensive Work Plan would be led by the TJPA, require the concurrence of the partner agencies, and require the approval of the TJPA Board. Thus, the recommended acceleration modifications to the Comprehensive Work Plan require the approval of the TJPA Board.

RECOMMENDATION:

Approving an acceleration modification to the Comprehensive Work Plan, including Master Schedule, for the Downtown Rail Extension (DTX), as supported by the ESC, in the form enclosed herewith.

ATTACHMENTS:

1. Resolution
2. Comprehensive Work Plan, Revision 1

**TRANSBAY JOINT POWERS AUTHORITY
BOARD OF DIRECTORS**

Resolution No. _____

WHEREAS, The Transbay Joint Powers Authority (TJPA) is a joint powers agency organized and existing under the laws of the State of California; and

WHEREAS, Pursuant to state law and the Joint Powers Agreement creating the TJPA, dated April 4, 2001, the TJPA has primary jurisdiction over and will implement all aspects of the Downtown Rail Extension (DTX) project of the Transbay Program; and

WHEREAS, On April 9, 2020, the TJPA Board of Directors authorized the TJPA Board Chair to execute the San Francisco Peninsula Rail Program Memorandum of Understanding (MOU) with the Metropolitan Transportation Commission, the San Francisco County Transportation Authority (SFCTA), the Peninsula Corridor Joint Powers Board (Caltrain), the California High Speed Rail Authority, and the City and County of San Francisco (Mayor's Office); and

WHEREAS, The MOU described, in part, an organizational structure to support the efforts of the TJPA to develop the DTX project to ready for procurement status, including the formation of an Executive Steering Committee (ESC) to make recommendations to the TJPA Board; and

WHEREAS, The MOU contemplates the ESC would, among other things, recommend to the TJPA Board for approval a Comprehensive Work Plan; and

WHEREAS, On November 20, 2020, the ESC unanimously approved recommendation of a Comprehensive Work Plan, including Master Schedule, to the TJPA Board and, on December 10, 2020, the TJPA Board approved the Comprehensive Work Plan; and

WHEREAS, TJPA has subsequently identified alternatives in the Comprehensive Work Plan and Master Schedule that could accelerate the project schedule with the goal of implementing service to rail patrons earlier and reducing project escalation costs; and

WHEREAS, On March 19, 2021, the ESC expressed support for the acceleration modification to the Comprehensive Work Plan, including Master Schedule, to the TJPA Board; and

WHEREAS, At its March 23, 2021 meeting, the SFCTA Commissioners unanimously approved SFCTA staffs' NTP2A recommendation to release \$6,210,000 in funding required to conduct the work associated with an acceleration plan; and

WHEREAS, As confirmed in the MOU, the MOU commits the partners to consider providing funding or resources to implement the MOU but does not commit any partner to

provide any resources other than those such partner has already funded and programmed to support DTX, or provide any funding; accordingly, the TJPA Board's approval of the acceleration modification to the Comprehensive Work Plan is not intended to and does not act as a new or independent commitment by the TJPA to provide any funding to implement such plan; now, therefore, be it

RESOLVED, That the TJPA Board of Directors hereby approves an acceleration modification to the Comprehensive Work Plan, including Master Schedule, for the DTX as supported by the ESC under the MOU.

I hereby certify that the foregoing resolution was adopted by the Transbay Joint Powers Authority Board of Directors at its meeting of April 8, 2021.

Interim Secretary, Transbay Joint Powers Authority



DTX Comprehensive Work Plan

December 16, 2020

AECOM

M

M

MOTT
MACDONALD

Revision Record

Revision	Description	Status	Date
0	Final	Issued	December 16, 2020
1	Accelerated Master Schedule	Issued	March 26, 2021

Prepared by AECOM, in association with Mott MacDonald, program management consultant to the Transbay Joint Powers Authority.

Preparation of this report was made possible by the San Francisco County Transportation Authority through a grant of Proposition K Local Transportation Sales Tax funds.



Contents

1	Project Positioning.....	1
1.1	Rebranding Study.....	1
1.2	Public Outreach Plan.....	2
1.3	Economic Impact Study	3
2	Funding and Finance	4
2.1	Funding Plan.....	4
3	Facility Operations.....	6
3.1	Transit Operating Plans.....	6
3.2	DTX Planning and Benefit Assessment.....	6
3.3	Planning and Demand Forecast (Ridership Study)	7
4	Procurement Strategy Activities.....	9
4.1	Project Phasing Plan.....	9
4.2	Business Case	10
4.3	Project Delivery Strategy	14
5	Design Development	17
5.1	Design Development and Technical Studies.....	17
6	Programmatic Documents and Federal New Starts Requirements.....	25
6.1	New Starts Project Development Phase Requirements.....	25
7	Governance and Oversight.....	35
7.1	Governance Structure.....	35
7.2	Construction Delivery Agency	37
7.3	Prepare for Procurement	37

Figures & Tables

Figure 1. Environmentally Cleared Phase 2.....	18
Table 1. Current Level of Design and Engineering for Phase 2	19

Appendixes

- A San Francisco Peninsula Rail Program Memorandum of Understanding
- B Accelerated Master Schedule

Comprehensive Work Plan

The San Francisco Peninsula Rail Program Memorandum of Understanding (the MOU) executed by the Transbay Joint Powers Authority (TJPA), Metropolitan Transportation Commission (MTC), San Francisco County Transportation Authority (SFCTA), Peninsula Corridor Joint Powers Board-Caltrain (PCJPB), California High-Speed Rail Authority (CHSRA), and the City and County of San Francisco (the City) (the project partners) outlines the actions required by the project partners to advance the positioning, governance, funding and finance, and development and delivery of the Downtown Rail Extension (DTX). The Federal Transit Administration's (FTA) New Starts policy guidance outlines the requirements for transit capital projects seeking Capital Investment Grants (CIG) Program funding.¹ This work plan is consistent with the requirements of the MOU, as well as guidance as required by FTA for eligibility to participate in the CIG Program. The work discussed herein would generally be required for any project of this scope and significance.

Each deliverable described in this work plan will be prepared by the responsible deliverable owner, seeking input as appropriate and as defined in the DTX Summary Work Program V7, attached to the MOU. Once completed in draft form, the deliverables will be transmitted through the Project Director to the Integrated Program Management Team (IPMT) for review and comment. Status and progress of the deliverables will be discussed at the bi-weekly IPMT meetings and/or special meetings if necessary. As determined by the IPMT in collaboration with the Executive Steering Committee (ESC), certain policy-related deliverables will be presented to the ESC for review, comment, and/or approval. Final approval, as appropriate, will rest with the Transbay Joint Powers Authority (TJPA) Board of Directors.

The Program Management/Program Controls team (PMPC) will provide document control and version control services to the IPMT and ESC. All final documents will be stored on the TJPA SharePoint site.

1 Project Positioning

1.1 Rebranding Study (SCHEDULE ACTIVITY A2-1300) (MOU TASK 7)

OBJECTIVE: The DTX project will be rebranded to reflect its importance to the mega-region and the State of California. The Rebranding Plan will identify strategies and required resources to demonstrate the broad benefits of the DTX project from a transportation, economic impact, environmental, and community perspective. The implementation of the plan is intended to result in durable and long-term support of key stakeholders and the broader public.

¹ FTA Final Interim Policy Guidance, June 2016,
https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/FAST_Updated_Interim_Policy_Guidance_June%20_2016.pdf

DTX Comprehensive Work Plan

ACTIVITY: TJPA, with the assistance of a communication consultant, will conduct communications and outreach services for the Transbay Program including high-level messaging, branding, community outreach, website development, and maintenance and effective and innovative social media campaigns.

OWNER: TJPA

REQUIRED INPUTS: The Rebranding Study will require coordination with all project partners and local, regional, and state officials. Projects costs, benefits, and implementation schedules will be required, as well as detailed technical information translated into easily understood terms for the general public. The results of the Phasing Study will also be considered in order to reflect the initial operating service.

DELIVERABLES: Messaging through a detailed Rebranding Plan, communications support, community outreach services, and website services. This work will be contracted directly by the TJPA. A detailed scope of work and schedule will be available through that contract.

1.2 Public Outreach Plan (SCHEDULE ACTIVITY A2-1350) (MOU TASK 8)

OBJECTIVE: Informed by and leveraging the Rebranding Plan, public outreach will be critical to building enduring support for the DTX project. Engaging external stakeholders including community groups, elected officials, relevant agencies, project-area development teams, and the public at-large is required in order to understand community goals and to properly share information regarding the benefits of the project. A robust Public Outreach Plan will provide the framework for two-way communication between the public and the project partners.

The plan will provide a multi-platform communications strategy to conduct public outreach and targeted outreach to advocacy groups, maintain clear records of stakeholder engagement and coordinate with adjacent developments, related and interconnected plans and projects by other agencies, and stakeholder business plans.

ACTIVITY: TJPA, with the assistance of a communications consultant, will conduct communications and outreach services for the Transbay Program including high-level messaging, branding, community outreach, website development and maintenance, and effective and innovative social media campaigns. The TJPA will conduct outreach and engagement with advocacy groups as well as other stakeholders including the development community and other agencies.

OWNER: TJPA

REQUIRED INPUTS: Public outreach will require coordination with all project partners, local, regional, and state officials, the TJPA Citizens Advisory Committee, the media, and local community groups. Projects costs, benefits, and implementation schedules will be required as

DTX Comprehensive Work Plan

well as detailed technical information translated into easily understood terms for the general public. The results the Rebranding Study will be fully integrated into all communications.

DELIVERABLES: Messaging through a communications support, community outreach services, and website services. An innovative social media campaign will be created and implemented. This work will be contracted directed by the TJPA. A detailed scope of work and schedule will be available through that contract.

1.3 Economic Impact Study (SCHEDULE ACTIVITY A2-3400) (MOU TASK A7)

OBJECTIVE: In 2013, the TJPA published an economic study entitled “Transbay Transit Center: Key Investment in San Francisco’s Future as a World Class City.” The report highlights the importance of the Transbay Program to the region’s economic development by enhancing connections between the region’s transit services and increasing mobility for Bay Area residents, visitors, and workers. This study resulted in an engaging public-facing report that served the TJPA well in communicating the benefits of the Transbay Program to stakeholders, potential funders, and the public.

To be successful in delivering the DTX, the TJPA and its partners will need strong political support and a strong external champion to keep all stakeholders aligned and focused on the project benefits: improving connectivity between the Bay Area’s two economic engines, San Francisco and Silicon Valley and maintaining California’s economic leadership in innovation.

ACTIVITY: Conduct an impact study that looks at the role of the DTX in the region’s planned growth and the broader state and national economy consistent with the TJPA and stakeholders’ redefinition of the DTX project as part of a regionwide transportation strategy. The study will evaluate demand versus capacity scenarios over time and make side-by-side comparisons of options in terms of benefits (e.g., economic, riders, housing), costs, schedules, and operations, among others.

REQUIRED INPUTS: The study will need to consider the results of the Rebranding Study, operations plans, ridership forecasts and travel time, feedback from stakeholders, and environmental benefits as well as regional forecasts for population, jobs and housing. The degree to which project phasing impacts the project’s economic impact will need to be analyzed and described.

DELIVERABLES: A comprehensive study describing methodology, data inputs, participant stakeholders, and high/low confidence forecasts of the economic impact of short construction and long-term operations impacts on the local, regional, statewide, and national economy.

2 Funding and Finance

2.1 Funding Plan

(SCHEDULE ACTIVITY NOS. A2-4100 / A8-1010, A8-1030, A8-1015, A8-1020) (MOU TASK 13)

OBJECTIVE: Development of a committed project development, construction, and operations funding plan that is consistent with available local, regional, and state sources and meets the requirements for eligibility for the FTA's CIG Program, including the milestones at the Entry into Engineering, Request for Funding, and Full Funding Grant Agreement submissions.

In addition to a capital funding plan, FTA requires project sponsors to include the first 20 years of operations in the financial plan. This will require coordination with the various transit providers to identify changes to the services they provide and address potential shifts in transit operating revenue as a result of the project, as well as the operation and maintenance cost of the facility and a distribution formula.

ACTIVITIES: Since 2001, MTC Resolution 3434 has maintained the region's commitment to the Downtown Rail Extension/ Phase 2 project with the 2009 regional transportation plan (RTP) affirming the DTX as a regional FTA New Starts priority. Recently, MTC has re-affirmed this commitment with placement of the project within the first period of Plan Bay Area 2050.

The planned capital funding commitments include elements used for Phase 1 such as net tax increment and Mello-Roos special tax assessment bond proceeds, in addition to more substantial commitments of FTA New Starts grants, local sales taxes, Regional Measure 3 funds, and CHSRA contributions, as well as potential innovative funding mechanisms, such as passenger facility charges.

Non-traditional funding sources will also be considered in the Funding Plan. These may include joint development or private financing of project capital requirements, possibly blended with public sector dollars. Operating and maintenance cost and funding will need to be estimated for the first time. A key activity will be matching up sources and uses of funding over time to support decision-making, including the identification of an initial operating phase.

OWNER: SFCTA

REQUIRED INPUTS: As input to the Phasing decision, the Funding Sources Document will describe updated estimates for existing funding sources and new committed or potential funding sources, including expected timeline and degree of certainty for each source. The Funding Plan will draw from economic forecasts from the City and region, and include scenarios that correspond with operational and phasing options under consideration, to help inform the business case supporting the DTX initial operating phase.

Once the Phasing decision is made, the Draft Funding Strategy will provide development of an FTA-compliant project financial model capturing detailed capital cost estimates with associated

DTX Comprehensive Work Plan

project delivery methods and financing plans, if any; TJPA and transit operating plans; and maintenance/rehabilitation cost estimates. Models should reflect appropriate contingencies and sensitivity tests for key assumptions and inputs. Risk management, project delivery method, public funding sources, and relevant private finance sources will be described in support of the application to the FTA for New Starts funding.

DELIVERABLES:

Deliverable #1: Funding Sources Document (for Phasing/Business Case)

Working with the TJPA and MTC, the SFCTA will prepare a document outlining the current funding sources for capital and operating expenses. The outline will include an update of all known and possible new or innovative funding sources with expected timelines and arrayed against project phase (planning, implementation, operations). The TJPA's current funding plan (which reflects the recent re-financing of its TIFIA loan and other recent and expected land sale transactions), the SFCTA's San Francisco Transportation Plan, the CHSRA and Caltrain business plans, and Plan Bay Area 2050 will be used as sources of information for this deliverable. The deliverable is expected to serve as an iterative resource for the phasing analysis, providing alternative revenue estimate scenarios to correspond with specific phasing options under review and reflecting other policy assumptions. This work will support the request to enter FTA Project Development in 2021, as the initial operating phase definition and key sources like RM3 are confirmed.

Deliverable #2: Draft Funding Strategy Report

Following the Phasing decision, as the project is further developed and more detailed information becomes available, cost estimates and funding sources for the initial operating phase and subsequent phases will be refined.

- ◆ Update the committed and planned capital and operating sources for each phase of the project's lifecycle
- ◆ Coordinate with project delivery study findings and recommendations as appropriate (e.g., for any innovative project financing arrangements)
- ◆ Coordinate with joint development or private value capture opportunities (e.g., at Fourth and King Railyard)
- ◆ Identify and establish MOUs for future funding commitments by relevant parties to secure above sources

Deliverable #3: Final Funding Plan and Support for FTA Submittal

The Draft Funding Strategy Report will be revised and improved through feedback from the FTA and other project funding partners. The TJPA, MTC, and SFCTA will work with federal, state, regional, and local public and private partners to secure funding agreements and commitments for capital and operating expenses for at least the initial operating segment. Entry into FTA Engineering is anticipated in 2023. The application for an FTA Full Funding Grant Agreement is expected in August 2024.

3 Facility Operations

3.1 Transit Operating Plans (SCHEDULE ACTIVITY NO. A2-2550) (MOU TASK 9)

OBJECTIVE: The rail transit service providers will develop a consolidated set of service plans, for both the initial operating segment (to be defined by the Phasing Study described in 4.1 and long-term operations at the Salesforce Transit Center.

ACTIVITY: Develop analysis of infrastructure requirements for a recommended service concept including:

- ◆ A consolidated set of service assumptions including objectives and timetables
- ◆ Track layout, usage, and signal system performance
- ◆ Modeling, including perturbation analysis, to assure reliable, smooth operations at the Salesforce Transit Center and on the Peninsula
- ◆ Configuration of the Fourth and Townsend Street Station
- ◆ The number and configuration of platforms required to serve both California High-Speed Rail and Caltrain at the Salesforce Transit Center
- ◆ Contingency operation plan scenarios for illustrative potential service interruptions. Perform all necessary modeling, including perturbation analysis, to assure reliable, smooth operations at the Salesforce Transit Center and on the Peninsula.

OWNER: CHSRA and Caltrain

REQUIRED INPUTS: Basis of Design, Phasing Study Workshop 1 Report, Caltrain and CHSRA Business Plans

DELIVERABLES: The operating plan(s) will inform number, layout and use of track, platforms, crossovers, etc., and include perturbation analysis to assure reliable operations at the Salesforce Transit Center and along the Peninsula. Incremental operating costs and savings for each transit service will need to be quantified.

3.2 DTX Planning and Benefit Assessment (SCHEDULE Activity No. A2-1810, A2-3050, A2-1820) (MOU TASK 10A)

OBJECTIVE: The FTA New Starts application requires a clear description of the project's benefits (e.g. mobility improvements, cost-effectiveness, congestion relief, land use, economic development, greenhouse gas reduction and equity).

ACTIVITY: An evaluation to identify the full extent of users and beneficiaries, current and future, is required. This evaluation will be broad in scope and benefit from the Public Outreach Plan

DTX Comprehensive Work Plan

and inform the Rebranding Plan. The results will be used to bolster the business case for the project and support the case for local and regional significance. This task includes ongoing coordination with the other major rail development efforts depicted in the San Francisco Peninsula Rail Program MOU organization chart (Attachment 1).

OWNER: SFCTA

REQUIRED INPUTS: The Public Outreach Plan and activities, modeling results of the DTX initial operating phase and full project as well as its connection with the future New Transbay Rail Crossing and blended Caltrain/CHSRA service on the Peninsula, as identified in the MTC regional rail synthesis (2020), California State Rail Plan, Plan Bay Area, MTC Crossing Study, CCJPA Vision Plan, City of San Francisco zoning and planning studies, and the Bay Area Core Capacity Transit Study.

Inputs also include City development-related benefits for the South of Market area and Fourth and King Railyard site.

DELIVERABLES:

Deliverable #1: Planning analyses to estimate the benefits as documented for the DTX initial operating phase, full project, and future connections with other major rail improvement projects (standard-gauge New Transbay Rail Crossing and blended Caltrain/CHSRA service). Metrics to be assessed include but are not limited to mobility improvements, cost-effectiveness, congestion relief, land use, economic development, greenhouse gas reduction, and equity.

Deliverable #2 DTX slide presentation, fact sheet, and collateral to be used for ongoing outreach, advocacy, and funding applications.

3.3 Planning and Demand Forecast (Ridership Study) (SCHEDULE ACTIVITY A2-3050) (MOU TASK 10B)

OBJECTIVE: A comprehensive ridership study was completed in 2008. In 2018, the TJPA commissioned a limited ridership study for planning purposes. The study used existing ridership forecasts to update ridership numbers for both Caltrain and CHSRA at the transit center and the Fourth and Townsend rail stations but did not include new model runs. Follow-on decision-making and the FTA New Starts evaluation and rating will require forecasted ridership numbers that are based on study area-validated model runs of one of the region's major travel demand model systems or the FTA STOPS model.

ACTIVITY: The primary purpose of the forecasting effort will be to prepare preliminary demand forecasts to support the Phasing Study, the design, and identification of the initial operating phase. These forecasts will help to "size" the infrastructure and operating plans needed to serve projected demand. The resulting Phasing decision will inform the revision of the project's financial analyses, including but not limited to passenger facility charges and other development-based project revenues. In addition, these forecasts will employ a methodology and provide the information required by the FTA's New Starts program for the project to apply

DTX Comprehensive Work Plan

for CIG funding. Finally, this effort will produce a set of long-range planning forecasts in which the DTX will serve as the western segment of a standard-gauge New Transbay Rail Crossing.

Deliverable #1 - Assemble / Develop Initial Operating Segment Assumptions

This task involves identifying, assembling, and documenting the assumptions required to develop an initial set of initial operating phase forecasts, including the project configuration and other regional transportation network policies and investments. It is anticipated that these assumptions will be derived primarily from the Caltrain and CHSRA business plans and MTC's Plan Bay Area 2050 RTP and include information about baseline and future employment and population growth patterns. Travel demand that originates or is destined to areas outside of the Bay Area will also be assembled from prior project efforts and adjusted as necessary to align with the latest network, employment, and population projections.

Deliverable #2 - Develop Initial Forecasts

Using the information gathered as part of Deliverable #1, updated projections for the project, employment and population, and exogenous demand will be coded into the SF-CHAMP model. It is expected that a number of combinations of transportation network, employment, and population assumptions representing different horizon years and different investment strategies will be tested, although the precise number of scenarios to be evaluated is not yet known. For each scenario, a broad set of performance metrics will be produced that will include the following: all core New Starts program metrics, including estimates of ridership for all regional transit operators, ridership by demographic segments for equity analysis, new transit trips, vehicle miles traveled, roadway congestion on key regional facilities, greenhouse gas emissions, and cost-effectiveness.

Deliverable #3 - Develop Revised Forecasts

Working with agency staff and informed by the findings from Deliverable # 2, the SFCTA will refine the transportation network, employment, and population assumptions and code these revised inputs into the SF-CHAMP model. The scenarios will include not only revised and refined forecasts for the initial operating phase but also long-range forecasts in which the DTX will serve as the western segment of a standard-gauge New Transbay Rail Crossing. The model will be rerun and produce a revised set of performance metrics for each scenario, including all New Starts program metrics as well as other required project metrics.

Deliverable #4 - Prepare Modeling for New Starts Application

After an initial operating phase has been identified from the revised forecasts, all relevant New Starts templates will be prepared. This will involve travel-related forecasts (travel forecasts template, forecast results report, supporting tabulations), Build Annualized Worksheet (capital and O&M costs for the New Starts proposal, specifically). SFCTA will further support TIPA's preparation of documentation required by the FTA New Starts program.

OWNER: SFCTA

REQUIRED INPUTS: Caltrain Business and Service Plan, CHSRA preferred alternative (including Business Plan), New Transbay Rail Crossing, MTC regional rail synthesis (2020), California State Rail Plan, MTC's Plan Bay Area, MTC Crossing Study, CCJPA Vision Plan, City of San Francisco

zoning and planning studies, and Bay Area Core Capacity Transit Study, Plan Bay Area 2050 financial assumptions and funding plans for related projects (Caltrain/CHSRA blended service) and economic studies and forecasts from the City and MTC to support sensitivity testing and scenario planning.

DELIVERABLES

- ◆ DTX Demand Forecast for Phasing Study/Business Case for multiple scenarios and for New Starts program initial operating phase
- ◆ Ridership forecasts for multiple horizon years
- ◆ Transportation system performance assessments, including expected travel conditions on US-101, I-280, and I-80 Bay Bridge
- ◆ Long-range planning forecasts that capture future benefits and full lifecycle business case, demand forecasts for eventual connection with the standard-gauge New Transbay Rail Crossing.

4 Procurement Strategy Activities

4.1 Project Phasing Plan

(SCHEDULE ACTIVITIES A2-1550, A2-1650, A2-1700, a2-1800, A2-1900, A2-2000, A2-2100, etc.) (MOU TASK 12)

OBJECTIVE: Prior to advancing design work, prepare a Phasing Plan for the preferred phasing option(s) that conforms with technical studies and policy direction, is consistent with realistic amounts/timing of funding and stakeholder delivery date expectations, and has an explicit goal to deliver rail service to the Salesforce Transit Center as soon as possible.

The output of the Phasing Study will be a set of recommendations to define an initial operating project that meets the requirements for safe and efficient rail operations and is within higher confidence revenue sources. The Phasing Plan must consider planning, funding, operational, and engineering studies to identify an initial operating phase and contract packaging.

ACTIVITY: The Phasing Study will be conducted through a series of workshops, supported by technical studies. Three workshops will be held to (a) set a baseline of project knowledge among the partner agencies' participants, (b) confirm assumptions and constraints and develop evaluation criteria and specific phasing concepts, and (c) present findings and receive stakeholder feedback. As the technical studies proceed, regular discussions will be conducted with the stakeholders to share information, test assumptions, and provide feedback and correction.

Options for the initial operating phase of the DTX will be prepared in response to rail service scenarios, funding sources and availability, and stakeholder requirements. Additionally, detailed risk management and assurance plans will be prepared, including ownership, staffing,

DTX Comprehensive Work Plan

independent strategic advisor/independent engineer, and management processes along with a phasing plan for the project. The DTX Comprehensive Workplan will be reviewed to assure compatibility with the Phasing Plan.

A demand vs capacity analysis considering demand growth over time will be prepared with input from the operations and maintenance plans developed under 6.1.0. A side-by-side comparison of service options in terms of benefits (e.g., economic, transportation, development), costs, schedules, operations, and other relevant factors will also be prepared.

Based on the output of the Phasing Study, cost estimating, and the analysis within the approved environmental documents, the TJPA will present a comprehensive business case with quantifiable metrics for transportation system benefits, including travel time improvements, environmental benefits, new transit riders, development opportunities, and other project benefits as measured against regional goals.

OWNER: TJPA

REQUIRED INPUTS: Inputs to the Phasing Study will include operations planning, transportation planning, engineering studies, estimating and scheduling, funding, risk management, consideration of FTA's New Starts evaluation criteria, and stakeholder engagement.

DELIVERABLES: A report detailing the study process, evaluation, and recommendations will be prepared and shared with stakeholders and the TJPA Board of Directors for action. The report will detail analysis and recommendations for phasing and present a comprehensive business case addressing funding, operational adequacy, and operations and maintenance of the initial and future phases of the project. The Risk Management Plan will specifically consider the risk associated with implementation of the Phasing Plan in addition to the full-build out of the project.

4.2 Business Case (SCHEDULE ACTIVITIES A2-1860; MOU TASK 12C)

OBJECTIVE: Develop a document that recommends a DTX initial operating phase for investment after assessing the costs, benefits, available funding, and risks. The Business Case helps the TJPA Board of Directors understand and evaluate the potential implications, trade-offs, and overall impact of the options.

ACTIVITY: The Business Case will primarily synthesize information developed or contained within various other tasks that are either already completed, e.g., the approved environmental document record of work, or undertaken as part of this work plan. Using the output of the prior work and new work conducted as part of the work plan, the TJPA will write a Business Case that addresses the following topics:

DTX Comprehensive Work Plan

1. Establish project context and history
 - a. What is the situation?
 - b. Why this project?
 - c. Brief project history
2. Document how the project development process was managed (governance and assurance)
 - a. Who owns the project?
 - b. What is the business case approach?
 - c. What are the governance bodies?
 - d. What are the roles and responsibilities?
 - e. What is the approach to assurance?
3. Establish the rationale for the project, associated objectives, and expected outcomes
 - a. How is the service need determined?
 - b. Who are the stakeholders and how are they being engaged?
 - c. What is the current state?
 - d. What are the benefits being sought?
4. Document the project's strategic alignment
 - a. What are the policy issues associated with the project?
 - b. How will the policy issues be addressed?
 - c. Legal issues
 - d. Regulatory issues
5. Document the approach to risk
 - a. Approach
 - b. Framework
 - c. Outcomes
6. Present the Base Case for the approved Phase 2 DTX project as described in the FTA Record of Decision
 - a. How was the base case determined?
 - b. How does the base case perform?
7. Using FTA guidance and the Phasing Study evaluation criteria, define measurements/ variables of costs and benefits of the project (these will be inputs to a cost/benefit analysis)
 - a. Goals (i.e., increase public transportation ridership)
 - b. Objectives (i.e., increase accessibility, improve passenger experience)
 - c. Evaluation criteria (drawing from other work plan tasks)
 - d. Evaluation criteria metrics (qualitative and quantitative)

DTX Comprehensive Work Plan

- i. Strive for quantitative performance metrics and monetized values
 - ii. Support qualitative metrics with research or other data
8. Identify the phasing concepts and complete analyses
 - a. What are the concepts?
 - b. How is the analysis performed?
 - c. How do the concepts perform against the Phasing Study evaluation criteria, both individually and in any logical combinations?
 - d. Complete operations analyses
9. Regional context, e.g., relationship to statewide and regional networks and related sectors, jobs access for the Central Valley, and economic impact
 - a. Economically (including regional and national economic impact and distribution of benefits/impacts socio-economically, relationship to development plans/potential value capture, ability to fund the project within reasonably available funding sources)
 - b. Financially (total cost of both capital/operating and available revenue)
 - c. Managerially and commercially (project delivery capabilities, value for money/delivery options)
10. Document public interest considerations
 - a. Our approach
 - b. Community and stakeholder engagement
 - c. Equity
 - d. Safety and security
 - e. Evaluate the impacts of the project on society
11. Perform cost/benefit analysis
 - a. Align cost/benefit approach with FTA requirements
 - b. Analyze through a triple bottom line method (financial, social, and environmental)
 - c. Costs and benefits should be calculated over the asset's life and include O&M scope
 - d. Using the final Phasing Plan as a basis, distribute cost/benefits over time
 - e. Review costs and benefits holistically (businesses by economic sector, households, and individuals by income, fiscal impacts)
 - f. Costs: total direct public costs (fixed and variable), total indirect public costs, total risk costs
 - g. Benefits: direct public sector benefits, indirect public sector benefits, wider benefits to the region
 - h. Sensitivity and scenario analysis
12. Financial and commercial analysis

13. Industry Sounding process and outcomes
 - a. What was the process?
 - b. What was the feedback?
 - c. How was the feedback integrated into project development?

14. Analysis or discussion of delivery options
 - a. What delivery options are being investigated?
 - b. Which one(s) make the most sense for the project?
 - c. How do they perform against each other?
 - d. How do they compare with standard government-led traditional design-bid-build delivery?
 - e. Is there a recommended option?

15. Implementation plan for the next step in development
 - a. Path forward
 - b. Approvals needed
 - c. Schedule
 - d. Budget
 - e. Governance
 - f. Procurement strategy
 - g. Benefits realization

16. Conclusions
 - a. Recommendations and next steps

OWNER: TJPA

REQUIRED INPUTS: 2018 SEIS/EIR, Caltrain and CHSRA business plans, Phasing Study, Public Outreach and Rebranding Plans, transit operating plans, financial plan, technical studies, ridership forecast, and project risk register.

DELIVERABLES: Consolidate information into a Business Case summary document with all analyses as appendices.

4.3 Project Delivery Strategy

4.3.1 Industry Outreach

(Schedule Activity Nos. A2-2150, A2-2450, A2-4200, A2-4500, A10-1100, etc.) (MOU Task 15)

OBJECTIVE: The objective of the industry outreach is to inform strategy and future decision-making on Phase 2 of the Transbay Program relative to the following:

- ◆ Construction concept feasibility
- ◆ Project delivery, including contract packaging and procurement methods
- ◆ Procurement process, including pre-qualification experience requirements, expected technical proposal duration, stipend expectations, selection criteria, and alternative technical concepts
- ◆ Optimum degree of design completion for various project elements—tunnels, systems, station architectural and fit out, for “alternative” delivery methods
- ◆ Contractual terms and conditions that unfairly apportion risk and increase bid contingency

ACTIVITY: Input will be solicited from qualified construction contractors experienced in alternative delivery methods, transit and underground construction, and public private partnerships through structured industry review. This work will comprise developing an RFI and project presentation and holding individual interviews with interested contractors to discuss construction method feasibility, contract packaging, procurement methods, and contractual risk sharing mechanisms that can result in lower bid contingencies. Contractor feedback will again be used to inform qualitative project delivery studies and support the project delivery method recommendations.

OWNER: TJPA

REQUIRED INPUTS: Outreach will be conducted in at least two phases, during the Phasing Study and approximately midway through preliminary design. Inputs for the initial outreach session will include a general project description, alternative tunnel construction methodologies under consideration, construction packaging options, and delivery methods options. The second round of meetings will require additional discussion on those topics as well as risk sharing, selection process concepts, performance incentives, and terms and conditions. Considering information developed from Task 4.2.2 regarding the potential for public-private partnership (P3), commercial/transaction advisor participation may also be solicited for the second round of industry outreach.

DELIVERABLES: Draft and final reports detailing the discussions, contractor input, and recommendations for project delivery methodology including delivery method, contract packaging, risk sharing, procurement approaches and scheduling.

4.3.2 Project Delivery and Contracting Strategy (Schedule Activity Nos. A2-2600, A2-3450, A2-3500) (MOU Task 16)

OBJECTIVE: Develop a project delivery and contracting strategy that meets the requirements of the MOU and reflects the results of the deliverables produced across Task 1 through Task 15. In order to provide overall best value, the optimal project delivery strategy will reflect the needs of cost, schedule, quality, safety, and community values. Project delivery options will be evaluated considering risk-adjusted financial analysis, input from industry outreach, and other factors as described below.

OWNER: TJPA and SFCTA

ACTIVITY: Design and incorporate a gated process into the plan to support a structured and transparent methodology for selecting the best project delivery and contracting strategy.

Prepare a presentation and training material of available project delivery strategies and their associated benefits and risks. Inclusive of possible failure points.

Support market sounding activities with possible private sector partners (as part of Task 15: Industry Outreach (Market Sounding)). As a Task 16 co-lead, SFCTA will contribute heavily to Task 15. Gain direct external input on technical, financial, and operational interfaces and risk drivers.

Evaluate expertise and capacity of partner agencies and associated stakeholders across the different project delivery strategies. Perform a competencies gap analysis and assess possible impact to risk register and project delivery strategy selection.

Evaluate strategies across multiple qualitative and quantitative criteria related to costs and funding, risk and project controls, and project delivery and long-term maintenance with a focus on an optimized "value for money." The strategies will consider design-bid-build, design-build, design-build-maintain, and design-build- finance-maintain, among others

Update the Risk and Contingency Management Plan, in accordance with FTA guidelines, assist the TJPA in establishing a risk management committee, manage the risk process, and update the risk-based integrated cost and schedule model. Risk analysis workshops will be organized and facilitated by a risk manager and a follow-up mitigations workshop will be held in conjunction with FTA and stakeholders. A risk register will be updated and maintained in conjunction with stakeholders. Risk simulation modeling will be undertaken in enough detail to sufficiently develop project risk-based contingency. All work will be summarized in a risk assessment report. The plan will describe the quantitative risk management process, including:

- ◆ Periodic risk management workshops and follow-up mitigations developed in conjunction with FTA and other stakeholders
- ◆ Risk simulation modeling

DTX Comprehensive Work Plan

- ◆ Risk register
- ◆ Risk mitigation plans and monitoring
- ◆ Quarterly reporting

Develop a strategic implementation road map across the below workstreams:

- ◆ Commercial structure tailored to:
 - Existing policies and predefined goals
 - Project specifics such as technical characteristics
 - Market's ability and capacity to manage the risk allocated to the private sector
 - Goal of tapping into a broad cross-section of market investors and developers thus creating competition and value creation
- ◆ Technical requirements
 - Program, performance specifications, payment mechanisms (if required) and design guidelines that align with the project's goals and policies
- ◆ Legal requirements
 - Review P3 execution authority
- ◆ Financial structure
 - Reinforces risk allocation and commercial structure
 - Reflects an efficient risk transfer and pricing
 - Contracts and Project Management
 - Focuses on transparency and proactive stakeholder communication
 - Leverage the capacities of the participating agencies

Scope pre-procurement engineering and early works contracts tailored to the delivery options:
(as an input to Task 20)

- ◆ Request for Qualifications plans
- ◆ Request for Proposals plans
- ◆ Proposal evaluation and selection plans
- ◆ Procurement schedule
- ◆ Staffing requirements
- ◆ Budget requirements

DELIVERABLES:

Contract Packaging Strategy: A contract packaging strategy including project phasing will be prepared in consultation with the design teams and contractors, taking into consideration the output from the Industry Outreach task (4.2.1). The contract packaging strategy will be used to inform recommendations for project delivery. The legal framework and issues for delivery options, procurement, and development of contracts will be developed.

Project Delivery Method: A 2016 preliminary study examined alternative delivery options for the DTX, including whether public-private options were viable, given current funding, maintenance, and operations requirements. Delivery options included construction manager at-risk, design-build-finance, design-build-finance-maintain, and other forms of public-private-partnerships. The study was presented to the TJPA Board in 2016 with the intention that further study would be necessary. An updated report will specifically address the DTX subprojects and facilities.

Procurement and Contracting Plan: A procurement and contracting plan will present analysis and recommendations for

- ◆ Request for Qualifications
- ◆ Request for Proposals
- ◆ Proposal evaluation and selection plans
- ◆ Procurement schedule
- ◆ Staffing requirements
- ◆ Budget requirements

5 Design Development

5.1 Design Development and Technical Studies (SCHEDULE ACTIVITY TBD - GEC TO PREPARE DETAILED SCHEDULE) (MOU TASK 11)

OBJECTIVE: The DTX project was environmentally cleared in 2004, and 30 percent engineering design on the alignment was completed in 2010. The scope and configuration of the project have since been modified to address new requirements and inputs from stakeholders, including the rail operators Caltrain and CHSRA, the City, and MTC. These new requirements and inputs were evaluated in a supplemental environmental analysis of Phase 2 completed in 2018 (SEIS/EIR) and approved by the FTA in July 2019.

The objective of the technical studies is to update the prior design work in concert with the Phasing Plan as approved by the TJPA Board and other project definition changes since 2010. A detailed scope of work will be developed with the general engineering consultant (GEC) upon

DTX Comprehensive Work Plan

their selection and Notice to Proceed, anticipated in November 2020. The scope will be developed such that the results of the Phasing Study, when approved by the TJPA Board, will be reflected.

OWNER: TJPA

REQUIRED INPUTS: Described within the body of each subsection.

Figure 1 shows the environmentally cleared Phase 2 subprojects and facilities. The results of the Phasing Plan, as approved by the TJPA Board, will further define the specific scope of design services.

Further engineering development will be required to support reasonable cost estimating, budgeting, scheduling, and development of recommendations for project sequencing and delivery methods.



Figure 1. Environmentally Cleared Phase 2

Table 1 summarizes the level of engineering previously completed. The table is followed by a discussion of each Phase 2 element and related technical studies, and specific recommendations.

Table 1. Current Level of Design and Engineering for Phase 2

Project Element	Current level of design completion
<hr/>	
Tunnels/Structures	
U-Wall/Tunnel Stub	10%
Cut-and-cover on Townsend Street – west of Fourth & Townsend Street Station	10%
Cut-and-cover on Townsend Street – east of Fourth & Townsend Street Station	10%
Mined Tunnel	
SEM concept	30%
TBM+SEM concept	5%
Throat structure	
Mining under Howard concept	5%
cut-and-cover concept	15%
Spaceproofing for tunnels and station layout	
Ventilation and emergency egress structures	10%
<hr/>	
Track	
At-grade (turnback track and maintenance-of-way track)	15%
Direct fixation	15%
Special (switches, turnouts)	15%
Vibration and noise dampening	15%
Alignment (horizontal and vertical)	15%
<hr/>	
Systems	
Tunnel and station ventilation and fire-life safety	5%
Tunnel MEP	5%
Train control & signals	0%
Central train operations control	0%
Communications	0%
Traction power distribution – overhead catenary system	0%
Power supply	0%
Train operation	15%
SCADA	0%

DTX Comprehensive Work Plan

Project Element	Current level of design completion
Sitework & Utilities	
Surface restoration, pavement, sidewalk, etc., 2nd Street and Townsend Street	10%
Fourth and King Surface Station	0%
Utility relocation/support	0%
Utility survey	10%
Survey	5%
Adjoining buildings condition survey	5%
Fourth & Townsend Street Station	
Structural system	5%
MEP	0%
Finishes and headhouses	0%
Landscaping	0%
Transit Center	
Transit center station fit-out *	65%
Transit center train box extension *	65%
Intercity Bus Facility *	15%
BART/Muni Pedestrian Connector	10%
Right-of-Way	
Real estate acquisition	15%
Real estate survey	5%
Professional Services	
Geotechnical investigation	75%
Geotechnical Baseline Report	0%
Basis of Design	50%
Specifications/performance specs	0%
Support of excavation	0%
Construction staging and planning	5%
Maintenance of traffic	10%
Approvals and permits	0%
Stakeholders coordination	10%
O&M	5%

* Assumes design-bid-build procurement for these facilities. While design will begin during Project Development, it will extend into the Engineering phase.

ACTIVITY: Project Elements for Design Development

U-Wall, Tunnel Stub Box, and Cut-and-Cover on Townsend Street

The U-wall was brought to a 30 percent design level in 2010; however, the design must be integrated with the new tunnel stub box, which will extend beneath and adjacent to the U-wall. The tunnel stub will facilitate a connection to a future grade separation tunnel with reduced disruption to rail operations. Likewise, the cut-and-cover structures on Townsend Street were brought to a 30 percent design level in 2010; however, due to the shifted location of the Fourth and Townsend Street Station, the design must be updated to adjust the alignment and accommodate the new trackwork design. Cut-and-cover work west of the station will remain the same regardless of the construction method selected for the mined tunnel; however, the length of cut-and-cover construction east of the station varies based on construction method for the mined tunnel. As the costs will not vary greatly between the adjusted alignment and the 2010 design for the baseline mined tunnel design, the design will be updated based upon the Tunnel Options Study design.

The design effort will include structural analysis, some additional geotechnical investigation and laboratory work, a review of adjacent structures within the zone of influence of the excavation, and an assessment of how the tracks could shift from use of the U-wall to a future grade separation tunnel through the tunnel stub box. This work will require in-depth coordination with the Operators, SFCTA and their consultants hired to develop the environmental work and conceptual engineering design of the future Pennsylvania Avenue Extension tunnel.

Fourth and Townsend Street Station

The design of the Fourth and Townsend station was at 30 percent in 2010 but has been modified to be fully in the public right-of-way on Townsend Street, in response to requests from the City and Caltrain. Therefore, further additional engineering is required.

The train platform level currently includes a center-island platform with one additional passing track on the south side. A rail operations study to validate the current three-track alignment was completed in 2017, peer reviewed by the SFCTA, and accepted by SFCTA, CHSRA, and Caltrain (refer to Appendix C.vi). Following their review, the SFCTA recommended reviewing the opportunity to add a third platform face for the passing track. This design work will include structural analyses—including an assessment of impacts on adjacent structures, architectural, passenger movement, ventilation, landscaping, and rail operations analyses. The work will require coordination with the rail operators and City regarding fire-life safety issues, surface impacts and the reinstatement of the road and sidewalks, as well as coordination with all City permitting agencies. This design work will establish the footprint of the station, allowing for the identification of any new impacts to existing facilities, properties, and utilities, which will in turn allow for the development of mitigations and a sounder cost estimate.

The Phasing Plan may recommend an alternative solution to the three-track alignment, which could modify the scope above.

Mined Tunnel

The baseline design of the mined tunnel using soft ground tunneling sequential excavation method (SEM) techniques was brought to a 30 percent design level in 2010. A tunnel options study completed in 2018 included an alternate design concept using twin tunnel boring machines with SEM between the bores; this concept is at a feasibility level of design. Should the three-track alignment be retained, the mined tunnel design will be brought to a design level consistent to the recommendations of the project delivery strategy activities. This effort will focus on the Tunnel Options Study design, as the baseline SEM design remains largely unchanged from the 30 percent design completed in 2010. This design work will include confirmation of the vehicle clearance envelope and other space requirements for MEP systems, ventilation modeling, settlement analyses, and an analysis of potential impacts to surface structures. Coordination will be necessary with the rail operators on the clearance envelopes and with the agencies within the City on fire-life safety issues.

Ventilation and Emergency Egress Structures

In 2010, the ventilation structure design was at the 30 percent design level. Additional design work will be needed to address the height of the ventilation structure discharges, which was highlighted by a comprehensive risk and vulnerability assessment completed in 2012. The design will include structural, architectural, exiting, and ventilation analyses. Additionally, right-of-way/real estate needs will be finalized. Coordination will be necessary with permitting agencies within the City and the authority having jurisdiction for ventilation and fire-life safety aspects. Additional coordinate will be required with the Parcel F development and design team in consideration of proposed changes to the Transit Center's west vent structures.

Throat Structure

The design of the throat structure was at the 30 percent design level in 2010. Subsequently, the CHSRA provided updated design criteria that required a widened structure; the baseline design of the widened throat structure is currently at the 10 percent design level with recommended cut-and-cover construction.

The Tunnel Options Study examined multiple tunneling options for the throat, and recommended examining tunneling under Howard Street, with the balance of the throat being constructed using cut-and-cover construction, due to cost and schedule impacts. The mined tunnel design is currently at a feasibility level of design. While both recommendations may increase the cost of the construction, other considerations may drive acceptance of the recommendations, including fewer impacts on adjoining structures, utilities and traffic. For both construction methods (cut-and-cover or mined tunnel), additional structural, geotechnical, and tunneling design work should be performed to minimize the risk profile for this aspect of the project. Additional track layout analysis will be performed to determine if right-of-way takes or easements can be reduced or eliminated.

Transit Center Train Box Extension

The train box extension was intended to extend the existing below-grade structural box of the transit center east to Main Street using cut-and-cover construction such that the station could accommodate a full double high-speed trainset, a CHSRA requirement at the time. The design

DTX Comprehensive Work Plan

was brought beyond 65 percent; however, subsequent to the Phase 2 SEIS/EIR in 2018, the CHSRA has advised the TJPA that they no longer need the extension and will accept a design solution that allows a portion of a double high-speed trainset to remain in the throat so long as no crossovers are affected. This will allow the train box extension to be reduced in length, but may not be able to be fully eliminated, due to ventilation and exiting needs. The ventilation and exiting needs will be evaluated as part of the Phasing Study to determine whether an alternate location can be found or, failing that, minimize the extension as much as possible. The TJPA has determined that reducing the train box extension is feasible.

The redesign of the train box extension will be progressed during Project Development. This design work will include structural, geotechnical, architectural, and ventilation analyses work as well as an assessment of potential impacts to adjacent structures. Coordination will be needed with adjacent property owners, the rail operators, and permitting agencies within the City as well as the authority having jurisdiction.

Transit Center Station Fit-out

In 2011, the transit center fit-out design was brought beyond 65 percent. The design requires an update to incorporate changes to the below-grade transit center from a reduced train box extension and updated programmatic and operational requirements by CHSRA and Caltrain, once they are available. The design will include architectural, structural, and MEP work, including an updated ventilation analysis. Coordination will be needed with the rail operators as well as all permitting agencies within the City and the authority having jurisdiction. The TJPA's, Caltrain's and CHSRA's detailed programmatic and operational requirements will need to be fully accommodated.

Intercity Bus Facility

The IBF is a new subproject, currently at a 30 percent level of design. It needs to be coordinated with the transit center train box extension, and so will need some redesign. The design will include architectural, structural, geotechnical, MEP, landscaping, surface civil work, and bus operations analyses. Coordination will be necessary with the bus operators, and many permitting agencies within the City. During the Phasing Study the need for this subproject will be re-evaluated.

Fourth and King Surface Station

Caltrain is developing its business plan, which will define infrastructure improvements at the station to support future operations planning. It is anticipated that Caltrain will perform the design work for these surface station and railyard modifications.

BART/Muni Pedestrian Connector

The design of the BART/Muni pedestrian connector is currently at the conceptual level. The schedule for its construction must be coordinated with planned enhancements to the BART/Muni Embarcadero Station. An agreement must also be reached between BART, San Francisco Municipal Transportation Agency (SFMTA), and the TJPA regarding operation and maintenance responsibilities for the connector under normal and incident conditions. Design will include structural, geotechnical, architectural, pedestrian modeling, MEP, and ventilation

modeling. Ongoing coordination with the City, including SFMTA and the San Francisco Fire Department, is required.

Systems

Fire-life safety systems will be brought to a design level with sufficient detail to achieve concept acceptance from key stakeholders including the San Francisco Fire Department, the authority having jurisdiction. Other systems, including traction power and overhead catenary systems, signaling and train control, and communications will require additional design. Requirements for rail systems (traction power and overhead catenary systems, signaling, and train control) communications should be consistent with those for the ongoing Caltrain Electrification Project. Coordination is required with the rail operators for all rail systems and trackwork design. Other systems will require coordination with City permitting agencies and authorities having jurisdiction.

Trackwork

The designs for trackwork, overhead catenary systems, and ventilation systems were prepared to a 30 percent design level in 2010. The trackwork configuration was most recently updated in 2018. However, the Tunnel Options Study examined an opportunity to lower the tunnel profile to mitigate construction risk, which will require an update to the trackwork design in coordination with the rail operators. We recommend bringing the trackwork to a minimum 30 percent design level to ensure critical operations, life-safety, and right-of-way needs are properly accounted for. Coordination and approval is required with the rail operators for the trackwork design.

Utility Relocation

The utility relocation design was at the 30 percent design level in 2010. In 2018, notices of intent were issued to public and private utility operators. Updated utility plans received from the utility operators will be incorporated into a 30 percent design level submittal, which can then be advanced to a 100 percent design level and bid documents for one or more advance contract packages should design-bid-build be selected as the delivery model for utilities. This work will include a review of existing utilities and proposed utility relocations. Coordination will be needed with all affected public and private utilities as well as the City.

Building Demolition

The Department of Building Inspection has provided over 140 as-built plans for existing buildings along the alignment in support of engineering studies and evaluations. Select building demolition will be required at the locations of ventilation structures and within the throat area, as identified within the SEIS/EIR. Advance utility relocation and building demolition, should, if possible, be timed with real estate acquisition. A haz-mat investigation of buildings to be demolished will be required, and mitigation plans developed.

Cost Estimate & Schedule

The DTX cost estimate was updated in 2016. DTX project components are organized under four main projects, each with at least one subproject and multiple facilities. The updated estimate included all components and incorporated MTC's recommendations. For components that were not at the 30 percent design level, either their 2010 engineering estimates or rough-order-of-magnitude costs were used to update the labor/materials to current market rates. Additionally, MTC recommended increasing the escalation rate to 5 percent.

During the Phasing Study, cost impacts of the phasing concepts will be developed based on the 2016 cost estimate, escalated to an agreed-upon midpoint of construction, as proposed by the IPMT and approved by the ESC and TJPA.

Once engineering on the project components are advanced, the comprehensive project cost estimate will be prepared, consistent with FTA New Starts guidance, and a revised baseline budget with an appropriate level of contingency, based upon the level of design, the output of the risk assessment, and prudent contingency management planning, will be brought to the board for approval.

The construction schedule will be updated after a construction methodology and procurement method for the mined tunnel and throat structure is selected.

The design schedule will be updated as soon as work resumes, with additional updates to include required project meetings and an updated schedule for third-party agreements based on the updated meeting schedule.

6 Programmatic Documents and Federal New Starts Requirements

6.1 New Starts Project Development Phase Requirements (TJPA) (MOU TASK 14)

OBJECTIVE: Entry into Project Development initiates an 18- to 24-month period during which the project will be advanced to meet the FTA's requirements for entry into the subsequent phase, Engineering. By the end of the Project Development phase, a cost estimate that addresses key items within the project's work breakdown structure must be developed and at least 30 percent of the non-CIG funding must be committed.

The TJPA will engage with the FTA to develop a road map to the Full Funding Grant Agreement. With respect to Project Development, FTA's June 2016 Interim Policy Guidance contains a bulleted list of required activities that must be completed during Project Development; the guidance states, in part:

DTX Comprehensive Work Plan

FTA requires that, at a minimum, the design and engineering work described in the bulleted list (equivalent to a 30 percent design level) be completed during PD. However, FTA encourages project sponsors to complete as much engineering and design work on the locally preferred alternative as needed to feel comfortable with the reliability of the project cost, scope, and schedule because FTA intends to lock in the CIG amount at the level requested with entry into Engineering.

Subsequent to the 18–24-month maximum Project Development phase, the FTA New Starts process contemplates a Request to Enter Engineering. The Request to Enter Engineering comprises a request letter and the following support documents, developed during the Project Development phase:

- ◆ New Starts templates used for developing the evaluation criteria and ratings
- ◆ 20-year financial plan, including supporting documentation demonstrating at least 30 percent of the non-CIG funding is committed
- ◆ Cost estimate provided using the Standard Cost Category worksheets
- ◆ Project Management Plan and subplans
- ◆ Integrated project schedule
- ◆ Documentation of project definition and scope
- ◆ Contracting plans and documents
- ◆ Project delivery method identified and reflected throughout the other required products
- ◆ Identification of third-party agreements with schedule for completion
- ◆ A preliminary geotechnical report
- ◆ A draft value engineering report
- ◆ Preliminary safety hazard analysis a preliminary threat and vulnerability analysis as well as initial safety and security design criteria
- ◆ The draft constructability review report
- ◆ Draft “before and after” study data collection plan

FTA will evaluate and rate the project, which must achieve at least a Medium rating to be approved to enter the Engineering phase. As also noted, with this approval, FTA will lock in the dollar amount of CIG funding.

During the Engineering phase, the project design is advanced in accordance with the procurement method determined by the project sponsor, e.g., design-build or design-bid-build. FTA requires that at least 50 percent of the non-CIG funding be committed within three years of advancement into Engineering and prior to submittal of the Full Funding Grant Agreement (FFGA) request.

DTX Comprehensive Work Plan

To complete the Engineering phase, project sponsors must complete sufficient engineering and design to develop a firm and reliable cost, scope, and schedule for the project, obtain all non-CIG funding commitments, complete all critical third-party agreements, and meet other FTA readiness requirements related to technical capacity, staffing, and oversight to be eligible for a construction grant agreement.

The TJPA will work with the FTA and the other project partners through a multistep, multiyear process to deliver the project. The FTA's review checklist for readiness to execute the FFGA requires the submittal of specific management plans. After appropriate approval by the project delivery team, all required plans must be shared and approved by the FTA as the project finalizes the FFGA and initiates construction.

6.1.1 Real Estate Acquisition Plan and Real Estate Acquisition (SCHEDULE ACTIVITY A2-1250, etc.) (MOU TASK 11e)

OBJECTIVE: A Real Estate Acquisition Plan was completed in 2005. Between 2008 and 2014, fifteen parcels were acquired to preserve right-of-way for the DTX. Since then, the real estate estimate has been updated (2017), and during the supplemental environmental process, the designers determined that underpinning could be used to support three historic buildings along the alignment that previously had been slated for partial demolition and rebuilding. The plan will be reviewed, validated, and updated to current project requirements.

OWNER: TJPA

ACTIVITY: Work associated with an updated plan includes:

- ◆ Re-assessing right-of-way acquisition needs to validate prior assumptions, considering both the Phasing Plan and full build-out scenarios
- ◆ Evaluating all affected properties to determine what engineering solutions are available to preserve as much of the buildings as possible
- ◆ Updating the 2017 real estate estimate by estimating the right-of-way costs based on market rates of the buildings/portions of the buildings, potential for occupancy during construction, and the cost of construction of the engineering solutions

REQUIRED INPUTS: Based upon the Phasing Plan, design progress, construction scheduling, and laydown requirements, property will be identified for acquisition, right of entry, and temporary or permanent easement.

DELIVERABLES: Subsequent to approval of the Phasing Plan, real estate acquisition will resume with a focus on the following activities:

- ◆ Appraisals: Three appraisers (two appraisers and a reviewer) will be engaged concurrently with the TJPA's issuance of notices-of-intent to property owners. Once properties have been appraised and the appraisals reviewed, the TJPA will select an appraisal to send to FTA for concurrence.

DTX Comprehensive Work Plan

- ◆ Acquisitions: The TJPA will make offers to property owners and negotiate the purchases. Cost justifications will be submitted to the FTA, if necessary. Condemnations/orders of possession will then be issued.
- ◆ Relocations: The TJPA will engage a relocation consultant to undertake a relocation impact study and draft a relocation assistance program. The public will be provided the opportunity to comment on the relocation impact study and relocation assistance program, which will be administered by the consultant and TJPA.

6.1.2 Configuration Management Plan (SCHEDULE ACTIVITY A2-1505 - A2-1530) (MOU TASK 14)

OBJECTIVE: The supplemental environmental document for the DTX completed in late 2018 established its baseline configuration. A Configuration Management Plan will be developed during Project Development to document the baseline configuration in accordance with the Phasing Plan and the processes for ensuring that the baseline configuration is not changed without a systematic review of the changes to the design and the impact that design changes may have on all other aspects of the project.

ACTIVITY: The Configuration Management Plan will address how changes are handled during the design and construction phases, interface management, O&M interfaces, and procurement and bid documents. Lessons learned from the Phase 1 process will be incorporated into a refined design change process for Phase 2. A Configuration Management Board will be established to review and authorize all proposed project changes during both the engineering and construction phases.

OWNER: TJPA

REQUIRED INPUTS: Design documents, O&M plans, contract documents, change control procedures

DELIVERABLES: A management plan that defines roles and responsibilities, procedures, actions, and oversight required to control and document any changes to the approved baseline.

6.1.3 Third Party Agreements Plan and Agreements and Stakeholder Management (SCHEDULE ACTIVITY A2-2900) (MOU TASK 14)

OBJECTIVE: The third-party agreement plan will address:

- ◆ New agreements with the operators Caltrain and CHSRA regarding design oversight, project funding, implementation, and operations and maintenance
- ◆ Agreements with utility companies and government agencies for utility relocation, traffic management, construction permitting (including the street vacation process and easements), environmental permits (including completion of archeological resources

DTX Comprehensive Work Plan

design/treatment plans and reports, mitigation monitoring, and building surveys, fire-life-safety approvals, among others)

- ◆ Whether the existing agreements with the State and various City agencies and departments for various services executed for Phase 1 of the Transbay Program can be amended or whether new agreements are required

For impacted third-party facilities, these agreements will establish the framework for the implementation of work during construction including which entity will perform the required third-party facility work, how the work will be paid for, and how the design and construction work will be phased, in accordance with the approved project plan.

OWNER: TJPA

REQUIRED INPUTS: Coordination and in some cases agreements with the following entities will be required to progress the DTX:

Bicycle Advisory Committee	SF Department of Technology
California Department of Transportation	SF Fire Department
California Public Utilities Commission	SF Flood Plain Management Program
Caltrain/PCJPB	SF Mayor's Office on Disability
CHSRA	SFMTA
Federal Railroad Administration	SF Office of Community Investment and Infrastructure
FTA	SF Office of Resilience and Recovery
MTC	SF Planning Department
Port of San Francisco	SF Public Utilities Commission
Private Utility Companies (AT&T, Sprint, etc.)	SF Public Works
SF Arts Commission	SF Real Estate Division
SF City Attorney	SF Relocations Appeals Board
SFCTA	State Historic Preservation Office
SF Department of Building Inspection	
SF Department of Emergency Management	

DELIVERABLE: The plan will include a matrix showing the status of all existing third-party agreements as well as all stakeholders in the Transbay Program, both direct and indirect. The plan will include a matrix of required permits and the timeline necessary for each to be in place.

The FTA will require some agreements to be in place prior to the TJPA's requesting the FFGA; for others, a clear strategy leading to a signed agreement will be needed to ensure that issues are identified and resolved, to avoid delays to implementation of the project.

The plan will summarize existing stakeholder plans and studies that require coordination (including but not limited to the Caltrain and CHSRA business plans and the California State Rail Plan).

DTX Comprehensive Work Plan

Additional stakeholder management will include coordination with ongoing oversight and management, maintaining clear records of stakeholder engagement, managing key initiatives to address issues, and tracking accountability for all stakeholder engagement processes. Coordination with adjacent developments and projects will also be necessary including the Pennsylvania Avenue Extension, the 22nd Street Station Study, the Fourth and King Railyard, and the New Transbay Rail Crossing studies.

This work will have to be closely coordinated with the public and stakeholder outreach and communications activities discussed in 1.2, Public Outreach Plan.

6.1.4 Archaeological and Environmental Reports (SCHEDULE ACTIVITY A6-1050, etc.) (MOU TASK 11)

OBJECTIVE: Compliance with Section 106 requirements and state/local ordinances. Section 106 of the National Historic Preservation Act requires federal agencies to seek out consulting parties to request their views and participate in consultation regarding a project's effect on historic properties. The goal of the consultation is to identify historic properties potentially affected by the project, assess its effects, and seek ways to avoid, minimize, or mitigate any adverse effects on historic properties. Historic properties include any prehistoric or historic district, site, building, structure, or object considered eligible for listing on the National Register of Historic Places. Section 106 requires that the Advisory Council on Historic Preservation have an opportunity to comment on the project. The TJPA, as the project sponsor, would conduct this work on behalf of FTA.

OWNER: TJPA

ACTIVITY: A detailed scope of work will be developed with the historic preservation and archeological resources consultant. In addition to regularly updated mitigation monitoring reports, treatment plans must be prepared for Howard Square and for Second and Townsend streets prior to archaeological excavations and investigations in these areas and followed by technical reports documenting the results of the investigations. A Historic American Buildings Survey/Historic American Engineering Record report will need to be prepared for 191 Second Street and 580 Howard Street. These efforts will require extensive coordination with the FTA and the State Historic Preservation Office as well as local authorities having jurisdiction and, when warranted, with property owners.

REQUIRED INPUTS: Design plans, construction laydown plans, historic and archeological records and research.

DELIVERABLES: To be developed by the historic preservation and archeological resources consultant.

DTX Comprehensive Work Plan

6.1.5 Program Management Plan (SCHEDULE ACTIVITY A2-2850) (MOU TASK B14)

OBJECTIVE: Compliance with FTA requirement for New Starts and approval by the FTA's project management oversight consultant (PMOC).

ACTIVITY: Management practices and procedures for the Transbay Program are documented in the Transbay Program Management Plan (PMP). The PMP was most recently updated in January 2017, reviewed and accepted by the FTA, and implemented with oversight by the FTA's PMOC. The PMP will be reviewed and updated to focus on the delivery of the DTX.

OWNER: TJPA

REQUIRED INPUTS: Approved policies, practices, and procedures related to the staffing, management, design, and construction of the project.

DELIVERABLES: An FTA-approved PMP suitable for controlling the project's cost, schedule, and quality.

6.1.6 Quality Management Plan (SCHEDULE ACTIVITY A2-2650) MOU TASK 11)

OBJECTIVE: The TJPA has an established quality policy and Quality Management System (QMS) that are based on the FTA's Quality Management System Guidelines.

ACTIVITY: Under the Transbay Program QMS, each organization providing management, design, construction, consulting, or other services to the Program was required to develop, adopt, and implement a quality plan appropriate to the service being provided that defined the administrative and control measures to achieve the quality requirements of the QMS. The Program QMS will be reviewed for compliance with the FTA's most current guidelines and updated accordingly for the DTX.

OWNER: TJPA

REQUIRED INPUTS: FTA Quality Management System Guidelines, PMPC Quality Plan, GEC Quality Plan

DELIVERABLES: An FTA-approved Program QMS covering all elements of the project, updated and amended regularly, consistent with project development.

DTX Comprehensive Work Plan

6.1.7 Safety and Security Management Plan (SCHEDULE ACTIVITY NO. A2-3250) (MOU TASK 14)

OBJECTIVE: Following FTA guidelines, this work will analyze known hazards and vulnerabilities, categorize them as to their potential severity and probability of occurrence, and develop an approach to address them.

ACTIVITY: The SSMP will focus on the DTX, the safety management organization, and how safety and security activities will be managed. Subplans to the SSMP will include a Preliminary Hazard Analysis and a Threat and Vulnerability Assessment.

OWNER: TJPA

DELIVERABLE: An approved SSMP

6.1.8 Operations and Maintenance Plan (SCHEDULE ACTIVITY A2-2550, A2-3550) (MOU TASK 17)

OBJECTIVE: The Operations and Maintenance (O&M) Plan must address the institutional responsibilities for and among the various users and stakeholders throughout the Region. As required by the MOU and the FTA New Starts program, a 20-year financial plan must be developed and agreement secured with stakeholders through the execution of O&M agreements. Agreements for operations and maintenance must be developed and executed.

ACTIVITY: The O&M Plan will identify the ownership and governance of all project elements during construction and operations and maintenance. A comprehensive maintenance plan identifying users' responsibilities is required in order to provide a safe and clean environment and to assure a constant state of good repair.

Agreements between, at a minimum, the TJPA, Caltrain, and CHSRA governing the parties' responsibilities and authorities will be drafted, negotiated, and approved by the parties' respective governing boards.

OWNER: TJPA

REQUIRED INPUTS: Operator business plans; identification of all facility users; federal, state, and local funding sources; and design plans. Coordination with the tasks discussed in 7.1, Governance Structure, and 2.1, Funding Plan, will be required.

DELIVERABLES: A multi-agency approved O&M plan that clearly defines roles and responsibilities, project elements, ownership during construction and operations, decision-making, dispute resolution, funding responsibilities in support of a 20-year financial plan, and multi-user governance. Agreements between the stakeholders to implement the various elements of the Plan will be drafted, negotiated, and executed.

DTX Comprehensive Work Plan

6.1.9 Threat and Vulnerability Assessment (SCHEDULE ACTIVITY A2-2750) (MOU TASK 11)

OBJECTIVE: Conduct a rigorous assessment of security threats and develop mitigation strategies considering avoidance in the design process and elimination or mitigation during operations.

ACTIVITY: The Threat and Vulnerability Assessment will update the DTX portions of the Program's comprehensive risk and vulnerability assessment and design guidance criteria, which were completed in 2012. The criteria will be used as an input to the Basis of Design Report. The assessment will be updated early in the design development process in order to provide clear guidance to the design team, thus avoiding design approaches that are incompatible with security requirements.

OWNER: TJPA

REQUIRED INPUTS: 2012 Risk and Vulnerability Assessment, Project Phasing Plan and ultimate build-out design assumptions, rail operators' business plans, and FTA technical guidance.

DELIVERABLES: Update the 2021 approved TVA to current standards and project description

6.1.10 Basis of Design Report (SCHEDULE ACTIVITY A2-3300) (MOU TASK 11)

OBJECTIVE: This report will summarize and describe the objectives, status, key decisions made, and outstanding key issues of design to date and provide the designer with a basis to advance the design to the required level of completion for the selected method of construction.

ACTIVITY: The report is a living document and will be revised at each major step of the design to reflect the intended function and configuration of the project, as well the criteria, codes, and standards to be used in its design.

OWNER: TJPA

REQUIRED INPUTS: The Basis of Design Report will be derived from the DTX Design Criteria, which was last updated and issued in 2009, with inputs from the Preliminary Hazard Analysis, Threat and Vulnerability Assessment, and the ridership study.

DELIVERABLES: An updated Basis of Design Report, updated at each design milestone.

6.1.11 Geotechnical Baseline Report (SCHEDULE ACTIVITY A7-0950) (MOU TASK 14)

OBJECTIVE: A Geotechnical Baseline Report will be needed not only to satisfy the FTA's Project Development requirements but also later for contract bidding, regardless of procurement type during the Engineering phase.

ACTIVITY: A geotechnical data report and a geotechnical interpretive report were prepared in 2010. Additional targeted borings and supplemental laboratory testing will be required to update the geotechnical data and interpretive reports.

OWNER: TJPA

REQUIRED INPUTS: 2010 Geotechnical Baseline Report, Updated geotechnical data and geotechnical interpretive reports

DELIVERABLES: An updated report with new data as generated by required additional targeting borings near the west end of the project.

6.1.12 Value Engineering Report (SCHEDULE ACTIVITY NOS A2-3000, A2-3850, A2-3900) (MOU TASK 11)

OBJECTIVE: A rigorous program of value engineering will be implemented to satisfy the required project function at the lowest total cost (capital, operating, and maintenance) over the life of the project.

ACTIVITY: A formal value engineering workshop will be undertaken early in the design process but subsequent to the completion and approval by the TJPA Board of the Project Phasing Study. A second workshop will be conducted as design progresses prior to the completion of preliminary engineering (30%).

OWNER: TJPA

REQUIRED INPUTS: Design development documents, Operations and Maintenance Plans, Cost and Schedule documentation, Risk Workshop output.

DELIVERABLES: The value engineering report will incorporate the VE recommendations developed during the workshops along with an evaluation of those recommendations, including recommendations for implementation, further study, or rejection. The VE report will also identify items that do not meet the cost/benefit requirements established during the workshops and by the client. Additionally, targeting areas of residual risk as part of the VE process may reduce risk and increase confidence in the project bottom line.

6.1.13 Constructability Review

(SCHEDULE ACTIVITY NO. A2-3700) (MOU Task 11)

OBJECTIVE: Constructability reviews of the various contract packages are a key component of all design and construction management projects. These reviews can be performed simultaneously with the technical design review to evaluate the contract documents for conformance with the overall goals, objectives, and mitigation requirements contained in the Transbay Program's environmental document.

ACTIVITY: Plans and specifications will be reviewed by a team not directly involved in the design development to make sure they are accurate, complete, and consistent, and that the design conforms to Program standards, the constructability reviews will focus on items such as site access and truck routes, maintenance and protection of traffic, lay-down and storage areas, work means and methods in general, and consistency with work by other contractors or utility companies in the vicinity. The constructability reviews will also evaluate the proposed construction schedule to determine whether it is consistent with the plans and specifications. The constructability review of the schedule will check the sequence of activities, overall production rates, durations for long lead-time procurement items, and conformance with project milestones.

OWNER: TJPA

REQUIRED INPUTS: Plans, specifications, estimates, construction schedule, real estate acquisition plan, and contract documents.

DELIVERABLES: A final report identifying areas where plans, specifications, and contract documents can be improved for clarity, biddability and claims avoidance.

7 Governance and Oversight

7.1 Governance Structure

(SCHEDULE ACTIVITY A2-4800) (MOU TASK 18)

OBJECTIVE: The objective is to explore and select the best institutional arrangement and governance for the delivery of the DTX through construction and make recommendations to the TJPA Board. A detailed study of the governance structure for the project during the design, construction, and operational phases and identify roles and responsibilities of various agencies that will benefit from the use of the transit center and DTX facilities will be conducted. This will enable the alignment of stakeholders, support effective megaproject delivery, and identify oversight roles. Consideration will be given to the recommended governance structure's impact on federal, regional, and state agencies' scoring for funding allocations.

DTX Comprehensive Work Plan

ACTIVITY: Discovery Phase - Perform an internal organizational review of the agencies' current governance structures, personnel capabilities, oversight requirements. Identify key criteria and success factors for sponsors and stakeholders, leverage international transit system best practices (transparent, independent, small and empowered, robust expertise, long term implementation, community involvement, diverse and focused on implementation over policy). Perform a gap analysis and develop a closure action plan to strive for alignment between the project delivery team and the identified stakeholders

Structuring Phase - Incorporate the project's vision, mission and overall culture objectives. (Use as input Task 7) and map the evolution and expected change in governance strategy throughout the project's lifecycle. Prepare governance structure regarding:

- ◆ Board Role and Responsibilities
- ◆ Stage-Gated Decision-Making Protocols
- ◆ Board Size
- ◆ Membership
- ◆ Terms
- ◆ Appointment and Selection Process
- ◆ Staffing Qualifications
- ◆ Auditing and Feedback Mechanisms
- ◆ Accountability Structure
- ◆ Data Management Structure
- ◆ Community Engagement
- ◆ Reporting and Communication Protocols

Validation Phase - Develop auditing/feedback mechanism to quantitatively and qualitatively measure compliance and performance. Develop outcome-based performance and sourcing management systems, regime of Key Performance Indicators (KPIs). Create compliance and performance assessment tools to capture the health of the governance structure and its impact on the project based on those KPIs. Revise and stress-test the governance structure through interviews with stakeholders and real-world scenarios. Maximize opportunities for Federal, State and Regional funding as a Project of Regional and National Significance.

OWNER: MTC/BATA and SFCTA

REQUIRED INPUTS: Rebranding Strategy, Funding Plan, construction methodology and contracting strategy, Project Delivery Method report, O&M plans, Project Controls Plan, Agency Project Delivery Questionnaire. This task will also be informed by MTC's Bay Area Regional Rail Partnership Study and Plan Bay Area 2050 and its related studies.

DELIVERABLES: A recommended Implementation Plan for any new or modified structure, aligned with the project development schedule, including a transition plan between the current governance structure and new structure.

7.2 Construction Delivery Agency (SCHEDULE ACTIVITY A2-4800) (MOU TASK 19)

OBJECTIVE: Selection of a lead agency for construction. Based upon the results of the governance structure analysis, the TJPA Board will determine the appropriate agency/entity to oversee the construction of the project. Consideration will be given to technical capacity, stakeholder engagement, and enough time for transition activities should an entity other than the TJPA be selected.

ACTIVITY: TJPA staff will review the output of activities under 7.1, Governance Structure, and prepare a recommendation for TJPA Board review, consideration and approval.

OWNER: TJPA

REQUIRED INPUTS: TJPA Board decisions regarding Governance Structure Final Report

DELIVERABLES: Execution Plan for implementation of TJPA Board direction with regard to project delivery responsibilities. As appropriate to Board direction, draft and final inter-agency agreements for planning, design, construction, validation, and turnover of the project.

7.3 Prepare for Procurement (SCHEDULE ACTIVITY A7-1000 - A7-1350, A10-1000, 10-1050) (MOU TASK 20)

OBJECTIVE: Prepare for procurement as applicable based on final institutional agreement, selected project delivery method, and scoping.

ACTIVITY: TBD

OWNER: TJPA

REQUIRED INPUTS: Transit operating plans, Phasing Plan, project delivery strategy, design development and technical studies, SEIS/EIR Mitigation Monitoring and Reporting Program, approved Governance Structure Final Report, approved Execution Plan

DELIVERABLES:

- ◆ Plans, Specifications, and Estimates (PS&E) to the level required by the contracting strategy and delivery method(s)
- ◆ Commercial Terms and Conditions as appropriate for each contract
- ◆ Industry Outreach program
- ◆ Bid documents for each contract

Appendix A
San Francisco Peninsula Rail Program Memorandum of Understanding

San Francisco Peninsula Rail Program MOU

This San Francisco Peninsula Rail Program Memorandum of Understanding (MOU), effective June 5, 2020 is between the Transbay Joint Powers Authority (TJPA); the Metropolitan Transportation Commission (MTC); the San Francisco County Transportation Authority (SFCTA); the Peninsula Corridor Joint Powers Board (Caltrain); the California High Speed Rail Authority (CHSRA); and the City and County of San Francisco (CCSF) (each a “Partner” and collectively the “Partners”).

1. Definitions:

DTX Rail Program: Activities directed toward the advancement of the environmentally cleared Downtown Rail Extension Project (DTX)

SF Peninsula Rail Program: A program of projects comprised of the DTX and Related Projects

Related Projects: Pennsylvania Avenue Extension (PAX), Railyards Development, and 22nd St Station Study

Regional and State Rail Efforts: Related regional and state rail efforts including the ongoing development of Caltrain and CHSRA programs, the State Rail Plan, New Transbay Rail Crossing, and others, including any future regional rail planning or funding programs

Ready-for-Procurement: All work in planning and engineering is advanced to a level consistent with the contract(s) delivery method(s), has completed all required planning and National Environmental Policy Act/California Environmental Quality Act, and applicable other permit/approval requirements, has secured necessary funding, has obtained or identified Right-of-Way and/or easements and permits, and is ready to proceed to bid.

2. Purpose:

The Partners recognize that the DTX is a critical rail link in the Bay Area, mega-region, and state transportation system and that it will be more efficiently and effectively developed through a multi-agency partnership among local, regional, and state stakeholder agencies with expertise in developing, funding, and implementing major infrastructure projects.

The Partners also recognize that – and nothing in this MOU is intended to imply otherwise – state law and the TJPA’s 2001 Joint Powers Agreement (as amended) currently provide that the TJPA has primary jurisdiction over and will implement all aspects of the DTX that will connect the new Salesforce Transit Center (STC) to the regional rail system.

This MOU describes a new organizational structure that will support the efforts of the TJPA in the development of the DTX to a Ready-for-Procurement status and would make direct recommendations to the TJPA Board based on a set of activities outlined below. These activities will be undertaken by an integrated multi-agency project team, comprised of senior staff of the signatory agencies to this agreement, as shown in Attachment 1, who will oversee the Work Program shown in Attachment 2.

3. Structure

The new organizational structure described by this MOU is summarized below and depicted in the Organization Charts in Attachment 3.

Executive Steering Committee (ESC):

By virtue of this MOU, an Executive Steering Committee (ESC) will be instituted to support the TJPA in project development efforts for the DTX as described in Attachment 2, and empowered to implement this MOU. The ESC is responsible for making recommendations to the TJPA Board regarding the scope of efforts under this MOU. The TJPA Board will maintain its ultimate authority over the DTX. Accordingly, it may accept or reject recommendations of the ESC, and it may act in the absence of a recommendation from the ESC.

The ESC will consist of the executives (or their designee) of the TJPA, MTC, SFCTA, Caltrain, CHSRA, and the CCSF (for CCSF the executive will be the Mayor or her designee). The initial and alternate members of the ESC are named on Attachment 1. Each Partner may change its appointment to the ESC by providing written notice to the ESC. The ESC will meet at least monthly, sufficiently in advance of the TJPA Board's regularly scheduled meetings that the ESC will have an opportunity to provide a progress update or to present items to the TJPA Board; a majority of authorized representatives shall constitute quorum. The ESC will elect a Chair and Vice-Chair as a first order of business. At the request of the TJPA Board Chair, the ESC Chair or Vice-Chair will report to the TJPA Board on a monthly basis on the status of the program. The ESC will be responsible for the DTX work program as summarized in Attachment 2, which specifies which elements of the DTX work program must be brought to the TJPA Board for information and/or approval. The ESC will also help resolve conflicting areas of work among the Partners. While the ESC will attempt to reach consensus, it will make recommendations to the TJPA Board by a majority vote of the representatives present. The ESC may also serve as a coordinating forum for the SF Peninsula Rail Program and other relevant regional or statewide rail system planning and development efforts.

Integrated Program Management Team (IPMT):

For the DTX Rail Program, the ESC will be supported by an IPMT consisting of representatives with relevant experience in large complex projects from each of the Partners, as designated by their corresponding executive. In addition, the IPMT may also be supplemented with relevant qualified personnel from within their own agencies or their supporting consultancy organizations.

Project Director (PD):

The PD should have proven leadership, organizational acumen and relevant experience in delivering all aspects of mega rail projects and tunneling. The ESC, or a sub-committee thereof, will recruit and recommend a short list of the PD candidates to the TJPA Board for final selection. The TJPA prefers that the PD be a TJPA employee or direct consultant. However, the TJPA may also consider PD candidates as a consultant seconded to the TJPA through one of the Partners; in such case, a separate agreement between the TJPA and the Partner would be required. The PD will lead the IPMT.

The PD will report to his/her hiring entity for purposes of administrative matters and report to the ESC for purposes of coordination of the IPMT. The PD will coordinate the IPMT in its development of recommendations to present to the TJPA Board as to the delivery of the Work Program (Attachment 2). The PD will be responsible for the day-to-day management of those portions of the DTX work program identified for TJPA to lead, reporting on those matters to the TJPA's Executive Director. The PD shall also be responsible for directing TJPA DTX staff and consultants as needed. To the extent another Partner is identified as assuming a lead role for portions of the DTX work program, that Partner will be responsible for day-to-day management of its tasks.

The PD will coordinate with other IPMT members leading other tasks, as well as with the SF Peninsula Rail program of projects. The PD may also coordinate with other relevant Regional and State Rail Projects as needed.

4. Scope/Responsibilities**SF Peninsula Rail Program Group of Projects:**

The DTX is part of a set of regional rail projects within San Francisco that will provide valuable connectivity for the Bay Area and mega-region rail network.¹ A subset of these, called "Related Projects" for the purpose of this MOU, is covered under a separately executed San Francisco 4th/King Railyard MOU (Railyards MOU)², which describes cooperative planning and project development activities for the Related Projects.

Whereas the DTX Rail Program will be managed as described in this MOU, the Related Projects are coordinated in accordance with the Railyards MOU and managed according to their own responsible agency's individual governance. For the Related Projects, the ESC will serve in an advisory and supporting role.

While the Partners recognize that coordinating activities can improve their planning and delivery in order to maximize public benefit for the region as a whole, the Partners confirm

¹ Additional regional rail system planning, and coordination is being undertaken for potential BART and standard gauge Transbay rail crossings with BART, Capitol Corridor, Caltrain and the California State Transportation Agency (CalSTA).

²San Francisco 4th/King Railyard MOU dated June 3, 2019 between Caltrain, Prologis, CCSF/SFCTA, and TJPA

that each project within the SF Peninsula Rail Program has independent utility from every other project.

Summary of Work Elements Under this MOU:

DTX Rail Program:

The following are the main activities that comprise the DTX work program.

DTX Project Development -- anticipated activities include, but are not limited to, developing a phasing strategy that addresses both Caltrain and CHSRA needs, conducting industry reviews, performing design of the phased project to a level that will allow for a reliable bottom-up cost estimate, updating the right-of-way plan, conducting robust risk assessment, implementation planning, and developing the project delivery strategy to advance the DTX to a Ready-for-Procurement status.

Coordination for Regional Planning and Funding— this effort will focus on articulating the regional context for the DTX and integrating the planning and funding of the DTX with broader regional, mega-regional, statewide plans, and funding programs. This includes helping to design and advance DTX funding strategies and analyzing implementation options in coordination with other regional and statewide entities and efforts.

A Summary Work Program is attached (Attachment 2) that includes detailed description of the roles and responsibilities for each participating agency. The Summary Work Program consists of the following main tasks, for which the ESC will develop recommendations to the TJPA Board for decision:

- Establish and Initiate New Management Structure
- Define a Fundable and Deliverable Initial Phase of the DTX Project
- Select the Project Delivery Strategy
- Undertake a Governance and Oversight Review
- Prepare for Procurement

Select work elements under the Railyards MOU:

Pennsylvania Avenue Extension (PAX)– Led by the SFCTA, this project will perform scoping and pre-environmental engineering to affect an underground rail grade separation at 16th Street and Mission Bay Drive by means of a tunnel following the general alignment of Pennsylvania Avenue, with a special focus on the interface with the DTX at 4th/Townsend rail station and the transition to the mainline at its southern end.

4th and King Railyard Studies – Led by Caltrain, in coordination with Prologis, Inc. (the property owner), this project will perform studies to determine Caltrain’s needs within San Francisco, develop railyard alternatives, determine storage, service,

station, and maintenance requirements, among others, in accordance with the agreement set forth in the Railyards MOU for the possible development of the railyard.

22nd Street Station Study – Led by SF Planning, in close coordination with Caltrain, this project will study the options for improving or relocating the current 22nd Street Station.

Railyard Site Land Use and Development Study – Led by Prologis, Inc., this work will examine the feasibility of various development options at the 4th and King railyards; options will consider DTX, PAX, and/or the undergrounding of some or all of the current railyard.

5. External Resources and Engagement:

The Partners will work together to identify the necessary resources to support their respective activities to carry out the DTX work program. Some agencies' budgets have identified sources, while others are to be confirmed. Within two months after signing the MOU, the Partners will develop a more detailed work plan, identify a budget for the total resource requirement (staffing and contractor) for each agency and in total, and confirm funding sources. Notwithstanding the above, this MOU commits the Partners to consider providing funding or resources, but does not commit any Partner to provide any resources other than those the agency already has funded and programmed to support DTX or to provide any funding.

These resources may include, among others, on-call consultants and legal counsel. Actual staffing and support from each agency will be based on their designated roles and responsibilities. This MOU commits the Partners to participation in the ESC/IMPT process but does not constitute a commitment of financial resources.

The Partners recognize that other state, regional and local government agencies, such as BART, Capitol Corridor, California State Transportation Agency, and Caltrans, have an interest in and/or expertise regarding the matters contemplated in the Summary Work Program. Accordingly, the Partners agree to work collaboratively to engage those agencies as appropriate during implementation of the Summary Work Program.

6. Work Plan:

A Summary Work Program, delineating the scope of efforts to be executed under this MOU, is attached (Attachment 2). Once the MOU is executed and the ESC and IPMT instituted, the first order of business will be the development of a comprehensive Work Plan, for presentation and approval by the TJPA Board, building upon the activities of the Summary Work Program. The Detailed Work Plan will detail all the necessary tasks, their relationships, schedule, and responsible Partner to take the project to start of construction. The Detailed Work Plan should be completed within 2 months.

As defined in the Summary Work Program, the ESC will work to develop an initial operating phase that provides the necessary capacity to operate a reliable blended system to the Salesforce Transit Center at the earliest practicable date and with consideration of reasonably available funding. Any proposed initial operating phase recommended by the ESC must have prior concurrence of Caltrain and CHSRA members of the ESC.

7. NEPA/CEQA:

Any recommendations regarding modifications to the DTX resulting from the work under the MOU is intended to be consistent with and not require any material modification of the existing DTX NEPA/CEQA documentation.

8. Funding:

The Partners recognize that Federal funding programs require demonstration of strong local financial capacity and commitment and intend to collaborate on strengthening project funding plans.

9. Principles for Collaboration:

- Follow the decision-making processes and communication models established by the ESC and IPMT
- Share information and resources to assist with the successful and timely completion of tasks and follow-on studies
- Respond and provide input within agreed-upon response times
- Design meetings as small working sessions and provide appropriate staff to focus on the outcomes required, in accordance with the roles and responsibilities established in the attached Summary Work Program
- Seek to make decisions by consensus when possible, by majority vote otherwise

10. Policy Recommendations:

Policy recommendations of the ESC to the TJPA Board for the DTX will require majority support of the ESC. Policy recommendations are expected to include, but are not limited to:

- Phasing Plan for the Initial Operating Segment
- Adoption of a new Funding Plan
- Project Delivery Plan, including ROW acquisition plan, project delivery method(s), contracting strategy
- Final institutional arrangement for project delivery through initial operating segment as proposed in the Summary Work Program
- Significant design decisions

11. No Adjudication of Rights:

The MOU does not adjudicate legal rights with respect to the development of the DTX or provide the Partners with any rights with respect to the revenues derived therefrom.

12. Other MOUs:

The Partners acknowledge that there are other agreements already entered into by the Partners or which may be entered in the future related to the SF Peninsula Rail Program, including but not limited to operating and maintenance agreements between the TJPA (or another entity designated to carry out the DTX) and Caltrain and the California High-Speed Rail Authority; MOU between the TJPA the Federal Railroad Administration related to the allocation of \$400 million for the construction of the train box at the STC; and the Railyards MOU. This MOU is separate from and does not modify or replace any other MOU or other agreement between the Partners regarding the DTX.

13. Term

13.1 The term of this MOU shall be 36 months or when the DTX reaches Ready-for-Procurement status, whichever is earlier.

13.2 The Partners may amend, conclude or extend this MOU by mutual agreement; such agreement shall be evidenced in writing. Notwithstanding the foregoing, the TJPA may terminate this MOU in its discretion by action of the TJPA Board; prior to any such proposed termination, the TJPA shall meet and confer with the other Partners in a good faith effort to resolve any concerns and avoid the need for termination. Any other Partner may withdraw from this MOU in its discretion, following a meet and confer with the other Partners in a good faith effort to resolve any concerns and avoid the need for withdrawal

14 General Conditions

14.1 Each Partner will conduct its activities under this MOU in accordance with applicable federal, state, and local laws, regulations, and standards.

14.2 Each Partner will ensure that personnel assigned by it to conduct activities under this MOU are appropriately qualified or licensed to the perform the tasks assigned to them.

14.3 Each Partner will hold all administrative drafts and administrative final reports, studies, materials, and documentation relied upon, produced, created, or utilized for the activities under this MOU in confidence to the extent permitted by law. Where applicable, the provisions of California Government Code section 6254.5(e) shall protect the confidentiality of such documents in the event that said documents are shared between the Partners. The Partners will not distribute, release, or share said documents with anyone other than employees, agents, and consultants who require access to complete the activities under this MOU without the written consent of the Partner authorized to release

them, unless required and authorized to do so by law. If a Partner receives a public records request pertaining to activities under this MOU, that Partner will notify the other Partners within five (5) working days of receipt and make the other Partners aware of any intent to disclose public documents. The Partners will consult with each other prior to the release of any public documents or statements related to the activities under this MOU. Nothing herein shall require any Partner to waive any attorney-client privileges or other protections it otherwise has a right to assert.

14.4 The Partners do not intend this MOU to create a third- party beneficiary or define duties, obligations, or rights in parties not signatory to this MOU.

14.5 The Partners will not assign or attempt to assign their rights or obligations under this MOU to parties not signatory to this MOU without an amendment to this MOU.

14.6 The following documents are **Attachments** hereto:

- Attachment 1: Initial members of the ESC
- Attachment 2: Summary DTX Rail Program -- Work Program
- Attachment 3: Organization Chart

IN WITNESS WHEREOF, the Partners have executed this MOU as of the date first written above.

Transbay Joint Powers Authority

Metropolitan Transportation Commission

By: Nadia Sesay
TJPA Board Chair

Address:
425 Mission St., Ste. 250
San Francisco, CA 94105

San Francisco County Transportation
Authority

By: Tilly Chang
Tilly Chang, Executive Director

Address:
1455 Market Street, 22nd Floor
San Francisco, CA 94103

DocuSigned by:
Therese W. McMillan
9FD56424D5A54BA...
By: _____
Therese W. McMillan, Executive Director

Address:
375 Beale Street, Suite 800
San Francisco, CA 94105
Peninsula Corridor Joint Powers Board

By: _____

Address:

them, unless required and authorized to do so by law. If a Partner receives a public records request pertaining to activities under this MOU, that Partner will notify the other Partners within five (5) working days of receipt and make the other Partners aware of any intent to disclose public documents. The Partners will consult with each other prior to the release of any public documents or statements related to the activities under this MOU. Nothing herein shall require any Partner to waive any attorney-client privileges or other protections it otherwise has a right to assert.

14.4 The Partners do not intend this MOU to create a third- party beneficiary or define duties, obligations, or rights in parties not signatory to this MOU.

14.5 The Partners will not assign or attempt to assign their rights or obligations under this MOU to parties not signatory to this MOU without an amendment to this MOU.

14.6 The following documents are **Attachments** hereto:

- Attachment 1: Initial members of the ESC
- Attachment 2: Summary DTX Rail Program -- Work Program
- Attachment 3: Organization Chart

IN WITNESS WHEREOF, the Partners have executed this MOU as of the date first written above.

Transbay Joint Powers Authority

Metropolitan Transportation Commission

By: _____
TJPA Board Chair

By: _____

Address:

Address:

San Francisco County Transportation Authority

Peninsula Corridor Joint Powers Board

By: _____

By:  Executive Director

Address:

Address: _____
1250 San Carlos Avenue
San Carlos, CA 94070

California High Speed Rail Authority

City and County of San Francisco

By: Brian P. Kelly
Address: April 30, 2020

By: _____
Address:

California High Speed Rail Authority

City and County of San Francisco

By: _____

By: Rich Hillis
Rich Hillis (May 5, 2020) _____

Address:

Address: 1650 Mission St., Suite 400, San Francisco, CA 94103

DTX MOU Attachment 1
Initial ESC and IPMT Membership

Executive Steering Committee	Member	Alternate
Caltrain	Jim Harnett	Michelle Bouchard
CCSF	Paul Supawanich	TBD
CHSRA	Boris Lipkin	Simon Whitehorn
MTC/BATA	Andrew Fremier	Lisa Klein
TJPA	Mark Zabaneh	Erin Roseman
SFCTA	Tilly Chang	Eric Cordoba
Integrated Program Management Team		
Caltrain	Sebastian Petty	Anthony Simmons
CCSF	Doug Johnson	Anna Harvey
CHSRA	Simon Whitehorn	Paul Hebditch
MTC/BATA	Stephen Wolf	Trish Stoops
TJPA	TBD	TBD
SFCTA	Eric Cordoba	Luis Zurinaga

Attachment 2: DTX Summary Work Program FINAL V7 3-31-20

Roles and Responsibilities									
	Lead: Agency responsible for executing the task								
	Co-Lead: Agencies jointly responsible for executing the task								
	Concur: Agency that must sign off on deliverables								
	Contribute: Agency that will provide input and assistance to Lead								
	Consulted: Agency that must be informed and consulted by Lead								
Task No	Task	Sub-task Description	Caltrain	CCSF	CHSRA	MTC/BATA	SFCTA	TJPA	To TJPA Board For
A.	Establish and Initiate New Management Structure								
1	Establish Executive Steering Committee (ESC) and Integrated Project Management Team (IPMT), identify resources and develop a staffing plan.	(a) Develop MOU (b) Develop Summary Work Program (c) Define roles and responsibilities (d) Determine staffing levels for IPMT from participating agencies	Concur	Concur	Concur	Concur	Lead	Concur	Reporting
2	ESC and IPMT Program Management	(a) Execute and implement transition to the new structure and agreements (b) Ongoing oversight and management of the program (c) Manage key initiatives to address issues (d) Coordinate with other regional and state projects (e.g. BART/Capitol Corridor on the development of the New Transbay Rail Crossing and State Rail Plan)	Contribute	Contribute	Contribute	Contribute	Contribute	Contribute	Reporting
3	Recruit Program Director		Contribute	Contribute	Contribute	Contribute	Contribute	Lead	Approval
4	Coordinate with Project Initiation phase of the Pennsylvania Avenue Extension (PAX)	(a) Interface with PAX pre-environmental engineering and funding permitting, environmental studies.	Contribute	Contribute	Contribute	Contribute	Lead	Contribute	Reporting
5	Coordinate with other SF Peninsula Rail Program components	(a) Coordinate with Railyards Development planning (per Railyards MOU) and 22nd Street Station study led by SF Planning (b) Coordinate with BART/CCJPA on potential through running of conventional rail services	Contribute	Lead	Contribute	Contribute	Contribute	Contribute	Reporting
6	Develop a comprehensive Work Plan, building upon the activities of this Summary Work Program. The Detailed Work Plan will describe all the necessary tasks, their relationships, schedule, and responsible party to take the project to start of construction. (target completion: within 2 months)	(a) Identify all tasks, including programmatic documentation (PMP and associated management plans and criteria), a project phasing study and business case analysis; branding, planning and funding plans; outreach and stakeholder engagement; qualitative and quantitative risk analyses, constructability review and industry review;	Concur	Concur	Concur	Concur	Concur	Lead	Approval

Attachment 2: DTX Summary Work Program FINAL V7 3-31-20

		project delivery plan; and other tasks necessary to bring the DTX Rail Program to bid, and assign responsibilities (b) Determine staffing levels, budgets and funding for delivering the tasks (c) Develop a Master Schedule							
Task No	Task	Sub-task Description	Caltrain	CCSF	CHSRA	MTC/BATA	SFCTA	TJPA	To TJPA Board For
7	Develop a re-branding strategy to reposition the DTX Rail Program	Develop a plan for re-branding of the Program with updated graphics and messaging based on economic benefits for the region, state, and nation	Contribute	Contribute	Contribute	Contribute	Concur	Lead	Approval
8	Perform public outreach by engaging external stakeholders, advocacy groups, and the public at large, and perform public outreach	(a) Develop external outreach plan (b) Conduct public outreach (c) Conduct advocacy group outreach (d) Maintain clear records of stakeholder engagement (e) Coordinate with adjacent developments, related and interconnected plans and projects by other agencies, such as Transbay rail planning, and stakeholder business plans	Contribute	Contribute	Contribute	Contribute	Contribute	Lead	Reporting
B.	Define a Fundable and Deliverable Initial Phase of the DTX Project								
9	Develop operational plans for near-term and long-term rail operations at the STC	(a) Develop a consolidated set of service assumptions (b) Develop operational objectives, timetables, track usage, and platform distribution. (c) Perform all necessary modeling, including perturbation analysis, to assure reliable, smooth operations at the STC and the Peninsula	Co-Lead	Contribute	Co-Lead	Contribute	Contribute	Contribute	Reporting
10	Conduct planning for DTX	(a) Identify the full extent of the Salesforce Transit Center users, currently planned and future, direct and indirect, and existing relevant plans and studies (b) perform ridership forecasts, and coordinate with Caltrain and CHSR based on their current/updated Business Plans; transit users; and, New Transbay Crossing based on 2018 State Rail Plan, regional rail plan, and current BART/CCJPA planning study	Concur	Contribute	Concur	Concur	Lead	Concur	Reporting

Attachment 2: DTX Summary Work Program FINAL V7 3-31-20

Task No	Task	Sub-task Description	Caltrain	CCSF	CHSRA	MTC/BATA	SFCTA	TJPA	To TJPA Board For
11	Perform technical studies and design to re-define and deliver a DTX initial operating phase as soon as possible	<p>(a) Engineering studies to achieve project re-definition and initial operating phase</p> <p>(b) Utilizing input from the operational plans developed under task 9, perform demand vs capacity scenario analysis over time and side-by-side comparison of options in terms of benefits (economic, riders, housing, etc.), costs, schedules, operations, etc.</p> <p>(c) Perform design of the phased project to a level that will allow for the reliability of the tasks below</p> <p>(d) Develop detailed cost estimates, schedules, and extensive risk register and analysis based on structured workshops, including risk management program and independent reviews</p> <p>(e) Develop plans for utility relocations and ROW acquisition requirements, including risk management and insurance plans, early works packages, and third-party agreements as needed</p> <p>(f) Resolve critical operational issues for all users of the initial operating phase, conduct operational analysis, and coordinate operators' plans and requirements</p>	Concur	Contribute	Concur	Contribute	Concur	Lead	Approval
12	Prepare a preferred Phasing Plan conforming with technical studies and policy direction on realistic amounts/timing of funding and stakeholder delivery date expectations -with an explicit goal to deliver rail service to the STC as soon as possible	<p>(a) Utilizing input from tasks 9, 10, 11 and 13, prepare Rail Program phasing options in response to rail service scenarios, funding sources and availability, and stakeholder requirements</p> <p>(b) Develop detailed risk management and assurance plans including ownership, staffing, independent strategic advisor / independent engineer, and management processes</p> <p>(c) Develop Business Case for the phased project</p> <p>(d) Revisit Detailed Work Plan to assure compatibility with preferred phasing plan</p>	Concur	Concur	Concur	Concur	Concur	Lead	Approval
13	Develop and confirm Funding Plan strategy for the DTX Rail Program based on achievable funding assumptions and securing adequate capital funding and O&M revenues enough for the initial phase	<p>(a) Develop funding plan for construction and operations, inter-agency responsibilities, securing commitments, schedule of availability, and tasks to enter FTA funding process</p> <p>(b) Conduct assessment of high/ low confidence sources of funding with focus on funding initial operating phase and funding strategy of subsequent phases</p> <p>(c) Develop new/innovative funding and financing sources including joint development (e.g., Railyards) enabled by project re-definition strategy</p> <p>(d) Develop funding plan strategy for operations phase, including funding agreements and commitments to support initial operating phase operating costs</p>	Contribute	Contribute	Contribute	Concur	Lead	Concur	Approval

Attachment 2: DTX Summary Work Program FINAL V7 3-31-20

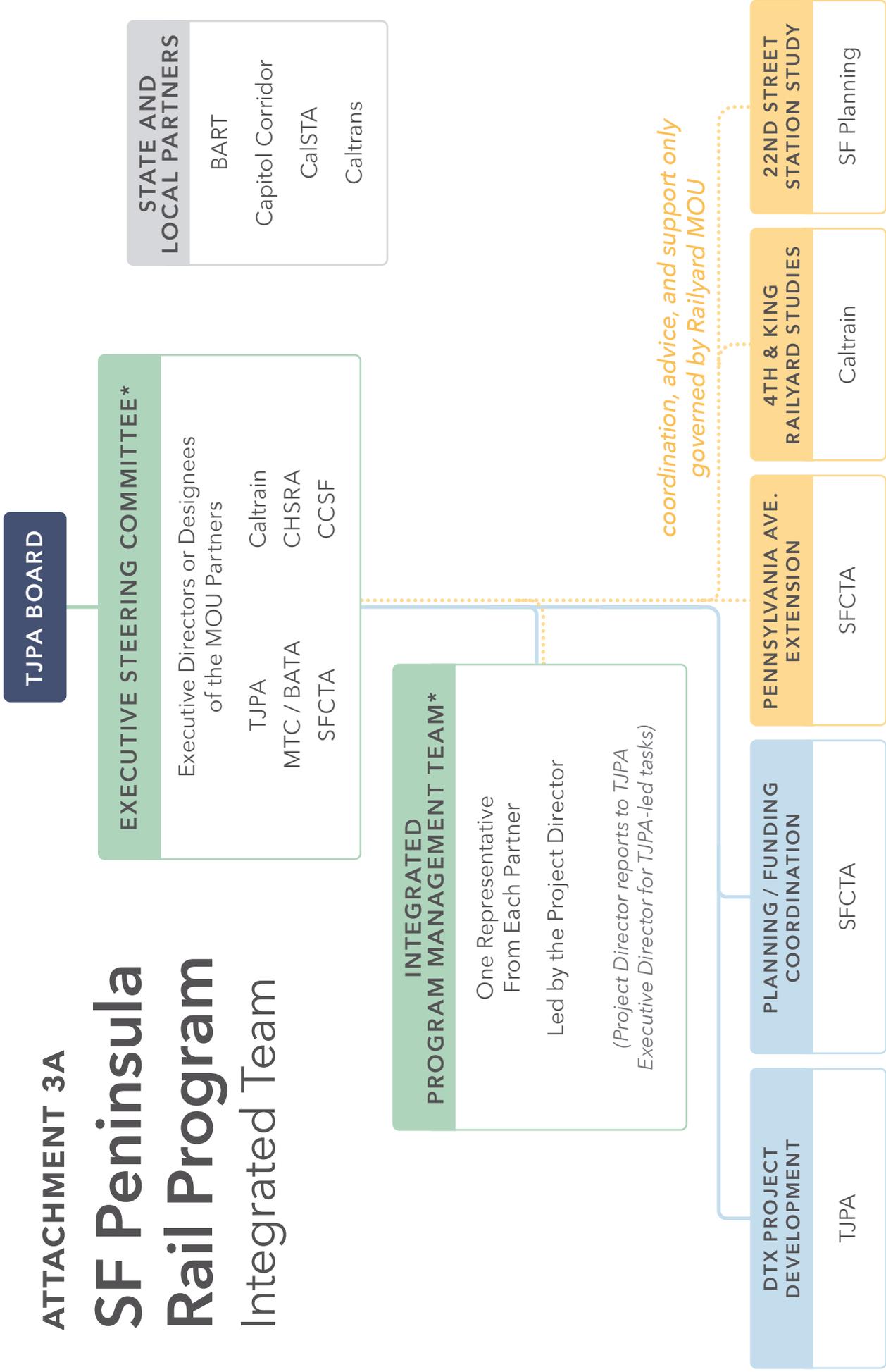
Task No	Task	Sub-task Description	Caltrain	CCSF	CHSRA	MTC/BATA	SFCTA	TJPA	To TJPA Board For
14	Prepare the project to enter the federal New Starts Program	(a) Develop all the documentation required by the FTA to enter the New Starts Program (b) Engage with the FTA to develop a road map to the Full Funding Grant Agreement	Concur	Concur	Concur	Concur	Concur	Lead	Report on progress and approval of final documents
C.	Select the Project Delivery Strategy								
15	Conduct industry outreach to validate construction methodology and contracting strategy	Conduct market sounding through engagement with the infrastructure industry and update the qualitative delivery options analysis previously completed.	Contribute	Contribute	Contribute	Contribute	Contribute	Lead	Report
16	Develop a project delivery and contracting strategy	(a) Analyze project delivery options analysis based on a business case and risk-adjusted financial analysis, including input from the market sounding (b) Analyze legal framework and issues for delivery options, procurement, and development of contracts (c) Develop a strategic implementation roadmap including a procurement and contracting plan, risk management plan, and organizational requirements (d) Conduct workshops to allocate risk based on risk analysis performed under tasks above, and develop analysis and plans for insurance (e) Scope pre-procurement engineering and early works contracts tailored to the delivery options	Contribute	Contribute	Contribute	Concur	Co-Lead	Co-Lead	Approval
17	Develop an O&M plan with roles and responsibilities	(a) Prepare a 20-year financial plan for Operations and Maintenance (b) Review and identify the ownership and governance of project elements for construction, operations, and maintenance (c) Develop and execute agreements for Operations and Maintenance	Concur	Consulted	Concur	Concur	Concur	Lead	Approval
D.	Undertake a Governance and Oversight Review and Transition								
18	Explore the best institutional arrangement and governance for the delivery of the DTX Rail Program thru construction and make recommendations to TJPA Board	(a) Detailed study to identify the governance structure to enable stakeholder alignment, effective mega-project delivery, oversight, independent strategic advice, and assurance (b) Stress-test options to maximize opportunities for Federal, State, and Regional funding as a Project of Regional and National Significance. Recommend governance/project delivery structure for delivery (c) Develop management structure, briefs with roles and responsibilities, staffing qualifications, reporting and communication protocols, contracting, and staffing plan (d) Conduct assessment with strategic, economic, commercial, financial, management cases and consider	Contribute	Contribute	Contribute	Co-Lead	Co-Lead	Concur	Approval

Attachment 2: DTX Summary Work Program FINAL V7 3-31-20

		responsibilities for O&M of new trackage and the rail portion of STC (e) Develop outcome-based performance and sourcing management system, regime of Key Performance Indicators (KPIs), and stage-gated decision-making protocols							
Task No	Task	Sub-task Description	Caltrain	CCSF	CHSRA	MTC/BATA	SFCTA	TJPA	To TJPA Board For
19.	Select lead agency for Construction. Should an alternate structure be adopted by the TJPA Board as a result of the above task, effect transition to final institutional arrangement and organization	Execution and implementation of Task 18 outcomes in coordination with the selected project delivery method.	Concur	Concur	Concur	Concur	Concur	Lead	Approval
E.	Prepare for Procurement								
20	Start procurement tasks as applicable based on final institutional agreement, selected project delivery method, and scoping	(a) Finalize Plans, Specifications, and Estimates (PS&E) to the level required by the contracting strategy and delivery method(s) (b) Develop draft Commercial Terms and Conditions as appropriate for each contract (c) Conduct additional industry outreach to create interest and create a competitive environment (d) Develop draft bid documents for each contract	Concur	Concur	Concur	Concur	Concur	Lead	Report on Progress Approval to begin procurement

ATTACHMENT 3A

SF Peninsula Rail Program Integrated Team

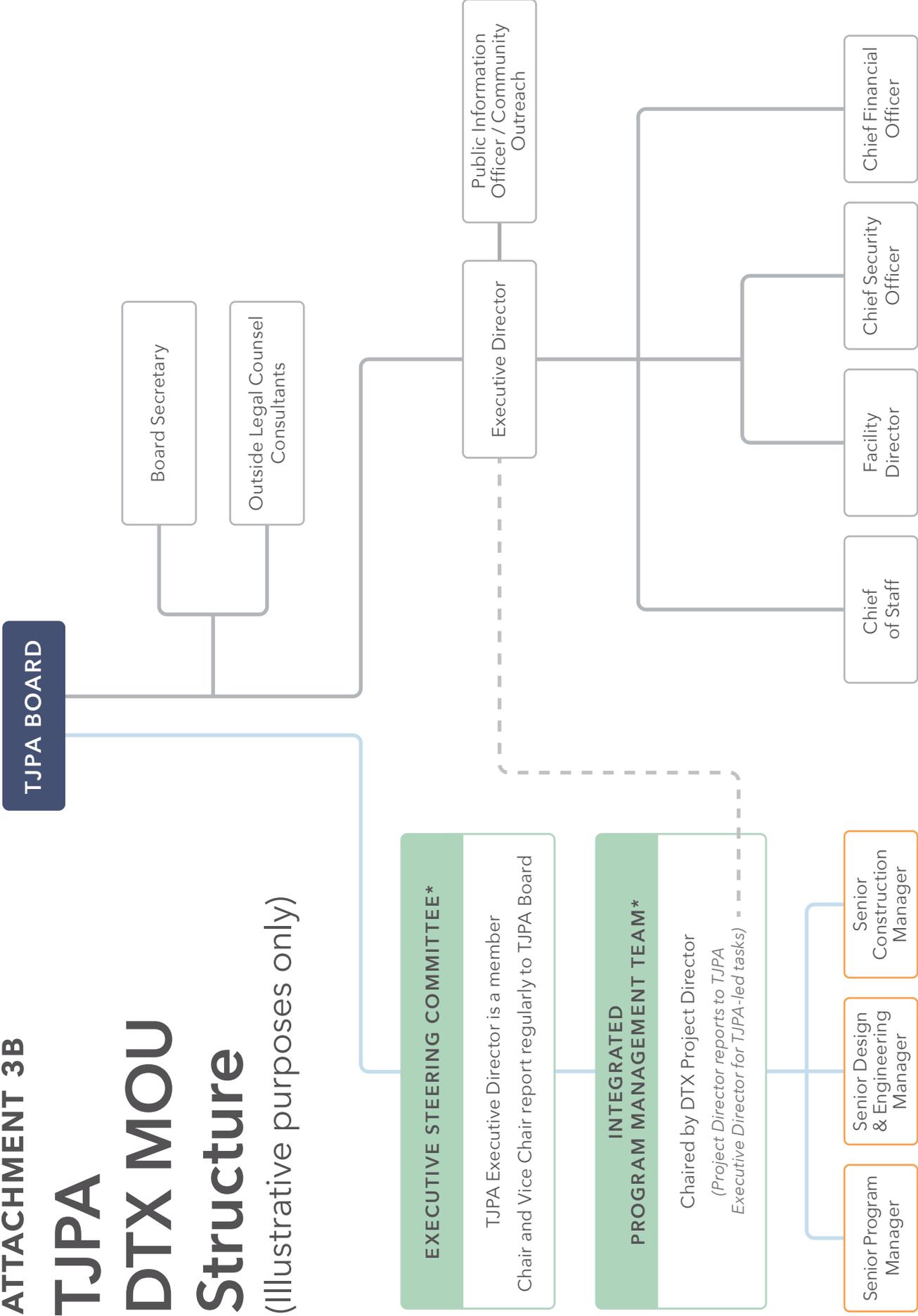


* Consistent with and limited to the Summary Work Program (Attachment 2) defined by the San Francisco Peninsula Rail Program MOU approved by TJPA Board on April 9, 2020

ATTACHMENT 3B

TJPA DTX MOU Structure

(Illustrative purposes only)



* Consistent with and limited to the Summary Work Program (Attachment 2) defined by the San Francisco Peninsula Rail Program MOU approved by TJPA Board on April 9, 2020

DTX MOU for Signature

Final Audit Report

2020-05-05

Created:	2020-05-05
By:	Deborah Sanders (deborah.sanders@sfgov.org)
Status:	Signed
Transaction ID:	CBJCHBCAABAAA2pF6ZDXzbLpgXCXs3ja4-d_Sip20t9B

"DTX MOU for Signature" History

-  Document created by Deborah Sanders (deborah.sanders@sfgov.org)
2020-05-05 - 9:58:17 PM GMT- IP address: 68.177.129.179
-  Document emailed to Rich Hillis (rich.hillis@sfgov.org) for signature
2020-05-05 - 10:21:56 PM GMT
-  Email viewed by Rich Hillis (rich.hillis@sfgov.org)
2020-05-05 - 10:22:38 PM GMT- IP address: 68.177.129.179
-  Document e-signed by Rich Hillis (rich.hillis@sfgov.org)
Signature Date: 2020-05-05 - 10:24:21 PM GMT - Time Source: server- IP address: 68.177.129.179
-  Signed document emailed to Rich Hillis (rich.hillis@sfgov.org) and Deborah Sanders (deborah.sanders@sfgov.org)
2020-05-05 - 10:24:21 PM GMT

Appendix B
Accelerated Master Schedule

Activity ID	Activity Name	Dur	Start	Finish	Total Float	RESP	Predecessor Details	Successor Details	2021				2022				2023				2024				2025				2026
									Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
P2 DTX Funding Constrained Schedule - DD25MAR21 - WS MM																													
Phase 2 Key Milestones & Activities																													
A1-1000	NTP #1	0	01-Jun-20 A				TJPA	A2-1350: SS, A2-1050: SS, A2-1600: SS, A2-1150: SS, A1-1100: FS, A2-1250: SS, A2-1300: SS 97, A2-1000: SS, A2-1550: SS, A1-1050: FS, A2-2150: SS																					
A1-1050	Issue RFP, Select and Award New Design Contract	125	02-Jul-20 A	12-Nov-20 A			TJPA	A1-1000: FS	A1-1150: FS																				
A1-1150	Design Team NTP & Ramp-up	27	29-Dec-20 A	05-Jan-21 A			TJPA	A1-1050: FS	A2-3000: FS, A2-1850: FS, A2-1860: FS, A2-3200: FS																				
A1-1160	NTP #2A	0	29-Mar-21			7	SFCTA	A1-1000: FS 205	A7-1100: SS, A7-1000: SS, A2-2500: SS 22, A2-2900: SS, A2-2800: SS, A2-2550: SS, A2-2600: SS, A2-2650: SS, A2-2700: SS 17, A2-2850: SS, A2-3200: SS																				
A1-1100	NTP #2B	0	13-Aug-21			0	SFCTA	A1-1000: FS, A2-2100: FS, A2-1135: FS	A4-1000: SS, A7-1150: SS, A7-1200: SS, A7-1350: SS, A8-1100: SS, A5-1500: FS, A2-4600: FS, A5-1010: SS 66, A5-1020: SS 66, A5-1080: FS, A1-1200: SS																				
A1-1200	Additional Funding	0	13-Aug-21			0	SFCTA	A1-1100: SS	A7-1050: SS, A2-3100: SS, A7-1250: SS, A7-1550: SS, A7-1500: SS, A2-3300: SS, A2-3700: SS, A5-1000: SS 66, A2-3550: SS, A7-1300: SS, A2-3600: SS																				
Programmatic Documentation & Management Plans																													
NTP #1																													
A2-1000	Update Baseline Cost Estimate & Schedule	43	01-Jun-20 A	24-Jun-20 A			PMPC	A1-1000: SS	A2-3000: FS, A2-4050: FS																				
A2-1370	WBS Update #1	50	01-Jun-20 A	04-Aug-20 A			PMPC	A1-1000: SS	A2-1400: FS																				

Activity ID	Activity Name	Dur	Start	Finish	Total Float	RESP	Predecessor Details	Successor Details	2021				2022				2023				2024				2025				2026				
									Q4	Q1	Q2	Q3	Q4																				
A2-3690	Quantitative Risk Analysis Report	44	22-Jul-22	22-Sep-22	0	PMPC	A2-3680: FS	A2-3750: SS 22, A2-3800: FS, A2-3850: FS, A8-1300: FS																									
A2-4625	Quarterly Risk Review	0		03-Oct-22*	0	PMPC	A2-4620: FS	A2-4630: FS																									
A2-4630	Quarterly Risk Review	0		03-Jan-23*	0	PMPC	A2-4625: FS	A2-4635: FS																									
A2-4635	Quarterly Risk Review	0		03-Apr-23*	0	PMPC	A2-4630: FS	A2-4640: FS																									
A2-4640	Quarterly Risk Review	0		03-Jul-23*	0	PMPC	A2-4635: FS	A2-4645: FS																									
A2-4645	Quarterly Risk Review	0		02-Oct-23*	0	PMPC	A2-4640: FS	A2-4650: FS																									
A2-4650	Quarterly Risk Review	0		02-Jan-24*	0	PMPC	A2-4645: FS	A2-4655: FS																									
A2-4655	Quarterly Risk Review	0		01-Apr-24*	0	PMPC	A2-4650: FS	A2-4660: FS																									
A2-4660	Quarterly Risk Review	0		01-Jul-24*	0	PMPC	A2-4655: FS																										
Additional Funding																																	
A2-2750	Threat and Vulnerability Assessment	110	13-Aug-21	25-Jan-22	50	IPMT	A1-1200: SS, A2-2100: FS	A2-3300: FS, A2-3250: FS, A8-1300: FS, A6-2520: FS, A2-2755: FS																									
A2-2520	Update Cost Estimate	14	13-Aug-21	01-Sep-21	198	PMPC	A2-2100: FS, A1-1200: SS	A2-3000: FS																									
A2-3400	Economic Impact Study	44	14-Sep-21	16-Nov-21	21	TJPA	A2-3050: FS, A2-2100: FS, A2-1820: FS, A8-1020: FS, A1-1200: SS, A2-3055: FS, A2-1825: FS, A2-1800: FS, A2-1315: FS	A2-3550: FS, A2-3600: FS																									
A2-4160	Procurement and Contracting Plan	132	15-Oct-21	27-Apr-22	306	TJPA	A1-1200: SS, A2-3500: FS	A8-1450: FS, A10-1100: FS																									
A2-3000	VE Workshop #1	44	18-Nov-21	25-Jan-22	146	PMPC	A2-1000: FS, A1-1150: FS, A2-2100: FS, A2-2520: FS, A2-1240: FS, A1-1200: SS, A2-1050: FS, A7-1200: SS 66, A7-1050: SS 66, A7-1150: SS 66, A7-1250: SS 66	A2-3100: FS																									
A2-3100	VE Evaluation Report #1	22	26-Jan-22	25-Feb-22	146	PMPC	A1-1200: SS, A2-3000: FS	A2-3850: FS																									
A2-2755	Update Design Criteria	110	26-Jan-22	30-Jun-22	50	PMPC	A2-2750: FS, A2-2700: FS	A8-1300: FS, A2-3300: FS																									
A2-3250	Safety & Security Management Plan	88	14-Mar-22	15-Jul-22	150	TJPA	A2-2750: FS, A2-2800: FS, A1-1200: SS	A8-1300: FS																									

Activity ID	Activity Name	Dur	Start	Finish	Total Float	RESP	Predecessor Details	Successor Details	2021		2022		2023		2024		2025		2026		
									Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Acquisitions																					
A5-1350	TJPA Makes Offers to Property Owners	328	09-Sep-22	04-Jan-24	88	TJPA	A5-1250: SS 47, A5-1650: FS	A5-1300: SS, A3-2850: SS, A5-1085: SS													
A5-1300	Negotiating Property Purchases	435	09-Sep-22	06-Jun-24	88	TJPA	A5-1350: SS	A5-1400: SS 21, A5-1450: SS 110, A3-2850: SS, A5-6700: SS 110, A5-6600: SS													
A5-1400	Cost Justification to FTA, If Necessary	414	11-Oct-22	06-Jun-24	88	TJPA	A5-1300: SS 21	A5-1450: FF, A5-6700: FF													
A5-1450	File Eminent Domain Actions	232	05-Jul-23	06-Jun-24	88	TJPA	A5-1300: SS 110, A5-1085: SS 110, A5-1400: FF, A6-1010: FS	A5-6600: FS													
Relocations																					
A5-1500	Issue RFP & Select Relocation Consultant	65	13-Aug-21	16-Nov-21	104	TJPA	A1-1100: FS	A5-1550: FS													
A5-1550	Consultant Drafts & Submits Relocation Assistance Program / Relocation Impact Study	42	17-Nov-21	20-Jan-22	104	TJPA	A5-1500: FS	A5-1600: FS													
A5-1600	Public Comment on Relocation Impact Study	30	21-Jan-22	04-Mar-22	104	TJPA	A5-1550: FS	A5-1650: FS													
A5-1650	Consultant Prepares & Submits Final Relocation Impact Study	20	07-Mar-22	01-Apr-22	104	TJPA	A5-1600: FS	A5-1700: FS, A2-2910: FF, A5-1350: FS													
A5-1700	Relocation Assistance Program Administered by Consultant / TJPA	630	04-Apr-22	04-Oct-24	104	TJPA	A5-1650: FS	A10-1150: FF, A3-1325: FS, A9-4000: FF, A5-1085: SS													
Real Estate Agreements																					
A5-6650	Eminent Domain Actions for Temporary Construction Easements	144	17-Jul-23	13-Feb-24	290	TJPA	A5-1100: FS, A6-1010: FS	A10-1150: FF													
A5-6700	Permanent Easements	144	08-Nov-23	06-Jun-24	188	TJPA	A5-1400: FF, A5-1300: SS 110	A10-1150: FF, A3-1325: FS													
A5-6600	Possession of Properties	100	07-Jun-24	29-Oct-24	88	TJPA	A5-1300: SS, A5-1450: FS	A6-1030: SS, A3-1325: FS, A3-2850: SS, A9-4000: FS													
Environmental																					
A6-1000	Procure Environmental Subconsultant	66	13-Aug-21	17-Nov-21	170	TJPA	A1-1200: SS	A6-1010: FS, A9-1100: FS													
A6-1010	Environmental Site Assessment Phase 1 (ESA 1)	66	18-Nov-21	25-Feb-22	170	TJPA	A6-1000: FS	A6-1020: FS, A2-2910: FF,													
A6-1020	Environmental Site Assessment Phase 2 (ESA 2)	66	28-Feb-22	31-May-22	349	TJPA	A6-1010: FS	A10-1150: FS													
A6-1030	Hazardous Material Surveys of Structures	44	07-Jun-24	08-Aug-24	1342	TJPA	A5-6600: SS	A9-4000: FS													
Archaeology																					
Archaeological Design / Treatment Plans (ARDTPs)																					
ARDTP																					

Item 12

DTX / PHASE 2

Accelerated Work Plan and Master Schedule

April 8, 2021



DTX Acceleration Work Plan Master Schedule

Recommendation:

Approve an acceleration modification to the Comprehensive Work Plan, including Master Schedule, for the Downtown Rail Extension (DTX), as supported by the ESC

- Funded through San Francisco County Transportation Authority March 23, 2021 approval of NTP2A in the amount of \$6,210,000
- Supports submittal of a Full Funding Grant Application in August 2023
- Rationalizes technical work schedule over the next 12 months
- Supports project readiness for near-term funding opportunities
- Focused on work tasks required regardless of Phasing Study results
- Leverages existing DTX resources and partnerships

Acceleration Work Plan Deliverables and Schedule

Deliverables	Start	Finish
Programmatic Documentation & Management Plans		
Third Party Agreements Plan	March 2021	December 2021
Quality Management Plan Update	March 2021	June 2021
Project Management Plan	March 2021	September 2021
Ground Motions Report Update	April 2021	July 2021
Project Controls Plan	April 2021	July 2021
Draft Risk and Contingency Management Plan	June 2021	July 2021
Preliminary Safety Hazard Analysis	July 2021	February 2022
Updated Work Plan	August 2021	November 2021

Acceleration Work Plan Deliverables and Schedule

Deliverables	Start	Finish
Risk Analysis		
Prepare Risk Workshop Materials	April 2021	April 2021
IPMT Review and Approval of Workshop Plan	April 2021	May 2021
Risk Assessment Workshop No. 1	May 2021	May 2021
Qualitative Risk Analysis	May 2021	June 2021
Risk Mitigation Workshop No. 1	June 2021	June 2021
Qualitative Risk Analysis	June 2021	June 2021
Qualitative Risk Memorandum	June 2021	August 2021

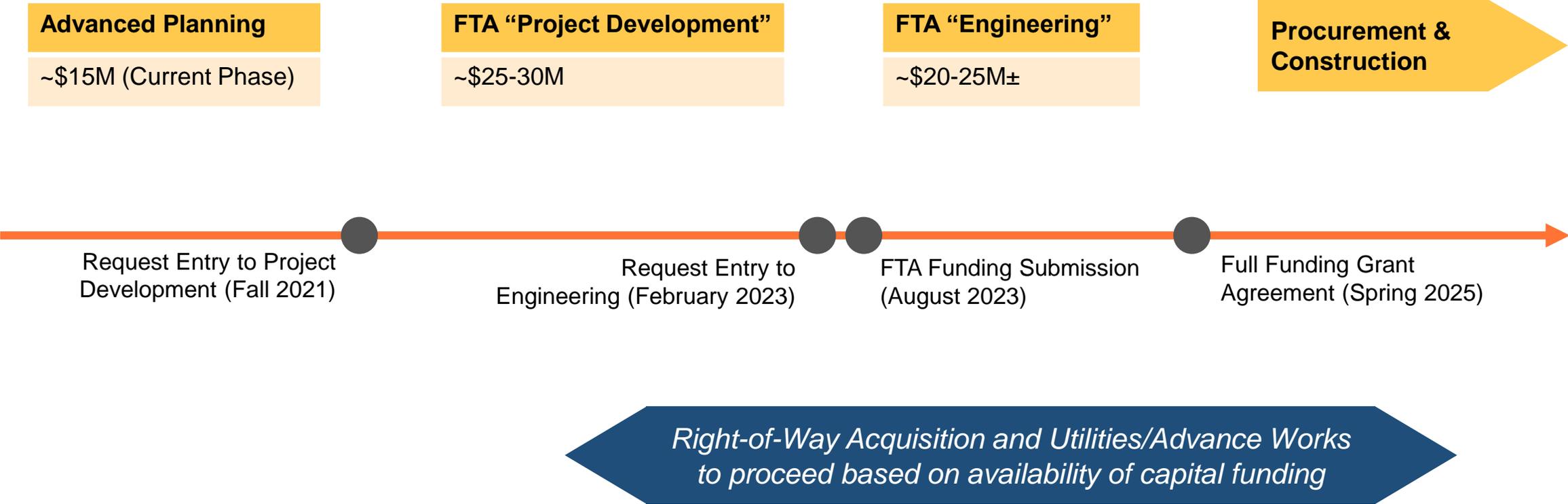
Acceleration Work Plan Deliverables and Schedule

Deliverables	Start	Finish
Project Delivery		
Agency Project Delivery Questionnaire	March 2021	June 2021
Contract Packaging Strategy	April 2021	September 2021
Project Delivery Method Report	April 2021	September 2021
IPMT Review	September 2021	October 2021
ESC Review and Recommendation	November 2021	November 2021
TJPA Board Review and Approval	December 2021	December 2021

Acceleration Work Plan Deliverables and Schedule

Deliverables	Start	Finish
Preliminary Engineering and Design		
Draft Utilities Design	March 2021	February 2022
Draft U-Wall / Tunnel Stub Design	March 2021	February 2022
Draft Geotechnical Investigation and Geotechnical Design Report / Ground Investigation Report	March 2021	February 2022

FTA Project Development & Delivery*



*Dates reflect Accelerated Schedule

Questions?