

San Francisco Peninsula Rail Program Executive Steering Committee

Item 6 – Downtown Rail Extension Project Delivery Strategy Recommendation

June 17, 2022



San Francisco
County Transportation
Authority

Direction from ESC (December 2021)

ESC provided direction in December 2021 to narrow the potential delivery approaches to a short list of four options:

- **Options 5 & 6: PDB/CMGC** – Progressive Design-Build for tunnel & civil works; Construction Manager/General Contractor for systems, trackwork, and station fit-out
- **Option 7: PDBF/CMGC** – Inclusion of short-term construction period finance within the civil/tunnel contract
- **Option 10: PDA-DBFM** – Integrated Design-Build-Finance-Maintain contract developed through an initial Project Development Agreement phase

Scope	Option			
	5	6	7	10
Enabling	DBB	DBB	DBB	DBB
General Civil	PDB	PDB	PDBF	PDA-DBFM
Tunnel				
Station Fit-out & Supporting Systems	CMGC	CMGC	CMGC	
Core Systems & Trackwork	CMGC			

DBB design-bid-build
PDB progressive-design-build
CMGC construction manager / general contractor
PDBF progressive-design-build-finance
DBFM design-build-finance-maintain
PDA project development agreement

■ Detailed design by the private sector
■ Owner controlled detailed design
■ Alternatively financed

Summary of Evaluation

Study evaluated short-listed options with respect to the DTX procurement objectives, and makes the following recommendations:

#	Description	Summary of Recommendations & Next Steps
5	Progressive Design Build + CMGC x1	<ul style="list-style-type: none"> • Advance Options 5 & 6 as the recommended option • Use Option 5 as assumption to underpin preliminary design, schedule, and cost estimate
6	Progressive Design Build + CMGC x2	<ul style="list-style-type: none"> • Finalize CMGC contract packaging based on design, risk assessment, and market engagement • Preserve flexibility to incorporate alternative finance into PDB contract (Option 7)
7	Progressive Design Build Finance + CMGC	<ul style="list-style-type: none"> • Retain Option 7 as a viable option, subject to further analysis and decision • Finalize decision on Option 7 based on funding/financial plan, design, risk assessment, and market engagement
10	Design-Build-Finance-Maintain, via Project Development Agreement (PDA-DBFM)	<ul style="list-style-type: none"> • Screen out from further consideration • Coordinate planning for delivery of operations, maintenance, and rehabilitation (OMR) scope with development of design/construction contracts

Recommended Option

Progressive Design-Build (PDB) for a single civil and tunnel contract.

Construction Manager / General Contractor (CMGC) for the systems, trackwork, and station fit-out scope.

The Delivery Agency retains:

- responsibility for contract interface management between the PDB and CMGC contracts
- control of the detailed design for the systems, trackwork, and station fit-out contract
- flexibility to deliver the systems, track and station fit-out scope as one or two contract packages

Decision on systems, trackwork, and station fit-out contract packaging will be informed by the quantitative risk assessment, updated construction schedule, and upcoming market engagement.

Scope	5	6
Enabling	DBB	DBB
General Civil	PDB	PDB
Tunnel	PDB	PDB
Station Fit-out & Supporting Systems	CMGC	CMGC
Core Systems & Trackwork	CMGC	CMGC

■ Detailed design by the private sector
■ Owner controlled detailed design
DBB design-bid-build
PDB progressive-design-build
CMGC construction manager/general contractor

Recommended Option: Rationale

- Single PDB civil contract, due to construction and access interfaces between the tunnel and other civil works
- CMGC approach for systems, trackwork, and station fit-out – to retain public sector responsibility for design of these packages
- DTX is an extension of an existing system, with integration and interoperability risks best managed by the public sector
- Inclusion of pre-construction services phases for the primary PDB/CMGC contracts, to progressively develop cost, scope, and schedule, and mitigate risks
- Flexibility to determine CMGC contract packaging, based on design, risk, and market engagement
- Flexibility to accommodate changes during the operating period
- Option to incorporate short-term, construction period alternative finance (Option 7)

Scope	5	6
Enabling	DBB	DBB
General Civil	PDB	PDB
Tunnel	PDB	PDB
Station Fit-out & Supporting Systems	CMGC	CMGC
Core Systems & Trackwork	CMGC	CMGC

■ Detailed design by the private sector
■ Owner controlled detailed design
DBB design-bid-build
PDB progressive-design-build
CMGC construction manager/general contractor

Consideration of Construction-Period Alternative Finance (Option 7)

- Alternatively-financed variation of the PDB/CMGC option
- Progressive-Design-Build-Finance (PDBF) contract for the tunnel and other heavy civil components; CMGC for the systems, trackwork, and station fit-out scope
- PDBF based on the Canadian Design-Build-Finance (DBF) model:
 - Design and construction awarded under a single contract
 - Private sector consortium secures short-term construction period financing
 - Lump sum payment (either all or part of the contract value) is made at substantial completion (or after a warranty period), to cover design, construction, and financing costs

Rationale

- Use of substantial completion payment incentivizes on-time performance by contractor
- Opportunity to bridge a gap in capital funding availability (may not be most cost-effective form of finance)

Decision on Option 7 will be guided by the Funding Plan and Financial Plan, with consideration of the quantitative risk assessment, design, and market engagement.

Scope	7
Enabling	DBB
General Civil	PDBF
Tunnel	
Station Fit-out & Supporting Systems	CMGC
Core Systems & Trackwork	

DBB design-bid-build
 PDBF progressive-design-build-finance
 CMGC construction manager/general contractor

■ Owner controlled detailed design
 ■ Alternatively financed. Detailed design by the private sector

Evaluation of the PDA-DBFM Option (Option 10)

- Alternatively-financed, long term (~30 year) Design-Build-Finance-Maintain (DBFM) contract, preceded by an initial Project Development Agreement (PDA) phase
- DBFM contract scope includes design, construction, financing, and certain operations, maintenance, rehabilitation (OMR) scope elements
- DBFM arrangement defers some construction-period costs, stipulates asset “hand-back” condition, provides for integration of operating period scope with design/construction approach, and brings additional oversight/diligence

Rationale for Study’s Evaluation of Option 10

- DTX is an extension of an existing system, making long-term operating period requirements more challenging to plan for and manage
- Extent of DBFM OMR would be modest relative to capital cost
- DBFM benefits of maintaining an asset in a state-of-good-repair would be limited to the scope transferred to the private sector
- Complexity of PDA-DBFM requires a longer pre-construction services phase to develop and negotiate the DBFM Project Agreement

Scope	10
Enabling	DBB
General Civil	PDA-DBFM
Tunnel	
Station Fit-out & Supporting Systems	
Core Systems & Trackwork	

DBFM design-build-finance-maintain
PDA project development agreement

 Alternatively financed. Detailed design by the private sector

Risk Allocation

Study considered the allocation of risk for short-listed options, with allocation to be confirmed through risk process and the development of procurement documents. Below table summarizes **anticipated allocation of key risks for the recommended option:**

Key Risks Retained by Public Sector	Key Risks Transferred to Private Sector	Shared Risks
<ul style="list-style-type: none"> • Funding commitments and availability • Market interest • Procurement process / procurement delays • ROW and enabling works completion • Escalation prior to award • Contract interfaces (civil ↔ systems) • Sufficiency of requirements • Differing site conditions • Systems design, integration, coordination • Operations, maintenance, and rehabilitation 	<ul style="list-style-type: none"> • Civil design • Civil construction means & methods • Interfaces among civil packages • Construction quality (in compliance with specs) • Escalation post-award • Cost of construction • Code compliance • Worksite health and safety 	<ul style="list-style-type: none"> • Construction/design delay • Design quality/accuracy • Permitting • Third-party obligations

Note: Table reflects key risks related to delivery approach and does not encompass all project risks.

Recommendation (1 of 2)

Advance the findings and recommendations of the Downtown Rail Extension Project Delivery Alternatives Study to the TJPA Board of Directors for approval, including the recommendations that the DTX project team:

1. Implement an Enabling Program, in order to de-risk the delivery of the primary contracts to follow;
2. Utilize a progressive form of project procurement for the primary contracts, to provide for the early and collaborative involvement of the project contractors in project final design;
3. Deliver the tunnel and civil scope through a single Progressive-Design-Build (PDB) contract;
4. Deliver the core systems, supporting systems, trackwork, and station fit-out scope through one or two contracts using the Construction Manager / General Contractor (CMGC) model;
5. Deliver the operations, maintenance, and rehabilitation scope through arrangements separate from (but coordinated with) infrastructure design and construction;

Recommendation (2 of 2)

6. Prepare the preliminary design and capital cost estimate under the assumption of two separate CMGC contracts, in order to maintain flexibility to either one or two such contracts;
7. Determine the number of CMGC contracts by October 2022, with such decision informed by the preliminary design, quantitative risk assessment, and market engagement;
8. Further consider the potential incorporation of private finance into the tunnel/civil contract during the construction period, with consideration of this Progressive-Design-Build-Finance (PDBF) option informed by the preliminary design, funding and financial plans, quantitative risk assessment, and market engagement, with decision-making by February 2023;
9. Prepare a Strategic Implementation Roadmap for Project Delivery, to describe the approach and requirements for successfully implementing the recommended delivery method; and
10. Coordinate the development of the quantitative risk assessment, preliminary design, capital cost estimate, funding and financial plans, and governance study to support preparation of the Implementation Roadmap and decision-making among Options 5, 6, and 7.

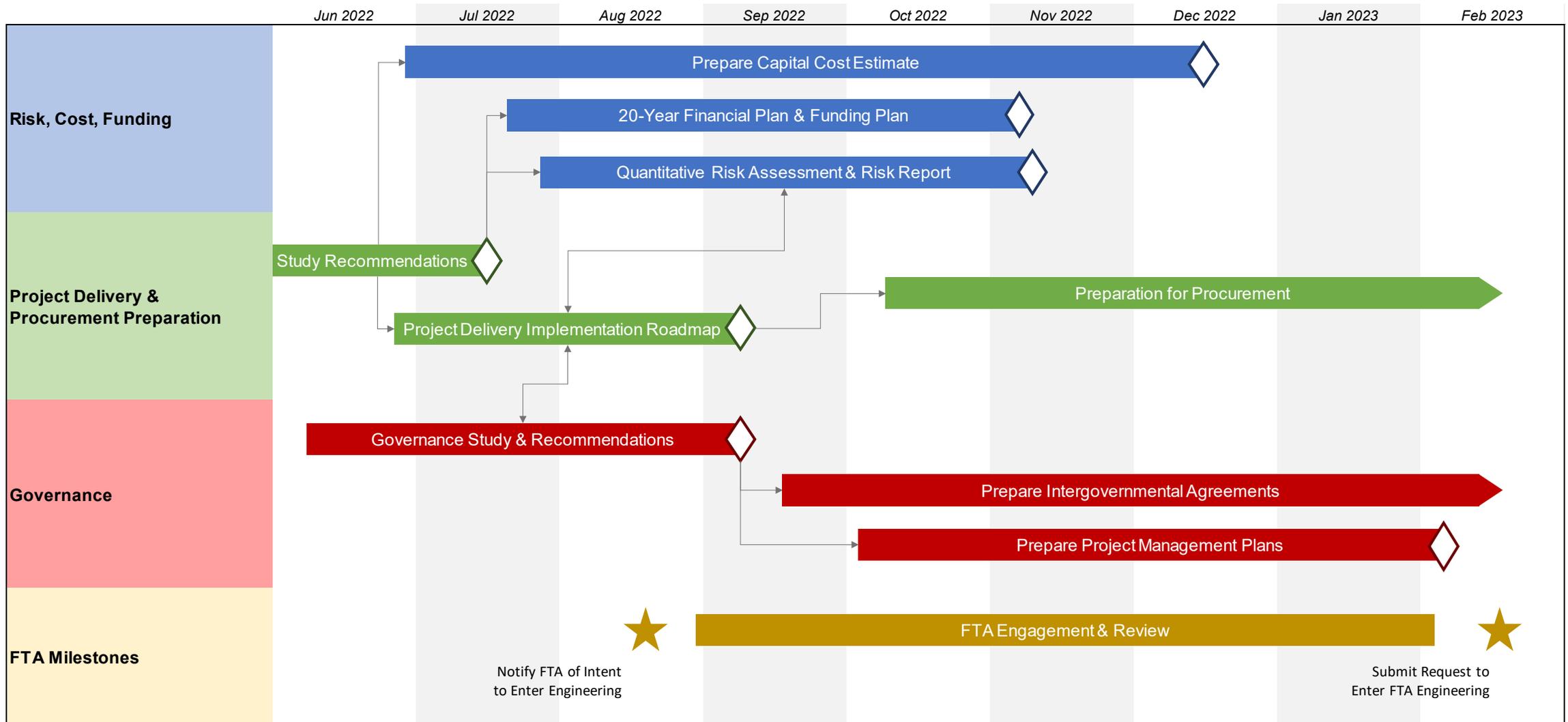
Next Steps: Project Delivery Implementation Roadmap

The Project Delivery Strategic Implementation Roadmap will describe the future project delivery and procurement activities leading up to the award of construction contracts, with a focus on risk mitigation. Topics and considerations for the Roadmap include:

- Integration with the project-wide risk process and other project activities
- Procurement documents/contract structure and contents
- Procurement Working Group approach/structure
- Input to Project Management Plan and sub-plans
- Delivery Agency resourcing approach (in collaboration with the Governance workstream)
- Contract negotiations and off-ramps
- Scope and approach for the pre-construction service phase
- Contract interface management

Next Steps: DTX Work Program Activities

Study Recommendations will inform development of key tasks in DTX Work Plan:



Questions

