STAFF REPORT FOR CALENDAR ITEM NO.: 12
FOR THE MEETING OF: September 9, 2021

TRANSBAY JOINT POWERS AUTHORITY

BRIEF DESCRIPTION:

Authorizing the Interim Executive Director to submit a letter and supporting information to the Federal Transit Administration (FTA) for the purpose of requesting entry of Phase 2 of the Transbay Program, more commonly referred to as the Downtown Rail Extension (DTX), into the Project Development (PD) phase of the Capital Investment Grants (CIG) – New Starts process, subject to the City and County of San Francisco Board of Supervisors approval of a resolution authorizing the issuance of San Francisco Community Facilities District No. 2014-1 (Transbay Transit Center) Special Tax Bonds, Series 2021, for an amount not to exceed $35,000,000, which includes $30,000,000 for the estimated cost of PD work, plus $5,000,000 to fund bond issuance, costs, reserves, and contingency.

EXPLANATION:

Background

Under state law and the Joint Powers Agreement creating the Transbay Joint Powers Authority (TJPA), the TJPA has primary jurisdiction with respect to all matters concerning the financing, design, development, construction, and operation of the Transbay Program, including the DTX. The TJPA has identified the FTA CIG - New Starts program as a substantial source of capital funding for the DTX. Since 2001, MTC Resolution 3434 has maintained the region's commitment to the DTX, with the 2009 regional transportation plan (RTP) affirming the DTX as a regional New Starts priority. MTC has re-affirmed this commitment with placement of the DTX within the first period of Play Bay Area 2050. The TJPA has been working diligently to position the DTX to enter the CIG - New Starts program, consistent with available funding to support the work required, with the goal of delivering rail service to the Salesforce Transit Center as soon as possible.

The San Francisco Peninsula Rail Program Memorandum of Understanding (MOU), effective June 5, 2020, describes, in part, an organizational structure to support the efforts of the TJPA to develop the DTX 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. Task 14 is preparation of the DTX to enter the New Starts program; more specifically, (a) develop all the documentation required by the FTA to enter the New Starts program, and (b) engage with the FTA to develop a road map to a Full Funding Grant Agreement. The MOU indicates the task would be led by the TJPA, require the concurrence of the partner agencies, and require approval of the TJPA Board for final documents.

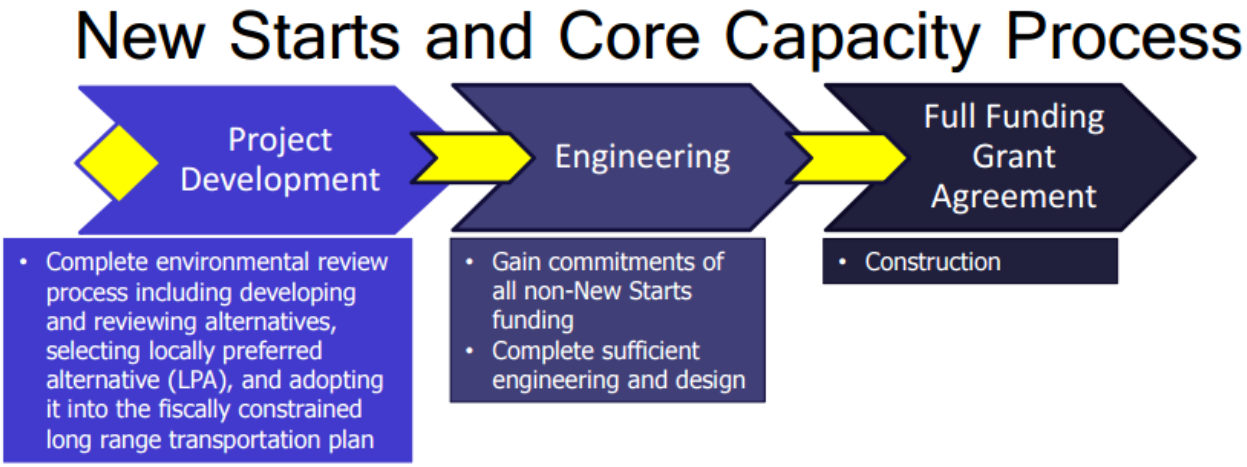
At its April 8, 2021 meeting, the TJPA Board of Directors approved an acceleration modification to the DTX Comprehensive Work Plan and supporting Master Schedule. The acceleration supports multiple objectives, including submission of the request to enter the PD phase of the CIG – New Starts program in October 2021, leading to a planned request for a Full Funding Grant Agreement in August

2023. Timely entry into the CIG – New Starts process is critical to achieving the accelerated Master Schedule and delivering rail service downtown.

The recommend action before the TJPA Board today is consistent with the MOU Summary Work Program and the recently approved acceleration plan.

Discussion

Prior to major construction, the CIG (includes New Starts and a companion program, Core Capacity) process for transit projects is structured around three sequential major phases: PD, Engineering, and Full Funding Grant Agreement negotiation and execution.



Project Development Scope of Work
During PD, the FTA requires project sponsors to address a substantial number of issues including:

- Project Definition
- Project Management Plan
- Management Capacity and Capability
- Scope
- Schedule
- Capital Cost Estimate
- Risk and Contingency Management
- Certifications, Reports, and Administrative Requirements

The FTA, through its Project Management Oversight Consultant, will monitor TJPA's progress in addressing these issues and developing the management capacity and plans required to effectively delivery the project.

Attachment 2 is the checklist of items as presented in FTA Oversight Procedure 51, Readiness to Enter Engineering, providing additional detail of the FTA requirements and level of

completeness required. Satisfactory completion of these items during PD is required for the FTA to agree that a project sponsor may enter the second phase of the CIG process, Engineering.

The PD phase work is anticipated to be completed by February 2023, in accordance with the project's Comprehensive Work Plan and accelerated Master Schedule approved by the TJPA Board of Directors on April 8, 2021.

Entry into PD requires a brief letter submission containing the following information:

- The name of the study sponsor, any partners involved in the study, and the roles and responsibilities of each
- Identification of a project manager and other key staff that will perform PD work
- A brief description and clear map of the corridor being studied, including its length and key activity centers
- A brief description of the transportation problem in the corridor or a statement of purpose and need
- Electronic copies of or weblinks to prior studies done in the corridor
- Identification of a proposed project if one is known and alternatives to that project if any are being considered
- A brief description of current levels of transit service in the corridor today
- Identification of a cost estimate for the project, if available
- The anticipated cost to complete PD, not including the cost of any work done prior to officially entering the PD phase
- Identification of the non-CIG funding available and committed to conduct the PD work
- Documentation demonstrating commitment of funds for the PD work (e.g., Board resolutions, adopted budgets, approved Capital Improvement Programs, approved Transportation Improvement Programs, letters of commitment)
- An anticipated draft timeline for completing the following activities, which should demonstrate the ability to complete the PD work within two years, as prescribed in the FAST (Fixing America's Surface Transportation) Act:
    - compliance with NEPA and related environmental laws
    - selection of a locally preferred alternative (LPA)
    - adoption of the LPA in the fiscally constrained long-range transportation plan
    - completion of the activities required to obtain a project rating under the evaluation criteria outlined in the law
    - completion of the readiness requirements for entry into Engineering
    - anticipated receipt of a construction grant agreement from the FTA (beyond two years)
    - anticipated start of revenue service (beyond two years)

The recommend action before the TJPA Board today would authorize the Interim Executive Director to submit the requisite letter and supporting information to FTA.

Project Development Funding

Prior to approving entry into PD, the FTA requires that the project sponsor demonstrate the ability to fund the entirety of the PD work scope. Early project funding plans assumed Regional Measure 3 (RM3) revenues identified for the DTX would be available to fund the estimated $30,000,000 required to complete the PD work.

In light of litigation rendering RM3 funds unavailable at this time, staff, working in close collaboration with San Francisco County Transportation Authority (SFCTA), have developed an alternative funding solution, relying upon the issuance of San Francisco Community Facilities District No. 2014-1 (Transbay Transit Center) Special Tax Bonds, Series 2021 in the amount of $35,000,000, including the estimated $30,000,000 cost of PD work, plus $5,000,000 to fund bond issuance, costs, reserves, and contingency. In 2014, the City and County of San Francisco ("City") approved the formation of the Transbay Transit Center Community Facilities District (CFD) and the levy of special taxes to support the future issuance of up to $1.4 billion in special tax bonds. The City has committed 82.6% of the CFD special tax proceeds to fund the DTX and Salesforce Park. The City has completed three prior issuances of CFD special tax bonds (in 2017, 2018, and 2020).

The proposed fourth issuance of these bonds requires action by the San Francisco Board of Supervisors; the proposed legislation is expected to be heard at the September 15, 2021 Board of Supervisors Budget and Finance Committee, and, if recommended by the Committee, is expected to be scheduled for approval consideration at the September 21, 2021 Board of Supervisors meeting. The TJPA Board action recommended here would be contingent on the Board of Supervisors approval of that bond issuance.

Future Funding

TJPA and SFCTA staff, working in close cooperation, continue to develop a full funding plan for the DTX that will be brought forward to the TJPA Board of Directors in the future. Local, regional, state, federal, and private funding sources are being considered for viability and timing.

RECOMMENDATION:

Authorize the Interim Executive Director to submit a letter and supporting information to the Federal Transit Administration for the purpose of requesting entry of the Downtown Rail Extension project into the Project Development phase of the Capital Investment Grants – New Starts process, subject to the City and County of San Francisco Board of Supervisors approval of a resolution authorizing the issuance of San Francisco Community Facilities District No. 2014-1 (Transbay Transit Center) Special Tax Bonds, Series 2021, for an amount not to exceed $35,000,000, which includes $30,000,000 for the estimated cost of PD work, plus $5,000,000 to fund bond issuance, costs, reserves, and contingency.

ATTACHMENTS:

1. Resolution
2. Federal Transit Administration Oversight Procedure 51, Readiness to Enter Engineering, Appendix B, Checklist for Approval to Enter Engineering

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 Transbay Program, including the portion of the Transbay Terminal/Caltrain Downtown Extension/ Redevelopment Project commonly referred to as Phase 2/Downtown Rail Extension (DTX); and

WHEREAS, The TJPA has identified the Federal Transit Administration (FTA) Capital Investment Grants (CIG) – New Starts program as a substantial source of capital funding for the DTX; and

WHEREAS, Since 2001, MTC Resolution 3434 has maintained the region's commitment to the DTX, with the 2009 regional transportation plan affirming the DTX as a regional FTA New Starts priority. MTC has re-affirmed this commitment with placement of the DTX within the first period of Play Bay Area 2050; and

WHEREAS, The TJPA has been working diligently to position the DTX to enter the CIG – New Starts program, consistent with available funding to support the work required, with the goal of delivering rail service to the Salesforce Transit Center as soon as possible; and

WHEREAS, 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) describes, in part, an organizational structure to support the efforts of the TJPA to develop the DTX to ready-for-procurement status; and

WHEREAS, Consistent with the MOU and recent TJPA Board approval of an accelerated work plan and schedule, the TJPA is developing the documentation required by the FTA to enter the CIG - New Starts program, including a letter to FTA to request entry of the DTX into the Project Development phase of the process; and

WHEREAS, Prior to approving entry into the Project Development phase, the FTA requires that the project sponsor demonstrate the ability to fund the entirety of the Project Development phase work scope; and

WHEREAS, Early project funding plans assumed Regional Measure 3 (RM3) revenues identified for the DTX would be available to fund the estimated $30,000,000 required to complete the Project Development phase work scope; pending litigation has rendered the RM3 funds

unavailable at this time; and

WHEREAS, The City and County of San Francisco Board of Supervisors is expected to consider authorizing the issuance of San Francisco Community Facilities District No. 2014-1 (Transbay Transit Center) Special Tax Bonds, Series 2021, for an amount not to exceed $35,000,000, which, if issued, the TJPA could rely on to demonstrate the ability to fund the Project Development phase work scope; and

WHEREAS, Timely entry into the FTA CIG – New Starts process is critical to achieving the DTX accelerated Master Schedule, previously approved by the TJPA Board of Directors; now, therefore, be it

RESOLVED, That the TJPA Board of Directors hereby authorizes the Interim Executive Director to submit a letter and supporting information to the Federal Transit Administration for the purpose of requesting entry of the Transbay Terminal/Caltrain Downtown Extension/ Redevelopment Project -- Phase 2/DTX into the Project Development (PD) phase of the Capital Investment Grants – New Starts process, subject to the City and County of San Francisco Board of Supervisors approval of a resolution authorizing the issuance of San Francisco Community Facilities District No. 2014-1 (Transbay Transit Center) Special Tax Bonds, Series 2021, for an amount not to exceed $35,000,000, which includes $30,000,000 for the estimated cost of PD work, plus $5,000,000 to fund bond issuance, costs, reserves, and contingency.

I hereby certify that the foregoing resolution was adopted by the Transbay Joint Powers Authority Board of Directors at its meeting of September 9, 2021.

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Interim Secretary, Transbay Joint Powers Authority

APPENDIX B

Checklist for Approval to Enter Engineering

The purpose of this checklist is to provide a categorized list of elements to be completed, ideally, prior to FTA's approval for Entry to Engineering. Each listed item is followed by a brief description of the level of completion expected of that item. The PMOC should note elements that need attention by the Project Sponsor and adjudge their significance to the overall project readiness to enter the engineering phase.

Item	Description	OP	PMOC Review	✓
1.0	**PROJECT DEFINITION**			
1.1	**System Definition**			
1.1.1	Alignment Definition	32C	General alignment is defined to include the approximate horizontal and vertical alignment, approximate station locations, and length. The alignment should be developed beyond the definition contained in the LPA to describe all structures necessary for the project. Minor alternative alignments may be evaluated within the corridor, as required, to the degree they are within the LPA definition.	
1.1.2	Configuration Management Plan	20	Configuration Management should document the process of managing the physical configurations and their supporting processes through documents, records and data. Configuration Management should demonstrate a process that accommodates changes and continually documents how a physical system is configured, ensuring that documents, records, and data remain concise and valid.	
1.1.3	Station requirements	32C	Station design characteristics including station locations and station sizing. Should identify platform lengths and support spaces for mechanical/electrical equipment.	
1.2	**Environmental Constraints**			
1.2.1	NEPA	32B	NEPA requirements for entry into Engineering include preparation of an EIS where effects from a proposed project are significant or a Finding of No Significant Impact (FONSI) and accompanying environmental assessment (EA) where effects are less than significant. For an EIS, FTA approves the preferred project through issuance of a Record of Decision (ROD). The ROD describes the scope of the projected and committed mitigations to reduce the effects of identified impacts.	
1.2.2	Third party requirements	20	(1) Evaluate third-party agreement processes and current status of agreements. Where agreements are not available, Project Sponsor should provide an outline or term sheet(s). When even this information is not available, the needed agreement shall be identified and the issues and any obstacles to executing the agreements noted.	
			(2) Types of agreements and information to be reviewed include, but are not limited to: ▪ utility relocation agreements (public-water, sewer, etc.) ▪ intergovernmental agreements (IGA) with local & state and federal entities ▪ agreements with railroad companies (design, construction, operating) ▪ agreements with airport and port authorities ▪ third-party franchise agreements (gas, telephone, cable TV, other communications,	

Item	Description	OP	PMOC Review	✓
			power); ▪ universities, colleges, other educational institutions agreements ▪ Private sector parties impacted, and public/private funding arrangements (including transit-oriented development - TOD) ▪ Encroachment on Right of Ways (ROWs) ▪ Permits and/or waiver/exceptions ▪ Master permitting plan and schedule	
			(3) The framework and content of these agreements must conform to the needs of the project. Agreements should be negotiated and completed to the extent possible prior to start of Engineering Phase; where incomplete, a defined process for achieving completion is in place.	
1.2.3	Geotechnical Baseline	32C	Geotechnical baseline report prepared for projects involving tunnels or other underground structures, or where specific structures (e.g., major bridges, retaining walls, levees, or other facilities) will be located on material with questionable or unknown load bearing capacity.	
2.0	**PROJECT MANAGEMENT PLAN**			
2.1	Basis of project documented	20	*Note: Some of the items listed are repeated below where additional review guidance is provided.* (1) FTA's regulations are found in 49 CFR 633.25, which requires a Project Management Plan to contain at a minimum the following: (a) A description of adequate recipient staff organization, complete with well-defined reporting relationships, statements of functional responsibilities, job descriptions, and job qualifications; (b) A budget covering the project management organization, appropriate consultants, property acquisition, utility relocation, systems demonstration staff, audits, and such miscellaneous costs as the recipient may be prepared to justify (Note: budget should also address design, construction, and start-up/commissioning); (c) A construction schedule (Note: schedule should address entire project from design through revenue operations); (d) A document control procedure and recordkeeping system; (e) A change order procedure which includes a documented, systematic approach to the handling of construction change orders (Note: should also address change orders for all procurements); (f) A description of organizational structures, management skills, and staffing levels required throughout the construction phase (Note: budget should also address design, construction, and start-up/commissioning); (g) Quality control and quality assurance programs which define functions, procedures, and responsibilities for construction and for system installation and integration of system components (Note: QA/QC program should also address design, procurement, and start-up/commissioning); (h) Material testing policies and procedures; (i) Plan for internal reporting requirements including cost and schedule control procedures; and	

Item	Description	OP	PMOC Review	✓
			(j) Criteria and procedures to be used for testing the operational system or its major components;"	
			(2) Legal authority for project	
			(3) The FTA or its PMOC may recommend a workshop be held to help establish roles and responsibilities and define baseline standards of performance related to the management of the project. Few, if any, Project Sponsors have all the capabilities or authorities to plan, design, and implement a major capital project by themselves. Bringing Project Sponsor staff, consultants, and relevant third parties together in a workshop early in the project life can help to shape the project management approach. Through workshop discussions, all parties can gain a better understanding of each other's requirements, responsibilities, and authorities as related to the project. The PMOC will review and summarize its findings and opinions and present recommendations with respect to the adequacy and soundness of the Project Sponsor's plans and procedures, and the successful implementation of such plans and procedures for: • NEPA coordination – The Project Sponsor's plan for managing and implementing mitigation actions should be in place and environmental mitigation work should be incorporated into the design documents, cost estimates, and schedules. • Design control. The Project Sponsor should implement appropriate plans and procedures for design control in all aspects. These plans and procedures should illustrate: ▪ consistency with design criteria; ▪ coordination and change control among design disciplines for drawings and specifications; ▪ completeness of soils testing and site surveys; ▪ coordination with third parties; and ▪ completeness of project documents for bidding.	
			(4) The Project Management Plan should provide for implementation of project controls in all aspects including procedures for cost and schedule control, risk management, and dispute or conflict resolution during construction. The PMP should include procedures on cost sharing. Risk and contingency management policies and procedures should be in place and routinely used.	
			(5) The PMP should confirm implementation of plans and procedures for project delivery and procurement. Specifically, it should focus on the schedule for bidding construction packages and procuring equipment and vehicles.	
			(6) Labor Relations and Policies should be in development.	
			(7) Development should be underway for plans and procedures regarding construction administration, construction management, construction inspection, coordinating construction work by third parties, site logistics, and construction change order and shop drawing document flow and authorities.	
			(8) Development of Start-up and Revenue Operations should be underway to establish plans and procedures regarding testing/commissioning, closeout of construction contracts, and training of	

Item	Description	OP	PMOC Review	✓
			staff.	
			(9) PMP Subplans should include the Quality Assurance / Quality Control Plan, Safety and Security Management Plan, Real Estate Acquisition Management Plan, and Bus and Rail Fleet Management Plans.	
2.2	Environmental mitigation/ assessment documented	20	(1) Description of Mitigation Principles	
			(2) Plan for Management and Implementation of Mitigation Actions	
2.3	Design Procurement and Control Plan	20	(1) Design contracting plan for the Engineering Phase	
			(2) Description of relationship between forecast ridership, operating plan and proposed project transit capacity in guideways, stations, support facilities	
			(3) Design Criteria for each discipline	
			(4) Schedule for the development of contract documents (level of development expected at each milestone for design/construction drawings, specifications, general and supplementary conditions of contracts for construction, and the Division 1)	
			(5) Plan / procedures for Design Drawings and Specifications	
			(6) Procedures for Design Change and Configuration Control of documents during Design and Construction	
			(7) Plan (List and schedule) for third party agreements and permits including utilities, real estate, railroads, transit-oriented development/joint development, etc.	
			(8) Investigation and Testing Plan (List and schedule) for site surveys, geotechnical and materials investigation before/during design.	
2.4	Project Controls	20	(1) Document and Records Controls	
			(2) Internal reporting procedures	
			(3) Cost Control Procedures	
			(4) Schedule Control Procedures	
			(5) Risk Control Procedures	
			(6) Dispute / Conflict Resolution Plan (claims avoidance and claims resolution)	
2.5	Project construction delivery and procurement plan	20	(1) Procedures for Procurement	
			(2) Procurement Plan and Schedule	
			(3) Contracting Strategy for Transit- Oriented Development and Joint Development, if applicable	
			(4) Identification of Disadvantaged Business Enterprises (DBE) Opportunities, Federal DBE, State/Local WBE & MBE, Plans and Goals	
			(5) Negotiating and Approving Change Orders and Claims	
			(6) Procedures for claims avoidance	
2.6	Labor relations and Policies	20	(1) Wage Rates and Classifications	
			(2) Wage and Hour Requirements	

Item	Description	OP	PMOC Review	✓
			(3) State and Local Regulations	
2.7	Construction Procedures for Fixed Infrastructure	20	(1) Construction Contract Administration	
			(2) Construction Management	
			(3) Construction Inspection	
			(4) Coordination with Third Parties	
			(5) Site Logistics Plan (materials transport and storage; temporary site facilities; maintenance of existing pedestrian ways, transit and traffic operations during construction; protection of existing utilities)	
			(6) Processing Shop Drawings, Bulletins, and RFIs	
			(7) Substantial Completion; Final Completion	
2.8	Start up and Revenue Operations	20	(1) Testing plan elements are identified and would be expanded at a later date	
			(2) Closeout materials (warranties, testing results, O&M manuals, spare parts, etc.) to be identified to provide direction to the Engineer	
			(3) Plan for Training of Staff to be developed later	
2.9	QA/QC Plan	24	At entry to Engineering, the QAP shall fully address all elements governing project activities through the design phase. It should also contain, at least in outline form and to the level of detail possible, information relative to the upcoming construction phase. The PMOC shall also confirm that the Project Sponsor has exhibited both a Quality Assurance and Quality Control review of its PD package.	
2.10	Safety and Security Management Plan	22	In place and is in compliance with FTA guidance as provided in Circular C5800.1. Preliminary Hazard Analysis (PHA) and Threat and Vulnerability Assessment (TVA) are complete. Safety and Security Design Criteria development is underway.	
2.11	Real estate Acquisition and Relocation Plan	23	(1) Conforms with and is expressly incorporated within the Design Drawings, Master Schedule and budget for all phases and types of work planned or anticipated. Further, the RAMP must meet all federal requirements. The Project Sponsor is to provide a complete list of all parcels with title searches on all properties to be acquired and RAMP procedures.	
			(2) Preparation of a relocation plan to include interviews with potential displacees which stresses that displacees are not to move until project plans have been finalized.	
			(3) Project Sponsor shall exhibit management capacity and capabilities to implement the real estate acquisition and relocation process, including organization structure and staffing plan and any consultant agreements undertaken in support of these activities.	
2.12	Rail and Bus Fleet Management	37	Plan demonstrates consistency with the project scope, NEPA documents, and the project's Operations Plan.	
2.13	Before and After Study Documentation	27	Plan submitted in accordance with FTA guidance; verify that the plan has preserved the project scope and capital cost information.	
3.0	**MANAGEMENT CAPACITY AND CAPABILITY**			
3.1	Organizational charts	21	Project organization charts show the complete organization, covering all project functions and all	

Item	Description	OP	PMOC Review	✓
			project personnel, regardless of affiliation. Staffing levels should be indicated. Charts should be time-oriented to show different organizational arrangements for different phases of the project.	
3.2	Staff qualifications / Experience chart	21	Key personnel in all organizations should be identified and their principal duties, reporting relationships, job descriptions, job qualifications, and assigned responsibility and delegated authority should be defined. The size, qualifications, and availability of new and existing staff resources must be considered in relation to the human resource requirements and duration of the project. A responsibility matrix should be developed that identifies critical management activities and demonstrates the staff's ability to satisfy these requirements.	
3.3	Staffing plan	21	Staffing levels should be indicated. Charts should be time-oriented to show different organizational arrangements for different phases of the project. The organization chart should be supplemented with a tabular staffing plan that shows percent utilization, mobilization start date, and release date (where applicable) information.	
3.4	Engineering/Design Consultants	21	During construction planning, careful examination of the existing labor situation has determined the impacts of DBE participation.	
3.5	Agency-level processes and procedures	21	Should include project management policies and procedures and an adequate staff of professionals skilled in but not limited to, project controls, QA/QC, cost estimation, scheduling, procurement, change control, risk management, transit operations, and public participation.	
3.6	Resumes of project team members	21	Resumes should be provided for both agency and consultant **key staff.** Resumes must demonstrate experience and ability to manage each of the following key project areas: ▪ Project management ▪ Environmental assessment and mitigation leads ▪ Operations planning, Fleet management lead ▪ Design team leads ▪ Quality assurance and Quality control lead ▪ Project controls leads ▪ Construction, permits, testing, start-up leads ▪ Real estate lead ▪ Safety review lead	
4.0	**SCOPE**			
4.1	Scope Development	32C	(1) Definition of the project (i.e., scope) contained in the project ROD/FONSI and most recent New Starts submittal agree with the scope as developed in Project Development materials, including the approved PMP and the engineering design plans and specifications. Discrepancies or unclear scope items in the plans should be noted	
			(2) Basic quantities, such as number and locations of facilities, peak and total vehicles, etc., identified in the environmental document and ROD/FONSI are the same as assumed in the current project definition	
			(3) The current project design satisfies the capacity and operational objectives established in the approved environmental document.	
			(4) Mitigations committed to in the ROD (or project mitigation plans), when involving a physical	

Item	Description	OP	PMOC Review	✓
			or operational feature of the project, are incorporated - or in the process of being incorporated - into the engineering design, proposed construction program, and/or other implementation plans. Mitigations could include changes in design, use of different types of material, modified traffic control, restricted construction activities, etc.	
			(5) Results of the hazard and threat and vulnerability analyses are incorporated in the design criteria and the scope of work.	
4.2	Design Package	32C	A Basis of Design Report is required which presents the following content: (1) Project Sponsor accepted design standards and performance objectives including consistency with the required transit capacity.	
			(2) Design, construction, system and vehicle interfaces are well known and defined. Vehicle dynamic clearance and structure clearance diagrams are prepared.	
			(3) Design Reports, Concept of Operations Report, and configuration studies are adequate and complete.	
			(4) Design packages and contract packages are defined and delineated.	
			(5) The documents possess a level of definition, clarity, presentation and cross-referencing consistent with the scope definitions in following sections.	
			(6) The project is constructible. Adequate construction access and staging areas are identified.	
4.3	Project Delivery Method Plan	32D	Procedures for Procurement (advertising, bidding, awarding of contracts for consultants and construction contractors, procurement for equipment, etc.) are established including: Procurement Plan and Schedule (indicate project phase, durations for RFP, screening, interviews, selection, board approvals, etc.); Contracting Strategy for Transit-oriented and Joint Development; and identification of Disadvantaged Business Enterprises (DBE) Opportunities and Federal DBE and State/Local WBE & MBE Plans and Goals.	
4.4	Constructability	32C	Project Sponsor's construction planning of the project has sufficiently and adequately addressed the constructability of the project. An in-depth constructability review is required of the Project Sponsor. It is a critical tool for synthesizing the preliminary design work.	
4.5	Site and Geotechnical Conditions	32C	(1) Digitized aerial photogrammetry (aerial photo background; planimetric and topographic mapping) is complete.	
			(2) Photo simulations and/or schematic renderings are available for stations, samples of the alignment, and unique features of the line.	
			(3) Preliminary geotechnical investigations are complete including a subsurface exploration or laboratory testing program. Requirements for additional geotechnical investigations have been defined and identification of buried structures and utilities and identification of contaminated soils and other hazardous materials are complete.	
4.6	SCC 10 Guideway	32C	(1) Major or critical design decisions have been researched and decided including location and extent of elevated or underground structures, rehabilitation or reuse of any existing infrastructure, structures, facilities, or systems.	

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			(2) The choice of track or roadway design has been made for the line. Grade crossing construction is defined and clearances established for operations, maintenance, and emergency evacuation. Guideway drainage has been defined.	
			(3) Major or critical work details, structural element dimensions, design interfaces, and physical interfaces have been identified and are defined in terms of drawings, standards, criteria, specifications.	
			(4) Structural systems are established. Aerial guideway is dimensioned to show number of spans, span length, substructure design, etc.	
			(5) Preliminary mass balance diagrams have been developed for vertical alignments on fill or cut supported by topographic surveys and soil investigations.	
			(6) Retaining walls and fills are located and dimensioned and defined in terms of drawings, standards, criteria, specifications.	
			(7) Tunnels, both cut-and-cover and mined, are defined in terms of access and egress, construction access and laydown, openings for stations, passage chambers, ventilation or emergency access shafts or adits, sections, and profiles to depict and dimension major tunnel features. Tunnel design and dimensions have been cross checked to adjacent building foundations and coordinated with the vehicle's dynamic envelope, walkways and egress, tunnel lighting, and systems elements such as ventilation, communications, and traction power.	
			(8) Trackwork is advanced to a level where single line schematics of the track layout, plan and profile drawings, dimensioned layouts of turnouts and crossovers, and tabulations of track geometry (horizontal and vertical curve data) have been defined. The alignment of any tunnel structure is referenced to the center line of track and base of rail. Guideway sections, inclusive of aerial, tunnel and station cross sections, consistently show the distance from centerline of track to critical clearance points such as walls, walkways, and edges of platforms.	
			(9) Special trackwork is located and adequately defined.	
			(10) Where used, the contact rail system is specified with typical details and required clearances provided. End ramps and anchors are located. Gaps are coordinated with the traction power supply system. Feeder and return conductor attachment are specified and typical details provided.	
			(11) The need for special track construction for noise or vibration control is identified with locations and preliminary dimensions and a preliminary choice is made for the noise and vibration control design.	
4.7	SCC 20 Stations, Stops, and Terminals	32C	(1) Major or critical design decisions have been researched and decided including rehabilitation or reuse of any existing structures, facilities or systems. Major or critical operational fire/life safety, and security requirements have been defined. Interfaces with other transit facilities or structures are identified and passenger and public circulation concepts defined.	
			(2) Station architecture is established. The drawing package consists of site plans and, for station	

Item	Description	OP	PMOC Review	✓
			buildings, floor plans, elevations, longitudinal and cross sections, and details illustrating typical and special architectural conditions. The finish concept should be clearly described. The location and outline of fare gates and barriers should be shown. The location of ticket vending machines, electronic passenger information displays, security systems and other platform amenities should be shown.	
		35	(3) Within the site context, the building footprints are shown. The relationship of the building to grade and to adjacent facilities is clearly defined, as is provision for pedestrians and bicycles to access the public way from the building. Provision for motorized vehicles is also shown. Access to the platforms and buildings and within the buildings complies with ADA. Any parking lots or structures are shown.	
			(4) Building sections and elevations illustrate the relationship of the station to grade (below, on-grade, elevated structure); the building structural system has been chosen and preliminary dimensions established for clearances.	
			(5) Station building floor plans show vertical circulation systems including stairs, elevators, escalators, and support spaces for mechanical, plumbing, electrical, and communications systems. The floor plans should show the agent area, fare gate area, retail areas, and any crew or public facilities.	
		35	(6) Level boarding between the transit vehicle and the boarding platform complies with ADA. Documentation shows passenger level boarding design for all stations and/or satisfactory determination of infeasibility for one or more stations along with a satisfactory alternative plan for accessibility.	
			(7) Preliminary identification of arts-in-transit integrated into station design.	
			(8) Electrical systems should include a single line drawing including the source and distribution of power. Mechanical and electrical systems, including area drainage, piped utilities, heating ventilation and air conditioning, smoke evacuation, power, and lighting, are described and single line drawings are provided.	
			(9) Design interfaces among disciplines are defined on drawings, in standards, design criteria, specifications and contract package scopes.	
			(10) Parking structure design is progressed to a level consistent with station buildings as described above including vertical transportation and interface with the station buildings. Parking design is consistent with Record of Decision.	
4.8	SCC 30 Support Facilities: Yards, Shops, Administration Buildings	32C	(1) Major or critical design decisions have been researched and decided including rehabilitation, reuse or expansion of any existing structures, facilities or systems. Major or critical operational fire/life safety, and security requirements have been defined.	
			(2) An architectural space program has been prepared for all occupied buildings including for modifications to existing buildings such as Control Centers. The support facility drawings are consistent with the architectural program. Adequate employee parking is provided.	
			(3) Based on the vehicles chosen and utilization as set out in the fleet management plans, a review has been done to determine the number of vehicle spots and facilities (jacks, wheel truing,	

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			etc.) required.	
			(4) A preliminary industrial engineering evaluation has been prepared for all workspaces in shops showing clearances, location of utilities (water, electric outlets, hose reels, etc.), and the flow of vehicles from revenue service through servicing and into storage or maintenance and then returning to service. Adequate space should be provided for material storage both in the building and outside.	
			(5) A site plan has been prepared showing vehicle (revenue, non-revenue, commercial and private) access to shop buildings, storage yard layout, track layout, and location of auxiliary buildings including pump houses, signal houses, and traction power substations. Provisions for fueling and fuel storage are located. The overall site plan (existing and proposed conditions) should include grading and drainage plans, site cross sections, utilities, and roadway and parking plans.	
			(6) Within the site context, the building footprints are shown. The relationship of the building to grade and to adjacent facilities is clearly defined, as is provision for vehicular and pedestrian access to new buildings. Access to the buildings and within the buildings complies with ADA.	
			(7) Basic facility architecture is established including vertical circulation requirements. The drawing package consists of site plans and for buildings floor plans, elevations, longitudinal and cross sections, and details illustrating typical and special architectural conditions.	
			(8) Building sections and elevations illustrate the relationship of the buildings to grade (below, on-grade, elevated structure); the building structural system has been chosen and is dimensioned for clearances.	
			(9) Electrical systems should include a single line drawing including the source and distribution of power. Mechanical and electrical systems, including area drainage, piped utilities, heating ventilation and air conditioning, smoke evacuation, power, lighting, and fuel storage and dispensing are described and single line drawings are provided.	
			(10) Design interfaces among disciplines are defined on drawings, in standards, design criteria, specifications and contract package scopes.	
4.9	SCC 40 Sitework and Special Condition	32C	(1) Major drainage facilities, flood control, housing types, street crossings, traffic control, utilities, are defined and physical limits and interfaces identified, based upon alignment base mapping, plans, and profiles.	
			(2) Major or critical design decisions are defined including rehabilitation or reuse of existing structures or facilities.	
			(3) Areas requiring clearing or demolition are identified.	
			(4) Utility key maps, lists of owners, symbols and notes are provided. Preliminary utility relocation plans have been developed.	
			(5) Mitigation plans are progressed for environmental issues and have accepted by the authority having jurisdiction. Mitigation facilities such as wetlands, buffers, noise barriers and historic preservation requirements are identified and located.	

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			(6) A survey for hazardous materials has been completed.	
			(7) On-site and off-site mitigation plan requirements are identified and outline plans prepared.	
			(8) Structural elements for retaining walls and other site structures are advanced in design.	
			(9) Preliminary mass balance diagrams for vertical alignments on fill or cut are supported by topographic surveys and soil investigations.	
			(10) Roadway modifications necessary to accommodate stations, guideway, or support facilities are defined and design is complete to a level comparable to that specified for guideway and stations. Traffic control devises or modifications have been defined.	
			(11) The landscaping requirements, including irrigation systems, are defined on the station, support facility, and guideway plans.	
			(12) The presence of buried structures, utilities, and contaminated soils which may have to be removed, backfilled or which would otherwise be unavailable for backfilling, has been taken into account.	
			(13) Within the site context, the building footprints are shown. The relationship of the buildings to grade and to adjacent facilities is clearly defined, as are provisions for pedestrians and bicycles and special maintenance access. Provision for motorized vehicle access is shown. Adequate surface parking including spaces for disabled parking and facilities for bicycles is provided, where needed. Access to stations and buildings complies with ADA.	
			(14) Adequate construction access has been considered; access and staging areas are identified.	
			(15) Maintenance of traffic and railroad protective flagging are identified and costs estimated.	
4.10	SCC 50 Systems	32C	(1) Major or critical design decisions have been researched and decided including connections to, and rehabilitation or reuse of, existing systems. Pre-construction site reconnaissance and soil resistivity surveys are complete.	
			(2) Major or critical work details, structural element dimensions, design interfaces and physical interfaces have been identified and are defined in terms of drawings, standards, criteria, specifications and contract package scopes. Single line or functional block drawings are prepared for each system. Technologies have been chosen, evaluated for cost effectiveness, and expected performance defined. Major equipment (for the control room, substations, grade crossings, tunnel ventilation, and traction power) has been defined and identified in terms of basic specifications, outline drawings, general arrangements, and standard drawings and details.	
			(3) Signaling and Train Control – Decisions have been made regarding those sections of alignment to be operated under visual or traffic signal control as opposed to train signal systems. Operations analysis has determined the most efficient location of interlockings based on track layout, headways, train lengths, and braking tables as well as requirements of each interlocking and its control limits. Site specific requirements are defined (for signal structural work) and locations for signal enclosures and relay rooms including sizes as well as room layouts (relay, termination, power) are identified and defined. Signal cable routing methodology as well as power supply and distribution are identified and defined. Software	

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			and interface requirements (to facilities, existing system, and other system elements) are identified and defined. The scope of construction between contractors and other operators (railroads or existing agency systems) is defined. Maintenance, testing and training requirements are identified and initially defined (factory acceptance, site acceptance, field integration, start up, etc.).	
			(4) Traffic signals - Basic coordination between train control and traffic signals or other traffic controls has been evaluated. The interaction among traffic signals in the immediate area has been coordinated with local jurisdictions. Simulations have been completed on the impact of the transit system on local traffic and the impact of signalization on transit running times. Decisions have been made regarding transit vehicle pre-emption or priority and interaction with emergency vehicle priority systems such as Opticon. Site specific requirements are defined (for structural work) and locations defined for crossing gates and signal enclosures. Related requirements for grade crossing protection, including use of four-quadrant gates or other methods to prevent vehicles from circumventing crossing gates have been identified and defined. The location of vehicle sensing elements is shown on intersection drawings. Software and interface requirements (to the train control system and other system elements) are identified and initially defined. The scope of construction between contractors and others is defined. Maintenance, testing and training requirements are identified and initially defined (factory acceptance, site acceptance, field integration, start up, etc.).	
			(5) Traction Power – Traction power requirements and the location of substations is established. The basis of design including nominal project voltage and voltage limits are identified. The OCS system or contact rail layout is defined including conductor sizes relative to existing parts of system, as well as any supplementary parallel feeders to meet design requirements for substation out of service scenarios. Minimizations of voltage drop, maximization of vehicle propulsion system performance, and train regeneration issues have been initially addressed. Substation equipment requirements are identified. Single line drawings are provided. Preliminary equipment performance specifications have been developed. The source of commercial power is identified and preliminary negotiations have begun and technical interface conditions established. Substation grounding, stray current monitoring or testing, lightning arresters, and protective systems for equipment and utility system faults have been identified. Supervisory control has been defined as well as requirements for integration with central control.	
			(6) Overhead Contact Systems (OCS) – OCS system type is identified and issues associated with temperature variations are addressed. Decisions have been made regarding the types of support structures or poles to be used, particularly in urban area. Tensions for the contact wire and messenger wire are defined; maximum distances between tensioning points are identified. OCS is sectionalized in coordination with the traction power supply. The basis for OCS design is established and design issues associated with overlaps, section insulators, and crossing and crossover locations are preliminarily addressed.	

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			(7) Communication System – Communications plans, including building or equipment locations, and provisions for station message signs, public address, emergency phones, security cameras, intrusion detection, and other system elements are defined and coordinated with station, guideway, support facility, and central control building plans. Cabling schemes are coordinated with the guideway and utilities. Preliminary specifications for the radio system have been developed and the system is coordinated with the vehicles and central control. Communication between field locations and central control is defined and coordinated with other systems.	
			(8) Fare Collection System – The fare collection concept is defined and is accepted by all stakeholders. The number and location of fare collection equipment has been determined and is shown on the drawings. Basic equipment is specified.	
			(9) Central Control – Operations control center plan is provided, including basic layout and space allocation requirements. System interface requirements and modifications for existing central control facilities are coordinated with the systems being controlled. Provisions for security and emergency response are considered. Preliminary equipment and control system requirements are established.	
4.11	SCC 60 ROW, Land and existing improvements	32C	(1) The Real Estate Acquisition and Management Plan (RAMP) is complete. Refer to the OP-23 RAMP for more information. Real estate documents and drawings identify the full takes, partial takes, temporary and permanent easements, and other rights. Any special access requirements for existing structures have been identified. Possible eminent domain actions need to be identified.	
			(2) Site surveys include property lines and identify structures for buildings, site features, utilities; and surface improvements such as streets and railroad rights-of-way, including private crossings of railroad rights-of-way.	
			(3) The real estate information and survey information is fully coordinated with drawings of structures for guideways and buildings; site features; utilities; streets, railroads, transitways; construction easements; and site access and staging areas.	
			(4) Parties to be relocated are identified and an action plan is developed.	
			(5) Hazardous material sites are identified and characterized and the responsibility and scope of remedial actions specified.	
4.12	SCC 70 Vehicles	32C	(1) Refer to OP-38 for additional information.	
			(2) Vehicle performance requirements are specified and incorporated into the Design Criteria, the Operations and Maintenance Plan, and the Bus or Rail Fleet Management Plans. Preliminary specifications must include allowable vehicle static and dynamic clearance diagrams, allowable axle weight, allowable total weight, door location, floor height, passenger capacity (seated and under heavy load conditions), and ADA accommodation. For buses, the specification must also include fuel type and turning radius. For rail, the specification must include acceleration and deceleration characteristics and expected train consist.	
			(3) System Interface Functional Descriptions have been developed and advanced to include the	

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			following: definition of the subsystems that constitute the overall vehicle system; description and graphic depiction of each interface between on-board subsystems and wayside systems; and, description of how each subsystem will meet the project requirements.	
			(4) Expected vehicle servicing, periodic maintenance, and component repair and replacement requirements (estimated time to repair and frequency of repair) should be compiled to support shop design (SCC 30)	
			(5) Initial testing requirements have been developed to include the following: high level Test Program Plan for both production and on-site acceptance including requirements for factory inspection and testing, First Article and Pre-shipment inspections, static and dynamic testing, and conditional acceptance.	
			(6) Maintenance and Training Requirements should be defined and identified including development of maintenance and training requirements for new system elements.	
			(7) Preliminary requirements for special tools and equipment have been established as well as preliminary requirements for initial spare parts orders.	
4.13	SCC 80 Professional services	32C	(1) The roles and responsibilities of Project Sponsor's professional consultants (design, engineering, and construction management) may be distinguished from Project Sponsor's own professional staff. If alternative delivery systems (design-build, CM/GC) are proposed, the costs of design professionals employed by the contractor should be identified.	
			(2) Costs associated with construction – building contractors' management, labor, indirect costs, overhead, profit, construction insurance should not be included in SCC 80 but in SCC 10 through 50 as appropriate. Cost estimates should conform to this allocation of cost.	
			(3) When Project Sponsor's manual labor, equipment and facilities are used to facilitate construction or to assist in construction of the project, a Force Account Plan and cost estimate should be provided. The cost of these services should be applied to the appropriate SCC code with the exception of start-up training.	
			(4) Costs associated with permits, insurance, and taxes are researched, identified, and estimated.	
			(5) Costs associated with start-up training and simulated operation for operators and supervision is estimated.	
5.0	**SCHEDULE**			
5.1	Basis of Schedule	34	(1) Includes a logical document that discreetly defines the basis for the development of the project schedule that identifies key elements, issues and special considerations (assumptions, exclusions, etc.)	
			(2) Describes the planning basis, including resource planning methodology, activity identification, duration estimating, and source and methodology for determining logic and sequencing.	
			(3) Identifies labor productivity adjustments, including congestion assessment, extended work hours, winter work, curfews, etc.	
			(4) Documents all production rates, identifies basis for startup and sequencing requirements, and defines any owner requirements (regulatory, environmental. Quality/ inspection)	

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			(5) Is consistent in use of the time sensitive variables in the capital cost estimate, including year of expenditure assumptions, and durations incorporated into the master schedule.	
5.1	Schedule Format	34	Is consistent with relevant, identifiable industry or engineering practices. Software is appropriate for the size and complexity of the project.	
5.3	Schedule structure	34	(1) Work Breakdown Structure has been applied in the development of the schedule.	
			(2) WBS consistent with the analyzed plan and program for all project participants' agreed upon roles, responsibilities, capabilities and capacities.	
			(3) The project schedule is in original and SCC format.	
5.4	Schedule level	34	The schedule shall be sufficiently developed in detail to determine the validity of the project critical path to revenue operations. It should break out, at a minimum, project milestones, FFGA related work, planning and environmental, public involvement, Project Development, value engineering, final design, right-of-way, permits, third party agreements, public and private utility relocations, safety and security, construction, trackwork, train control systems, vehicles, system integration, communications, fare collection, and startup and testing in sufficient detail to confirm the reasonableness of durations and sequencing and to estimate the probability of schedule risk	
5.5	Schedule elements	34	(1) Schedule reflects the project scope that is described in the approved environmental document.	
			(2) Schedule includes adequate time and appropriate sequencing for: • Reviews ▪ Required FTA-related environmental, risk assessment, PMP reviews, readiness reviews at designated milestones, and grant approvals ▪ Project reviews by applicable local, state and federal jurisdictions and affected third parties • Agreements ▪ Right-of-way acquisition; household/business relocations ▪ Utilities relocation ▪ Railroad purchase and/or usage ▪ Interagency Agreements ▪ Funding time frames and/or milestones for FTA and non-FTA sources ▪ Procurement and manufacturing durations for equipment and vehicles, especially for Long Lead Items, are adequate and complete ▪ Procurement of design contracts for civil/facilities, systems, and vehicles ▪ Performance of design contracts to produce 100 percent complete documents prior to bidding ▪ Bid and award periods reflect the required sequencing and durations for the selected project delivery method and logically tied to the proper work activities ▪ Construction processes and durations are adequate and complete, and allow schedule contingency for potential delays, including inter-agency work, utility relocation, civil, architectural, and systems work, Project Sponsor operations and maintenance, mobilization, and integrated pre-revenue testing.	

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5.6	Resource scheduling	34	(1) Quantities and costs as defined in the cost estimate match the resources/costs assigned to the activities in the schedule.	
			(2) The distribution of resources and costs per specification or industry standards are reasonably associated to the activity it is assigned.	
5.7	Schedule control	34	Define the approach to and use of scheduling tools, such as scheduling software, Project Sponsor procedures for schedule change and update, use of a work breakdown structure, assignment of staff responsibility for schedule, cost loading, resource loading, etc.	
6.0	**CAPITAL COST ESTIMATE**			
6.1	Basis of Estimate	33	(1) The Project Sponsor needs to provide a Basis of Estimate report describing its cost estimating approach. The report should be developed by the Project Sponsor as part of its initial Project Development work and updated with each subsequent estimating effort.	
			(2) The Basis of Estimate outline should be as follows: • Estimating Methodology – Describe the general approach to defining and quantifying the project capital cost estimate. • Sources of Cost Data – Define the nature and sources for cost data used in the preparation of the estimate; ▪ Cost Estimating Assumptions ▪ Allocated Contingency ▪ Unallocated Contingency ▪ Escalation ▪ Contract packages • Estimating Procedures – If multiple parties are estimating parts of the project, this memo should help to ensure consistency of approach. • Organization and Management of Cost Data (by segment elements; project-wide elements) • Bottom Up and Top Down Approaches (e.g. at Entry to Project Development, it could be reasonable to use Bottom Up estimating approach for Guideway, Stations, Support Facilities; and Top Down estimating approach for Sitework, Systems, ROW Land Existing Improvements, and Vehicles) • Facilities (Guideway, Stations, Support Facilities) Costing Procedures for typical construction methods and for construction and components unique to transit projects. • Estimate Limitations – Describe perceived or known uncertainties, as well as unknowns that could lead to changes in the estimate due to changes in project scope and design standards, incorrect unit cost or quantity assumptions, and unforeseen problems in implementation. • Tracking Costs – Describe how capital costs in the SCC format will be tracked through construction, revenue operations, etc. (e.g. provision in Division 1 requiring contractor to submit SCC update with monthly pay application). FTA requires that costs be tracked in the SCC format through construction, revenue operations and through two years post-revenue operations to document contract closeout and the “after” point for the Before and	

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			After Study.	
6.2	Value Engineering (VE) report	33	(1) VE effort has been performed on the design completed in Project Development and a report has been prepared. Focus should be on VE recommendations approved by the Project Sponsor and incorporated into the project. The Project Sponsor should identify why recommendations were or were not approved.	
			(2) The cost estimate should incorporate the accepted changes.	
6.3	Standard Cost Categories (SCC) Workbook	33	(1) Work Breakdown Structure formatted to conform to the FTA SCC.	
			(2) Workbook includes SCC annualized worksheets.	
			(3) Estimate is in general agreement with the latest SCC information contained in the Project Sponsor's most recent New Starts submission.	
6.4	Capital cost estimate	33	(1) SCC category 10-50: Fixed Construction (guideways, stations, support facilities, sitework, systems) • Construction Materials ▪ Quantities have been calculated with appropriate conservatism to accommodate development to a more advanced stage of design if appropriate ▪ Allowances for material quantities have been included for commodities which cannot be fully quantified at the present level of design ▪ Unit Prices have been developed using the best available local market information; ▪ Project sales tax exemption status has been established if appropriate and incorporated in materials costs ▪ Quotes have been obtained for specialty and price-sensitive materials ▪ Materials costs reflect market volatility • Construction labor ▪ Local wage rates, fringe benefits, and work rules are incorporated ▪ Local payroll taxes and insurance rates are incorporated ▪ Holiday / show-up / vacation pay is incorporated ▪ Crew productivity is appropriate and conservative for the task under evaluation ▪ Availability and variability of utility and railroad outages and "track time" have been incorporated in a conservative manner in determining the crew productivities for impacted work • Construction equipment ▪ Local equipment rental rates and current fuel costs are incorporated ▪ Quotes have been obtained for specialty equipment. • Escalation for Construction Materials, Labor and Equipment ▪ Confirm that adequate escalation rates have been applied to estimates of material, labor and equipment costs. Costs to anticipate prices at the time of project bid. • Special considerations ▪ Utility and Railroad labor, equipment, and overhead rates have been verified and	

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			incorporated in third party or "force account" work pricing, as well as local utility/RR work and safety rules ▪ Special consideration has been given to support operations and facilities for tunneling operations, facilities to support operations in contaminated/hazardous materials, etc. • Construction Indirect Costs, Multipliers for Risk etc. ▪ Contractor indirect and overhead costs are advanced beyond a percent of the associated construction direct costs and should be analyzed based on field and home office indirect costs such as contract duration, appropriate levels of staffing (including project managers, engineers, safety engineers, schedulers, superintendents, QA/QC engineers, craft general foreman, labor stewards / nonproductive labor, warehousing, project trucking, survey layout, purchasing, timekeeping, etc.), mobilization / demobilization costs, equipment standby / idle time costs, reviewer office / lab / tool facilities, safety equipment, QA/QC testing equipment, temporary utilities (sanitary / power / light / heat), jobsite and public security measures, etc. ▪ Appropriate costs have been included for payment and performance bonds and special insurance requirements (RR protective, pollution liability, etc.). ▪ Other construction insurance costs and/or project-wide coverage (Owner Controlled Insurance Policy) has been included based on quotes from appropriate carriers. ▪ Contractor profit / risk costs have been incorporated that reflect the proposed delivery method and expected level of competition by contract package (higher profit margin where few competitors will bid).	
			(2) Cat. 60 - Real Estate • Includes estimated costs (acquisition costs) for the real estate and associated relocation costs. Costs for professional services, both contracted and in-house legal, appraisal, review appraisal, settlement costs, environmental site assessments, demolition, real estate and relocation consultants have been included (and not included in SCC 80). Easements, acquisitions, inspections, takings, etc. have been appraised or estimated by qualified professionals familiar with local real estate markets and practices, especially any acquisitions involving freight railroads. Includes allowance for the expected increase in costs over appraised value. Includes costs for taxes attributable to real estate acquisition.	
			(3) Cat. 70 - Vehicles Estimates account for current purchase prices for similar vehicles or quoted prices from manufacturers. Includes costs for professional services (both contracted and in-house) for vehicle design and procurement, and not included in SCC 80. Estimates allow costs for special tools and equipment and spare parts. Requirements for non-revenue support vehicles identified and include in estimate.	
			(4) Cat. 80 - Professional Services • Costs included for both contracted and in-house, for all professional, technical and management services related to the design and construction of fixed infrastructure (Cats.	

Item	Description	OP	PMOC Review	✓
			10 - 50) during the Project Development, engineering, and construction phases of the project. This includes environmental work, surveying, geotechnical investigations, design, engineering and architectural services; materials and soils testing during construction; specialty services such as safety or security analyses; value engineering, risk assessment, cost estimating, scheduling, Before and After studies, ridership modeling and analyses, auditing, legal services, administration and management, etc. by agency staff or outside consultants. • Professional liability insurance and other non-construction insurance should be included on 80.05. • Confirmation that cost estimates are based on realistic levels of staffing for the duration of the project through close-out of construction contracts. (The estimate should be consistent with the Project Management Plan.) • Confirmation that costs for permitting, agency review fees, legal fees, etc. have been included. • General Conditions included for design, construction, and procurement contracts. • If alternative delivery systems (design-build, CM/GC) are proposed, the costs of design professionals employed by the contractor should be identified.	
6.5	Contingency	33	Allocated Contingency – Confirmation that adequate contingency has been allocated to each of the SCC categories based on the perceived risk inherent to each category's estimate.	
			Cat. 90 - Unallocated Contingency - Confirmation that adequate contingency has been added to the total project cost based on the perceived project risk.	
			Total Contingency should be consistent with that derived in the Risk and Contingency Management Plan.	
6.6	Cat. 100 – Finance Charges	33	Finance charges included, consistent with FTA's Financial Management Oversight Consultant's review.	
6.7	Inflation	33	Confirmation that adequate inflation rates have been applied to Base Year project costs to anticipate costs at procurement or bid; the Year of Expenditure costs should be developed thoughtfully. Reference indices should include ENR Building Cost Index and Construction Cost Index or other demonstrated authoritative source.	
7.0	**RISK AND CONTINGENCY MANAGEMENT**			
7.1	Risk process established	40	(1) Risk organization is in place, with independent reporting to executive management and roles and responsibilities defined.	
			(2) Contingency management, contingency use authority, and reporting structure is established.	
7.2	Risk identification	40	(1) Risk register is developed, with risk categories and priorities. (2) Process is established to update risk register.	
7.3	Risk assessment	40	(1) Valuation of project cost risk by method appropriate for project	
			(2) Valuation of project schedule risk by appropriate methods	
			(3) Documented report demonstrating valuation method and result	

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7.4	Risk Mitigation	40	(1) Mitigation process in-place with documented responsibilities.	
			(2) Established insurance plan	
			(3) Contingency amounts identified and tied to risk assessment	
			(4) Requirements risks clearly identified and mostly resolved; plans in place for unresolved requirements risks	
			(5) Secondary mitigation plan defined and documented	
7.5	Risk management	40	(1) Plans for amendment of the risk register during the course of the work, to both succinctly catalogue additional significant issues that arise, as well as to identify closure of issues as they become resolved to the satisfaction of the Project Sponsor and the FTA.	
			(2) Plans and timing for systematically updating the RCMP.	
8.0	**CERTIFICATIONS, REPORTS, AND ADMINISTRATIVE REQUIREMENTS**			
8.1	**Administrative requirements**			
8.1.1	Legal Authority to implement transit mode project		The Project Sponsor must perform a review of existing statutes to gain a full understanding of the Project Sponsor's authority and any legal constraints that may affect the project. The purpose should be to identify requirements and constraints in an orderly and timely manner and to deal with them as the project advances. Failure to recognize and accommodate legal requirements may jeopardize the entire project and, at the very least, severely impact the subsequent grant approval process and project schedule, as well as project costs. The project sponsor must be diligent in maintaining cognizance of changes in the legislative/regulatory environment which may impose future constraints on a project. This legal authority must be reviewed to confirm that it addresses all forms of project delivery that may be considered.	
8.1.2	Legal Authority to use alternative project delivery method		Provide evidence of authority under non-Design-Bid-Build format.	