

MassDOT Board MBTA Fiscal & Management Control Board

Green Line Extension Project Review

December 9, 2015



Agenda

1. Board Roles and Responsibilities - MassDOT/MBTA General Counsel
2. The Path Forward - MassDOT Secretary Stephanie Pollack
3. Project Delivery Alternatives - Nossaman, LLP
4. Value Engineering and Cost Reduction Opportunities - The Arup Group

Board Roles and Responsibilities



Board Roles and Responsibilities

- The federal Full Funding Grant Agreement is a contract between the Federal Transit Administration and the MBTA
 - Responsibility for the contracting, management, and construction of the Green Line Extension project resides with the FMCB
- The MassDOT Board receives Commonwealth funding to support the costs of the project, and then transfers it to the MBTA
 - The MassDOT Board will approve a revised Finance Plan for the Green Line Extension project, which is a required element of the Full Funding Grant Agreement

Board Roles and Responsibilities

- The MassDOT Board:
 - Votes on a revised Finance Plan for the Full Funding Grant Agreement
 - Votes on a contract to transfer the Commonwealth share of the costs of the Green Line Extension project from MassDOT to the MBTA
- The MBTA Fiscal & Management Control Board:
 - Votes on a revised Finance Plan for the Full Funding Grant Agreement
 - Votes on a contract to receive the Commonwealth share of the project costs from MassDOT
 - Votes on contracting and management of the project, and delegates contracting authority to the General Manager as deemed appropriate

The Path Forward



The Path Forward

- There have been three options under consideration for the Green Line Extension project:
 1. Build the project as currently designed and delivered, using Commonwealth monies to fund budget overruns
 2. Cancel the project (except for the purchase of 24 new Green Line cars)
 3. Substantially reduce the costs and fiscal impact of the project through:
 - Redesign
 - Reprocurement or modification of the existing procurement
 - Seeking additional funding from non-Commonwealth sources

Option 1: Continue the Current Project

- Even though we do not yet have a reliable cost estimate, nothing we have seen suggests that the project can be built for anything near the original estimate included in the Full Funding Grant Agreement
 - Existing awarded contracts came in 45% over budget
- Current contractual arrangements with the CM/GC (construction contractor) transfer excessive risk, and thus cost, to the Commonwealth
- Assuming that as-designed costs would be \$2.5 billion or more, it is highly unlikely that sufficient funding from the Commonwealth will be available to cover the funding gap

Option 2: Cancel the Project

- Cancelling the Green Line Extension project in its entirety must remain on the table until an affordable, feasible alternative has been identified
- Two issues that must be considered in any decision to cancel the project are:
 - Potential legal exposure of the Commonwealth under the State Implementation Plan
 - Sunk costs that have been and will be incurred

The Legal Landscape

- In 2006, the Commonwealth undertook certain 'transit system improvement projects' in response to environmental obligations under the Clean Air Act.
 - The Green Line Extension is a transit system improvement project identified in the State Implementation Plan (SIP) and corresponding state regulation.
- The Commonwealth has legal alternatives to building the Green Line Extension. Among other things, the SIP regulation expressly allows MassDOT to substitute projects, subject to certain conditions including that the substitute project provides at least 110% of the air quality benefits of the original project
- Over time, certain projects that were once required as transit mitigation measures have been eliminated, including the extension of the Green Line to Arborway and the Red Line-Blue Line Connector

Sunk Costs

- To date, the MBTA has spent approximately \$380 million on completed as well as active contracts associated with the Green Line Project (professional services, construction, internal costs, force accounts, etc.)
- Some portion of the unspent funds on existing contracts would likely need to be spent even if the overall project is cancelled (i.e., construction is ongoing and vehicles are being manufactured)
- Assuming completion of IGMPs 1-3 and purchase of the 24 new Green Line vehicles, sunk costs could increase by as much as \$362.3 million, **yielding a total sunk cost of \$742.3 million**

Sunk Costs

	Contract Value	Spent to Date	Spend-Down	Sunk Costs
Professional Services	\$253,232,979	\$180,235,267	\$28,127,680	\$208,362,947
Construction (IGMPs)	\$206,512,960	\$100,646,737	\$108,778,783	\$209,425,520
Vehicles	\$133,979,647	\$21,073,215	\$161,577,699	\$182,650,914
Real Estate	\$129,067,649	\$66,001,769	\$21,300,000	\$87,301,769
MBTA Costs	N/A	\$12,000,000	\$9,566,667	\$21,566,667
Replacement Bridges	N/A	\$0	\$33,000,000	\$33,000,000
Total	\$722,793,235	\$379,956,988	\$362,350,828	\$742,307,816

Does not include any costs associated with litigation risk.

Sunk Costs Details

- The spend-down assumption for professional services is based upon reduced spending for 14 months (time to complete ongoing construction).
- The spend-down assumption for the IGMPs includes finishing IGMPs 1-3, and assumes a 15% contingency for extra work orders. It is assumed that IGMP 4A is cancelled and that a restocking fee will be assessed for ordered but unused steel.
- The spend-down assumption for vehicles is that we will proceed with the purchase of 24 Green Line cars, and includes MBTA costs, force accounts and contingency.
- The spend-down assumption for real estate assumes all committed real estate contracts are fulfilled, and primarily consists of the cost to complete the ongoing purchase and business relocations associated with the VMF facility.
- The spend-down assumption for MBTA costs is for 12 months of internal costs, force account work associated with ongoing construction, and other associated costs.
- The spend-down assumption for replacement bridges is the cost to replace temporary structures associated with IGMP 2 with permanent bridges, using an **order of magnitude estimate** of \$11 million per bridge.

Benefits from Sunk Cost Expenses

- Purchase of 24 new Green Line vehicles to supplement the existing fleet
- Improvements to the Millers River drainage system, solving a long-term flooding problem in the City of Somerville
- Ownership of 51 pieces of property, many of which are sliver parcels with little to no resale value. The largest piece of property acquired so far is the site of the proposed vehicle maintenance facility, a 200,982 square foot parcel in Somerville

Option 3: Delivering a Less Expensive Project

- There are three steps to delivering a less expensive project:
 1. Redesign to reduce inefficiency and excess cost
 2. Re-procure or modify the existing procurement arrangements to better control costs and share risk between the MBTA and its construction contractor
 3. Seek out new sources of non-Commonwealth funding to supplement the non-federal share of the project costs

Option 3: Delivering a Less Expensive Project

- Value engineering is a systematic review of a project in order to deliver a lower cost design, while maintaining full scope and anticipated functionality
- Unlike value engineering, redesign as a cost-reduction measure may sacrifice some functionality while still achieving a project's fundamental purpose
- This option would involve not only value engineering but redesign, while avoiding options that would jeopardize our Full Funding Grant Agreement with the Federal Transit Administration

Recommendations

- Staff recommends that the MBTA drop the option of continuing with the Green Line Extension project as currently designed and procured, because it is unaffordable
- Staff recommends that the Boards continue to evaluate two potential options:
 1. Option 1 - Full project cancellation (except for vehicle purchase) with remaining Commonwealth funds redirected to needed investments that would improve service and increase ridership
 2. Option 3 - Substantially reduce projects cost through:
 - Redesign and value engineering
 - Changing project delivery (contract renegotiation or reprocurement)
 - Identifying non-Commonwealth funding commitments to fill any remaining gap in funding

Project Delivery Options



Project Delivery Alternatives

- The current CM/GC process, as carried out, was insufficient to achieve current MBTA goals:
 - Cost control
 - Price certainty
- Options
 - Continue with CM/GC, with appropriate “improvement conditions” to current process
 - Utilize Best Alternative to re-procure the re-designed project
- In developing best alternative to CM/GC, the Team analyzed optimal:
 - Packaging of remaining work
 - Type of contract

Project Delivery Alternatives

- In analyzing optimal packaging of remaining work, Team considered:
 - Continuing with IGMP 4, 5, 6 and 7 contract packages
 - Contract for VMF (IGMP 6 and 7) and contract for rest of Project (IGMP 4 and 5)
 - Multiple contracts packaged by discipline
 - Single contract covering all remaining work

Project Delivery Alternatives

- In analyzing type of contract, Team considered:
 - Design-Bid-Build
 - Design-Build
 - Construction Management at Risk
 - Design-Build-Operate-Maintain
 - Design-Build-Finance-Operate-Maintain

Preliminary Market Evaluation

- In comparing CM/GC continuation against Best Alternative, important consideration is potential market reception
- Difficult to assess in limited time available, but MBTA carried out expedited market sounding process
- Request for Information
 - Nov. 3 posted RFI on website with Nov. 13 deadline
 - Distributed RFI to contractor/consultant lists and key industry media outlets
 - Despite tight timeframe, MBTA received 18 written responses
 - Four respondents were national/regional teams formed to bid on remaining work
- Conducted telephone interviews with sample of market participants

Preliminary Market Evaluation (cont.)

- Asked respondents to address:
 - Optimal contract packaging
 - Optimal delivery model
- Feedback on optimal contract packaging:
 - Majority recommended bundling remaining work into 1 or 2 packages
 - Some recommended packaging by discipline/systems
 - Smaller contractors recommended small packages
- Feedback on optimal project delivery:
 - Majority recommended Design-Build
 - Smaller contractors expressed concern that Design-Build would reduce prime contractor opportunities

Project Delivery Team Recommendations

- As Best Alternative to CM/GC, Team recommends a single Design-Build contract to complete the Project, according to national best practices:
 - Work with OIG to implement Design-Build procedures reflecting national best practices
 - Develop optimal schedule going forward, effective “ground up” management staffing, targeted support for technical specification development and refined contract oversight capability
 - Publish organizational conflict of interest policy that clarifies eligibility of existing consultants/contractors to compete

Project Delivery Team Recommendations (cont.)

- Use procurement methods to manage budget and maximize cost certainty, including:
 - Published upset limit → provide early indication of budget suitability
 - Alternative technical concepts → incentivize private sector innovation
 - Competitive dialogue → controlled discussions with proposers to identify and reduce cost drivers
 - Proposer pricing of base project and options → if budget permits, restore Project features removed from baseline scope
 - Commercial terms → shift reasonable risks to private sector

Cost Reduction Options



Proposed Next Steps

- To avoid cancellation and to deliver a fiscally responsible project, MassDOT/MBTA will need to:
 - Advance value engineering and redesign efforts in order to develop a streamlined project which maintains the essential functions of the Green Line Extension while also substantially reducing its costs
 - Evaluate the best project delivery approach
 - Advance conversations with Cambridge, Somerville, and the Boston Region Metropolitan Planning Organization to secure additional funding
 - Put in place project management and professional services expertise that can deliver a redesigned project on time and on budget
- We anticipate that this process will require six to nine months to complete, and we will establish interim milestones to maintain momentum