

Green Line Extension (GLX) from the Program Manager's Perspective

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Abstract

Construction of the 4.7 mile Green Line Extension (GLX) has been a part of the greater Boston transportation plan for many decades. Some records show the project's conceptual planning commenced nearly 100 years ago. The recent start of revenue service on the first branch of GLX in Cambridge and Somerville, Massachusetts, and the soon-to-be-opened second branch to Medford, Massachusetts, represents the long awaited goal of bringing public rail transit service to these communities. This article will focus on some of the key factors that made the delivery of this transformative project possible. Organizational structure, an optimized procurement process, and effective team building are a few of the contributing factors identified in this article.

Keywords: GLX, organization, risk sharing

1. Introduction

The MBTA's Green Line Extension (GLX) is a transformative project for the greater Boston region and fulfills a commitment made many years ago to bring light rail service the people of Cambridge, Somerville, and Medford in Massachusetts (Voorhis 2022). A lot of attention has been given to the last 5 to 6 years of the project's implementation, but the recent opening of GLX's first branch (the Union Square Branch) and the soon-to-be opened Medford Branch is the culmination of efforts extending well beyond the last 6 years and actually extend to efforts and advocacy before the turn of the century (Murphy, 2022). From the members of the current program delivery team, a debt of gratitude is owed to the advocates, elected officials, engineers, planners, contractors, MBTA personnel and others who contributed to this project over the decades. The project would not be nearing completion now were it not for the contributions and persistence made by many people for many years.

This article will focus on the relatively recent history of GLX (last 6 years) from the GLX Program Manager's perspective, during which time the project delivery team was formed, the

procurement of the entity to design and build the project was completed, and the subsequent delivery of the GLX scope was achieved. There are many factors that have contributed to the success of the GLX project. However this article will highlight the ones, from the perspective of the Program Manager, that have been the most pivotal in bringing this megaproject into fruition.

2. Background

The leader of a successful project will have the ability to surround themselves with extremely motivated individuals. The people who have administered the GLX design-build contract are an absolute collection of highly motivated industrial professionals. Many of them had experience from working on projects such as the Boston Central Artery & Tunnel Project, or Big Dig, and many other large scale projects with some of the largest firms in the global design and construction industry. This team has always ensured that the MBTA's contractual commitments were met (consistent early payment of contractor invoices, no late design reviews, rapid processing of change orders, etc.) to facilitate design and construction progress.

3. Project Implementation

The organization structure of the project was integral for the success of the GLX project. The Program Manager reported directly to the MBTA's General Manager and provided monthly updates to the MBTA and MassDOT Board's of Directors. Additionally, the Program Manager led an operating department independent from the remainder of the MBTA's existing organizational infrastructure. Mostly, the MBTA's GLX organization was a stand-alone entity outside of the MBTA's already existing capital delivery departments and supporting departments. This independence led to accelerated processing of design changes, personnel hiring, establishment of the web-based project management tool (e-Builder®), change order negotiation, etc.

An underlying concern of the project over the last 15 to 20 years has been budget compliance and cost control. In 2015, this concern led to the suspension and near cancellation of the GLX. Since that time, and through steps outlined below, the current undertaking of the project is anticipated to be completed under budget. Without question, the single largest contributing factor to the project being completed under the \$2.3 billion budget is the favorable outcomes of the Design-Build procurement process that lasted from late 2016 to late 2017. The efforts taken during the design-build procurement (in particular the 4 to 5 months of confidential one-on-one meetings with each competing design-build team) optimized risk sharing between the MBTA and design-build entities and therefore resulted in lower overall bids. The winning proposal was sufficiently below the budgeted cost for the design-build budget (the "Affordability Limit" that had been shared with the competing design-build teams) that allowed the MBTA to create a contingency fund sufficient to absorb the unforeseen conditions and circumstances that the project would endure – one such example is the COVID-19 pandemic. The successful outcome of the design-build procurement, along with contract definitions for differing site conditions (DSC's) and subsequent DSC reporting requirements in the contract, led to a well controlled change management and contingency usage process throughout design and construction.

Other elements that have brought the Green Line Extension into revenue service has been the effective use of the Dispute Resolution Board (DRB) process (independent 3-person panel of industry experts for resolving disputes), heavy reliance upon a robust web-based project management tool (GLX has used e-Builder® for all administrative processes, invoice payments, correspondence, etc.), an established Partnering process, and when circumstances permit, the project has bundled various change orders into single multi-part agreements to save time and effort for both the MBTA and the Design-Build Entity resources involved with the change management process.

Lastly, and what is the 'softer side' of successful project management, was the effort to foster an environment of collaboration and team-building between the MBTA and the Design-Builder. Intra-squad football, softball and kickball games,

cookouts, socials and other non-project events away from the project boundaries allowed MBTA and DB Entity staff to interact, establish a rapport and appreciate the different team members as people, and not just the *other*. The four-and-a-half year life of the Design-Build contract has certainly included disagreements and moments of contention among the project participants, but opportunities to learn about other people on the project and understand that there is a shared goal of delivering a safe and reliable rail extension helped make the outcomes of this project possible.

4. Conclusion

Dedicated industry professionals, a stand-alone project delivery team, a procurement process that optimized risk sharing between the owner and design-build entity, relationship maintenance and many other factors have resulted in a project where the ultimate goal of a safely delivered public rail project is nearing completion.

5. Acknowledgements

I count myself fortunate to have served with the dedicated professionals who have made this project a reality.

References

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