



Charles D. Baker, Governor
Karyn E. Polito, Lieutenant Governor
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2022 RESEARCH PROJECT STATEMENT

Research Topic:

Data-Driven Approaches for Transit Capital Planning

Research Budget and Timeline:

- \$75,000-\$100,000
- 12-15 months (of which the final 3 months are for review)

Problem Statement and Objectives

On an annual basis the Rail & Transit Division of Massachusetts Department of Transportation (MassDOT) identifies and prioritizes statewide Capital Investment Program (CIP) needs over a five-year time horizon. As a pre-requisite to this task, MassDOT, in collaboration with its Regional Transit Authority partners, must update their statewide vehicle and facility asset inventory in order to validate and forecast needs. Data only holds value in the information it provides to inform better decisions, and to-date MassDOT has had difficulty attaining the desired confidence level in agency inventories to perform accurate planning.

Collecting consistent and accurate data across 15 operators poses unique challenges, and MassDOT seeks to improve this foundational element to their capital prioritization process. By creating new tools for collaboration and asset specific workflows that work with MassDOT's asset management software system, TransAM, we can improve a time-consuming data collection process and help ensure the accuracy of the data across RTAs. With these new features, MassDOT will be able to instill a repeatable process for data aggregation that will enable better decision making.

Anticipated Outcomes and Deliverables

Outcomes: This research will provide MassDOT with an improved data collection, review, and decision-making process that will bolster MassDOT Capital Improvement Program (CIP) processes, which drives greater fiscal sustainability. With the economic and operational challenges resulting from the COVID-19 pandemic, MassDOT's one year "maintenance of effort" CIP for 2021 highlights the importance of an increasing need for timely and accurate operator data. These improvements will enhance transparency and enable better decisions in the coming funding allocation efforts.

Deliverables:

1. An updated standard operating procedure for performing annual asset inventory updates.
2. An improved asset inventory software that facilitates and streamlines the aforementioned procedure. The new software tool will build on TransAM, MassDOT's current asset inventory

database, but will re-imagine the system's current data management procedures, focusing on an interactive table interface that simplifies data updates for state DOT specific needs. The tool will also enable MassDOT to implement a structured workflow for asset data collection and updates, to better track acquisitions, dispositions, and key time-series events such as mileage and condition.

3. Final Presentation
4. Final Report summarizing research efforts, results, and recommendations.