



BOSTON REGION METROPOLITAN PLANNING ORGANIZATION

Stephanie Pollack, MassDOT Secretary and CEO and MPO Chair
Karl H. Quackenbush, Executive Director, MPO Staff

MEMORANDUM

DATE: September 15, 2016
TO: Boston Region Metropolitan Planning Organization (MPO)
FROM: Lourenço Dantas, Manager of Certification Activities, MPO Staff
RE: Municipal (Local) Contributions to Transportation Project Costs

During the recent development of the Transportation Improvement Program (TIP), many questions surfaced regarding the role of municipal (and other local) contributions to the expenses of constructing transportation projects. These questions relate to the ability of municipal proponents (and their consultants) to accurately estimate costs at the time that projects are programmed in the TIP, whether municipal proponents should contribute to subsequent cost increases during project development, and the degree to which municipalities should contribute to construction costs.

This memorandum contains background information and potential questions for the MPO to consider as it deliberates whether to enact policies related to TIP programming and the expectation of local and state contributions to project costs.

1. BACKGROUND: OVERVIEW OF ROLES AND RESPONSIBILITIES

As a project proponent, a municipality seeking to plan, design, and construct a project using a combination of state and federal funds must follow the Massachusetts Department of Transportation (MassDOT) *Project Development and Design Guide*. This guide serves to help municipalities navigate the process of advancing a transportation improvement project through the project development, design, and construction phases, in partnership with MassDOT.

The MPO plays a role in project development by identifying federal-aid funding opportunities through the use of its discretionary (target) funds.¹ With limited

¹ For the purposes of this memorandum, when referencing funds available for programming in the TIP, the focus is on the categories of Federal Highway Administration transportation funds that make up the majority of the MPO's highway discretionary (target) funding program—namely, the Surface Transportation Program (STP), Congestion Mitigation and Air Quality Improvement (CMAQ) program, Highway Safety Improvement Program (HSIP), and Transportation Alternatives Program (TAP). The federal share of these funds is generally 80 percent of a project's construction cost. These funds apply to projects on the National Highway System and other federal-aid roadway systems.

target funds available, however, escalation in construction costs for one project often limits the MPO's ability to advance other projects.

1.1. What Costs Do Municipal Proponents Pay?

Cost of Project Development and Design

The project proponent is expected to cover the costs for the following aspects of project development:

- design and engineering, including:
 - environmental review and permitting
 - public outreach (local meetings, hearings, etc.)
- utility relocation (if applicable)
- mitigation (if applicable)
- right-of-way acquisition

The relative cost of the above expenses varies, particularly with right-of-way acquisition. Typically, design and engineering expenses are the equivalent of about ten percent of the final construction cost.

Cost of Construction

For projects programmed in the TIP, the construction costs are covered by a combination of federal aid (typically 80 percent of the applicable participating cost) and local contributions (20 percent). In Massachusetts, MassDOT covers the local contribution for projects on the federal-aid roadway systems, while the project proponent is responsible for covering the costs of items that are not covered by federal aid.²

In other parts of the country, the local match is generally provided by municipal or county governments, which have the power to raise funds specifically for transportation. This ability currently does not exist in Massachusetts, although a bill is pending in the legislature that would grant municipalities or regions the option of levying a tax to pay for local transportation costs.

1.2. How and When Are Construction Costs Estimated?

MassDOT's *Project Development and Design Guide* notes that the cost-estimate procedure must be unbiased and comprehensive so that it captures all costs for engineering and permitting, right-of-way acquisition, utility relocation, mitigation, and construction. A cost estimate should itemize the participating costs (those to be covered by the anticipated funding source) and non-participating costs (those

² Betterments to municipal sewer and water systems, relocation of overhead utilities to underground, and streetscape amenities, for example, are typically considered non-participating items. The project proponent covers the costs of such items.

to be covered by the proponent). MassDOT provides guidance on the inclusion of contingencies in the cost estimates.

The construction cost of a project is re-estimated at various design stages, which are marked by the following milestones:

- conceptual and feasibility planning
- Functional Design Report submission to MassDOT's Project Review Committee
- preliminary—25 percent—design plan submission to MassDOT
- 75 percent design plan submission
- 100 percent design plan submission
- Plans, Specifications, and Estimate (PS&E) documentation

2. FACTORS THAT AFFECT CONSTRUCTION COST ESTIMATES

Throughout the development of the design and engineering phase of a project, various factors may surface that lead to adjustments to the construction cost estimate. Some of these factors are related to changes in the construction labor and materials markets, whereas other factors specifically relate to changes to the design or scope of the project. Competition in the labor market and inflation of materials costs are beyond the control of a project proponent. However, changes to the design or scope of a project may be directly attributed to a project proponent, MassDOT, or the designing and engineering consultants.

2.1. Changes in Engineering Design

The details of a construction project are often revised and refined as the design and review process advances toward the production of the final PS&E. With each additional design submittal, more becomes known about the construction site conditions and construction methods to be used. Also, material and labor quantities are refined, and unit costs and rates are updated. These changes are expected, and do not always lead to higher costs, but do lead to greater certainty of the final cost estimate.

2.2. Changes in Project Scope

The greatest fluctuations in cost estimates can occur when there are changes to the scope of the project. As a project's design advances, opportunities often emerge to consider additional or modified elements in either the design or the construction method. Or, perhaps, public feedback or input from consultants and MassDOT may lead to changes in the scope. Although such changes may produce a better outcome, such modifications often increase the project cost.

3. IMPACT OF COST INCREASES AFTER TIP PROGRAMMING

Current Practice

The MPO's current practice is to only program projects in the TIP that are far enough along in the design process so that enough detail is available to fully evaluate them using the TIP's project evaluation criteria.³ This typically requires that a project have a Functional Design Report, which details the project need (i.e., it defines the condition, deficiency, or situation that indicates the need for corrective action), the proposed improvements (transportation elements, such as traffic lanes, sidewalks, bike lanes, signals, etc.), and the expected benefits of those improvements (e.g., reducing travel delay, or improving safety). A project at this stage is typically at a pre-25 percent design or preliminary design stage; thus, the project cost is estimated based on a general level of detail. Once programmed in the TIP, the MPO maintains a commitment to continue to fund the project at the updated cost estimate.

The MPO has not formalized these practices in any written or stated policy.

Ongoing Issue

The funding requirement of a project may change from the time it is first programmed on the TIP to the time its PS&E is prepared and the project is ready for advertisement. Clearly, under a constrained TIP budget, any increase to the funding requirement of a project diminishes the availability of funds for other projects and often causes delays to their advertising dates and construction years. Having fewer projects implemented in a given year hinders the MPO's ability to address its goals and objectives for the region.

4. CONSIDERATIONS FOR THE MPO

Below are a few questions for MPO members to consider while discussing the issue of project cost changes and programming of MPO discretionary funds in the TIP:

1. At which design stage (i.e., cost-estimate level) should a project be considered for programming by the MPO?
2. Once programmed in the TIP, should the MPO review the project scope with each subsequent project design submittal (and relative to a revised cost estimate)? Should the MPO reconsider programming a project with significant changes to its design or scope (that may affect the anticipated benefits and impacts of the project) once it is re-

³ This also assumes a project conforms with the MPO's Long-Range Transportation Plan and the MPO's goals and objectives.

evaluated and re-scored in the TIP project evaluation process? Should the MPO assess a cost/benefit ratio?

3. Once programmed in the TIP, what changes (i.e., overruns) to a project cost will the MPO agree to fund? Should the MPO set limits to changes to project cost estimates? What metric should the MPO use to set these limits? Should the MPO accept only certain reasons for cost increases?
4. What is the MPO's expectation in regard to the local (project proponent) contribution to construction costs? If any, would this contribution be in the form of a portion of the local match or perhaps an overmatch (i.e., contributions in addition to MassDOT's 20 percent)?
5. As a conclusion to these (and other discussions), should the MPO consider formalizing a set of policies related to TIP programming?

While discussing any of the questions or issues noted above, the MPO should take into consideration (1) the available means municipalities have to raise the necessary funds for construction, and (2) the current challenges and limitations to a municipality's ability to raise revenues for construction projects.

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cc: Alexandra Kleyman, TIP Program Manager, Boston Region MPO Staff