



## BOSTON REGION METROPOLITAN PLANNING ORGANIZATION

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Stephanie Pollack, MassDOT Secretary and CEO and MPO Chair  
Tegin L. Teich, Executive Director, MPO Staff

### **WORK PROGRAM**

## **ALL-HAZARDS PLANNING APPLICATION UPDATE**

JANUARY 21, 2021

### **Proposed Motion**

The Boston Region Metropolitan Planning Organization (MPO) votes to approve this work program.

### **Project Identification**

#### **Unified Planning Work Program (UPWP) Classification**

Boston Region MPO Planning Studies and Technical Analyses

**Project Number** 13306

#### **Client**

Boston Region MPO

#### **Project Supervisors**

*Principal:* Jonathan Church

*Manager:* Ariel Patterson

#### **Funding Source**

MPO Planning and §5303 Contract #112310

### **Schedule and Budget**

**Schedule:** Seven months after work commences

**Budget:** \$29,876

Schedule and budget details are shown in Exhibits 1 and 2, respectively.

### **Relationship to MPO Goals**

The Boston Region MPO elected to fund this study with its federally allocated metropolitan planning funds during federal fiscal year (FFY) 2021. The work completed through this study will address the following goal area(s) established in the MPO's Long-Range Transportation Plan (LRTP): system preservation and clean air and clean communities.

## Background

As the effects of climate change intensify and become more frequent, communities must identify transportation facilities that would benefit from protective and adaptive measures. Protecting these facilities would also allow residents to safely evacuate from potentially life-threatening weather events. Top concerns for the transportation sector include heavy precipitation, coastal and inland flooding, and extreme heat, all of which are detailed in the Commonwealth of Massachusetts's current *State Hazard Mitigation and Climate Adaptation Plan* (SHMCAP). The SHMCAP contains assessments of 14 potential climate hazards and serves as a blueprint for the Commonwealth's planning initiatives and emergency protocols. Many state agencies are developing tools to assess future conditions under different climate change scenarios, but data sharing and collaboration are still in its infancy.

The purpose of this study is to update the All-Hazards Planning application, one of the MPO's interactive tools that helps users identify various climate hazards relative to the Boston Region MPO area's transportation network. The application was first conceptualized over 10 years ago in the "Emergency Evacuation and Hazard Mitigation Mapping" project, funded through the FFY 2010 UPWP. Since then, climate change projections have become more accurate, and some of the information in the data layers is outdated. As the field of resilient transportation continues to evolve, it is essential to incorporate the most up-to-date datasets in the application.

An anticipated outcome of this study is a well-designed, user-friendly interactive application, based on the existing All-Hazards Planning application, that informs users of climate hazards in relation to the transportation network. The revised application could help planners, municipalities, and the general public visualize climate change effects on transportation infrastructure, and inform building a more resilient system. MPO staff could use the application for Transportation Improvement Program (TIP) project evaluations; especially important given the revised scoring criteria which place a greater emphasis on resiliency and climate change. It can also be used by staff for MPO work, such as ongoing planning studies and updates to the LRTP Needs Assessment.

This work may provide the basis for future projects for the Central Transportation Planning Staff (CTPS), either through the LRTP scenario-planning process or a future UPWP study. The work is intended to complement current work at CTPS, such as the recent FFY 2020 UPWP study, "Exploring Resilience in MPO-Funded Corridor and Intersection Studies." Additionally, this work may complement efforts undertaken at the state level through the Resilient Massachusetts Action Team's (RMAT) collaborative work, which MPO staff participants in.

## Objective(s)

This work program has two primary objectives:

1. To update the All-Hazards Planning application with the most up-to-date information on a new platform, using open or publicly available data while making additional modifications as needed; and
2. To examine how the All-Hazards Planning application can complement ongoing work with the State, and current and future work at CTPS.

## Work Description

This work consists of the following tasks:

### **Task 1 Review the Current All-Hazards Planning Application**

MPO staff will conduct a thorough review of the current version of the All-Hazards Planning application to gain a better understanding of its capabilities and limitations. This knowledge will help MPO staff identify opportunities for functional improvements.

#### ***Products of Task 1***

An inventory of the application's capabilities and limitations

### **Task 2 Research Potential Add-on Features and Application Revisions**

Staff will research feasible modifications to the application. Staff will also review RMA's interactive applications and state and regional data to coordinate the collective efforts.

#### ***Products of Task 2***

A brief memorandum of proposed changes to the All-Hazards Planning application and potential opportunities to link this work with state and regional projects

### **Task 3 Revise Current Application with Updated Datasets**

MPO staff will revise features of the All-Hazards Planning application. Activities in this task include the following:

1. Update selected data layers, such as the natural hazard layers
2. Eliminate nonessential categories, replacing them with more relevant categories for the Boston Region MPO area
3. Improve design elements and functionality as needed
4. Provide users with links to the State's work
5. Write language for the "About" and "Help" sections of the application
6. Move the application to a new platform (ArcGIS Online) and use the MassGIS basemap

***Products of Task 3***

A revised All-Hazards Planning application

**Task 4 Present Findings to Boston Region MPO Board Members**

MPO staff will present the revised All-Hazards Planning application to MPO board members for feedback.

***Products of Task 4***

A presentation to the Boston Region MPO Board of the updated All-Hazards Planning application

**Task 5 Release Application for Public and Agency Use**

Staff will incorporate MPO member feedback, finalize, and release the application for public use.

***Products of Task 5***

All-Hazards Planning application, which can be accessed by staff and the public through the MPO website

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857.702.3700 (voice)  
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**Exhibit 1**  
**ESTIMATED SCHEDULE**  
**All-Hazards Planning Application Update**

Task	Month						
	1	2	3	4	5	6	7
1. Review the Current All-Hazards Planning Application							
2. Research Potential Add-on Features and Application Revisions							
3. Revise Current Application with Updated Datasets							
4. Present Findings to Boston Region MPO Board Members							
5. Release Application for Public and Agency Use							A

Products/Milestones

A: An updated All-Hazards Planning application

**Exhibit 2**  
**ESTIMATED COST**  
**All-Hazards Planning Application Update**

<b>Direct Salary and Overhead</b>	<b>\$29,876</b>
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Task	Person-Weeks					Direct Salary	Overhead (106%)	Total Cost
	M-1	P-5	P-4	P-2	Total			
1. Review the Current All-Hazards Planning Application	0.0	0.0	0.0	0.4	0.4	\$423	\$448	\$872
2. Research Potential Add-on Features and Application Revisions	0.0	0.0	0.0	1.3	1.3	\$1,375	\$1,457	\$2,832
3. Revise Current Application with Updated Datasets	0.2	4.6	0.0	1.7	6.5	\$11,215	\$11,887	\$23,102
4. Present Findings to Boston Region MPO Board Members	0.0	0.0	0.2	0.4	0.6	\$675	\$715	\$1,390
5. Release Application for Public and Agency Use	0.0	0.2	0.0	0.4	0.6	\$816	\$865	\$1,680
Total	0.2	4.8	0.2	4.2	9.4	\$14,503	\$15,374	\$29,876

<b>Other Direct Costs</b>	<b>\$0</b>
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<b>TOTAL COST</b>	<b>\$29,876</b>
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**Funding**  
MPO Planning Contract #XXXXX  
MPO §5303 Planning Contract #XXXXX