Genesee-Finger Lakes Regional Flood Vulnerability Model Strategy

Scope of Work

A. Objective

Building off the findings of the *Genesee-Finger Lakes Regional Critical Transportation Infrastructure Vulnerability Assessment* project, this project will produce a strategy for developing a GIS-compatible, multi-dimensional model to measure flood impacts on the regional transportation system.

B. Background

This project will address the vulnerability of regional transportation infrastructure to flooding by producing a strategy for developing a multi-dimensional model that estimates flood impacts on transportation assets. The *Genesee-Finger Lakes Regional Critical Transportation Infrastructure Vulnerability Assessment*, completed in June 2016, analyzed the vulnerability of transportation assets (roads, bridges, highway garages, operations centers, etc.) to natural and human-caused hazards. The *Vulnerability Assessment* identified floods as a hazard that poses a significant risk to critical transportation assets across the region.

A GIS-compatible, multi-dimensional flood model will enable local officials to better understand the impacts of flooding on those assets. The model will estimate the number of assets and the degree to which they are exposed to floods. The model's graphics will allow local officials to better visualize flood impacts, and its compatibility with GIS will enable ready understanding of the geographic extent of flooded assets. These estimations will assist planning and project development efforts aimed at safeguarding those assets from flooding.

Given the technical challenges of building such a model, a thorough review of the model's data requirements, development process, and user interface system is advisable before beginning the development process. This project will define the model's capabilities, analyze various alternatives for developing it, and produce an implementation strategy.

The geographic scope of this project will cover the entire nine-county GTC planning region, which includes Genesee, Livingston, Monroe, Ontario, Orleans, Seneca, Wayne, Wyoming, and Yates counties. A consultant will be hired to conduct the project.

C. Study Tasks

1. Study Coordination

   GTC staff will organize a Steering Committee consisting of representatives from NYSDOT; the Genesee, Livingston, Monroe, Ontario, Orleans, Seneca, Wayne, Wyoming, and Yates counties Highway and Emergency Management departments; the City of Rochester; and other interested stakeholders.

2. GTC staff will prepare a Request for Proposals (RFP) or Request for Qualifications (RFQ) and engage a consultant.

3. A project initiation meeting will be held. The purposes of this meeting will be to review the project tasks, set participant expectations, and identify the model's desired capabilities.

4. The consultant will conduct a literature review of national best practices in the flood modeling field. The literature review will identify various types of flood models currently available, their functions and capabilities, and applicable lessons from their development. The literature review findings will be documented in a technical memorandum.

5. Based on the literature review developed for Task 4, the consultant will identify a number of alternatives (to be determined jointly by the consultant and Steering Committee) for developing the flood model. Evaluation criteria for determining how well each alternative meets the desired capabilities defined in Task 3 will also be identified.

6. The consultant will determine data needs and sources for each alternative identified under Task 5. In addition, the consultant will identify the optimal user interface system, data usage and licensing requirements, and associated development and maintenance costs for each alternative. Based on this assessment, the consultant will identify a preferred alternative. The alternatives identified in Task 5 and the preferred altnerative will be documented in a technical memorandum.

7. The consultant will provide the Draft Regional Flood Model Strategy Report summarizing the findings of Tasks 3 through 6 to the Steering Committee for review and comment. A Steering Committee meeting will be held to discuss the Draft Report. Upon concurrence by the Steering Committee, the consultant will revise the Draft Report to produce the Final Regional Flood Model Strategy Report. In addition, the consultant will prepare an Executive Summary for the Final Report.

D. Products

1. Draft Regional Flood Model Strategy Report
2. Final Regional Flood Model Strategy Report
3. Executive Summary
4. GIS layers and associated databases

E. Public Participation Plan

Per the GTC Public Participation Policy, this project is classified as a Technical/Data Collection Project. Accordingly, no public input component is required.

F. Schedule

Anticipated start: April 1, 2018

Anticipated completion: March 31, 2019

G. Project Budget

Sources of Funds		Uses of Funds	
	FY 2018-19		FY 2018-19
Federal Funds		GTC	
FHWA	$54,998	Staff	$4,998
FTA	0	Contractual	0
Subtotal	$54,998	Subtotal	$4,998
Matching Funds		Other Agency	
State (In-kind)	$0	Staff	$0
Local (In-kind)	0	Contractual	50,000
Local (Cash)	0	In-kind Exp.	0
Subtotal	$0	Subtotal	$50,000
Total	$54,998	Total	$54,998