

RECEIVED

DEC 04 2018

Florida Coastal
Office

**AMENDMENT NO. 1
TO AGREEMENT NO. CM836
BETWEEN
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
AND
TAMPA BAY REGIONAL PLANNING COUNCIL**

This Amendment to Agreement No. CM836 (Agreement) is made by and between the Department of Environmental Protection (Department), an agency of the State of Florida, and Tampa Bay Regional Planning Council, 4000 Gateway Centre Boulevard, Pinellas Park, Florida 33782 (Grantee), on the date last signed below.

WHEREAS, the Department entered into the Agreement with the Grantee to create a GIS tool that makes it rather straightforward and even easy to create preliminary evacuation zones for counties and their emergency management departments, effective July 10, 2018; and

WHEREAS, the parties wish to amend the Agreement as set forth herein because due to late execution of the original agreement, it has been determined that it is necessary to extend the project period ending date to June 30, 2019; and

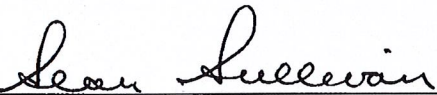
NOW THEREFORE, the parties agree as follows:

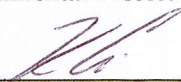
- 1) The Agreement is extended for a 6 month period to begin January 1, 2019, and remain in effect until June 30, 2019. The Department and the Grantee shall continue to perform their respective duties during this extension period pursuant to the same terms and conditions provided in the Agreement.
- 2) Attachment A, Project Work Plan, is hereby deleted in its entirety and replaced with Attachment A-1, Revised Project Work Plan, as attached to this Amendment and hereby incorporated into the Agreement. All references in the Agreement to Attachment A shall hereinafter refer to Attachment A-1, Revised Project Work Plan.
- 3) All other terms and conditions of the Agreement remain in effect. If and to the extent that any inconsistency may appear between the Agreement and this Amendment, the provisions of this Amendment shall control.

The parties agree to the terms and conditions of this Amendment and have duly authorized their respective representatives to sign it on the dates indicated below.

Tampa Bay Regional Planning Council

**Florida Department of
Environmental Protection**

By: 
Title: **EXECUTIVE DIRECTOR**

By: 
Secretary or Designee

Date: 10/17/2018

Date: 12/13/18

LIST OF ATTACHMENTS/EXHIBITS INCLUDED AS PART OF THIS AMENDMENT:

<u>Specify Type</u>	<u>Letter/Number</u>	<u>Description</u>
Attachment	A-1	Revised Project Work Plan (5 pages)

ATTACHMENT A-1

REVISED PROJECT WORK PLAN

Project Title: 2018FRCP-TBRPC_Tool

Grantee

Organization Name: Tampa Bay Regional Planning Council
Chief Elected Official or Agency Head: Sean T. Sullivan Title:
Executive Director
Address: 4000 Gateway Centre Blvd
City: Pinellas Park
Zip Code: 33782
Area Code and Telephone Number: (727) 570-5151
Area Code and Facsimile Machine Telephone Number: (727) 570-5118
E-Mail Address: sean@tbrpc.org

Project Manager

Organization Name: Tampa Bay Regional Planning Council
Name: Marshall Flynn
Address: 4000 Gateway Centre Blvd
City: Pinellas Park
Zip Code: 33782
Area Code and Telephone Number: (727) 570-5151
Area Code and Facsimile Machine Telephone Number: (727) 570-5118
E-Mail Address: marsh@tbrpc.org

Fiscal Agent

Organization Name: Tampa Bay Regional Planning Council
Name: Sue Geer
Address: 4000 Gateway Centre Blvd
City: Pinellas Park
Zip Code: 33782
Area Code and Telephone Number: (727) 570-5151
Area Code and Facsimile Machine Telephone Number: (727) 570-5118
E-Mail Address: sue@tbrpc.org

Mailing Address for Warrant (if other than the Grantee address): n/a

FEID No.: **F591027141**

DUNS No.: **079212882**

Location: Pinellas County, City of Pinellas Park (-82.688, 27.851)

Project Description:

Starting in 2016, the National Hurricane Center started replacing many smaller SLOSH basins with larger super-basins. These basins are now being created sequentially and not at once as they were in 2007. Two-thirds of the state's coastal counties will have new surge zones within the next few years. Once the counties have their surge zones, they will next create evacuation zones. In the past, they would tend towards a more manual approach which would take a few months to accomplish. This could be problematic if the basins are finished just before Hurricane season. They would align zones with road centerlines and a few would use the surge zones as they existed without making any changes. Since the new South Florida SLOSH basin was released and the new Surge Modeling Tool was used by the counties, most counties would use their GIS departments to create the evacuation zones as well. This usually resulted in Evacuation Zones being the same as the surge zones. Surge zones do not follow man-made features like roads, subdivisions, and parcels, which make it very difficult to convey the evacuation zones to officials and the public who evacuates, especially when 2 zones could cross one home-owner's parcel.

What we propose to accomplish in this project is to create a GIS tool that makes it rather straightforward and even easy to create preliminary evacuation zones for counties and their emergency management departments. It will be a tool with a user interface similar to what the counties have used already for creating surge zones. What this tool will do is create baseline evacuation zones that adhere to certain parameters that the user will choose to run the model. Essentially it will be creating an evacuation model from a storm surge model. If the output meets the expectations of the user, no further editing or changes are needed. Further editing may be the direction that most users would take after running this model.

Defining evacuation zones in a consistent manner that can be repeated using the same parameters bolsters the resilience of the county towards evacuations from the threat of storm surge. Not only will it speed up the process of creating the actual zones, but subsequent required modeling like transportation evacuation clearance times, will get in the workflow pipeline sooner.

Although this is intended for the two-thirds of the state's coastal counties soon to update surge zones, it may be of use for counties that just finished creating evacuation zones for the recent South Florida 'super basin', perhaps to revisit evacuation zone creation again to aid in smoother evacuation announcements and perhaps gain better clearance times through transportation clearance times.

Total Budget Summary:

AGREEMENT TOTAL	Grant 36,198
------------------------	-------------------------------

TOTAL GRANT FUNDS

Categories	Task 1	Task2	TOTAL BY CATEGORY
Salaries	\$20,247	\$5,967	\$26,214
Fringe	\$6,380	\$ 1,880	\$ 8,260
Indirect	\$ 1,331	\$ 392	\$1,724
SUB-TOTAL BY TASK	\$27,958	\$8,239	\$ 36,198

PROJECT TIMELINE: The tasks must be completed by the corresponding task end date and all deliverables must be received by the designated due date.

Task/ Deliverable No.	Task or Deliverable Title	Task Start Date	Task End Date	Deliverable Due Date	Amount
1	One Evacuation Zone Creation Tool	Upon Execution	1/25/19	2/15/19	\$27,958

2	One Instruction Manual	12/17/18	3/1/19	3/15/19	\$8,239
---	------------------------	----------	--------	---------	---------

All materials created will include DEP, NOAA, and FCMP logos. A sample or electronic version is required to be sent to angel.baratta@floridadep.gov or 3900 Commonwealth Blvd, MS 235, Tallahassee, FL 32399-3000, to receive prior approval from the FCMP Administrator. (See paragraph 27(A) of the grant agreement for details.)

Task I Description:

Build and Create GIS Evacuation Tool Application

Using the same software that is used throughout the state of Florida in County GIS departments (ArcGIS), this tool will be built using the same technology as the current Surge Zone Modeling Tool used by FDEM and the counties that were recently updated with a new SLOSH basin. The tool will be built upon the framework of Visual Studio and incorporated as an Add-In to ArcGIS Desktop.

Initial part of this task is gathering information on evacuation zone best practices from county Emergency Management staff in regards to most often used zone creation choices and rulesets. FDEM will be valuable in creating feedback from their point of view and as a conduit for the coastal counties involved in the next SLOSH basin update.

Tool development will be completed through a number of sub-tasks or steps. Essentially outlined as:

- Design and Interface
- Base modules and Geoprocessing modules
- Feature additions exploration and build
- Supplemental or Adjoining modules
- Model testing
- Feedback updates and enhancements

As an aid to the documenting of task development, step snapshots will be added to the deliverable package. Where the final deliverable is described at the end of this task, these snapshots (essentially screen-caps) will show chronological progress to bolster the development assessment. Following software development can be difficult if the measure is a working application, which comes at the end.

The first step of the coding process is developing the graphic user interface. Here is where the end-user interacts with the tool. All the features will be available from this window or dashboard. The primary interface will contain essential controls and input to define the model setup and processing runs. This first-cut interface is enough to run the primary task of delineating a minimal evacuation zone from surge zones. It enables the communication between the geoprocessing modules and the data. It is only a baseline for what the final interface will become. **Snapshot 1a: Primary Graphical I Interface as PNG image**

The second step is developing the various functions and geoprocessing modules that will perform the operations and calculations upon the data. Typically, there can be up to 30 functional subroutines that perform geoprocessing tasks on hydrological and elevation data.

The third step is exploring rulesets and robust enhancements to deliver a thorough all-encompassing approach to evacuation zone creation possibilities. Some of these features and enhancements can include, but are not limited to:

- Department of Revenue Land Use Code rules
- Florida Land Use /Land Cover Code rules
- FEMA Flood Zone rules

- Choice of Surge Category or Universal Surge Depth for model

These enhanced features will affect the user interface, so that part of the Tool will change significantly. **Snapshot 1b:** Enhanced Graphical Interface with new features as PNG image

The next step after additional feature interface creation is the module and geoprocessing routine development, which will interact and apply those new features to the data and blend into the overall model.

The fifth step is the testing of the model and correcting of the processing bugs and errors that occur in new code development. The goal is to have as many small tests as possible under different data sources and situations to gather predictive error rates. When these rates fall below a certain threshold, through code revisions and corrections, then beta testing can begin.

Snapshot 1c: Test Run Output Map of one county as PDF

This leads us to the final step, where we go into Beta-Testing with an outside party. FDEM has volunteered to test the Evacuation Zone Model using the Tool and return feedback on the processing and results. Feedback from a local county with recent evacuation zone creation experience will be solicited for a direct county user experience angle. When all the feedback has been incorporated, and the Tool is complete, it will be available on the Peril of Flood [website](#) for all counties to use, at the conclusion of this project. FDEM will be delivered a copy and the Tool will be delivered to FDEP, as a deliverable (below). The Tool will have automatic update capability, where new enhancements or bug fixes will alert the end-user to download through the interface, an updated version.

The finished product will have the ability, once opened through ArcGIS, to start with a number of data layers (provided by end user) and through choices in the interface, proceed to model evacuation zones where only surge zones existed previously. The surge zone layer is a required layer, with other layers being needed depending on the parameters chosen in interface. The user will be able to choose from a number of options to delineate the evacuation zone output. The option to use county Parcel data or Land Use/Land Cover data for zone inclusion or exclusion will be available. The ability to use FEMA flood data as supplemental criteria will enable the counties to go beyond simple surge inundation. The user will have a choice of different types of surge products for input into the model (Tool): The standard composite surge layer with all category boundaries included, as well as surge depth layers by category, and lastly, a new surge product which is based strictly on surge height and is decoupled from storm category, as the National Hurricane Center has been gradually moving towards. The output from the Tool will be composite evacuation zones in one layer corresponding to the surge zones chosen for input.

Typically, that would be Evacuation Zones A, B, C, D, and E for Surge Zones 1,2,3,4, and 5, however this Tool will allow the user options to combine zones as some counties do. In the case of universal surge height as input, the user may assign any letter to input heights depending on user criteria.

Deliverables: One Evacuation Zone Creation Tool as an [ArcGIS Add-In](#), one demonstration video as a WMV file, and one output map from the Tool as a PDF.

Due Date/Frequency/Performance Period: February 15, 2019

Approximate hours on this task: 397

Performance Measure: The Department will review the deliverable(s) to ensure it meets the specifications provided in the Task Description, above.

Funding for Task:

Category	Grant Funds
Salaries:	\$ 20,247
See table 1 for a list of positions and rates.	
Fringe:	\$ 6,380
See table 1 for a list of positions and rates.	
Indirect:	\$ 1,331

Indirect rate is 5% of grant costs in the following categories: salaries, fringe	
TASK TOTAL:	\$21,958

Task 2 Description:

Instructional Material

The GIS Evacuation Zone Tool has many features and options. To get a thorough understanding of the options and results to expect, the user needs to gain the knowledge from both an instruction manual and an instructional video.

The instruction manual will include installation procedures to incorporate into the user's GIS application. It will highlight the process of the creation of evacuation zones and will go into detail on how to achieve certain types of zone outputs with the parameter choices available in the Tool.

As a supplementary instruction device, a video will be created to run the user through the various options and how they affect the outputs.

Deliverables: One Instruction Manual as a PDF, one instructional video as a WMV file.

Due Date/Frequency/Performance Period: March 15, 2019

Approximate hours on this task: 117

Performance Measure: The Department will review the deliverable(s) to ensure it meets the specifications provided in the Task Description, above.

Funding for Task:

Category	Grant Funds
Salaries:	\$5,967
See <u>table 1</u> for a list of positions and rates.	
Fringe:	\$ 1,880
See <u>table 1</u> for a list of positions and rates.	
Indirect:	\$ 392
Indirect rate is 5% of grant costs in the following categories: salaries, fringe	
TASK TOTAL:	\$8,239

Table 1. Salaries. All staff for whom grant funding is being used to pay salary must track the hours spent on each individual task and provide a written statement with the request for payment of the number of hours spent on that task. **This project will fund 1 staff member working on both project tasks, as listed below:**

Task Number	Position Title	Maximum salary per hour (shall be based on actual salary)	Fringe (either% or fringe per hour)
1	GIS Director	\$ 51	\$ 16.07
2	GIS Director	\$ 51	\$ 16.07