

**DEP AGREEMENT NO. R1912
CHANGE ORDER NO. 002**

GRANTEE

City of Jacksonville Beach
11 North 3rd Street
Jacksonville Beach, FL 32250

DEP Agreement No. **R1912** as entered into on the 5th day of August 2019, and as amended, is hereby revised as follows:

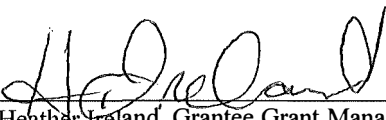
1. **Attachment 3, Grant Work Plan, Project Timeline** is hereby deleted in its entirety and replaced with the following, due to the Corona Virus Outbreak:

PROJECT TIMELINE

Task No.	Task Title	Deliverable Due Date	Funding Amount
1	Sea Level Rise Modeling and Parcel Level Mapping	12/31/2019	\$1,000
2	Spring Tide, Storm Surge and Combined Sea Level Rise Modeling and Parcel Level Mapping	12/31/2019	\$2,500
3	Create Parcel Level Database and Attribute Analysis	12/31/2019	\$2,500
4	Future Land Use Mapping and Attribute Analysis	12/31/2019	\$1,000
5	Infrastructure/Water Depth Mapping and Attribute Analysis	12/31/2019	\$2,000
6	Soils and Habitat/Water Depth Mapping, Attribute Analysis and Flashflood/Stormwater Analysis	12/31/2019	\$3,000
7	Synthesize and Summarize Results, Public Outreach Strategy, PowerPoint Presentation and Public Workshop	12/31/2019	\$10,000
8	Support Document/Draft Comprehensive Plan Amendment and Public Workshop	06/30/2020	\$15,000
9	Prepare Presentation/Hold Local Planning Agency and City Commission Transmittal Public Hearings	06/30/2020	\$5,000
10	Review Agencies/Public Comments, Finalize Amendments and Adoption Public Hearing	06/30/2020	\$3,000
Total			\$45,000

All other terms and conditions of the Agreement shall remain unchanged.

CITY OF JACKSONVILLE BEACH



Heather Ireland, Grantee Grant Manager

Date:

3/18/2020

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

Whitney Gray, DEP Grant Manager

Date: _____

DEP AGREEMENT NO. **R1912**
CHANGE ORDER NO. #1

GRANTEE

City of Jacksonville Beach
11 North 3rd Street
Jacksonville, FL 32250

DEP Agreement No. R1912 as entered into on the 5th day of August 2019, is hereby revised as follows:

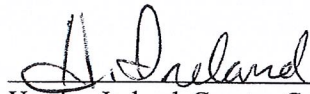
1. **Attachment 3, Grant Work Plan, 5. Project Timeline** is hereby deleted in its entirety and replaced with the following:

Task No.	Task Title	Deliverable Due Date	Funding Amount
1	Sea Level Rise Modeling and Parcel Level Mapping	12/31/2019	\$1,000
2	Spring Tide, Storm Surge and Combined Sea Level Rise Modeling and Parcel Level Mapping	12/31/2019	\$2,500
3	Create Parcel Level Database and Attribute Analysis	12/31/2019	\$2,500
4	Future Land Use Mapping and Attribute Analysis	12/31/2019	\$1,000
5	Infrastructure/Water Depth Mapping and Attribute Analysis	12/31/2019	\$2,000
6	Soils and Habitat/Water Depth Mapping, Attribute Analysis and Flashflood/Stormwater Analysis	12/31/2019	\$3,000
7	Synthesize and Summarize Results, Public Outreach Strategy, PowerPoint Presentation and Public Workshop	12/31/2019	\$10,000
8	Support Document/Draft Comprehensive Plan Amendment and Public Workshop	04/30/2020	\$15,000
9	Prepare Presentation/Hold Local Planning Agency and City Commission Transmittal Public Hearings	04/30/2020	\$5,000
10	Review Agencies/Public Comments, Finalize Amendments and Adoption Public Hearing	04/30/2020	\$3,000
Total			\$45,000

2. All other terms and conditions of the Agreement shall remain unchanged.

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

CITY OF JACKSONVILLE BEACH


Heather Ireland, Grantee Grant Manager

Date: 8-20-19

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION


Whitney Gray, DEP Grant Manager

Date: 8/21/19

STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
GRANT WORK PLAN
DEP AGREEMENT NO.: R1912

ATTACHMENT 3

Project Title: Vulnerability Analysis and Peril of Flood Comprehensive Plan Amendment

Grantee Contact Information:

Organization Name: City of Jacksonville Beach
Authorized Signer for the Organization: William C. Mann, AICP, FRA-RP
Title: Director, CRA Administrator, Planning and Development Dept.
Address: 11 N. 3rd St.
City: Jacksonville Beach
Zip Code: 32250
Area Code and Telephone Number: (904) 247-6231
E-mail Address: BMann@jaxbchfl.net

Grant Manager Contact Information:

Organization Name: City of Jacksonville Beach
Title: Heather Ireland, AICP, Senior Planner
Address: 11 North 3rd Street
City: Jacksonville Beach, FL
Zip Code: 32250
Area Code and Telephone Number: 904-247-6142
E-mail Address: hireland@jaxbchfl.net

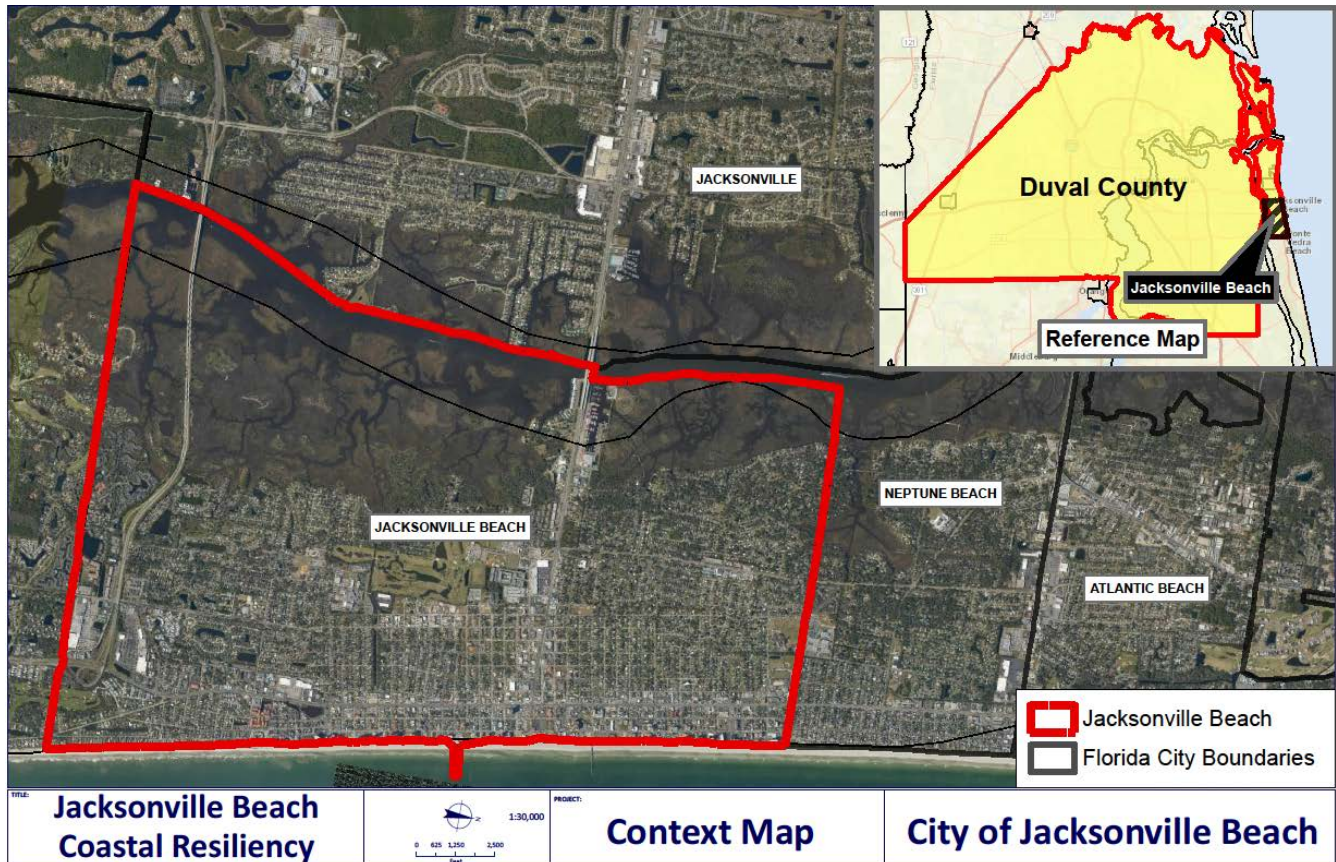
Fiscal Agent Contact Information:

Organization Name: City of Jacksonville Beach
Title: Eddie Vergara, Accounting Supervisor
Address: 11 North 3rd Street
City: Jacksonville Beach, FL
Zip Code: 32250
Area Code and Telephone Number: 904-247-6139
E-mail Address: EVergara@jaxbchfl.net

FEID No.: 59-6000343

DUNS No.: 010524098

PROJECT LOCATION:



WORK PLAN

- 1. Project Summary:** The City of Jacksonville Beach submits this grant application as a Priority One project in order to comply with the requirements of the Peril of Flood legislation set forth in s. 163.3178(2)(f), Florida Statutes. The Project incorporates a robust GIS analysis to model and quantify the City's vulnerability to sea level rise scenarios and other flood events that will form the basis for adoption of policies in the form of prioritized actions to reduce and mitigate associated flood risk. The Project will involve effective public outreach and education to achieve support for the adoption of proposed Comprehensive Plan Amendments.
- 2. Project Description:** The Project involves two major phases of work. The first phase will involve a series of tasks to acquire GIS shapefiles and to conduct GIS modeling/analysis using the Digital Elevation Model (DEM) to delineate the spatial extent of flooding and water depths based on the U.S. Army Corps of Engineers (ACOE) intermediate and intermediate high sea level rise forecasts. To maximize efficiency, the GIS analysis will employ the DEM directly to calculate and display water depths rather than utilize the output from the ACOE bathtub model. The reason for that decision is that the bathtub model provides water depths as an output for sea level rise, but not for spring tides. By using the DEM directly, the water depths will be calculated for sea level rise and spring tide events, independently and in combination to compare spring tide water depths in the current year to 2040 and 2060 spring tides taking into account sea level rise. Similarly, the SLOSH model will be utilized in conjunction with the DEM to also calculate water depth inundation from a Category 1 hurricane for the current year and in 2040 and 2060 after accounting for sea level rise. The GIS work will also involve joining the water depth layers to other GIS layers including property appraiser parcel data, existing land use, future land use, infrastructure and habitat layers. This will yield a comprehensive set of maps and interactive GIS data base to

allow for the results to be displayed dynamically at public workshops and public hearings. The first public workshop will be conducted at the end of the first phase to present the maps and to summarize the results through a PowerPoint presentation and other appropriate graphic methods.

The second phase will synthesize the results from the GIS analysis and evaluate the potential strategies to reduce flood risk from sea level rise, spring tides, flash floods and storm surge based on the results of the GIS analysis. The scope of strategies would potentially involve land use policies, land acquisition, regulatory strategies, incentive-based programs and engineering solutions and will exceed the minimum required number of strategies and site development techniques specified in the grant guidelines. These options will be evaluated based on feasibility, public acceptance, cost effectiveness and other measures. Following a second public workshop, objectives and policies will be drafted in the form of a prioritized actions plan to be considered for adoption as a Comprehensive Plan Amendment at required public hearings.

The City has sub-contracted with Stearns Weaver Miller, contingent on grant approval, to implement the Scope of Work in coordination with the City. Ken Metcalf, AICP, Director of Planning, will serve as the firm's project manager.

3. Project Need and Benefit:

- a. **Explain the demonstrated need, which the project addresses.** Located along the Atlantic Ocean and the Intracoastal Waterway, the City of Jacksonville Beach is inherently vulnerable to flood events. In response, the City has proactively implemented certain measures, such as improved stormwater outfalls, to reduce flood potential. However, the City has not yet developed a comprehensive policy framework and prioritized action plan to reduce and mitigate the potential impact of continued sea level rise and the compounding effect when evaluated in conjunction with spring tides and storm surge. The requested grant funding will enable the City to undertake complex GIS modeling to develop a high quality, comprehensive map set, GIS-driven database, and effective visual aids that will allow the public and elected officials to readily comprehend the spatial extent, severity (i.e., water depths) and impacts of flooding. As the City continues to redevelop, elected officials must be in a position to make informed decisions in prioritizing policy alternatives, regulatory options and capital investments to effectively reduce and mitigate the threat of flooding.
- b. **Explain how the proposed project meets the purpose of one or more of the Goals and/or Priority Areas for the funding source you are applying for.** The requested grant funding will allow the City to better understand the types of land uses, structures, infrastructure and habitat that will be impacted by sea level rise and other flood events, and to engage in a public process with residents, businesses, developers, interest groups and other stakeholders to evaluate and prioritize strategies based on feasibility, public-acceptance, cost-effectiveness, and other measures. This process will culminate with the adoption of a Comprehensive Plan Amendment in compliance with s. 163.3178(2)(f), Florida Statutes, that will present principles, strategies, objectives and policies to reduce and mitigate the impact from sea level rise, spring tides, storm surge, and flash floods. The draft policies will present a minimum of four strategies and best practices to reduce flooding vulnerability, including land use, regulatory, incentive-based and engineering solutions as well as a minimum of four site development techniques and best practices to reduce flood risk.
- c. **Discuss how the project is feasible and can be completed by the Deadline.** The schedule assumes one month to execute the Grant Agreement. The Subcontractor has performed extensive work in the subject area, and all required shapefiles are readily available to allow work to proceed on a timely basis. The schedule accounts for statutory timeframes for the Comprehensive Plan Amendments.

4. **Budget Summary:** Allowable budget categories and costs for this project are listed in the table below.

FIXED PRICE	Grant Amount Awarded
AGREEMENT TOTAL	\$45,000

5. **Project Timeline:** All tasks are to be completed and submitted no later than the Deliverable due date listed in the table below. Request for any change must be submitted prior to the current deliverable due date listed in the project timeline. Request are to be sent via separate email to the Department's Grant Manager, with the details of the request being made and the reason for the request.

PROJECT TIMELINE

Task No.	Task Title	Deliverable Due Date	Funding Amount
1	Sea Level Rise Modeling and Parcel Level Mapping	08/16/2019	\$1,000
2	Spring Tide, Storm Surge and Combined Sea Level Rise Modeling and Parcel Level Mapping	09/13/2019	\$2,500
3	Create Parcel Level Database and Attribute Analysis	09/30/2019	\$2,500
4	Future Land Use Mapping and Attribute Analysis	10/11/2019	\$1,000
5	Infrastructure/Water Depth Mapping and Attribute Analysis	10/31/2019	\$2,000
6	Soils and Habitat/Water Depth Mapping, Attribute Analysis and Flashflood/Stormwater Analysis	11/30/2019	\$3,000
7	Synthesize and Summarize Results, Public Outreach Strategy, Powerpoint Presentation and Public Workshop	12/31/2019	\$10,000
8	Support Document/Draft Comprehensive Plan Amendment and Public Workshop	02/28/2020	\$15,000
9	Prepare Presentation/Hold Local Planning Agency and City Commission Transmittal Public Hearings	03/31/2020	\$5,000
10	Review Agencies/Public Comments, Finalize Amendments and Adoption Public Hearing	04/30/2020	\$3,000
Total			\$45,000

6. **Performance Measure:** The Department's Grant Manager will review the deliverables to verify that they meet the specifications in the Grant Work Plan and this task description, to include any work being performed by any sub-contractor(s). Upon review and written acceptance by the Department's Grant Manager of all deliverables under this task, the Grantee may proceed with payment request submittal. All deliverable documents must be provided in an electronic downloadable format.
7. **Consequences for Non-Performance:** The Department will reduce each Task Funding Amount by 5% for every day that the Deliverable(s) is not received on the specified due date in the most

recent Project Timeline, for the Agreement. Should a Change Order or Amendment be requested on the date of or after the most current Deliverable Due Date, the 5% reduction of that Task Funding Amount will be imposed until the date of the requested change is received, via email by the Department.

8. **Payment Request Schedule:** Grantee may submit a request for the Task Funding Amount to be paid using the Exhibit C, after all Deliverables for that Task have been approved by the Department. Request(s) for payment must include the Exhibit A showing 100% completion of that Task and must be submitted within 45 days of the Deliverable Due Date.

Or

Grantee may submit one request for the Grant Amount Awarded, by using the Exhibit C, after the project is 100% completed. The request for the Grant Amount Awarded, must include an Exhibit A showing 100% completion for all Tasks, and must be submitted within 45 days of the Deliverable Due Date.

TASKS & DELIVERABLES

Task #1

- A. **Title:** Sea Level Rise Modeling and Parcel Level Mapping
- B. **Description:** Utilize U.S. Army Corp of Engineers Sea Level Rise Model (“Bathtub Model”) to confirm projected 2040 and 2060 sea-level rise (SLR) for two scenarios (intermediate and intermediate high). Run the Digital Elevation Model and calculate water depths resulting from the two scenarios and convert output from one-inch increments to one-foot increments. Acquire parcel GIS layer from the Duval County Property Appraiser. Utilize GIS software and delineate SLR water depth extents in one-foot increments as a parcel-level GIS polygon layer.
- C. **Deliverable:** For each scenario (intermediate and intermediate high), one map for each one-foot water depth increment and a composite map showing all water depth increments. Each map will show the underlying parcel layer to allow a visual understanding of 2040 SLR inundation at the parcel level.

Task #2

- A. **Title:** Spring Tide, Storm Surge and Combined Sea Level Rise Modeling and Parcel Level Mapping
- B. **Description:** Acquire tidal gauge data, refine to remove storm events and other outliers, and calculate average spring tides over 20-year period. Utilize GIS to calculate spring tide water depths throughout City using Digital Elevation Model and convert from one-inch increments to one-foot increments to create water depth layer. Use Digital Elevation Model to create 2040 layer combining SLR water depth and spring tide water depth to create cumulative water depth layer in one-foot increments. Acquire SLOSH Model to obtain Category 1 storm surge water elevation. Utilize GIS to calculate storm surge water depths using Digital Elevation Model and convert from one-inch increments to one-foot increments. Use Digital Elevation Model to create 2040 and 2060 layers combining SLR water depth and storm surge to create cumulative water depth layer in one-foot increments.
- C. **Deliverable:** For spring tide in the current year and for spring tide combined with SLR in 2040 and in 2060, one map for each one-foot water depth increment in the current year and for each scenario in 2040 and in 2060 and a composite map showing all water depth increments in the current year and for each scenario in 2040 and 2060. For storm surge, a composite map

showing storm surge water depths in the current year and the combined storm surge and 2040 and 2060 SLR. Each of the above maps will show the underlying parcel layer to allow a visual understanding of spring tide, combined spring tide/SLR for both 2040 and 2060, storm surge and combined storm surge/2040 and 2060 SLR inundation at the parcel level.

Task #3

- A. Title:** Create Parcel Level Database and Attribute Analysis
- B. Description:** Utilize GIS to join Duval County Property Appraiser parcel data with 2040 and 2060 SLR water depth layer (both scenarios), current year spring tide water depth layer, combined spring tide and SLR water depth layer (both scenarios, 2040 and 2060), current year storm surge water depth layer and combined SLOSH and SLR water depth layer (both scenarios, 2040 and 2060). Create parcel data base documenting and quantifying existing land use, age of structures and assessed value of structures within the inundation areas, cross tabulated by flood depth. Identify parcels that are completely inundated, partially inundated and unaffected. For parcels that are partially inundated and/or inundated by more than water depth increment, refine data set based on the location of structures within the parcel to confirm the location of the structures within each water depth increment and summarize the structural attributes by water depth increment for those parcels in data set.
- C. Deliverable:** GIS attribute tables/spreadsheets documenting analysis as described in Task 3.

Task #4

- A. Title:** Future Land Use Mapping and Attribute Analysis
- B. Description:** Utilize GIS to join future land use map categories to each water depth layer (2040/2060 SLR, current year spring tide, 2040/2060 spring tide and SLR combined, current year storm surge and 2040/2060 storm surge and SLR combined). Run analysis summarizing future land use acreage within each type of water depth layer in one-foot increments.
- C. Deliverable:** Series of maps depicting the extent of each water depth layer in one-foot increments within each future land use category and related attribute tables summarizing the acreage of each future land use category for each water depth layer in one foot increments.

Task #5

- A. Title:** Infrastructure/Water Depth Mapping and Attribute Analysis
- B. Description:** Acquire GIS shapefiles from City on major infrastructure components (roads, water plants, wastewater plants and stormwater facilities). Perform GIS analysis to join infrastructure layers to each water depth layer (2040/2060 SLR, current year spring tide, 2040/2060 spring tide and SLR combined, current year storm surge and 2040/2060 storm surge and SLR combined). Run analysis summarizing extent of roads and infrastructure point data within each type of water depth layer in one-foot increments.
- C. Deliverable:** Series of maps depicting the extent of roads and infrastructure components in each type of water depth layer in one-foot increments and related attribute table summarizing the acreage of roads and each infrastructure component for each water depth layer in one-foot increments.

Task #6

- A. Title:** Soils and Habitat/Water Depth Mapping, Attribute Analysis and Flashflood/Stormwater Analysis

- B. Description:** Acquire GIS shapefiles on soil types and FLUCCS habitats within City and prepare GIS maps grouping soil types based on drainage characteristics as well as habitat types with the SLR water depth layers for each scenario. Identify and map potential transition of habitat type based on forecasted inundation and overlay with future land use map categories at parcel level. Research available documentation on flash flood events within the City. Prepare analysis evaluating potential for increased flash flood events and stormwater drainage problems resulting from sea level rise, spring tide events, storm surge and flash flood events.
- C. Deliverable:** Series of maps depicting soil types, habitat types and potential habitat transition areas within each type of water depth layer in one-foot increments and related attribute table summarizing the acreage of soil types, habitat and habitat transition areas for each water depth layer in one-foot increments. Summary and documentation on flash flood and stormwater analysis.

Task #7

- A. Title:** Synthesize and Summarize Results, Public Outreach Strategy, PowerPoint Presentation and Public Workshop
- B. Description:** Evaluate and synthesize results of the GIS vulnerability analysis resulting from Tasks 1-6; identify critical spatial patterns in terms of flooding/water depth for each event (i.e., sea level rise, spring tides, storm surge and combined in 2040 and in 2060) and relationship to attribute data (i.e., existing land use, future land use, structural variables, infrastructure, soils and habitat types); identify spatial patterns and assess overall relative risk based on water depth and attribute mapping and data sets; calculate summary statistics presenting affected land use types, population, units, structures and characteristics, infrastructure by type and habitat by type based on inundation from flood events; and prepare PowerPoint presentation explaining grant process, opportunities for public participation and presenting findings from vulnerability analysis. Prepare Public Outreach Strategy to include flyers, news announcements, and website posting at a minimum to be utilized for each workshop and public hearing (including legal notices). Hold public workshop at the City of Jacksonville Beach to present PowerPoint, facilitate discussion and obtain public input.
- C. Deliverable:** Phase 1 Summary Report synthesizing findings from Tasks 1-6 and including additional analysis described in Task 7, PowerPoint presentation as described in Task 7 and public workshop documentation, including agenda, sign-up sheets, and summary of public comments (oral and written) from workshop. Copy of Public Outreach strategy.

Task #8

- A. Title:** Support Document/Draft Comprehensive Plan Amendment and Public Workshop
- B. Description:** Prepare support document analyzing the relative risk based on the GIS vulnerability analysis (Tasks 1-6) for each type of event (i.e., SLR scenarios, spring tide, combined spring tide/SLR, storm surge, combined storm surge/SLR, and flash floods) as related to existing and planned future land uses, structures, infrastructure and habitat type. Review City's Comprehensive Plan policies relating to land use, coastal development strategies, infrastructure, habitat protection and flood protection. Evaluate potential alternative strategies to reduce and/or mitigate the risk including land use policies, land acquisition, regulatory changes, incentive-based programs and engineering solutions as well as related funding strategies. The analysis will evaluate each of these strategies based on feasibility, cost-effectiveness and public acceptance, taking into account the physical development and spatial patterns of the City. The support document will include recommended best practices and strategies related to site development, removal of real property from flood zone designations and other strategies to reduce the risk of flooding and related insurance claims.

All best practices and resulting policies will be consistent with or more stringent than the Florida Building Code and applicable flood plain management regulations set forth in 44 CFR, Part 60. Prepare draft comprehensive plan amendments based on the findings and recommendations of the support document to comply with each of six requirements specified in s. 163.3178(2)(f), Florida Statutes. Prepare PowerPoint summarizing findings and recommendations. Prepare public participation facilitation tools for workshop. Conduct public workshop to present PowerPoint and facilitate public input using public participation tools.

- C. **Deliverable:** Support document as described above (including technical appendix with all maps and attribute tables), draft comprehensive plan amendments, PowerPoint presentation, workshop agenda, sign-up sheets, and summary of workshop including public participation tools utilized at workshop and public input obtained at workshop in regard to risk evaluation and proposed strategies.

Task #9

- A. **Title:** Prepare Presentation/Hold Local Planning Agency and City Commission Transmittal Public Hearings
- B. **Description:** Revise PowerPoint, support document and draft Comprehensive Plan policies based on comments from staff review and public comments from workshop. Present revised PowerPoint and draft Comprehensive Plan Amendments at Local Planning Agency public hearing. Analyze Local Planning Agency recommendations. Revise PowerPoint, support document and draft Comprehensive Plan Amendment policies based on input from the Local Planning Agency. Present revised PowerPoint and draft Comprehensive Plan Amendments at transmittal hearing before City Commission. Revise draft Comprehensive Plan amendments based on City Commission direction. Prepare proposed Comprehensive Plan Amendment transmittal package for submittal to DEO and other reviewing agencies.
- C. **Deliverable:** Local Planning Agency agenda, summary of input and recommendations from Local Planning Agency, City Commission transmittal hearing agenda, speaker sign-up sheets, summary of changes directed by City Commission, final support document and proposed Comprehensive Plan Amendments resulting from City Commission direction at transmittal hearing. Copy of proposed Comprehensive Plan Amendment transmittal package.

Task #10

- A. **Title:** Review Agencies/Public Comments, Finalize Amendments and Adoption Public Hearing
- B. **Description:** Review comments provided by reviewing agencies and interested parties, and revise proposed Comprehensive Plan Amendment as appropriate. Hold adoption hearing with City Commission on proposed Comprehensive Plan Amendments. Revise Comprehensive Plan Amendments to incorporate final edits based on motion from City Commission. Prepare adopted Comprehensive Plan Amendment package to be submitted to DEO for compliance review.
- C. **Deliverable:** Copy of adopted Comprehensive Plan Amendment package to be submitted to DEO, including reviewing agencies' comments and other statutorily required information, summary of revisions to the proposed Comprehensive Plan Amendments based on reviewing agency and public comments, City Commission agenda, speaker sign-up sheets, and a copy of adopted comprehensive plan amendments.