INDIVIDUAL PROJECT ORDER NUMBER 2024-6

Describing a specific agreement between Kimley-Horn and Associates, Inc. (Kimley-Horn or Consultant) and The City of Ocala (the City or Client) in accordance with the terms of the Master Agreement for Continuing Professional Services, Contract ENG/210895 dated September 25, 2022, which is incorporated herein by reference.

Identification of Project:

Project: Vulnerability Assessment
Client: City of Ocala
Project Manager: Alan Garri, P.E.

General Category of Services:

The scope of services and fees described herein are based upon the following assumptions and project understanding.

1. The City has received a planning grant from the Florida Department of Environmental Protection (FDEP) through the Resilient Florida Program. The City's grant work plan with FDEP includes the following tasks:
    a. Kick Off Meeting
    b. One Public Outreach Meeting
    c. Acquire Background Data
    d. Exposure Analysis
    e. Sensitivity Analysis
    f. Identify Focus Areas
    g. Final Vulnerability Assessment Report
    h. One Public Presentation
    i. Adaptation Plan
2. The City's work plan further requires the City to prepare a vulnerability assessment in compliance with § 380.093 Florida Statute (F.S.).
3. The City requested that Kimley-Horn conduct a vulnerability assessment pursuant to § 380.093 F.S. focused on flooding and excluding the following tasks:
    a. Assemble Steering Committee
    b. Conduct Steering Committee Meeting
    c. Conduct Public Meetings or Outreach
    d. Local Mitigation Strategy

e. Peril of Flood Compliance

4. Kimley-Horn will align the elements of the Vulnerability Assessment included in this IPO with the City's Grant Work Plan to the extent practicable. However, the City will be responsible for all communication, coordination, and submittal of deliverables to the FDEP.

5. Kimley-Horn understands that there are existing models that cover portions of the City. These models include but are not limited to modeling from the existing Marion County Watershed Management Plan and effective Federal Emergency Management Agency (FEMA) models. These models do not cover the entire City limits and will need to be combined and updated as needed into a singular citywide model for the purposes of this assessment.

6. The City is responsible for making key staff available during the delivery of this project.

7. Kimley-Horn will prepare a presentation for the Public Outreach and Public Meeting detailing the Vulnerability Assessment process and findings. The City will be responsible for advertising the Public Outreach and Public Meeting and coordinating all logistics associated with these meetings. Any materials beyond the meeting presentation will be the responsibility of the City.

8. For Tasks 2 - 8, the deliverables and associated datasets will be combined into a schema consistent with FDEP standards.

SPECIFIC SCOPE OF BASIC SERVICES

Kimley-Horn will provide the services specifically set forth below.

Task 1 – Kick Off Meeting

A. Kimley-Horn will attend a kickoff meeting with the City to introduce team members, discuss the scope and timeline of work, and establish communication preferences.

B. Deliverables:

1) Agendas and sign-in sheet for the meeting showing the location, date, and time, as well as names and affiliations of all attendees.

2) Kick Off Meeting minutes – summarizing any decisions, outcomes, action items.

3) Copies of any presentations or materials distributed at the meeting.

Task 2 - Acquire Background Data

A. Kimley-Horn will review the data listed below and will determine the quality of the data for use in the analysis and if additional datasets will be required. The City will provide the following data to Kimley-Horn (if available):

1) Latest GIS file including shapefile of the City's boundary;

2) Latest copies of effective stormwater models within the City limits and corresponding GIS data;

3) Latest Digital Elevation Model;

4) Inventory or stormwater/water/wastewater assets – including as-builts for pump stations and treatment plants;

5) List of City-maintained streets;

6) List of Shelters/Schools/Hospitals/City buildings – shapefile of building footprints and available finished floor information or as-built drawings;

7) List of City-maintained parks.

B. Kimley-Horn will also collect the following published data:

1) Southwest Florida Water Management District (SWFWMD) Environmental Resource Permit (ERP) data;

2) Stormwater inventory data and model data from Marion County;

3) Florida Department of Transportation (FDOT) plans;

4) National Oceanic and Atmospheric Administration (NOAA) 14 atlas rainfall depths for 100-year/1-day and 500-year/1-day event;

5) Latest FEMA flood maps;

6) FEMA Flood Insurance Study (FIS) predicted 100-year storm surge event;

7) Available topographic, soils, land use, and gauge data.

C. Kimley-Horn will identify any data gaps present in any data collected by the City or Consultant, which may limit the Vulnerability Assessment's extent or reduce the accuracy of the Vulnerability Assessment's results. Kimley-Horn will prepare a Data Gaps Map, which summarizes the nature and location of data gaps. The map will illustrate the areas where additional data needs to be obtained and include preliminary basins for City review. Upon completion of the Data Gaps Map, the City shall review the map and verify if there is any additional information that was not provided during the data collection period that may affect the model features or scale.

D. Kimley-Horn will review the initial data gathered, delineate preliminary basins based on collected data, and develop a model scale for the study area to help identify additional needed data for model refinement. Within the areas of anticipated model refinement, Kimley-Horn will visit the field to verify general drainage patterns and drainage structures identified in the Data Gaps Map. Kimley-Horn will photograph and document the size and material of the accessible major conveyance stormwater structures visited. It is anticipated that areas and structures that have already been visited in past studies or are already to the desired level of detail will be visited as needed only to understand general drainage patterns. This total subtask is limited to 15 days of fieldwork.

E. It is anticipated that the City will hire a surveyor to obtain information identified in the data gaps map. This information may include but is not limited to: pipe data, weir data, cross-sectional data along channels, and elevation data in requested areas. Kimley-Horn will prepare a document identifying needed survey items. The cost associated with Task 2E will only be for Kimley-Horn's coordination efforts.

F. Deliverables:

1) A technical memorandum to outline the data compiled and Data Gaps Map with findings of the gap analysis, including a summary report to include recommendations to address the identified data gaps.

2) GIS files with appropriate metadata for the data compiled, to include locations of critical assets owned or maintained by the City as well as regionally significant assets classified and as defined in § 380.093(2) 1-4, F.S.

Task 3 - Exposure Analysis

A. Kimley-Horn will perform an exposure analysis to identify the depth of water caused by each flood scenario required by § 380.093, F.S.

1) The water surface depths (i.e., flood scenarios) used to evaluate flooding shall include rainfall-induced, storm surge, and compound flooding. The scenarios and standards used for the exposure analysis will be pursuant to § 380.093.

2) The exposure analysis will include obtaining modeling data from any effective ICPR models within the City limits. Only the portions of the City that are covered by effective regional ICPR models will be included in this analysis.

3) For each flood scenario, a flood raster will be generated within the modeled study area, which shape be created from a digital elevation model (DEM) and inundation data from available modeling data.

4) For this exposure analysis, the generation of flood inundation extents will be based on the source DEM, no topographic analysis for voids will be conducted. ERPs or projects that have come on-line since the publication of the DEM will not be considered. The generation of flood inundation extents will be level-pools. No sloped surfaces, transition zones or smoothing of floodplains will be performed.

B. Kimley-Horn will utilize available existing models obtained in Task 2 to create an updated existing conditions model. Kimley-Horn will utilize the preliminary basins from Task 2 to create refined basins and other model features including nodes, links, and cross-sections. The refined model will utilize existing model data as available but will supplement that data with data available from the DEM, field visits, survey, and preliminary model features developed in Task 2. The models will be developed based on the following approach:

1) Kimley-Horn will use ICPR4 software by Streamline Technologies, Inc. to conduct the hydraulic/hydrologic stormwater modeling for this task. The model will be developed using 1D methodologies.

a. Kimley-Horn will assign directly connected impervious area (DCIA) and impervious percentages based on land use types (land use will be obtained from the water management district).

b. Overland weirs will be developed based on the available DEM.

c. Stage-storage relationships will be developed using the available DEM.

d. Pipes, control structures, and channels (ditches) in the study area will be modeled based on the available data (as-built or survey data or based on engineering judgement/assumptions when survey or as-built data is not available).

e. Rainfall depths will be based on the higher of SWFWMD Basis of Review isohyetal maps or the National Oceanic and Atmospheric Administration (NOAA) rainfall data as published at the time of notice to proceed.

2) Kimley-Horn will model the 2.33-year 24-hour, 10-year 24-hour, 25-year 24-hour, 50-year 24-hour, and 100-year 24-hour design storm events.

C. Kimley-Horn will model a calibration event chosen by the City to simulate in the existing conditions model. Kimley-Horn will utilize Next Generation Weather Radar (NEXRAD) data for the chosen event to simulate the calibration event rainfall. Kimley-Horn will review the calibration model results to available flood stage data or observational information from the calibration event. Kimley-Horn

may refine the model based on this review for up to a total of 80 hours of effort. If additional effort is required to calibrate the model, it can be done as an additional service.

D. Kimley-Horn will prepare a draft Vulnerability Assessment. The draft Vulnerability Assessment will provide details on the modeling process, type of models utilized, and resulting tables and maps illustrating flood depths for each modeled flooding scenario. The draft Vulnerability Assessment will serve as a preliminary identification of vulnerable areas, as reasonably defined by topography or exposure limits, and will be established based on flooding depths.

E. Kimley-Horn will prepare GIS files with results of the exposure analysis for each flood scenario as well as the appropriate metadata that identifies the methods used to create the flood layers. The GIS files and associated metadata will adhere to the Resilient Florida Program's GIS Data Standards, and raw data sources shall be defined within the associated metadata.

F. Deliverables:

1) Draft Vulnerability Assessment

2) GIS files with results

Task 4 - Sensitivity Analysis

A. Kimley-Horn will perform a Sensitivity Analysis to measure the impact of flooding on assets. The sensitivity analysis will compare the data from the Exposure Analysis (Task 3) to the inventory of critical assets created in the Acquire Background Data Task (Task 2).

B. Based on the Sensitivity Analysis, Kimley-Horn will evaluate the impact of flood severity on each asset class and at each flood scenario and assign a risk level based on percentages of land area inundated and number of critical assets affected. Based on this evaluation, Kimley-Horn will prepare an initial list of critical and regionally significant assets that are impacted by flooding. The list of critical and regionally significant assets will include a prioritization ranking based on area or immediate need and will identify which flood scenario(s) impacts each asset.

C. Kimley-Horn will prepare a draft Sensitivity Analysis report that provides details on the findings of the sensitivity analysis and includes a visual presentation of the data via maps and tables based on the statutory required scenarios and standards.

D. Kimley-Horn will prepare GIS files with the results of the Sensitivity Analysis for each critical asset. The GIS files and associated metadata will adhere to the Resilient Florida Program's GIS Data Standards, and raw data sources shall be defined within the associated metadata.

E. Deliverables:

1) Draft Sensitivity Analysis

2) List of critical and regionally significant assets

3) GIS files with results

Task 5 - Identify Focus Areas

A. The City, in collaboration with Kimley-Horn, will identify focus areas based on the results of Task 3 and Task 4 following the guidelines in Chapter 2 of the Florida Adaptation Planning Guidebook. Focus areas shall be assigned to locations or assets that are particularly vulnerable and require the development of adaptation strategies.

B. Kimley-Horn will prepare a Technical Memorandum summarizing the identified focus areas, with justification for choosing each area. The Technical Memorandum will include tables that list each focus area with all critical assets that are contained inside the focus area. The Technical Memorandum will include maps illustrating the location of each focus area compared to the location of all critical assets within the geographic extent of the study.

C. Kimley-Horn will prepare GIS files illustrating the boundaries of the identified focus areas. The GIS files and associated metadata will adhere to the Resilient Florida Program's GIS Data Standards, and raw data sources will be defined within the associated metadata.

D. Deliverables:

1) Technical Memorandum with Tables and Maps

2) GIS files with results

Task 6 - Final Vulnerability Assessment Report, Maps, and Tables

A. Kimley-Horn will write a final Vulnerability Assessment report pursuant to the requirements in § 380.093, F.S. The final Vulnerability Assessment will provide details on the results from the exposure and Sensitivity Analyses, as well as a summary of identified risks and assigned focus areas. The Vulnerability Assessment will include maps and tables that illustrate the results of Tasks 2-5. The Vulnerability Assessment will contain a final list of critical and regionally significant assets that are impacted by flooding, specifying the flood scenario(s) impacting each asset. The list of critical and regionally significant assets shall be ranked by area or immediate need and must identify which flood scenario(s) impacts each asset.

B. Kimley-Horn will compile all mapping data used to illustrate flooding impacts identified in the Vulnerability Assessment and provide it in an electronic file format with all GIS geospatial metadata. GIS files and associated metadata will adhere to the Resilient Florida Program's GIS Data Standards, and raw data sources shall be defined within the associated metadata.

C. Kimley-Horn will complete and sign a Vulnerability Assessment Compliance Checklist, as provided by the City.

D. Deliverables:

1) Final Vulnerability Assessment Report

2) GIS files with results

3) Signed Vulnerability Assessment Compliance Checklist Certification

Task 7 - Public Presentation

A. This Task will include one public outreach meeting and one public meeting to present the results of the Vulnerability Assessment to the City Council. Kimley-Horn will prepare the presentations with City staff input. The City will submit the presentation to FDEP for approval prior to the meetings, and the City will prepare all social media notifications, meeting invitations, and other materials needed to advertise or distribute at the meetings. The public meeting will be in person.

B. Deliverables:

1) Kimley-Horn will participate in two face-to-face public meeting

2) Kimley-Horn will provide a copy of both presentations.

Task 8 - Adaptation Plan

A. Kimley-Horn, with assistance from the City, will complete an Adaptation Plan (AP) that considers the Florida Adaptation Planning Guidebook. The plan will include the identification of adaptation strategies and ranking of adaptation needs. The AP will also include a list of ranked projects for each asset class defined in § 380.093(2), F.S., for consideration and implementation.

B. Deliverable:

1) Final Adaptation Plan

Task 9 - Project Management

A. Kimley-Horn will participate in up to twelve (12) project status meetings to update the City on the progress of task completion. For each meeting, Kimley-Horn will prepare an agenda and meeting minutes that will summarize highlights.

B. Deliverables:

1) Meeting agendas for each meeting

2) Meeting minutes for each meeting

INFORMATION PROVIDED BY CLIENT

Kimley-Horn shall be entitled to rely on the completeness and accuracy of all information provided by the City or the City's consultants or representatives. The City shall provide all information requested by Kimley-Horn during the Project.

METHOD OF COMPENSATION

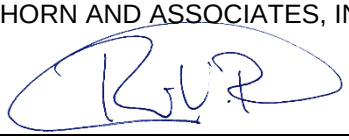
Kimley-Horn will perform the services in Tasks 1 - 9 for the total lump sum labor fee below.

Task Description	***Lump Sum Fee***
Task 1 - Kick Off Meeting	$3,143.37
Task 2 - Acquire Background Data	$68,049.58
Task 3 - Exposure Analysis	$88,727.69
Task 4 - Sensitivity Analysis	$81,869.32
Task 5 - Identify Focus Areas	$59,415.00
Task 6 - Final Vulnerability Assessment Report, Maps, and Tables	$85,790.92
Task 7 - Public Presentation	$12,818.94
Task 8 - Adaptation Plan	$50,398.32
Task 9 - Project Management	$13,765.08
Total	***$463,978.22***

In addition to the lump sum labor fee, direct reimbursable expenses such as express delivery services, fees, air travel, and other direct expenses will be billed at 1.15 times cost. All permitting, application, and similar project fees will be paid directly by the Client.

Lump sum fees will be invoiced monthly based upon the overall percentage of services performed. Reimbursable expenses will be invoiced based upon expenses incurred. Payment will be due within 25 days of your receipt of the invoice and should include the invoice number and Kimley-Horn project number.

ACCEPTED:

THE CITY OF OCALA, FLORIDA	KIMLEY-HORN AND ASSOCIATES, INC.
By: _____	By: 
	Richard V. Busche, PE – Principal
Title: _____	By: 
	Alan J. Garri, P.E. – Project Manager
Date: _____	Date: April 17, 2024

Kimley»Horn

TABLE A
COST ESTIMATE FOR SERVICES

PROJECT: 2024-6_OCALA VULNERABILITY ASSESSMENT
CLIENT: CITY OF OCALA
KHA PM: ALAN GARRI, P.E.
BASIS FOR ESTIMATE: COUNCIL-APPROVED HOURLY RATES, CONTRACT #ENG/210895

SHEET: 1 of 1
DATE: 4/17/2024

		DIRECT LABOR (MAN-HOURS)												
		Project Manager 2	Chief Engineer 1	Chief Engineer 2	Senior Engineer 1B	Senior Engineer 2	Project Engineer 2	Project Engineer 1	Engineering Intern	Chief Designer	Secretary/ Clerical	LABOR HOURS	SUB ($)	LABOR TOTAL
NO.	DESCRIPTION	$224.86	$305.66	$290.23	$262.47	$260.05	$225.65	$175.50	$137.42	$170.09	$103.26			
1	KICK OFF MEETING				1	2	4	4	4		2	17		$ 3,143.37
2	DATA COLLECTION AND REVIEW		9	18		27	45	70	120	80	5	374		$ 68,049.58
3	EXPOSURE ANALYSIS		18	30	40	45	80	100	80	30	6	429		$ 88,727.69
4	SENSITIVITY ANALYSIS		18	40	48	52	60	60	100		8	386		$ 81,869.32
5	IDENTIFY FOCUS AREA		12	20	24	24	60	60	40	40	10	290		$ 59,415.00
6	FINAL VULNERABILITY ASSESSMENT		12	16	36	40	80	110	140		10	444		$ 85,790.92
7	PUBLIC PRESENTATIONS		4	8	8	8	18	0	0		10	56		$ 12,818.94
8	ADAPTION PLAN		2	4	24	24	40	70	100		10	274		$ 50,398.32
9	PROJECT MANAGEMENT	24	24								10	58		$ 13,765.08
												SUB TOTAL:	**$ -**	**$ 463,978.22**
												GRAND TOTAL:	**$**	**463,978.22**