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## **PROPOSAL FOR PROFESSIONAL SERVICES**

DATE: December 31, 2020  
ATTN: Terrence Bailey, PE  
Public Works Director

Project Name: City of Riviera Beach Pavement Analysis and Utility Assessment

### **GENERAL:**

AE shall perform assessment of a section of City owned roadways and utility facilities within the City of Riviera Beach as selected by the Public Works and Utility Department. As part of the digitization process, AE will leverage unmanned aerial vehicle/Drone(UAV) technology in pavement data collection & processing. The application of UAV technology combined with Artificial Intelligence & Machine learning proprietary algorithms will reduce time, labor & provide high-quality video footage and GIS data compared to traditional methods to better meet the needs of businesses.

The intent of the assessment program will be to obtain usable data to develop a City-wide Work program to support resurfacing/rehabilitation and long-term maintenance efforts within the City. The team will use the assessment to prioritize the areas of need. The assessment shall include city streets and roadways under jurisdiction of the City of Riviera Beach plus associated sidewalks discounting all FDOT, Palm Beach County and private roadways within the city limits unless those facilities are maintained specifically by the City.

### **SCOPE OF SERVICES:**

1. Perform general aerial drone assessment of selected City-owned roadways, utilities and sidewalks. This excludes roadways under Palm Beach County or Florida Department of Transportation Jurisdiction as well as all private roadway facilities not included in a city maintenance agreement program. This will include the development of pavement classification and pavement condition rating methodology as well as the identification of all above ground appurtenances associated with the existing utility system.
2. Capture pavement and utility service data (approximately 1 mile) by leveraging Unmanned Aerial Vehicle (UAV)/Drone.
3. Develop end to end digital technology deliverables for collection & analysis of pavement data by Unmanned Aerial Vehicle (UAV)/Drone & Artificial intelligence technologies
4. The above data can later be leveraged to develop the larger '**Digital roadmap**' as part of a smart city program (Usage-based maintenance program, develop predictive models further improving resource management & citizen services).
5. Develop specific detailed assessment of certain defective roadway areas to complement the (UAV)/Drone and ground proofing visual assessment to determine general pavement, grading and/or drainage issues.
6. Analyze roadway segments and areas to develop prioritization of needs and define project areas and estimated construction costs. Collected data is 'stitched together & transformed

into 3D models & Point clouds.

7. Develop Capital Improvement program for roadway resurfacing/rehabilitation, utility exercise schedule and general deficient roadway characteristic improvement. The CIP will be summarized in a prioritized manner with estimated construction cost associated with each improvement.
8. Prepare final report and color-coded wall map. Ten (10) copies of the "Final" report will be provided to the City and an electronic version of the report.

Processed data goes through an in-depth analysis through Artificial intelligence & Machine learning algorithms. During this step, we classify the anomalies on the pavement as per the pavement analysis criteria. The Insight based report is developed to summarize the findings. This report shall cover:

- 1) Processed GIS data & images as per KML/KMZ format
- 2) PDF document of the final analytical reports

**Schedule:** We are currently developing the algorithms and building the UAV/Drone package based on the above criteria. Our team anticipates mobilization by February 14, 2020. \*We are open to schedule adjustments as soon as execution of proposal.

**Fee:** Our fee for this project will be a fixed fee amount based on the above project scope as follows. Our fee for the UAV/Drone Pavement Analysis and Utility Assessment including any and all sub-consultant fees and/or reimbursables, broken down as follows:

Task 1: Pavement Analysis Services/Data Collection	\$20,000.00
Task 2: Utility Analysis Evaluation/Data Collection	\$20,000.00
Task 3: 3D Data report compilation	\$10,000.00
Total:	\$50,000.00

### **EXCLUSIONS**

We do not anticipate any permits for the UAV/Drone but if required all permit fees shall be paid by the City on an as-needed basis. This scope also does not include any field surveying, soft dig utility locates or geotechnical services.

We are ready to begin working on this assignment upon your authorization to proceed. If acceptable to you, please forward an authorized work order and we shall proceed immediately upon receipt of a notice to proceed.

Respectfully Submitted

Roderick Myrick, PE  
Principal