



Department of Public Works

Engineering Division

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DATE: March 12, 2019

TO: CONSULTANTS SUBMITTING PROPOSALS FOR ENGINEERING SERVICES

FROM: ROBERT F. PHILLIPS, CITY ENGINEER

SUBJECT: RFP QUESTIONS & ANSWERS FOR: LEAF-ON 2019 LIDAR, HYPERSPECTRAL IMAGERY & ORTHOPHOTOGRAPHY COLLECT

The City of Madison Engineering Division is requesting consultant proposals for Leaf-On 2019 LiDAR, Hyperspectral Imagery & Orthophotography Collect. The intent for the Request for Proposal is to allow consultants the opportunity to enter into a contract with the City of Madison for the required work as detailed in the Request for Proposals (RFP).

Included in this RFP update are the compiled questions received from consultants, and the responses from the City of Madison. An additional GIS shapefile providing the area of interest (AOI) for the project is also included. While the questions and answers are included in all of the city's online RFP locations below, the shapefile is only available at the City of Madison Public Works website.

The included documents include the following:

- Compiled Questions & Responses

Relevant Project files include the following:

- Exhibit1-AOI.mxd

The additional documents may be obtained at any of the following online locations:

- State of Wisconsin, VendorNet System – www.vendornet.state.wi.us
- City of Madison Public Works – www.cityofmadison.com/business/pw/requestforproposals.cfm
- Demandstar by Onvia:- www.demandstar.com

The project AOI file can be found here:

- City of Madison Public Works – www.cityofmadison.com/business/pw/requestforproposals.cfm

Interested Consultants shall submit one (1) hardcopy and one (1) electronic copy of their Proposals to the Office of the City Engineer by 4:00 PM on March 15, 2019. Submit proposal to:

City of Madison, Engineering Division
210 Martin Luther King Jr Blvd., Room 115
Madison, WI 53703

Proposals may be submitted electronically to Phil Gaebler at pgaebler@cityofmadison.com.

Please carefully review the RFP and follow all instructions. The successful Consultant must be agreeable to the City Of Madison standard contract language in the Sample Contract. Questions regarding this project may be directed to the project manager, Phil Gaebler, at (608) 266-4059 or pgaebler@cityofmadison.com.

Sincerely,

A handwritten signature in black ink, appearing to read 'R. Phillips', with a long horizontal flourish extending to the right.

Robert F. Phillips, P.E., City Engineer

RFP:pg

cc: Greg Fries, City Engineering
Janet Schmidt, City Engineering
Lucas Wardell, City Engineering

	Questions	Answers
1	Task 3 states, "Collect raw data with 5nm band spacing, visible, near-infrared and short-wave infrared hyperspectral imagery (HSI) that will allow for the classification of multiple tree species." However, it is unclear if a specific spectral range is required. Typically, I would use a Visible through Near Infrared (VNIR) hyperspectral sensor which covers wavelengths from 400-1000nm and breaks up the spectrum into 128 bands at 5nm band spacing. Alternatively, I could employ a larger and more expensive sensor that covers the Shortwave Infrared spectrum extends the spectral range to 400-2500nm. Does the City of Madison have a preference on which type of hyperspectral sensor to use? Is VNIR only preferred?	The goal of the project is to classify individual species of trees and be able to display and analyze this information within ArcGIS. It is our understanding that VNIR sensor would be adequate to achieve this goal. If a firm believes that this is not the case and that a broader range of wavelength is necessary they should provide justification for the need and associate project experience to support their approach.
2	Does the City of Madison have a preferred spatial resolution for the airborne hyperspectral imagery? Typically, I would plan such a project with square pixels at 1.0m ground sampling distance, but I can customize this as necessary.	Madison does not have a preferred spatial resolution for the hyperspectral imagery. The resolution just needs to be fine enough to effectively complete the tree species classification task.
3	It would be most useful for flight planning and costing calculations to have a boundary shapefile (.shp or other common vector format) which delineates the Area of Interest (AOI). Could the City of Madison please provide this?	Madison has included the City of Madison Shapefile. The file can be found with the RFP documents at the city of madison public works website: http://www.cityofmadison.com/business/pw/requestForProposals.cfm
4	Does the City of Madison has ever done a Hyperspectral survey before?	NO
5	which sensor was used SWIF, MWIR or LWIR?	The City of Madison has not done this before
6	Does the City of Madison have the spectral signature for the 3 tree species you are referring to?	The spectral signature will have to be collected as part of this task.
7	It is not mention in the RFP that we can use one of the two submit options, in the case we submit the proposal via email we do not need to send it by mail?	Please submit one Hard copy and one electronic copy.
8	Can we negotiate the Net 30 payment term, by offering a discount?	We can accept prompt payment discounts. Please specify the terms of any discounts in the proposals.
9	6.Is the City of Madison willing to give a down payment in return for a higher discount?, if yes, which percentage of down payment is willing to give Vs which discount percentage is expecting to receive?	The city of Madison can not give a down payment. We can only pay for tasks that have been delivered.
10	For the LIDAR data, is the City suggesting that the nominal pulse spacing supports two foot contour interval? The RFP also requests class 1 accuracy standards for LIDAR. Typically LIDAR standards are based on pulse density that supports a given vertical accuracy (RMSEz). Is there a pulse density and vertical accuracy requirement, or is it up to the Consultant to make a recommendation?	This one is up the to the consultant. The vertical accuracy is not that important except to be able to differentiate between shrubs and trees.
11	For the LIDAR data, the classified point cloud is a requested deliverable. Please provide the classification scheme and codes that are expected in the classified .las.	Please use LAS format 1.4. http://desktop.arcgis.com/en/arcmap/10.3/manage-data/las-dataset/lidar-point-classification.htm

12	Does the City have requirements beyond tree classification (since short wave infrared is not required for tree species classification it can be achieved with the near-infrared bands from hyperspectral imagery)? Is the short wave hyperspectral imagery a requirement or is the species classification the primary requirement?	Species classification is the primary reason for the hyperspectral imagery
13	Does the City have a tree species database in GIS format that will be available to the contractor? If so is it currently available?	The City has limited tree species data in GIS format. A street tree layer was developed in 2012 and consists of species and breast height diameter of the trees. As this dataset is 6 years old there have been significant changes to the terrace tree mix. This layer will be posted with the city boundary layer.
14	Must the Consultant follow the exact scope of services, or can the Consultant offer an alternate approach to create hyperspectral imagery deliverables required in the RFP?	The consultant can suggest an alternative to the scope of services. Please insure that your response is detailed enough to explain how the project objectives can be met with the alternative approach.
15	Can Consultant classify trees species by integrating all the data sources together for the classification rather than just using hyperspectral imagery?	Yes
16	The RFP section 6.6 'Proposed Schedule' suggests 90 day and 120 day turnaround for ortho and LiDAR respectively. Is there a requested timeline for the processing and classification of the hyperspectral imagery deliverables, or is it up to the Consultant to recommend a delivery schedule?	It is up to the consultant to suggest a time line for delivering the tree species classification.
17	We do have a question about ownership of data and contract product related to the RFP. After contractors submit the data and final product to the city, the data and product can be available to the public to download or use for other purposes? For example, can UW researchers use Lidar, ortho photos, and hyperspectral imagery for their own research interests and teaching, and publish what they find from the data?	The City of Madison would own the data and would have the right to distribute the data. We have not made a determination whether we will make this information publically available, when that would happen and the mechanism for distribution.