

# *REQUEST FOR INFORMATION*



Roadway Flooding Sensor Network  
WR-RFI-202001  
July 2019

## REQUEST FOR INFORMATION (RFI)

Hampton Roads Planning District Commission

ISSUE DATE: July 25, 2019

RFI No: WR-RFI-202001

TITLE: Roadway Flooding Sensor Network

ELEMENT No: 233520

### **Introduction:**

The Hampton Roads Planning District Commission (HRPDC) is seeking qualified and experienced vendors to provide information on the development of a regional roadway flooding sensor network.

The purpose of this Request for Information (RFI) is solely for the purpose of gathering information from Providers that will allow the HRPDC to gain a better understanding of options for managing and collecting roadway flooding data.

### **Organizational Overview:**

The Hampton Roads Planning District Commission (HRPDC) is one of 21 Planning District Commissions in Virginia, and is a regional organization representing Hampton Roads' 17 local governments and 1.7 million residents. The HRPDC serves as a resource of technical expertise to its member local governments, providing assistance on local and regional issues pertaining to Economics, Emergency Management, Housing, Planning, Environmental Education, and Water Resources.

The Hampton Roads Transportation Planning Organization (HRTPO) serves as the Metropolitan Planning Organization (MPO) for the Hampton Roads region of Virginia, and is responsible for transportation planning and decision-making in the region. The HRPDC is the fiscal agent for all HRTPO financial and grant activity. The HRPDC and HRTPO receive federal and state grant funding, as well as contributions from all member localities both for general dues and specific programs.

### **Background:**

The Hampton Roads Planning District Commission serves as a resource of technical expertise to its member local governments. The Organization provides assistance on local and regional issues pertaining to Coastal Resiliency. The concept of a regional roadway flooding sensor network has been endorsed by the HRPDC Coastal Resiliency Committee.

## **Goal of the RFI:**

HRPDC would like to develop a regional network of water level sensors to monitor roadway flooding. The objective is to provide drivers with real-time data that would encourage them to choose alternate routes to avoid delays caused by flooded roads and minimize damage to vehicles from driving through water. Ideally, the data would be delivered to drivers through popular apps such as Google Maps and Waze so drivers would not have to sign up for alerts to benefit from the sensor data.

HRPDC Coastal Resiliency committee has identified over 200 locations in which roadway flooding occurs and sensors should be installed (see Attachment A for map and locations). The committee would like to balance the need for system reliability with the desire for a cost effective sensor network. The sensors' primary function is to provide data during moderate weather events. The expectation is not to rely on sensors during hurricanes or extreme wind events. Proposals are encouraged to consider integrating existing regional and municipal assets and partnerships such as the broadband ring, expansion of 5G cellular, and HRSD server capacity into the solution to minimize the cost. However, respondents should be creative with their proposals for connectivity and data encoding, transfer, storage and delivery.

### **QUESTIONS: Please address the following questions in your response.**

1. What sensor model would you recommend for the regional network? Please provide the following information about your recommended model: cost, connectivity (satellite, cell, LoRaWAN, Wi-Fi), accuracy for depth of water (water level compared to roadway elevation), power source
2. What sensor model would you recommend for locations along evacuation routes or considered critical during extreme weather events?
3. What type of mounting system would you recommend to install sensors over the roadway? Please address an assessment of the hardiness of the system to wind or other hazards that might damage or knock down the sensor and the cost of the mounting system.
4. What type of data gateway would you recommend? Please provide the following information : cost, maximum distance from sensors, power source and typical duration of battery life or other limitations
5. Could other types of sensors like rainfall gages be added to the system? How would existing water level sensors be integrated into the new system?
6. What type of data management and QA/QC would you recommend between the collection of the sensor data and distribution of the data to the public and researchers? Please address the potential to meet the goal of real-time data distribution.

7. How would you structure an O&M contract to repair sensors and provide regular maintenance on batteries or other parts that require regular replacement? Please address active monitoring or alternatives to quickly detect faults and identify a reasonable service delivery time for repairing equipment.
8. How would you deliver data to WAZE (format, contract)?
9. Please describe any partners whose cooperation would enhance your ability to deliver services under the initiative and/or reduce your time and cost to deploy the system.
10. Please describe your notional timeline to setup the system and have 20 sensors functioning.
11. How would the proposed sensor system evolve with technology to avoid obsolescence and maximize efficiency and performance over time?

**RFI Providers should address the following:**

**Format of RFI Responses:**

The following outline is offered to assist in the development of your response.

One (1) original, (5) copies and 1 electronic (USB) are requested.

1. A cover letter – the cover letter must include a brief summary of your response.
2. Your response to any or all of the RFI goals and objectives.
3. If necessary, please include a glossary which describes the terms used in your response to this RFI.

Regarding size of the RFI response, no limit is made on the number of pages submitted; however, we ask that your responses be provided as an introduction to, rather than a full explanation of, a proposed solution. Additional details may be requested in follow-up correspondence.

Supporting documentation will be accepted, but you must indicate which portions of the supporting document are relevant to this RFI.

**How to Submit:**

One (1) original, five (5) copies and one (1) electronic (USB) copy are requested to be in a sealed envelope or package and must be received by the receptionist at the address provided below on or before 2:00 P.M. on Tuesday, August 27, 2019:

Danetta Jankosky  
Procurement Officer  
723 Woodlake Drive  
Chesapeake, VA 23320

The Organization shall not be responsible for any expense incurred by the Provider in preparing and submitting a Request for Information. All submissions are final, and may not be withdrawn.

This document is a Request for Information only. There will not be any award of a contract, and may not take any further action on the basis of this Request for Information. Provider's response will be treated only as information.

Ownership of all data, materials, and documentation originated and prepared for HRPDC pursuant to this RFI shall belong exclusively to the HRPDC or HRTPO and be subject to public inspection in accordance with the Virginia Freedom of Information Act. Trade secrets or proprietary information submitted by the Provider shall not be subject to public disclosure under the Freedom of Information Act, unless otherwise required by law or a court; however, the Provider must invoke the protection of Section 2.2-4342(F) of the Code of Virginia, in writing, either before or at the time the data or other material is submitted. The written notice must SPECIFICALLY identify the data or materials to be protected and state the reason why protection is necessary. The proprietary or trade secret material submitted must be identified by some distinct method such as highlighting or underlining and must indicate only the specific words, figures, or paragraphs that constitute trade secret or proprietary information. The classification of an entire response document, line item prices, and/or total prices as proprietary, or trade secrets, is NOT ACCEPTABLE.

**Questions and Further Information:**

All questions concerning this RFI must be submitted **in writing** to:

Danetta M. Jankosky, Procurement Officer  
Email: [djankosky@hrpdcva.gov](mailto:djankosky@hrpdcva.gov)