



## 23-0090 SCOPE OF WORK

### INTENT

The intent of this bid is to seek a qualified vendor to provide plans, specifications, flood monitoring equipment, and installation services for the upgrade and expansion of the existing network. The ALERT system will be upgraded to the ALERT 2 network to provide increased performance and reliability of data transmission. Three (3) additional flood monitoring sites will be constructed to expand the existing network into known flood hazard areas.

This Request for Proposals outlines the general requirements work to be performed at each site. It will also provide technical information of the existing network to ensure that all existing equipment to remain in place will be compatible with the proposed upgraded equipment.

Prospective vendors may subcontract portions of the work to provide a complete scope of services. It shall be the responsibility of the selected primary vendor to ensure full compatibility and functionality, as described herein, of each existing and proposed flood monitoring station. References to “Vendor” within this Request for Proposals shall include the primary vendor and subcontractors, when applicable.

### PROJECT BACKGROUND

The City of Arlington operates a Flood Monitoring System with of six (6) unique sites. Each site consists of a tipping bucket rain gauge to monitor rainfall, and a pressure transducer stream gauge to monitor the water surface elevation. These remote sites operate on the ALERT (Automated Local Evaluation in Real Time) network, which relays data to a base station operated by the City. The Flood Monitoring System allows the City to observe rainfall conditions and corresponding stream heights to coordinate flood response efforts during and after severe weather events.

### WORK TO BE PERFORMED

#### Upgrades from ALERT to ALERT 2:

Existing Flood Monitoring site locations are shown in Exhibit A.

Vendor will select hardware to replace existing components that operate via ALERT. All equipment selections shall be in accordance with **Section 3 Technical Requirements and Compatibility below**.

Vendor will install and configure new equipment to operate within City network.

Vendor will ensure that City’s Base Station receives data from all remote sites.



### **Proposal for Flood Monitoring equipment at 3 new sites:**

At each proposed Flood Monitoring location as shown in **Exhibit A**, vendor will propose equipment assemblies with capability to monitor rainfall and stream depth, and then transmit data to Base Station via ALERT 2.

At Bowman Branch at Webb Ferrell Road site, vendor will also propose advance warning flasher beacon equipment for. Flasher beacon assemblies shall operate as secondary units to master unit at the Flood Monitoring cabinet assembly.

Flasher beacons shall be configured to automatically engage when a pre-determined stream elevation is reached. Flashers shall remain in operation until stream elevation recedes to pre-determined stream elevation.

Flasher beacons will be installed at the following locations:

- Northbound Webb Ferrell Road near Deer Hollow Drive
- Southbound Webb Ferrell Road near Hanrahan Avenue
- Westbound Hanrahan Avenue at Webb Ferrell Road
- Vendor will propose signage recommendations including locations, sizes, and messaging. Signage shall be approved by the City.

### **Design Plans for proposed sites:**

The successful vendor will be required to submit engineering plans to the City for review and approval prior to the installation of new Flood Monitoring and Warning equipment. Plans will be developed by vendor under the guidance of the City. Plans shall include, at a minimum:

- Site plan/layout sheet showing proposed location for all Flood Monitoring equipment cabinet assemblies, power sources, pressure transducers, advance warning flasher beacons, signage, and other critical project components.
- Standard Detail Sheets for all Flood Monitoring equipment cabinet assemblies, advance warning flasher beacon assemblies, foundations, pressure transducer and conduit mounting, signage, and other critical project components.

### **Installation of all new equipment:**

The successful vendor will install all approved equipment in accordance with the accepted design plans for proposed sites.



### **Setup and Configuration with Contrail Software:**

Upon installation of all equipment in accordance with this project, the vendor will configure the City's Contrail system to collect data from all remote locations through the ALERT 2 Base Station. Vendor will review settings within Contrail for all sites to ensure system is properly calibrated to accurately record data. Vendor will assist City to create active warning alarms through Contrail when specified events are recorded at monitoring sites.

Vendor will assist with establishing connection with City of Grand Prairie ALERT 2 Base Station for stream gauge data collection to provide redundancy for the Cities of Arlington and Grand Prairie.

### **Inspections and Maintenance:**

The vendor will perform semi-annual inspections and standard maintenance for a period of up to 4 years after the acceptance of installed improvements, a total of four (8) inspections. Annual renewals will be authorized by the City based on warranty requirements, performance, and cost of inspections services. Inspection and Maintenance Procedures are provided in Exhibit B and shall apply to all existing and proposed sites.

Vendor will provide City staff basic training for how to inspect and maintain equipment to troubleshoot issues discovered between scheduled inspections.

Vendor will provide a recommended list of standard parts that should be kept in stock by City for regular maintenance repairs. List shall include manufacturer item number, item description, and unit price.

## **TECHNICAL REQUIREMENTS AND COMPATIBILITY**

### **General:**

- All components shall be configured to operate via ALERT 2.
- All equipment shall be compatible with City's existing Base Station, which is comprised of the following components:
  - High Sierra Model 1012 ALERT 2 Base Station Decoder
  - High Sierra Model 7101 Broad Band Antenna – 6dB omni gain
- Vendor shall perform a path analysis of flood monitoring locations to ensure chosen equipment at each flood monitoring site is configured to transmit data between the respective site and the Base Station under typical monitoring conditions.



### **Upgrades from ALERT to ALERT 2:**

Existing flood monitoring sites shall be configured for existing assemblies. Each site is comprised of the following components:

- High Sierra Model 3424-06 Packaged Rain Gauge Station. Includes:
- Model 7000-13 Standpipe Assembly
- Model 3306-00 ALERT Transmitter
- Model 2400-15 Rain Gauge Top Section
- Model 7110-00 Omni-Antenna, Mast, and Cable
- 12 AH Transmitter Battery
- 100 mA Solar Panel
- Pressure Transducer; 0.1% 0-5 VDC Output

### **Flood Monitoring Equipment Assemblies and Locations:**

Flood Monitoring equipment assembly at proposed sites shall house the transmitter, supporting electronics, and battery within a NEMA 4X cabinet enclosure. The cabinet shall be positioned so that it is easily accessible for inspection and maintenance.

Cabinet Assemblies should be mounted outside SHFA, but within the City right-of-way or public drainage easement. The assembly should be directly accessible from a public street, with sufficient space to park a maintenance truck nearby.

Pressure Transducers shall be in a location that is accessible for inspection and maintenance. Where possible, they should be mounted in a position that is protected from receiving damage from passing debris. Cable shall be housed in secure conduit. PT shall be capable of reading flood depth to minimum of 100-year base flood elevation for each site.

### **Power Sources for Master/Secondary Units at proposed Webb Ferrell Road site:**

Proposed units shall run on AC power.

Solar DC power shall be provided as a backup in the event of a failure of the primary power source.

### **Warranty:**

The vendor shall warranty all parts and installation labor for a minimum of 2 years after the acceptance of installed improvements.