



Date: November 18, 2013  
To: Water Utility Board  
From: Kelly Miess, PE  
Al Larson, PE, BCEE  
Re: **Request to Advertise for Engineering Design Proposals**  
Project: **Booster Pumping Station 115 Upgrades**

### General Scope

Madison Water Utility is seeking to advertise for proposals from interested, qualified firms to provide professional engineering services for the upgrade of Booster Pumping Station 115 (BPS 115). BPS 115 is located on Bunker Hill Lane near the intersection of Interstate 90/94 and Highway 151. Professional engineering services would include but not limited to planning, alternative development, site layout, design, coordination, and construction administration for the upgrade of the facility on the existing site.

### Background

Booster Pumping Station 115 serves Pressure Zone 6E and consists of a pump station with three constant-speed split case centrifugal pumps and a 3 million gallon ground level reservoir. BPS 115 provides localized low pressure relief in the Bunker Hill area and is a critical fire flow supply to the nearby East Towne Shopping Center commercial area. During routine operation, the pumps draw water from the reservoir and pump to the local area approximately 8 hours per day.

The 2006 Water System Master Plan recommended upgrades to the Station to meet two objectives:

- Converting the area around the Booster Pump Station to Pressure Zone 3 to mitigate chronic low pressure problems. The area has average pressures in the 30-35 psi range when the pumps are not running and 40-45 psi with pump operation.
- Enhancing the pumping configuration to allow the Station to serve as a redundant supply point to Zone 3 from BPS 115, while continuing to provide fire protection to the East Towne Mall area.

To these ends, one existing pump would be converted to a high-head pump and a 4<sup>th</sup> high-head pump added to serve Zone 3. In keeping with MWU's standard to utilize variable speed pumping, the two Zone 3 pumps would be upgraded with new variable frequency drives.

To ensure reliability of operation at BPS 115, the project will also add a standby power generator to the facility. This will ensure that the station will be able to operate through power outages providing water service and fire protection to both Pressure Zone 6 and 3.

MWU Engineering staff request permission to advertise for qualified applicants to submit proposals to develop drawings, specifications and contract documents to complete this upgrade and correct an

identified deficiency in the system. Converting the area from Zone 6 to Zone 3 will increase pressures by an average of 26 psi and bring the area into compliance with pressure standards.

#### Staff Availability

MWU Engineering staff does not have the expertise in electrical engineering required to complete this project. MWU will work closely with the selected consultant to ensure project objectives are met.

#### Estimated Cost

Total design and construction project budget for the upgrade of Booster Pumping Station 115 is established at \$952,000.

#### Project and MWU Mission

This project addresses two deficiencies identified in the Master Plan by mitigating chronic low water pressures in the Bunker Hill neighborhood and providing a second supply point into Pressure Zone 3. Meeting these objectives supports MWU's core mission to provide water to customers for consumption and fire protection, and helps MWU achieve its goals for adequate water quantity, pressure, operational optimization and reliability, and infrastructure stability.