



MEMORANDUM

To: Mayor and City Council

From: Kevin Richardson, Fire Department

Date: June 11, 2019

Re: Purchase of Outdoor Warning Sirens and System Upgrades

2030: Sustainable City Government

Introduction:

The Outdoor Warning (Siren) System or OWS remains an integral component of our overall emergency warning and public alerting strategy. The City of Coppel currently employs twenty-one sirens as part of the warning capability to alert citizens of immediate threats including weather and other conditions. The current siren coverage fails to meet a level necessary to ensure that it is audible above background noise levels for persons outdoors in various locations throughout the city. As a result, budgetary funding has been approved to implement two outdoor warning sirens during this budget year. Additionally, malicious activations of outdoor warning sirens in jurisdictions in the DFW Metroplex over the last several months have exposed security vulnerabilities that are easy to exploit. The siren manufacturer has developed firmware and software upgrades to close those gaps. Due to the age of some of the Coppel sirens, some hardware upgrades are required to support the enhanced capabilities.

Analysis:

Coverage / Sound Level Requirements - Effective and comprehensive emergency notification systems demand multiple methods or communication “layers” for issuing warnings and alerts. The OWS clearly fulfills a vital role by ensuring the ability to reach people who are outdoors and who do not have other means of warning accessible. The OWS also provide a layer of redundancy to those that have other established means of warning, in the event that their primary source is not available. The goal coverage for OWS is an estimated 15 dBA above the average ambient sound level. The existing siren coverage does not provide adequate elevation above ambient outdoor background noise in multiple identified areas. It will require a minimum of two additional sirens to meet the recommended warning levels necessary to overcome ambient noise floors. After installation of all the recommended

equipment, it will be necessary to reassess the siren efficacy. These recommendations are based on the Outdoor Warning System Sound Study Report prepared for the Coppell Fire Department by Behrens and Associates, Inc. dated March 1, 2018.

Security Vulnerabilities and Recommended Firmware / Software / Hardware Update – In April 2017, a hacker set off 156 sirens in the city of Dallas in the middle of the night. On March 12, 2019, between 2:30 and 4:00 AM, a hacker set off thirty outdoor warning sirens in the cities of DeSoto and Lancaster. It wasn't until the 2019 malicious activations that the methods used were identified and the security measures developed to close the gaps. With the legacy firmware and hardware, employing both code-based and time-based encryption protocols still left systems vulnerable to hackers.

To protect the Coppell Outdoor Warning System sirens from known published vulnerabilities, an upgrade of hardware, firmware and software is necessary. Due to the age of some of our siren controllers, the main boards of several units will require replacement. Additionally, the software will require upgrade to the latest available version to support the newest security features. Along with the security features, the upgraded software will add new features including cloud-based management, mobile and automated activation capabilities. With the new hardware and software, the system will also be capable of voice-based warning messages for appropriate scenarios. The new enhancements will allow implementation of all available security countermeasures and close all known vulnerability gaps. In addition to the manufacturer and vendor, the upgrades are also being coordinated with the Coppell Department of Enterprise Solutions to ensure any related network or software vulnerabilities are addressed.

This request is to purchase and install (2) outdoor warning sirens at new locations, replace the controller hardware at seven siren sites, upgrade the firmware and configurations at all sites and upgrade the control software. The new sirens will be installed to enhance coverage along the East Sandy Lake corridor and north of the Sam Rayburn Tollway. The fiscal impact of this agenda item is \$100,146.00 total (\$75,042.00 for the two new siren sites and \$25,104.00 for the hardware, firmware and software upgrades). Funds in the amount of \$70,000, were approved in the 2018-2019 Annual Budget in Emergency Management account 10104225-6925 for the purchase of outdoor warning sirens. The remaining balance of \$30,146.00 is being requested from unappropriated contingency.

Legal Review:

Agenda item did not require legal review.

Fiscal Impact:

Funds in the amount of \$70,000 have been budgeted in Emergency Management – Communications Equipment (10104225-6925) and the remaining \$30,146 will be funded from the General Fund Operating Budget.

Recommendation:

The Fire Department recommends the purchase and installation of two additional outdoor warning sirens and the purchase and upgrade of the existing siren control hardware, firmware and software to meet security recommendation. This purchase will be made from Joe Goddard Enterprises LLC, pursuant to the standard form purchasing contract resulting from BID #Q-0818-02.