

Memorandum



Date: August 14, 2009

To: Mayor Pro Tem Dwaine R. Caraway, Chair
and Members of the Public Safety Committee

Subject: **Outdoor Warning Siren System Update**

On August 17, 2009, the Public Safety Committee will be briefed by the Office of Emergency Management on the "Outdoor Warning Siren System".



Ryan S. Evans
First Assistant City Manager

Attachments

cc: Honorable Mayor and Members of the Dallas City Council
Mary K. Suhm, City Manager
Deborah Watkins, City Secretary
Tom Perkins, City Attorney
Craig Kinton, City Auditor
Victor Lander, Administrative Municipal Judge
Jill A. Jordan, P.E., Assistant City Manager
A.C. Gonzalez, Assistant City Manager
Forest E. Turner, Assistant City Manager
Dave K. Cook, Chief Financial Officer
Helena Stevens-Thompson, Assistant to the City Manager Mayor/City Council Office



Outdoor Warning Siren System Update

Public Safety Committee Briefing

August 17, 2009

Office of Emergency Management



Background Information

- The first sirens were placed in Dallas following a 1957 tornado that killed 10 people, injured 200, and caused \$2.5 million in damage
- Most of the old civil defense sirens were installed in the 1950s and 60s
- Sirens are one of the primary means of Mass Notification for the City of Dallas.
- Council approved the purchase of a new Outdoor Warning System (May 2007)
- Prior to the project the last sirens were purchased in 1999.
- The current sirens system is maintained by the City's Street Services - Flood Control Division.



Operation and Maintenance

- Office of Emergency Management oversees the program and activates the sirens
- Police Dispatch is the secondary activation point
- Streets Department - Flood Control Division electricians perform maintenance on sirens
- 30 year *reliable* life expectancy

Coverage Prior to Project

- 60% of the land area
- 83% of the population
- Average of 1 mile radius
- Estimates for “full coverage” 125+ sirens are needed to appropriately cover the City



This figure illustrates the 1 mile coverage radius for a siren.

Outdoor Warning System – New System Overview

- Virtually 100% Coverage
- Approximately 150 sirens will canvas the City to provide appropriate coverage.
- Voice Capable Sirens in areas with large outdoor gatherings (White Rock Lake and Fair Park)
- Allows silent testing
- Allows individual sirens or neighborhoods to be activated, as well as activate “citywide”

Phase 1 – Overview

- 250K City funding (Equipment Notes)
- Initially intended to fill in gaps
- Paved the way for complete system upgrade:
 - Conducted citywide survey and identification of optimal locations for new sirens, based on coverage
 - Upgraded siren radio system so sirens can utilize the City's 800 MHz system
 - Purchase of initial 10 sirens
 - Upgraded both activation points with new control software (OEM & Police Dispatch)



Phase 2 – Overview

- \$3.3 Million as part of 2006 Bond Initiative
- Resume installation of sirens based on locations identified by site survey's (Phase 1)
- Acceptance testing of entire system
- Contractor will train Streets Flood Control personnel on maintenance and repair procedures
- Increase public education for citizens pertaining to warning system



Site Selection Process

- Site is first recommended by contractor
- Various variables are evaluated for each location (elevation, foliage, population density, etc.)
- Sign placed at each location for public feedback
- Sirens are placed in City Right-of-Way or on City property
- Various City Departments will visit each location and signoff
- Site must have available power nearby and Oncor is consulted for each proposed location
- OEM visits each location before installation is approved



Challenges

- Available right-of-way in some locations
- Underground utilities in right-of-way
- Some proposed sites did not have available power and required alternative locations
- Concerns from citizens pertaining to sites that encroach neighborhoods areas
- Troubleshooting problems at some locations
- Blending of sirens aesthetically in neighborhood areas

Comparison of Sirens & Technology



Vs.



- 30+ year old technology
- One-way communications
- No remote diagnostic information available
- Activation of sirens can be done by sectors
- Parts needed for repairs are not readily available
- Audible testing required

- State of the art technology
- Two-way communication, allows for diagnostic tests
- Activation done by computer and activation more versatile & flexible
- Parts can be shipped within hours of order
- Audible or silent testing can be performed

2001SRNB Siren



➤ *Siren produces 130dB at 100ft*

- A rotating directional, electro-mechanical siren that covers more than 3.5 square miles
- Produces three high powered signals
- AC/DC operation
- Supplies minimum of 15 minutes full power output from batteries after AC power loss
- Produces a 60 degree projection of sound which rotates at 3RPM

Modulator Series Siren - Speaker Array



- Highly efficient design produces high intensity warning signals, and makes moderate demands on the battery power source
- Up to 7 different warning signals, voice communication, and continued emergency operation regardless of primary power outages
- Excellent frequency response for crystal clear voice reproduction
- 360 degree coverage with no sound variation in the horizontal plane

Federal Commander Digital System TM



Complete, secure activation
and status monitoring
of any siren

- Point and click activation and polling
- Maps with color-coded status of each siren
- FSK digital encryption
- Complete RTU configuration and reprogramming from control site
- “Digipeat” system feature eliminates the need for radio repeater systems
- Automatic call-out function to alert key personnel of events
- Password protection for Activation, Operator and Administrator levels
- Complete storage of all status and alarm data
- Automatic notification of change in AC Power, Low Battery, Intrusion, etc.
- Remote system control

Current Status

- 88 Sirens have been installed to date
- Additional 20 sirens to be installed by end of August
- Continue to finalize site locations for remainder of system by the beginning of September
- Have trained OEM staff and Dallas Police Supervisors in Communications on the new system

Projected Project Cost Estimate – Phase 1 & 2



Estimate includes:

- Siren speaker arrays (Selected areas voice capable, i.e. Fair Park);
- Siren controllers (EOC, Police Dispatch & Portable Controller);
- Siren radio controls;
- Antenna and cabling;
- Encoders;
- Concrete poles;
- Lightning arrestors and;
- Batteries

Total – \$3,450,000.00

Picture of Installed Siren

West Jefferson Ave and 10th Street



Picture of Installed Siren

East 7th and N. Crawford St.



Equipment Cabinets





Timeline

- May 2007 – Contract signed and present to council
- June 2007 – Began comprehensive survey and identify siren locations
- September 2007 – Installation began
- November 2007 – Sale of Bonds and beginning of Phase 2
- October 2009 – Finish installations, begin acceptance testing, and completion of project



Summary

In summary, this project is essential for providing appropriate warning to the citizens of Dallas.

The current project is within budget and should be completed October 2009. OEM will continue to coordinate site locations and work with the contractor on installing the remainder of the sirens.