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Considerations in Upgrading Emergency Communications Technology

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There is considerable activity in Texas with regard to PSAP systems upgrades and creation of IP networks to support Next Generation 9-1-1 functionality. There is also significant downward pressure on capital and operating expenses at all levels. This paper is intended to provide points to consider when contemplating technology and networking initiatives to support improved Emergency Communications.

This is not intended as a thorough treatment of these issues, but to introduce "food for thought" that will allow a rational examination of issues related to upgrade initiatives. Key considerations that overarch the following points are as follows:

- **If one-time funds are available for upgrades and ongoing costs are not materially affected, then seriously consider the upgrade(s).**
- **If the life cycle costs of technology changes will result in improved operations at similar costs or will result in reduced ongoing costs, consider the upgrade(s).**
- **If State or Federal mandates require upgrades, investigate the most economical means to meet the requirements of the mandates.**

Topics for considerations are as follows:

- Upgrade Drivers
- Reasons to upgrade
- Timing Considerations
- PSAP Equipment Considerations
- Network Considerations

Upgrade Drivers

The current drivers for upgrading PSAPs and Networks include the following:

- Next Generation 9-1-1 Standards
- New software-based and standards-based NG9-1-1 systems
- Radio Interoperability (integration of disparate radio systems)
- P25 Digital Radio initiatives
- Improved emergency communications, response integration and disaster management initiatives

Changes in current systems and network technologies should take these issues into account.

Reasons to Upgrade

- Reduced ongoing costs
- Improved public safety response performance
- Improved emergency management and disaster recovery performance
- Governmental mandates

Timing Considerations

- When will true NG9-1-1 calls be presented to the PSAPS? (e.g., text messages and cell phone video)
- When will IP Selective Routing be available to the PSAPs?
- What are the demands for multi-region cooperation and integration?
- What Federal and State mandates will be put in place?

PSAP Equipment Considerations

- What are the life-cycle cost improvements resulting from PSAP technology upgrades?
- What operational improvements and/or cost reductions can be effected from upgrades?
- Can lower cost, incremental hardware or software upgrades meet most or all of the desired improvements?
- What clear requirements or benefits exist today to implement IP 9-1-1 calls to the PSAP?

Network Considerations

- What are the life-cycle cost improvements resulting from network upgrades?
- What operational improvements and/or cost reductions can be effected from upgrades?
- What is the status of regional IP Selective Routing systems to bring calls to the PSAPs?
- What is the status of regional and Statewide ESINet functionality?
- What are the benefits of improved radio interoperability and network cost sharing?
- What are the benefits of load sharing, failure recovery and disaster management, independent of IP Selective Routing and ESINet functionality?

As you can see, there are a number of issues that should be considered when contemplating technology and/or network upgrades to begin or continue the transition from current, conventional E9-1-1 PSAPs and networks to IP networks and systems that are capable of migrating to NG9-1-1, standards-based networks and systems.

In summary, **life-cycle costs** and **functional improvements** should be the key considerations in your planning processes.

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