ATTACHMENT 3

King County

Technical Evaluation of King County's Implementation of Next Generation 9-1-1

FINAL REPORT

SUBMITTED MAY 2015 TO:
King County, Washington

MissionCriticalPartners
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EXECUTIVE SUMMARY

Mission Critical Partners, Inc. (MCP) is pleased to present the results of the King County, Washington, Next Generation 9-1-1 (NG9-1-1) Technical Review. The primary goal is to provide King County (County) with observations and recommendations based on national standards that can be used to develop a solid and sustainable NG9-1-1 strategic plan going forward. The County also has engaged an outside firm to review historical financial information for the King County E9-1-1 Program Office (PO) and determine to what extent the program faces a budget shortfall over the next seven years.

MCP was tasked with reviewing the PO initiatives as they relate to the transition and implementation of NG9-1-1, and how those initiatives align with national standards and best practices. A key element of a program analysis is to assess the current strategy and planning processes that are being used to drive implementation decisions. Currently the PO does not have a formal strategic plan or NG9-1-1 project plan available for review.

King County has been engaged at the forefront of NG9-1-1 technology since its participation in the U.S. Department of Transportation (USDOT) NG9-1-1 Initiative Proof of Concept (POC) testing in 2008[1]. Since that time many agencies across the United States regard King County as a leader in the emergency communications industry. MCP acknowledges the willingness and dedication that the PO has demonstrated with regard to embracing new technologies and participating in national work groups that will assist the industry in improving our nation's 9-1-1 system.

The eagerness by which the PO has embraced new technology however has overshadowed the importance of first developing a solid and sustainable project plan for NG9-1-1-related activities. The absence of project planning, timelines, accountability and a collaborative requirements-gathering process are the primary barriers King County faces to successfully implement NG9-1-1. The expected upcoming budget shortfall is indicative of these and other problems the County faces.

Engaging multiple projects and highly visible activity such as participation in NG9-1-1 development working groups and ongoing trials of new technology can appear to indicate substantial progress toward NG9-1-1. The flurry of ongoing activity however can mask a lack of formal processes, planning and due diligence. Such is the case with the King County PO. During the review of multiple documents it became evident that the PO has taken on numerous projects over the last several years, but many projects are incomplete and numerous projects have begun to overlap. The State E9-1-1 Office also is working with an outside firm to assess the security of its Emergency Services Internet Protocol (IP) network (ESInet), which was deployed to all public safety answering points (PSAPs) in the state in 2010 and 2012. These security issues, perceived by agencies to have been preventable, have been referenced as one of the reasons that many agencies are hesitant to embrace further technology implementations for NG9-1-1.

[1] http://ntl.bts.gov/lib/35000/35600/35675/NG911_POC_DeployPlan_FINAL_v1.0.pdf

MCP interviewed multiple representatives from County agencies and PSAPs to ascertain their views on NG9-1-1 and the progress toward implementation. Many of those interviewed expressed concern with what they view as a piecemeal approach to NG9-1-1 and technology-related projects. They also expressed concern with the level of technical and project management expertise possessed by the PO staff. Insufficient staffing of the PO also was described as a concern.

During the interviews it became apparent that there is significant discord between the PO and its member agencies, and between the agencies themselves. The discord has reached a point where it is directly interfering with the ability of the County to make progress regarding the transition to NG9-1-1. It is MCP's observation that unless resolved, this dysfunction will continue to hamper efforts to improve constituent service levels and will delay implementation of important transition elements such as interim text-to-9-1-1 service. Interim text-to-9-1-1 service currently has much higher visibility with the public than the transition to other components of NG9-1-1. It is in the best interest of King County to address the concern with this issue and develop an implementation strategy with stakeholder buy-in as soon as possible.

Based on our findings, MCP recommends:

1. **King County should temporarily stop the forward momentum of NG9-1-1 and reassess/reprioritize the projects in progress to assure viability and appropriate return on investment.** Given that the State plans to soon issue a Request for Proposal (RFP) for a new ESInet and likely will extend the timeframe for NENA i3 functionality until the 2019-2020 timeframe, King County should not feel pressured to continue moving forward with new NG9-1-1 projects until a strategic plan is in place and supported by relevant stakeholders.

2. **Efforts to improve communications between the PO and the PSAP community should continue to foster cooperation, and ensure accountability and progress.** King County may wish to employ neutral third-parties to help advance stakeholders' interests and lead to mutually beneficial solutions.

3. **The PO should continue to prioritize resolution to the identified security vulnerabilities within the ESInet.** Collaboration with County IT resources is recommended to assure that pending resolution is aligned with County regulations.

4. **The PO, working with its partners, should continue to implement interim text-to-9-1-1 service.** This service will likely become an expectation of King County's residents when other counties in the State announce their plans to implement this NG9-1-1 transition technology in 2015. The PO should identify a target implementation date and plan that is acceptable to its stakeholders. Allowing the issue to remain stalled at the PSAP Committee level is not in the best interest of stakeholder agencies or the public.

5. **The PO, working with its partners, should establish a formal structure for collaboration and decision-making into planning and policy for NG9-1-1 services in the County.** The proposed Regional PSAP Oversight Committee appears to be a step toward establishing this structure. The Committee should collaborate with the PO, regional PSAP directors and public safety agencies to assure that the pending strategic plan for NG9-1-1 has the appropriate level of stakeholder support. The PO should undertake the following action items as part of the planning process:

    a. **Develop a stakeholder planning-and-implementation coordinating body.** This group would develop a needs assessment, determine the operational and system requirements, and identify the baseline functionality necessary for any proposed NG9-1-1 solution.

    b. **Develop a transition plan to ensure the successful transition from the current 9-1-1 system to the new system and the management and operation of the system for optimal health and security.** Transition-planning agreements also should be established. Agreements should address timelines, a statement of expectations, anticipated functionality, coordination of contingencies, and any cost considerations throughout the various levels of transition. PSAP agreements should be updated so that agency management will clearly understand their responsibilities and the responsibility of the PO. Service requirements and performance standards for all NG9-1-1 functional areas should be part of a comprehensive NG9-1-1 Plan. Functional areas should include standards related to GIS, call-handling procedures, policy-based routing rules, ESInet design, data sharing, security and privacy.

    c. **Develop performance metrics, to determine the effectiveness of the NG9-1-1 system and identify any modifications needed to meet the desired performance criteria.** Requirements for the necessary management information system (MIS) should then be drafted to assure that reporting is available to track system performance. These metrics should include system testing processes and system acceptance thresholds.

    d. **Initiate an ongoing review of the ALI, MSAG and GIS synchronization status to assure that the NENA required 98 percent match rate is maintained.**

    e. **Establish consensus on technical support, standards and procedures that will be used to assure the minimum level of system security.**

BACKGROUND AND METHODOLOGY

MCP was asked to perform a technical review of the King County E9-1-1 program, goal and activities as they relate to its NG9-1-1 implementation strategy, the State of Washington's NG9-1-1 plan, and national standards and best practices. MCP also was asked to provide a comparison on the structure of 9-1-1 programs of similar size in the U.S. and how those entities are planning the transition to NG9-1-1.

MCP reviewed multiple documents and meeting minutes provided by staff from the King County Auditor's Office, as well as the PO and local and State agencies. Documentation provided MCP with background on the PO's evolution over the past ten years and the current status of NG9-1-1 technology projects in the State and in King County. While much emphasis has been placed on NG9-1-1 implementation in King County over the past eight years, a strategic plan has not yet been drafted.

MCP conducted telephone interviews with representatives from the agencies listed in Table 1:

Table 1 – Agency Phone Interviews

Agencies	
Seattle Police Department	Redmond Police Department
Seattle Fire Department	University of Washington
Issaquah Police Department	King County Auditor
Washington State Patrol – District 2	King County E9-1-1 Program Office
NORCOM 9-1-1	Valley Communications Center
Washington E911 Advisory Committee	Washington State E9-1-1 Coordinator's Office
Bothell Police Department	Port of Seattle
King County Sheriff's Office (unable to join)	USA Strategics (at request of NORCOM)

E9-1-1 PROGRAM OFFICE INTERVIEW

The King County E9-1-1 Program Office (PO) is a division of the Office of Emergency Management under the County Department of Executive Services. MCP began its interviews with the PO manager, Ms. Marlys Davis. The office currently has a staff of seven full-time people and two temporary people in the following positions:

- E9-1-1 Program Manager
- E9-1-1 Program Manager III
- PSAP Equipment Administrator
- PSAP Mapping Administrator
- Geographic Information System (GIS) Analyst
- Master Street Address Guide (MSAG)/Automatic Location Identification (ALI) Database Administrator

- Addressing-Administrative Coordinator
- Temporary Project Manager (November 2013 to present; to be replaced by new hire)
- Temporary Administrative Specialist (June 2014 to June 2015)

The PO received authorization in the 2015 budget to hire four additional fulltime equivalents to supplement its staff. Job descriptions and qualifications for the recently authorized new hires are still in draft for the following titles:

- E9-1-1 Network Engineer
- E9-1-1 Program Senior Manager-Administrative
- E9-1-1 Program Senior Manager-Project Manager
- Local Area Network (LAN) Administrator

For several years the PO has funded fulltime GIS and information technology (IT) personnel at each of the PSAPs to support the current E9-1-1 system and to coordinate with the PO in preparation for NG9-1-1. The PO advised that the positions were funded prior to NG9-1-1 implementation to assure that support personnel would be familiar with PSAP technical systems before NG9-1-1 was deployed. The PO has made few demands on these positions to date, and the personnel in some cases have engaged work not related to NG9-1-1. The PO has informed the PSAP directors that the required workload of these positions will increase in the near future, especially as the State required security standards are implemented. The directors should assess the work being done by these individuals to assure that they are not "overloaded" as NG9-1-1 work increases.

The PO synchronized GIS address data with the MSAG and ALI databases in 2009. All addresses that are added to the ALI database are verified against the GIS data at the time they are entered into the database. The PO advised that they have maintained a match rate that exceeds the 98 percent match rate required by NENA for NG9-1-12, which has been verified by TCS, other County departments, and most recently by Intrado in 2014.

The Department of Executive Services, Office of Emergency Management's 2015-2016 Business Plan describes the following high-level objectives related to NG9-1-1:

- **Continue with the upgrade of the E-9-1-1 system to the NG9-1-1 system**
    - The E9-1-1 Program Office will continue work to upgrade the E9-1-1 system to NG9-1-1 technology. It is anticipated that the implementation and testing of enhanced services, including Smart911™ and text-to-9-1-1, will be completed and these services will be made available to the public. The roll-out of these services will be closely coordinated with the PSAPs and campaigns to educate the public on the appropriate use of these services will coincide with their roll-out.

    - As the upgrade of the E9-1-1 system to NG911 technology has progressed, the system is becoming more complex and generating a significant amount of additional work that must be performed. Existing staff are very overloaded with the workload and must work

many additional hours beyond the normal work week. There have continuously been multiple, simultaneous technical projects over the past several years, and this trend is expected to continue. A TLT Project Manager was hired in 2013 to manage multiple projects, and this TLT will be converted to an FTE. In addition, NG9-1-1 will bring many new types of 9-1-1 services, such as Smart911 and text-to-9-1-1, and these programs must be coordinated. As the system has become more complex, additional financial work has been generated. A second FTE will be added to coordinate these new programs and perform the additional financial work.

- **Implementation of NG9-1-1 system security**
  - As the move towards NG9-1-1 progresses, the E9-1-1 system and the PSAPs become more vulnerable to cyber-attacks. The statewide outage of the Washington State IP 9-1-1 network in April, 2014 highlighted some of these vulnerabilities, and it became apparent that the E9-1-1 system was not built to national NG9-1-1 security standards. As a result, the State E9-1-1 Office has contracted with a network security company to assess the statewide 9-1-1 network and provide a security solution to project their portion of the network. The E9-1-1 Program is working with the same security company and will implement a comprehensive and coordinated security solution that meets national NG9-1-1 security standards in 2015 and 2016. Two FTEs will be added to the E9-1-1 Program to coordinate the E9-1-1 system and the security of the system with the E9-1-1 service providers, the PSAPs, and the network security company.

- **PSAP Recommendations**
  - The progression to NG9-1-1 has technical, operational, and financial impacts on the E9-1-1 system, the PSAPs, and the E9-1-1 Program Office. A process involving the County and the PSAPs has been underway to evaluate these impacts and collaboratively develop recommendations that will sustain the countywide system in the future environment. This process will continue through 2015 with potential preparations for implementing the recommendations beginning in 2016.

MCP was advised that several PO staff members are participants in NENA NG9-1-1-related work groups covering topics such as security, PSAP equipment, ALI databases, GIS, public education, training, 9-1-1 call routing and policies. Participation helps to keep them current on NG9-1-1 development activities. The PO manager, Marlys Davis, is a member of the State E911 Advisory Committee and several subcommittees including NG9-1-1 (vice chair), 911 Communications (chair), Policy, WAC and Strategic Planning. Other PO staff are involved in these subcommittees and also the GIS, Public Education, and Training Subcommittees. MCP was advised that the PO aligns the King County initiatives with those of the State. Ms. Davis acknowledged that drafting an NG9-1-1 strategic plan is a priority; however, the director and her staff have not had the staff resources to complete a strategic plan. The County initiated a PSAP Planning Process in 2011 that was to include the development of an NG9-1-1 Strategic Plan. The planning process was targeted for completion in 2012, however it is still ongoing as the

PSAPs and the PO have not been able to come to agreement on a number of fundamental issues.

Documentation provided to MCP indicates that the PO has faced challenges with inadequate staffing for several years. Absent any formal strategic documents and project timelines, MCP was unable to perform a detailed analysis of how the PO is aligning its initiatives with the State's NG9-1-1 plan and national standards for NG9-1-1. The lack of planning documents also made it challenging for MCP to understand how the PO prioritizes the numerous technology projects that are underway.

Discussion took place regarding issues with the current ESInet in use by King County PSAPs. The PO advised that because "the State security consultant has determined that the current E-911 system does not meet national NG9-1-1 security standards, the County has made the implementation of E9-1-1 system security a high priority."[2] It was reported that the schedule for some projects such as Smart911™ had to be extended in order to properly address the security issues, and this has caused other projects to overlap.

The PO has not been able to accurately assess 9-1-1 trunk usage since moving to the ESInet in 2011. Prior to that, trunk usage was reviewed quarterly. Meeting minutes from the end of 2014 indicate that trunk lines may not be adequately distributed and that 9-1-1 callers may be receiving busy signals. After meetings with CenturyLink, Intrado and the State E9-1-1 Office to review available data, decisions were made on what the appropriate number of trunks should be for each PSAP. Discussions are still ongoing for this topic, but Intrado's ESInet traffic study data still appears to be insufficient for the PO to effectively analyze emergency call traffic. It is unclear to MCP why existing traffic study capabilities were lost after the transition to the NG9-1-1 network.

Appendix A, Next Generation 911 Plan, provides a high-level chronology of the PO's NG9-1-1 implementation activities since 2005. The document was provided by the PO and has not been edited by MCP or the King County Auditor's Office. Notations in the document as to individual project status and impact to PSAPs are considered subjective and have not been validated by MCP.

KING COUNTY PSAPS

King County PSAP representatives were asked to discuss how they defined NG9-1-1 and what they understood of the long-term goals for implementation of NG9-1-1 technologies. All agreed that there is a desire to improve technology and service levels to their communities. They acknowledge that King County is a technologically advanced region and it is therefore imperative that public safety communications meet the expectations of the public. Many of those we spoke with advised that the long-term goals of the PO and its NG9-1-1 implementation strategy were unclear. Many expressed the opinion that the implementation process appeared to be a "piecemeal approach" that did not reflect a formal transition strategy.

[2] PSAP Committee Meeting Minutes November 12, 2014

Most of those interviewed associated the following functionality and benefits with NG9-1-1:

- Text-to-9-1-1
- IP architecture
- Video and images
- New forms of data such as Advanced Automatic Crash Notification (ACN)
- Accurate location information from calling devices
- Improved business rules and accuracy of call routing (fewer unnecessary 9-1-1 call transfers)
- Ability to consolidate technologies/leverage economies of scale

During the interview process it became apparent to MCP that there was significant disharmony between the PO and its member agencies. As is the case in many regions, there also appears to be challenges between the larger agencies (i.e., Seattle Police Department, Seattle Fire Department and King County Sheriff's Office) and the remaining PSAPs that provide service to King County's population. Large agencies that manage higher call volumes can in some cases appear to drive decision-making processes within a region and often are perceived as being afforded more attention than other smaller PSAPs. This dynamic can stall a region's ability to move forward with large-scale modernization efforts such as NG9-1-1 if not appropriately managed by local program or government officials.

MCP's scope for this assessment is limited to factors related to how King County is approaching NG9-1-1 planning and implementation. While we do not endeavor to exceed this scope, some notable areas of concern were brought to our attention by the PSAP directors that we believe directly impact the County's ability to effectively move forward with NG9-1-1, as follows:

1. Many of those interviewed expressed concern with the lack of formal project management processes, timelines and strategic planning. The absence of these key items has left many of the agencies unclear as to what the scope of NG9-1-1 is and how it is being defined in King County. While the larger PSAPs feel that their relationships with the PO are satisfactory, they did emphasize that better communication and processes would potentially alleviate some of the confusion and discord.

2. The PO has initiated multiple technology related projects but appears to be approaching NG9-1-1 in a piecemeal fashion. For example, the notes from a technical user group meeting held near the end of 2014 noted the following: "Priority Projects – As of the end of 2014, the program office noted current project tracking is at 65 projects or major tasks for 2014 (not including sub-projects) and 21 projects or sub-projects are complete."[3] Agencies are concerned about adding more tasks to the already large number of incomplete projects, especially in the absence of a formal project-management approach including detailed change management and adequate staff. The perception is that the PO is reluctant to reassess and reprioritize the current project list.

[3] 911 IT/Tech/Map User Group Meeting Notes November 5, 2014

3. Much discussion has taken place regarding the financial challenges being faced by the PO and the declining funds available to sustain efforts in the coming years. A review of PSAP Committee meeting minutes and related budget documents confirms that funding will reach a deficit in the near future. The degree of deficit and exact timing of this challenge, however, has become a point of confusion for many of those interviewed. Details have been provided by the PO and rescinded several times due to the discovery of accounting errors or misinterpretation of data. Most expressed the opinion that the pursuit of costly NG9-1-1 initiatives should be delayed until stakeholders are assured that a solid and sustainable financial plan is in place.

4. All interviewed concur that the PO appears to be understaffed and are concerned that the appropriate level of technical expertise is less than desirable. The recent authorization of new positions appears to have lacked a formal review process to identify what skillsets are needed. Evidenced by the fact that job descriptions for the new hires are still in draft form and a strategic plan has yet to be crafted, it is unclear to MCP how the need for specific positions is being determined.

5. Interim text-to-9-1-1 service is an important NG9-1-1 transition step for the community, but several issues are causing delays in its implementation. The primary issues concern network security and how calls will be routed. The current routing of wireless calls does not, in some cases, result in callers being directed to the PSAP that has jurisdiction. Should routing of text calls follow a similar path, several PSAPs fear that call transfers may increase. This challenge has become a significant barrier and point of contention. Meeting minutes reviewed by MCP indicate that lessening the number of 9-1-1 call transfers is a priority for the PO and its agency stakeholders. However, the PO recently decided not to revisit the issue of wireless call routing, despite being asked to do so by the PSAP community.

6. Consolidation of PSAPs is <u>not</u> part of the MCP assessment, but it is noted that the negatively charged environment around this topic (expressed by all agencies interviewed) has become a significant distraction and deterrent to NG9-1-1-related progress. Agencies appear to be receptive to considering consolidation of technology such as logging/recording, but discussions and progress have stalled due to the ongoing antagonistic atmosphere.

Most agency representatives believe that varying degrees of change are necessary at the PO to assure that overall system integrity is maintained during the transition to NG9-1-1. Most of those interviewed repeatedly expressed frustration that decisions are not made as part of a collaborative process, and that better communication between the PO and the agency stakeholders is critical.

It is MCP's observation that the notable discord appears to be a symptom of a larger issue involving lack of confidence in leadership at the PO, and lack of adherence to formal organizational processes for implementations, change, testing and accountability.

WASHINGTON STATE OFFICIALS

MCP interviewed the Washington State E9-1-1 Coordinator's office and the chair of the State E911 Advisory Committee's NG9-1-1 Subcommittee. The State has an NG9-1-1 strategic plan that was updated in 2012. The plan currently is undergoing a revision and will emphasize the importance of GIS, security and transition technologies such as interim text-to-9-1-1 service. Additional detail will be added to the plan regarding bandwidth requirements, PSAP interconnectivity, and the use of gateways and other i3 functional elements.

It is anticipated that the targeted timeline for statewide implementation of i3-capable NG9-1-1 systems will be pushed out from the current 2017 date to the 2019-2020 timeframe. The Subcommittee chair anticipates that a first draft of the document will be ready for review by third quarter this year. The committee is early into discussions regarding how to pursue state-level i3 elements such as the Emergency Call Routing Function (ECRF) and Location Validation Function (LVF). Funding for future NG9-1-1 development is uncertain and counties will need to continue to maintain their present call-handling systems.

The State will soon issue an RFP for a new statewide ESInet. The current network is based on the Alliance for Telecommunications Industry Solutions (ATIS) Request for Assistance Interface standard.[4] State officials advise that challenges have been encountered that limit the transmission of data and the ability of regions to interoperate within the current network. In contrast, the new ESInet will allow for geospatial routing and full capability of NENA i3 functionality. The State hopes to issue the RFP by second quarter 2015 and to target implementation by third quarter 2016. Discussions are ongoing as to how to move forward with geospatial routing in order to lessen the dependency on legacy ALI databases.

NATIONAL STANDARDS[5]

WHAT ARE STANDARDS?

Adherence to a common set of standards is one of the most critical aspects of transforming the nation's 9-1-1 infrastructure from today's legacy technology to NG9-1-1. Development and adoption of international standards are key to achieving 9-1-1 interoperability across multiple local, regional, State, and national public safety jurisdictions. Based on conceptual definitions dating from 2000, activity began on NG9-1-1 standards development in 2003 when NENA initiated technical requirements and definition work on the core IP functionality and architecture. A variety of 9-1-1 network and PSAP standards already exist, and many are still actively under development.

[4] ATIS-0500019.2010(R2015) Request for Assistance Interface Standard
http://webstore.ansi.org/RecordDetail.aspx?sku=ATIS-0500019.2010%28R2015%29
[5] See U.S. Department of Transportation, National 911 Program, *Next Generation 911 (NG911) Standards Identification and Review.* http://911.gov/pdf/NG911-Standards-Identification-and-Analysis-March2015.pdf

The International Organization for Standardization (ISO)/International Electrotechnical Commission (IEC) Guide 2:2004, definition 3.2, defines a standard as[6]:

> *A document established by consensus and approved by a recognized body that provides for common and repeated use, rules, guidelines, or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in a given context.*

Standards can be *voluntary*—by themselves imposing no requirement regarding use—or *mandatory*. Generally, a mandatory standard is published as part of a code, rule, or regulation by a regulatory or government body, and imposes an obligation on specified parties to conform to it. However, the distinction between these two categories may be lost when voluntary consensus standards are referenced in government regulations, effectively making them mandatory standards[7].

Most standards are ***voluntary, consensus-based***, and ***open***[8]:

- **Voluntary**—Use of standard is not mandated by law
- **Consensus-based**—Published standards have attained general agreement through cooperation and compromise in a process that is inclusive of all interested parties
- **Open**—Standards are not proprietary and are available for anyone to use

BEST PRACTICES

Typically less formal than standards, best practices are methods or techniques that have been identified as the most effective, efficient, and practical means to achieve an objective. Based on a repeatable process, best practices often emerge as the result of generally accepted principles followed by many individuals, groups, or organizations, which have been established over time. Best practices often supplement the standards process and act as common guidelines for policies and operations.

Generally, development of a "best practice" should meet the following guidelines: [9]

- Proven through actual implementation—more than "just a good idea"
- Address classes of problems (rather than one-time issues)
- A single concept should be captured in each practice (one thought, one practice)
- Should not endorse specific commercial documents, products or services
- Developed through rigorous deliberation and expert consensus

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[6] ISO, ISO/IEC Directives, Part 2: Rules for the structure and drafting of International Standards. Available at: http://isotc.iso.org/livelink/livelink?func=ll&objId=4230456&objAction=browse&sort=subtype

[7] Standards.gov, What Are Standards? http://www.nist.gov/standardsgov/definestandards.cfm

[8] RITA Intelligent Transport Systems, *What Are Standards?* http://www.standards.its.dot.gov/LearnAboutStandards/ITSStandardsBackground

[9] CSRIC III Working Group 8 E9-1-1 Best Practices Report 2, March 2013 http://transition.fcc.gov/bureaus/pshs/advisory/csric3/CSRICIII_6-6-12_WG8-Final-Report_Pt2.pdf

- Confirmed by a broad set of stakeholders
- Should not be assumed to be applicable in all situations or to all industry types
- Does not imply mandatory implementation

HOW ARE STANDARDS DEVELOPED?

At the heart of the U.S. standards-development system are voluntary standards that arise from a formal, coordinated, consensus-based, and open process. Developed by subject-matter experts from both the public and private sectors, the voluntary process is open to all impacted parties and relies on cooperation and compromise among a diverse range of stakeholders. Organizations also work together to develop joint standards, which forge relationships and allow for a collaborative and cooperative effort. Joint standards are especially important with respect to the synergistic environment of emergency communications, such as the environment shared by the Nationwide Public Safety Broadband Network (NPSBN) and NG9-1-1.

Although the development process may vary to some extent from organization to organization, fundamentally each organization has an established set of formally documented procedures for initiating, developing, reviewing, approving, and maintaining standards. As an example, Figure 1 below illustrates the U.S Department of Transportation (USDOT) Research and Innovative Technology Administration (RITA) Intelligent Transport Systems (ITS) standards-development process:[10]

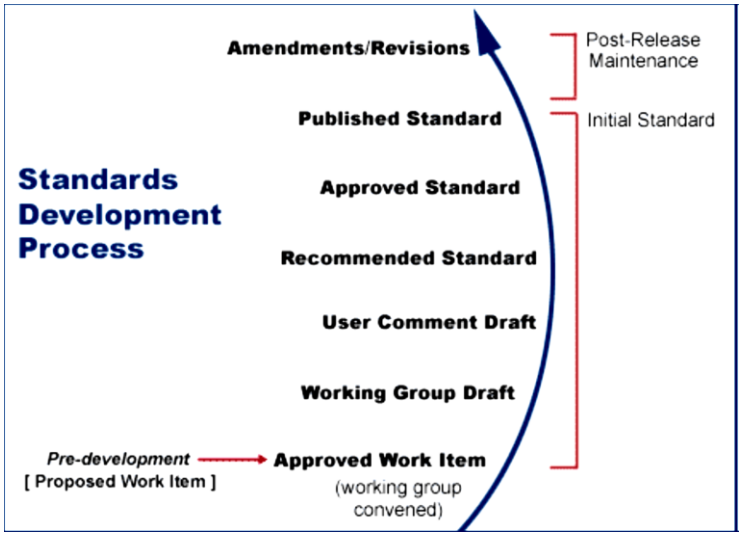

Figure 1 – USDOT RITA Standards-Development Process

[10] Research and Innovative Technology Administration (RITA) Intelligent Transportation Systems (ITS), *Standards Development Process.* http://www.standards.its.dot.gov/LearnAboutStandards/StandardsDevelopment

The Institute of Electrical and Electronics Engineers (IEEE) emphasizes that standards "are 'living documents,' which may initially be published and iteratively modified, corrected, adjusted and/or updated based on market conditions and other factors."[11] Given that standards development is an iterative process, often there are procedures for publishing draft and/or interim documents at different stages in the process prior to formal approval. Once approved, various factors can render standards outdated, including technological advancements and new or revised requirements. For this reason, the majority of standards require periodic review and potentially, revision. As a general rule, organizations such as the American National Standards Institute (ANSI) and ISO assert that standards should be reviewed at intervals of not more than 5 years.[12]

THE NEED FOR STANDARDS IN NG9-1-1

It is imperative that the necessary NG9-1-1-related standards and technology are determined and available for the 9-1-1 Authorities and PSAPs to support transitioning to an open, non-proprietary NG9-1-1 system. Without the necessary and critical standards and technologies in place, service and equipment providers may develop new, vendor-specific solutions. This un-standardized, unplanned approach can and will affect the ability of PSAPs and emergency response entities to effectively share information and be fully interoperable, thus negating some of the benefits of NG9-1-1. Further, without critical processes and protocols (e.g., certification and authentication, routing business rules, best practices), the benefits of the NG9-1-1 system—including routing based on criteria beyond location and connection of service providers beyond common carriers to the 9-1-1 system—may not be realized. The appropriate use of standards will ensure the compatibility and interoperability required to realize the full potential of NG9-1-1.

STANDARDS IMPACTING NG9-1-1

It is important to identify, understand, and actively monitor those standards that are most likely to have a significant impact on the implementation of NG9-1-1. This is consistent with the National Technology Transfer and Advancement Act of 1995[13], which directs government agencies to use "voluntary consensus standards" created by standards-development organizations. Specifically, it instructs federal agencies, such as USDOT, to participate in the standards-development process so that these organizations remain aware of USDOT's position on relevant standards. This involvement is expected to influence overall development, thus ensuring that the resulting standard is appropriate for use by federal agencies.

The specific standards identified in this document are limited to those most directly germane to NG9-1-1 or 9-1-1 in general. For example, numerous technical standards are associated with the existing access and originating networks. However, this document undertakes to highlight only those

[11] IEEE Volunteer Training Program, *What Are Standards?* http://standards.ieee.org/develop/process.html
[12] International Organization of Standardization, *How are ISO standards developed?* http://www.iso.org/iso/home/standards_development/resources-for-technical-work/stages_of_the_development_of_international_standards.htm
[13] P.L. 104-113, March 7, 1996. http://www.gpo.gov/fdsys/pkg/PLAW-104publ113/pdf/PLAW-104publ113.pdf

relating to the changes required to support the enhanced capabilities of NG9-1-1, such as emergency call support provisioning between the assortment of client devices and the ESInets. Many standards reference practices at the State level; however, they still are applicable to major cities and sizeable regions such as King County.

The standards consulted and used in this document to assist King County in future NG9-1-1 strategic planning efforts include:

- NENA NG9-1-1 Planning Guidelines Informational Document, 006.1-2014.
- NENA Next Generation Partners Program Next Generation 9-1-1 Transition Policy Implementation Handbook, A Guide for Identifying and Implementing Policies to Enable NG9-1-1, March 2010.
- NENA Next Generation Partners Program, A Policy Maker Blueprint for Transitioning to the Next Generation 9-1-1 System, September 2008.
- NENA Detailed Functional and Interface Standards for the NENA i3 Solution, NENA 008-003 v1, June 2011
- National E9-1-1 Implementation Coordination Office, A National Plan for Migrating to IP-Enabled 9-1-1 Systems, September 2009.
- Congressional Research Service, Emergency Communications: Broadband and the Future of 911, August 2010.
- Federal Communications Commission (FCC) Communications Security, Reliability and Interoperability Council (CSRIC II) Working Group Reports, March 2011.
- FCC Communications Security, Reliability and Interoperability Council (CSRIC III) Working Group Reports, June 2012.
- NENA NG9-1-1 Transition Plan Consideration Information Document, 008.2-2013, November 20, 2013.
- NENA Information Document for Synchronizing Geographic Information System databases with MSAG & ALI, NENA 71-501, Version 1.1, September 8, 2009.
- USDOT, National Highway Traffic Safety Administration (NHTSA), Guidelines for State NG9-1-1 Legislative Language.

- USDOT, NHTSA, National 9-1-1 Guidelines Assessment Report Tool, Revised, May 24, 2012.

- USDOT/NHTSA/National Association of State 9-1-1 Administrators (NASNA), Model State Plan, Version 1.0, February 2013.

- FCC, CSRIC, Working Group 4B, Transition to Next Generation 9-1-1 Final Report, March 2011.

- Government Auditing Standards, US Government Accountability Office, 2011 Revision GAO-12-331G, December 2011.

Per CSRIC II, standards with the most applicability to NG9-1-1 can be grouped into the following six categories:

- **Product Standard**—Describes the expectations and minimum requirements for a particular product or functional entity, typically in the context of a specific use.
- **Interface Standard**—Describes the requirements for connecting two or more functional entities to one another. For example, a user interface standard would describe the interaction between a human and a machine.
- **Data Standard**—Describes the definition, format, layout, and other characteristics of data shared across systems. Data standards help to ensure the seamless exchange of data between disparate systems and permit a common understanding to interpret and use data consistently.
- **Test Methodologies Standard**—Describes the test methodologies, processes, and other requirements associated with determining the performance of a particular product.
- **Performance Standard**—Describes how a product or service should function, often in terms of quality, functionality, timeliness, etc.
- **Operational Standard**—Describes how a function or business process should occur, setting minimum requirements for performance or delivery. Operational standards could include standard operating procedures (SOP), training guidelines, and policies.

The first three categories (product, interface, and data) are primarily ***design standards*** that describe how a product should be developed and define the particular attributes or characteristics associated with its construction. Alternately, ***performance standards*** describe how a product should function and the testing used to determine that it meets all affirmed requirements.[14]

[14] USDOT National 911 Program, *Next Generation 911 (NG911) Standards Identification and Review.* http://911.gov/pdf/NG911-Standards-Identification-and-Analysis-March2015.pdf

GOVERNANCE AND POLICY

Ensuring the statutory and regulatory environments have been addressed is essential to a successful implementation of NG9-1-1. Existing state laws, state and local rules and regulations, and tariffs may specifically reference older technologies or limit system capabilities. It is prudent for a state or local jurisdiction to examine current statutes, as these laws may also inhibit the migration to IP-enabled 9-1-1 or i3 functionality. The PO's strategic plan should assure that all relative statutes and local laws allow for successful migration to NG9-1-1. Ongoing review of the State's NG9-1-1 planning efforts also provides assurance that the King County strategic direction is aligned with the State and will help to identify areas that may require modification to remain effective and in compliance with the State's implementation of NG9-1-1.

The Government Performance and Results Modernization Act (GPRA) of 2010 mandates that federal agencies draft formal strategic plans and make the plans available on each agency's website. While the GPRA references federal agencies, its requirements for strategic plans provide excellent guidance for States and regions such as King County that must develop a comprehensive business strategy for NG9-1-1. Relevant elements of the GPRA include the following:[15]

- A comprehensive mission statement covering the major functions and operations of the agency.
- General goals and objectives, including outcome-oriented goals for the major functions and operations of the agency.
- A description of how the goals and objectives are to be achieved, including:
    - A description of the operational processes, skills and technology, and the human, capital, information and other resources required to achieve those goals and objectives.
    - A description of how the agency is working with other agencies to achieve its goals and objectives.

KEY AGENCIES, COMMITTEES AND PROGRAMS

State E911 Advisory Committee, NG9-1-1 Subcommittee

Subcommittees are established by the State's E911 Advisory Committee to focus on specific issues—including conducting visits, studies, surveys, and research projects—and for assembling information for special projects in order to provide advice to the State E9-1-1 Coordinator and the E911 Advisory Committee. The subcommittee of note regarding this analysis is the NG9-1-1 Subcommittee.

The role of the NG9-1-1 Subcommittee is to make technical and operational recommendations for change related to the modernization of the statewide E9-1-1 system for consideration by the E911

[15] GPRA Modernization Act of 2010 (P.L. 111-352), http://www.gpo.gov/fdsys/pkg/PLAW-111publ352/pdf/PLAW-111publ352.pdf

Advisory Committee. The Subcommittee consists of members from both the public and private sector to assure a balance of contributing expertise.

In October 2009 the State issued an NG9-1-1 strategic plan that was designed to occur in three phases over a total of six years. The plan was updated by the NG9-1-1 Subcommittee in 2012 in order to incorporate additional elements required by the NENA i3 architecture. The following excerpt describes the intended phased transition plan as reflected in the 2012 revision:

- **Phase 1 (Funded)** – A state contract was awarded to CenturyLink and Intrado for a Next Generation 9-1-1 network and database pilot project in Benton, Ferry, Island, Lewis, Skamania, Spokane, Thurston, and Yakima Counties.
  - Status: **COMPLETED January 2012**

- **Phase 2 (Funded)** – Implementation of the Next Generation 9-1-1 network and database in the remaining 31 counties and Washington State Patrol (WSP) E9-1-1 Public Safety Answering Points.
  - Status: **COMPLETED March 2012**

- **Phase 3 (Progress directly limited by annual revenue)** – Consolidation of telecommunications equipment and implementation of i3 capability at all PSAPs. This is the final phase of telecommunications upgrades resulting in full digital-to-digital voice and data from start to finish. It is the most time-consuming and expensive phase of the modernization.
  - Status: **IN PROGRESS**

- **Phase 4** – Terminate end office trunks directly to IP gateways. When completed, legacy selective routers go away; start date: Oct 2012.
  - Status: **IN PROGRESS**

- **Phase 5** – Convert remaining essential PSAP equipment (e.g., logging recording, CAD) to i3 standard.
  - Status: **IN PLANNING**

- **Phase 6** – Modernize GIS.
  - Status: **IN PLANNING**

Three options for centralization and hosting of equipment are under examination to ensure the best plan for the system is in place as part of Phase 3. These options include the following:

- **Option 1**—PSAP-owned host and remote PSAPs that share host equipment between multiple PSAPs.
- **Option 2**—Vendor-hosted solution for all telecom equipment.

- **Option 3**—State or PSAP owned host equipment located at a vendor owned location that serves multiple PSAPs.

The selections will be determined based on effectiveness, system benefits, and cost. Additional issues to evaluate include the upgrade or replacement of E9-1-1 telephone equipment to Session Initiated Protocol (SIP), upgrade of the Computer-Aided Dispatch (CAD) systems, and upgrade or replacement of logging recorder systems to accept digital voice and data associated with full i3 NG9-1-1, in accordance with national NG9-1-1 standards, long-term maintenance costs, diversity and system security.[16]

The Subcommittee is working on a revision for the State's NG9-1-1 plan that will provide additional detail on i3 functional elements, security, and transition strategies such as implementation of interim text-to-9-1-1 service. The targeted completion date for the NG9-1-1 modernization effort was anticipated to be calendar year 2017, but will likely be extended several more years.

In September 2014, the IT working group of the NG9-1-1 Subcommittee completed work on the E9-1-1 and NG9-1-1 systems and network security standards for PSAPs in the state. Steve Lagreid, the PO's PSAP Equipment Administrator, was a member of this working group. The document establishes minimum mandatory security standards for all state ESInet participants (in close alignment with CJIS and NENA requirements) and sets the recommended implementation and compliance period for the standards. MCP was advised that in the near future, State funding may be withheld from counties that are unable to certify that they are in compliance with standards classified in the document as "Priority 1."

Urban Area Security Initiative (UASI)

The Homeland Security Grant Program (HSGP) helps fulfill one of the core missions of the U.S. Department of Homeland Security (DHS) by enhancing the country's ability to prepare for, prevent, respond to and recover from potential attacks and other hazards. The HGSP encompasses several projects including UASI, which supports regional preparedness in major metropolitan areas.

The Seattle UASI region is one of 64 high-risk urban regions established by the DHS. It is comprised of the cities of Seattle and Bellevue, as well as King, Pierce and Snohomish counties. Building and sustaining regional preparedness plans require the combined effort of the whole community, rather than the exclusive effort of any single organization within government. The efforts underway in the Seattle UASI region should be a consideration for King County when developing its NG9-1-1 strategic plan.

King County E9-1-1 Program Office

Revised Code of Washington (RCW) section 38.52.510 requires "each county, singly or in combination with one or more adjacent counties, to implement countywide or multi-countywide enhanced 9-1-1 emergency communications systems so that enhanced 9-1-1 is available throughout the state. The

[16] Washington E911 Advisory Committee NG9-1-1 Subcommittee Report version 18 July 17,2012

county must provide funding to the enhanced 911 communications system in the county in an amount equal to the amount of the maximum tax under this RCW."

Further, the Washington Administrative Code (WAC) 118-66-060 identifies County-eligible expenses. In addition to the state reimbursement eligible items listed in WAC 118-66-060 (1) through (3), PSAP and 9-1-1 administration cost items are eligible County 9-1-1 expenses, including the following items, which are not listed in order of priority:

- Management services
- Human resources services
- Legal costs
- Financial services
- PSAP and 9-1-1 administration lease/purchase costs
- E9-1-1 building repair and maintenance, and major systems replacement/repair
- E9-1-1 property and liability insurance
- PSAP and 9-1-1 administrative telephone system
- E9-1-1/NG9-1-1 reserve accounts
- Radio communications services companies wireless enhanced 9-1-1 recovery expenses

The PO maintains a contract with each of its participating PSAPs. The contract outlines general provisions, minimum standards and operating policies for primary and secondary PSAPs in the County. The current agreement with CenturyLink for system installation and maintenance is included as an appendix. The current contract expires in April 2015. An amendment to the contract, set to expire December 31, 2017, has been submitted by the PO.

Proposed King County Regional PSAP Oversight Committee

County Ordinance #17941 of the current year budget proviso provides appropriation for a new oversight committee to recommend a strategic plan for the implementation, governance and operation of the NG9-1-1 system, and to propose updates to the governance structures and operating rules for current E9-1-1 operations. The committee, when formed, will consist of representatives from County and City governments, public safety, the Sound Cities Association and a non-voting technical/facilitation consultant. The ordinance must be filed by July 1, 2015.

NG9-1-1 TRANSITION PRACTICES AND RELEVANT STANDARDS

BACKGROUND

One of the most common sources of confusion experienced by agencies is defining what the term NG9-1-1 means. Many people equate NG9-1-1 with the ability to send text and multimedia to PSAPs, while others assume that it is simply implementation of an IP network. In reality, NG9-1-1 is a complex

array of systems, functional elements, and operational and technical specifications. The end-state goal of NG9-1-1 is to be compliant with the architecture described in the NENA i3 solution. The transition practices and relevant standards in this section assume that i3 is the end-state goal for King County and the State of Washington. NENA describes the migration to i3 in the following way[17]:

> "The i3 solution supports end-to-end IP connectivity; gateways are used to accommodate legacy wireline and wireless origination networks that are non-IP. NENA i3 introduces the concept of an Emergency Services IP network (ESInet), which is designed as an IP-based inter-network (network of networks) that can be shared by all public safety agencies that may be involved in any emergency. The i3 Public Safety Answering Point (PSAP) is capable of receiving IP-based signaling and media for delivery of emergency calls conformant to the i3 standard. …
>
> "Critically, the i3 standard is not, by itself, the same thing as an NG9-1-1 system. The i3 standard describes only the network, components, and interfaces required to establish Next Generation 9-1-1 service. In order to deploy a fully-operational NG9-1-1 system, 9-1-1 authorities, equipment and software vendors, originating service providers, and access network providers will require detailed specifications for technical, operational, and human elements that are not described in the i3 standard. …
>
> "To reach this end state NENA assumes that:
>
> "9-1-1 authorities have transitioned from the tabular MSAG and ESNs to GIS based Location Validation Function (LVF) and Emergency Call Routing Function (ECRF). …
>
> "9-1-1 authorities have accurate and complete GIS systems, which are used to provision the LVF and ECRF. A change to the 9-1-1Authority's GIS system automatically propagates to the ECRF and LVF and immediately affects routing. …
>
> "Transition to i3 is complete when the existing Selective Router and ALI are no longer used. Even after that time, some PSAPs may not have upgraded to i3. The i3 architecture describes a Legacy PSAP Gateway (LPG) to interface between the ESInet and a legacy PSAP. The LPG supports the origination of an emergency call through the ESInet to a legacy PSAP as well as the transfer of an emergency call from/to an i3 PSAP to/from a legacy PSAP."[18]

The current network (Washington State ESInet) and call-handling solution used in King County (Intrado VIPER®) are transitioning toward NG9-1-1, but are not yet i3 compliant. As the County moves forward

[17] https://www.nena.org/?page=i3_Stage3
[18] https://www.nena.org/?page=i3_Stage3

in determining a strategy for NG9-1-1, it must endeavor to reach solutions that will align with i3 as an end-state architecture. Concise documentation from vendors detailing how their solutions comply with the i3 standard (or how they will comply in the future) is critical to successful NG9-1-1 planning. NENA has drafted an updated version of the i3 document that soon will be distributed for public review and comment. The intent of the new version of i3 is to provide a "build to" technical specification for vendors and stakeholders to use in developing their NG9-1-1 systems. Once the updated version of this standard is ratified it will be easier for agencies to target a specific NG9-1-1 implementation timeline.

The sections below provide standards references that have been generally accepted by the 9-1-1 community as relevant. Standards excerpts have been left in their original format for ease of reference by the client. King County should make note of these standards and include them in its strategic planning process moving forward.

STAKEHOLDER INVOLVEMENT

Comprehensive regional coordination should include all 9-1-1 stakeholders, all 9-1-1 accessible service representatives (wireline, wireless, Voice over IP [VoIP], and other emerging technologies), governmental and non-governmental entities, and others impacted by the 9-1-1 system. The stakeholder community also may include members of special-needs groups, such as the hearing-impaired/speech-impaired community or representatives of the general public.

King County leverages several stakeholder groups to discuss projects in-progress, issues of concern and NG9-1-1 implementation. The PSAP Committee consists of members from the PO, CenturyLink County's PSAP managers and representatives from police, fire and emergency medical service agencies. The committee meets bimonthly to review project statuses, policies, operational issues, budgets and other relevant topics and concerns. The total number of regular PSAP Committee meetings in 2014 was five, due to the group not meeting during the month of July. A special meeting was called in December 2014 to discuss concerns with interim text-to-9-1-1 implementation.

The 9-1-1 Tech/IT/Map User group consists of representative technical support personnel from the PO and PSAPs, as well as representatives from CenturyLink and Intrado. This group meets monthly with a scheduled meeting duration of three hours. Technical training topics are presented, as well as technical project status updates from the PO and from each of the PSAPs. Active trouble tickets are presented and reviewed by CenturyLink.

Applicable Standards and effective practices:

- Stakeholders should be identified to include: State, County local and tribal entities representing varying jurisdictions; the public safety community; and the service provider community. There should be interaction among state agencies. "Balanced" means that stakeholders are equally represented.[19]

[19] NHTSA/US DOT National 911 Guidelines Assessment, Guideline SR14, SR15, May 24, 2012

- The state needs to understand various service providers and the capabilities of those providers to help integrate these services into the 9-1-1 system, and to educate the public on the capabilities of these services.[20]

- 9-1-1 stakeholders should be adequately represented at every stage of 9-1-1, including planning, implementation, updates, and modification. It is recognized that there may not be much involvement in the planning and implementation, however. While statute may vest final decision-making on key investments and timeframes with specific State and/or local governmental entities, structures should be in place to ensure that relevant State agencies, responsible local governing boards, traditional and non-traditional responder groups, and communications providers have meaningful input into this decision-making.[21]

- REQ.0700.0100—Adoption, support and implementation of call-routing rules and procedures affecting multiple PSAPs must be collaboratively developed, and change procedures adopted and implemented by the affected PSAPs prior to their usage in NG9-1-1.[22]

- REQ.0700.0101—It is desirable to develop various levels of collaborative business rules within and between PSAPs affected by the NG9-1-1 transition for handling calls for service routing, incident data, dispatch information, security, confidentiality, and other NG9-1-1-specific procedures and information.[23]

- REQ.0700.0102—Procedures and appropriate governance measures must be adopted for updating calls for service routing rules, data confidentiality, data sharing, data security, and other NG9-1-1-specific procedures for data and information processing.[24]

- REQ.0700.0103—Contingency plans and policy rules will have to be developed and implemented for routing calls for service in case one or more PSAPs are overloaded or inoperable.[25]

- REQ.0700.0104—The relevant authority for a transitioning PSAP must develop governance and maintenance procedures for supporting the core NG9-1-1 infrastructure,

[20] ibid
[21] NHTSA/US DOT National 911 Guidelines Assessment, Guideline GV3, May 24, 2012 https://resourcecenter.911.gov/911Guidelines/RPT053012_National_911_Assessment_Guidelines_Report_FINAL.pdf
[22] NENA 911 Transition Plan Considerations, NENA INF-008.2-2013 (previously NENA 77-501), November 20, 2013 http://www.nena.org/general/custom.asp?page=NG911_TransitionPlng
[23] ibid
[24] ibid
[25] ibid

ESInet, and IP-capable PSAP equipment. For example, procedures and responsibility must be established for the timely replacement of broken or outdated equipment.[26]

ROLES AND RESPONSIBILITIES DEFINED

As is recommended for statewide planning, jurisdictional roles and responsibilities should be clearly outlined in the County's strategic plan. Governance agreements between the jurisdictions should be included and formal accountability should be in place to ensure that the defined responsibilities are met.

Applicable standards and effective practices:

- Jurisdictional roles and responsibilities should be set forth in a statewide 9-1-1 plan and in any governance agreements that are established between jurisdictions. There should also be a mechanism in place to ensure roles and responsibilities are fulfilled. "Mechanisms" can include auditing, funding, or penalties.[27]

- Governance and Policy. As NG9-1-1 deployment begins, current roles and responsibilities among all entities involved in providing 9-1-1 services will change, and the existing legal and regulatory environment will likely not effectively accommodate new technologies and arrangements. The deployment of NG9-1-1 will require increased coordination and partnerships among government and public safety stakeholders, 9-1-1 Authorities, service and equipment providers, and PSAP administrators in planning and implementing NG9-1-1. A new infrastructure will require a new delineation of roles and responsibilities among the parties, defined by common practices and statutes. Coordination with the general public will also be important to address concerns and to manage expectations. As a result, legislative and regulatory arrangements and demarcation points at every level of government may need to be reexamined and some modified to effectively support NG9-1-1 deployment.[28]

- In addition to its impact on PSAP operations, the functions inherent to IP-enabled 9-1-1 will influence how 9-1-1 Authorities support PSAP operations and administration, and how they coordinate with other nearby 9-1-1 Authorities. IP-based communications create the potential for resource, workload and data sharing among formerly distinct PSAPs and 9-1-1 Authorities. 9-1-1 Authorities, especially those overseeing multiple PSAPs, will need to manage a wider set of shared resources than is typical in the current system. 9-1-1 Authorities will likely have considerably more responsibility for database functions, along with system and network management in a multi-PSAP

[26] ibid
[27] NHTSA/US DOT National 911 Guidelines Assessment, Guideline SR3, May 24, 2012 https://resourcecenter.911.gov/911Guidelines/RPT053012_National_911_Assessment_Guidelines_Report_FINAL.pdf
[28] The National E9-1-1 Implementation and Coordination Office, A National Plan for Migrating to IP-Enabled Systems, September, 2009, p.46 http://www.911.gov/pdf/National_NG911_Migration_Plan_FINAL.pdf

environment, and have more options for solving problems (e.g., call overload, translation services and cost of shared services).[29]

Finding: While there is a PSAP Director's Group and issues are discussed, there is no formal structure for direct input or decision-making into planning or policy directing 9-1-1 services in the County.

INTER-LOCAL AGREEMENT AUTHORITY

The ability for the jurisdiction to enter into inter-local agreements or memoranda of understanding (MOU) that will foster shared network elements or improve interoperability should be present in an NG9-1-1 plan, or allowed in State statutes/rules and local regulations.

Applicable standards and effective practices:

- Inter-local cooperation can be less formal or more formal using a legally binding agreement such as a Memorandum of Understanding (MOU. The substance of the agreements is not being evaluated, just the ability to enter into them.[30]

- REQ.0600.0100—Governance agreements and shared-service arrangements should be established prior to or during the implementation of each NG9-1-1 implementation phase, to support and maintain the phase being implemented.[31]

- Where existing State statutes and regulations permit, State, regional, and local 9-1-1 and emergency services authorities should work cooperatively toward establishing statewide ESInets.[32]

- Where not currently authorized, states should affirmatively legislate, authorize, organize and fund statewide ESInets, and key interoperability services hosted on or accessed by them. It is in the operational and financial interests of emergency agencies to share and contribute to an ESInet. Planning and funding should involve and come from all emergency services, including but not limited to 9-1-1. The federal government should support efforts to establish statewide ESInets.[33]

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[29] ibid
[30] NHTSA/US DOT National 911 Guidelines Assessment, Guideline SR7, May 24, 2012 https://resourcecenter.911.gov/911Guidelines/RPT053012_National_911_Assessment_Guidelines_Report_FINAL.pdf
[31] NENA 911 Transition Plan Considerations, NENA INF-008.2-2013 (previously NENA 77-501), November 20, 2013 http://www.nena.org/general/custom.asp?page=NG911_TransitionPlng
[32] NENA NGPP, A Policy Maker's Blueprint for Transitioning to NG911 Systems, Issues and Recommendations for State and Federal Policy Makers to Enable NG911, September, 2008 http://www.nena.org/?NGPP_TransPolicy
[33] ibid

- Emergency services agencies need to consider the sharing of infrastructure with other governmental entities as a matter of affordability. This calls for the development of new cooperative working agreements between federal, state and local agencies to participate in shared state backbone networks that include priority access for emergency services, particularly during disasters.[34]

- REQ.2700.0100—Transition planning at all 9-1-1 Authority levels (national, state, regional, and local) must be in place, covering every PSAP, and the plans must be coordinated to handle all contingencies of various levels of transition.[35]

- Estimated Scope and Project Timelines—This is an early statement of expectations. At a minimum the agencies expected to have access to the NG9-1-1 system should be identified. If the network is intended to transport more than 9-1-1 calls (e.g., NCICIP radio, Poison Control), specify exactly what other emergency services applications are intended to be supported on the network. Resource and cost sharing may occur at basic network levels, and must be factored into this analysis.[36]

Finding: Once a comprehensive NG9-1-1 Plan has been developed, transition planning agreements should be established. Plans must be coordinated to address timelines, a statement of expectations, anticipated functionality, coordination of contingencies, and any cost considerations throughout the various levels of transition. PSAP agreements should be updated so that agency management will clearly understand their responsibilities and the responsibility of the PO.

PERIODIC REVIEW OF STATEWIDE/COUNTY PLAN

Once the County strategic plan is drafted, processes must be in place for ongoing review of existing legislation, policies and implementation plans to assure that the strategy is aligned with current standards and no barriers exist that would impact progress. Individuals involved need to be knowledgeable in relevant 9-1-1 technology, NG9-1-1 (i3) system architecture and PSAP operational policies. The process should be open to stakeholder input and review.

There should be a central repository for information regarding the equipment and software inventories within the PSAP community. This inventory should go beyond just 9-1-1 customer premises equipment (CPE) to include logging systems, CAD systems, other public safety applications, mobile data applications, control of radio consoles and related administrative communications used in the PSAP operational environment. These documents must be kept open for updates on a regular basis. This

[34] ibid
[35] NENA 911 Transition Plan Considerations, NENA INF-008.2-2013 (previously NENA 77-501), November 20, 2013 http://www.nena.org/general/custom.asp?page=NG911_TransitionPlng
[36] NENA INF-006.1-2014, NG911 Planning Guidelines, January 8, 2014 https://www.nena.org/?page=ng911planning

activity supports overall planning, identifies opportunities to share resources, and assists in ensuring interoperability.

On an annual basis, the State's E911 Advisory Committee must provide an update to the appropriate committees in the legislature. The update is required to include progress by counties toward creating greater efficiencies in enhanced 9-1-1 operations including, but not limited to, regionalization of facilities, centralization of equipment, and statewide purchasing.

Applicable standards and effective practices:

- At a minimum, there needs to be a process for reviewing existing legislation and determining what, if any, barriers are in place for emerging technologies or other aspects of the 9-1-1 system. Regardless of the process or group, individuals involved need to be knowledgeable in relevant technological fields and/or 9-1-1 as a whole. The processes need to be open to stakeholder input and review. NENA's Next Generation Partner Program (NGPP) has developed a handbook designed to help stakeholders review their state statutes and rules to identify potential barriers to NG9-1-1.[37]

- REQ.0100.0100—Existing capabilities must be maintained through each stage of the transition, limited by the ultimate NG9-1-1 functionality.[38]

- 9-1-1 stakeholders should be adequately represented at every stage of 9-1-1, including planning, implementation, updates, and modification. It is recognized that there may not be much involvement in the planning and implementation, however. While statute may vest final decision-making on key investments and timeframes with specific State and/or local governmental entities, structures should be in place to ensure that relevant State agencies, responsible local governing boards, traditional and non-traditional responder groups, and communications providers have meaningful input into this decision-making.[39]

Finding: Once a comprehensive NG9-1-1 Plan has been developed, there should be a formal and agreed-upon regular review process for updating the Plan. This should be developed with appropriate stakeholder input and modified as conditions or situations change throughout the planning and implementation process.

[37] NHTSA/US DOT National 911 Guidelines Assessment, Guideline SR13, May 24, 2012 https://resourcecenter.911.gov/911Guidelines/RPT053012_National_911_Assessment_Guidelines_Report_FINAL.pdf

[38] NENA 911 Transition Plan Considerations, NENA INF-008.2-2013 (previously NENA 77-501), November 20, 2013. http://www.nena.org/general/custom.asp?page=NG911_TransitionPlng

[39] NHTSA/US DOT National 911 Guidelines Assessment, Guideline GV3, May 24, 2012 https://resourcecenter.911.gov/911Guidelines/RPT053012_National_911_Assessment_Guidelines_Report_FINAL.pdf

TRANSITION READINESS AND RISK ASSESSMENT

Technical and operational readiness is contingent upon the readiness state of individual functional elements used by the PSAP. NG9-1-1 system management readiness involves considering, preparing, and confirming all matters associated with the management of the entire impacted NG9-1-1 system, from the initiation of the emergency request to the final delivery and documentation of the incident response. NG9-1-1 system management necessarily follows from the established governance and system functional technical requirements, but focuses more on identifying specific matters, functions, coordination, responsibilities, accountabilities, and demarcations that may change, and how they will be addressed in the transition from E9-1-1 to NG9-1-1.[40]

System and PSAP operations generally will require preparation, training, and understanding regarding the NG9-1-1 system and the operational differences between today's 9-1-1 environment and NG9-1-1, as well as the development of policies and procedures to support NG9-1-1 operations. Although many organizations have developed their own policies over the course of many years, the introduction of NG9-1-1 will change some of the basic tenets of call processing and handling. A solid understanding of these changes will help to reduce risk in the transition to NG9-1-1, as well as better prepare the end users for the change. [41]

Applicable standards and effective practices:

- The assessment or inventory should be as granular as reasonably possible.
  - Components include: Technical readiness, operational readiness, system management, data (GIS) readiness, governance, and infrastructure considerations.

- REQ.2600.0100—The 9-1-1 Authority must conduct an environmental assessment as a beginning transition-planning step and then develop risk-mitigation strategies resulting in the development of a complete transition plan that is compatible with other transitioning agencies.[42]

- REQ.0200.0100—Transitioning PSAPs must develop standard operating procedures to properly handle various NG9-1-1 media, including incoming and originating phone calls, video, images, and text.[43]

- REQ.2700.0100—Transition planning at all 9-1-1 Authority levels (national, state, regional, and local) must be in place, covering every PSAP, and the plans must be coordinated to handle all contingencies of various levels of transition.[44]

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[40] CSRIC, pg 15
[41] USDOT NG9-1-1 Procurement Tool Kit presents the issue as far as System and PSAP operations as follows in 2.7.1 Overview: http://ntl.bts.gov/lib/35000/35600/35649/USDOT_NG911_Procurement_ToolKit_2009.pdf
[42] NENA 911 Transition Plan Considerations, NENA INF-008.2-2013 (previously NENA 77-501), November 20, 2013 http://www.nena.org/general/custom.asp?page=NG911_TransitionPlng
[43] ibid
[44] ibid

- The planning-and-implementation coordinating body must begin with a needs assessment to determine the operational requirements to form an overall picture of system requirements and baseline functionality necessary for any proposed NG9-1-1 solution. NG9-1-1 systems architecture will be designed based on these systems requirements. A transition plan must be developed to ensure the successful transition from the current 9-1-1 system to the new system, and the management and operation of the system for optimal health and security. The individual transition plan must include the following:
    - Consideration of the issues identified in the USDOT NG9-1-1 System Initiative's NG9-1-1 Transition Plan, NENA's Next Generation Partner Program's A Policy Maker Blueprint for Transitioning to the Next Generation 9-1-1 System, and this Transition Plan Considerations document.
    - Identification of all stakeholders that will be involved and impacted by the transition.
    - Risk assessment to develop a risk-management plan to ensure the successful transition to, and continued management and operations of, the current and future 9-1-1 systems. The risk-management plan must be updated based on regular risk assessments.
    - Opportunity assessment to identify the benefits associated with the development of new services or service improvements to existing services, and the resulting benefits for various 911 stakeholders.
    - Development of the readiness criteria for PSAPs and ESInets to interconnect.
    - Identification of operational issues and definition of the governance/management necessary for the optimal health and security of the system.
    - Identification of the logistics of the transition by stakeholder groups.

- NG9-1-1 Transition Policy Number Five—Analyze the applicability of current state confidentiality, disclosure and retention laws/rules to all types of 9-1-1 calls and call content and, as necessary, modify such laws/rules to treat all types of 9-1-1 calls and call content in a consistent manner.[45]

Finding: A stakeholder planning and implementation coordinating body should be considered to develop a needs assessment, determine the operational and system requirements, and baseline functionality, necessary for any proposed NG9-1-1 solution. A transition plan should be developed to ensure the successful transition from the current 9-1-1 system to the new system, as well as the management and operation of the system for optimal health and security.

[45] NENA's Next Generation Partners Program (NGPP) Transition Policy Implementation Handbook, A Guide for Identifying and Implementing Policies to Enable NG911, March, 2010 http://www.nena.org/?NGPP_TransPolicy

SYSTEM MANAGEMENT AND PERFORMANCE

The NG9-1-1 System will be a more comprehensive emergency communications system with enhanced capabilities that allows for greater situational intelligence than today's 9-1-1 system. NG9-1-1 services are expected to expand beyond the 9-1-1 services of today and require higher levels of interaction and coordinated response among a wider base of stakeholders, both vertically and horizontally. An NG9-1-1 system will incorporate other emergency services stakeholders beyond the boundary of the PSAP.

The planning-and-implementation coordinating body must facilitate the participation of PSAP-oriented stakeholders in the effort to:

- Prepare and train telecommunicators to work in a multimedia environment, and to handle increased quantity and quality of information available with the call.
- Prepare themselves and PSAP administrators to handle contingency planning without geographic constraints. This involves developing upfront agreements with other authorities, PSAPs and 9-1-1 entities regarding the relevant terms of cooperation.
- Prepare for the responsibility of deployment, maintenance, upkeep and oversight for their regional infrastructure.
- Prepare themselves and NG9-1-1 data administrators to handle widely dispersed and highly replicated databases inherent in the NG9-1-1 system.

Processes and procedures must also be developed collaboratively for the following:

- Resolving and escalating contract and service issues
- Data quality assurance
- Security and data rights management

Each state, regional or local jurisdiction should determine the methodology to be used to ensure that network and system operation and reliability meet generally acceptable effective practices and adopted standards. Solutions must provide appropriate capability to monitor and analyze network and overall system performance against predefined metrics and standards.

Applicable standards and effective practices:

- Establish performance-measurement metrics including the following:
    - Determining the methodology to be used to ensure that network and system operation and reliability meet acceptable and adopted standards.
    - Solutions should provide the capability to monitor, record, and analyze system performance data against predefined metrics (i.e., establish system norms and flag exceptions). This activity supports the monitoring, recording, maintenance, and improvement of system performance data in accordance with adopted standards and best practices.

- The activity includes, but is not limited to, network component monitoring, coupled with the development and maintenance of operational resource utilization databases, and documentation in aid of minimizing congestion and maximizing performance.
- Performance trend analysis enables system administrators to determine whether system components are adequate or decreasing in service capability."[46]

Finding: Once a comprehensive NG9-1-1 Plan has been developed, policy should be developed to establish performance-measurement metrics that are agreed upon by the stakeholder community, and which should be used to determine the effectiveness of the system, and any modifications or amendments to the system should be directed as necessary to meet the desired performance.

SYSTEM AND NETWORK QUALITY ASSURANCE POLICY

Quality assurance (QA) is not meant to be punitive, but provides a constructive evaluation and critique of work processes to ensure performance is meeting the identified expectations of the system. QA helps to provide the necessary framework for objective analysis and quantification of performance of systems and processes. QA is employed to elevate the level of the service provided to a higher standard. QA guidelines are intended to measure the effectiveness of the 9-1-1 system.

Applicable standards and effective practices:

- NHTSA/USDOT National 911 Guidelines Assessment, Guideline SR16, May 24, 2012: This QA program applies to originating service providers and 9-1-1 system service providers. The 9-1-1 system service provider includes both hosted and non-hosted solutions.

- The QA program for a 9-1-1 system should include all components of the call, from call origination through dispatch support systems, regardless of provisioning.

- QA should look at the level of customer service, network functions and services, records management, and service level agreements (SLAs).

- The environment should provide for comprehensive quality assurance requirements for the originating service providers and 9-1-1 system service providers.[47]

- Deployment and Testing Planning

[46] NENA INF-006.1-2014, NG911 Planning Guidelines, January 8, 2014 https://www.nena.org/?page=ng911planning
[47] NHTSA/US DOT National 911 Guidelines Assessment, Guideline SR16, May 24, 2012 https://resourcecenter.911.gov/911Guidelines/RPT053012_National_911_Assessment_Guidelines_Report_FINAL.pdf

- Creation of a plan for deploying and testing even if incomplete must begin prior to the "Acquisition" phase of the project.
- Reasonably estimate the amount of effort, not only for the public agencies including central 9-1-1 Authority groups, but the provider community as well.
- Assess the interaction and testing that may be required with the E9-1-1 selective service provider (there may be more than one).
- Use a methodical approach to deployment and expect a thorough test period prior to going live with any installation.
- This plan, including specific test scripts, must be in written form. Initially the test scripts might be high level. But before testing begins, those high-level scripts will need to be detailed and shared with all impacted stakeholders.
- Everyone involved in testing must understand their role and responsibility.[48]

- Identifies the basic requirements, standards, procedures, or practices to provide the minimum levels of security applicable to NG9-1-1 Entities.

- Regardless of the aspects of the process subjected to QA, the QA program should meet or exceed nationally recognized and accepted consensus standards. For example, call handling could include a call-answering standard of 90 percent of all 9-1-1 calls within 10 seconds during the busy hour of the day. This guideline is not limited to call answering, but rather also encompasses the entire call-handling process, including call overload, call overflow and abandoned calls, as well as customer feedback.

Finding: As part of the planning process and ongoing support and maintenance of the system, basic requirements, standards, procedures and practices that will be used to provide the minimum level of system security and performance should be agreed upon in a consensus forum by the PSAP stakeholder community.

NG9-1-1 SERVICE REQUIREMENTS

Many experts consider inadequate requirements to be the primary reason projects do not meet the triple metric of "on-time, on-budget, and high quality." The use of formal project-management practices will assure that future NG9-1-1 implementation in King County is based on concise and understandable requirements. The IEEE Standard 1233-1998, IEEE Guide for Developing System Requirements Specifications, defines a well- formed requirement as a statement that:

- States system functionality (a capability)
- Can be validated
- Must be met or possessed by a system
- Solves a customer problem

[48] NENA INF-006.1-2014, NG911 Planning Guidelines, January 8, 2014 https://www.nena.org/?page=ng911planning

- Achieves a customer objective
- Is qualified by measurable conditions and bounded by constraints

Specifically, a well-formed requirement should contain:

- Capability
- Condition(s)
- Constraint(s)

Service requirements for NG9-1-1 must address business objectives, stakeholder and end-user needs, and technical specifications (hardware and software). Requirements also build the foundation for system testing and final acceptance. When due diligence is applied during the requirements-gathering phase of a project, fewer issues arise and less time is spent on costly changes. When drafting requirements it is important to focus efforts and assure that the end-stage goal for King County NG9-1-1 aligns with the NENA i3 standard. As stated by NENA, "Transition to i3 is complete when the existing selective router and ALI are no longer used."[49] Systems and PSAPs that continue to rely on traditional selective routing or IP-based selective routing are not considered to be i3 compliant. The below referenced standards are examples of the many types of service requirements that the PO must consider when planning for an i3-compliant NG9-1-1 system.

Applicable standards and effective practices:

- REQ.2100.0100—Security and privacy policies must be created to effectively use NG9-1-1 standardized security and policy mechanisms.[50]

- Ensure statutes and rules make clear the responsibility of all parties in situations in which 9-1-1 call information will be stored in non-local shared databases and networks.[51]

- Ensure rules enable the simultaneous receipt of 9-1-1 call information from originators of such data by multiple emergency response agencies, as well as access to relevant information about individuals involved in emergency incidents, and the simultaneous sharing of such information among multiple authorized emergency response entities at all levels of government during and after incidents as appropriate. Sharing information with some parties in the chain of response, such as emergency operations centers (EOCs) or the CDC) may require anonymitization of specific information in certain cases.[52]

[49] https://www.nena.org/?page=i3_Stage3
[50] NENA 911 Transition Plan Considerations, NENA INF-008.2-2013 (previously NENA 77-501), November 20, 2013 http://www.nena.org/general/custom.asp?page=NG911_TransitionPlng
[51] NENA's Next Generation Partners Program (NGPP) Transition Policy Implementation Handbook, A Guide for Identifying and Implementing Policies to Enable NG911, March, 2010 http://www.nena.org/?NGPP_TransPolicy
[52] ibid

- REQ.0500.0100—Documents must be created which advise authorities how to design the ESInets, the core NG9-1-1 infrastructure and the connectivity between networks.[53]

- This process (synchronization of the MSAG, ALI and GIS) requires specific procedures and a clear process to keep the information synchronized. The information in this document should be part of an ongoing and continuous process to ensure that the databases remain current and synchronized.[54]

- Describe the use of additional data available with NG9-1-1 (associated with a call, a location, a caller, and a PSAP) that assists in determining the appropriate call routing and handling.[55]

- REQ.1100.0100—The 9-1-1 Authority for transitioning PSAPs must have the appropriate Geographic Information System (GIS data, including address information, streets, responder boundaries, and other data required for proper validation and routing within the core NG9-1-1 infrastructure and affected PSAPs.[56]

- REQ.1300.0100—The 9-1-1 Authority for transitioning PSAPs must have procedures in place for the timely update and maintenance of GIS data, including new address information, new or changed streets, responder boundaries, and other data required for proper validation and routing within the NG9-1-1 system and affected PSAPs.[57]

Finding: Service requirements and performance standards should be part of a comprehensive NG9-1-1 Plan. Functional areas should include standards related to GIS, call-handling procedures, routing rules, ESInet design, data sharing, security and privacy. System testing process and system acceptance thresholds should be established by the stakeholder community.

COMPARISON WITH OTHER IMPLEMENTATIONS

Throughout the development of 9-1-1, E9-1-1 and Wireless 9-1-1 in the U.S., King County has long been recognized as a leader in 9-1-1 implementation, trialing new processes and practices, and early adoption of advancing technology. Many other localities across the country have looked to King County

[53] NENA 911 Transition Plan Considerations, NENA INF-008.2-2013 (previously NENA 77-501), November 20, 2013 http://www.nena.org/general/custom.asp?page=NG911_TransitionPlng
[54] NENA 71-501 Synchronization of GIS MSAG and ALI Data v1.1., September 8, 2009 https://www.nena.org/?page=synch_gis_msag_ali
[55] NENA 71-001 v1 NG9-1-1 Additional Data, Version 1.0 / September 17, 2009 http://www.nena.org/general/custom.asp?page=NG911_AdditionalData
[56] NENA 911 Transition Plan Considerations, NENA INF-008.2-2013 (previously NENA 77-501), November 20, 2013 http://www.nena.org/general/custom.asp?page=NG911_TransitionPlng
[57] ibid

for lessons learned and how to address required changes and to absorb the impact of new methods of 9-1-1 call delivery.

As King County contemplates the rapid evolution of 9-1-1 service in its jurisdiction, it would be helpful to examine other similar programs that can provide insight into the County's progression toward NG9-1-1 service. While all 9-1-1 programs are fairly unique, both in scope and function, there are some comparable programs that might be beneficial to review and help to provide perspective and insight.

Appendix B contains a high-level description of five regional programs that have similarities to King County 9-1-1. They have been selected for their similarity in population served, industry leadership, and progress toward NG9-1-1 service offerings. The five programs are described and have been compared on the basis of mission, authority, membership and governance structure, finance, administrative policy, staff support, NG9-1-1 deployment status and timeline.

There is also general information on population, background and history, and agency program scope.

CONCLUSION

Documented processes and formal accountability practices are essential to devising a solid NG9-1-1 strategy that is understood and accepted by stakeholders. The PO, working with its partners, should establish a formal structure for collaboration and decision-making into planning and policy for NG9-1-1 services in the County. Guidance from within County government may be needed to mediate the discord being experienced with the PSAP committee members.

MCP recommends that the County temporarily halt the forward momentum of NG9-1-1 and reassesses/reprioritizes the projects in progress to assure viability and the appropriate return on investment. King County should not feel pressured to immediately move forward with new projects or further enhancements until a solid and sustainable NG9-1-1 strategic plan is in place and supported by relevant stakeholders.

APPENDIX A – NEXT GENERATION 911 (NG911) PLAN[58]

[58] Provided to Mission Critical Partners, Inc. by the King County Program Office.

King County Next Generation 911 (NG911) Plan

Last Update: April 22, 2015

2005 - 2006	ALI Database Upgraded to NENA XML standard. (**Status – Completed. E-911 Program Office impact only, no PSAP impact**)
2005 – 2007	Added lat/long of all addresses in King County to PSAP Mapping System (MicroData). (to improve the ability to locate wireless 911 callers in the current E-911 system as well as in anticipation of NG911) (**Status – Completed. E-911 Program Office impact only, no PSAP impact**)
2007	Pictometry 3-D orthophotography imagery added to PSAP Mapping System, new imagery obtained every 2 years. (to improve the ability to locate wireless 911 callers in the current E-911 system as well as in anticipation of NG911) (**Status – Completed**)
2008 – 2009	IP-Capable Backroom Equipment installed at all PSAPs (Intrado VIPER). (**Status – Completed**)
2008	Participated as 1 of 5 PSAPs in U.S. Department of Transportation NG911 System Initiative: Concept of Operations. (**Status – Completed. E-911 Program Office impact only, no PSAP impact**)
2009 – Current	Addresses in ALI database synchronized with GIS Address data. (to improve the ability to locate wireless 911 callers in the current E-911 system as well as in anticipation of NG911) (**Status – Completed and maintained. E-911 Program Office impact only, no PSAP impact**)
2009	E-911 funds a CAD GIS and IP System Specialist in PSAPs. (to support current E-911 service needs and be fully trained on E-911 and their PSAP prior to NG911 implementation) (**Status – Completed**)
2011	All King County PSAPs connected to statewide ESInet. (State E911 Office project) (**Status – Completed**)
2011	GIS data in PSAP Mapping System updated at PSAPs through PSAP Data Network. (**Status – Completed. Reduced impact to PSAPs during ongoing map updates**)
2011 – 2012	Power911 Upgrade with Texting Capabilities at all PSAPs. (included in annual E-911 equipment software refresh as part of ongoing maintenance) (**Status – Completed. No impact to PSAPs until interim text-to-911 is implemented**)
2012 – 2013	Advanced Automatic Collision Notification (AACN) pilot project with Harborview Medical Center and King County Emergency Medical Services. Delivery of test AACN data through ESInet to E-911 equipment at the Test PSAP. (**Status – Completed. E-911 Program Office impact only, no PSAP impact**)
2012 - 2015	Implement and deploy Smart911 service at all PSAPs to display customer entered home, apartment unit, work and room #, and school addresses, which can be

	associated with the wireless lat/long locations of 911 callers. PSAPs will also be able to initiate texting conversations with wireless 911 callers (initially planned for deployment to those who register a hearing or speech disability). (to improve the ability to locate wireless 911 callers and enhance service to the deaf community and people with disabilities in the current E-911 system as well as in anticipation of NG911) (**Status – Completed at 7 PSAPs. Remaining 5 PSAPs on hold due to their request to implement in the E-911 equipment, which created a security risk that must be addressed before Smart911 can be deployed. Scheduled for completion at remaining 5 PSAPs in 2015**)
2012 – 2015	Pilot project initiated with CenturyLink/Intrado to test all components of full i3 functionality in King County's portion of the ESInet. Includes LNG, LIS, CIDB, ESRP, ECRF, BCF, SIF, and LVF. Includes testing of text and media, graphic MSAG and coordinate based routing, and spatial routing based on GIS. (**Status –in progress. E-911 Program Office impact only, no PSAP impact**)
2014	Implement interim text-to-911 countywide. (interim text-to-911 in the current E-911 system until next generation text-to-911 has been developed and is commercially available) (**Status –in progress**)
2014 – 2015	AACN Pilot Project with U.S. Dept. of Transportation/National Highway Traffic Safety Administration's Office of Emergency Medical Services to deliver live AACN data from Sirius XM and OnStar through the ESInet to the E-911 equipment at the PSAPs. (**Status – project has not been initiated. E-911 Program Office impact only, no PSAP impact**)
2014 – 2015	Multi-node installations at 6 large PSAPs. Includes adding ACD functionality to the VIPERs. Remotely host 6 small PSAPs from the Multi-nodes. (included in E-911 equipment hardware replacement and software refresh as part of ongoing maintenance. The equipment at the large PSAPs is the same hardware that is currently in place. The Multi-node environment is created through connecting the equipment with a network) (**Status – hardware replacement in progress. Network to connect the PSAPs to create Multi-nodes is on hold pending Intrado redesign to address security risks that were identified by the E-911 Program Office and CenturyLink 911 engineers**)
2014 – 2015	Upgrade PSAP Logging Recorders to SIP-capability. (**Status – project has not been initiated, on hold until the State assessment of the security of the State ESInet is completed and any identified security risks are addressed by the State**)
2014 - 2015	Currently, SIP is being delivered to the PSAP VIPERs and then converted back to CAMA. CAMA gateways will be removed, and SIP will be deployed to PSAPs that have upgraded their Logging Recorders. (**Status – project has not been initiated, on hold until the State assessment of the security of the State ESInet is completed and any identified security risks are addressed by the State**)
2015	Implement NG911 Security System and Procedures. (to provide security for the King County E-911 system and PSAPs to provide end-to-

	end security when combined with the State's security of the State ESInet) (**Status – project has not been initiated, on hold pending approval of the carryover of funds from the 2013-14 biennial budget to the 2015-16 biennial budget. 2 FTEs to support this system were approved in the 2015-16 biennial budget and hiring is in progress**)
2015 – 2016	Implement i3 components in ESInet. (**Status – project has not been initiated**)

APPENDIX B – SELECTED STATE NG9-1-1 TRANSITION PLANS

SELECTED STATE

NEXT GENERATION 9-1-1 TRANSITION PLANS

PREPARED FOR

KING COUNTY 9-1-1

APRIL 2015

MissionCriticalPartners

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INTRODUCTION

Mission Critical Partners, Inc. (MCP) was asked to provide King County with a high-level description of five regional Next Generation 9-1-1 (NG9-1-1) programs that have similarities to King County 9-1-1. They have been selected for their similarity in population served, industry leadership, and progress toward NG9-1-1 service offerings. The five programs are described and have been compared on the basis of mission, authority, membership and governance structure, finance, administrative policy, staff support, NG9-1-1 deployment status and timeline.

NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS (NCTCOG)

The North Central Texas Council of Governments (NCTCOG or Council) is a voluntary association established to assist local governments in planning for common needs, cooperating for mutual benefit, and coordinating for sound regional development. NCTCOG's purpose is to strengthen both the individual and collective power of local governments, and to help them recognize regional opportunities, eliminate unnecessary duplication, and make joint decisions.[1]

NCTCOG serves a 16-county region of North Central Texas (see Figure 1 below); this region is centered around the two urban areas of Dallas and Fort Worth. NCTCOG has more than 230 government entities as members, including 16 counties, numerous cities, school districts, and special districts.

Each member appoints a Council of Government (COG) voting representative from its governing body. These voting representatives make up the General Assembly, which annually elects the Executive Board. The Executive Board, composed of 16 locally elected officials, is the policymaking body for all activities undertaken by the COG, including program activities and decisions, regional plans, and fiscal and budgetary policies.

The Board is supported by technical, study, and policy development committees, as well as a professional staff headed by an Executive Director.

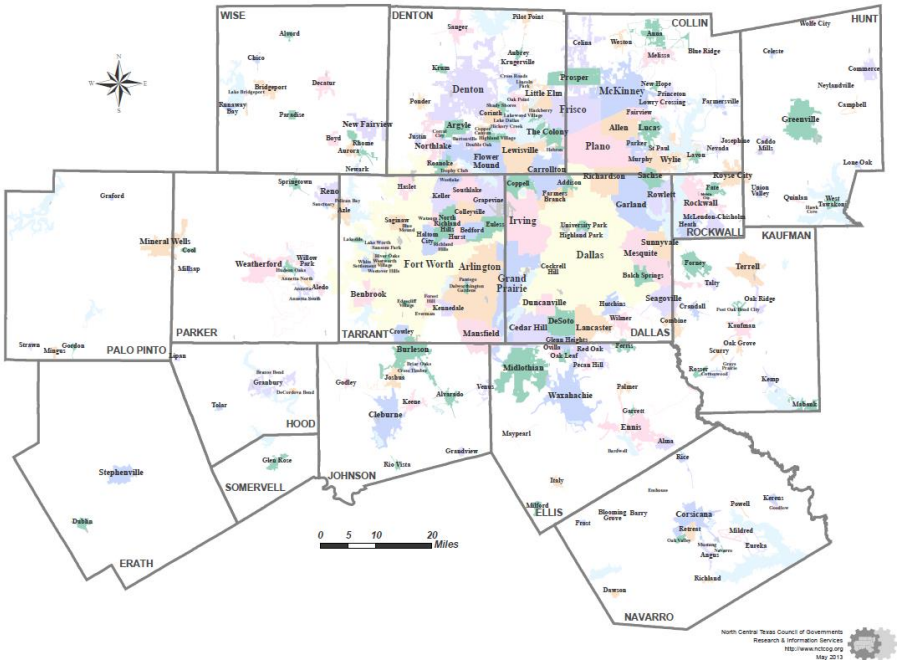

Figure 1 – NCTCOG Region

[1] http://www.nctcog.org/pa/WhatIsNCTCOG.pdf

Background and History

On July 11, 1985, the Texas Commission on State Emergency Communications (CSEC) began a 17-month study of the feasibility of a statewide implementation of 9-1-1. CSEC is composed of state and local officials, as well as representatives of major telephone companies throughout the state.

On January 20, 1987, CSEC recommended to the Legislature a proposal that provided: Automatic number identification (ANI) as a minimal level of service; funding that included a flat fee on local exchange telephone service; and a surcharge on intrastate long-distance toll service. This recommendation was signed into law on May 28, 1987. The bill originally was introduced for statewide implementation, but was later amended to make its provisions mandatory only for those counties with a population of 120,000 or more. It allowed for the remainder of the areas to join the plan by the passage of a resolution of their governing bodies.

Public health and safety state agencies represented on the CSEC include the Texas Department of Public Safety, Criminal Justice Policy Council, and the Advisory Commission on Intergovernmental Relations. CSEC is empowered to develop performance standards for equipment and operation of 9-1-1 service, to recommend minimum training standards, and to provide technical assistance in the establishment of 9-1-1 systems.

The legislation was written so as to allow local governments to make decisions regarding system design and operations according to their needs. The state's COGs, which have had years of experience in planning, grant application, and distribution of funds, were the logical choice for this task.

NCTCOG's purpose is to strengthen both the individual and collective power of local governments, and to help them recognize regional opportunities, eliminate unnecessary duplication of effort, and make joint decisions. The underlying concept of the NCTCOG is that local government, because they are closest to the people, should exercise the basic initiative and leadership, and have the primary responsibility for addressing problems and needs requiring action at the local level rather than a state authority.

The Regional 9-1-1 Emergency Number Program (9-1-1 Program) is part of the Community Services Department of NCTCOG and is responsible for 9-1-1 service in the 16 counties. In addition to those areas served by five municipal systems, the program provides planning and technical assistance to ensure delivery of 9-1-1 calls to the 44 public safety answering points (PSAPs) in the NCTCOG jurisdiction.

Mission

The NCTCOG is a voluntary association established to assist local governments in planning for common needs, cooperating for mutual benefit, and coordinating for sound regional development.

Authority

NCTCOG, the first organization of its kind in Texas, was created on January 20, 1966, by state-enabling legislation. The state-enabling legislation and the subsequent bylaws leading to the

development of NCTCOG are very clear: the Council exists to serve the local governments of this region. By promoting intergovernmental cooperation and coordination, and by carrying on regional planning programs, NCTCOG both complements and supplements local governments. NCTCOG is a political subdivision of the State of Texas, but has no regulatory power or other authority possessed by cities, counties, or other local governments. NCTCOG's decisions are not binding on member governments, but are considered and adopted as members' needs require. As a political subdivision, NCTCOG is subject to state laws governing open meetings, access to public records, and conduct of public officials.

Each NCTCOG member government is entitled to one voting representative, but may send as many delegates as desired to Council meetings. The voting representative is an elective public official appointed by and from the governing body of the member government.

Membership and Governance
Each member government appoints a COG voting representative from its governing body. These voting representatives make up the General Assembly, which annually elects the Executive Board, which is supported by technical, study, and policy development committees, as well as a professional staff.

Funding
All local governments that are NCTCOG members pay annual dues that entitle them to a basic core of services. In addition, Texas provides some state financial assistance to encourage regional planning. These funds are supplemented by state and federal grants to permit NCTCOG to undertake specific programs and planning studies. On request from either individual or groups of local governments, NCTCOG undertakes special projects (outside the realm of basic core services) on a fee-for-service basis.

NCTCOG has spent about $3.4 million on i3 core network elements and $1.6 million on a Multiprotocol Label Switching (MPLS) network (i.e., an Emergency Services Internet Protocol [IP] Network, or ESInet) and Signaling System 7 (SS7) trunking.

Agency Program
The NCTCOG 9-1-1 Program manages all administrative services for the 44 PSAPs in its region. The Operations Team is responsible for database maintenance and PSAP support. This support includes an Inter-local Agreement (ILA) with each PSAP, whether at the county level (Sheriff) or city level (Police). The ILAs are administered to the PSAPs on a biannual basis and cover important governing issues such as retention of documents, training requirements, meeting attendance, PSAP monitoring, and Emergency Service Number (ESN) changes and requests.

The NCTCOG 9-1-1 Program strives to support delivery of emergency services to constituents within its jurisdiction, while supporting statewide objectives and programs.

A rolling 5-year 9-1-1 Master Plan is produced annually that serves as a guide to delivering on NCTCOG's overall strategy and direction. The Master Plan lays out the objectives (Vision of Success),

steps required to achieve the vision (Steps to Success), and target dates and how success will be measured (Measures to Success). Once the Master Plan is approved, projects are developed, approved and executed to achieve the objectives. The detailed project plans will document task due dates and track progress to completion.

The subsections that follow describe each 9-1-1 group's high-level plan to achieve objectives aligned with the following major themes of the program:

- Deliver services to PSAPs that enable them to provide quality and efficient 9-1-1 services to the public.
- Interact with the public and other entities to communicate and educate them on the use of 9-1-1.
- Utilize best practices that improve efficiency and quality of service provided by 9-1-1 Program operations.

Administrative Policy

The Executive Board, composed of 16 locally elected officials, is the policy-making body for all activities undertaken by the Council of Governments, including program activities and decisions, regional plans, and fiscal and budgetary policies.

Staff Support

Figures 2 and 3 below provide an organization chart that shows the relative position of the 9-1-1 Program in the NCTCOG organization and the Regional 9-1-1 Program staff.

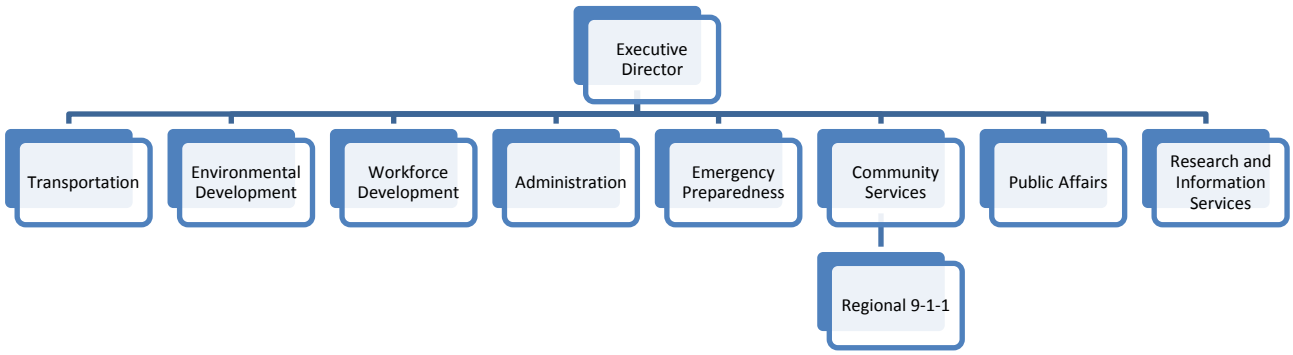

Figure 2 – NCTCOG Organization Chart

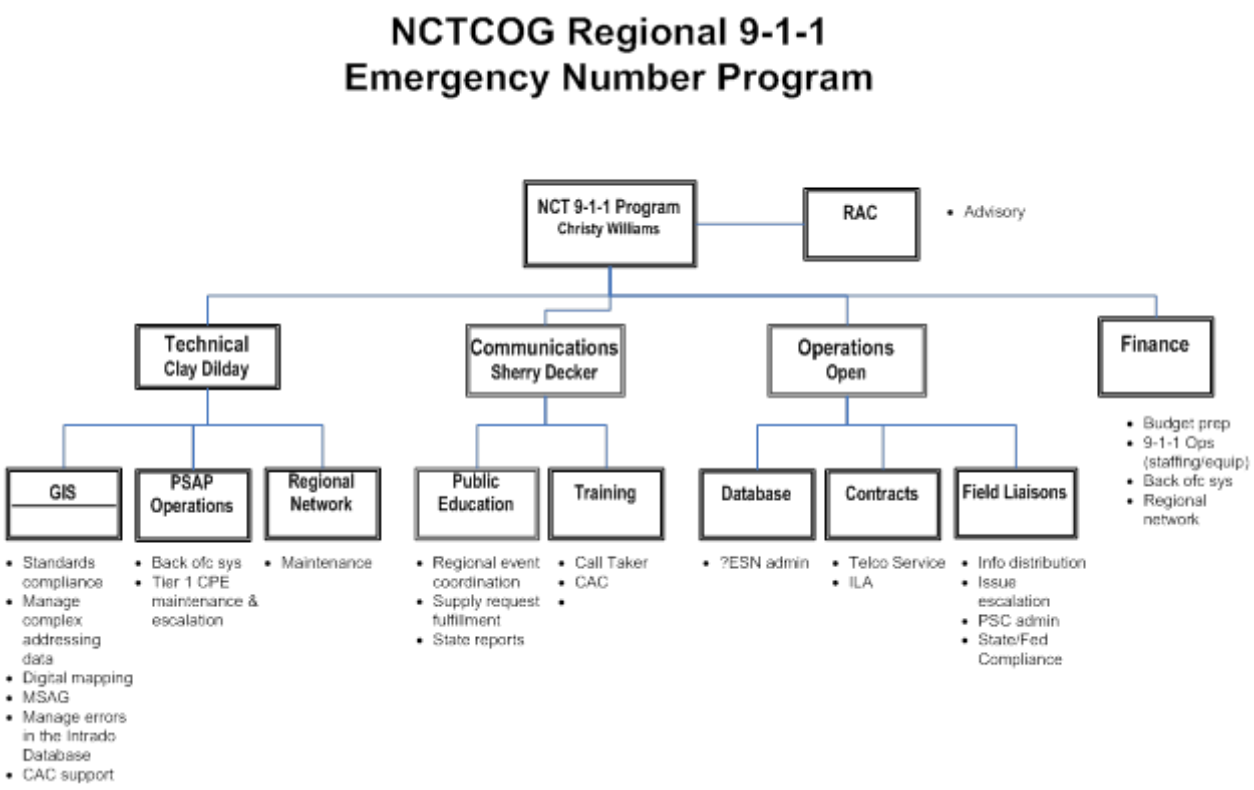

Figure 3 – NCTCOG Regional 9-1-1 Program Organization Chart

Next Generation 9-1-1 Deployment Status

The NCTCOG 9-1-1 Program has functional National Emergency Number Association (NENA)-compliant i3 core services (legacy selective router gateways [LSRG], emergency service routing proxy [ESRP], emergency call-routing function [ECRF]/location validation function [LVF], and border control function [BFC]), for which they own and operate 95 percent of each function. The NCTCOG also has purchased the requisite hardware and software licenses and installed them in its own data centers. This NG9-1-1 network has been functional for nearly two years.

It is expected that the NCTCOG will reconvene regional NG9-1-1 discussions with Tarrant County 9-1-1 ECD and Denco ECD within the next year. Because the current i3 system works alongside the legacy selective routers, NCTCOG obtained certification in 2014 to operate its own automatic location identification (ALI) database, and now has Executive Board approval for an inter-local agreement and a commercial contract to implement the database. In 2015, NCTCOG obtained certification to provide the selective router function, and is in the early stages of investigating the removal of the selective routers provided by their current telecommunications service providers.

Timeline

Approximately four years elapsed between the early NG9-1-1 discussions to when the 44 PSAPs were cutover to the regional ESInet, which occurred two years ago.

THE METROPOLITAN EMERGENCY SERVICES BOARD (MESB) – MINNEAPOLIS/ST. PAUL, MINNESOTA, METROPOLITAN REGION

The Metropolitan Emergency Services Board (MESB or Board) supports public safety for the residents of Anoka, Carver, Chisago, Dakota, Hennepin, Isanti, Ramsey, Scott and Washington Counties, and the city of Minneapolis in Minnesota.[2] This support includes:

- Oversight and management of the regional public-safety radio system (Metro Allied Radio Matrix for Emergency Response [ARMER] System).
- Oversight and management of the regional 9-1-1 system.
- Coordination of the regional emergency medical services (EMS) system.

This coordinated, regional approach to support public safety answering points (PSAPs), radio system users, and EMS providers ensures the most efficient response to emergencies for the metropolitan region's residents.

Background and History

The MESB supports public safety by maintaining and enhancing 9-1-1 service and an interoperable regional radio system, and by facilitating EMS coordination. This coordinated, regional approach to 9-1-1, interoperable radio communications and EMS helps to ensure the integrity and accuracy of the Metro 9-1-1 system and the Metro ARMER system for response to emergencies, while reducing costs. The MESB serves the residents of the metropolitan region by providing support services, and by working with PSAPs, radio system users and EMS providers in coordination with government agencies and telephone service providers.

Authority

Authority for the MESB is derived from Minnesota Statute 471.59, which allows joint powers governance among and between local governments for common purposes. When acting in its capacity as a regional radio board, the MESB has the authority to implement local improvements to the statewide shared, trunked radio communications system—and maintaining those improvements—provided for in Minnesota Statutes, Section 403.36 and 403.39, such as establishing standards.

When acting as the metropolitan 9-1-1 board, the MESB is authorized to complete the implementation of the consolidated 9-1-1 plan for the nine member counties—including the acquisition, installation, operation and maintenance of the Regional 9-1-1 System—and is authorized to exercise those powers required to discharge the duties imposed by Minnesota Statutes, Section 403.01 to 403.15, and rules and regulations pursuant to those statutes, including but not limited to setting performance standards and monitoring performance of the systems and network.

When acting as a regional EMS board as authorized by Minnesota Statutes, Section 144E.50 to 144E.52, the MESB is authorized to take actions—or recommend actions to the appropriate authorities,

[2] http://www.mn-mesb.org/

public and private—that are needed for the coordination and improvement of emergency medical services within the Board's jurisdiction.

The duties of the MESB include the following:

- Adopting an annual budget
- Entering into contracts required to carry out the mission of the Board
- Funding Board activities through a proportional assessment to each member
- Disbursing funds consistent with the requirements of the law
- Adopting bylaws, rules and policies consistent with Board powers or the accomplishment of its objectives
- Employing staff
- Seeking grants
- Acquiring property
- Establishing and collecting fees, including user fees for Board-provided services
- Petitioning the State Legislature and Congress for funding and statutory changes

Membership and Governance

Members of the MESB are county commissioners appointed by their respective counties for an annual term. Membership is weighted based on a population formula. More populous counties are allowed to have more members and commensurate voting power on actions of the board and financial participation. Figure 4 below illustrates the MESB organizational structure.

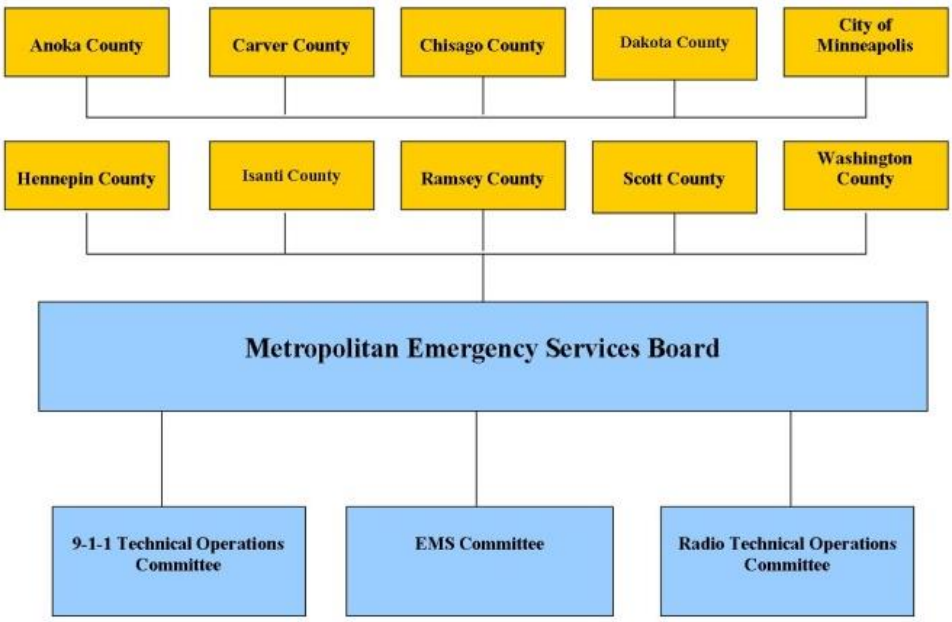

Figure 4 – MESB Organizational Structure

Program or policy recommendations and activities are conceived by the Technical Operations Committees (9-1-1 and regional radio) and the EMS Committee, are researched and prepared by staff, and ultimately are presented to the MESB Executive Committee where they are discussed and vetted. If necessary, additional research or documentation is requested by the Executive Committee before the issue is advanced to the Board for action with the recommendation of the Executive Committee. All members of the Board are party to the full discussion and decision-making.

Funding

The MESB budget is set annually by August 1 of each year to allow sufficient budgeting time for each of the member counties. Because the budget is funded by contributions from each of the member counties, it is necessary for the Board to determine the amount of contribution by each participating county, according to an assessment formula that has been accepted by all members. All assessments are made in the same proportion as the ratio of the county's population to the population of the entire region. This proportion is measured by the most recent and available population figures of the State Demographic Center.

As it relates to NG9-1-1, the MESB has expended approximately $500,000 on strategic planning, wide-area network (WAN) design, pilot projects and consulting since 2005. This does not include the Geographic Information System (GIS) efforts to transition the 9-1-1 database to geospatial data for use in a NG9-1-1 environment. Under the current contract, the State has spent $9 million to transition PSAPs throughout the state to the state-level ESInet. Most of that expense was for network and ALI database costs. The currently monthly recurring costs for the State are $200,000 for all 9-1-1 services.[3]

Agency Program

Services provided by the MESB and its committees and staff include:

- Providing 9-11 network oversight, establishing standards and guidelines for 9-1-1 service, and coordinating the 9-1-1 database to ensure accuracy, reliability and integrity of the 9-1-1 system.
- Overseeing and managing the interoperable regional radio system, establishing standards and guidelines for radio system operation, and encouraging and facilitating participation among all metropolitan-area first-responder agencies.
- Coordinating regional EMS activities, serving as an information clearinghouse, and supporting EMS providers with monetary and programmatic resources to enhance the regional EMS system.
- Providing a forum for problem-solving and discussion by facilitating meetings for radio users, PSAPs and EMS providers, and coordinating activities between agencies involved in providing 9-1-1, radio service and EMS.
- Planning, preparing for, and managing change in the 9-1-1, radio and EMS industries by providing information on potential impacts, facilitating activities to implement or manage

[3] https://dps.mn.gov/divisions/ecn/programs/911/Documents/2014-911-armer-biennial-report.pdf

change, and supporting research to validate and/or enhance 9-1-1, radio service and EMS.

- Educating the public about how to effectively access 9-1-1 and EMS, and about changes or issues that impact the systems.

There are six standing committees of the MESB. The Executive Committee and the Finance Committee are the administrative committees. They consist of Board members (elected officials) and are responsible for vetting issues and providing preliminary recommendations on actions, as well as developing an annual budget and any fiscal planning required of the Board.

The operational committees of the MESB include a standing committee for each of the program areas: the 9-1-1 Technical Operations Committee (9-1-1 TOC), the Regional Radio Technical Operations Committee (RTOC) and the EMS Committee. The 9-1-1 and Regional Radio TOCs provide advice, as well as planning and program recommendations to the Board for action and funding. The EMS Committee provides guidance and advice regarding regional EMS needs, makes recommendations for grant submissions to the State EMS Committee, and monitors the approved grant program for the Board. There also is a Cost Allocations Committee that is convened annually to determine cost allocations for the regional radio program.

Administrative Policy

Bylaws of the MESB outline the appointment process, meeting requirements, tiered voting power of the members, executive committee structure and officers, duties of the executive director, standing committees, and accounting principles to be followed. They also define the Board's fiscal year and audit requirements.

In addition, there are written procedures for a county to withdraw from the MESB, as well as procedures for incorporating additional members into the MESB. There also are bylaws for each of the three program committees of the MESB, i.e., the 9-1-1, Regional Radio and EMS committees, which outline meeting requirements, the appointment process, scope of responsibility and committee structure.

Professional Staff Support

The Board employs a small professional staff in each of the key program areas (9-1-1, Radio and EMS), as well as an Executive Director and administrative support staff. Figure 5 below depicts the MESB's staff structure.

Figure 5 – MESB Staff Structure

NG9-1-1 Deployment Status

All of the PSAPs in Minnesota are now on the state's version of the ESInet and have been for approximately 18 months. The State essentially recreated E9-1-1 in an IP environment. The network is sized to carry 9-1-1 traffic but currently is not sufficient for any additional applications. Unfortunately, any desire to enhance the MESB network has been thwarted due to the State's ESInet implementation, which has left policymakers with the impression that the transition to NG9-1-1 already has been accomplished in Minnesota.

While this is true on one level, the robustness of the network for full public-safety applications beyond 9-1-1 is questionable. It has become difficult for the MESB to make the case for additional network investment.

Currently, the State has issued a request for proposal (RFP) for NG9-1-1 service. Responses to that RFP are due in early April 2015. The momentum is behind staying the course and basically renewing the existing agreements. However, the MESB is hopeful that it can persuade the State to research what other areas of the country, similar to the metropolitan region, have done to implement I3-based systems and to potentially open up options that might be beneficial to both urban and rural areas. If an alternate direction to "staying the course" is taken, the 9-1-1 service provider in Minnesota would likely change.

If the current 9-1-1 service provider is awarded the RFP bid, as part of the transition to new ESInet facilities, the State's next step is to move the telecommunications service providers to delivering 9-1-1 calls using Session Initiation Protocol (SIP) rather than analog connections.

Timeline

The first conceptual drawing of a new network for the MESB's jurisdiction was completed in 2002; it anticipated that all of the metropolitan area PSAPs sharing a single metro-area answering application and public branch exchange (PBX). In 2006, the MESB engaged Telcordia to produce a WAN design of an appropriately sized ring topology. Neither of the two concepts are a reality today. Because the State pays all network and ALI database costs, it stepped up its role regarding NG9-1-1 services, a level of involvement that that they traditionally never had with Enhanced 9-1-1 (E9-1-1).

The MESB Director of 9-1-1 Services reports that the Board is not opposed to this approach as it believes that NG9-1-1 does not scale well below a regional level, though it makes great sense at a state level. While the metropolitan area could have moved forward with its own NG9-1-1 plan and implemented a regional ESInet, greater Minnesota could not accomplish the same without the financial and planning assistance from the State 9-1-1 Program. The State's NG9-1-1 contract with the current service provider expired in 2013. Consequently, the State has been paying for services on a month-to-month basis until the new contract is awarded. In accordance with State purchasing contracts, the new contract will be a three-year term with the ability to renew two one-year extensions, for a total contract period of five years.

TARRANT COUNTY 9-1-1 DISTRICT, TEXAS

Background and History

In 1984, the Texas Legislature passed the Emergency Communication District Act authorizing Texas counties with populations in excess of 75,000 to establish a special 9-1-1 service district.

In April 1985, Tarrant County residents approved the creation of the Tarrant County 9-1-1 Emergency Assistance District, thus setting in motion the implementation of E9-1-1 service for the county.[4] The Tarrant County 9-1-1 Emergency Assistance District was staffed and began implementation of 9-1-1 districtwide. On August 1, 1987, E9-1-1 service was implemented in Tarrant County.

Mission

Today the Tarrant County 9-1-1 District (District) continuously provides reliable, accurate, responsive, and effective emergency communication networks and services to its member jurisdictions, ensuring the protection of life and property throughout its jurisdiction by ensuring the availability of the 9-1-1 system to all persons and entities within the District. The District also seeks to provide continuous improvement of systems and services through research and implementation of industry best practices, and to enhance public education and awareness of available and future 9-1-1 services. In addition, the District provides leadership in the areas of legislation, regulation and technology, and advises, informs and educates telecommunicators (and other public-safety personnel) to ensure adherence to federal and state emergency communications laws and requirements.

Authority

Authority for the existence of the District was given by the citizen electorate.

Membership and Governance

The District is governed by a Board of Managers (Board), comprised of two members appointed by the City of Fort Worth, one member appointed by each of the following: Commissioners Court, City of Arlington, City of Grand Prairie, City of Irving and the Tarrant County Mayor's Council. One non-voting member represents the major service supplier.

The Tarrant County 9-1-1 District is comprised of the following cities and government entities:

- Arlington
- Azle
- Bedford
- Benbrook
- Blue Mound
- Burleson
- Colleyville
- Crowley
- Dallas/Fort Worth Airport
- Dalworthington Gardens
- Grand Prairie
- Grapevine
- Haltom City
- Haslet
- Hurst
- Irving
- Keller
- Kennedale
- Lakeside
- Lake Worth
- Pelican Bay
- Richland Hills
- River Oaks
- Saginaw
- Sansom Park
- Southlake
- Watauga
- Westlake
- Westover Hills
- Westworth Village

[4] http://www.tc911.org/who-we-are/missionobjectivegoal/

- Edgecliffs
- Euless
- Everman
- Forest Hill
- Fort Worth
- Mansfield
- Naval Air Station – JRB Fort Worth
- North Richland Hills
- Pantego
- White Settlement
- Unincorporated Tarrant County

Funding

The Tarrant County 9-1-1 Board of Managers is authorized by Texas Health and Safety Code, Chapter 772, to impose a 9-1-1 emergency service fee on service users for local exchange access lines and equivalent local exchange access lines. The District receives a monthly per-line fee from each telephone customer of up to three percent of the service provider's base rate. The Tarrant County fee was set by the board at two percent of AT&T's rate (formerly Southwestern Bell). The monthly fees assessed each customer are as follows:

Residential Lines:	$0.20 per line
Business Lines:	$0.46 per line
Business Trunks:	$0.74 per line

For the transition from legacy to NG9-1-1 technology, Tarrant County has spent $11 million on an AT&T MPLS network in 2010, and is planning to spend $19 million for customer premises equipment (CPE) for 325 workstations spread among four Tarrant County-owned data centers and 41 PSAPs.

Agency Program

The District is not part of any city, county, telephone company, police or fire department, or other entity. It does not own or operate equipment. Rather it is a standalone government body that exists solely to bring efficiency to 9-1-1 service through strategic planning, systems and process management, technology, legislative and regulatory activities, training and public education, equipment and monitoring practices, database management, and GIS systems and programs.

Program Objectives include the District's mission to:

- Ensure availability of the 9-1-1 system to all persons and entities within the Tarrant County 9-1-1 District.
- Provide continuous improvement of systems and services through research and implementation of industry best practices.
- Enhance public education and awareness of available and future 9-1-1 services.
- Provide leadership in the areas of legislation, regulation and technology.
- Advise, inform and educate telecommunicators (and other public-safety personnel) to ensure adherence to federal and state emergency communications laws and requirements.

Services provided by the District include:

- Fiduciary accountability, budgetary services and budgetary planning, including reserves for capital development
- Public education, public information and community outreach
- Technical planning, implementation, funding, and oversight of all products and services related to 9-1-1 call delivery
- Development and maintenance of the Master Street Address Guide (MSAG), ANI/ALI databases and GIS data
- Oversight and development of existing and future network connectivity and facilities
- Long-range planning and systems migration
- Standards development and industry leadership
- Contingency planning and continuation of operations (COOP)
- Regulatory oversight and assistance in the areas impacting 9-1-1
- Contract services related to various telephony providers routing calls into the District's network
- Quality assurance and problem resolution
- Testing of wireless accuracy and new technologies
- Training of 9-1-1 call-takers, supervisors and managers
- Oversight of private-switch services
- PSAP assistance including the funding of special projects approved by the Board

In addition to the services documented above, the District also provides assistance to the member cities and agencies concerning radio support, in the form of planning, interagency coordination, grants for equipment, and other strategic programs to increase communications interoperability throughout the District's jurisdiction.

Administrative Policy

Administrative policy of the District is directed by the Board and carried out by the Executive Director and staff.

Staff Support

The District staff supports the mission and program activities of the District as identified and approved by the Board. Figure 6 depicts the Districts organizational structure.

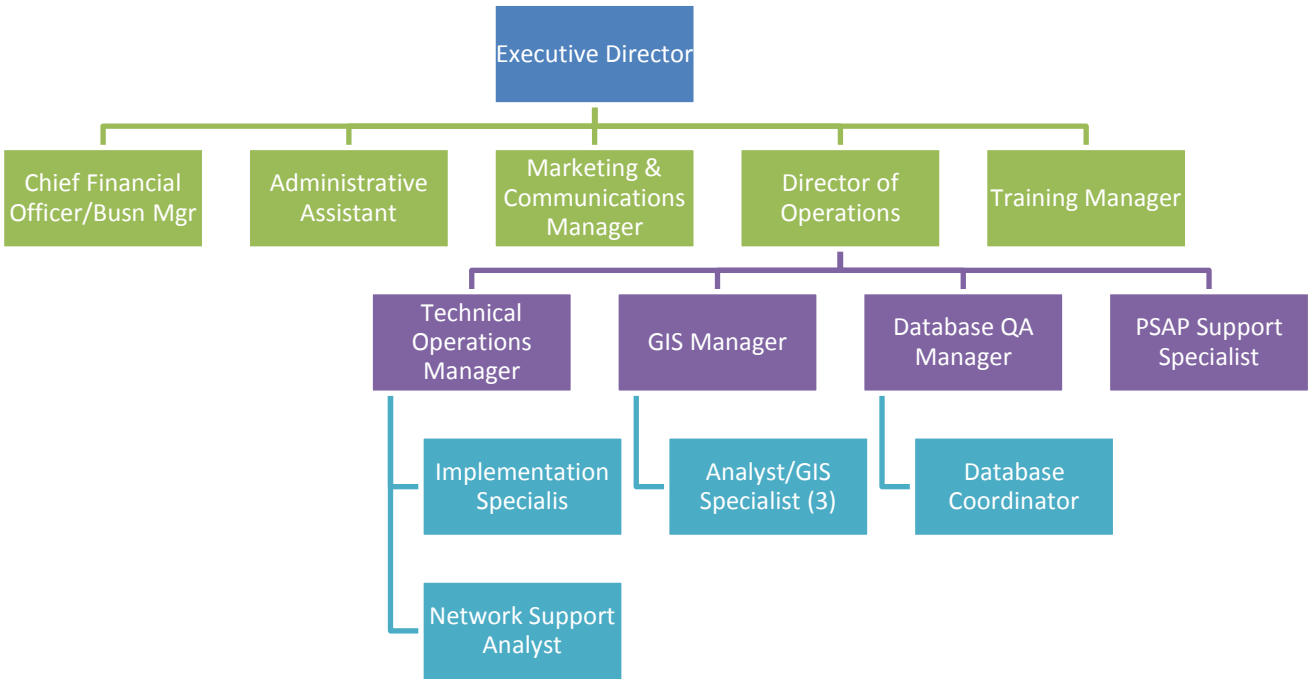

Figure 6 – Tarrant County 9-1-1 District Organizational Structure

NG9-1-1 Deployment Status

The District began significant NG9-1-1 transition planning efforts in 2009, working with a consultant to provide analysis, identify requirements, create an RFP, and implement the network migration. (The contract for these services was awarded in 2010.) Also in 2009, Tarrant County worked with NCTCOG and the Denco ECD to create a set of bylaws and a governance document for a regional consortium. Once developed, the initiative was put on hold as each agency began addressing its individual needs. In 2012, a contractor was engaged to assist the District with analysis, requirements, and an RFP regarding implementation of NG9-1-1-capable call-handling equipment that would be hosted in the District's four data centers that serve 41 PSAPs with approximately 325 workstations. This planning-and-implementation process has taken approximately 21 months, with the cutover of their first NG9-1-1-capable PSAP scheduled for early April, 2015.

Now that NCTCOG has an i3 core solution, Denco has completed its managed service i3 solution and Tarrant County has a high probability of entering a stable cutover schedule for its i3-compatible CPE mid-2015, it is likely that the consortium discussion will resume.

Timeline

Four years ensued (2009-2015) from the time planning began to the first office application of NG9-1-1 in the District.

KANSAS COORDINATING COUNCIL

Background and History

In May, 2011, Senate Bill 50, also known as the Kansas 9-1-1 Act, was signed into law, establishing the Kansas 9-1-1 Coordinating Council (Council).[5] Some provisions of the Act went into effect in July, 2011, with the balance taking effect on January 1, 2012.

Mission

The Council's vision is to develop, coordinate, and integrate the foundation for an evolved, fully functional NG9-1-1 system. Such a system would respond anytime, anywhere, from any device in order to realize the full potential of 9-1-1 to provide public access to emergency services, enable interoperability between systems, protect human life, preserve property, and maintain public safety. The Council's mission is to enhance public safety in Kansas through reliable access to 9-1-1 service and foster a voluntary, unified approach to enable development, policy leadership, operational review, technological advancement, education, and training to enable NG9-1-1 systems and services.

In accomplishing this mission, the Council pledges to collaborate with PSAPs, local municipal and county authorities, other state agencies, and the telecommunications industry to promote stewardship and accountability, set high standards, and foster efficient emergency telecommunications services.

Authority[6]

Authority for the Council is established in statute and modified from time to time to remain effective. The last revision was February 8, 2013, which outlined specific policy areas for the Council to undertake. Specific actions include the following:

(1) Select the Local Connection Point Administrator (LCPA) upon advice and consent of the legislative coordinating council; adopt rules and regulations for the terms of the contract with the LCPA; determine the compensation of the LCPA, which will provide staffing to the Council; and perform oversight of LCPA performance. The purpose of the LCPA is to collect and distribute 9-1-1 fees and 9-1-1 state grant funds to carry out the Council's mission.
(2) Adopt rules and regulations necessary to effectuate the provisions of the legislation.
(3) Monitor the delivery of 9-1-1 services.
(4) Develop statewide planning and strategies for future enhancements to the 9-1-1 system.
(5) Develop criteria for the expenditure of 9-1-1 grant funds, and distribute available grant funds to PSAPs.
(6) Make an annual report to the relevant State Senate and House committees.
(7) Approve expenses incurred in carrying out the Council's business.
(8) Determine if any PSAP has used 9-1-1 fees for unauthorized uses.

[5] http://www.kansas911.org/
[6] http://www.kansas911.org/109/Laws-Administrative-Regulations

The Council has the power to oversee numerous standing committees in order to advance the mission including:

- **Administration Committee**: It is tasked with the following: develop proposed rules and regulations for approval by the Council; develop an RFP for selection of the LCPA, and provide oversight of LCPA collection and distribution of money; conduct review of, and make recommendations regarding, Council business expenses; assist in the development of annual Council reports; propose Council bylaws; administer grant applications and awards.

- **Technical Committee**: It is tasked with the following: recommend technology and equipment standards; provide oversight of planning and implementation of statewide NG9-1-1 and core ESInet services; work with GIS services in core ESInet and provide GIS guidance to local PSAPs; provide policy oversight of ESInet contractors and service providers; recommend security policies and procedures for ESInet and core NG9-1-1 services; develop recommended procedures to execute Council policies for administration and operation of core ESInet and NG9-1-1 services.

    - **ESInet Subcommittee**: Comprised of Technical Committee members and external subject-matter experts, it will facilitate the network design and specifications for ESInets in Kansas with consultants, carriers, and PSAPs. It also will recommend standards and specifications for ESInets, core NG9-1-1 services, and network security policies and procedures, and provide technical oversight of the ESInet and NG9-1-1 core services providers at the direction of the Technical Committee.

    - **GIS Subcommittee**: Comprised of Council members and external GIS subject-matter experts, it is tasked with recommending GIS data standards and protocols for use by PSAPs, telecommunications carriers, and GIS service providers. It also oversees requests for information (RFIs) and RFPs issued on behalf of the Council and recommends the selection of vendors and services; provides oversight of GIS service contracts approved by the Council; coordinates the work of GIS providers with PSAPs and other NG9-1-1 system stakeholders; and coordinates state-level NG9-1-1 database administration with the database administrator and NG9-1-1 stakeholders.

- **Operations Committee**: Comprised of PSAP personnel from local and regional 9-1-1 networks, its responsibilities include: developing the Coordinating Council's communications plan; facilitating the communication of Council activities to Kansas stakeholders; providing guidance to the Technical Committee regarding PSAP operational procedures, CPE needs, GIS and ESInet operational procedures, and other technical subjects affecting PSAP operations; facilitating information exchange between the Council and PSAPs; researching and recommending training standards for PSAP personnel; reviewing any allegations of unauthorized use of 9-1-1 fees by PSAPs.

There is also a 9-1-1 Liaison focused on the technical services contracted by the Council that provides technical guidance and planning assistance to PSAPs to further their transition to NG9-1-1 services.

The duties of the Council, as prescribed by the Act, are to monitor the delivery of 9-1-1 services, develop statewide strategies for future enhancements to the 9-1-1 system, and develop criteria for expenditures and distribution of available grant funds to PSAPs. Each PSAP within the state must submit reports associated with their use of 9-1-1 money. The Council is tasked with determining if a PSAP has used 9-1-1 fees for unauthorized uses. The Council is required to submit an annual report to the relevant State Senate and House committees.

Membership and Governance

Governance was based on Information Technology Infrastructure Library (ITIL) methodology and was used as an example for the State of Kansas to follow. While NENA currently does not have any detailed governance documents, the association has recognized in multiple documents the necessity of having a good governance structure. A well-thought-out and comprehensive governance methodology must be utilized.

Kansas acknowledged that there should be a process, procedure, or method for addressing each point. It was further understood that this would require additional communication, once the Council determined exactly how state and regional 9-1-1 service will be deployed. As the network designs become more defined, more specific governance requirements will be developed. Figure 7 depicts the four-tiered approach to the desired state of governance for 9-1-1 in Kansas, which is still in the formative stages.

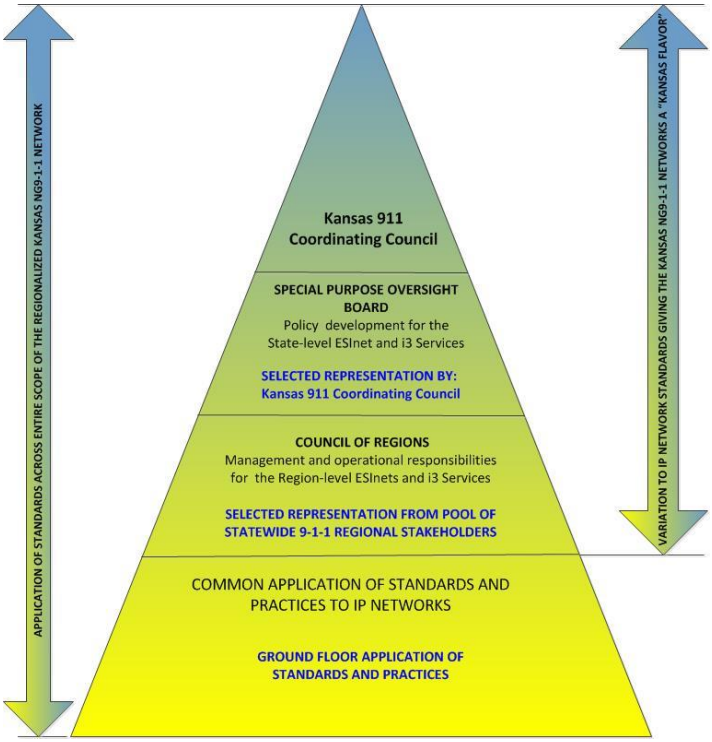

Figure 7 – Kansas 9-1-1 Governance Structure

The four-tiered approach depicted in Figure 7 is more fully defined in Table 1 below.

Table 1 – Kansas's Four-tiered Governance Approach

Kansas 9-1-1 Coordinating Council	Provides statutory authority. Supports and champions project across the state and provides visibility to all the regions and PSAPs.
Special Purpose Oversight Board	Led by the Council Chairman, provides policy oversight and direction for different regions, and provides reports to the Council.
Council of Regions	Provides day-to-day operational and administrative planning and direction for the implementation and management of the different region-level ESInets. Helps coordinate policies and procedures; establishes standards of operation; and monitors and responds to the ongoing needs of operating the ESInets and associated applications and systems. Expectations are that this body would empanel subcommittees relating to technical, operational, change management and other needs as required, in order to bring specific expertise for planning, problem

	solving, and monitoring, assuring the performance and security of the network. Provides reports for the Special Purpose Oversight Board.
Functional Tier	May include a combination of region/local government employees, contractors and consultants, as required and appropriate to: support operational activities; standards compliance; network management; problem identification and response; and all other activities Expectations are that these people interwork with the Council of Regions.

The success of this governance model is directly impacted by how early the governance model is created and a communications plan is implemented between the different layers of the model. The Council of Regions is a critical component as it is the key level for ensuring that the Functional Tier has a voice and has confidence in the NG9-1-1 plan; the Council of Regions also will provide the services and support that the PSAPs and constituents desire and need. Kansas has not yet completed the implementation of this model.

Funding

The Kansas Association of Counties (KAC) officially began its duties as the LCPA on December 14, 2011. KAC then began contacting wireline, wireless, and Voice over Internet Protocol (VoIP) providers in December 2011, notifying them of the new law, and providing information necessary to begin receipt and distributions of the 9-1-1 funds. The State 9-1-1 fund and the State 9-1-1 Grant fund are both with Intrust and are pledged/collateralized in accordance with Kansas law on public money.

> **Guidance on Usage of 9-1-1 Funds**
>
> K.S.A. 12-5362 et seq. states: *"The proceeds of the 911 fees imposed pursuant to this act...shall be used only for necessary and reasonable costs incurred or to be incurred by PSAPs for: (1) Implementation of 911 services; (2) purchase of 911 equipment and upgrades; (3) maintenance and license fees for 911 equipment; (4) training of personnel; (5) monthly recurring charges billed by service suppliers; (6) installation, service establishment and nonrecurring start-up charges billed by the service supplier; (7) charges for capital improvements and equipment or other physical enhancements to the 911 system; or (8) the original acquisition and installation of road signs designed to aid in the delivery of emergency service…"*

Generally, it is considered permissible to use 9-1-1 funds to buy electronic equipment, software, GIS technical support and data, technical support services, software and hardware maintenance, training, and telecommunications services that are directly related to a PSAP receiving, processing, and transmitting a 9-1-1 call. The legislature has prohibited the use of 9-1-1 funds for buildings, chairs, tables, building renovation and repairs, and for mobile and portable radios, which would include pagers.

Use of 9-1-1 funds for the purchase of dispatch console equipment designed specifically for use in a PSAP for 9-1-1 and radio operations should be acceptable, as are logging recorders, emergency generators, uninterruptible power supply (UPS) systems, computer-aided dispatch (CAD) systems, and radio base stations used by a PSAP to support its operations.

Use of 9-1-1 funds for training directly related to the performance of 9-1-1 and dispatching duties in a PSAP is acceptable. If the training is part of a conference package presented by the Association of Public-Safety Communications Officials International (APCO) or National Emergency Number Association (NENA) that is related to 9-1-1 services, the use of 9-1-1 funds to pay for registration fees and costs of attendance (meals, mileage, and lodging) generally would be appropriate. If the training is clearly for non-PSAP personnel-related operations, such as firearms certification, emergency vehicle operation, or general supervisory training not related to PSAP operations, it would be considered an inappropriate use.

PSAPs are responsible for using 9-1-1 fees in accordance with the authorized uses defined in the Kansas 9-1-1 Act. When in doubt as to whether use of 9-1-1 funds is allowable, PSAPs are encouraged to consult appropriate legal counsel for guidance, and may also contact the Council for further information that can be used when making expenditure decisions.

An initial $800,000 grant for a NG9-1-1 proof of concept started the planning effort in 2010. The Kansas Department of Transportation used grant money to start a GIS group that has implemented a program that includes aligning and validating all of the PSAP databases. The ongoing cost of data validation is now an allowable expense for 9-1-1 surcharges.

Agency Program

The Council's stated highest priority is the protection of human life, the preservation of property, and the maintenance of general community security. The Council works to establish an open and unified "voice of collective reason" to enable positive change and a successful transition to NG9-1-1.

Overarching published goals of the Council for 2013–2017 are as follows:

- Fulfill the statutory duties of the Council in an objective, efficient, effective, and responsive manner.
- Implement policies and procedures to assure that 9-1-1 calls, from all sources, are routed properly to PSAPs and those PSAPs have the most accurate, reliable, and useable data at all times.
- Maintain effective 9-1-1 service while implementing enhancements that transition to regional NG9-1-1 systems compatible with changing communication technologies, and capable of supporting voice, video and text,
- Provide training programs that enable PSAP personnel to effectively process 9-1-1 calls.
- Plan and deploy statewide ESInets.
- Provide an effective, efficient, secure, and resilient NG9-1-1 system.
- Ensure accessibility, compatibility, and interoperability among systems.

- Create agendas, set priorities and budgets, establish timeframes, and verify milestones.
- Model policies and procedures after industry best practices and adhere to standards.
- Identify, pursue, and encourage necessary funding and cost-recovery processes.
- Provide communication and training, and report on accomplishments.

Other specific program initiatives include:

- **Kansas NG9-1-1 System Communications Plan**
  The Council developed an NG9-1-1 Communication Plan to communicate the vision of the Kansas PSAPs and region stakeholders as it relates specifically to NG9-1-1, so that they may be actively engaged in its development and deployment.

- **9-1-1 Coordinating Council Strategic Plan**
  The Council will maintain the Strategic Plan as a part of the State's Communication Plan, with new versions published as the project progresses. The Strategic Plan is a high-level vision and strategy for the state's various emergency communications (radio, emergency management, 9-1-1, etc.)

- **Kansas NG9-1-1 System Transition Plan**
  The Council, in collaboration with regional and local NG9-1-1 entities, will establish well-defined transition and training plans to address technological advances. The plans guide the process as new features, functions, and capabilities are available to call-takers, dispatchers, telecommunicators, PSAP managers, 9-1-1 program managers, and other PSAP personnel.

Administrative Policy

Two administrative regulations became final on March 2, 2012, after rules drafts were processed through the appropriate state offices. The Council reviewed the range of authorized rules that could be adopted and elected to minimize rulemaking to the two actions that were required by statute. These were to establish a rule for the terms and conditions of the contract with the LCPA, and a rule concerning compliance by telecommunications providers with the provisions of the Kansas 9-1-1 Act.

The Council drafted an administrative regulation in the summer of 2012 to define the conditions by which it may distribute funds within the Federal 9-1-1 Grant Fund. This regulation became effective April 2013 after the Joint Committee on Administrative Rules and Regulations reviewed the proposed regulation.[7]

Staff Support

Staff support for the 9-1-1 program in Kansas includes legal advice and contract services; procurement of equipment and services; meeting coordination; preparation of reports and minutes; payment of authorized expenses and maintenance of accounting records; provisioning of an initial point of contact for PSAP, vendor, legislator and citizen inquiries; vendor contract-coordination services; provisioning of

[7] http://www.kansas911.org/109/Laws-Administrative-Regulations

technical guidance to PSAPs as directed; and acting as a liaison with state agencies and officials to further accomplish Council business.

There is a small number of paid staff positions approved, including an NG9-1-1 Director, a 9-1-1 Liaison and a GIS Manager. General duties are broadly described below.

The NG9-1-1 Director is responsible for overall accountability of the program functions:

- Full-time position during the transition to NG9-1-1 (may not continue beyond the transition of all PSAPs to ESInet functionality)
- Statewide implementation orientation for the PSAPs
- Statewide NG9-1-1 helpdesk oversight and management
- Statewide governance policy and compliance
- Statewide NG9-1-1 communication plan
- State liaison to Neighboring States Coalition

The 9-1-1 Liaison position is currently vacant. This position is responsible for PSAP coordination and integration, as follows:

- Full-time positon during the transition to NG9-1-1 (may not continue beyond the transition of all PSAPs to ESInet functionality)
- Statewide implementation orientation for PSAPs
- Statewide NG9-1-1 helpdesk direct service
- Statewide governance policy and compliance for PSAPs
- Statewide NG9-1-1 communication plan as it relates to PSAPs
- PSAP representative on the Neighboring States Coalition

The Council has established four subcommittees where much of the activities of the Council take place. These subcommittees are: Administration, Operations, Technical and GIS, and are comprised of volunteer members from the 9-1-1 community and the Council.

Figure 8 depicts an organizational chart that illustrates on a high level the committee structure, and the programs anticipated to fall under each committee's area of focus.

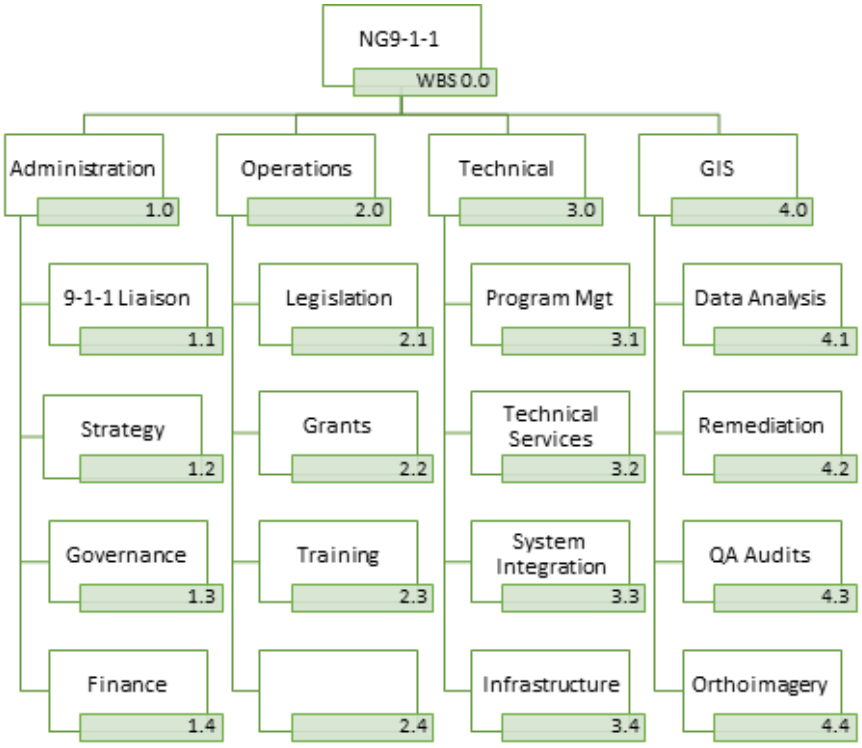

Figure 8 – Kansas NG9-1-1 Committee Structure

NG9-1-1 Deployment Status

Kansas been working on NG9-1-1 proof of concept, strategy and planning since 2010. The State's approach has involved an analysis of alternatives, trade studies, RFP development, RFP evaluations, and more. This work commenced in the fall of 2013.

In 2015, the Council is focused on:

- Contract signing and project kickoff, which was held on February 23-27, for the statewide implementation of a hosted service provider implementation.
- A "PSAP Launch" forum, located in the center of the state, was initiated on March 11 to provide initial information to the PSAPs. Approximately 30 of the 117 PSAPs have completed paperwork to have an initial survey conducted to determine their readiness for NG9-1-1, which Kansas sees as a first step.
- Additional regional educational meetings, which have been/are being held, ahead of the Primary Design Review meeting, which was scheduled for the end of March.

Before Implementation of the first two pilot PSAPs, which are expected in a timeframe between middle-of-July and end-of-August, processes, procedures, requirements, and training must be developed and vetted. The factor that impacts the first pilot implementation date is the service providers' data centers being fully functional and fully tested, before any installation. The anticipated timeline for these initial activities is:

- Preliminary Design Review, March 31, 2015
- Functional Design Review, April 28, 2015
- Final Design Review, June 2, 2015

An important date is the Kansas Spring APCO meeting, where there will be a demonstration of NG9-1-1 call handling. With the "PSAP Launch," PSAP readiness surveys and regional meetings being all conducted by then, Kansas hopes to have clarity regarding the initial PSAP(s) that desire to participate.

Timeline

Approximately five years ensued from the planning and formation of the Kansas 9-1-1 Coordinating Council, to the necessary changes in legislation to prepare the state for NG9-1-1 services, to the PSAP Launch described above. From commencement of the project to strategic plan acceptance was approximately six months. This is considered an exceedingly aggressive timeline for a strategic planning process. However, no actual ESInet implementation has yet been accomplished in Kansas.

COMMONWEALTH OF PENNSYLVANIA REGION 13 – SOUTHWESTERN PENNSYLVANIA EMERGENCY RESPONSE GROUP (SWPERG)

Background and History

The idea for the Pennsylvania Region 13 Task Force for Emergency Management (Region 13) came from the exploration of the ideas and philosophies developed during three years of discussion in the Pittsburgh-Allegheny County Weapons of Mass Destruction (WMD) Working Group. The group realized that during any significant "all hazards" or terrorism event, the entire region or multiple counties would be called upon to assist the local responders. Figure 9 illustrates the counties that are members of Region 13.

Figure 9 – Pennsylvania Region 13

The Pennsylvania Emergency Management Agency's (PEMA) vision of the Commonwealth benefiting from a network of multiple Emergency Services Internet Protocol (IP) Networks (ESInets) supporting interconnectivity has driven the Agency to support the development of a Southwestern Pennsylvania ESInet for the Southwestern Pennsylvania Emergency Response Group (SWPERG) counties in Region 13, as the pilot for the program. The SWPERG is a model terrorism task force organized via inter-county and City of Pittsburgh agreements that commit the jurisdictions to working toward a common goal of protecting the public's safety in the 13 member counties and the City of Pittsburgh.

PEMA and Region 13 researched available broadband and member county resources available to develop the NG9-1-1 ESInet design concept, and provided support of the ongoing procurement process. PEMA accomplished this by approaching each step in the process with the concept of shared resources and efficiency as the focal point of the effort. As a result, the ESInet offers each Region 13 member county many options to share public-safety applications, leverage common systems and support redundancy and interoperability efforts at both regional and commonwealth-wide levels.

The core of the Region 13 ESInet is provided by DQE Communications, LLC. Of the dark fiber providers researched by the region, DQE provided the most compelling budgetary option to date for dark fiber services in support of the ESInet in seven of the 13 counties. Additional dark fiber will be

leveraged from other fiber infrastructure. The combination of two dark-fiber resources is estimated to create a sufficiently high bandwidth core for the regional ESInet. Surrounding counties will then interface with this fiber core at multiple points, using a combination of fiber, microwave and leased bandwidth options as needed.

The primary function that the ESInet will serve will be to support public-safety applications for the region, with 9-1-1 call handling, transfers and failover being chief among them. Once the ESInet is fully functional, the deployment of applications such as CAD, IP-enabled land mobile radio (LMR) systems, and the sharing of mapping/GIS database content are more examples of the possibilities this versatile technology can support.

Mission

The 13 counties and City of Pittsburgh, which together comprise Region 13, share a common mission and have a long history of collaboration, coupled with a strong working relationship with PEMA. There has been adequate funding to address the priorities of the region. The result of the efforts of PEMA and the region's investment in this process has provided the partnership with a foundation, as evidenced by this ESInet, which will make a positive impact on the local communities.

The mission of the Region 13 collaboration, which is found in their governing documents, is to:

- Improve interoperability between the counties
- Promote the opportunity for application and system sharing
- Be fiscally responsible by leveraging resources to reduce costs
- Improve situational awareness
- Improve continuity of operations and disaster recovery
- Serve as a pilot for expanding the ESInet across the commonwealth
- Expand the opportunity to obtain other grant resources through a multi-government approach, as partners in the grant application
- Avoid recurring costs for counties

Authority

Mutually agreed upon authority was vested in the Region 13 initiative by the participating member counties and stipulates that the authority of Region 13 was to establish a "governing body that oversees the ESInet to ensure its sustainability by managing the operational, technical, fiscal, and administrative functions." The authorizing objective of this collaborative agreement provides quantitative and qualitative measures, including that Region 13 shall:

- Ensure a network design that would provide seamless integration of connectivity to other regional or statewide ESInet/NG9-1-1 systems (through NENA standards).
- Establish a strategic plan of initiatives that improve public-safety communications interoperability, and which are in alignment with the goals of the statewide and national strategic interoperable communications plans.
- Investigate ESInet connectivity solutions to maximize the benefits to all stakeholders by sharing these regional assets and eliminating duplication of efforts.

- Provide an equitable cost-sharing agreement concerning all operational and maintenance costs.
- Provide oversight and approval processes for new participant applications.
- Establish both short- and long-term budgeting plans in alignment with lifecycle sustainability.
- Provide principles of issue and dispute resolution.

Membership and Governance

The foundation of Region 13 was set in place by an unprecedented intergovernmental agreement between the 13 counties and the City of Pittsburgh in Southwestern Pennsylvania.

Executive membership of Region 13 consists of one representative from each political subdivision, who shall be the County or City Emergency Management Coordinator, or their designee, from the counties of Allegheny, Armstrong, Beaver, Butler, Cambria, Fayette, Greene, Indiana, Lawrence, Mercer, Somerset, Washington, Westmoreland, and from the City of Pittsburgh. This is referred to as the Board of Directors. Officers of the Executive Board are elected in November of every odd year by a voice vote and serve for two years. No member is allowed to hold more than one office, and terms are limited to two consecutive terms.

The Region 13 governance hierarchy is comprised of the Executive Board (Board) and the Operations Advisory Council (Council).

The Board does the following:

- Provides overall ESInet and governance oversight.
- Establishes organizational structures and processes that ensure ESInet sustainability.
- Seeks to maximize benefits to all participating agencies.
- Establishes a strategic plan.
- Ensures that initiatives are aligned with the goals of statewide and national strategic interoperable communications plans.
- Supports the migration to a statewide ESInet.
- Establishes and maintains the region's interoperability plan.
- Provides for fiscal sustainability of the ESInet.
- Conducts funding planning and coordination.
- Provides issue and dispute resolution.
- Establishes memoranda of understanding (MOU), guidelines and policies.
- Develops an education strategy.
- Increases awareness of interoperability initiatives.
- Develops ESInet guidelines and policies.
- Provides oversight and approval processes for new member integration.

The plan is for the Council to be the day-to-day management body of Region 13. Each member county nominates one representative, selected by the governing entity of the County, to serve on the Council.

Although the individuals may not come from each and every member entity, they shall represent the overall interests of all member entities while serving on the Council.

A bylaw system governs the organization's behaviors and voting practices. Actions of the Board are approved by a majority of the votes of Board members present at any meeting of the Board in which a quorum is present.

Voting is limited to one vote per member county/city, inclusive of the Chair and Vice-Chair.

Funding

Funding for the Region 13 ESInet project was a combination of funds from various entities and grant applications. PEMA contributed $2.5 million of Enhanced 9-1-1 (E911) Grant money to build the network. Armstrong and Indiana counties built a two-county network for economic development, rural broadband improvement and public-safety radio and public-safety transport. The counties of Fayette, Greene and Somerset built a three-county network that serves both public-safety interoperable communications and the State radio office in the form of microwave links, radio towers and communication shelters.

A cost-sharing fiduciary model is being developed by the Board and the Council for the continuing and ongoing operation of the ESInet when grant money is no longer available. This cost-sharing model intends to share costs, at minimum, for:

- Network design
- Procurement
- Installation
- Host components
- Testing
- Warranty, software subscriptions, and maintenance costs

To date, the current investment in the Region 13 NG9-1-1 system, or network of networks, is illustrated in the Table 2 below.

Table 2 – Investment

ESInet I	Investment	ESInet II	Investment
Region-13	$5,966,414.33	Fiber/equipment/contracts through 1/30/15	$3,001,710.60
Additional Related Projects	$946,053.02	Additional related equipment/service expansion	$247,258.57
PEMA Project Budget	$2,478,093.81		
Total	**$9,390,561.16**		**$3,248,969.17**

SWPERG Region 13 does not exist as a legal entity for purchasing and obligating the jurisdictions. Allegheny County typically serves as the SWPERG fiduciary agent. As fiduciary, Allegheny County accepts the responsibility of compliance with the necessary grant programs, many of which require competitive procurement. As fiduciary agent for SWPERG, Allegheny County must absorb responsibility for several aspects of the purchase. Potential responsibilities include the following:

- Compliance with the grant-required procurement and administrative manuals
- Administration of the solicitation
- Payment to the selected vendor(s)
- Reimbursement for recovery of committed County funds
- Compliance with audits conducted by federal, state, and county authorities
- Upfront funding of expenditures
- Management of the grant application through internal processes

The County is reimbursed from PEMA from the federal Homeland Security grants for grant administration. At this point in time, no additional local funds have been required. The program has been functioning solely on the grants which it has received.

Agency Program

The Council will be responsible for the day-to-day operational management of the ESInet, but it has not officially been appointed to date. Members of the Council are to be appointed by the Board. Members will be representative of the overall interests of all members. According to the vision and governing documents, the key roles and responsibilities of the Council are to:

- Provide a forum to discuss public safety initiatives and to ensure alignment of individual projects with the region's interoperability plan.
- Review and implement participant MOUs.
- Coordinate network application deployment and implementation.
- Develop policies, standards of operation, and guidelines for approval by the Board.
- Oversee the appropriate use of the ESInet and compliance with the approved technical and operational standards.
- Assist in the approval process for new applicants, especially as it relates to impact and bandwidth requirements.
- Oversee ESInet security and access, monitor the health of the network, determine network configuration, and establish change-management procedures.
- Develop a training strategy for system users.
- Assist the Board in interoperable strategic planning and implementation.

In addition, a robust and functional Communications Committee is leading and prioritizing interoperable capabilities for the Region 13 program.

Administrative Policy

The Council, by virtue of the intergovernmental cooperative agreements executed between the members of Region 13, has the authority to establish MOUs, standard operating procedures (SOPs),

and guidelines and policies for the provisioning of 9-1-1 in the region. The Council is authorized to establish an ESInet to provide a common means of providing 9-1-1 service, CPE sharing, information sharing, and emergency restoration. The counties, through the intergovernmental cooperative agreement, further authorize the Board and the Council (with Board approval) to establish procurement standards for the purchase of CPE and other equipment for the provisioning of 9-1-1 service. This includes CAD, voice loggers, mapping systems, and public-safety radio systems to be used commonly among the counties.

There is a process established that includes guidelines for the admittance of additional counties to become members of Region 13 and PEMA. PEMA, as the parent organization, must approve new members.

Staff Support

There is no paid and dedicated staff support at this time. Activities are conducted by volunteer committee or Board members.

NG9-1-1 Deployment Status

While they are fully operational with an ESInet, Region 13 currently considers itself to be in a pre-NG9-1-1 stage. The PSAP CPE is NG9-1-1 capable, but is not fully implemented for NG9-1-1 routing and call-taking at this time. Next steps under consideration are investigating the impacts, advantages and challenges of text-to-9-1-1 service.

Timeline

The project began in 2011.