The Mission of the 911 Coordinating Council is to serve Kansas PSAPs by implementing a coordinated, sustainable and comprehensive NG911 service that responds anytime, anywhere, from any device in order to realize the full potential for 9-1-1 to provide public access to emergency services.

Audit of the Kansas 911 System

On Behalf of the Legislative Division of Post Audit

Brevitz Consulting Services and
Inspired Technologies

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Executive Summary

This Audit Report is the first audit to cover time periods following deployment of the Kansas NG911 platform. The Audit Report contains analysis of key elements of NG911 implementation in the State of Kansas. This analysis covers current NG911 services and Emergency Services Internet Protocol (IP) Networks (ESInet[1]) capabilities informed by trends and analysis of NG911 deployment generally. **The State of Kansas is clearly a national leader in NG911 deployment**.

We performed state comparisons of fees and allowable expenditures in this report to provide a sense of where Kansas stands among the states. However, comparisons should be used with caution as technology, governance, and funding are unique to each state's geographic makeup, size, population, and many other variables. The Kansas statewide hosted platform is leading edge and is one of the most comprehensive solutions in the NG911 industry. As an industry leader finding states for comparable analyst is difficult.

Recommendations in the report seek to improve an already robust platform in its continued evolution to NG911. Technical recommendations in this report are an effort to improve system redundancy and follow overall system performance throughout the state. Recommendations regarding governance and Council staff seek to improve resource levels for day to day operations and for future NG911 initiatives, while funding analysis is used to recommend an appropriate fee range based on states in comparable size, PSAP count, and allowable fee expenditure.

Accurate and robust Geographic Information Systems (GIS) data is essential for NG911. Kansas is very fortunate to have the State of Kansas GIS Data Access & Support Center (DASC) at the University of Kansas. The strategic partnership created between the Coordinating Council and DASC has been instrumental in the success of the Kansas NG911 GIS Initiative. DASC support has also been crucial for development and maintenance of the web portal application used by the Local Collection Point Administrator – Non-Profit Solutions (NSI) of Emporia Kansas – for a variety of functions in support of the Council and its operations. This Audit Report is also the first to cover time periods (2017) in which NSI has served as LCPA for the Council.

[1] An ESInet is a securely managed IP network that is shared by public safety agencies for emergency services communications. A detailed overview of an ESInet can be found at "Emergency Services IP Network (ESInet) Overview", below.

K.S.A. 12-5377(c) requires an assessment of the status of NG911 implementation in Kansas. To date 92 of Kansas's 117 PSAPs have elected to join the statewide NG911 platform. Remaining PSAPs participate in the similar services offered through the Mid-America Regional Council (MARC, serving the Kansas City metro area) or have not yet made a decision. We surveyed those two groups of PSAPs separately and achieved a very high response rate, which is greatly appreciated as a contribution to this Report. NG911 implementation is occurring as planned under the procurement of the statewide call handling solution for the 92 electing PSAPs, and for the PSAPs participating in the MARC solution. As should be expected with implementation of technology at this scale on a statewide basis there have been "bumps in the road" but issues have been resolved cooperatively. The implementation plan is less clear for the PSAPs which have not yet elected into the statewide call handling solution or the MARC solution as survey responses did not provide much insight.

K.S.A. 12-5377(c)(1) requires a determination of whether the moneys received by the PSAPs under the 911 Act are being used appropriately. Our review of the expenditure and invoice detail confirmed that the expenditure reports of the PSAPs are accurate and confirmed the work of the Operations Committee to ensure 911 fee moneys are used only for allowable uses under the Act. The largest concern we see from our expenditure review is ensuring only allowable costs for integrated software packages are paid for with 911 monies. We recommend that the Council implement a practice for expenditure reporting for these integrated software solutions which requires submission of invoice detail for that type of expenditure and further indication that allocations have been performed (if required) so that the reported software expenditure is only for the CAD module and not for other modules which are unallowable expenditures under the Act.

The Legislative Division of Post Audit sought a determination in this audit regarding appropriate staffing levels for maintaining and operating the statewide call handling system. We conclude that the work and the dedication of the Council members, its staff and its committee chairs to define and deploy the NG911 state platform is truly exceptional and stands out nationally. However, the staff workload is too much for present staffing levels. It is apparent additional field level support staff is needed to handle the number of PSAPs and volume of initiatives that are being deployed from the state level. We recommend a second NG911 Liaison and a GIS Specialist as additions to the Council staff. Also, further support and development of the Council's communications and stakeholder relations is needed. We recommend addition of a Communications Director.

K.S.A. 12-5377(d)(1) requires an examination of the budget and expenditures of the Council. We find that the Council has stayed well within its 2.5% cap in budgeting. Our examination of the line entries to cash and Accounts Payable accounts in the Detailed Trial Balance revealed no expenditures that were inappropriate or otherwise not related to the business of the Coordinating Council. We find from our examination that the moneys expended by the Council are being used pursuant to the Act, and we find no expenditures that are not appropriate under the Act.

K.S.A. 12-5377(c)(2) requires a determination whether the amount of moneys collected pursuant to the Act is adequate. We reviewed projections from the Council's business case spreadsheet tool which provided estimation and evaluation of projected annual revenue and expenses for the 911 System, for the 2018 – 2023 time period. We evaluated a) continuation of the present operations without change to current fee levels and without implementation of further "i3" NG911 capabilities (the "base case"); and b) continuation of the present operations assuming increased fee levels under scenarios with and without implementation of further "i3" NG911 capabilities. **The Base Case projection shows that existing reserves will be exhausted by 2020 and the NG911 System will be unable to cover its operating and contractual costs beyond that time.** Costs and requirements of the NG911 platform are now known and the Legislature can use this Audit Report to consider increasing the fees to finish NG911 deployment on a sustainable basis. **The Business Case analysis supports increasing the per subscriber account fee from $0.60 to $1.05 with a comparable increase to the fee on prepaid wireless sales.** The scenario we believe may achieve the best balance increases the minimum funding for PSAPs to $60,000 annually, allocates $0.83 of the $1.05 fee to the PSAPs to fund that minimum commitment, while $0.22 would be set aside for the funding of i3 enhancements and continencies, for sustainment of the statewide NG911 system and standardized functionality upgrades to that system. The increased fee will allow the Council to increase the minimum distribution to PSAPs from $50,000 to $60,000, which is a material amount for the more rural Kansas PSAPs. More importantly it will place the Kansas 911 System on a sustainable basis where operating and contractual costs can be met while implementing NG911 as intended under the Act and providing for a minimum level of funds for sustainability. This fee level is projected to result in a 6% average Deployment and Sustainment Fund level over the projection period.

The Coordinating Council and the LCPA would gain greater assurance that all telecommunications service providers operating in Kansas are paying appropriate fees to support the NG911 State

platform by using other available telecommunications contributor lists to compare to the present list of service providers paying 911 fees in Kansas. We recommend that the LCPA work with the Kansas Corporation Commission staff to review and compare the present list of service providers paying 911 fees to the list of service providers paying KUSF payments as well as the FCC Form 499 filer database of service providers operating in Kansas. This would permit identification of service providers that may be operating in Kansas but are not reporting or remitting 911 fees and allow contact of these service providers to inform them of the need to report and remit fees as appropriate. The LCPA should undertake this process regularly (annually or semi-annually).

The Legislative Division of Post Audit sought a determination of the adequacy of deployment and sustainment funding for the call handling platform deployment including what is "an appropriate amount of deployment and sustainment funding to ensure that new feature functionality can be added to the statewide system as standards develop." We found that 911 fee levels should be increased to permit the Council to fund further call handling platform deployments consistent with the Council's business case analyses discussed above, i.e., an increase in the fee to $1.05, allocation of $0.83 of that to fund PSAP expenditures including an increase to the minimum distribution to $60,000, and allocation of $0.22 to the Deployment and Sustainment Fund. This will strike an appropriate balance between recognizing fees are public funding sources, and funding operating sustainability for the NG911 platform evolution to provide for public safety under the Act.

We also made additional findings and recommendations regarding network redundancy and diverse routing, contract management and Service Level Agreements, trouble ticket triage notifications, communication and stakeholder outreach, non-vendor supported hardware and software, and cybersecurity planning.

Emergency Communications and 911

9-1-1 Emergency Calling Systems evolved over time on a common path in the United States. The three-digit telephone number "9-1-1" is the single number established for nationwide reporting of emergency situations. The President's Commission on Law Enforcement and Administration of Justice in 1967 recommended a single, universal emergency number to be dialed to request emergency assistance. The following year AT&T announced establishment of 9-1-1 as the emergency code throughout the United States. Telephone companies began modifying central office exchange equipment to recognize and route 911 calls and the first 9-1-1 call was a ceremonial call in 1968. 9-1-1 service technology has evolved from the basic implementation which used the telephone network to route calls to a Public Safety Answering Point in the caller's telephone exchange to the enhanced implementation, or E911, which is database driven to route the emergency call to the appropriate PSAP for the caller's location while automatically displaying the caller's phone number, address, and other information.[2] Access to the 911 network was further broadened with the introduction of Dual Party Relay Systems which connect phone calls for persons who are deaf, deaf/blind, hard of hearing or speech impaired – DPRS also facilitates 911 connectivity.

Approximately 96% of the geographic U.S. is covered by some type of 911 as a result of these efforts by all public safety stakeholders.[3] However the emergence of new wireless technology and continued growth of wireless callers quickly demonstrated significant limitations to the E911 system. Wireless calls are not always routed to the appropriate PSAP and wireless caller information is typically not transferrable. These limitations provide major hurdles for call takers and first responders and prompted the search for solutions. The Kansas Legislature kept pace with these developments by first establishing the Wireless Enhanced 911 Advisory Board and subsequently establishing the 911 Coordinating Council through the Kansas 911 Act.

[2] E911 "is a system which routes an emergency call to the appropriate 911 answering point for the caller's location, AND automatically displays the caller's phone number and address". "9-1-1 Basic Information", the National Emergency Number Association (NENA) https://www.nena.org/page/911GeneralInfo.

[3] https://www.nena.org/page/911overviewfacts

Evolution to NG 911

In 2002 the U.S. Department of Transportation (DOT) and the National Highway Traffic Safety Administration (NHTSA) introduced the vision of Next Generation 911 to the Public Safety industry to begin addressing issues in emergency response caused by dramatically increasing demand and use of wireless mobile services. Since introduction of that vision there have been numerous milestones[4] in federal/DOT involvement in NG-911:

- 2002: Technology Innovation Roundtable held in Silicon Valley to establish Next Generation 911 Vision
- 2003: Wireless E911 Priority Action Plan Released; The US DOT Wireless Enhanced 911 Initiative Steering Council release a plan detailing six priority action items to accelerate compliance with the Federal Communications Commission's (FCC) wireless implementation mandates.
- 2003: Wireless Deployment Profile database funded; DOT provides initial funds to National Emergency Number Association (NENA) to develop a wireless deployment profile database, which becomes the primary way to measure state-by-state progress in establishing location enabled wireless Phase 1 & Phase II across the country.
- 2004: December 2004 US DOT NG911 Initiative starts; This begins the effort to establish a model for the transition of 911 systems to digital communication. The goal was to design a 911 system that is capable of using voice, data, and video transmission from different types of devices (cell phones) to 911 centers (PSAP's) and emergency responders. The program was co-managed by Nation Highway Transportation Safety Administration (NHTSA), Intelligent Transportation System (ITS) Joint Program Office (JPO).
- 2004: Enhanced 911 Act of 2004 Passed; Congress recognized the importance of the 911 system and passed the Enhanced 911 Act which established a federal "home" for 911 with a program run jointly by NHTSA and the National Telecommunications and Information Administration (NTIA) at the U.S. Department of Commerce.
- 2005 Nation 911 Program Office established; NHTSA and NTIA create the National 911 Office now known as the National 911 Program.
- 2006: Team is assembled to develop NG911 architecture and transition plan; The team solicits content input from stakeholders and developers to create a design and transition plan that will enable 911 connections using new technologies.
- 2008: NG-911 Proof of Concept Demonstration; Demonstrations in three laboratories and five PSAPs processing and transmitting calls containing telematics data, video, photos and

[4] The DOT Role in Advancing 911; https://www.911.gov/historyof911.html

text data, proving the concept of PSAPs to receiving text and transferring calls along with data from one PSAP to another across long distances.

- 2009: February 2009 First major release of NG911 systems technical and engineering architecture design; The first major product of the NG-911 project identifies technical and architectural components to be included in next generation capabilities of voice, data, and video transfer from device to PSAP.
- 2009: Release of NG-911 System Transition Plan; This transition plan identifies institutional and transition issues and provides options for resolution.
- 2009: 911 Grants Awarded to 30 States; NHTSA and NTIA awarded more than $40 million to help 911 PSAPs across the country improve their ability to locate callers from wireless and internet connected telephones.
- 2010: National 911 Resource Center established; Resource center established with three key initiatives, operate as an information clearinghouse, a technical assistance center, and development of a national 911 database used to follow NG-911 advancement.
- 2011: National 911 Profile Database developed; Next Generation 911 "What's Next Project carried out by the Transportation Safety Advancement (TSAG); National 911 Education Coalition developed from industry stakeholders; First NG-911 Standards Identification and Review Released to PSAPs achieve 911 interoperability;
- 2012: Middle Class Tax Relief and Job Creation Act of 2012; Act reauthorizes the Implementation Coordination Office (ICO) between NHTSA and NTIA to facilitate E911 and NG-911 services and best practices, an provides $115 million in grants to PSAPs. (Creation of First Responder Network Authority or "**FirstNet**".)
- 2012: State of 911 Webinar Series; The National 911 Program launches a new forum to share emergency communication best practices and lessons learned by states and federal agencies involved in 911.
- 2015: Next Generation 911 Cost Study; Effort to gather and analyze the cost, service requirements, and specifications to implement NG-911 across the country.
- 2016: Recommended 911 Minimum Training Guidelines Released; Established and universally accepted minimum training guidelines to be used for aspiring and current 911 telecommunicators.
- 2016: Grant Funds Transferred to 911 Grant Program; Grant Program and NTIA received $115 million to provide funding to help PSAPs effort to provide optimal 911 services.

The first demonstration of NG-911 in 2008 which showed a PSAP's capabilities to process and transmit calls containing text, photos, and video and the ability to transfer these calls. Since that demonstration, technology has continued to advance at a rapid pace and our society has been introduced to advancements in location accuracy, wearable technology, Internet of Things (IoT) and development of smart cities.

These advancements in technology have also evolved the industry definition of NG-911. The National 911 Program's recently released *Next Generation 911 Interstate Playbook*[5] describes a recent effort by NENA, National Association of State 911 Administrators (NASNA), Industry Council for Emergency Response Technologies (iCERT), National 911 Program Office and NG911 Institute to update the definition of NG-911. Multiple variations of a NG-911 definition were reviewed to reach today's definition of NG-911. Defined by that collaborative effort, "Next Generation 911 (services)" means a secure, IP-based, open-standards system comprised of hardware, software, data, and operational policies and procedures that:

- Provides standardized interfaces from emergency call and message services to support emergency communications;
- Process all types of emergency calls, including voice, text, data, and multimedia information;
- Acquire and integrates additional emergency call data useful to call routing and handling;
- Delivers the emergency calls, messages, and data to appropriate public safety answering point and other appropriate emergency entities based on the location of the caller;
- Supports data, video, and other communications needs for coordinated incident response and management; and
- Interoperates with services and networks used by first responders to facilitate emergency response.

Future collaboration with other emergency networks and systems like FirstNet and the creation of State, National, and International ESInets will drive the development of tomorrow's definition of NG-911. This is occurring under the NENA i3 architecture standard which is accepted and supported by the public safety industry around the world and is the universally-acknowledged basis for public safety deployments of NG911 systems. The adoption of these global standards accelerate innovation, enable economies of scale, and provide interoperability between public

[5] The National 911 Program, Next Generation 911 Interstate Playbook, June 2018; "NG911 Interstate Playbook"; https://www.911.gov/pdf/National_911_Program_NG911_Interstate_Playbook_Chapter_2.pdf

safety networks, hardware, software, and databases, service providers, within the PSAP, and in the first responder community.

The FCC Role in NG911 Deployment

The FCC continue to move forward in its effort to improve 911 services across the country. In September of this year the Commission took the necessary steps to implement Kari's Law, the RAY BAUM's Act, and proposed a consolidation of its 911 rules from multiple parts into single rule part streamlining the process for stakeholders to ascertain 911 requirements.

Kari's Law requires multi-line phone systems to allow users to dial 911 directly. It also requires those same systems often found in hotels, office buildings, and colleges, to notify the front desk or security office when a 911 call is placed within the building.

RAY BAUM's Act requires the Commission to evaluate the adoption of rules to ensure "dispatchable location" information (street address, floor level, room number) from the 911 caller is delivered with 911 calls regardless of the technological platform being used. These rules would apply to multi-line systems, fixed systems, interconnected VoIP services and relay service.

Each of these actions are intended to increase location accuracy and improve communications with first responders as they are dispatched to the caller's location. Consolidation of these FCC rules will allow service providers and emergency management personal to follow 911 guidelines and requirements as the transition continues to NG911.

The FCC also collects and reports to Congress on State Collection and Distribution of 911 and Enhanced 911 Fees and Charges. The FCC submitted its Ninth Report[6] on December 29, 2017. That Report contains significantly more information than the early reports since the FCC began collecting more information from the states three years prior – the data submission form filled out by states including Kansas expanded from approximately 14 questions/4 pages to 20 pages. The Tenth Report is pending submission. The expanded data collection provides for a robust report on collection and distribution of 911 fees and other related subjects. The Ninth Report found:

[6] Ninth Annual Report to Congress on State Collection and Distribution of 911 and Enhanced 911 Fees and Charges for the Period January 1, 2016 to December 31, 2016; Federal Communications Commission; December 29, 2017. ("Ninth Annual Report to Congress")

- Thirty-eight states reported "engaging in Next Generation 911 (NG911) programs in calendar year 2016";
- "Thirteen states reported having deployed state-wide Emergency Services IP Networks (ESInets)", "Twelve states reported having regional ESInets within the state, and eight states reported local-level ESInets";
- PSAP deployment of text-to-911 capability is rapidly expanding; and,
- Eleven states have made cybersecurity-related expenditures from 911 funds.[7]

The Report contains granular (state by state) data on an overview of state 911 systems across the country, description of state enabling authorities on funding 911 and how such funds may be spent, description of how state 911 fees are collected and used, the extent to which 911 fees are diverted or used for other purposes, and description of NG911 and cybersecurity expenditures. This data was useful for our review for this Audit Report.

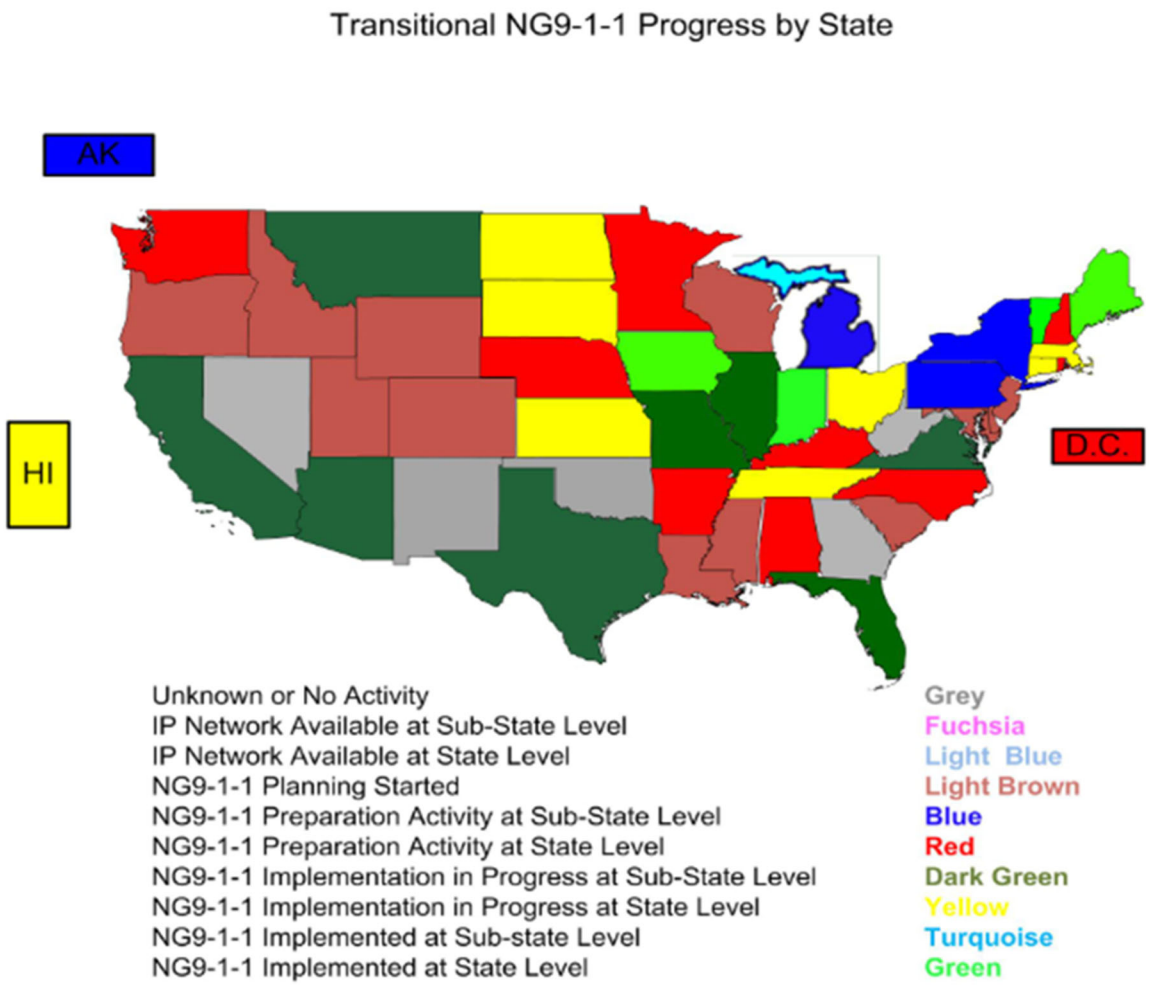
State and National Perspective on 911

All states are encouraged to voluntarily share their 911 data annually with national public safety organizations such as NENA. Information collected by NENA can be used to identify the status and basic functions of State 911 agencies, as well as to measure and report on their progress in implementing NG-911 technology as they continue to develop planning, operations, policies and procedures, and implementation strategies for NG-911. This data includes each state's population, PSAP count, collected fee total and fee structure, along with its progress toward NG-911 implementation. Reports over the past five years show continuous improvement in NG-911 implementation across the country. **Figure 1** is a snapshot of NG-911 planning and implementation by state as of February 2, 2018.[8] It is important to note this is a high level snapshot that does not reflect detailed state information and may reflect variables in reporting as each state may assess and report their NG-911 data transition differently. Throughout the audit a national perspective is provided regarding 911 systems, PSAPs, 911 fees, 911 system cost, and overall state population in comparison to Kansas. Though variables may exist in the collection and interpretation of this self-reported data it is still the most accurate and comprehensive information available for reviewing and comparing NG-911 using a national perspective.

[7] Ninth Annual Report to Congress, at pages 3-4.

[8] National Emergency Number Association (NENA), Status of NG-911 State Activity https://www.nena.org/page/NG911_StateActivity?&hhsearchterms=%22national+and+update%22

Figure 1: Transitional NG911 Progress by State as 02/2018



We narrowed the data collected and analyzed for each state for purposes of this Report to focus on states with 100 – 125 PSAPs. Research showed that implementation design and strategy varied based on state size in population and in the number of PSAPs within each state. The State's identified in **Figure 2** and in the following table are states that have between 100 to 125 PSAPs. Again, the "progress by state" is self-reported information by each state.

Figure 2 – State with 100 – 125 PSAPs

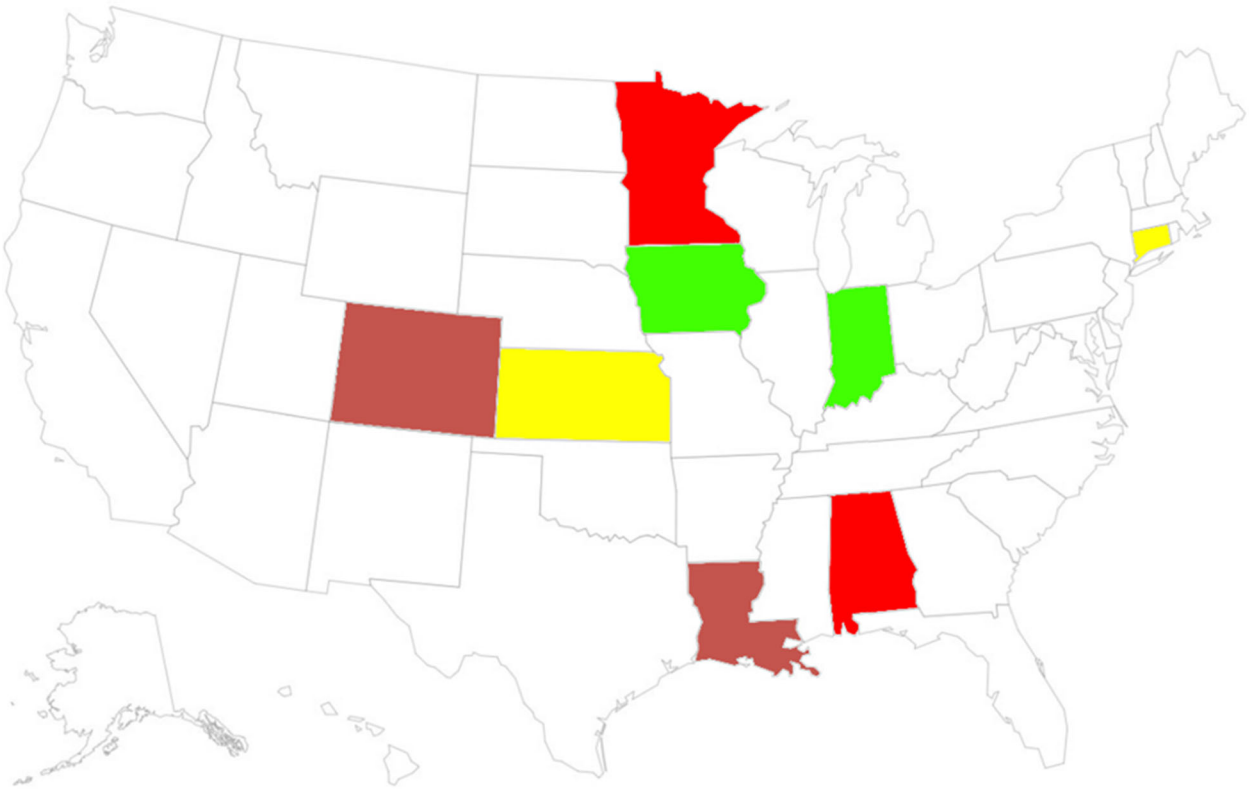


Table 1

State	PSAP Count	Population (July 2017)
Alabama	118	4,874,747
Colorado	106	5,607,154
Connecticut	110	3,588,184
Indiana	121	6,666,818
Iowa	113	3,145,711
Kansas	117	2,913,123
Louisiana	107	4,684,333
Minnesota	104	5,576,606

NG911 Technology Analysis

It is necessary to understand NG911 technology in order to assess the status of the Council's implementation of the NG911 call handling platform. The NENA Emergency Services IP Network Design Information Document[9] ("NENA ESInet Design") is an important resource for this purpose. This NENA document is not intended to provide complete and detailed designed specifications, but it does define the "ESInet", and provide typical network architecture options, summary of standards, overview of other concepts and considerations such as network availability, reliability, and security. NENA ESInet Design characterizes ESInet as follows:

> It is important to understand that an ESInet and NG-911 are not the same. An ESInet can be implemented without being considered NG-911, but NG-911 cannot operate without an ESInet.[10]

Emergency Services IP Network (ESInet) Overview

NENA defines the ESInet as:

> a managed IP network that is used for emergency services communications, and which can be shared by all public safety agencies. It provides the IP transport infrastructure upon which independent application platforms and core functional processes can be deployed, including, but not restricted to, those necessary for providing NG-911 services. ESInets may be constructed from a mix of dedicated and shared facilities. ESInets may be interconnected at local, regional, state, federal, national, and international levels to form IP-based inter-network (network of networks).[11]

ESInet Scope

The design and deployment of ESInets may be local, regional, state, national, or possibly in the future international in scope. ESInets can grow by interconnection between neighboring ESInets, for example a county network connecting to another county network. Multiple counties can be connected to become a region, although it is not an immediate requirement that these smaller

[9] NENA Emergency Services IP Network Design Information Document ("NENA ESInet Design");
https://c.ymcdn.com/sites/www.nena.org/resource/resmgr/standards/NENA-INF-016.2-2018_ESIND_20.pdf

[10] *Id*., at page 8.

[11] Detailed Functional and Interface Specification for the NENA i3 Solution – Stage 3, National Emergency Number Association. NENA-STA-010.

systems be contiguous. Regions can be interconnected to create a statewide network. The NG911 Interstate Playbook is now starting to reference multiple statewide networks (e.g., the Kansas Platform) connecting to create a nationwide network that could then connect to other national ESInets to create an international network.

- Local ESInet – a managed IP network for emergency services communications for a single PSAP, county, or call center;
- Regional ESInet – a managed IP network for emergency services communications that connects multiple PSAPs across different counties. The MARC region in the Kansas City metro area is an example of where counties have partnered on cost and development of a regional ESInet. This definition could also describe connection between multiple ESInets locally within the same county;
- Statewide ESInet – a managed IP network for emergency services communications that encompasses the entire state. These connections contain several regional and local ESInets;
- National ESInet – The connection of ESInets across the nation, and providing interconnection for state, regional, and local ESInets;
- International ESInet – Interconnection across all ESInets creating an ESInet that covers the entire world.

ESInet Requirements

ESInet core requirements are outlined below[12] as drawn from the NENA-STA-010 Detailed Functional and Interface Specification for the NENA i3 Solution – Stage 36:

- The network between the PSAP and an ESInet will be a private or virtual private network based upon TCP/IP;
- It will have scalable bandwidth to support new enhanced services;
- The Emergency Services IP Network shall be a conventional routed IP network,
- Multiprotocol Label Switching (MPLS) or other sub-IP mechanisms are permitted as appropriate;
- The PSAP should use redundant local area networks for reliability;
- PSAP Local Area Network (LAN) to an ESInet must be resilient, secure, physically diverse, and logically separate;
- ESInet shall be engineered to sustain real time traffic, including data, audio, and video;
- Connections between the PSAP and an ESInet Wide Area Network (WAN) shall be secured Transmission Control Protocol (TCP)/IP connections;

[12] This outline of ESInet core requirements is not intended to address the Kansas statewide NG911 platform's compliance with these standards.

- ESInets should be capable of operating on IPv4 and IPv6 network infrastructures;
- ESInets should consider how the Domain Name System (DNS) is designed and managed;
- ESInet implementation should consider coordination efforts to understand Autonomous System (AS) number implications for statewide deployments;
- ESInet configurations may impact Voice Quality and shall be designed to support the minimal acceptable levels defined by NENA-STA-010.

These ESInet core requirements accompany the i3 standards that describes protocols, interfaces, and systems to locate users who contact 911 via voice, video, text, data, and other means, route their calls to the appropriate PSAP, and allow for transfers, failovers, and multi-party calls. As mentioned previously the global adoption of the i3 standard is universally accepted by PSAPs, 911 governing authorities, states, and private sector companies as the standard for NG911. This global adoption has accelerated NG911 deployment and innovation in the public safety community. The i3 standards provide the foundation for the Council's NG911 Roadmap described below.

Availability and Reliability of 911 Systems

When looking at system architecture, the overall 911 system performance availability and reliability are a top priority. The availability objective is that 911 service reliability achieve "five nines" (99.999%)[13]. It is important to note that this is not a standard, but an objective and this level of availability is not always met in network connections.

"The difference between reliability and availability is often misunderstood. High availability and high reliability often go hand in hand, but they are not interchangeable terms."[14]

- ***Reliability is the ability of a system or component to perform its required functions under stated conditions for a specified period of time [IEEE 90].***[15] For example, the primary goal of an airline is to complete the flights safely - with no catastrophic failures.
- ***Availability, on the other hand, is the degree to which a system or component is operational and accessible when required for use [IEEE 90].*** For example, if a lamp has

[13] NENA ESInet Design, at page 32.

[14] *Id*., at page 33.

[15] IEEE 90 – Institute of Electrical and Electronics Engineers, IEEE Standard Computer Dictionary: A Compilation of IEEE Standard Computer Glossaries. New York, NY: 1990.

99.9% availability, there will be one time out of a thousand that someone needs to use the lamp and finds out that the lamp is not operational, either because the lamp is burned out or the lamp is in the process of being replaced.

The statistical formulas for availability and reliability can be found in the reference documents. Table 2 below illustrates availability in terms of downtime per year.

Table 2

Availability[16]	**Downtime**[17]
90% (1-nine)	36.5 days/year
99% (2-nines)	3.65 days/year
99.9% (3-nines)	8.76 hours/year
99.99% (4-nines)	52 minutes/year
99.999% (5-nines)	5 minutes/year
99.9999% (6-nines)	31 seconds/year

The ability to achieve the "five nines" availability is technically possible for ESInets including here in Kansas, however funding and other hurdles often act as roadblocks in reaching that objective. "Lessons learned" studies and industry experts urge the use of Service Level Agreements (SLAs) established in-line with real system capabilities. "A system that is specified and achieves three nines is more valuable than a system that is nominally said to be designed to meet five nines but actually achieves three nines".[18]

[16] https://eventhelix.com/RealtimeMantra/FaultHandling/system_reliability_availability.htm#.W9DChDglG70

[17] https://www.sebokwiki.org/wiki/Reliability,_Availability,_and_Maintainability

[18] NENA ESInet Design, at page 35.

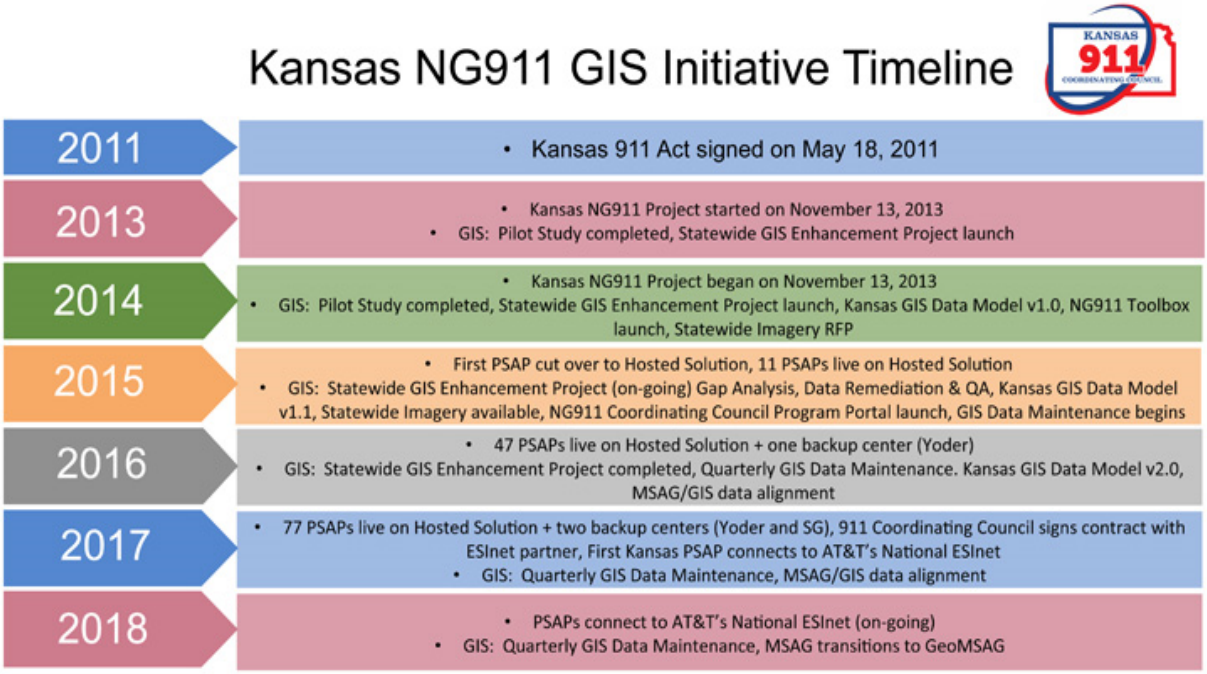
The Crucial Role of Geographic Information Systems Data

The NG911 and i3 architecture brings exciting enhanced features to the public safety community. More data is provided to call takers upon call delivery including additional information about call location such as floor plans, live video feeds, building entrances and exits. More information about the caller is provided to the call taker such as medical data or even current medical condition, and lastly more precise information about the device originating the call is provided to the call taker (e.g., a smart watch or through telematics also providing vehicle data). Each of these important NG911 enhancements require a robust, accurate and efficient integration with GIS.

Accurate and robust GIS is necessary to support the creation and maintenance of the Master Street Address Guide (MSAG) which drives key functions of caller location and call routing based on valid street address. In the i3 architecture this function works hand in hand with the Location Validation Function (LVF) and the Location to Service Translation (LoST). It is imperative for public safety and efficient call response that the GIS data is clean and standardized before it is delivered to PSAPs and used for 911 services. **The strategic partnership created between the Coordinating Council and the State of Kansas GIS Data Access & Support Center (DASC) has been instrumental in the success of the Kansas NG911 GIS Initiative**. Although not directly credited in **Figure 3**[19] DASC has played a key role from project inception through the ongoing implementation, maintenance and transition effort that is ongoing today. It is essential that the Council maintain this partnership and grow this partnership as Kansas continues to lead the way nationally in NG911 and State GIS integration.

[19] http://www.kansas911.org/gis/

Figure 3



Though GIS integration via DASC's data collection, standardization, and maintenance has had exception results due to team effort, there have been pain points realized when using this data in real time scenarios in the PSAPs. Survey responses and interviews highlighted delays in map loading upon call answering and the inability to pan around the county in real time situations. After further research it was determined this problem could be caused by an outdated mapping tool being used within the PSAPs. The Council is exploring replacing the Vesta end-of-life product with a solution that is expected to have a faster, improved interface with interactive map tools, improved movement tracking and operable with the latest technology for improved location accuracy. As this new technology is deployed within the PSAPs it is expected that map load and pan time should improve dramatically and thus address expressed concerns. The crucial importance of extremely accurate and up-to-date GIS data for the operation of NG911 systems is cared for through the nationally-recognized work being done in this are for the Council, and the Council's planned hire of a GIS Specialist to provide for ongoing GIS support.

Importance of Cybersecurity

As Kansas continues to move forward with NG911 it is imperative to choose a cybersecurity framework and a detailed cybersecurity plan be developed and implemented for the statewide platform. The benefits of an NG911 system far outweigh the added potential for cybersecurity risks that can occur, but these added risks must not be ignored. Operating on an IP-based platform and allowing interconnectivity across multiple networks greatly increases platform capabilities. This type of interconnection also creates a higher level of exposure that is of great interest to cyber criminals, data miners, and other cybersecurity threats that may disrupt 911 services. Data breaches, malware, unauthorized network or data access, and even insider threats are all potential risks to a PSAP's equipment, infrastructure and connections, data, applications, and services. A review of the Coordinating Council's 2018 Work Plan shows that the Technical Committee activity list involves monitoring cybersecurity threats, implementation of plans to reduce risk, and an infrastructure security audit review with AT&T. Each of these activities are instrumental in reducing cybersecurity risk within the network infrastructure of the state platform. It is also strongly encouraged to work with each individual PSAP to decrease risk that involve inside and authorized users, training on identifying malicious applications that appear so be safe delivered by text or media, and identification of other risk that are encountered at the PSAP impacting equipment, data application and services. The Department of Homeland Security Office of Emergency Communications recommends the adoption of a cybersecurity framework and encourages the following actions for NG911 system administrations intending to improve their cybersecurity initiatives[20]:

- **Adopt a "security first" perspective.** Cybersecurity has become an integral part of mission function and operations for NG911 systems. Working with others within the NG911 community, government, industry, and academia to establish consistent standards, policies, procedures, interoperability and implementation guidance for NG911 deployments is crucial.

[20] U.S. Department of Homeland Security Office of Emergency Communication; Cyber Risk to Next Generation 911; https://www.dhs.gov/sites/default/files/publications/NG911%20Cybersecurity%20Primer%20FINAL%20508C%20%28003%29.pdf

- **Leverage historically-successful cybersecurity strategies.** Researching available references and resources, as well as gathering experiences from other NG911 community members, is important to constructing the ideal solution set for each NG911 system's unique circumstances.
- **Establish a Computer Security Incident Response Team (CSIRT) or reach an agreement with US Computer Emergency Readiness Team (US-CERT) to assist in carrying out cybersecurity planning.** A CSIRT serves as a centralized location to report, analyze, and respond to security issues within an organization. Tracking developments in the cybersecurity field and providing prioritized implementation of cybersecurity solutions are also CSIRT activities.[21]
- **Establish a cybersecurity risk framework.** The NIST Cybersecurity Framework is highly recommended as a flexible, risk-based approach to improving the security of critical infrastructure.
- **Identify, evaluate, and prioritize risks using a community-based risk assessment process.** This process should account for threats, vulnerabilities, and consequences associated with system assets. To identify and assess vulnerabilities in their own systems, PSAP administrators should work closely with all partners with whom they interconnect, such as service providers, neighboring jurisdictions, and other agencies in order to identify the full architecture of their system and assess it for physical and network vulnerabilities. This assessment should also include a review of their current processes and standard operating procedures against available government and industry cybersecurity best practices and standards.[22]
- **Develop mitigations.** An examination of the likelihood and consequences of attacks should help to prioritize and inform mitigation strategies. Using both prevention and detection techniques, administrators should strive to negate or decrease the impact of an attack. Researching available mitigation techniques and employing them in a prioritized fashion will produce a comprehensive cybersecurity solution.

[21] One implication of applying this to the Kansas NG911 platform is that it would require paying for this service as it is not reasonable to expect the volunteers serving the Coordinating Council to undertake this function as well.

[22] AT&T conducted such a security assessment in 2017.

- **Solidify Response and Recovery actions.** Establishing a CSIRT and developing incident response plans, policies, and capabilities for the networks, personnel, and user equipment can prevent expansion of the event, mitigate its effects, and eradicate the incident. These efforts should be supported by regular training and exercises and coordination with external parties so that all participants are aware and capable of their role during and after an event.

The Kansas NG911 System

The 911 Coordinating Council

Further adaptations to 911 systems have been made to accommodate emergency calls made to 911 via wireless calls. In many areas 80% or more of call volumes to PSAPs are from wireless devices.[23] This is true in Kansas where 81.07% of 911 calls in the Second Quarter of 2018 were from wireless devices.[24] The Kansas Legislature created the **Wireless Enhanced 911 Advisory Board** in 2004 to assist and advise the Secretary of Administration in administering the proceeds of the statewide wireless 911 fee deposited in the Wireless Enhanced 911 Grant Fund and providing grants to PSAPs.[25] The grants were primarily designed to cover costs of managing the transition to and implementation of "Phase II" call handling for wireless 911 calls to individual PSAPs. The Phase I and Phase II transition to add information regarding the call to the PSAP occurred under Federal Communications Commission direction. Wireless calls to 911 originally did not provide any caller information to the PSAP attendant, unlike landline calls using E911. Phase I was designed to add the caller's phone number and latitude and longitude coordinates of the cell tower site to the data associated with the wireless call received at the PSAP, while Phase II automatically passed on location information based on latitude and longitude coordinates with

[23] "9-1-1 Statistics", the National Emergency Number Association (NENA) https://www.nena.org/page/911Statistics.

[24] Data provided by the 911 Coordinating Council.

[25] L. 2004, Ch. 72, Section 6.

the wireless call to the PSAP. The Grant Fund was designed to address complex, costly technologies to determine the location of a wireless call to 911 that many PSAPs could not afford.

The Wireless Enhanced 911 Advisory Board was replaced by the **911 Coordinating Council** ("Council") effective January 1, 2012 with the passage of the Kansas 911 Act. The Act abolished the wireless enhanced 911 advisory board and distributed the unobligated balance ($15 million) of the wireless enhanced 911 grant fund to the LCPA for deposit into the newly created 911 State Grant Fund,[26] for administration by the newly created Council.

The Council has the statutory responsibility to monitor the delivery of 911 services, to develop strategies for further enhancements to the 911 system, to distribute available grant funds to PSAPs, to select the Local Collection Point Administrator ("LCPA")[27] and set its compensation, and to adopt rules and regulations to effectuate the Kansas 911 Act including raising or lowering the statewide 911 fee.[28] The Council has disbursed grant funds for GIS enhancements, updating statewide imagery, and implementation of the statewide 911 call handling platform.

The Council's membership is designated in statute and the current Council members are listed in **Appendix A**.

The Council also formed an Executive Committee in 2016. According to the Council's website, the Executive Committee includes the Council Chairman and key committee chairs[29]:

- Dick Heitschmidt, Chairman, 911 Coordinating Council
- Michele Abbott, Chair, FirstNet/Broadband Interface Committee
- Josh Michaelis, Chair, Operations Committee
- Sherry Massey, GIS Coordinator
- Ken Nelson, Chair, GIS Committee

[26] L. 2011, ch. 84, Section 21.

[27] Nonprofit Solutions, Inc. ("NSI") was selected to serve as the Local Collection Point Administrator for the Council beginning January 1, 2017.

[28] These regulations are included in the Kansas Administrative Regulations under Agency 132.

[29] http://www.kansas911.org/about-us/#staff . Change in committee chairs is planned – Michele Abbott will chair the newly formed "FirstNet and Broadband Integration Committee", while Josh Michaelis will chair the Operations Committee.

Funds Established by the Kansas 911 Act

The Fees

The Kansas 911 Act "imposed a **911 fee** in the amount of $.53 per month per subscriber account of any exchange telecommunication service, wireless telecommunications service, VoIP service, or other service capable of contacting a PSAP."[30] The Council is permitted to raise or lower the 911 fee upon a finding that funds generated by the fee are in excess or below the costs required to operate PSAPs in the state, but "the council shall not set the 911 fee above $.60."[31] The 911 fee was raised by the Council to $.60 per subscriber account in October 2015. The Act also imposes a "duty on each exchange telecommunications service provider, wireless telecommunications service provider, VoIP service provider and other service provider to remit such fees to the LCPA".[32] The 911 Fee may be[33] (and typically is) collected by telephone service providers ("TSP") from their customers. These collected fees are then remitted by the TSPs on a monthly basis to the LCPA.[34]

The Act also imposes a fee on prepaid wireless retail transactions as a percentage of those transactions[35] ("**prepaid wireless fee**", currently 1.20%). Prepaid wireless service is defined as "a wireless telecommunications service that allows a caller to dial 911 to access the 911 system, which service must be paid for in advance and is sold in predetermined units or dollars of which the number declines with use in a known amount."[36] Prepaid wireless fees are collected by the Kansas Department of Revenue and remitted monthly to the LCPA.

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[30] K.S.A. 12-5369(a). [**Emphasis added**.] It is further provided that "Such fee shall not be imposed on prepaid wireless service."

[31] K.S.A. 12-5364(f).

[32] *Id*.

[33] The TSP is not obligated to charge customers this fee but is obligated to remit and pay the fees to the LCPA and 911 Fee fund.

[34] See more detailed discussion of the LCPA below.

[35] K.S.A. 12-5371(a).

[36] K.S.A. 12-5363(j).

911 State Fund

This fund was created by the Act and is not part of the State Treasury.[37] It supports the PSAPs implementation of the NG-911 platform and other eligible expenditures as provided by K.S.A. 12-5375, which identifies the "approved uses" of proceeds of the 911 fees. The fund's funding source is the **911 fee** collected from service providers and interest earned on the fund. The funds collected are distributed to the PSAPs with a minimum county distribution of $50,000. Proportional allocation is used for counties with more than one PSAP. Distribution of collected 911 fee moneys by the LCPA occurs according to the following distribution formula:

- Counties with Population over 80,000 - 82% of funds generated in those counties are distributed to PSAPs within those counties
- Counties with Population 65,000 to 79,999 – 85%
- Counties with Population 55,000 to 64,999 – 88%
- Counties with Population 45,000 to 54,999 – 91%
- Counties with Population 35,000 to 44,999 – 94%
- Counties with Population 25,000 to 34,999 – 97%
- Counties with Population less than 25,000 – 100%[38]

Funds remaining after these distributions are transferred to the 911 state grant fund.

911 State Grant Fund

This fund was created by the Act and is not part of the State Treasury.[39] The Act distributed the unobligated balance of the wireless enhanced 911 grant fund to the newly created 911 State Grant Fund[40]. Ongoing funding sources for the 911 State Grant Fund are **prepaid wireless fee** payments from 1.20% fee on prepaid wireless purchases at the point of sale; PSAP "per seat" 911 service payments; and, any interest earned on the fund. In addition, any funds remaining in the 911 State Fund after required distributions to the PSAPs under the distribution formula are transferred to this 911 State Grant Fund.[41] Finally, the amount of prepaid wireless 911 fee collection allowed in the 911 State Grant Fund is capped at $2 million annually. Moneys collected above $2 million are

[37] K.S.A. 12-5368(a).

[38] K.S.A. 12-5374(a).

[39] K.S.A. 12-5368(a).

[40] L. 2011, Ch. 84, Section 21.

[41] K.S.A. 12-5374(a).

"distributed to the counties in an amount proportional to each county's population as a percentage share of the population of the state."[42]

Under the Act, these funds may be expended for "all expenses related to the Council"[43]; "projects involving the development and implementation of next generation 911 services",[44] "costs associated with PSAP consolidation or cost-sharing projects",[45] "costs of audits",[46] and "other costs" which are approved uses of funds by PSAPs.[47] Appendices B-1 and B-2 show the expenditures from this fund which include the Council's administrative costs, AT&T service contracts, and other contractual expenditures including the LCPA and contracted personnel.

911 Federal Grant Fund

There are currently no federal grant funds although some grant funding is anticipated in the coming year. Expenditures are to be determined by grant guidelines.

State 911 Maintenance Fund

The Act provides for a state maintenance fund, established in the state treasury.[48] The fund may contain funds appropriated by the legislature, interest from investment of funds, and public or private donations for purposes of the fund. The funds may be used for grants "to eligible municipalities only for necessary and reasonable costs incurred or to be incurred by PSAPs for: (A) Implementation of enhanced 911 service and next generation 911 service, as defined in K.S.A. 2017 Supp. 12-5363, and amendments thereto; (B) purchase of equipment and upgrades and modification to equipment used solely to process the data elements of enhanced 911 service and next generation 911 service, as defined in K.S.A. 2017 Supp. 12-5363, and amendments thereto; and (C) maintenance and license fees for such equipment and training of personnel to operate such

[42] K.S.A. 12-5374(c).

[43] K.S.A. 12-5364(i).

[44] K.S.A. 12-5368(b).

[45] *Id*.

[46] *Id*., referring to audits of the LCPA, service provider audits, and performance audits of the Council by the Legislative Division of Post Audit, all under K.S.A. 12-5377.

[47] K.S.A. 12-5375.

[48] K.S.A. 12-5366.

equipment, including costs of training PSAP personnel to provide effective service to all users of the emergency telephone system who have communications disabilities. Such costs shall not include expenditures to lease, construct, expand, acquire, remodel, renovate, repair, furnish or make improvements to buildings or similar facilities or for other capital outlay or equipment not expressly authorized by this act."

No such State 911 Maintenance funds exist at present.

The Local Collection Point Administrator (LCPA)

The Local Collection Point Administrator is defined as "the person designated by the 911 coordinating council … to collect and distribute 911 fees and 911 state grant fund moneys."[49] The Act states that "The 911 coordinating council, by an affirmative vote of nine voting members, shall select the local collection point administrator".[50] The statute also states that the LCPA contract for services shall be no longer than two years, which contract can be extended for an additional two years.

The Kansas Association of Counties served as the LCPA following adoption of the Kansas 911 Act. **Non-Profit Solutions** (or "NSI", of Emporia Kansas) assumed the duties of the LCPA on January 1, 2017. NSI operates using an "LCPA Instruction Manual" which it has prepared for the Council's Executive Committee. This Manual was last revised on July 13, 2018. The Manual is to be used by "Council Members, Staff and the LCPA on a daily basis" to "document procedures and forms to be utilized to adequately carry out the financial business of the Council". The Manual "details the steps" to be followed "to provide sufficient oversight and controls over funds received on behalf of the Council and managed by the LCPA." Processes are detailed for investment and banking of funds per policies of the Council, payment remittances by service providers, distribution of funds to PSAPs, accounts payable and vendor payments, meeting support for Coordinating Council meetings, support for service providers and PSAPs via the Portal, and website administration.

[49] K.S.A. 12-5363.

[50] K.S.A. 12-5367.

NSI uses the web portal application developed by DASC to capture data using a standardized Microsoft Excel spreadsheet for collection and submission of required data from TSPs on a monthly basis. The spreadsheet is used by each TSP to report the number of subscribers it serves in each city and county in Kansas in which it provides services. The spreadsheet automatically multiplies the number of subscribers the TSP reported by the amount of the fee ($.60) to compute the total amount of fees to be remitted by the TSP to the 911 Fee fund that month.

Status of 911 Implementation

Statutory Charge

The Act states "… the division of post audit shall conduct an audit of the 911 system to determine … the status of 911 service implementation".[51] Under the Act, the Council is charged with the objectives to "monitor the delivery of 911 services, develop strategies for future enhancements to the 911 system and distribute available grant funds to PSAPs."[52]

The Kansas 911 Call Handling Platform

The Kansas 911 Coordinating Council worked with the Department of Administration's Office of Procurement and Contracts to select AT&T for implementation of a statewide NG911 call handling and call routing infrastructure. Installation and deployment of the Kansas 911 Call Handling Platform began under the Statement of Work executed by the Council with AT&T on April 13, 2015, under which AT&T Public Safety Solutions is to provide the State of Kansas with a Hosted Next Generation 911 Call Handling Solution. Implementation of the Kansas 911 Call Handling Platform has required significant Council and staff travel for testing and coordination with individual PSAPs statewide.

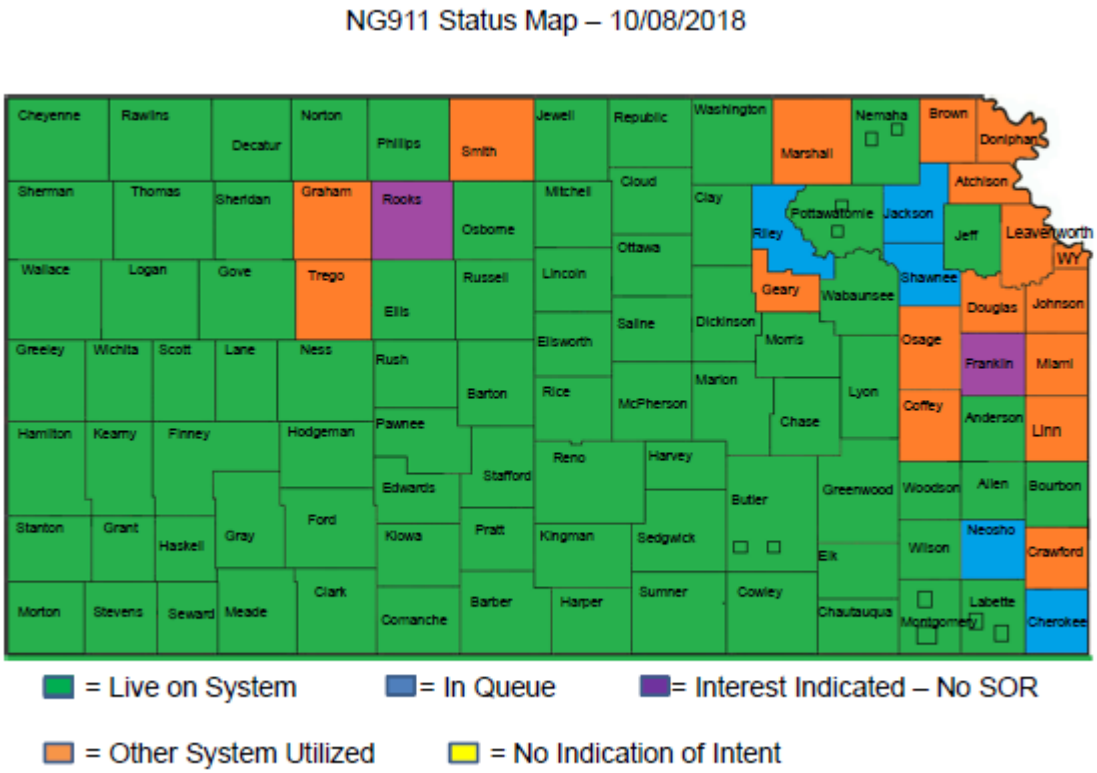
This turn-key solution provides the implementation, operation and maintenance for i3 NG911 call routing and call handling solution. The procured solution includes all network and PSAP system components and incorporates NG911 features such as text, multimedia, and include interactive

[51] K.S.A. 12-5377(c).

[52] K.S.A. 12-5364(a)(1).

communications between PSAP and caller. Though all these forms of communication are not available immediately at initial deployment, the long-term deployment strategy (the "NG911 Roadmap") is to equip each PSAP with these communication capabilities supported by the statewide call handling platform. As shown in **Figure 4** below text to 911 has been implemented widely through the state and will continue to rollout through the remainder of 2018.

Figure 4



The call routing solution is based on AT&T's ESInet which is a NG911 routing solution that provides IP-based call routing services to PSAPs across the state. The ESInet provides the state with improved caller location accuracy, improved call routing based on caller's geographical location, allows for manual and automatic call transfer during times of increased call volume or other emergency scenarios, and the ability to route enhanced emergency communications like text-to-911. The ESInet provides the IP network platform for additional i3 capabilities under the Council's NG911 Roadmap.

NG911 Roadmap for Next Generation Capabilities

The Council's NG911 Roadmap provides for enhancement of the Statewide NG911 Call Handling Platform. Text-to-911 was the first NG911 platform capability deployed. The incremental costs of these further enhancements under the Roadmap have been estimated and included in the Business Case Analysis performed by the Council, as described below in our assessment of the Adequacy of the Amount of Moneys Collected.

- Accuracy location improvements
- RapidSOS[53]
- FirstNet integration security
- Real Time Text
- Picture Messaging
- Video Messaging
- Telematics
- Internet connectivity to additional databases
- i3 call logging at Host level
- i3 call logging at PSAP level
- IoT Connectivity
- Social Media Connectivity

Electing PSAPs

Electing PSAPs are those Kansas PSAPs in either a planning, migration, or production phase of the statewide NG911 platform. As seen with any large-scale migration project delays and/or roadblocks can occur adjusting the overall project schedule. We believe the Council has managed the statewide rollout of the NG911 platform very well, especially considering that this is the first such deployment in the nation. To date 92 PSAPs have elected to join the statewide NG911 platform. Economies of scale is one of the many advantages created with the implementation of this statewide NG911 solution. Rural PSAPs throughout the state are able to access the most up to date hardware and software improving their overall 911 service to the citizens of Kansas. The State of Kansas and its 911 Coordinating Council are truly a national leader in the movement to NG911. The Council, its staff and the Kansas PSAP community should be applauded for all their efforts to implement and deploy the statewide NG911 platform.

[53] RapidSOS works with other PSAP and first responder software vendors to integrate delivery of accurate location and other data to call-takers, dispatchers and first responders via existing call-taking, dispatch, and mapping software. https://rapidsos.com/ng911clearinghouse/

Non-electing PSAPs

The Mid-America Regional Council (MARC) is a nonprofit association of city and county governments in Kansas and Missouri for the metro Kansas City region. MARC is a planning organization for metro Kansas City which performs a number of functions including development of regional plans for emergency response and providing cooperative services between local governments.

MARC is made up of 9 counties serving the Kansas City metropolitan area including 119 separate city governments. Based on the 2010 census and the MARC website this area is made up of a population of 2,086,771.[54] This area encompasses 4,423 square miles and includes the Kansas counties of Johnson, Leavenworth, Miami, and Wyandotte. These counties participate in MARC's regional 911 system which is also preparing for NG911. In addition, Douglas County is electing to provide NG911 through the MARC regional 911 system due to its proximity to the Kansas City metropolitan area.

As part of our Council member interview process, we interviewed the non-voting member designated by the Act to represent the MARC region and a voting member from a PSAP located within the MARC region. We gained a high-level overview and understanding of the MARC regional 911 system through those interviews and information from review of the MARC website. We also explored how the call transfer process from the MARC regional 911 system works with the Kansas statewide platform. The current call transfer process in and out of the MARC region is completed via 10-digit dialing. As the MARC regional 911 system and the Kansas NG911 statewide platform evolve it will be crucial that the Council and MARC work together to ensure compatibility and interoperability can be achieved through the two systems. Our review indicates this cooperation is working well, and the Act directly supports this necessary cooperation and coordination via the inclusion of a Council member representing MARC.

At inception of this Audit, there were 18 counties that had not elected to participate in the statewide NG911 platform. Our expectation based on interviews and knowledge of the NG911 options and alternatives is that many of these counties will at some point opt in to the statewide platform. As

[54] http://marc.org/About-MARC/General-Information/Member-Cities-and-Counties.html

individual PSAPs in these counties begin to have their systems reach "end-of-life" from a manufacturer support perspective, decisions will have to be made on replacement systems which will have evolved to NG911. These individual PSAPs will likely find that the Kansas NG911 platform can be implemented at a lower price than individual stand-alone implementation of NG911. The cost advantage of the Kansas NG911 platform will likely drive further adoption by current non-electing counties although the pace and timing is not known as it is an individual county or PSAP decision driven by individual circumstances. Over the course of this Audit, Cherokee, Jackson and Neosho counties have elected to join the Kansas NG911 platform. Also Douglas County is electing to obtain NG911 capabilities through the adjacent MARC regional 911 system. Remaining counties which have not yet determined whether they will obtain such capabilities through the statewide platform are:

- Atchison
- Brown
- Coffey
- Crawford
- Doniphan
- Franklin
- Geary
- Graham
- Linn
- Marshall
- Osage
- Rooks
- Smith
- Trego

Survey Results

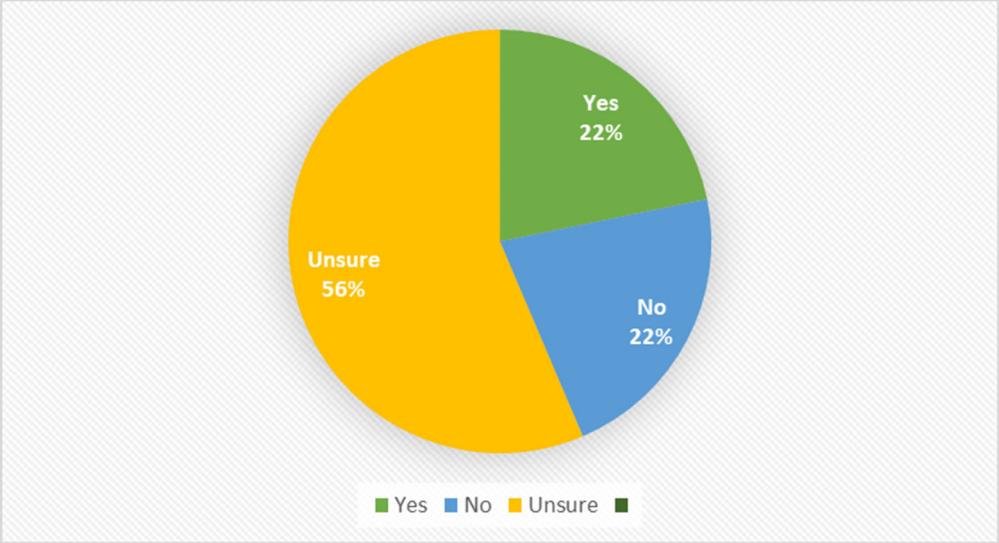
Two separate surveys ("opt in" and "not opted in") were created for the audit – one tailored to PSAPs that have not yet opted in to the state platform and the other tailored to PSAPs that have opted to use the state platform. Out of the 18 PSAPs that have not opted in to the State's hosted platform, nine responded to the PSAP survey. Of the 92 PSAPs that have opted in to the state platform 86 or 93% responded to the PSAP survey.

Both surveys were created with the intent to gain feedback on experience with the state hosted platform (or the selected alternative path), identify current PSAP capabilities, identify needs and wants for future enhancements, and determine areas of focus or concerns for PSAPs both on and off the statewide platform. The following is two sections containing an overview of the survey questions and responses for each of the two survey groups – first, those PSAPs which have "opted

into" the statewide NG911 platform, and then survey responses for the smaller group of PSAPs which have "not opted into" the statewide NG911 platform at the present time.

Opt-In PSAPs

1. **Are there NG-911 services you would like to see added to the State's NG-911 system?**
   - Yes – 17, No – 17, Unsure – 43



2. **If "Yes" please identify these services and what value they would provide to your system.**

The following lists the services, applications, and integrations that were identified by the respondents:

- Language Services (Voice and Text);
- Real Time Text;
- Picture and video messaging;
- Area Wide Warning System (AWS) for the ability to warn citizens of specific areas during emergency situations;
- Responding Unit Tracking providing the ability to use the map and track those responding units in real time;
- Integration of 911 map into CAD system to eliminate extra screens and improve efficiency;
- Open architecture for CAD which would allow for the sharing of information between PSAPs;

- Geo-spatial routing;
- Ability to send messages to other 911 centers through the Vesta console (currently alert 911 calls are being forwarded through the ESInet);
- Improved location accuracy;
- Telematics; and,
- Integration with third party vendors.

Our further review indicated that the Council is aware of these additional service request and is working to assess cost, statute compliance and other factors that must be evaluated when adding additional features and services to the state-wide platform.

3. Please identify any pain points or concerns with the State's current NG-911 system.

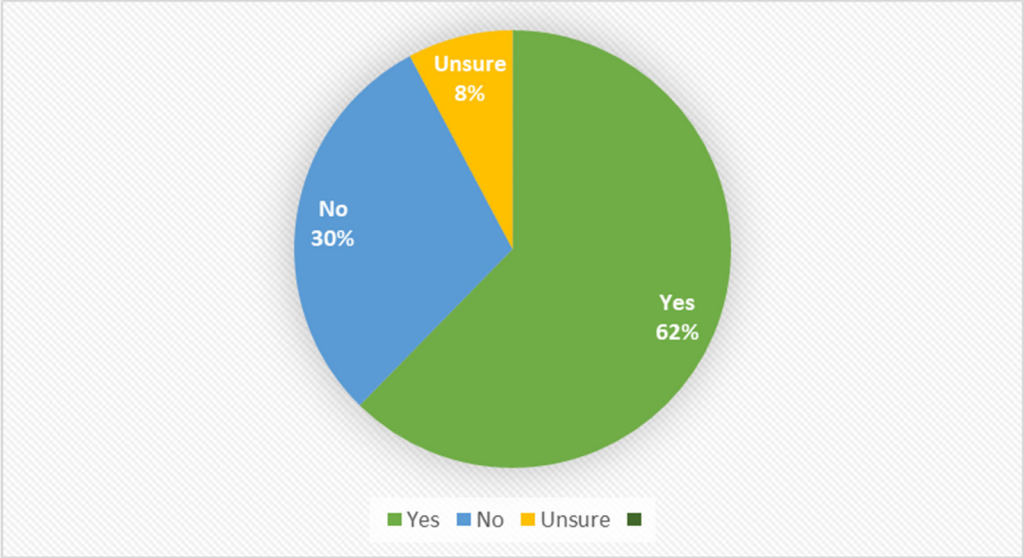
Response Overview: There was a total of 50 responses submitted for this question with 17 comments reporting "no issues or concerns at this time" and 33 responses identifying a system concern. The reported concerns fall into three main categories.

- System Outages/Redundancy: This concern is addressed further in the review of responses to survey questions 4 and 5 below.
- Map Loading Delays: Multiple PSAPs reported map loading delays raising concerns with call handling and issues panning around the county. It is apparent from our interviews and research that Council Staff is aware of this problem and has addressed this concern with the Vendor. An important source of this problem is current utilization of a mapping product that is "end-of-life" and not well suited to NG911 use. The Council is researching and testing replacement products to replace the current mapping product. New products are being evaluated under the expectation a manufacturer-supported product using current technology will resolve this issue and PSAPs will be migrating to that product.
    - Call routing and call transfer concerns were also frequently mentioned in response to this question. Follow up discussion with Council staff confirmed they are aware of these issues and are working to resolve them in parallel with the implementation of the statewide ESInet. During ESInet implementation misrouting of certain calls based on incorrect tables in telephone company exchange central offices was discovered. This misrouting was corrected immediately as it was identified during ESInet migration. There is no practical way to examine each of the hundreds of thousands of entries in these tables up front – the practical way to handle it is to correct as misrouting occurs. It is actually a benefit of the migration that these errors are discovered and corrected – they have existed for some time unknown to PSAPs. On a going forward basis to identify call routing or call transfer issues it is recommended that PSAPs log these errors as discovered and submit to Council staff as they occur. This will allow Council staff to notify and work with the Vendor toward resolution.

- Another concern reported in detail was the inability to capture and report on text data. The current process for text data capture limits and/or restricts text reporting. In this process neither agent data nor transfer data is captured. System capability provides the ability to view conversations and run reports on each agency user. Currently PSAPs are unable to do quality assurance or check to see if call takers are performing monthly tests of the system. During our interviews and meetings with Council staff we confirmed they are aware of this concern and are working with the vendor to find a resolution.

4. Has your PSAP experienced any system down time?

- Yes – 48, No – 23, Unsure – 6



Response Overview: These responses reflect down time incidents from a fiber optic cable cut and server outage known to the Council and its staff. These incidents are described below in the "after action" reports provided by AT&T on each of the down time events. As discussed above availability and reliability are key metrics for telecommunications networks, and also key for a NG911 system which is based on IP networking. The intent of this question was to gather feedback on system performance. In a perfect world all 911 systems would be built to a 5 nine (5 minutes of downtime per year) or even a 6 nine (31 second of downtime per year) standard. Unfortunately, funding and other hurdles impact system design and implementation, which in return impacts system performance. With the Kansas state platform on a single network the system should not be expected to perform at a 5 nine standard. Additional features can be added to the network like the LTE backup feature, however without redundant links into every PSAP network downtime should be expected. With the expectation of downtime increased focused should be around fail over policies and procedures, network resolution process/workflow, and SLA monitoring and reporting.

5. **If "Yes" please provide the following information:- The frequency of system down time?- The cause and has the issue been resolved?- Did the system backup or rerouting plan operate efficiently and as designed during the system outage?**

Response Overview: Based on survey responses and council interviews it was apparent large outage events have impacted the statewide platform. The "after-action report" of the two major events impacting multiple PSAPs are provided in full below. Though corrective action has been taken to mitigate either event from happening again it should also be noted that system design does not eliminate the risk of future outages impacting multiple PSAPs. We address these outages below, and in our Findings and Recommendations.

January 27, 2018 Outage (Fiber Cut):

AT&T provided this final report on the outage to the Council:

Overview

On Saturday, January 27, 2018, an outage occurred with respect to the AT&T Airbus Vesta hosted solution serving Kansas NG-911 Council. The outage initially impacted 2 PSAPs, but subsequently affected 28 PSAPs. PSAPs experienced a loss of connectivity to the AT&T Airbus Vesta hosted solution, preventing workstations from being able to process calls.

Initial investigation determined the cause of the outage as being a fiber cut at I-70 and McDowell Creek Road triggered by a farmer placing a new fence post. Subsequent investigation determined that, in addition to the fiber cut, there were other events that contributed to the outage.

The AT&T 911 Resolution Center and Technology Reliability Center rerouted 911 calls for the affected PSAPs to designated administrative lines while service restoration was in progress. Once complete, the 911 reroutes were removed and successful test calls made. Once test calls completed, normal 911 call processing resumed for the affected PSAPs.

Event Summary

At approximately 11am on January 27, 2018, an AT&T fiber was cut by a farmer placing a fence post. This initial event impacted the host/remote network connectivity for Clay County PSAP and Dickinson County PSAP, as well as one of two connections between the Topeka and Wichita host locations of the AT&T Airbus Vesta hosted solution.

As restoration efforts progressed on the fiber cut, a separate trouble report was made to the AT&T AVPN maintenance center for ping failures on one of the connections between the Topeka and Wichita host locations of the AT&T Airbus Vesta hosted solution. A ticket was created for troubleshooting. The trouble ticket was mistakenly created against a working circuit rather than the impacted circuit. As a result, intrusive testing was performed on a working circuit, isolating the Airbus Vesta host equipment in the Topeka host location from the Airbus Vesta host equipment in the Wichita host location. When this occurred, the PSAPs served by the hosted solution experienced a loss of redundant connectivity to the host locations.

Additionally as a result of the fiber cut, at approximately 18:20 a fiber multiplexer card (Dense Wave Division Multiplexer (DWDM) AMP Card) failed in the Salina, Kansas Central office. The failure of this card resulted in loss of connectivity for 28 PSAPs to the AT&T Airbus Vesta hosted solution.

The DWDM AMP card was replaced at 23:34 CT and all intrusive testing completed at 23:44 CT. Once these efforts were completed, connectivity between the host locations and the remote PSAPs restored.

Root Cause

This was a multi-layered event.

1. The fiber cut and resulting loss of the DWDM AMP card in the Salina Central office impacted the PSAPs connectivity to the AT&T Airbus Vesta hosted solution.
2. Intrusive testing of a working circuit through incorrect circuit identification reporting, impacting the redundancy between the Topeka and Wichita host locations.

Corrective Action

AT&T is currently investigating and correcting any improper records that led to an incorrect circuit being reported and intrusively tested.

AT&T has established emergency routes between the Topeka and Wichita host locations of the AT&T Airbus Vesta hosted solution to improve PSAP access to either host in the event of host isolation.

PSAPs Impacted

- Anderson County PSAP
- Andover Police PSAP
- Cheyenne County PSAP
- Clay County PSAP
- Cloud County PSAP
- Colby Police PSAP
- Dickinson County PSAP
- Ellis County PSAP
- Ellsworth County PSAP
- Jewell County PSAP
- Labette County PSAP
- Mitchell County PSAP
- Morris County PSAP
- Nemaha County PSAP
- Ness County PSAP
- Norton County PSAP
- Oakley Police PSAP (Logan/Gove County)
- Ottawa County PSAP
- Rawlins County PSAP
- Reno County PSAP
- Republic County PSAP
- Rush County PSAP
- Russell County PSAP
- Sabetha Police PSAP
- Salina Police PSAP
- Sheridan County PSAP
- Sherman County PSAP
- Wallace County PSAP

June 30, 2017 Outage (Router Configuration):

AT&T provided this final report on the outage to the Council:

Overview

On 6/30/17 at 13:53 CT, 28 Kansas NG911 PSAPs (listed below) experienced a loss of AVPN connectivity to the Airbus Call Handling Host equipment. All PSAPs successfully failed over to the 4G LTE network. 8 of the 28 impacted PSAPs experienced residual issues with the Airbus Call Handling equipment while using the LTE network and were rerouted to other agencies. The cause of the event was identified as a configuration change in a PE (Provider Edge) Router on the AVPN network that connects the Airbus Call Handling Host equipment to the remote PSAPs.

Root Cause

This incident occurred during demand maintenance activity, when a change was made to a Kansas City Provider Edge (PE) router in an effort to recover service for a customer. Unfortunately, the change impacted other customer traffic on the same AVPN Provider Edge router. Once the routing issue was detected, the change was immediately backed out and service restored at 17:24 CT. The

total event duration was 3 hours and 31 minutes. AT&T Support Technology Team analysis determined a step was missed during the maintenance activity. This step would have prevented the change to the PE router.

After Action

AT&T Support Technology Team analysis determined a step was missed during the maintenance activity. This step would have prevented the change to the PE router. As a preventative measure, AT&T Technology Operations has issued an advisory to field personnel to review best practices concerning demand maintenance configuration changes.

PSAPs Impacted*:*

- Elk County
- Barber County
- Ottawa County
- Comanche County
- Edwards County
- Concordia PD
- City of Parsons
- Ellsworth County
- Jewell County
- Butler County
- Augusta Police
- Ellis County
- Clay County
- Haskell County
- Colby PD
- Lincoln County
- Chase County
- Republic County
- Ford County
- Rice County
- Lyon County
- Yoder (Back-Up)
- Kingman County
- Cheyenne County
- Rawlins County
- Norton County
- Logan-Grove County (Oakley PD)
- Pratt County

Implementation cost and available resources often limit the development of a system that can achieve "5 nines" capabilities with limited to zero down time. The Kansas statewide platform is based on an ESInet design that does not offer redundant links into every PSAP. Full redundant networking in a state the size of Kansas would be very expensive as it means constructing and turning up new fiber routes on different paths into each PSAP than the present network connection. One requirement of the State of Kansas RFP to procure the NG911 platform was that each bidder complete a "Requirements Compliance Summary". AT&T's proposal was clear on the impact from redundant network routes into each PSAP not being included in its pricing proposal. AT&T's

Revenue Compliance Summary specified its proposal was non-compliant on 6.9.5 Mean Time Between Failure (MTBF), and partially compliant on 6.9.6 Network Availability. In an effort to increase network performance, MTBF and network availability an LTE network was provided to operate as a system backup (with use of point-to-point T1 circuits where there is no LTE signal). Though this does offer some network redundancy the PSAPs located in rural areas have limited or no LTE signal removing any backup capabilities of the LTE network in those areas. Furthermore, especially in rural areas the fiber connecting AT&T's LTE wireless towers is on the same route as the fiber connecting the AT&T and other telephone company exchanges serving each PSAP. In an incident like the January 27, 2018 fiber cut outage the LTE backup network could have also been compromised as it may ride the same fiber route as the fiber serving the telephone company exchange. Finally, redundancy concerns exist for the "last mile" – the connection between the central office serving the PSAP and the PSAP. Creating redundant "last mile" connections for 117 PSAPs would be very costly. As with any network system upgrades and options for improved redundancy should be reviewed and explored annually. With increased potential of network down time comes increased importance regarding network monitoring and SLA evaluation. We strongly encourage SLA reporting and monitoring on all vendor contracts and especially for the ongoing monitoring and evaluation of network downtime.

6. **Are trouble tickets being created correctly for all issues, are tickets being managed in an efficient manner, and what is the time estimate of ticket resolution?**

Response Overview: The overall response from those surveyed regarding trouble ticket creation and handling was positive. Three areas where the Council should consider added functionality or oversight were identified is as follows:

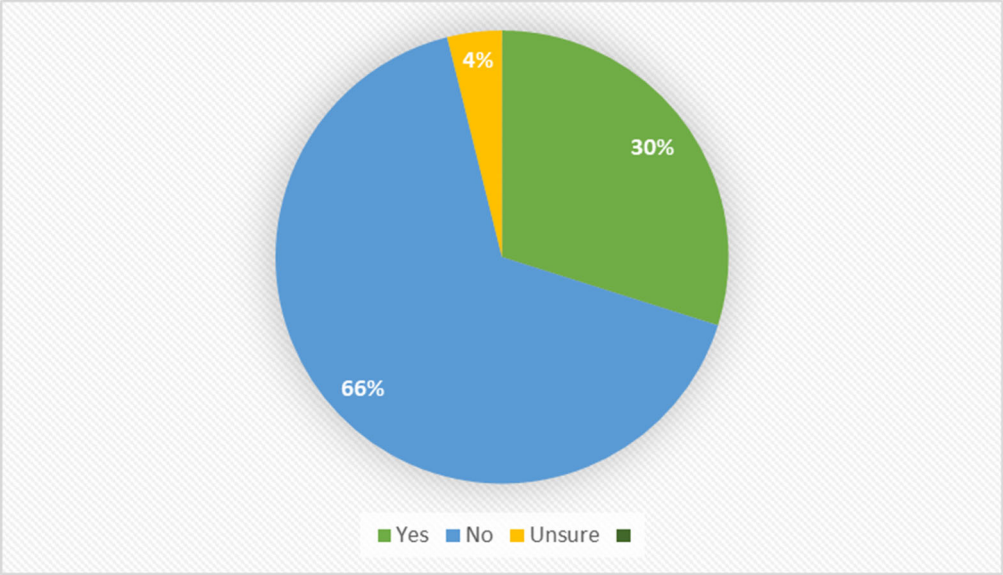
- Ticket creation is allowed by external vendors and PSAP Managers are not notified of ticket creation, ticket updates, or ticket resolution;
    - The addition of a system feature that provides the PSAP Manager with a notification or alert upon ticket creation, triage, and closure could resolve this issue. If the addition of this feature is not an option and Council staff is made aware of ticket creation and closure then notification via email from Council staff to the PSAP Manager should be added to the workflow and used as a system work around.
- Resolution Center does not always answer support calls and some answering operators are not familiar with 911 systems;
    - The Resolution Center is the vendor support call center that is operated on a 24/7 basis year-round. The Resolution Center is a support resource maintained by the

vendor (AT&T) specifically dedicated to PSAPs, around the Country. It is not clear why support calls would not be answered, or why call takers would not be familiar with 911 systems. Understaffing of the Resolution Center is one possibility. The Resolution Center is national in scope and not dedicated solely to Kansas PSAPs, so there is a possibility that the call taker may not be familiar specifically with the Kansas state platform and similarly may not be familiar with the Kansas geography since the Resolution Center is not based in Kansas. The Resolution Center acts as a triage for system concerns/issues, so detailed knowledge of the state platform may not necessarily be needed. We strongly encourage the Council to conduct further research on this issue identified in the survey. Furthermore, a notification process should be created in collaboration with PSAP Managers if calls are not answered in the future.

- Rural areas experience delayed arrival of technician support in rural areas.
    - Many Kansas PSAPs are located in rural areas so this may always be a concern. There is a balance between cost and technician availability – technical support is regionalized to recognize this balance. Placement of more technicians closer to PSAPs in rural areas to reduce response time increases costs. The "smart hands" concept is a model that is currently being used in an effort to reduce response time for PSAPs located in rural areas. This is the process in which technicians try to resolve issues remotely by working with other technical support personnel located in those rural areas. City or County IT personal in these rural areas are sometimes able to fill these roles and resolve issues while working with vendor support remotely. Guidelines such as compensation, duties, and responsibility for this assistance are usually outlined in the SLA section of the contract. The Council and service provider should explore if working with these IT professionals located in the rural areas is a feasible concept in an effort to reduce response time.

7. Does your PSAP currently use a provider for language services?

- Yes – 23, No – 51, Unsure – 3



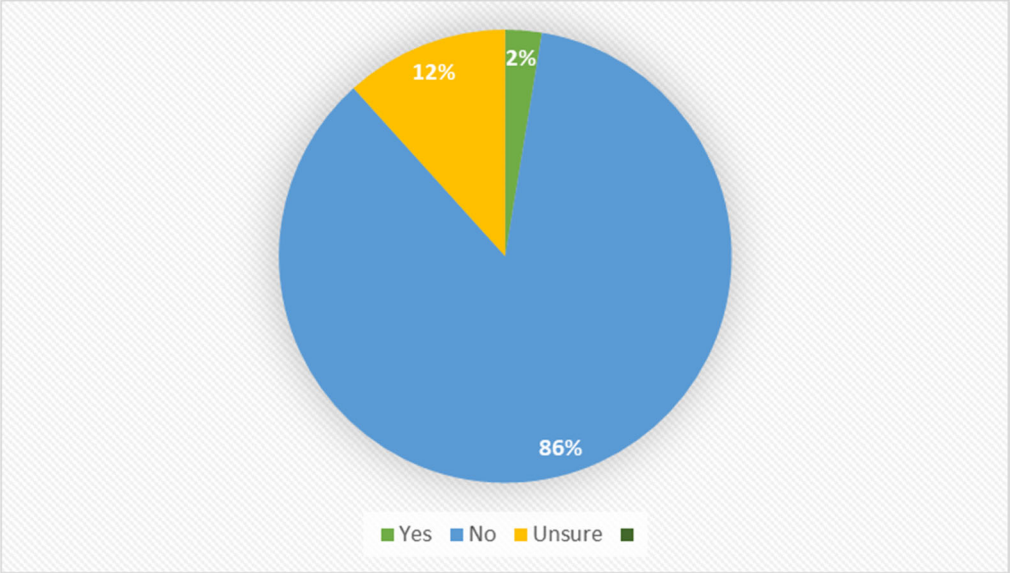
Response Overview: Language services could be a tremendous value added to a PSAPs emergency response platform. A number of languages are spoken in Kansas and PSAPs receive calls from persons speaking these different languages. As a possible additional feature for the statewide platform, this question was presented to gather feedback on current language services being used by PSAPs on the state platform.

8. **If "Yes" please provide vendor name, solution, and feedback regarding the provided service. If "No" would your PSAP be interested in an option for a statewide solution?**

Response Overview: Survey respondents identified two vendors.

9. **Does your PSAPs current operation depend on any hardware or software that was developed internally and is not supported by an external vendor?**

- Yes – 2, No – 66, Unsure – 9



Response Overview: Use of hardware and/or software dependent solely on internal support raises concern around PSAP operations and when organizational changes may occur. We encourage Council staff to follow up on this issue with all PSAPs during the annual network audit to address this concern and encourage some level of external vendor support be provided for all PSAP hardware and software. It should be noted that these systems used by individual PSAPs are not part of the statewide NG911 platform, and thus are not directly under the purview of the Council. However the Council's support of individual PSAPs in addressing these concerns could mitigate the risk of PSAP downtime which in turn would benefit callers in these PSAP areas.

10. If "Yes" please identify this hardware or software.

Response Overview: One of the two PSAPs that answered "yes" provided further detail. We recommend that Council staff follow up on this issue with all PSAPs during the annual network audit to address this concern that some level of external vendor support should be provided for all PSAP hardware and software.

Opt Out PSAPs

The survey that was distributed to Kansas PSAPs that have not yet opted on to the statewide platform was intended to gather information regarding current PSAP capabilities and assess timetable, intent and possible cost associated with migration to the statewide platform – or in the alternative addressing the same matters if the PSAP plans a "standalone" approach to NG911. But there were limited responses to the survey from these PSAPs, including many "unsure" responses, and very few additional comments. The reasons for low survey participation are unclear. The lack of survey response information precludes us from providing any in-depth analysis of PSAP capabilities and costs. Through further research and information provided by Council staff we were able to provide the cost projections shown in **Figure 5** below. This illustrates the estimated cost for migration to the statewide platform and estimated annual recurring cost for both ESInet and call handling equipment. Though other factors such as governance play a role in a PSAP's decision to join the statewide network, it is anticipated that through economies of scale the cost projections for the statewide network would be significantly lower than remaining independent and implementing new call handling equipment and a standalone ESInet.

Figure 5 [55]

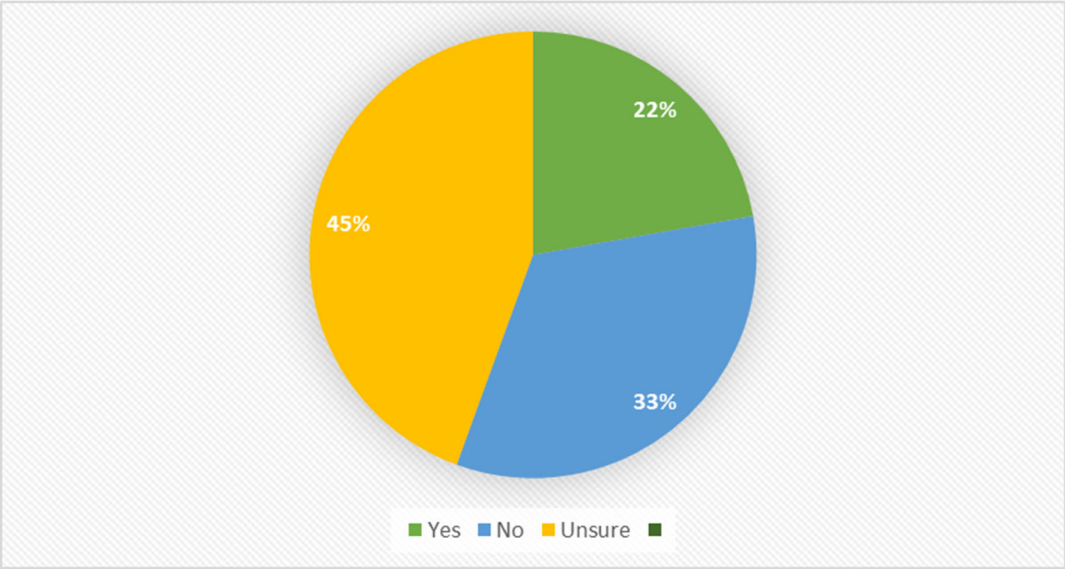
Projected Cost to Council of Migration of opt-out PSAPs to Statewide System									
		Statewide System Cost							
PSAP	**Anticipated # of Seats**	**Cost per Seat**	**Total NR Cost of Migration**	**AR Cost per Seat**	**Total AR Cost of Migration**	**Annual TCC Services**	**Annual ESInet**	**Total AR Cost to Council**	**Total Cost of Migration over 5 years**
Franklin County	4	19,994.50	87,478.00	9,000.00	48,264.00	1680	51,448.02	101,392.02	594,438.08
Crawford County	3	19,994.50	67,483.50	9,000.00	39,264.00	1680	37,423.98	78,367.98	459,323.40
Pittsburg Police Dept.	3	19,994.50	67,483.50	9,000.00	39,264.00	1680	40,061.34	81,005.34	472,510.20
Linn County	1	19,994.50	27,494.50	9,000.00	21,264.00	1680	19,078.82	42,022.82	237,608.62
Coffey County	3	19,994.50	67,483.50	9,000.00	39,264.00	1680	17,012.01	57,956.01	357,263.54
Osage County	3	19,994.50	67,483.50	9,000.00	39,264.00	1680	31,885.62	72,829.62	431,631.58
Atchison County	3	19,994.50	67,483.50	9,000.00	39,264.00	1680	33,400.32	74,344.32	439,205.08
Doniphan County	2	19,994.50	47,489.00	9,000.00	30,264.00	1680	15,736.43	47,680.43	285,891.15
Brown County	2	19,994.50	47,489.00	9,000.00	30,264.00	1680	19,755.83	51,699.83	305,988.15
Marshall County	1	19,994.50	27,494.50	9,000.00	21,264.00	1680	20,015.52	42,959.52	242,292.08
Geary County	3	19,994.50	67,483.50	9,000.00	39,264.00	1680	69,864.30	110,808.30	621,525.00
Smith County	1	19,994.50	27,494.50	9,000.00	21,264.00	1680	7,644.32	30,588.32	180,436.12
Rooks County	1	19,994.50	27,494.50	9,000.00	21,264.00	1680	10,257.92	33,201.92	193,504.12
Graham County	1	19,994.50	27,494.50	9,000.00	21,264.00	1680	5,157.90	28,101.90	168,004.00
Trego County	1	19,994.50	27,494.50	9,000.00	21,264.00	1680	5,920.20	28,864.20	171,815.50
Total Cost			**752,324.00**		**471,960.00**	**25,200.00**	**384,662.52**	**881,822.52**	**5,161,436.60**

[55] It should be noted that provision of technical and other support by the Council to PSAPs that have not opted in to the statewide NG911 platform is beyond the purview of the Council.

The following is an overview of the survey and responses from the PSAPs that have not yet opted into the statewide platform.

1. **Is your PSAP CPE capable of implementing an ESInet today?**

   Yes – 2, No – 3, Unsure – 4



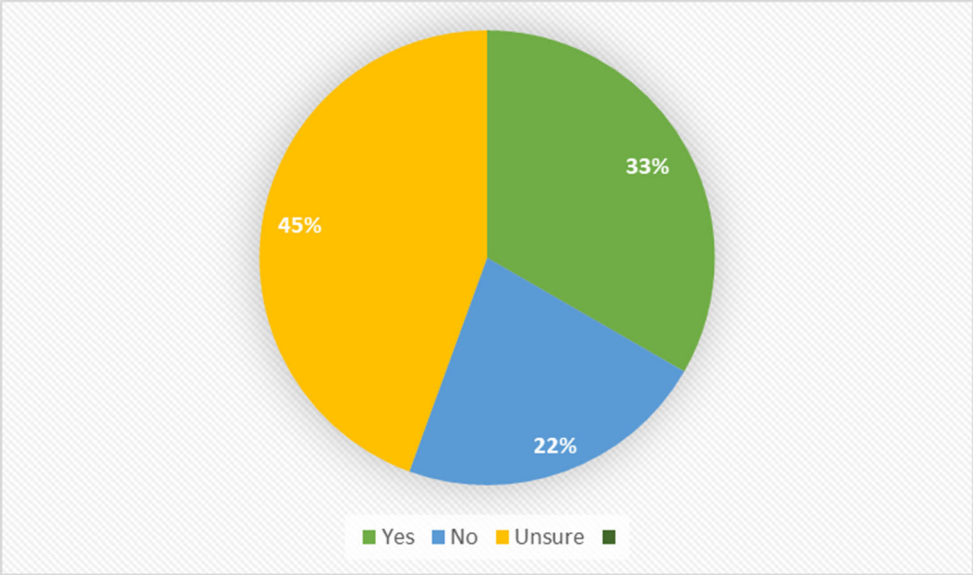
Question/Response Overview: The "no" and "unsure" responses to this question indicate the Council has an opportunity to provide useful information to these non-electing PSAPs on CPE requirements for ESInet implementation. The Council and the state of Kansas would also benefit from identifying those PSAPs that would require system upgrades before making the transition to the statewide NG911 platform.

2. **If "No" above, please identify what equipment would be needed in an upgrade to implement an ESInet?**

Question/Response Overview: General information such as "upgraded phone system" and "updated connections" (and "not looking to upgrade") was provided in response to this question by any of the survey respondents. More specific responses to this question could help determine current PSAP system capabilities and estimated cost and resources needed for individual PSAPs to join the state platform.

3. **Is the County currently working to upgrade your CPE in an effort to accommodate an ESInet?**

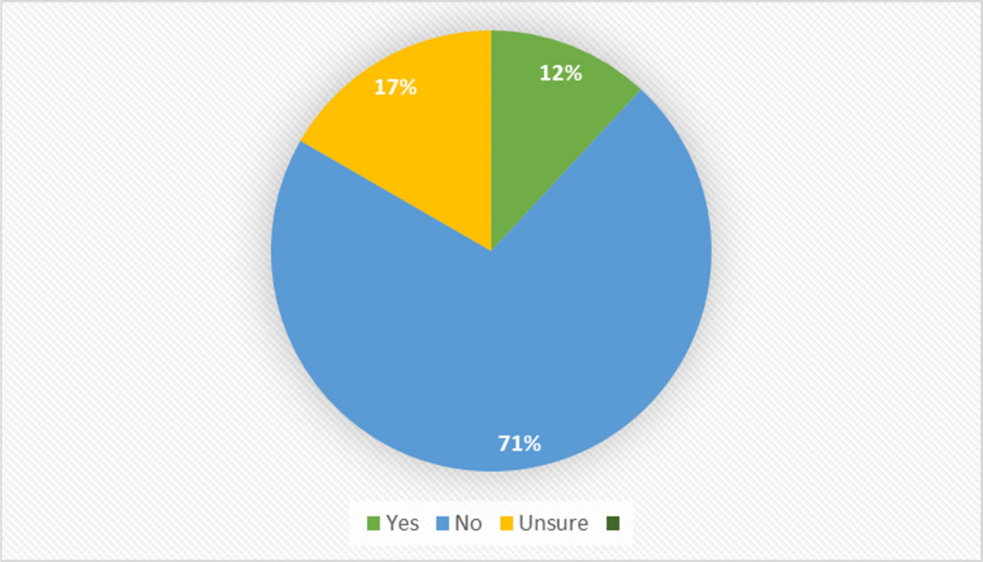
   Yes – 3, No – 2, Unsure – 4



Question/Response Overview: This question was intended to assess the number of PSAPs that are working to upgrade their current system as this would provide some insight on ESInet connectivity and possible cost estimates. Though Council members and staff have previously met with PSAPs and discussed these upgrades the effort here was to identify recent changes and independently capture information regarding ESInet implementation. Half the respondents answered "no" or were "unsure".

4. **Does your PSAP have an Interstate Cooperative Agreement (ICA) or Memorandum of Understanding (MOU) with another Kansas PSAP in regards to NG-911 enhancements?**

   Yes – 1, No – 6, Unsure – 2



Question/Response Overview:

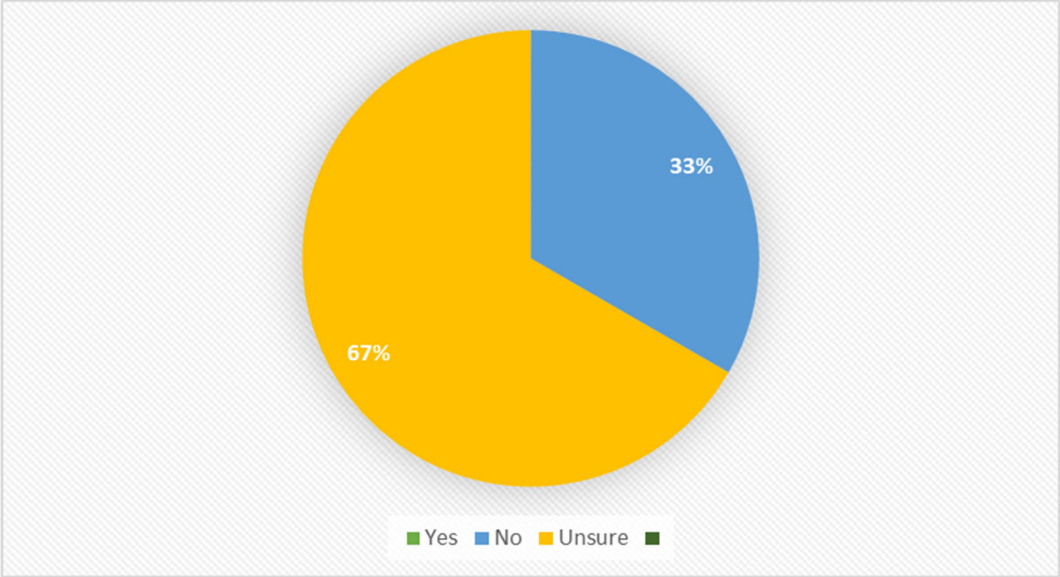
The need for PSAPs to create and MOU and/or an ICA greatly increased with the emergence of NG911. The main purpose of these documents is to establish written guidelines and responsibilities expected of each PSAP. County lines and jurisdictions have become blurred with NG911 technology and these agreements outline items such as call transfer and notification process, audit requirements, what are the responsibilities of each party, financial obligations, and other topics that need to be considered in these agreements. This question also helps determine the working relationship between neighboring PSAPs, and if ICA and MOUs are being used outside of the PSAPs that have opted in to the state hosted platform.

5. **If "Yes" please identify with whom and for what NG-911 enhancements.**

Question/Response Overview: Two PSAPs answered “yes” to having an MOU/ICA in place. One PSAP is an adjacent county to MARC which has an ICA/MOU with MARC. The other is two adjacent counties which operate under ICA/MOU.

6. **Does your PSAP have a Cybersecurity Plan?**

Yes – 0, No – 3, Unsure – 6



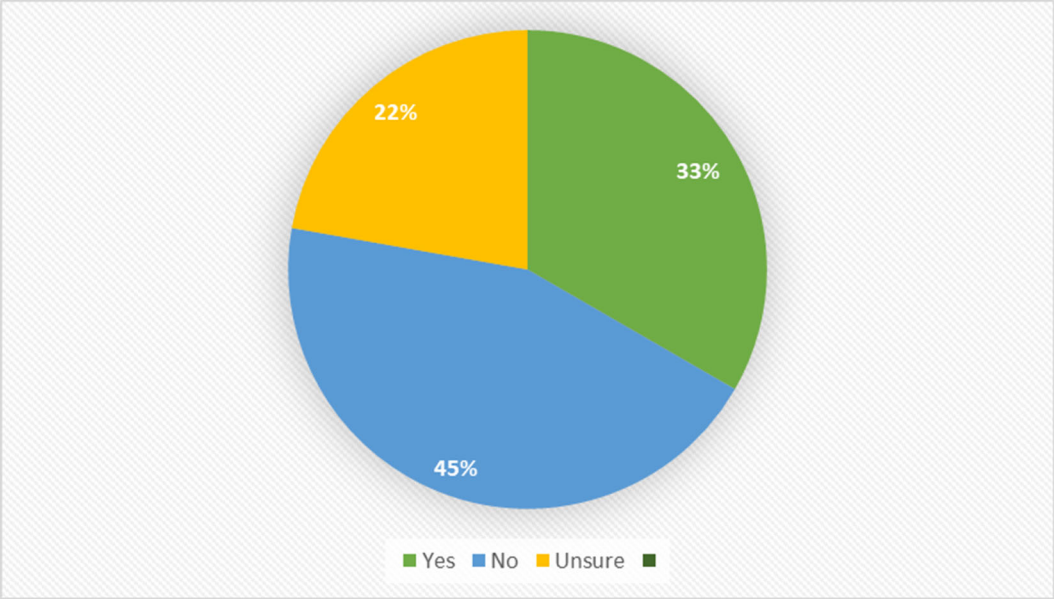
Question/Response Overview: The IP based platform and interconnectivity of multiple networks associated with NG911 greatly enhance the need for a PSAP cybersecurity plan. Though the potential cyber-crime risk is lower with a E911 system, it is still recommended that each PSAP implement a cybersecurity plan and audit.

7. **If "Yes" please identify what standards are being used for the Cybersecurity Framework?**

Question/Response Overview: There were no "yes" responses. Framework examples would be National Institute of Standards and Technology (NIST) which is recommended by the Department of Homeland Security.

8. **Does your PSAP currently participate in an annual network audit?**

Yes – 3, No – 4, Unsure – 2



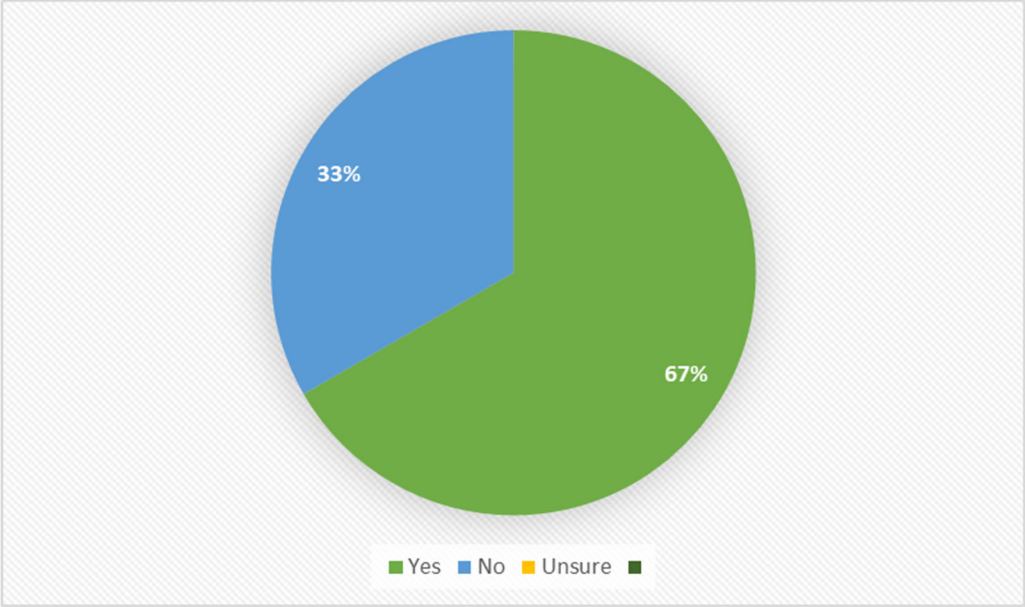
Question/Response Overview: Annual network audits are crucial in identifying and trouble-shooting possible issues within the PSAP that have not yet been found. Questions regarding recent system changes, workflow changes, or even new IT applications should be considered in this process.

9. **If "Yes" please identify if annual audit is performed by internal staff or external vendor.**

Question/Response Overview: Of the three PSAPs that answered “yes”, both external vendors and internal staff were identified as performing the PSAPs internal network audits.

10. Does your PSAP currently participate in an annual GIS audit?

Yes – 6, No – 3, Unsure – 0



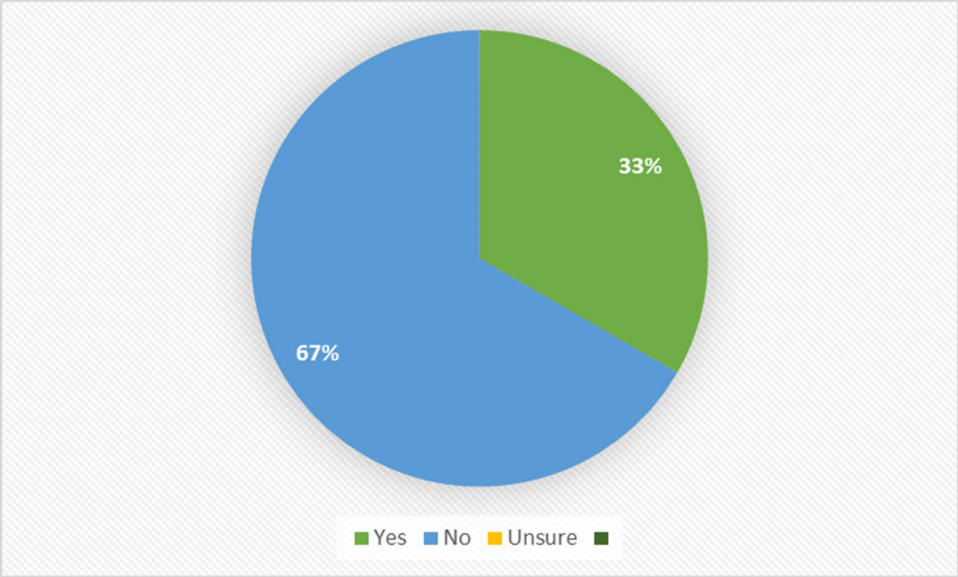
Question/Response Overview: An annual GIS audit is encouraged for all PSAPs to validate edge-match boundary files and identify any recent changes in service area jurisdiction for First Responders.

11. **If "Yes" please identify if annual GIS audit is performed by internal staff or external vendor**.

Question/Response Overview: Of the six PSAPs that answered “yes” both external vendors and internal staff were identified as performing GIS audits.

12. **Does your PSAP currently use a provider for language services**?

Yes – 3, No – 6, Unsure – 0



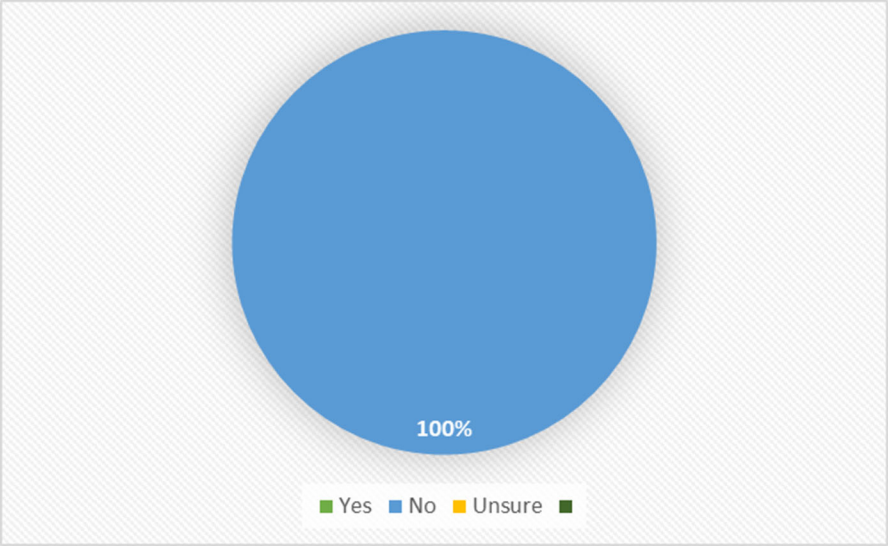
Question/Response Overview: Language services are a tremendous value add to a PSAPs communication platform. As a possible additional feature for the statewide platform, this question was presented to gather feedback on services being used by PSAPs outside of the state platform.

13. **If "Yes" please provide vendor name, solution, and feedback regarding the provided service. If "No" would your PSAP be interested in an option for a statewide solution**?

Question/Response Overview: Respondents identified three vendors.

14. **Does your PSAPs current operation depend on any hardware or software that was developed internally and is not supported by an external vendor**?

Yes – 0, No – 9, Unsure – 0



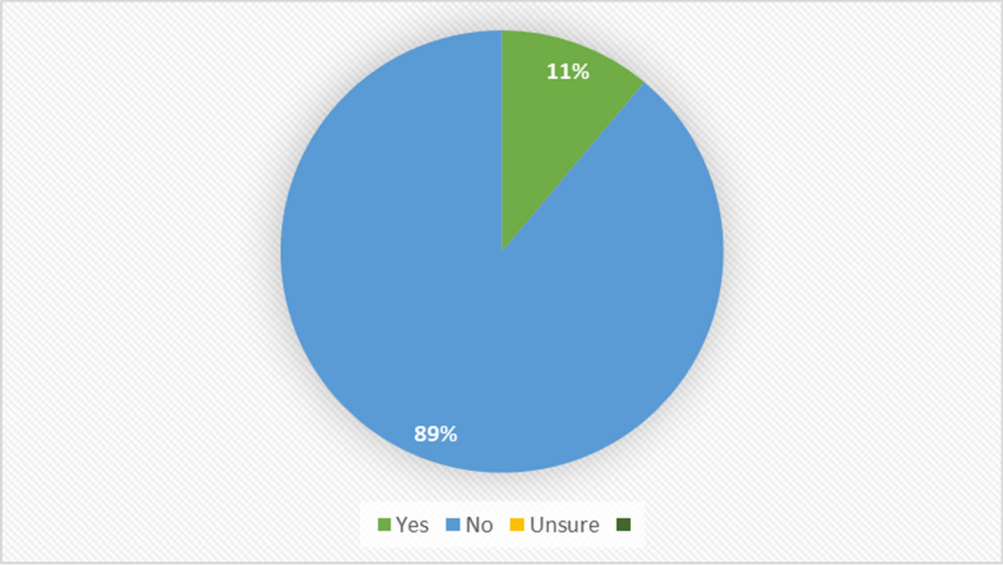
Question/Response Overview: Use of hardware and/or software dependent solely on internal support raises concern around PSAP operations when organizational changes may occur. This is not an issue for these PSAPs. However, we recommend that Council staff follow up on this issue with all PSAPs during the annual network audit to address this concern that some level of external vendor support should be provided for all PSAP hardware and software. It should be noted however that these systems used by individual PSAPs are not part of the statewide NG911 platform, and thus are not under the purview of the Council.

15. **If "Yes" please identify this hardware or software**.

Questions/Response Overview: No respondents answered “yes”.

16. **Is there another answering point in your area that your PSAP works in conjunction with? (Example: Tribal Authorities, Air Force Base, Military Base)**

    Yes – 1, No – 8, Unsure – 0



Questions/Response Overview: The intent of this question was to identify PSAPs that have not opted in to the statewide platform and are working in conjunction with Tribal Authorities, Air Force Base, or Military Base. This information would be helpful to determine working relationships between PSAPs in various areas of the state.

17. **Please identify any partner vendors that are assisting you with NG-911 enhancements**.

Question/Response Overview: Respondents identified two vendors that are assisting with NG911 efforts/enhancements.

Appropriate Use of Moneys Received

Statutory Charge

The Act states "… the division of post audit shall conduct an audit of the 911 system to determine … whether the moneys received by PSAPs pursuant to this act are being used appropriately".[56]

The Act further states: "The proceeds of the 911 fees imposed pursuant to this act, and any interest earned on revenue derived from such fee, 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." [57] The Act also specifically prohibits certain costs. Allowable expenditures "shall not include expenditures to lease, construct, expand, acquire, remodel, renovate, repair, furnish or make improvements to buildings or similar facilities. Such costs shall also not include expenditures to purchase subscriber radio equipment."[58]

If a PSAP has used funds for an unauthorized purpose "…such PSAP shall repay all such funds used for any unauthorized purpose plus 10% to the LCPA…".[59]

LPA clarified in response to questions during the pre-bid conference that "the evaluation of whether moneys received by PSAPs pursuant to the Kansas 911 act are being used appropriately (as described in section 4.3.2 of the IFB) should cover calendar years 2016 and 2017."

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[56] K.S.A. 12-5377(c)(1).

[57] K.S.A. 12-5375 (a).

[58] *Id*.

[59] K.S.A. 12-5375(b).

PSAP Expenditure Review

The Council provides extensive guidance on how 911 fee moneys may be used under the Act with a Guidance for Use of Funds document as well as "FAQs" posted to its website.[60] We consider these interpretations to be thorough and useful for the PSAPs and others who must rely on this guidance.

The Council's Frequently Asked Questions ("FAQs") crystallize the general principle regarding appropriate uses of fees:

> In general, the use of 911 funds must have a direct relationship to the performance of 911 and emergency communications functions performed by PSAP personnel who receive, process and transmit 911 calls to emergency responders.

The Guidance for Use of Funds published by the Council in 2011 elaborates further:

> Generally, it is considered permissible to use 911 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 911 call. The legislature has prohibited the use of 911 funds for buildings, chairs, tables, building renovation and repairs, and for mobile and portable radios which would include pagers. Use of 911 funds for the purchase of dispatch console equipment designed specifically for use in a PSAP for 911 and radio operations should be acceptable as are logging recorders, emergency generators, Uninterruptible Power Supply systems, Computer Aided Dispatch systems, and radio base stations used by a PSAP to support its operations.
>
> Use of 911 funds for training that is directly related to the performance of 911 and dispatching duties in a PSAP is acceptable. If the training is part of a conference package presented by APCO or NENA that is related to "911 services", generally, use of 911 funds to pay for registration fees and costs of attendance (meals, mileage and room) would be appropriate. If the training is clearly for non---PSAP related operations such as firearms certification, emergency vehicle operation or general supervisory training not related to PSAP operations, it will be considered an inappropriate use.
>
> PSAPs are responsible for using 911 fees in accordance with the authorized uses in the Kansas 911 ACT. When in doubt as to whether a use of 911 funds is allowable, PSAPs are encouraged to consult appropriate legal counsel for guidance, and may also contact the 911 Coordinating Council for further information that can be used in making expenditure decisions.

[60] *Id*.

The FAQs provide further clarifications and examples of purchases which are and are not allowable uses.

The Council charged the Operations Committee to administer the oversight and review of PSAP expenditures under the Act. The Operations Committee conducts annual review of PSAP expenditures, in the early years on a sample basis using spreadsheets and other documents/information filed via email, and more recently (in the period covered by this Audit) conducting review of all expenditures for all PSAPs enabled by the automation provided by the Council's Web Portal created and managed by DASC. The Council established the Web Portal on its website for PSAPs to file annual reports as required by the Act demonstrating the PSAP has spent the moneys distributed to it from 911 fees on allowable expenditures.[61]

The Council states the Fee Review and Appeal Process on its website. Finally, the Executive Committee created a draft PSAP Expenditure Process and Procedure to foster transparency for this review process in May 2018[62] which was approved by the Council on June 8, 2018.

The 2016 911 System Audit Report addressed whether expenditures were used for allowable purposes under the Act by testing samples of expenditures for 2015.[63] Twenty-seven PSAPs were selected for testing which began with obtaining a list of all expenditures from each sampled PSAP for 2015. From that list up to five expenditures were randomly selected to obtain invoices and other documentation supporting the expenditure.[64] The Audit Report noted five exceptions that were either non-allowable or the amount was incorrect. The Report concluded that this error rate could not be extrapolated to the entire Kansas PSAP population. Following the 2016 911 System Audit Report the Council implemented a practice through the Portal of randomly selecting five invoices from the expenditures reported each PSAP for use in the Expenditure Review process.

The Operations Committee conducted its review and assessment of PSAP expenditures from 911 fee moneys for the 2016 – 2017 audit period using the same general process the Committee has

[61] http://www.kansas911.org/finance/#911fees

[62] Kansas Coordinating Council PSAP Expenditure Process and Procedure; Prepared by the Executive Committee; May 23, 2018. ("Expenditure Review Process and Procedure")

[63] The Kansas 911 Act: Reviewing Implementation of the 2012 Act; A Report to the Legislative Post Audit Committee by Bauknight Pietras & Stormer, P.A.; December 2016; R-16-021, page 13. ("2016 911 System Audit Report")

[64] *Id*.

used since 2012. For 2016 and 2017 Audit Period this process was facilitated by the new Web Portal capabilities supporting PSAP annual reporting of expenditures. PSAPs report all expenditures using the Web Portal to support their annual report and provide invoices for five specific expenditures that are randomly selected via the Portal. The Committee reviews these reports and supporting documentation to identify any expenditures it believed may not be allowable use of 911 funds under the Act. The Committee process is to refer the expenditure back to PSAP to request additional information, and review the information subsequently provided by the PSAP regarding the expenditure in question. Then the Committee would make a decision based on the parameters in the Act on whether it was allowable or not allowable. The PSAP would be told of the finding after which the PSAP had the choice of reimbursing the Fund or seeking reconsideration of the finding the expenditure was not allowable. The PSAP would be required to pay 10% of the reimbursed amount in addition if the Council did not agree with the PSAPs appeal. This provision has never been exercised.

In its review of 2016 PSAP expenditures the Operations Committee found expenditures which were not allowed in the amount of $228,394, which were reimbursed to the State 911 Fund. Similarly, the review of 2017 PSAP expenditures began and found some expenditures which were reimbursed. However, the 2017 review was not completed and has been placed on hold after concern was expressed by the Kansas Association of Counties and the Kansas Sheriffs Association that the Council doesn't have the authority under the Act to waive payment of the 10% fee if the PSAP simply reimburses the unallowable expenditure without appeal. In the legislation the Council will propose in the upcoming session it intends to address this issue by permitting the Council the discretion to charge the lesser of 10% or $500 on a case-by-case basis. We view this flexibility as appropriate for the Council since the experience has been that using 911 funds for unallowable expenses generally has been honest error (e.g., miscoding an invoice). The experience from the review process as we understand it is that PSAPs have generally cooperated in reimbursing unallowable expenses to the fund. The Council is working with its counsel from the Attorney General's office to finalize the process of handling reimbursement of unallowable expenses.

We find the PSAP expenditure review conducted by the Council to be essential for the NG911 program under the Act since not all 911 expenditures are allowed by the Act to be funded by the 911 fee. The 911 fee is intended to cover only "allowable expenditures" as defined by the Act.

Kansas responsibility for funding 911 is divided between the State of Kansas and local government (cities and counties). The PSAP expenditure review process helps ensure that 911 fees are used as intended and thus are equitably available for distribution to all Kansas PSAPs. Kansas' most recent report to the FCC on fees and funding states that 26% of the total cost to support 911 in Kansas is covered by the state 911 fee and 74% is covered by local government general funds.[65] It is not unusual for states to divide fiscal responsibility between the state and local government entities.[66] The Act effectively provides state funding through the 911 fee for certain specified types of 911 system costs and leaves remaining 911 system costs to be funded by city and county government units. We find that the Council's review of PSAP expenditures under the Act has consistently adhered to the Act's requirements and has thus ensured fair and equitable distribution and use of Kansas 911 fees. The Council does need to promptly complete its review of 2017 PSAP expenditures however following adoption of final procedures from the pending review.

We focused our independent review of PSAP expenditures by reviewing 2017 expenditures in their entirety. This means we reviewed the entirety of expenditures filed by the PSAPs in their reporting (a spreadsheet with over 5500 rows of individual expenditures) and the five-invoice sample from each PSAP selected randomly by the Portal (approximately 1600 pages of invoice detail).[67] By doing so we conducted a 100% review of 2017 expenditures against the eight categories of approved uses for 911 fees contained in the Act. Our review of the expenditure and invoice detail confirmed that the expenditure reports of the PSAPs are accurate.

Our review independently confirmed the work of the Operations Committee to ensure 911 fee moneys are used only for allowable uses under the Act. Without exception each of the expenditures which caught our attention for questioning had already been reviewed and addressed by the Operations Committee. There are numerous instances where the Operations Committee had questioned expenditures with the individual PSAP which resulted in reimbursement of the 911

[65] Kansas response to the FCC's 2016 Annual Collection of Information Related to the Collection and Use of 911 and E911 Fees by States and Other Jurisdictions, response to Question F.5.

[66] Table 15 of the FCC's Ninth Annual Report to Congress shows the distribution of responsibility by state from its annual data collection. Proportional contributions vary among the states ranging from 100% state funded (13 states) to all or mostly all funded by local government funded (12 states) with the remainder of reporting states falling somewhere in between.

[67] A few PSAPs have been late in reporting their expenditures which in turn delays Operations Committee review, and closure of the year's PSAP expenditure review. One PSAP has not yet provided the required expenditure report.

fund for expenditures claimed which were not allowable uses. We believe the questioned expenditures were claimed by individual PSAPs based on honest error and we did not see any abuse of the availability of 911 fee moneys. Expenditures for which the 911 Fund is or was reimbursed include:

- Several "self-discovered" unallowable expenses;
- Siren activation and control;
- Costs of Modules in software packages that are not 911 related;
- Subscriber radios for fire and EMS personnel;
- Newspaper advertising;
- Office equipment not directly related to 911 calls; and,
- Wages.

The largest concern we see from our expenditure review is ensuring only allowable costs for integrated software packages are paid for with 911 monies. There are several software vendors which sell integrated software solutions to cities and counties that cover more than just 911 Computer Aided Dispatch (CAD). Depending on the vendor, various modules are included in the integrated software, for functions such as Record Management, Jail Management, Court Administration, Crime Analysis, Field Reporting, etc. Only the CAD function has a "direct relationship to the performance of 911 and emergency communications functions performed by PSAP personnel who receive, process and transmit 911 calls to emergency responders". Therefore, only the installation, licensing and recurring maintenance costs of the CAD module of the integrated software should be considered an allowable expenditure. The total cost of these software packages is material, ranging anywhere from $6-8,000 to over $150,000 or more in total. Sometimes the random invoice selection provides the Operations Committee with invoice information that allows it to determine whether the claimed expenditure is only for CAD functions, but other times it does not. We recommend that the Council implement a practice for expenditure reporting for these integrated software solutions which requires submission of invoice detail for that item and further indication that allocations have been performed (if required) so that the reported software expenditure is only for the CAD module and not for other modules which are unallowable expenditures under the Act.

Adequacy of Personnel for the 911 Coordinating Council

Direction for this Audit Subject

The Legislative Division of Post Audit seeks a "determination of appropriate staffing levels for maintaining and operating the statewide call handling system. In making this determination, the contractor will review staffing needs studies conducted by Council personnel and offer an opinion on the validity of those staffing studies and make recommendations as to appropriate personnel resources needed to fulfill the Council's mission."[68]

Staffing Studies

The Kansas 911 Act does not provide for staff for the 911 Coordinating Council. Instead, the Act provides for staffing through the Local Collection Point Administrator hired by the Council[69], and through reimbursement of independent contractors or state agencies.[70] The Council's staff positions are "housed" administratively in the Kansas Adjutant General Department (TAG), Directorate of Information Management, Office of Emergency Communication. The Council currently has two staff members (the Administrator and the PSAP Liaison) and two contracted personnel (a Program Manager and an Implementation Support Specialist) for the implementation and deployment of the NG911 platform. The Council has budgeted to hire an additional staff member as GIS Specialist.

Two staffing studies have been performed by the Council to assess the adequacy of Council staffing. Both studies include an overview of current staffing duties, organizational structure, and evaluation based on the NG911 platform transitioning from implementation to operations.

- A Program Organization Study was performed for the Executive Council in March 2017. This study notes that Kansas has a national leadership role due to implementation of the NG911 platform and that another "national public safety program is emerging. The Public

[68] 911 System Audit IFB, at 4.3.5.

[69] K.S.A. 12-5364(d).

[70] K.S.A. 12-5364(h).

Safety Broadband (PSBN) initiative is the nation's first high-speed broadband wireless network for first responders. … While the Kansas ESInet is the emergency interface between 9-1-1 callers and our Public Safety Answering Points (PSAPs), PSBN is the emergency interface between our PSAPs and first responders."[71] The Study notes the overlap of these programs and that certain Council members will be leaving at approximately the same time the Council's two technical consultants' contracts end. The Study concludes that there is a "need for full time executive leadership"[72], and thus proposes the addition of an Executive Director position.

- A Kansas NG911 Staff Responsibility Assignment Matrix was prepared by the Council Chairman in July 2017.[73] This assessment foresaw completion of the NG911 Platform in Kansas in early 2018 and transition to operations after that. The two technical consultants assisting in the platform deployment would no longer be retained by the Council and three staff members were defined: NG911 Executive Director; NG911 Director of Operations; and NG911 Liaison. The latter two positions have some equivalence to the staff positions today while the Executive Director position would be new.

Staffing Assessment

Review of these staffing studies completed by the Council along with our interviews of Council members and staff guided our development of the draft organizational chart (**Figure 6**), and the staffing recommendations provided in this report. **The work and the dedication of the Council members, its staff and its committee chairs to define and deploy the NG911 state platform is truly exceptional and stands out nationally**. The active involvement in the Council and each of the Council committees and sub-committees is a tremendous positive as it demonstrates many individuals/stakeholders in Kansas are actively working to move 911 forward in the State of Kansas. Our interviews and meetings confirm that this work effort, commitment and dedication of the Council members and its committee chairs continues at the very highest level. Furthermore, it

[71] Kansas 911 Coordinating Council Program Organization; Prepared for the Executive Committee; March 15, 2017, at page 2.

[72] *Id*.

[73] Kansas NG911 Staff Responsibility Assignment Matrix; Prepared by Chief Dick Heitschmidt, Chair, Kansas Coordinating Council, July 5, 2017.

was noted throughout the interview process that Council staff have a similar commitment to excellence and are dedicated to their work and the Council's mission. Support, positive feedback, and validation of the large volume of work being performed by the NG911 Liaison and NG911 Administrator position was overwhelming. However, the staff workload is also too much for present staffing levels. It is apparent additional field level support staff is needed to handle the number of PSAPs and volume of initiatives that are being deployed from the state level. **We recommend a second NG911 Liaison and a GIS Specialist as additions to the Council staff**.

- **NG911 Liaison** – Field support position that works closely with communicating, supporting deployments, reporting and other functions, managing and supporting relationships with PSAPs across the state. Currently one person is covering the entire state of Kansas. This is too much to expect of one person, and a second person should be hired for this position. The state's geography then would be split between these two liaison persons.
- **GIS Specialist** – Works with DASC and PSAPs leading state GIS initiatives including standard and protocol monitoring, updates, maintenance, and oversight of GIS vendor procurement and services.

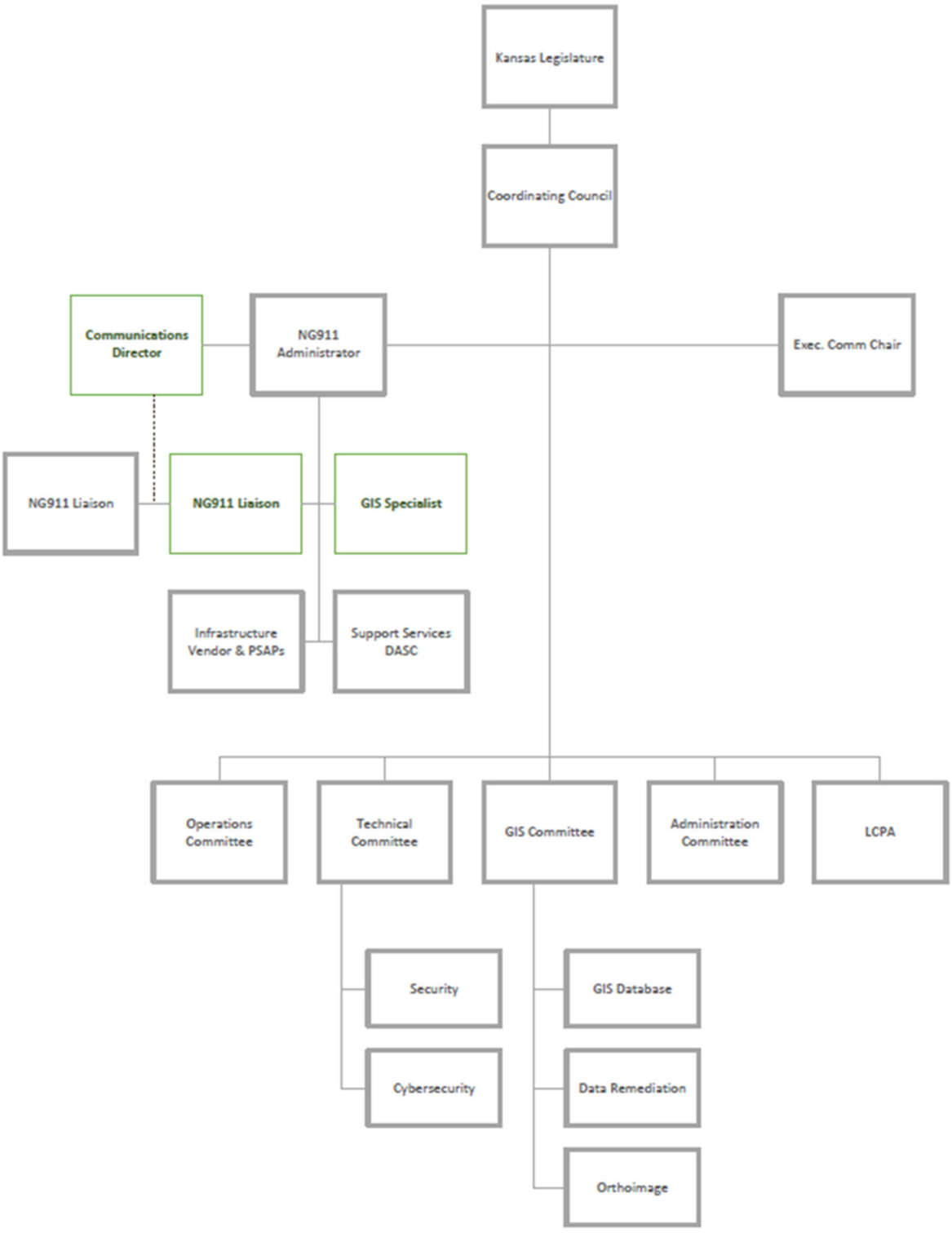
This additional support staff along with the two contract positions (Implementation Support Specialist and Program Manager) that have been extended through 2020 should provide adequate staffing to transition the NG911 initiative from implementation to operations.

The Council has done a tremendous job of championing NG911 public safety initiatives. However further support and development of the Council's communications and stakeholder relations is imperative. Stakeholder communications need to reach public safety officials, legislators and other stakeholders on a continuous and consistent basis to foster understanding and support for Council programs and initiatives. The draft organization chart below includes the **addition of a Communications Director** working in collaboration with the NG911 Administrator. A strength of the Council is that its stakeholder representation is diverse and broad. It is important to focus communications from this broad and diverse stakeholder representation so that a unified consistent message is being sent for all 911 topics and initiatives. This is even more important when approaching legislative initiatives and when working with other representatives in the Public

Safety Community (Sheriff's, Police, Fire, EMS). The Communications Director should be tasked with accomplishing these objectives.

Both staffing studies completed in 2017 by the Council included an Executive Director position overseeing two other Council staff including the NG911 Administrator. Since that time the Council appears to have taken a different direction by extending the technical consulting contracts through 2020 for the two existing contractors, and by budgeting for a third staff position in 2019 – GIS Specialist. We agree with the Council's direction at this point. We believe the Council needs additional working staff more than another layer of management.

Figure 6: Draft Organizational Structure



Budget and Expenditures of the 911 Coordinating Council

Statutory Charge

The Act provides that the audit "shall examine: (A) The annual expenses and financial needs, including personnel, of the council; (B) the total annual operating expenses of the council that are included in the 2.5% cap on expenditures pursuant to K.S.A. 2017 Supp.12-5364(i), and amendments thereto; (C) the current and projected contractual expenses of the council; (D) the expenditures and distribution of moneys from the 911 state grant fund by the council; and (E) whether the moneys expended by the council are being used pursuant to this act."[74] This audit provision was added in the last legislative session by passage of SB 260. LPA clarified in response to a question during the pre-bid conference that the periods to be examined are calendar years 2016 and 2017.

To meet this statutory charge, we obtained budget and financial reports from the Council's website and further information requested from the LCPA and Council staff, including the Council's Detailed Trial Balance for 2017[75] which shows detailed general ledger entries. In particular we examined all general ledger entries in the cash and Accounts Payable accounts. Appendix B summarizes Budget to Actual expenditures for 2016 and 2017 for the Council Budget and the Contractual Budget, as well as 2018 Year-to-date. We sought further information to understand and evaluate any significant variances between budget line items versus actual expenditures. We also reviewed and considered the 2019 budget and workplan recently approved by the Council. Finally, we reviewed two staffing studies that were conducted by the Council to evaluate staffing levels.

[74] K.S.A. 12-5377(d)(1).

[75] The LCPA manages the Council's books and accounts, and the LCPA provided this Detailed Trial Balance in electronic spreadsheet format. The 2016 Detailed Trial Balance is not available due to changeover in the LCPA. The 2017 Detailed Trial Balance was readily available and provided by the LCPA, NSI.

Examination of the Total Annual Operating Expenses of the Council Included in the 2.5% Cap on Expenditures

The Act provides that "[a]ll expenses related to the council shall be paid from the 911 state grant fund. No more than 2.5% of the total receipts from providers and the department received by the LCPA shall be used to pay for such expenses. Members of the council and other persons appointed to subcommittees by the council may receive reimbursement for meals and travel expenses, but shall serve without other compensation with the exception of legislative members."[76]

We examined Council budgets and expenditures (including supporting detail) for 2016, 2017 and 2018 year-to-date, along with the 2019 budget. This financial data is shown in Appendix B. These budgets and expenditures were discussed with Council staff and were also raised for discussion in interviews of Council members. The budget and expenditure data reveals that the Council has stayed well within its 2.5% cap in budgeting – in fact the Council has budgeted considerably lower than the 2.5% cap. The data also reveals that the Council has managed its expenditures against budget such that total expenditures are noticeably less than total budget. Our examination of the line entries to cash and Accounts Payable accounts in the Detailed Trial Balance revealed no expenditures that were inappropriate or otherwise not related to the business of the Coordinating Council. We rely on the name descriptor for this conclusion – all names shown on the cash and accounts payable transactions are known and related to the business of the Coordinating Council, and amounts tie back to the Councils budget reports.

[76] K.S.A. 12-5364(i).

Table 3: Council Budget Data

Council Budget	2019 Budget	2018 Budget	2017 Actual	2016 Actual
Personnel/Technical Contracts	$ 467,081	$ 444,391	$ 203,750	$ 247,440
Conferences/Training for Council Members	$ 27,600	$ 32,200	$ 11,703	$ 3,095
LCPA Annual Audit	$ 15,000	$ 15,000	$ -	$ 7,698
Council Meeting Expenses	$ 9,600	$ 8,000	$ 10,644	$ 15,616
Committee Meeting Expenses	$ 9,600	$ 6,400	$ 28,228	$ 4,166
Membership Dues - Council	$ 2,312	$ 2,312	$ 1,095	$ 774
LCPA Contract		$ -	$ 125,000	$ 133,684
Website Maintenance			$ 8,609	$ 600
FirstNet				$ 8,095
Legal Services/Publication Fees		$ 280	$ 2,840	$ 188
Other				
Total	$ 531,193	$ 508,583	$ 391,869	$ 421,356

Revenues	2019	2018 (Projected)	2017	2016
State Fund (Service Provider Fees)	$ 21,023,643	$ 20,983,572	$ 20,983,572	$ 19,481,449
Grant Fund (Prepaid Wireless Fees)	$ 1,916,781	$ 1,916,780	$ 1,916,780	$ 1,650,331
Total Funds	$ 22,940,424	$ 22,900,352	$ 22,900,352	$ 21,131,780
Budget Authority (Calculated)	$ 573,511	$ 572,509	$ 572,509	$ 528,295
Actual Expenditures vs. 2.5% Cap	$ 42,318	$ 63,926	$ 180,640	$ 106,939

While the Council has remained well within budget and under the 2.5% cap overall there are some significant budget vs. actual variations for certain line items. Actual expenditures for conferences and training for Council members significantly underran budget for both years reviewed and appears likely to do so again in 2018. Actual expenditures for Council and Committee meeting expenses both significantly overran budget for both years reviewed and appear likely to do so again (for the Council) in 2018. Discussions with LCPA and Council staff suggest that these variances are in part due to coding expenses to the wrong line item (meeting expense rather than training expense). An important explanation for the variance in meeting expenses in 2017 is two-fold. First, the Council sent a group of six to the "911 Goes to Washington" conference. One purpose of attendance at this conference was to show the statewide NG911 platform being deployed in Kansas as the first in the nation. An anticipated consequence of this was to show how the platform is working and help ensure that future policy decisions at the national level do not impede further development of the statewide platform. As stated by the Council attendance at the conference was expected "to advance our leadership role to protect our investment in NG911

technologies".[77] Second, 2017 was the period of significant roll out of the NG911 platform to numerous PSAPs in Kansas and implementation of the text-to-911 feature of the platform. This required extensive testing and coordination with the PSAPs in Kansas.

Examination of the Current and Projected Contractual Expenses of the Council

The Council maintains a Contractual Budget separate from its Operating Budget. The Council is empowered to enter into contracts to reimburse "expenses incurred in carrying out the business of the council, including salaries, that are directly attributable to effectuating the provisions of" the Kansas 911 Act.[78] The Contractual Budget contains various important contracts:

- The Local Collection Point Administrator: The Council selects and contracts with the LCPA upon the advice and consent of the Legislative Coordinating Council.[79] This contract is governed by rules and regulations adopted by the Council.[80]
- The Hosted Next Generation 911 Call Handling Platform: the statewide NG911 Call Handling Platform is provided by AT&T and its subcontractors under contract[81] with the Council.
- Staff Support: The Council obtains Implementation Technical Support Services and Project Management services from two individuals under contract.
- GIS Support Services: The Data Access and Support Center at the University of Kansas is providing support services for maintaining statewide GIS data for use in driving the geolocation requirements of the NG911 Call Handling Platform as well as administering the data portal used by the LCPA, service providers, and the Council and its staff.
- GIS Contracts: The Council has a contract with Dickinson County to reimburse for the time of its staff GIS expert for Council business. Other GIS needs are also met under contract including GIS imagery, data procurement, and ESRI services.
- Learning Management and Training: The Council's Knowledge Center is currently procured under contract.
- Professional Services: The Council obtains contract legal services from the Kansas Attorney General's office and is able to obtain public relations services when needed. The periodic audit of the Council for the LPA is also included here.
- Technical Supplies and NAS Boxes.

[77] "Total Travel Expenses 2012 – 2018" as submitted to the Legislature's Division of Legislative Research in response to request.

[78] K.S.A. 12-5364(h).

[79] K.S.A. 12-5364(d).

[80] K.A.R. 132-2-1.

[81] "Statement of Work" for Hosted Next Generation 9-1-1 Call Handling Solution; executed between AT&T Public Safety Solutions and the State of Kansas by the 911 Coordinating Council; April 13, 2015.

- Texting Language Interpretation Services: The Council is considering economies that could be gained by providing language translation services to assist PSAPs when texts are received using foreign languages.

These contracts are to be "paid from the 911 state grant fund".[82] We have examined the expenditures and distribution of funds from the 911 State Grant Fund for the specified period for this Audit (2016 and 2017) and find them to be reasonable and appropriate under the Act. As noted above, we have specifically reviewed the 2017 Detailed Trial Balance[83] which contains the line entries for transactions affecting each account (e.g., cash). Our review of the line item transactions for 2017 in the general ledger revealed no transactions that were questionable or not reasonable or allowable expenditures for the Council's business.

Budgeting of Revenues

We note that while the Council since its inception has budgeted operating and contractual expenditures it has not to date budgeted revenues. The Council essentially assumes revenues to remain flat. The LCPA has recommended adoption of a more refined approach to budgeting fee and other revenues and to budget revenue along with expenses and contractual payments. We concur with this recommendation and understand it is being implemented beginning in 2019.

Examination of Whether the Moneys Expended By the Council Are Being Used Pursuant to this Act

The Act provides direction on how the Council may use funds under the 911 Act as follows[84]:

- For compensation of the Local Collection Point Administrator (K.S.A. 12-5364(d));
- For reimbursement of independent contractors or state agencies for expenses including salaries that are directly attributable to effectuating the provisions of the act (K.S.A. 12-5364(h));
- For expenses of the Council not to exceed 2.5% of total receipts from providers and the Department of Revenue (K.S.A. 12-5364(i)); and,

[82] K.S.A. 12-5364(h).

[83] The 2016 Detailed Trial Balance was not available through the current LCPA due to the transition between LCPA contractors.

[84] K.S.A. 12-5364.

- For reimbursement for meals and travel expenses for Council members and those appointed to subcommittees (K.S.A. 12-5364(i)).

We have carefully examined budgeted versus actual expenditures for 2016, 2017 and 2018 Year-to-Date, and in particular reviewed expenditure detail for 2017. We have also reviewed the audit of the LCPA's accounting for the Council performed by Summers, Spencer & Company, P.A. for the years 2015 and 2016. The Auditor's Report states at Note 2 Summary of Significant Accounting Policies that the Council's financial statements are produced on a cash basis and do not "present transactions that would be included in financial statements prepared using the accrual method of accounting, as contemplated by generally accepted accounting principles."[85] The audit report found that the financial statements for the fund accounts "present fairly, in all material respects, the cash receipts and disbursements of the Kansas 911 Act Funds for the years ended December 31, 2016 and 2015, in accordance with the cash basis of accounting."[86] The LCPA has since begun conducting its accounting using the accrual basis which makes the Council's accounting consistent with GAAP. Furthermore, we conducted a line by line review of the Council's 2017 Detailed Trial Balance which contains each accounting transaction for the Council and its funds. We closely examined each of the entries in the 911 State Fund cash account for the nature of the deposits and payments to that account. We found no entries which raised any questions – all entries were explained and recognizable from the nature of the business conducted by the Council. As expected, monthly payments from service providers were accounted for as well as regular payments to the PSAPs and the Council's service providers, staff and vendors for services. We conducted a similar review of the detailed entries for transactions in the Accounts Payable account and reached the same conclusion. We find from our examination that the moneys expended by the Council are being used pursuant to the Act, and we find no expenditures that are not appropriate under the Act.

[85] Independent Auditor's Report, Summers, Spencer & Co. P.A., January 12, 2018, at page 6. The LCPA audit for 2017 is currently in process.

[86] *Id*. at page 3.

Adequacy of the Amount of Moneys Collected

Statutory Charge

The Act states "… the division of post audit shall conduct an audit of the 911 system to determine … whether the amount of moneys collected pursuant to this act is adequate".[87] To make this determination, the IFB requires us to determine projected annual revenue and expenditures for NG911 services for Kansas PSAPs. Based on this information we are then required to determine whether current funding levels appear to be adequate to complete migration to NG911 services and then maintain and support NG911 services including accessing ESInet call routing for Kansas PSAPs.[88]

Adequacy of the Fee

It is important to note that in Kansas responsibility for funding 911 is divided between the State of Kansas and local government (cities and counties). Kansas' most recent report to the FCC on fees and funding states that 26% of the total cost to support 911 in Kansas is covered by the state 911 fee and 74% is covered by local government general funds.[89] This proportional split is the result of the Act's establishment of a) the level of the Kansas 911 fee ($0.60); b) the distribution method for funding PSAPs; and, c) the allowable uses for Kansas 911 fee funds. City and county government units are presently covering approximately three-quarters of the cost of the 911 system in Kansas. The local costs should come down as PSAPs adopt the NG911 platform since migration to that platform means the PSAPs no longer need to pay for 911 items such as Selective Routing, CAMA trunks, and 911 database charges. Savings from elimination of these costs are noticeable particularly for smaller PSAPs. An estimate of the savings for PSAPs on the statewide NG911 platform (once all are connected to ESInet) performed by Council staff indicates savings of $800,000 annually.

[87] K.S.A. 12-5377(c)(2).

[88] 911 System Audit IFB at 4.3.3.

[89] Kansas response to the FCC's 2016 Annual Collection of Information Related to the Collection and Use of 911 and E911 Fees by States and Other Jurisdictions, response to Question F.5.

It is not unusual for states to divide fiscal responsibility between the state and local government entities. Table 15 of the FCC's Ninth Annual Report to Congress shows the state/local distribution of responsibility by state from the FCC's data collection. Proportional contributions vary among the states ranging from 100% state funded (13 states) to all or mostly all funded by local government funded (12 states) with the remainder of reporting states falling somewhere in between. Kansas' 911 fee is not intended to cover all 911 costs statewide – it is intended to cover "allowable expenditures" as defined in the Act. Accordingly, this is how we assessed the adequacy of the Kansas 911 fee – is it adequate to cover "allowable expenditures" under the Act?

While the Act created four funds only two of the funds have been active. Collections have remained relatively stable for those two funds. Also, PSAPs are charged on a "per seat" basis for use of the state NG911 Platform. Recent and projected revenues[90] for those accounts:

	2016	2017	2018 (Projected)	2019	2020	2021
State Fund (Service Provider Fees)	19,481,449	20,983,572	21,023,643	21,023,643	21,023,643	21,023,643
Grant Fund (Prepaid Wireless Fees)	1,650,331	1,916,780	1,916,781	1,916,781	1,916,781	1,916,781
PSAP Per-Seat Payments		2,206,535	3,238,054	3,549,668	3,549,668	3,549,668

Are these funds adequate to deploy, operate and sustain the "allowable expenditures" associated with the NG911 state platform? The Council has performed business case projections to address this question under a "base case" set of assumptions (assuming no legislative changes) and two "what if" assessments based on assumptions that make defined changes to today's framework.

Business Case Financial Projections Performed by the Council

The Council has developed a business case spreadsheet tool to allow estimation and evaluation of projected annual revenue and expenses for the 911 System. The business case tool provides financial projections for the 2018 – 2023 time period for business cases representing a) continuation of the present operations without change to current fee levels and without implementation of further "i3" NG911 capabilities (the "base case"); and b) continuation of the present operations assuming increased fee levels under scenarios with and without implementation

[90] Projections provided by Coordinating Council staff, which projections are conservative (flat).

of further "i3" NG911 capabilities. The base case analysis requires certain assumptions and conditions including:

- Operating budgets and actual expenditures for the 911 Coordinating Council are used as a base for expense projections in the "Base Case". Base case expenses also assume:
  - A staff GIS Specialist is hired starting 2019.
  - Contracted project management and technology consultant support costs are assumed to end December 31, 2020 with the completion of platform deployment under the AT&T contract.
  - Inflation is assumed between 0-2% per year depending on contract terms.
- The base case revenue projection is conservative in that fees are assumed to remain flat with no increase in subscribers.
- The analysis benchmarks against a "best practice" reserve level of 12.5% of fee revenues.
- Federal grant funds may be available but are not assumed in the business cases.

Additional assumptions and calculations are made regarding increased fees and i3 implementation costs to modify the base case to create the additional business case analyses. Council staff provided the business case analyses and supporting detail to us and reviewed that information with us to answer questions. We believe the business cases and related assumptions and conditions to be reasonably and properly constructed. In particular we have reviewed both 2016 and 2017 budgets and actual expenses and the estimated future expenses which are projected from budget experience. We believe base case expenses have been reasonably projected given our review. We also believe the fee revenue projections are conservative.

We address the business case projections directly below and use these projections to address Deployment and Sustainment Fund questions later in this Report.

Assumed Continuation of the Present Fee Level ("Base Case")

The Base Case continues the present $0.60 per subscriber account fee levels versus costs including the $50,000 minimum distribution to PSAPs and the costs of implementing and maintaining the state NG911 platform based on projected budget and contractual costs. The base case allocates all funds to the PSAPs with no set-aside for the Deployment and Sustainment Fund for future i3 enhancements or contingencies. **The Base Case shows that existing reserves will be exhausted by 2020 and the NG911 System will be unable to cover its operating and contractual costs beyond that time**. Over the projection period from 2019 through 2023 costs and expenses will exceed fee revenues by $20.8 million but more importantly reserves will have been exhausted in

2020 leaving the Council unable to pay contractual revenues or provide contractual services to its PSAPs.

	2017	2018	2019	2020	2021	2022	2023
Fee Revenue	$ 25.1M	$ 26.5M	$ 26.8M	$ 26.6M	$ 26.6M	$ 26.6M	$ 26.6M
Operating Expenses	(25.3M)	(27M)	(30.5M)	(30.3M)	(32.4M)	(30.3M)	(30.5M)
Annual Increase/(Decrease) in Deployment Fund	$ (149K)	$ (543K)	$ (3.6M)	$ (3.7M)	$ (5.8M)	$ (3.7M)	$ (3.8M)
Deployment Fund Balance	$ 9.7M	$ 9.2M	$ 5.5M	$ 1.8M	$ (3.9M)	$ (7.6M)	$ (11.5M)

Assumed Increased Fee Level and PSAP Minimum Distribution but without Implementing i3

The second Business Case holds expenses and contractual costs constant, assumes i3 capability for NG911 is not implemented, and assumes a fee increase to $0.90 as well as increasing the minimum distribution to PSAPs from $50,000 to $60,000. $0.80 of the fee is allocated to the PSAP distribution, while $0.10 is allocated to the Deployment and Sustainment Fund. Under these assumptions an average Deployment Fund balance of approximately 8% of fee revenues is achieved.

	2017	2018	2019	2020	2021	2022	2023
Fee Revenue	$ 25.1M	$ 26.5M	$ 26.8M	$ 38.1M	$ 38.1M	$ 38.1M	$ 38.1M
Operating Expenses	(25.2M)	(27M)	(30.5M)	(36.5M)	(38.6M)	(36.5M)	(36.7M)
Annual Increase/(Decrease) in Deployment Fund	$ (149K)	$ (543K)	$ (3.6M)	$ 1.5M	$ (540K)	$ 1.5M	$ 1.3M
Deployment Fund Balance	$ 9.7M	$ 9.2M	$ 5.5M	$ 7.1M	$ 6.5M	$ 8.1M	$ 9.5M

Assuming Increased Fee Level and PSAP Minimum Distribution with i3 Implementation

The third Business Case again hold expenses and contractual costs constant but assumes i3 capability for NG911 is implemented and assumes a fee increase to $1.00 as well as increasing the minimum distribution to PSAPs from $50,000 to $60,000. $0.80 of the fee is allocated to the PSAP distribution, while $0.20 is allocated to the Deployment Fund. Under these assumptions an **average Deployment Fund balance of approximately 1%** is achieved.

	2017	2018	2019	2020	2021	2022	2023
Fee Revenue	$ 25.1M	$ 26.5M	$ 26.8M	$ 41.9M	$ 41.9M	$ 41.9M	$ 41.9M
Operating Expenses	(25.2M)	(27M)	(33.4M)	(42.9M)	(42.8M)	(41.3M)	(41.2M)
Annual Increase/(Decrease) in Deployment Fund	$ (149K)	$ (543K)	$ (6.6M)	$ (970K)	$ (911K)	$ 553K	$ 687K
Deployment Fund Balance	$ 9.7M	$ 9.2M	$ 2.5M	$ 1.6M	$ 708K	$ 1.2M	$ 1.9M

We view this average Deployment Fund balance as insufficient so additional scenarios were run to include additional funding for the Deployment Fund and for PSAPs. We considered two additional scenarios which hold expenses and contractual costs constant but assumes i3 capability for NG911 is implemented and assumes a fee increase to $1.05 and $1.10 as well as increasing the minimum distribution to PSAPs from $50,000 to $60,000. $0.83 of the fee is allocated to the PSAP distribution, while $0.22 is allocated to the Deployment Fund in the $1.05 scenario, while $0.88 is allocated to the PSAP distribution in the second scenario.

The $1.05 fee scenario may achieve the best balance. Under those assumptions the total distribution of funds to PSAPs increases by approximately $7 million annually to $29.8 million, future i3 enhancements to the statewide call handling platform are funded, and an average Deployment Fund balance of approximately 6% is achieved.

	2017	2018	2019	2020	2021	2022	2023
Fee Revenue	$ 25.1M	$ 26.5M	$ 26.6M	$ 43.8M	$ 43.8M	$ 43.8M	$ 43.8M
Operating Expenses Annual	$ (25.2M)	$ (27M)	$ (33.4M)	$ (43.7M)	$ (43.7M)	$ (42.2M)	$ (42.1M)
Increase (Decrease) in Deployment Fund	$ (149K)	$ (553K)	$ (6.6M)	$ 84k	$ 142K	$ 1.6M	$ 1.7M
Deployment Fund Balance	$9.7M	$ 9.2M	$ 2.5M	$ 2.6M	$ 2.8M	$ 4.4M	$ 6.1M

Adequacy of the Fees Collected

We find that the Council's Business Case projections are reasonably calculated and performed. The Council has based the cost and expense projections on actual expenditure experience, which expenses have been stable and predictable. Fee revenues are conservatively projected as being flat. The current fee level of $0.60 per subscriber account is no longer adequate to sustain the statewide NG911 platform. The base case analysis clearly demonstrates that **continuation of NG911 platform operations at the present fee levels ($0.60 per subscriber account and 1.20% of**

prepaid wireless service sales) is not sustainable. The Council has been aware of this gap in funding and has sized the gap via the business case analyses to support consideration of draft legislation to provide for adequate funds. Annual expenditures cannot be reduced by $3.8 million or more to cure the gap as many of those expenditures are contractual and are in any event necessary to provide the NG911 functionality required by the Act. The Act requires the Council to provide NG911 service to Kansas PSAPs. NG911 is defined in the Act consistent with industry practices as a "911 service that enables PSAPs to receive Enhanced 911 service calls and emergency calls from Internet Protocol (IP) based technologies and applications that may include text messaging, image, video and data information from callers."[91] The Council formulated a Strategic Plan to implement NG911 statewide for 117 PSAPs as required by the Act, and used open procurement administered by the Kansas Department of Administration to contract for the NG911 platform solution. It was not reasonably possible for the Kansas Legislature to do this actual detailed work in 2011 as part of passage of the Kansas 911 Act but the Legislature did set sound policy and provided for the Council to implement and achieve that policy up to the present time with the $0.60/1.20% fee structure. Costs and requirements of the NG911 platform are now known and the Legislature is now able to use this Audit Report to consider increasing the fees to finish NG911 deployment on a sustainable basis. **The Business Case analysis supports increasing the per subscriber account fee from $0.60 to $1.05 with a comparable increase to the fee on prepaid wireless sales.** The scenario we believe may achieve the best balance increases the minimum funding for PSAPs to $60,000 annually, allocates $0.83 of the $1.05 fee to the PSAPs to fund that minimum commitment, while $0.22 would be set aside for the funding of i3 enhancements and continencies, for sustainment of the statewide NG911 system and standardized functionality upgrades to that system. The increased fee will allow the Council to increase the minimum distribution to PSAPs from $50,000 to $60,000, which is a material amount for the more rural Kansas PSAPs. Perhaps more importantly it will place the Kansas 911 System on a sustainable basis where operating and contractual costs can be met while implementing NG911 as intended under the Act and providing for a minimum level of funds for sustainability. This fee level is projected to result in a 6% average Deployment and Sustainment Fund level over the projection period. Finally, this fee level can be viewed as a reasonable division of responsibility

[91] K.S.A. 12-5363(h).

between state and city/county government units given the 26%/74% division of cost responsibility today.

We have checked with the Kansas Corporation Commission to find out the extent to which it may have fielded consumer complaints regarding the level of 911 fees since 2015. The Public Affairs Department has queried its database of complaints and found no complaints regarding 911 fees. Admittedly it may be possible that some complaints were made but not recorded since the KCC doesn't have jurisdiction over 911 fees. But in addition to the fact that querying the database shows no complaints Public Affairs staff does not recall receiving such complaints. The "911 fee" descriptor on customer billing presumably has something to do with the lack of customer complaints as consumers are very familiar with 911 emergency calling systems and understand such capability costs money.

Assurance that Fees are Remitted in Full

The Kansas 911 Act "imposed a 911 fee in the amount of $0.53 per month per subscriber account of any exchange telecommunication service, wireless telecommunications service, VoIP service, or other service capable of contacting a PSAP."[92] The Act also imposes a "duty on each exchange telecommunications service provider, wireless telecommunications service provider, VoIP service provider and other service provider to remit such fees to the LCPA".[93] The Act states "the LCPA may require an audit of any provider's books and records concerning the collection and remittance of fees pursuant to this act."[94] No such audit has been suggested or conducted by the LCPA.

The Act imposes a fee on prepaid wireless retail transactions as a percentage of those transactions[95] (currently 1.20%). The Act permits the Department of Revenue to "conduct audits of sellers [of prepaid wireless plans] in conjunction with sales and use tax audits"[96] and provide such information to the LCPA if it indicates the seller of prepaid wireless plans may not be complying

[92] K.S.A. 12-5369(a). The fee was raised by the Council to $.60 per subscriber account in October 2015.

[93] *Id*.

[94] K.S.A. 12-5377(b).

[95] K.S.A. 12-5371(a).

[96] K.S.A. 12-5372(b).

with the requirement to remit fees. No such audit has been conducted by the Department of Revenue which resulted in information forwarded to the LCPA.

The Council's website has information relevant to telecommunications providers operating in Kansas regarding filings and remittances for the Kansas 911 fee.[97] The information includes a copy of the Kansas 911 Act; introductory letters and new authorization for payments; and directions and instructions for providing service provider contact information to the LCPA and keeping it updated; payment instructions and forms for ACH debit and other forms of payment; prepopulated spreadsheet forms for service provider data submission; and instructions for using the 911 Portal. The LCPA also hosts a support "hotline" telephone number that can be used for any questions from service providers and any others. These calls are answered and directed to the appropriate party depending on the subject and nature of the call.

The current LCPA – NSI – assumed administrative responsibilities for the 911 funds in January 2016, assuming those functions from the original LCPA – the Kansas Association of Counties. According to the LCPA's prepopulated service provider data submission form[98], there are approximately 250 service providers who do or have remitted 911 fees. The open nature of the telecommunications marketplace makes it challenging to know whether and where other additional or new providers may be operating in Kansas to support and enforce non-discriminatory, competitively neutral assessment of fees and surcharges.

This is not new issue to telecommunications regulators and policymakers. Regulators and policymakers have had to consider what is the appropriate base for assessment and calculation of fees on telecommunications services and then enforcing collection, reporting and monitoring mechanisms. The Kansas Legislature has dealt with this issue both for the assessment of the 911 fee, and for the Kansas Universal Service Fund which requires

> every telecommunications carrier, telecommunications public utility and wireless telecommunications service provider that provides intrastate telecommunications services and, to the extent not prohibited by federal law, every provider of interconnected VoIP service, as defined by 47 C.F.R. 9.3, to contribute to the KUSF based upon the provider's

[97] http://www.kansas911.org/telecommunication-providers/

[98] http://www.kansas911.org/telecommunication-providers/

intrastate telecommunications services net retail revenues on an equitable and nondiscriminatory basis.[99]

Similarly, the Federal Communications Commission requires telecommunications companies to pay a percentage of "interstate end user revenues" to the Federal Universal Service Fund (FUSF). Interstate telecommunications services are defined under the FCC's rules at 47 CFR 54.706. The FCC Form 477 is part of the FCC's reporting and data collection requirements to support the FUSF. The Form 477 collects the number of facilities based end user connections from broadband service providers (including "incumbent and competitive local exchange carriers (LECs), cable television system operators, terrestrial fixed wireless providers (including wireless ISPs, or WISPs) that provide service to end user premises, satellite network operators, terrestrial mobile wireless operators with owned network facilities, electric utilities, public utility districts, municipalities, and other entities"); wired or fixed wireless local exchange telephone service providers (including incumbent local exchange carriers and competitive local exchange carriers); interconnected VoIP service providers (a "service that: (1) enables real-time, two-way voice communications; (2) requires a broadband connection from the user's location; (3) requires Internet-protocol compatible customer premises equipment; and (4) permits users generally to receive calls that originate on the public switched telephone network and to terminate calls to the public switched telephone network"); and, facilities-based mobile telephony service providers (who "serves a subscriber using its own network facilities and spectrum for which it holds a license, manages, or for which it has obtained the right to use via a spectrum leasing arrangement").[100]

The FCC's Form 499 is required to be filed by essentially all providers of intrastate, interstate and international telecommunications providers in the U.S. Most filers make required payments to the Federal Universal Service Fund, the federal Telecommunications Relay Services Fund, the North American Numbering Plan, Local Number Portability Administration, and Interstate Telecommunications Provider regulatory fees.[101] The FCC maintains a public database of all Form

[99] K.S.A. 66-2008(a).

[100] https://transition.fcc.gov/form477/WhoMustFileForm477.pdf

[101] FCC Form 499 Instructions, page 4. https://www.usac.org/_res/documents/cont/pdf/forms/2018/2018-FCC-Form-499A-Form-Instructions.pdf

499 filers which can be searched by state and by type of provider.[102] Searching this Form 499 database for Kansas suggests that there may be 500 or more service providers in Kansas. The Kansas Corporation Commission (KCC) also maintains a list of service providers contributing to the KUSF.

The 2016 911 System Audit Report suggested that the Council "consider reviewing surcharge collections or performing a revenue audit of carriers to ensure the proper amount of 911 fees are being collected and remitted." This was due to the finding that "revenues have grown at a much slower rate than the number of lines a surcharge should be billed to" and since "concerns were expressed to us during our interviews whether 911 fees from carriers, particularly VoIP providers are being properly collected and remitted."[103] Chairman Dick Heitschmidt replied on behalf of the Council that

> The Local Collection Point Administrator (LCPA) currently possesses the authority to audit service providers to ensure that the 911 fees submitted accurately reflect the number of subscriber accounts owned by the provider. The Council has not committed the financial resources to exercising this authority. The FCC requires service providers to submit form 477 each year. A part of the 477 submission is subscriber numbers for wireless and wireline subscribers. The FCC recently made the information contained in the 477 filings available to State Public Utilities Commissions. The Council will pursue the possibility of obtaining this data which could then be compared to remittance amounts from the providers.[104]

The 2016 911 System Audit Report also suggested an option of "chang[ing] the billing of the 911 fee from a 'subscriber account' to a per line or equivalent basis."[105] We do not believe such a change is warranted at the present time as the service providers have developed administrative practices to pay the fee based on the number of "subscriber accounts" and whether or how much changing to an "access line" basis would alter the distribution of the aggregate fee among service providers, what level the 911 fee would need to be on an access line basis to be revenue neutral, or whether it is more or less stable than the present "subscriber accounts" basis for the 911 fee.

[102] http://apps.fcc.gov/cgb/form499/499a.cfm

[103] 2016 911 System Audit Report at page 31.

[104] *Id*., at page 42.

[105] 2016 911 System Audit Report at page 30.

The Coordinating Council and the LCPA would gain greater assurance that all telecommunications service providers operating in Kansas are paying appropriate fees to support the NG911 State platform by using other available telecommunications contributor lists to compare to the present list of service providers paying 911 fees in Kansas. We recommend that the LCPA work with the KCC staff to review and compare the present list of service providers paying 911 fees to the list of service providers paying KUSF payments as well as the FCC Form 499 filer database of service providers operating in Kansas. The LCPA should then identify service providers that may be operating in Kansas but are not reporting or remitting 911 fees. The LCPA should contact these service providers to require them to report and remit fees as appropriate. The LCPA should undertake this process regularly (annually or semi-annually).

Use of the Form 499 filer database rather than the FCC's Form 477 reports is a better direction since the Form 499 database is public while the individual Form 477 reports are confidential – which confidential obligation extends to the KCC. Given our familiarity with Form 477 reporting from other cases we do not believe there is any incremental benefit from seeking the Form 477 data under confidentiality requirements for purposes of this service provider comparison. At minimum each service provider would have to agree to their Form 477 data being provided to the LCPA. It simply isn't worth the effort embarking on this path given the publicly available Form 499 filer database.

We expect some number of additional service providers will be identified that should be paying the 911 fee. The difference between the 250 service providers already identified and the perhaps 500 service providers in the FCC Form 499 filer database is too great for it to be otherwise. However, it is not known how much additional fee revenue might be generated. Inspection of the list of 250 service providers currently paying the 911 fee reveals that all the larger service providers in Kansas are paying the fee. Therefore, it is unlikely that any substantial additional amount of 911 fee revenue should be expected. Similarly, the FCC Form 499 filer database must be screened against the types of service providers that are assessed under the Act: "any exchange telecommunication service, wireless telecommunications service, VoIP service, or other service capable of contacting a PSAP."[106] Some of the entities in the Form 499 filer database may not

[106] K.S.A. 12-5369(a). The fee was raised by the Council to $.60 per subscriber account in October 2015.

provide such services. But "every little bit helps" and it is important as a matter of policy that fees are paid by all service providers operating in Kansas – large or small – to achieve important policy objectives of competitively neutral, non-discriminatory assessment and payment of the 911 fee.

The Kansas Fee Compared to Other States

This section of the study provides an overview and comparison of the state 911 fees, collection of fees, and national trends. It also provides statute comparisons related to the allowable uses of collected 911 fees.

Fee Analysis

Currently the state 911 fee for wireline, wireless, and VoIP services is $0.60 per subscriber account per month. In the recently released Ninth Annual Report to Congress on State Collection and Disbursement of 911 and Enhanced 911 Fees and Charges, Kansas's flat fee on all three services is at a minimum of $0.32 below the national average.[107]

Table 4 below shows a comparison of estimated costs and fees as a % of cost for the comparable states that were identified in Table 1 (above). The average 911 fee for wireline-flat fee is $1.00, for wireless – flat fee the average is $0.92, and the average VoIP-flat fee $0.96. The lowest for all three service types is Michigan at $0.19. The highest for wireline is Arkansas at $2.00, wireless is West Virginia at $3.00, and Alabama VoIP fee of $1.75. Prepaid is not shown in the table, however Kansas is currently at 1.2% of total retail transaction and the national average is $0.83, and the national low is $0.40 by Maine.

[107] Federal Communications Commission's Ninth Annual Report to Congress, On State Collection and Distribution of 911 and Enhanced 911 Fees and Charges, For the Period January 1, 2016 To December 31, 2016. "Ninth Annual 911 Report". https://www.fcc.gov/general/911-fee-reports

The FCC gained the information by use of information requests. "In April 2017, the Bureau sent questionnaires to the Governor of each state and territory and the Mayor of the District of Columbia requesting information on 911 fee collection and expenditure for calendar year 2016. The Bureau received responsive information from 46 states, the District of Columbia, American Samoa, and the U.S. Virgin Islands. The Bureau did not receive responses from Missouri, Montana, New York, and Oklahoma. Other nonresponding jurisdictions include Guam, Northern Mariana Islands, and Puerto Rico." Ninth Annual 911 Report, at page 4. Kansas' response is included in the FCC's Report. The data collected by the Coordinating Council to file this response to the information request allowed us to use a shorter survey of PSAPs and not ask PSAPs for information they had already provided recently.

Table 4: Fee overview for states with 100 – 125 PSAPs

State	Wireline	Wireless	VoIP	Fee Total	Estimated 911 Cost	Fees as a % of Cost
Alabama	$1.75	$1.75	$1.75	$115,944,883	$111,070,563	105%
Colorado	$0.43 - $1.75	$0.43 - $1.75	$0.43 - $1.75	$53,987,426	$113,539,000	48%
Connecticut	$0.47	$0.47	$0.47	$1,658,219	$25,883,602	6%
Indiana	$1.00	$1.00	$1.00	$86,865,020	$184,798,847	47%
Iowa	$1.00	$1.00	$1.00	$39,849,592	$146,302,788	27%
Kansas	$0.60	$0.60	$0.60	$19,193,708	$72,200,810	27%
Louisiana	Up to 5% of Tariff Rate on Exchange Services	Up to $1.25	N/A	$66,235,990	$68,846,754	96%
Minnesota	$1.05	$1.05	$0.95	$76,542,107	$76,542,107	100%

Fee Trends

As might be expected 911 fees are increasing across the country to fund evolution to NG-911. Many states are operating in a deficit or are projecting a deficit as they transition towards NG-911. Data from the FCC's Ninth Annual Fee Report to Congress shows 38 states reported their total estimated cost and their total amount of fees collected.[108] When looking at fees as a percentage of cost only 13 states showed fees covering 100% of their total estimated cost. (For these 13 states the amount of 911 fees collected cover the states total estimated 911 cost.) Kansas reported a total estimated cost of $72,200,810 and total fees collected of $19,193,708. In relation to fees as a percentage of cost this puts the state at 27%. Of the 38 reporting states only two had lower fees as

[108] https://www.fcc.gov/files/9thannual911feereportpdf

a percent of cost – Connecticut is at 6% and Nevada is at 10% fees as a percent of cost. Hawaii, Iowa, and Ohio tied Kansas with at 27%.

Statute and Usage Analysis

As we see rapid advancement in technology state statutes are being modified to encompass the change and its impact in the public safety community. Fee amounts, collection, usage, and governance all must work hand in hand to avoid large funding deficits in transitioning to NG-911. **Table 5** identifies some recent changes reported in the Ninth Annual Fee Report to Congress.[109]

Table 5: States That Amended or Enlarged 911 Funding Mechanism

State:	Overview:
IL	"The Emergency Telephone System Act with an effective date of January 1, 2016 equalized the surcharge collected for wireline, wireless and VoIP across the State, except for the City of Chicago, to $.87. The City of Chicago's surcharged increased to $3.90. Prepaid wireless was increased to 3%."
KY	"In July 2016 HB 585 was passed into law by the Kentucky General Assembly that changed the funding formula for pre-paid wireless connections to a point of sale collection method. Each pre-paid connection is now charged $0.93 per transaction."
LA	"In 2016 the Louisiana State Legislature Passed Act 665 and Act 590 adjusting the Wireless and Prepaid Wireless Rates for the State of Louisiana."
MA	"The funding mechanism was not altered. However, the Enhanced 911 Surcharge was adjusted from $1.25 to $1.00 effective July 1, 2016."
NH	"Effective January 1, 2016 the state imposed a prepaid commercial mobile radio service E911 surcharge that shall be levied on each retail transaction sourced to New Hampshire. The amount of the surcharge levied for each retail transaction shall be the same as the surcharge imposed under RSA 106-H:9 I (a)."

Statutes broadening the allowable use of 911 fees have also been looked at as a possible strategy to generate support when fee increases are proposed. Though this may increase support and funding for other public safety initiatives there are concerns with broadening allowable uses. As in any statute change it is imperative that the language clearly define allowable public safety

[109] *Id*.

expenditures and that legislative representatives work closely with their public safety stakeholders in this effort.

A fear of many in the 911 community is that even if this strategy leads to a fee increase it allows the 911 fund to be used for other public safety systems/networks which will on balance deplete and divert funds ultimately delaying the realization of NG-911. The lease, purchase, maintenance of radio dispatch networks is allowable expense for some states and is illustrated below in **Table 6** along with other allowable uses of 911 funds in various states.

Table 6: Allowable Fee Uses by State Total

ALLOWABLE USES	DESCRIPTION	TOTAL STATES
Operating Costs	CPE	46
Operating Costs	CAD	37
Operating Costs	Building and Facilities	28
Personnel	Salaries	30
Personnel	Training	43
Administrative	Programs	42
Administrative	Travel	40
Dispatch (2016)	Reimbursement to Other Law Enforcement Providing Dispatch	17
Dispatch (2016)	Lease, Purchase, Maintenance of Radio Dispatch Networks	26
Dispatch (2015)	Reimbursement to Other Law Enforcement Providing Dispatch	19
Dispatch (2015)	Lease, Purchase, Maintenance of Radio Dispatch Networks	28
Dispatch (2014)	Reimbursement to Other Law Enforcement Providing Dispatch	17
Dispatch (2014)	Lease, Purchase, Maintenance of Radio Dispatch Networks	24

The FCC's Seventh, Eighth, and Ninth Annual Fee Report to Congress[110] show some fluctuation in the allowable usage for dispatch use. Minnesota is a good example for comparison to Kansas since it close to Kansas in population, PSAP count, and allowable usage. Both states are the same in allowable uses, except Kansas also allows for Reimbursement to Other Law Enforcement Providing Dispatch and that is not an allowable usage for Minnesota.

Minnesota is a state that has had success using its 911 Special Revenue Fund for funding multiple public safety services through the state 911 fee. As a point of reference Minnesota operates 104 PSAPS and has a flat rate fee for wireline of $1.05, wireless, $1.05, prepaid $1.02 and VoIP $0.95.

The Minnesota Special Revenue Fund is used for the following[111]:

- Statewide 911 Program;
- Wireline telephone company costs to connect to the 911 network;
- 911 PSAP equipment and dispatch proficiency expenses;
- Debt service on the revenue bonds sold to construct the states radio system used as the primary communication tool for state, county, and local public safety entities – Allied Radio Matrix for Emergency Response (ARMER) – ARMER backbone, maintenance and operation costs;
- Minnesota's interoperability program; and
- Statewide Emergency Communications Board (SECB).

The Minnesota Statewide 911 Program costs were funded from the state's general fund until December 1986. In 1987, the state began collecting a 911 service fee on wired telephone lines to pay expenses related to the 911 program. Beginning July 1994, the fee was extended to include wireless telephone lines and today it includes voice over internet protocol (VoIP) providers.

Revenues from the 911 fee are deposited into a special revenue account from which the 911 Program costs are paid. In the 2015–2016 biennium, over $62 million was appropriated for the 911 Special Revenue Account to fund the 911 Program, 911 wireline and wireless carrier cost recovery, and 911 PSAP equipment and proficiency expenses. The special revenue account also provides funding for the east and west medical resource communications centers, debt service on

[110] *Id*.

[111] Minnesota Emergency Communication Network, A Division of the Minnesota Department of Public Safety; https://dps.mn.gov/divisions/ecn/programs/911/Pages/default.aspx

the revenue bonds sold to construct the ARMER system, ARMER backbone maintenance and operation costs, and Minnesota's interoperability program.

Adequacy of Call Handling Platform Deployment and Sustainment Fund

Direction for this Audit Subject

The Legislative Division of Post Audit seeks a "determination of an appropriate amount of [deployment and sustainment] funding for operation of the statewide call handling system. In making this determination, the contractor will work with the 911 Coordinating Council to determine projected annual revenue and expenditures for maintenance of the statewide system and offer an opinion on an appropriate amount of [deployment and sustainment funding] to ensure that new feature functionality can be added to the statewide system as standards develop."[112]

Findings and Recommendations

Rather than "management reserve", we believe this fund would be more accurately described as a fund to complete deployment and sustainment of the call handling platform contemplated by the Act and contracted with AT&T, or "Deployment and Sustainment Fund". The Act specifically funds "Next Generation 911 services"[113] (or NG911) which is defined in the Act as "911 service that enables PSAPs to receive Enhanced 911 service calls and emergency calls from Internet Protocol (IP) based technologies and applications that may include text messaging, image, video and data information from callers".[114] The Council has implemented the statewide NG911 Call Handling Platform under contract with AT&T to provide i3 capabilities which will enable PSAPs to receive emergency communications including these various media – text messaging has been enabled as the first NG911 application. Future NG911 services to be deployed include picture messaging, video messaging, telematics, call logging capabilities, "Internet of Things"

[112] 911 System Audit IFB, at 4.3.4.

[113] K.S.A. 12-5368(b)(1).

[114] K.S.A. 12-5363(h).

connectivity, social media connectivity and other future services and applications. Each of these services and applications will incur incremental costs for deployment.

We have reviewed the business case analyses performed by the Council and its staff along with analyzing the expense levels included and find them to be reasonable projections which account for further deployment of NG911 capabilities as contemplated by the Act. At current fee and PSAP distribution levels expenditures to deploy the NG911 platform will outrun revenues by 2020. **NG911 platform operations are not sustainable at present funding levels and present funding levels do not provide for the i3 futures of NG911.**

Telecommunications facilities are designed and deployed on a long-term basis with significant up-front costs as well as costs which are not known in advance with precision due to the nature of technology. Furthermore, telecommunications facilities must be sustainable over time which requires funding for replacement, upgrade and renewal of facilities. A Call Handling Platform Deployment and Sustainment Fund is a reasonable way for the State of Kansas and the Council to address the need for investment in the 911 Call Handling Platform over time, and for sustainment of that Platform over the longer term.

This Call Handling Platform Deployment and Sustainment Fund need not and should not be structured or construed as a "state fund" in the legal sense. It should consist of funds from fees administered over time by the Council to complete deployment of i3 capabilities of the NG911 platform and to sustain operations of the platform over time. Maintaining such a fund is a best practice and the level of the fund (higher or lower) is a function of risk. The business case analysis performed by the Council has considered a range of 10 to 20% of annual revenues to be set aside for continued deployment of i3 futures under contract and arrived at a maximum of 15% as the fund which would balance future deployment costs and platform sustainment with reasonable fee levels. Draft legislation is being considered by the Council for the upcoming legislative session to provide for sustainment of the statewide NG911 system and standardized functionality upgrades to that system. That draft legislation currently includes a 15% maximum for the sustainment fund. We agree this is a reasonable maximum level for the fund given what is needed to complete deployment of the NG911 platform with i3 functionality and to sustain its operations over time. Such funding is consistent with the nature of telecommunications networks which have "lumpy" capital expenditures associated with them and is also consistent with best practices which require

an appropriate level of operating reserves to fund further deployment and sustainment. 911 fee levels should be increased to permit the Council to fund further call handling platform deployments consistent with the Council's business case analyses discussed above, i.e., an increase in the fee to $1.05, allocation of $0.83 of that to fund PSAP expenditures including an increase to the minimum distribution to $60,000, and allocation of $0.22 to the Deployment and Sustainment Fund. This will strike an appropriate balance between recognizing fees are public funding sources, and funding operating sustainability for the NG911 platform evolution to provide for public safety under the Act.

Findings and Recommendations

1. Network Redundancy and Diverse Routing: Cost and available resources are factors that influence network design and performance capabilities. The Council and its partners have worked and continue to work together to provide the most effective and efficient single network platform for each of the state's PSAPs. As with any network system enhancements and options for improved redundancy should be reviewed and explored annually. There may be locations in the network where network redundancy and diversity can and should be provided for based on cost/benefit analysis. Though alternative routes or redundant links generate increased cost they also decrease the risk of network down time across multiple PSAPs. **It is crucial that the Council conduct network monitoring and SLA performance evaluation to monitor system and Vendor performance, particularly given the lack of network redundancy and diversity**.
2. Contract Management/SLA: We recommend that Council and its staff work with its Vendors to promptly finalize development of SLA performance reporting and scheduled monthly reviews of these reports. This includes network monitoring to observe network performance in real time, to address system failures/outages and monitor dispatch times of technical support personnel dispatched to rural PSAPs, and monitoring of call answering and wait times for support calls to the Resolution Center. Performance reporting should be regular and transparent. If finalization of SLA performance reporting is impeded by lack of clarity in the current contract we recommend that the contract be amended promptly to provide any necessary clarity on the performance metrics, measurements, and standards necessary to provide an enforceable SLA for the Council and the State of Kansas.

3. Trouble ticket triage notification: We recommend the addition of a system feature or manual workflow that provides the PSAP Manager with a notification or alert upon trouble ticket creation, triage, and closure. If the addition of this feature is not an option due to system limitations, then Council staff should be made aware of ticket creation and closure so they can notify the appropriate PSAP Manager.
4. Non-supported hardware or software: Use of hardware and/or software which is not vendor supported and dependent solely on internal support by PSAP or other agency staff raises continuity concern for PSAP operations and when the staff resource or organization providing that support changes. Though this hardware or software may not fall directly under the purview of the Council, we recommend that Council staff follow up on these concerns with all PSAPs during the annual network audit. Encouraging PSAPs to maintain some level of external vendor support for all PSAP hardware and software will decrease the risk of PSAP downtime. Though this may not cause downtime for the statewide platform it could cause individual PSAP downtime impacting citizens/callers in that area and surrounding PSAPs. The survey and interviews did not suggest that use of non-supported hardware or software was widespread.
5. Communication and Stakeholder Outreach: We recommend that the Council develop a stakeholder awareness plan and presentation. This presentation could be used throughout the state to educate stakeholders outside of the public safety arena, and most importantly inform Council stakeholder groups and the public safety community of Council initiatives. Informing stakeholders and fostering relationships with other public safety agencies especially those represented on the Council (Sheriffs, Police, Fire, EMS) is imperative to continue the states forward progress with NG911. The importance of this recommendation/initiative also drives the additional staffing recommendation of adding an additional NG911 Liaison and Communication Director.
6. Council Staffing Levels: The Council and its present staff have done great work to date in the implementation of the NG911 statewide platform. But they are spread too thin. We recommend specific 2 additional Council staff positions for specific support functions (beyond the GIS Specialist which the Council has already budgeted). The Council is transitioning away from platform implementation to platform operations support. Two positions currently provided for via contract will elapse December 31, 2018 (proposals are

currently being evaluated to award contracts for two positions for one year, with two one-year extension options). Furthermore, those contract positions do not provide communications support, GIS Support or PSAP Liaison functions. An additional NG911 Liaison position is needed to provide reasonable field support and maintain relationships with all Kansas PSAPs. It is simply too much to expect one person to provide adequate service in covering 117 PSAPs in a state the size of Kansas. **A second NG911 PSAP liaison is needed**. Furthermore, proper operation of the NG911 platform is crucially dependent on accurate GIS data on a statewide basis. The Council has budgeted for a GIS Specialist to work with DASC and PSAPs around the state in support of the MSAG transition and other GIS initiatives. Lastly, the addition of a Communications Director should be evaluated to improve stakeholder communication and increase awareness of public safety initiatives. It is expected that the need for this position would increase as need for collaboration between NG911 and FirstNet emerges.

7. Geographic Information Systems (GIS) data: We find the GIS partnership with DASC is a tremendous benefit for the statewide NG911 platform. The GIS work done by the Council's partner – DASC – has earned nationwide recognition and honors. The Council's decision to add a GIS Specialist position in the upcoming year's budget recognizes the crucial nature of up-to-date and accurate GIS data to the NG911 platform. The GIS Specialist would serve as a liaison between DASC, PSAPs, and Council and its committees improving communication and guidance on all GIS initiatives.
8. PSAP Expenditure Review: We find the PSAP expenditure review conducted by the Council to be essential for the NG911 program under the Act since not all 911 expenditures are allowed by the Act to be funded by the 911 fee. The Act effectively provides state funding through the 911 fee for certain specified types of 911 system costs and leaves remaining 911 system costs to be funded by city and county government units. We find that the Council's review of PSAP expenditures under the Act has consistently adhered to the Act's requirements and has thus ensured fair and equitable distribution and use of Kansas 911 fees. The Council does need to promptly complete its review of 2017 PSAP expenditures however.

   The largest concern we see from our expenditure review is ensuring only allowable costs for integrated software packages are paid for with 911 monies. There are several software

vendors which sell integrated software solutions to cities and counties that cover more than just 911 Computer Aided Dispatch (CAD). Depending on the vendor, various modules are included in the integrated software, for functions such as Record Management, Jail Management, Court Administration, Crime Analysis, Field Reporting, etc. Only the CAD function has a "direct relationship to the performance of 911 and emergency communications functions performed by PSAP personnel who receive, process and transmit 911 calls to emergency responders". Therefore, only the installation, licensing and recurring maintenance costs of the CAD module of the integrated software should be considered an allowable expenditure. The total cost of these software packages is material, ranging anywhere from $6-8,000 to over $150,000 or more in total. Sometimes the random invoice selection provides the Operations Committee with invoice information that allows it to determine whether the claimed expenditure is only for CAD functions, but other times it does not. We recommend that the Council implement a practice for expenditure reporting for these integrated software solutions which requires submission of invoice detail for that item and further indication that allocations have been performed (if required) so that the reported software expenditure is only for the CAD module and not for other modules which are unallowable expenditures under the Act.

9. Management of Budget Against the Statutory Cap: We find the Council has reasonably managed its budget and expenditures against the statutory 2.5% cap on Council expenditures. As shown by **Table 3** (above) the Council establishes its budget below the 2.5% cap, and total actual expenditures for 2016 and 2017 are below the amount budgeted by the Council.
10. Council Spending: We find that the funds spent by the Council are for uses specified by the Act. In our review of Council expenditures for 2016, 2017 and 2018 YTD we did not find any spending that was outside that allowed by the Act or otherwise improper.
11. Significant Line Item Budget Variances: We find that there are significant variances for the Council and Committee meetings and Conference/Training budget line items – which in part offset each other. The significant expenditures above budget for meetings and travel in 2017 are reasonably explained by the activities associated with deployment and testing of the NG911 statewide platform to the PSAPs and activating the text-to-911 feature and explained to a lesser degree by inaccurate or incomplete coding of expenses to budget line

items (hence the offsetting effect). We note that the expenditures above budget for meetings has been recurrent through the budget years. We recommend that the LCPA increase effort to ensure that expense items are coded more accurately to budget line items for budget reporting before the Council. The Council should also give more detailed consideration to historic and expected meeting expenses in establishing budget amounts for those line items going forward to avoid continued significant expenditures over budget. If that pattern is expected by the Council to continue budget line items for Council and Committee meetings should be increased accordingly.

12. Assurance of Revenues: The LCPA should work with Kansas Corporation Commission (KCC) staff to review and compare the present list of service providers paying 911 fees to the list of service providers paying KUSF payments as well as the FCC Form 499 filer database of service providers operating in Kansas. The LCPA should then identify service providers that may be operating in Kansas but are not reporting or remitting 911 fees. The LCPA should contact these service providers to require them to report and remit fees as appropriate. The LCPA should undertake this process regularly (annually or semi-annually).
13. Budgeting of Revenues: We note from our review that the Council does not budget specifically on the revenue side but instead essentially assumes revenues to be flat year to year. The Council should consider adopting a more refined approach to budgeting fee and other revenues through analysis by the LCPA and should budget revenue along with expenses and contractual payments.
14. Adequacy of 911 Fees: **911 fees collected at the present fee levels are not adequate to deploy, operate and sustain the Kansas NG911 state platform**. The business case analysis performed by the 911 Coordinating Council and its staff clearly demonstrates this to be the case. The Council is considering proposed legislation to allow the fee to be increased (along with changes to other sections of the Act). **A fee increase is clearly needed as the NG911 platform is not sustainable past 2020 without it**. Review of the Council's business case analysis along with comparable states information indicates a $1.05 fee is still conservative when considering the 911 services delivered and allowable expenditure for fees, but this increase would bring them more in line with states of comparable in size and PSAP count.

15. Deployment and Sustainability Fund: Under present fee and funding levels the Council's funds will be entirely depleted by 2020 and the NG911 platform and operations will not be sustainable after that point. We recommend that the Council create a fund to provide for completion of the deployment and ongoing operation of the NG911 platform with the i3 capabilities contemplated by the Act. A portion of the fee increase recommended above will provide this necessary funding. Up to 15% of annual fee receipts should be used for this fund.
16. Continue Work on Cybersecurity Planning. We recommend that the Council continue its evolution and implementation of its cybersecurity plans and practices as they continue to evolve in NG911. Review of the Coordinating Council's 2018 Work Plan shows that the Technical Committee activity list includes monitoring cybersecurity threats, implementation of plans to reduce risk, and an infrastructure security audit review with AT&T. Each of these activities are instrumental in reducing cyber risk within the network infrastructure of the state platform. Adopting a cybersecurity framework and initiating steps to implement a cybersecurity plan will assist in these efforts. The Council and its staff should work with each individual PSAP to decrease risk that involve inside and authorized users, training on identifying malicious applications that appear so be safe delivered by text or media, and identification of other risk that are encountered at the PSAP impacting equipment, data application and services. The Council's cybersecurity work should be in line with Department of Homeland Security Office of Emergency Communications recommended actions for NG911 system administrations on cyber security initiatives.[115]

[115] U.S. Department of Homeland Security Office of Emergency Communication; Cyber Risk to Next Generation 911; https://www.dhs.gov/sites/default/files/publications/NG911%20Cybersecurity%20Primer%20FINAL%20508C%20%28003%29.pdf

Appendix A

Voting Members, Appointed by the Governor	Appointment Ends
Chairman (non-voting), Kansas 911 Coordinating Council	
Dick Heitschmidt, former Chief of Police, City of Hutchinson	
Two members representing Information Technology personnel from government units	
Mike Albers, Technology Director, City of Colby	6/30/2020
Michael Leiker, Director of IT, Ellis County	6/30/2019
One member representing the Kansas Sheriff's Association	
Troy Briggs, Sheriff, Haskell County	6/30/2020
One member representing the Kansas Association of Chiefs of Police	
Jerry Harrison, Chief of Police, City of Independence	
One member representing a Fire Chief (Fire Chief Association)	
Robert McLemore, Fire Chief, City of Colby	6/30/2021
One member recommended by the Adjutant General	
Jonathan York, Branch Director, Kansas Department of Emergency Management	6/30/2019
One member recommended by the Kansas Emergency Medical Services Board	
Kerry McCue, Director, Ellis County Emergency Medical Services	6/30/2020
One member recommended by the Kansas Commission for the Deaf and Hard of Hearing	
Robert Cooper, Executive Director, Kansas Commissions for the Deaf and Hard of Hearing	6/30/2021
Two members representing PSAPs located in counties with less than 75,000 population	
Josh Michaelis, Director, Rice County Emergency Communications	6/30/2019
Sherry Massey, GIS Coordinator, Dickenson County	6/30/2020
Two members representing PSAPs located in counties with more than 75,000 population	
Ellen Wernicke, Director, Johnson County Emergency Management and Communications	6/30/2019
Melanie Mills-Bergers, Director, Shawnee County Sheriff's Office	6/30/2020
One member representing PSAPs without regard to size	
Kathy Kuentsler, Director, City of Garden City	6/30/2020

Kansas Legislative members

Rick Billinger, Kansas Senator, Republican

Marci Francisco, Kansas Senator, Democrat

Kyle Hoffman, Kansas Representative, Republican

John Alcala, Kansas Representative, Democrat

Non-Voting Members, Appointed by the Governor	Appointment Ends
One member representing Kansas Rural Independent Telephone Companies	
Rob McDonald, Madison Telephone Company	6/30/2020
One member representing incumbent local exchange carriers with over 50,000 access lines	
John Fox, AT&T	6/30/2020
One member representing large wireless providers	
Patrick Fucik, Verizon	6/30/2020
One member representing VoIP providers	
Mark Tucker, Cox Communications	6/30/2020
One member recommended by the League of Kansas Municipalities	
David Cowan, Public Safety Director, City of Independence	6/30/2020
One member recommended by the Kansas Association of Counties	
Jerry Daniels, County Commissioner, Allen County	6/30/2020
One member recommended by the Kansas Geographic Information Systems policy Board	
Ken Nelson, DASC	6/30/2020
One member recommended by the Kansas Office of Information Technology Services	
Sara Spinks, Director Network and Telecommunications Services, KS OITS	6/30/2020
One member recommended by the Mid-America Regional Council	
Adam Geffert, Public Safety Administrative Manager, MARC	6/30/2020

Appendix B-1

Council Budget	2019 Budget	2018 Budget	2018 Actual (YTD)	2017 Budget	2017 Actual	2016 Budget	2016 Actual
Personnel/Technical Contracts	$ 467,081	$ 444,391	$ 147,611	$ 227,299	$ 203,750	$ 272,286	$ 247,440
Conferences/Training for Council Members	$ 27,600	$ 32,200		$ 23,000	$ 11,703	$ 18,400	$ 3,095
LCPA Annual Audit	$ 15,000	$ 15,000		$ 10,000	$ -	$ 10,000	$ 7,698
Council Meeting Expenses	$ 9,600	$ 8,000	$ 15,797	$ 6,400	$ 10,644	$ 11,100	$ 15,616
Committee Meeting Expenses	$ 9,600	$ 6,400	$ 2,051	$ 4,800	$ 28,228	$ 3,200	$ 4,166
Membership Dues - Council	$ 2,312	$ 2,312		$ 1,416	$ 1,095	$ 760	$ 774
LCPA Contract		$ -		$ 126,000	$ 125,000	$ 133,685	$ 133,684
Website Maintenance				$ -	$ 8,609	$ -	$ 600
FirstNet						$ -	$ 8,095
Legal Services/Publication Fees		$ 280		$ 5,280	$ 2,840	$ 280	$ 188
Other			$ 159,531				
Total	$ 531,193	$ 508,583	$ 324,990	$ 404,195	$ 391,869	$ 449,711	$ 421,356

Budget Authority	$ 593,565	$ 593,565		$ 593,565		$ 593,565	

Appendix B-2

Contractual Budget	2019 Budget	2018 Budget	2018 Actual (YTD)	2017 Budget	2017 Actual	2016 Budget	2016 Actual
AT&T Contract	$ 9,000,000	$ 7,000,000	$ 3,244,404	$ 11,000,000	$ 4,223,558	$ 15,000,000	$ 5,685,942
Imagery Contract	$ 550,000	$ 550,000	$ 1,314,804	$ 61,804	$ -	$ 61,804	$ 61,803
GIS Contracts	$ -	$ -		$ -	$ -	$ -	$ 483,639
ITSS Contract	$ 249,600	$ 228,800		$ 228,800	$ 233,865	$ 228,800	$ 259,914
PM Contract	$ 228,800	$ 197,600		$ 197,600	$ 199,737	$ 197,600	$ 212,441
DASC Contract	$ 180,000	$ 180,000		$ 160,000	$ 160,000	$ 160,000	$ 160,000
LCPA Contract	$ 130,050	$ 127,500	$ 85,000	$ -	$ -	$ -	$ -
LPA Audit		$ -		$ -	$ -	$ 100,000	$ 115,000
Dickinson County GIS Contract	$ 47,700	$ 47,700		$ 47,700	$ 71,488	$ 50,000	$ -
Backup/Training/Testing PSAP		$ -		$ -	$ -	$ 30,000	$ -
Training, Certification/Verification Tool		$ -		$ -	$ -	$ 30,000	$ -
NAS Boxes for Implemented PSAPs	$ 30,000	$ 30,000		$ 30,000	$ -	$ 30,000	$ -
ESRI ELA Contract	$ 20,000	$ 20,000		$ -	$ -	$ -	$ -
Learning Management System/Curriculum Content	$ 17,100	$ 17,100		$ 14,700	$ 7,350	$ 25,000	$ -
Training - Admin Days, Fall Conference	$ 16,500	$ 16,500		$ 10,500	$ 1,668	$ -	$ -
Public Relations	$ 15,000	$ 15,000		$ 10,000	$ 2,172	$ -	$ -
Technical Supplies and Equipment	$ 15,000	$ 15,000		$ 15,000	$ 7,165	$ -	$ -
Legal Representation	$ 45,000	$ 15,000		$ 15,000	$ 1,288	$ -	$ -
Texting Language Interpretation Services	$ 5,000	$ 5,000		$ 5,000	$ -	$ -	$ -
Total	$ 10,549,750	$ 8,465,200	$ 4,644,208	$ 11,796,104	$ 4,908,291	$ 15,913,204	$ 6,978,739
Budget Authority	$ 10,500,000	$ 10,500,000		$ 15,700,000		$ 17,700,000	

Appendix B-3

Revenues	2016	2017	2018 (Projected)	2019	2020	2021	2022	2023
State Fund (Service Provider Fees)	19,481,449	20,983,572	21,023,643	21,023,643	21,023,643	21,023,643	21,023,643	21,023,643
Grant Fund (Prepaid Wireless Fees)	1,650,331	1,916,780	1,916,781	1,916,781	1,916,781	1,916,781	1,916,781	1,916,781
PSAP Per-Seat Payments		2,206,535	3,238,054	3,549,668	3,549,668	3,549,668	3,549,668	3,549,668
Interest Income on Funds	11,220	97,129	80,000	80,000	80,000	80,000	80,000	80,000
Total	$21,143,000	$25,204,016	$26,258,478	$26,570,092	$26,570,092	$26,570,092	$26,570,092	$26,570,092

December 4, 2018

Legislative Post Audit Committee
Kansas Statehouse
300 SW 10th St
Topeka, KS 66612

Mr. Chairman and Members of the Committee,

We are writing on behalf of the Kansas 911 Coordinating Council ("Council") regarding the five-year audit Report of the Kansas 911 Act. This audit is required by the Act. Having reviewed the Report, we concur with most of the findings. Nevertheless, we welcome the opportunity to clarify some of the points made in the Report. The following table identifies the section of the Report in which we offer additional information.

Sincerely,

Scott Ekberg, Kansas 911 Administrator

Scott.Ekberg@Kansas911.org

Section Title	Page	Information Offered
Executive Summary	5	The Report identifies Kansas as a national leader in NG911 deployment and that the hosted platform is leading edge and one of the most comprehensive solutions in the industry. The Council believes it is equally important to recognize that it is also one of the, if not the most, cost-effective solutions currently deployed in the nation.
Expenditures	6	The Report recommends that the Council implement a practice of requiring the submission of supporting invoices of any expenditures for integrated software solutions. The Council currently contacts the PSAPs regarding these expenditures and requests confirmation that the expenditure is for CAD only. However, the Council concurs that requesting invoices is a better practice and will implement this recommendation in the 2018 Expenditure Report Review Process.
Staffing	6	The Report recommends the addition of a three (3) additional staff to perform work on behalf of the Council. While the Council agrees that additional staffing is necessary, we feel that the addition of a full-time Communications Director is not the most efficient use of funding. We propose that the position be split between management of communications and other assigned administrative tasks for greater cost-benefit.
911 Fee	7	The Report finds that the current level of 911 funding is inadequate to support the sustainment of the statewide call handling system. The Report recommends increasing the fee from our current $0.60 to $1.05 with $0.22 of that fee being directed to the Council for deployment and sustainment. The $1.05 recommendation would provide approximately 4.7% in deployment and sustainment funding, while increasing revenue to the PSAPs by about $8M. The Council believes that a fee of $1.03, with $0.23 directed to the Council is a more effective plan. The $0.23 allotment provides a deployment and sustainment funding level of approximately 5.1% of total revenue over the prior 3 years and would result in total increased revenue for the PSAPs of about $7M. With the elimination of nearly $1M as a result of migrating PSAPs to ESInet, the Council believes that the $1.03 fee increase offers a more equitable outcome. For a program having comparable risk, unknows and uncertainties of leading-edge technology, commercial best practice typically stipulates a 10-15% futures reserve. Either of the

Section Title	Page	Information Offered
		proposed fee increases, Report recommendation or Council proposal, fall well short of best practice.
911 Fee	8	The Report recommends increase in the fee to $1.05, allocation of $0.83 of that to fund PSAP expenditures including an increase to the minimum distribution to $60,000, and allocation of $0.22 to the Deployment and Sustainment Fund We concur with the statements regarding deployment and sustainment funding levels, but believe the funding plan as outlined above, increasing the fee to $1.03, would be more equitable as detailed above page 7.
Evolution to NG911	11	The Report outlines well the evolution to Next Generation 911 (NG911). The Council believes that it would be helpful to include the recently-released NG911 Cost Estimate in the evolution timeline. The current cost estimate for the nationwide migration to NG911 will total between $9.5B and $12.7B. This substantial amount validates the complexity and cost of migrating from the 9-1-1 legacy world to NG911.
State and National Perspective on 911	15	The Report shares the NENA Status of NG911 in Figure 1. The Council believes that Figure 1 is misleading because it is not an accurate depiction of the transitional process of NG911. That is, NG911 is a developing technology and no State can declare that they are fully implemented. The NENA map depicts the individual reporter's definition of "fully implemented". If the definition of "fully implemented" is that calls are delivered to the PSAPs in an all-IP environment, then Kansas should be bright green on this map.
Importance of Cybersecurity	23	The Report identifies seven (7) valid recommendations of the Department of Homeland Security (DHS). The Council agrees that cybersecurity is a critical area of concern for NG911 networks. However, since the Report does not evaluate Kansas against these seven attributes, the Council is concerned that readers may be left with the false impression that Kansas has not adequately addressed cybersecurity. In fact, the Council: • addressed cybersecurity as early as 2013 during our engineering assessment and trade study • we revisit cybersecurity at least annually.

Section Title	Page	Information Offered
Adopt a "security first" perspective	23	The Report cites the DHS position of adopting a "security first" perspective. The Council has already adopted a "security first" position: • December 2013. Council conducted first-look assessment of cybersecurity vulnerability and concerns of various network architectures. • June 2014. Council finalized "*Infrastructure RFP Specification*" includes security. • March 2015. Council published "*Kansas 911 Whitepaper: information security policy*" based on several policies of the SANS Institute. The SANS Institute is the most trusted resource for security certifications and research. • April 2015. Council chartered our Security Subcommittee, a team of some 17 information and network security professionals that evaluate and review the KS Hosted service model for compliance with relevant security standards and guidelines. • August 2015. Prior to going live with the Kansas Hosted system, the Council adopted our Security Governance Policy to establish security practices and procedures for the hosted system. • September 2016. Council released our "*Kansas NG911 Cybersecurity Position Paper*" an in-depth assessment of NG911 infrastructure security. • Our Security Subcommittee meets quarterly including an annual Infrastructure Security Audit Review. • New functionality such as IP connectivity to call logging recorders has not been allowed on our closed system. Pending a full vetting of the security practices required to safely allow this connectivity, our policy remains unchanged.
Leverage historically-successful cybersecurity strategies	24	The Report cites the DHS position of leveraging historically-successful cybersecurity strategies. The Council has already adopted a historically-successful strategy. In addition to our researching available references and resources mentioned above page 23, our Security Subcommittee has extensively reviewed multiple cybersecurity frameworks and questioned AT&T regarding the applicability of these frameworks in the AT&T security environment. *It is essential to understand that the statewide call handling system is purchased as a service from AT&T. Ownership, management, and all*

Section Title	Page	Information Offered
		equipment are the property and responsibility of AT&T including cybersecurity.
Establish a CSIRT or reach an agreement with US-CERT to assist in carrying out cybersecurity planning	24	The Report cites the DHS position of establishing a CSIRT or US-CERT to assist cybersecurity planning. The Council supports establishing a CSIRT to assist with cybersecurity planning. In fact, because of the advanced nature of our NG911 solution, the Council has already been identified for a DHS-OEC pilot project creating a 911 Security Operations Center (SOC). In the interim, our security policy sets out the response procedure to report and evaluate any perceived or real security breach or incident. Any and all such reports are tracked and managed through to their acceptable event closure.
Establish a cybersecurity risk framework	24	The Report cites the DHS position of establishing a cybersecurity risk framework. The Council has established a cybersecurity risk framework: • June 2016. Our Security Subcommittee reviewed a variety of security frameworks including the National Institute of Standards and Technology (NIST) Cybersecurity Reliability and Interoperability, Cloud Security Alliance and others. • September 2016. Our Security Subcommittee released our "*Kansas NG911 Cybersecurity Position Paper*" that discussed the incorporation of critical elements of these frameworks into the statewide system service model. The specific design and architecture of the Kansas hosted system dictates the applicable nature of many of these elements within the standards, guidelines, policies and recommendations. • The Security Subcommittee is not in position to dictate policy to our NG911 Infrastructure provider. However, the subcommittee does establish expectations of due-diligence on behalf of the Council.
Identify, evaluate, and prioritize risks using a community-based risk assessment process.	24	The Report cites the DHS position of using a community-based risk assessment process. The Council adopted a community-based risk assessment process in February 2015: • Our 17-member Security Subcommittee revisits cybersecurity-related issues on a quarterly basis including an annual infrastructure security audit review. • Council members of our Security Subcommittee have signed Non-Disclosure Agreements (NDAs) with our Provider AT&T to review and assess the comprehensive security audit performed in 2017.

Section Title	Page	Information Offered
		• This audit was conducted by our Provider AT&T Cybersecurity Group, which ranks in the top-2 cybersecurity companies in the world (IBM being the other). Dan Zeiller, Senior Cybersecurity Specialist, Motorola, provided an in-depth assessment of our Motorola-Airbus call handling solution. While this security audit revealed suggestions that could be addressed in the way the hosted system was set up, no essential security concerns were identified. • Since all network platforms change over time, we have scheduled another planned meeting with our Provider AT&T (service provider) and the Cybersecurity subcommittee, January 2019 to review the latest network architecture and educate new Security Subcommittee members on the network layout and especially review the few restricted ingress and egress points of the network.
Develop mitigations	24	The Report cites the DHS position of developing mitigation strategies. The Council revisits cybersecurity mitigation strategies quarterly including our annual infrastructure security audit review. It is important to understand that the current NG911 call handling network is a closed network. All interconnections to vendors and service personnel are conducted through a VPN tunnel to firewall devices. No internet connectivity is allowed at the PSAP level. Therefore, the threat of malware through text or media is non-existent. While a malicious hyperlink could be texted to a PSAP, the PSAP has no ability to click on that link.
Solidify Response and Recovery actions	25	The Report cites the DHS position to develop incident response and recovery plans, policies and capabilities. The Council has incident management plans, policies and procedures: • November 2015. Our hosted 911 system incident management response methodology was established including security plans and policies. • Of equal or greater importance is the event mitigation strategies that are in place. Specifically, prior to going live on the hosted system, PSAP personnel receive cybersecurity awareness and training on pre-cutover calls. • Our 911 Liaison conducts annual, random site security visits, checks and reviews with the personnel including both physical security and cybersecurity verification. • AT&T 9-1-1 technicians lock down all un-used computer ports to ensure that devices don't get plugged in accidently or intentional and cause the network to become contaminated.

Section Title	Page	Information Offered
		• The Council and our Provider AT&T allow no other vendor devices to have IP two-way traffic on the network to ensure that no security risk is associated with foreign data connections. • Kanas has two APCO events each year where training sessions are provided to PSAP personnel. • AT&T's cybersecurity expert, Pat Robinsion, presented cybersecurity awareness at our Fall APCO, October 2018. • The Council has taken a very proactive approach to ensuring that the integrity of the KS hosted system is maintained.
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Findings and Recommendations #15	98	Deployment and Sustainability Fund. The Council agrees that "Under present fee and funding levels the Council's funds will be entirely depleted by 2020 and the NG911 platform and operations will not be sustainable after that point." The Council will present proposed legislation in the 2019 session to implement this concept.

December 4, 2018

Legislative Post Audit Committee
Kansas Statehouse
300 SW 10th St
Topeka, KS 66612

Mr. Chairman and Members of the Committee,

We are writing on behalf of the Kansas 911 Coordinating Council ("Council") regarding the five-year audit Report of the Kansas 911 Act. This audit is required by the Act. Having reviewed the Report, we concur with most of the findings. Nevertheless, we welcome the opportunity to clarify some of the points made in the Report. The following table identifies the section of the Report in which we offer additional information.

Sincerely,

Scott Ekberg, Kansas 911 Administrator

Scott.Ekberg@Kansas911.org

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Executive Summary	5	The Report identifies Kansas as a national leader in NG911 deployment and that the hosted platform is leading edge and one of the most comprehensive solutions in the industry. The Council believes it is equally important to recognize that it is also one of the, if not the most, cost-effective solutions currently deployed in the nation.
Expenditures	6	The Report recommends that the Council implement a practice of requiring the submission of supporting invoices of any expenditures for integrated software solutions. The Council currently contacts the PSAPs regarding these expenditures and requests confirmation that the expenditure is for CAD only. However, the Council concurs that requesting invoices is a better practice and will implement this recommendation in the 2018 Expenditure Report Review Process.
Staffing	6	The Report recommends the addition of a three (3) additional staff to perform work on behalf of the Council. While the Council agrees that additional staffing is necessary, we feel that the addition of a full-time Communications Director is not the most efficient use of funding. We propose that the position be split between management of communications and other assigned administrative tasks for greater cost-benefit.
911 Fee	7	The Report finds that the current level of 911 funding is inadequate to support the sustainment of the statewide call handling system. The Report recommends increasing the fee from our current $0.60 to $1.05 with $0.22 of that fee being directed to the Council for deployment and sustainment. The $1.05 recommendation would provide approximately 4.7% in deployment and sustainment funding, while increasing revenue to the PSAPs by about $8M. The Council believes that a fee of $1.03, with $0.23 directed to the Council is a more effective plan. The $0.23 allotment provides a deployment and sustainment funding level of approximately 5.1% of total revenue over the prior 3 years and would result in total increased revenue for the PSAPs of about $7M. With the elimination of nearly $1M as a result of migrating PSAPs to ESInet, the Council believes that the $1.03 fee increase offers a more equitable outcome. For a program having comparable risk, unknows and uncertainties of leading-edge technology, commercial best practice typically stipulates a 10-15% futures reserve. Either of the

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911 Fee	8	The Report recommends increase in the fee to $1.05, allocation of $0.83 of that to fund PSAP expenditures including an increase to the minimum distribution to $60,000, and allocation of $0.22 to the Deployment and Sustainment Fund We concur with the statements regarding deployment and sustainment funding levels, but believe the funding plan as outlined above, increasing the fee to $1.03, would be more equitable as detailed above page 7.
Evolution to NG911	11	The Report outlines well the evolution to Next Generation 911 (NG911). The Council believes that it would be helpful to include the recently-released NG911 Cost Estimate in the evolution timeline. The current cost estimate for the nationwide migration to NG911 will total between $9.5B and $12.7B. This substantial amount validates the complexity and cost of migrating from the 9-1-1 legacy world to NG911.
State and National Perspective on 911	15	The Report shares the NENA Status of NG911 in Figure 1. The Council believes that Figure 1 is misleading because it is not an accurate depiction of the transitional process of NG911. That is, NG911 is a developing technology and no State can declare that they are fully implemented. The NENA map depicts the individual reporter's definition of "fully implemented". If the definition of "fully implemented" is that calls are delivered to the PSAPs in an all-IP environment, then Kansas should be bright green on this map.
Importance of Cybersecurity	23	The Report identifies seven (7) valid recommendations of the Department of Homeland Security (DHS). The Council agrees that cybersecurity is a critical area of concern for NG911 networks. However, since the Report does not evaluate Kansas against these seven attributes, the Council is concerned that readers may be left with the false impression that Kansas has not adequately addressed cybersecurity. In fact, the Council: • addressed cybersecurity as early as 2013 during our engineering assessment and trade study • we revisit cybersecurity at least annually.

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Adopt a "security first" perspective	23	The Report cites the DHS position of adopting a "security first" perspective. The Council has already adopted a "security first" position: • December 2013. Council conducted first-look assessment of cybersecurity vulnerability and concerns of various network architectures. • June 2014. Council finalized "*Infrastructure RFP Specification*" includes security. • March 2015. Council published "*Kansas 911 Whitepaper: information security policy*" based on several policies of the SANS Institute. The SANS Institute is the most trusted resource for security certifications and research. • April 2015. Council chartered our Security Subcommittee, a team of some 17 information and network security professionals that evaluate and review the KS Hosted service model for compliance with relevant security standards and guidelines. • August 2015. Prior to going live with the Kansas Hosted system, the Council adopted our Security Governance Policy to establish security practices and procedures for the hosted system. • September 2016. Council released our "*Kansas NG911 Cybersecurity Position Paper*" an in-depth assessment of NG911 infrastructure security. • Our Security Subcommittee meets quarterly including an annual Infrastructure Security Audit Review. • New functionality such as IP connectivity to call logging recorders has not been allowed on our closed system. Pending a full vetting of the security practices required to safely allow this connectivity, our policy remains unchanged.
Leverage historically-successful cybersecurity strategies	24	The Report cites the DHS position of leveraging historically-successful cybersecurity strategies. The Council has already adopted a historically-successful strategy. In addition to our researching available references and resources mentioned above page 23, our Security Subcommittee has extensively reviewed multiple cybersecurity frameworks and questioned AT&T regarding the applicability of these frameworks in the AT&T security environment. *It is essential to understand that the statewide call handling system is purchased as a service from AT&T. Ownership, management, and all*

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		equipment are the property and responsibility of AT&T including cybersecurity.
Establish a CSIRT or reach an agreement with US-CERT to assist in carrying out cybersecurity planning	24	The Report cites the DHS position of establishing a CSIRT or US-CERT to assist cybersecurity planning. The Council supports establishing a CSIRT to assist with cybersecurity planning. In fact, because of the advanced nature of our NG911 solution, the Council has already been identified for a DHS-OEC pilot project creating a 911 Security Operations Center (SOC). In the interim, our security policy sets out the response procedure to report and evaluate any perceived or real security breach or incident. Any and all such reports are tracked and managed through to their acceptable event closure.
Establish a cybersecurity risk framework	24	The Report cites the DHS position of establishing a cybersecurity risk framework. The Council has established a cybersecurity risk framework: • June 2016. Our Security Subcommittee reviewed a variety of security frameworks including the National Institute of Standards and Technology (NIST) Cybersecurity Reliability and Interoperability, Cloud Security Alliance and others. • September 2016. Our Security Subcommittee released our "*Kansas NG911 Cybersecurity Position Paper*" that discussed the incorporation of critical elements of these frameworks into the statewide system service model. The specific design and architecture of the Kansas hosted system dictates the applicable nature of many of these elements within the standards, guidelines, policies and recommendations. • The Security Subcommittee is not in position to dictate policy to our NG911 Infrastructure provider. However, the subcommittee does establish expectations of due-diligence on behalf of the Council.
Identify, evaluate, and prioritize risks using a community-based risk assessment process.	24	The Report cites the DHS position of using a community-based risk assessment process. The Council adopted a community-based risk assessment process in February 2015: • Our 17-member Security Subcommittee revisits cybersecurity-related issues on a quarterly basis including an annual infrastructure security audit review. • Council members of our Security Subcommittee have signed Non-Disclosure Agreements (NDAs) with our Provider AT&T to review and assess the comprehensive security audit performed in 2017.

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		• This audit was conducted by our Provider AT&T Cybersecurity Group, which ranks in the top-2 cybersecurity companies in the world (IBM being the other). Dan Zeiller, Senior Cybersecurity Specialist, Motorola, provided an in-depth assessment of our Motorola-Airbus call handling solution. While this security audit revealed suggestions that could be addressed in the way the hosted system was set up, no essential security concerns were identified. • Since all network platforms change over time, we have scheduled another planned meeting with our Provider AT&T (service provider) and the Cybersecurity subcommittee, January 2019 to review the latest network architecture and educate new Security Subcommittee members on the network layout and especially review the few restricted ingress and egress points of the network.
Develop mitigations	24	The Report cites the DHS position of developing mitigation strategies. The Council revisits cybersecurity mitigation strategies quarterly including our annual infrastructure security audit review. It is important to understand that the current NG911 call handling network is a closed network. All interconnections to vendors and service personnel are conducted through a VPN tunnel to firewall devices. No internet connectivity is allowed at the PSAP level. Therefore, the threat of malware through text or media is non-existent. While a malicious hyperlink could be texted to a PSAP, the PSAP has no ability to click on that link.
Solidify Response and Recovery actions	25	The Report cites the DHS position to develop incident response and recovery plans, policies and capabilities. The Council has incident management plans, policies and procedures: • November 2015. Our hosted 911 system incident management response methodology was established including security plans and policies. • Of equal or greater importance is the event mitigation strategies that are in place. Specifically, prior to going live on the hosted system, PSAP personnel receive cybersecurity awareness and training on pre-cutover calls. • Our 911 Liaison conducts annual, random site security visits, checks and reviews with the personnel including both physical security and cybersecurity verification. • AT&T 9-1-1 technicians lock down all un-used computer ports to ensure that devices don't get plugged in accidently or intentional and cause the network to become contaminated.

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Findings and Recommendations #13	97	Budgeting of Revenues. The Council agrees and is taking steps to include budgeting of revenues in our annual budget 2019. As a part of this change, we will be restructuring our budget document in its entirety.
Findings and Recommendations #14	97	Adequacy of 911 Fee. The Council agrees that the current fee is inadequate to deploy, operate and sustain our Statewide solution. The proposed fee increase is conservative. The Council believes that a fee of $1.03, with $0.23 directed to the Council is a more effective plan. The $0.23 allotment provides a deployment and sustainment funding level of approximately 5.1% of total revenue over the prior 3 years and would result in total increased revenue for the PSAPs of about $7M. With the elimination of nearly $1M as a result of migrating PSAPs to ESInet, the Council believes that the $1.03 fee increase offers a more equitable outcome. For a program having comparable risk, unknows and uncertainties of leading-edge technology, commercial best practice typically stipulates a 10-15% futures reserve. Either of the proposed fee increases, Report recommendation or Council proposal, fall well short of best practice

Section Title	Page	Information Offered
Findings and Recommendations #15	98	Deployment and Sustainability Fund. The Council agrees that "Under present fee and funding levels the Council's funds will be entirely depleted by 2020 and the NG911 platform and operations will not be sustainable after that point." The Council will present proposed legislation in the 2019 session to implement this concept.