



MissionCriticalPartners

Because the Mission Matters

**Next Generation 9-1-1
Strategic Plan**

Final Report

PREPARED AUGUST 2022 FOR
OKLAHOMA 9-1-1 MANAGEMENT AUTHORITY

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Introduction

In 2016, passage of House Bill (HB) 3126, the Oklahoma 9-1-1 Management Authority Act, increased phone fees for 9-1-1, created the Oklahoma 9-1-1 Management Authority (OK911MA), and provided additional support from the State government to OK911MA, which included a paid state 9-1-1 coordinator¹. The 9-1-1 coordinator's office oversees the development and operation of emergency 9-1-1 systems within the state of Oklahoma (state – geographically) and is responsible for implementing a plan to standardize the way 9-1-1 is administered and managed with the State.

In 2021, passage of Senate Bill (SB) 687 amended the Oklahoma 9-1-1 Management Authority Act to update and clarify the authority of OK911MA. This legislation directed OK911MA to create a statewide master plan for the transition to Next Generation 9-1-1 (NG9-1-1), including establishing rules for interoperability between NG9-1-1 systems. It also requires local NG9-1-1 plans to align with the statewide plan. OK911MA has the authority to oversee all 9-1-1 fees collected, and to direct the Oklahoma Tax Commission to escrow funds if an agency fails to provide connectivity between available next-generation systems.²

OK911MA supports 9-1-1 operations within the 77 counties of Oklahoma, which are regionalized into 11 councils of government (COGs). Three of the 11 COGs actively provide support for 9-1-1 services in their region. Currently, there are 126 local and county primary public safety answering points (PSAPs), eight secondary PSAPs, and multiple standalone emergency communications centers (ECCs) operating across the state. The standalone ECCs handle emergency calls for local police and fire, state parks, lakes, waterways, military bases, and certain restricted tribal properties.

During the past three years, OK911MA has gained baseline knowledge via data gathering and an NG9-1-1 Feasibility Study to assist in building Oklahoma's strategic plan for the transition to NG9-1-1. This strategic plan—a roadmap—will guide OK911MA for the next three to five years as it transitions to NG9-1-1. The initiatives and supporting actions in this plan will support OK911MA's vision to ensure all public safety entities have equal access to emerging technologies to deliver efficient, reliable public safety response to best serve all communities within Oklahoma.

OK911MA Overview

OK911MA is authorized for three full-time equivalent (FTE) positions, which include a 9-1-1 coordinator, a grants and compliance officer, and an administrative assistant. The Oklahoma 9-1-1 Management Authority Act provides for OK911MA to direct distribution of 9-1-1 fees to the state's PSAPs, to ensure PSAP compliance with public safety standards, and to administer grants to the PSAPs for upgrading technology.

¹ Oklahoma 9-1-1 Management Authority History of the Authority, https://www.ok.gov/911/About_Us/History/index.html

² http://webserver1.lsb.state.ok.us/cf_pdf/2021-22%20SUPPORT%20DOCUMENTS/BILLSUM/House/SB687%20ENGR%20BILLSUM.PDF

Oklahoma Administrative Rules, Title 145, Chapter 15³ provide the guidelines for OK911MA operation. The administrative rules describe three standing committees and authorize ad hoc committees established by the chair or by majority vote of OK911MA. Committees are chaired by a member of the OK911MA Board and consist of volunteer members with 9-1-1 experience approved by OK911MA.

The standing committees are:

- Administrative committee for oversight of rules, finance and funding, grant distribution, audits, and PSAP annual reports. The Grant Review committee, a subcommittee of the Administrative committee, is responsible for evaluating grant applications and making funding recommendations to the OK911MA Board.
- Technical committee for developing a plan to deploy NG9-1-1, conducting inventory of 9-1-1 infrastructure, recommending 9-1-1 equipment standards for competitive procurement, identifying call routing and networks in use by PSAPs, developing model plans for sharing of equipment and technology, and identifying governmental and industry programs and standards beneficial for statewide NG9-1-1. The OK911MA GIS subcommittee, comprised of 9-1-1 geographic information system (GIS) professionals and other GIS stakeholders in the state, provides GIS standards guidance and input on OK911MA GIS projects such as education, training, the GIS repository, and GIS workflow processes related to 9-1-1.
- Operations committee for developing training program standards for 9-1-1 call-takers, developing best practices for PSAP operations, recommending improvement plans for underperforming PSAPs, and creating a guide for statewide coverage and interoperability between PSAPs.

The Legislative committee is an ad hoc committee that follows 9-1-1 legislation and builds relationships with State legislators for the purpose of educating and advocating for 9-1-1 and working on projects such as funding for NG9-1-1.

OK911MA's Advancement Towards NG9-1-1

Next Generation 9-1-1 Feasibility Study

Even before the passage of SB 687, which directed OK911MA to develop a statewide master plan for the transition to NG9-1-1, its 9-1-1 Office was focused on understanding the state's capacity for NG9-1-1. In 2019, OK911MA contracted with Mission Critical Partners, LLC (MCP) to conduct a feasibility study on the implications, costs, and considerations of implementing NG9-1-1. The feasibility study report was prepared after 14 months of work and delivered to OK911MA on August 27, 2020.

³ [https://www.ok.gov/911/documents/Emergency_Rule_Document_\(EME\).pdf](https://www.ok.gov/911/documents/Emergency_Rule_Document_(EME).pdf)

The report identified seven focus areas for the state, analyzed study findings, and offered suggestions for each area. A master recommendations table summarized the recommendations and considerations for the State's next steps toward NG9-1-1. The feasibility study called for additional staffing for the 9-1-1 Office and suggested the State consider network availability, deployment options, and call-handling equipment (CHE) status before more detailed technology recommendations would be made. Appendix A contains the feasibility study's master recommendations table and accomplishments regarding the recommendations.

Facilitated Strategic Planning

OK911MA and the Technical committee identified the need to bring in an independent third party to assist in creating an NG9-1-1 Strategic Plan. MCP was subsequently hired and facilitated a strategic planning meeting with key stakeholders on January 7, 2022. Participants included OK911MA staff and stakeholders who represented Oklahoma 9-1-1 and GIS communities.

During the meeting, MCP helped the group develop options for a vision and mission statement to guide Oklahoma in its transition to NG9-1-1. After brainstorming options, attendees agreed to an online voting mechanism to adopt the final vision and mission statements.

OK911MA Vision and Mission

Oklahoma 9-1-1 Management Authority Vision

Ensure all public safety entities have equal access to emerging technologies in order to receive and deliver reliable and consistent 9-1-1 service across Oklahoma from all communication methods.

Oklahoma 9-1-1 Management Authority Mission

Provide focused leadership to empower local 9-1-1 authorities by educating, training, advocating, and guiding a statewide transition to emerging 9-1-1 emergency services including strategic planning, sustainable funding, and a focused move to new technologies and empower local 9-1-1 authorities to use emergency technologies to provide the highest level of 9-1-1 service available to benefit first responders, the public, and visitors of Oklahoma.

OK911MA Strategic Initiatives

During the January meeting, MCP led the group through the strategic planning process using the "gameboard" methodology to compile a list of strategic initiatives. This method helps groups define the

current state, desired future state, case for change, barriers to success, and strategy(ies) to complete the transition to NG9-1-1.

The stakeholders agreed during the meeting to rank the strategic initiatives to establish their priorities. This was conducted via an online voting mechanism, giving each attendee the opportunity to provide their perspective on the criticality of each initiative. Those strategic initiatives combined with the recommendations from the feasibility study are the baseline for this strategic plan to advance NG9-1-1 in Oklahoma.

Each initiative and corresponding action within this plan will serve as a roadmap for the organization's evolution towards end-state NG9-1-1. In many cases, the transition to the NG9-1-1 end-state is an iterative process where technical and operational needs are intertwined and must be addressed in parallel. It may take years to make the full transition to National Emergency Number Association (NENA) i3⁴-compliant NG9-1-1 and, in some cases, will require technology or compliance outside OK911MA's sphere of influence.

As OK911MA moves forward with planning and implementing NG9-1-1, priorities may shift based on accomplished milestones and technology advancements in the industry. As that work progresses, these strategic initiatives should be reviewed regularly.

The strategic initiatives/actions identified and chosen by OK911MA staff and stakeholders are listed below and ranked in the order of tasks to begin first.

⁴ [NENA i3 Solution - Stage 3 - National Emergency Number Association](#)

Strategic Initiative #1

- Create an NG9-1-1 transition plan

Strategic Initiative #2

- Amend legislation

Strategic Initiative #3

- Sustainable funding strategy

Strategic Initiative #4

- Formal documented stakeholder communications plan

Strategic Initiative #5

- Develop and review 9-1-1-related best practices, standards, and policies regularly

Strategic Initiative #6

- OK911MA guidance and education to local 9-1-1 authorities, including NG9-1-1 implementation plans for local 9-1-1 authorities

Strategic Initiative #7

- Procure next generation core services (NGCS) and Emergency Services Internet Protocol (IP) network (ESInet)

Strategic Initiative #8

- Statewide NG9-1-1 PSAP cutover plan

Strategic Initiative #9

- Strategy for more OK911MA staff to optimize the workforce for the transition

Strategic Initiative #10

- 9-1-1 coordinator leadership development plan

Strategic Initiative #11

- Continue work to meet the NG9-1-1 GIS plan for the state

Strategic Initiative #12

- Develop a strategic plan to ensure new technologies and operational strategies are reviewed and adopted as needed

The strategic initiatives were grouped into six focus areas: governance, planning, and policy; communications; technology; GIS; funding; and operations and training.

Table 1: OK911MA NG9-1-1 Focus Areas, Initiatives, Actions

Focus Area	Initiatives	Actions
Governance, Planning & Policy	Create an NG9-1-1 Transition Plan	<ul style="list-style-type: none"> • Transition plan to provide directions for achieving the mission and vision; include elements from all initiatives • Contingency plans to ensure and encourage 100% adoption of NG9-1-1 across Oklahoma • Plan for incorporation of non-primary ECCs
	Develop a Strategic Plan	<p>A strategic plan will:</p> <ul style="list-style-type: none"> • Provide guidance for the next three to five years • Identify initiatives to guide the transition to NG9-1-1 • Help prioritize the work needed to realize OK911MA's vision
	Amend legislation	<ul style="list-style-type: none"> • Update current 9-1-1 legislation to support NG9-1-1 requirements
	Develop NG9-1-1 policies, best practices, and standards	<ul style="list-style-type: none"> • Develop NG9-1-1 policies, best practices, and standards that are adopted, reviewed, and updated regularly • Strategic plan to ensure new technologies and operational strategies are reviewed and adopted as needed
Communications	Formal documented stakeholder communications plan	<p>Plan to include:</p> <ul style="list-style-type: none"> • Educational campaign for all stakeholders, including elected officials • Strategy to garner advocates for the transition to NG9-1-1 from public safety partners and providers • Develop contingency plans to educate statewide stakeholders with the goal of 100% adoption of NG9-1-1 across Oklahoma
	NG9-1-1 implementation guidance	<ul style="list-style-type: none"> • Develop implementation plan template for local 9-1-1 authorities
Technology	Procure NGCS and ESInet	<ul style="list-style-type: none"> • ESInet acquisition and deployment strategy • NGCS planning • CHE compatibility and deployment models

Focus Area	Initiatives	Actions
	Statewide NG9-1-1 PSAP cutover plan	<ul style="list-style-type: none"> • Determine the order of cutover by identifying and ranking success factors • Establish contingency plans in the event that cutover factors change
GIS	Continue work to meet NG9-1-1 GIS plan for the State	Rollout GIS training for local leadership <ul style="list-style-type: none"> • Educate local areas on the need for GIS data for NG9-1-1 • Annual review of Oklahoma GIS standards for alignment to NENA standards and National 911 Program best practices • Annual progress report for GIS plan for NG9-1-1 • Improve the State's GIS readiness rating on data maintenance and jurisdictional boundaries • Upload more PSAP data to the State GIS repository
Funding	Develop a sustainable funding strategy	<ul style="list-style-type: none"> • Conduct NG9-1-1 funding study • Create a sustainable funding model for the transition to and sustainability of NG9-1-1
Operations & Training	Develop a strategy for additional OK911MA personnel	<ul style="list-style-type: none"> • Identify additional OK911MA office resources needed for the transition to NG9-1-1 • Develop a strategy to obtain resources for the transition
	Leadership development	<ul style="list-style-type: none"> • 9-1-1 coordinator leadership development plan



Proper governance, planning, and policies are critical components of a successful transition from legacy 9-1-1 to NG9-1-1. Governance, planning, and policies establish a path to success and a baseline for how to navigate the path. Without them, every aspect of the transition faces increased risks. A strategic plan aligns with OK911MA's strategic initiatives and identifies the activities needed to accomplish a successful transition, while the implementation/transition plan details who will be responsible for those activities, and the how, where, and when they will be done to accomplish the vision and mission for the future.

Priority



Governance, planning, and policies are critical to a successful NG9-1-1 transition.

Initiatives

1.1 Develop a Strategic Plan

A strategic plan will guide OK911MA for the next three to five years as it transitions to NG9-1-1. The initiatives and supporting actions in this plan will support OK911MA's vision to ensure all public safety entities have equal access to emerging technologies.

1.2 Amend Legislation

While Oklahoma Senate Bill 687 moved the State toward NG9-1-1 planning, current Oklahoma legislation for 9-1-1 services focuses on details for a legacy 9-1-1 environment. It does not address funding, implementation, or oversight for the transition from a legacy PSAP to an NG9-1-1 PSAP, although it gives OK911MA the responsibility for the NG9-1-1 master plan and for establishing rules for interoperability between the PSAPs within Oklahoma. The National 911 Program's legislation recommendations would be a desirable basis for the legislative updates that Oklahoma will need to make to support an NG9-1-1 transition and implementation. Many of these are listed in the feasibility study report mentioned previously.

The interoperability and interconnected nature of NG9-1-1 will require updates to old legislation for the transition to and maintenance of NG9-1-1. Specific technologies are required for NG9-1-1 to work with other 9-1-1 technologies in the PSAPs. This means that local authorities will need guidance to procure and replace equipment that maintains interoperability with the rest of Oklahoma's community of 9-1-1 providers. New operational strategies for interoperability will be needed and may require legislative direction.

The transition will require funding for procurement and deployment of these new technologies and for continued payment of legacy services while the transition occurs. Consideration should be given to those items that can be a one-time purchase using capital funds or grant money and those recurring items, which will need a sustainable funding source. Some local agencies will be burdened without monetary support of some kind. A cost estimate by PSAP and for statewide transition/operation will be necessary to determine

what funding is needed and how to fund the one-time and recurring costs. This will likely involve a legislative interim study to quantify the costs and gather support for changes to existing legislation.

1.3 Create an NG9-1-1 Transition Plan

The transition plan defines the details of the State's master plan for the transition to and implementation of NG9-1-1. It will include elements from all initiatives and strategies for governance, planning, and policy. Regular review of the plan keeps the initiatives fresh and forward-looking. A group within OK911MA should be tasked with ensuring new technologies and operational strategies are regularly reviewed and adopted when prudent.

The transition plan will include an implementation plan template for local 9-1-1 authorities to use and customize for their specific needs in connecting to the statewide NG9-1-1 platform. The implementation plan will show what and when each step toward the transition will happen and how processes, procedures, resources, and equipment will change.⁵ It will identify who will make the changes and when they will be completed along with how to measure success. It will be specific to those items needed by the local authority and align with the overall master plan for Oklahoma NG9-1-1.

The transition plan will include a risk assessment to identify the potential for reduced success and contingency plans to mitigate the risk and encourage 100% adoption of NG9-1-1 across Oklahoma in the event of the slow adoption of NG9-1-1. Plans can include a combination of strategies such as interoperability policies and communications plans. Stakeholder communication focused on listening, informing, and persuading those impacted by NG9-1-1 will increase awareness and acceptance. The transition plan should include an impact study for incorporating non-primary ECCs into the NG9-1-1 platform so that Oklahomans using state parks, waterways, and lakes or on military bases or restricted tribal territory will receive the same benefits of NG9-1-1 interoperation that the 126 state PSAPs will have.

1.4 Develop NG9-1-1 Policies, Best Practices, and Standards

OK911MA's Operations committee is tasked with developing policies, best practices, and standards for PSAPs and recommending improvement plans for underperforming PSAPs. Logically, this committee would be the group to develop and/or recommend NG9-1-1 statewide policies, standards, and best practices for PSAPs.

OK911MA's Technology committee will be instrumental in developing technical policies required to guide the transition to NG9-1-1. For example, an essential policy will be one to identify the standards for the interoperability of NG9-1-1 equipment and services as well as interconnectivity between regional ESInets and the state ESInet.

An OK911MA interconnectivity policy can provide local authorities with baseline technical requirements for a connection to the State's ESInet. This policy should identify points of interconnection and describe how calls are expected to be delivered to the state ESInet as detailed in [NENA-STA-010.3b-2021](#) with emphasis on its ESInet and inter-ESInet transfers.

⁵ <https://www.isixsigma.com/implementation/implementation-plan-getting-beyond-quick-fix/>

An NG9-1-1 interoperability policy will identify the applicable i3 standards and security standards to be followed and delineate responsibilities for connecting to the statewide system. An interconnection policy would establish minimum security requirements to follow in connecting to the statewide ESInet and for CHE connecting to the local authority's ESInet.

These security and cybersecurity plans will need to meet State requirements and be based on National Institute of Standards and Technology (NIST) and International Organization for Standardization (ISO) standards. Compliance with NENA standards, including NENA-STA-010.3-2021 and all applicable Alliance for Telecommunications Industry Solutions (ATIS), Internet Engineering Task Force (IETF), and 3rd Generation Partnership Project (3GPP) specifications should also be included.

Both committees would be charged with the regular review of existing policies and bringing new policies, standards, and best practices to the full OK911MA Board for adoption. A permanent full-time resource in the 9-1-1 Office would be a valuable means of ensuring this endeavor receives the regular review it requires to be successful. This position would monitor best practices and standards from standards-based organizations like NENA and the Association of Public-Safety Communications Officials (APCO) International, and the National 911 Program for NG9-1-1 service delivery, and ensure that PSAP needs are being met by policy and practice standards.



Communication is one of the simplest and least utilized tools for success during times of change. Frequent communication enhances trust, builds relationships, and helps stakeholders lend a voice to a conversation, leading to greater understanding, support, and buy-in on critical initiatives.

Priority



Communications is essential to raise awareness of the benefits of NG9-1-1 and the need to adequately fund the transition.

Initiative

2.1 Formal Documented Stakeholder Communications Plan

OK911MA and the key stakeholder group identified the need to create a formal stakeholder communications plan and process to continue work being done organically and to facilitate the transition to NG9-1-1. A communications plan should identify target audiences, communication methods, timing and frequency of communication, and key messages.

OK911MA stakeholders identified the need for the following elements to be included in the plan:

- Educational campaign for all stakeholders, including elected officials
- Strategy to garner advocates for the transition to NG9-1-1
- Contingency plans to ensure and encourage 100% adoption of NG9-1-1 across Oklahoma

As a part of the communications plan, OK911MA should consider hosting special educational forums throughout the state and publishing a quarterly newsletter. This newsletter will provide updates on the transition to NG9-1-1, the schedule of upcoming meetings or deadlines, challenges OK911MA may be facing, and any industry information that may help educate stakeholders on the benefits of NG9-1-1.

Develop an educational campaign for all stakeholders, including elected officials

Once the formal communications plan is created, OK911MA stakeholders identified the need to create an educational campaign for elected officials at the state, county, and local levels; law enforcement; public safety industry professionals; and PSAPs. It will be important to identify all stakeholders who would benefit from an educational campaign early and determine their specific needs and influence. Anyone impacted by the transition to NG9-1-1 and who has influence on the project must be supported with an educational campaign that can also create project champions. Planning for this should identify the various methods to disseminate campaign materials and the topics specific to each stakeholder group.

A task for OK911MA personnel is to develop and participate in an education roadshow explaining to local authorities what NG9-1-1 is and why it is necessary, as well as what the legislative mandates are concerning the statewide master plan and interoperability between PSAPs. Providing regular communications regarding the NG9-1-1 transition is an important element of the communications plan and may necessitate adding a communications resource to the 9-1-1 Office. This resource will be responsible

for creating the roadshow, executing it, and further developing the OK911MA website to include interactive components and for continued outreach.

Strategy to garner advocates for the transition to NG9-1-1 from public safety partners and providers

Key stakeholders prioritized the need to develop a strategy to identify, recruit, and engage advocates. Advocates are needed within all stakeholder groups to help ensure a smooth and timely transition to NG9-1-1. Each group of advocates will need its own talking points for approaching target audiences. Having a dependable group of advocates may make the difference between a timely statewide deployment of NG9-1-1 versus a piecemeal transition spanning years.

Develop contingency plans to educate statewide stakeholders with the goal of 100% adoption of NG9-1-1 across Oklahoma

The contingency plan is a component of stakeholder identification and assessment as each stakeholder and group are identified and evaluated for how the project will impact them and what information or persuasion they might need to actively support or at least accept the transition to NG9-1-1. It is important to recognize that some stakeholders will have more to lose than gain with the transition and that it might be necessary to acknowledge that and look for areas of compromise or agreement.



The ESInet, NGCS, and CHE are the three vital technology components for any NG9-1-1 system. The strategy that follows will examine how OK911MA can deliver an ESInet and NGCS successfully to all Oklahoma PSAPs and ensure a consistent statewide emergency service experience for all Oklahomans.

Initiatives

3.1 Procure NGCS and ESInet

ESInet acquisition and deployment strategy

OK911MA and its Technology committee may choose to develop a request for proposals (RFP) with stakeholder input that allows the ESInet portion to be evaluated in combination with the NGCS selection or as a standalone offering. The key technical requirements of the ESInet are that it should bring redundant parity using public and private connectivity into currently underserved rural PSAP locations in Oklahoma. The deployment strategy should ensure redundancy exists within the entirety of the physical transport system and not just at deployment edges. In areas where redundancy is not feasible—either by cost or physical limitations of available transport—the best counterweight to ensure full uptime of 9-1-1 for the citizenry of Oklahoma is a well planned and executed policy routing schema.

OK911MA must leverage existing public and private connectivity and continue to include all state broadband providers as potential partners, as it has done previously by inviting OneNet to be a key participant in the due diligence process. While Oklahoma has a long history of local control, the State must also realize the higher cost and ongoing interoperability issues if there are multiple independent ESInet deployments. OK911MA and the local agencies should realize cost savings of scalability by operating one ESInet system.

Enhanced 9-1-1 (E9-1-1) allows locally hosted CHE to provide the highest network reliability at a shared cost. An NG9-1-1 system with a large robust ESInet and carefully planned NGCS policy routing for backup and default profiles provides the greatest resilience regardless of CHE design.

OK911MA will need to work with the awarded ESInet provider to establish a plan that deploys redundant ESInet service capabilities to regions and PSAPs as they prepare to upgrade, realizing that the legacy connectivity will need to be maintained until after the conversion. There is a multitude of private and publicly-owned next generation connectivity available across the state of Oklahoma. OK911MA and its stakeholders will need to work with any awarded ESInet provider to ensure they have access to all connectivity.

Priority



Procure a robust, redundant, i3-compliant ESInet and NGCS that provide reliable emergency services to all Oklahoma PSAPs.

NGCS planning

OK911MA, its stakeholders, and local PSAP authorities need a coordinated approach so NGCS provides the best system for the best price while solidifying successful long-term results. The easiest way to ensure Oklahoma has a technology fit and the most flexibility when choosing an NGCS provider is to have the entire state not currently served by an ESInet/NGCS provider agree to a shared and cost-effective deployment. OK911MA should promote the value this approach will provide to all stakeholders throughout the state. NGCS policy routing adds a flexibility to 9-1-1 operations that has not existed before and is best utilized by PSAPs serviced by the same NGCS Emergency Services Routing Proxy (ESRP)/Policy Routing Function (PRF). Having multiple ESInet/NGCS providers in Oklahoma will lead to increased cost, complex interconnections, less routing flexibility, and duplicated resources. If most stakeholders agree to the one ESInet approach, the next step for OK911MA and its stakeholders is to decide what the future of their NG9-1-1 network looks like.

There are a variety of technologies deployed by NGCS providers today that are NENA i3-compliant. Any one deployment strategy is not better than the other, but the deployment plan needs to align with OK911MA's and a local PSAP's future plans, what it can effectively procure, and what can be sustained and maintained. For example, if OK911MA chooses an NGCS provider that is cloud-based, requiring limited state hardware, it would make sense to consider incorporating a call handling as a service (CHaaS) option for local PSAPs. If OK911MA and its stakeholders seek a more conservative NGCS approach, where the NGCS equipment is locally hosted in the state, then exploring locally hosted CHE in the state data centers may align more closely. While these seem like very different network deployments, the key takeaway for the local PSAP is that either deployment strategy is transparent to them.

OK911MA and its stakeholders should consider the ramifications of one-time costs versus recurring expenses. While a cloud deployment necessitates monthly recurring operational costs, network build-outs require some upfront capital costs. The cost of housing shared hardware in a state data center versus standalone hardware at the PSAP is also a consideration. OK911MA may want to consider whether a cloud-based or locally hosted NGCS system is preferred so vendors will provide the solutions that best align with OK911MA's plans.

Once a direction is established, OK911MA and its stakeholders will need to develop requirements aimed directly at procuring their NGCS partner. The RFP will look different if aiming for a public cloud NGCS provider where nothing is local versus an RFP aimed at an NGCS provider using third-party software on commercial off-the-shelf (COTS) servers. OK911MA does not need to be certain which route it plans to pursue, but having direction allows NGCS providers to tailor their response to what OK911MA needs and what will provide the best overall solution.

While looking for this NGCS core philosophy match, OK911MA and its stakeholders will need to ensure that all potential NGCS providers can successfully continue to provide legacy-based services in the near term to provide seamless working emergency services to PSAPs that may not be prepared to upgrade.

CHE compatibility and deployment models

The CHE in use today in Oklahoma varies in current and future capabilities. There are currently 126 PSAPs across the state, 20 of which are currently being served by the Association of Central Oklahoma

Governments (ACOG) NGCS deployment. All 126 PSAPs are included in the numbers below as OK911MA has jurisdiction. Based on the annual report form submitted to OK911MA for 2020, 62 CHE systems in Oklahoma PSAPs today are NG9-1-1-capable with a software or hardware refresh. There are 60 PSAPs that require hardware replacement to be NG9-1-1-capable and four PSAPs have no CHE. As such, OK911MA will need to plan for legacy gateways in the NGCS procurement.

Oklahoma PSAPs today contain a mix of host-remote and standalone host deployments. There are new options with NG9-1-1 deployment that provide better technological and cost-effective results. In E9-1-1, locally hosted CHE provides a means of continued operations for every scenario except last-mile outages of centralized automatic message accounting (CAMA) trunks. NG9-1-1, with a centrally operated NGCS, will work the same way but instead of complete outages when E9-1-1 CAMA trunks are down the NGCS provides policy routing capabilities that would allow all calls to be answered by anyone, anywhere that is on the same ESInet using the same NGCS. This is an advantage of a unified NG9-1-1 platform.

Local PSAP administrators have control over this policy and the ability to leverage it for rerouting when busy or short-staffed to provide an overall better service to their populations. Current NG9-1-1 deployments are seeing fewer PSAP-hosted CHE solutions and more host-remote and CHaaS CHE solutions. The 62 PSAPs that have NG9-1-1-capable CHE require OK911MA to develop interconnect specifications to ensure interoperability with the chosen NGCS provider if they stay with this configuration. Planning will need to be conducted for interoperability testing between all the unique CHE currently deployed and the chosen NGCS provider whenever new software for either side is implemented. These deployments will need to be tested individually each time a PSAP's CHE or specific NGCS functional elements are upgraded.

The standalone equipment model is not sustainable, and OK911MA should offer incentives for these PSAPs to acquire seats off of a hosted CHE to reduce this overall burden. The 64 PSAPs requiring a CHE hardware or software upgrade should be provided options for purchasing positions off a State contract for hosted CHE (local or CHaaS). This will be the most cost-effective model for the PSAPs and requires the least interoperability testing and maintenance for both the State and the PSAPs.

Ideally, OK911MA would require in an RFP that the NGCS provider have a lab for testing CHE compatibility to ensure its software releases work seamlessly. The State and all stakeholders must have the same logistical plan developed, keeping cost, technology, and speed of planned innovation in mind. Just because the NG9-1-1 CHE and NGCS are i3-capable does not ensure that they will move to new software and technological enhancements at the same pace. This mismatch of technology causes many interoperability issues that are seen in the industry today. Regardless of the NGCS core and CHE plan chosen, it must be a partnership between OK911MA and its stakeholders, and all must agree to be successful.

3.2 Statewide NG9-1-1 PSAP Cutover Plan

OK911MA will need to successfully and efficiently transition the State's legacy PSAPs to NG9-1-1 by determining an optimal order for implementation. Time and money will be factors in planning the deployments as will local volunteers for the transition effort. There are other factors to consider that will necessitate a detailed and well-planned effort by State leadership, local leadership, and NG9-1-1 providers to define the elements of success and agree on a schedule for transition.

A deployment plan should identify and rank the factors for cutover and provide strengths, weaknesses, costs, and other considerations for the various cutover strategies. Cutover order might be driven by selective router locations, regional 9-1-1 service groups, or those PSAPs most technology-ready, best funded, closest access to network connections, or even greatest need. These factors can be prioritized, weighted, and scored to arrive at the “best” cutover plan.

The planning process should have contingencies and incentives in the event of changing factors—funding, equipment and services, and local 9-1-1 authority decisions. Having a response and a fallback position completes the cutover strategy. Fallback responses could include alternative short-term funding sources; backup options for NG9-1-1 equipment and services; incentives for PSAPs to adopt NG9-1-1, such as the ability to designate alternate call routing for overflow calls, PSAP abandonment, and special events; or CHE subsidies.

OKLAHOMA LEGACY E9-1-1 NETWORK

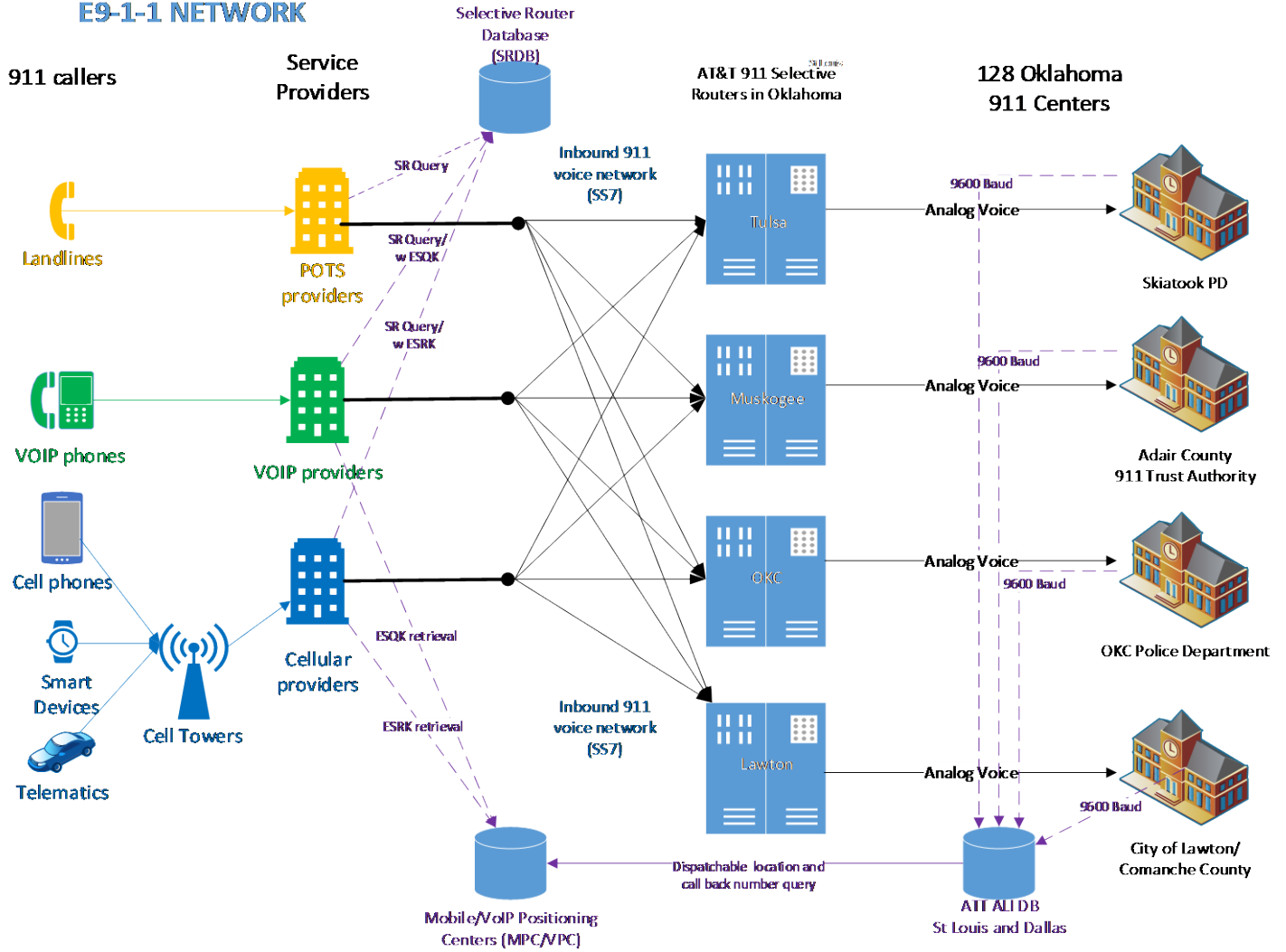


Figure 1: Legacy Network

* 9600 Baud is the speed of the legacy connectivity for providing caller location information.

OKLAHOMA FUTURE NG9-1-1 NETWORK

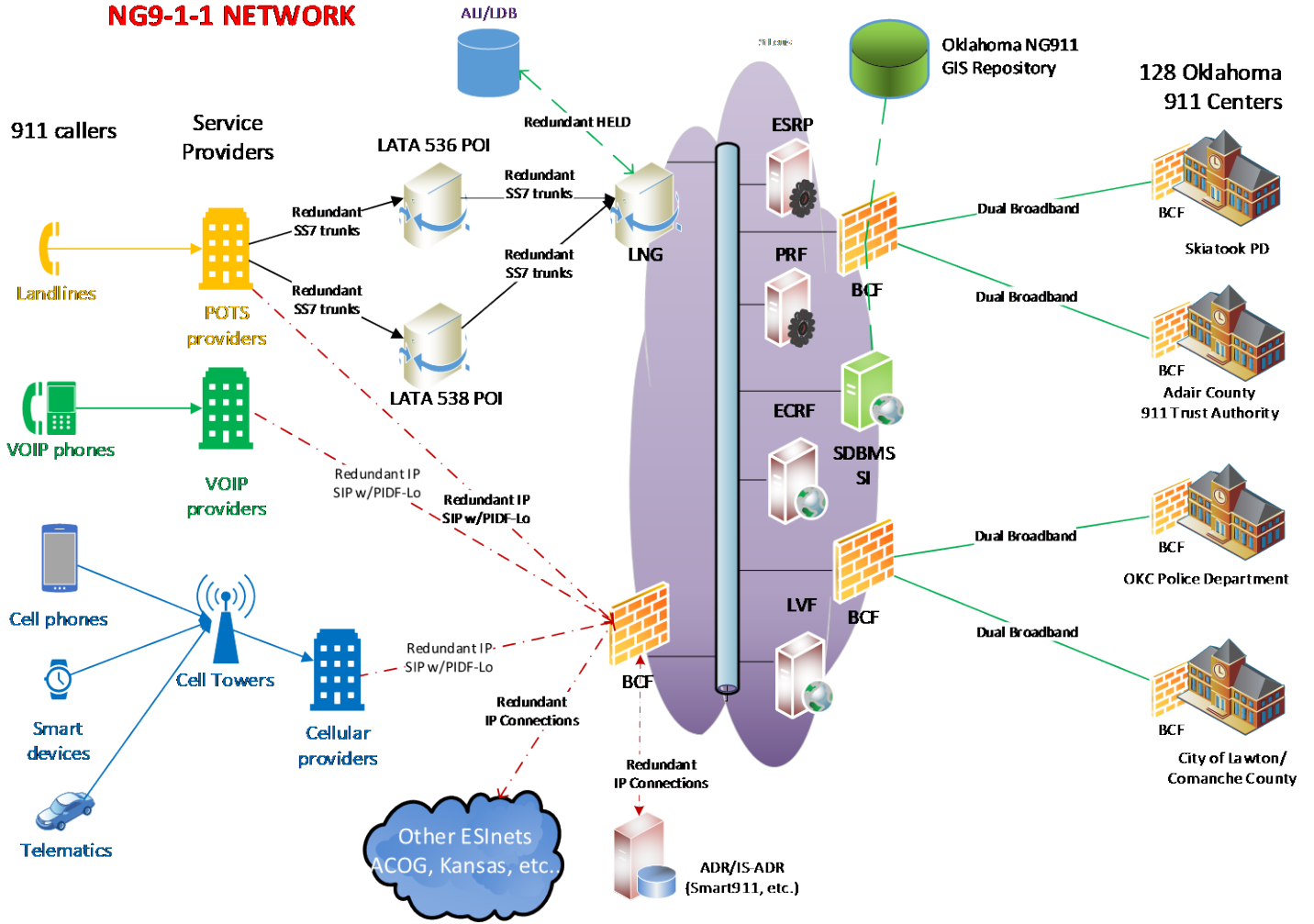


Figure 2: NG9-1-1 Network

Definitions of the acronyms used in the two figures above are provided below.

Abbreviation	Definition
ADR/IS-ADR	Additional Data Repository/Identity Searchable – Additional Data Repository
ALI	Automatic Location Identification
BCF	Border Control Function
E9-1-1	Enhanced 911
ECRF	Emergency Call Routing Function
ESInet	Emergency Services Internet Protocol (IP) Network
ESQK	Emergency Services Query Key
ESRK	Emergency Services Routing Key
ESRP	Emergency Services Routing Proxy
GIS	Geographic Information System
LDB	Location Database
LNG	Legacy Network Gateway
LVF	Location Validation Function
NG9-1-1	Next Generation 911
PIDF-LO	Presence Information Data Format – Location Object
POI	Point of Interconnect
POTS	Plain Old Telephone Service
PRF	Policy Routing Function
SDBMS SI	Spatial Database Management System Spatial Interface
SIP	Session Initiation Protocol
SR Query	Selective Router Query
SS7	Signaling System 7
VoIP	Voice over Internet Protocol



OK911MA has made great strides in preparing Oklahoma jurisdictions to provide the required GIS necessary for a successful NG9-1-1 transition. However, the further implementation of a large-scale, enterprise-wide capability such as geospatial data collection, aggregation, validation, and dissemination will require a tremendous effort through a phased approach, significant stakeholder coordination and collaboration, and adequate and sustained funding streams. To continue building on the successes realized to date, OK911MA will focus on several critical actions within its GIS initiative.

Initiative

4.1 Continue Work on NG9-1-1 GIS Plan for the State

Roll out GIS training for local leadership

Actions will include:

- Adding modules to two levels of training for the State's toolkit
- Creating a training module and materials for 9-1-1 leadership to understand the need for NG9-1-1 GIS-ready data

OK911MA's education campaign will provide details on the need for NG9-1-1-ready data for call routing and location services. This also should include highlighting the benefits of GIS data sharing, open GIS data, and the benefits to NG9-1-1 and emergency response to collaborative GIS data management.

The NG9-1-1 transition plan must include strategies for assisting local authorities with creating and maintaining NG9-1-1 GIS data.

If jurisdictions do not actively develop, maintain, and share the requisite local GIS data, OK911MA should be prepared—and authorized—to hold agencies accountable.

Annual review of Oklahoma GIS standards for alignment to NENA standards and National 911 Program best practices

Actions will include:

- Maintaining alignment between Oklahoma GIS data standards and national standards
- Responding to NENA updates of GIS standards

Priority



Provide a collaborative environment for GIS providers and addressing authorities to support the further development and maintenance of GIS data to advance the NG9-1-1 migration at every level of government.

Oklahoma has built a robust set of standards based on national standards and best practices. Many of these are beyond the general specifications for GIS data practiced by GIS professionals today. The importance of adhering to the statewide NG9-1-1 GIS standards should be highlighted during the educational campaign and reinforced frequently through state and regional GIS workgroups.

Annual progress report for GIS plan for NG9-1-1

Actions will include:

- Updating this strategic plan annually
- Defining performance metrics for reporting
- Review State Office of Geographic Information expectations and processes
- Reporting on successes in defining coordination between jurisdictions, uploading data by PSAP boundary, and annual review results
- Reporting on missed metrics and providing plans to resolve the shortcoming

OK911MA has laid a solid foundation for the migration to NG9-1-1 across the state. To continue to show value and solid return on investment, it is incumbent upon OK911MA to measure each success as it is achieved in accordance with this plan. OK911MA should use the annual updates to this plan to advertise successful completion of strategic goals as well as maintaining a multi-year rolling set of goals. To preserve transparency to the stakeholders, OK911MA should report on missed metrics and update the plan accordingly.

Improve the State's GIS readiness on data maintenance and jurisdictional boundaries

Actions will include:

- Continuing to build a workable statewide GIS dataset
- Establishing an update frequency goal for GIS data maintenance
- Aligning jurisdictional boundary data

The core of the NG9-1-1 migration is seamless GIS data across the state and matched to jurisdictions' GIS data in neighboring states. OK911MA can promote achieving this lofty goal by encouraging the upload of jurisdictions' GIS data to the State repository, supporting entities that need assistance in preparing their GIS data, and providing additional outreach and education to those that have GIS data but are reluctant to share it.

As of the first quarter of 2022, nine jurisdictions have loaded their GIS data into the State data repository. State grant funding for GIS must remain a priority for the coming years until GIS data for every jurisdiction is created, improved to meet state and national standards, and loaded into the repository.



Proper funding is imperative for ensuring the best standards of service are being met in the transition to NG9-1-1. Without a comprehensive funding model for the transition to NG9-1-1 technology, there will inevitably be disparity in the level of 9-1-1 service delivered statewide. The current 9-1-1 fees collected by the State may not be sufficient to support the NG9-1-1 transition or to sustain the operations and technology upgrades that will be required; as such, additional funding sources should be examined. HB 3126 increased fees but did not specify how those fees would be locally allocated—thus, with one exception, PSAPs spent the revenue on local operating costs and did not save for NG9-1-1 technology.

Priority



Create a sustainable funding model to ensure statewide parity of 9-1-1 service.

The table below illustrates the amount of revenue currently being deposited into the OK911MA account, the budgeted expenses and capital outlay, along with the remaining amount available for grants or NG9-1-1.

OK911MA Revenue & Expenditures	
2022 Annual Income	\$2,492,617
Budgeted Expenses and Capital Outlay	<\$1,219,375>
NET – Amount available each year for grants* or NG9-1-1	\$1,273,242

** Grant funding is necessary to ensure rural Oklahoma is able to maintain parity of 9-1-1 service and technology.*

Initiative

5.1 Develop a Sustainable Funding Strategy

OK911MA should perform a detailed funding study to include a baseline of the most current PSAP revenue and expenses reported to OK911MA by each PSAP for legacy 911 operations; projected costs for NG9-1-1 transition; and estimates of future costs for NG9-1-1 services per PSAP.

This study would use data already collected in the annual Oklahoma PSAP reporting forms to establish a high and low end of cost estimates for each PSAP’s transition. The study would establish how PSAPs are currently using 9-1-1 funds and what standards of service are being offered. A PSAP-by-PSAP comparison would inform OK911MA of those PSAPs that need support to meet 9-1-1 service delivery standards. The study would also identify which PSAPs have funding challenges and why, such as geographical distance from available networks, low population, or aging equipment.

Using the current per capita cost for E9-1-1 services for each PSAP would pinpoint those PSAPs with higher-than-average costs per population and suggest solutions for lowering those costs (e.g., improved use of technology, cessation of 9-1-1 fee diversion, additional funding sources, sharing resources with neighboring PSAPs, or combining PSAPs).

In keeping with the legislative direction of SB 687, OK911MA must establish rules for interoperability between NG9-1-1 systems. This legislation also requires local NG9-1-1 plans to align with the statewide plan—thus the funding study must identify those elements of NG9-1-1 that align with OK911MA’s strategic plan including standards for operations and training, i3-compliant equipment and core services, and public-safety-grade availability. This will involve a comparison of the current funding to future needs to determine if an increase to the 9-1-1 telephone surcharge is necessary and to evaluate additional funding, some of which exist in a few Oklahoma PSAPs today as public safety sales taxes and tariffs on legacy phone systems.

Consideration should be given to using tariffs to fund NG9-1-1 elements such as the IP selective router, ESInet connections, or other components as Colorado, Illinois, and California have done. Universal Service Funds (USFs) are another option based on the Federal Communications Commission’s (FCC) Telecommunications Act of 1996. USFs are currently employed in Vermont to support the state’s unified (statewide) 9-1-1 operations model. USFs are for states that have centralized oversight of their 9-1-1 system; local control over funding could be an issue.⁶

Finally, OK911MA should investigate using other grant and revolving funds to offset the cost of NG9-1-1, such as state broadband initiatives and highway safety funds. OK911MA should ensure the State’s fiber expansion includes 9-1-1 PSAPs.

Create a sustainable funding model for the transition to and sustainability of NG9-1-1

OK911MA should use the funding study to create a plan to pay for the NG9-1-1 transition and a model for sustainable funding of NG9-1-1 services. This could include plans for legislative updates to dictate the allowable uses of 9-1-1 funds and to protect against 9-1-1 fee diversion. This would ensure that the State remains eligible for future federal grant funds. Legislative changes should allow for OK911MA oversight and audit capability over all fees charged to any media used to request 9-1-1, including wireline, telematics, and alarm systems. The funding model should examine the redirection of 9-1-1 funding to prioritize investments in new technologies and also propose which elements of NG9-1-1 the State could fund and which elements will be individually funded by the PSAPs or collectively funded by regional governments. For example, the State might fund the NG9-1-1 network host sites, and the individual PSAPs would fund their i3-compliant CHE systems. Funding priorities must be established and adjusted as needed as Oklahoma follows the NG9-1-1 roadmap.

Other consideration should be given to those items that can be a one-time purchase using capital funds or grant money, such as network build-out or data center upgrades and those items that will be a recurring expense, such as a monthly cloud-based ESInet fee, which will require a sustainable funding source. Some local agencies will be burdened without monetary support from the State.

⁶ Information mentioned can be found on pages 47–54 of the Oklahoma NG9-1-1 Feasibility Study.



NG9-1-1 is often discussed as a technology issue, and it is, but it is equally challenging to operationalize the technology. OK911MA's support of the operational challenges during the migration to NG9-1-1 is essential to a successful transition. OK911MA should be prepared to provide guidance to PSAPs through training, procedural development support, and financial incentives as they adopt NG9-1-1 protocols.

Priority



Mitigating operational challenges is essential to the successful transition to NG9-1-1.

Initiatives

6.1 Develop a Strategy for Additional OK911MA Personnel

The statewide transition to NG9-1-1 will require OK911MA to provide significant support and guidance to local PSAPs and local leadership. OK911MA may find it necessary to hire additional personnel for that effort. OK911MA's mission to "provide focused leadership to empower local 9-1-1 authorities by educating, training, advocating, and guiding a statewide transition to emerging 9-1-1 emergency services" will not happen optimally or quickly without resources for OK911MA to oversee the effort.

OK911MA should identify workforce gaps for the transition and determine which resources could fill those gaps. The next steps would be to prioritize, request funding for, and hire or contract the specific resources needed for the transition to and sustainability of statewide NG9-1-1 services. MCP's *Next Generation 9-1-1 Feasibility Study Report*, dated August 2020, recommended adding four positions at a minimum:

- 9-1-1 field coordinator
- Training/Public education coordinator
- GIS coordinator
- Contracts manager

Please refer to that report for a detailed description of the positions' responsibilities and an informational chart on other states' state-level staffing.⁷

6.2 Leadership Development

One of the most important responsibilities of OK911MA is ensuring that local PSAP authorities are developing leaders within their organizations. 9-1-1 coordinators, 9-1-1 directors, and 9-1-1 managers will need to understand the changes required for NG9-1-1 and be prepared to handle tasks that were once outside the responsibility of a legacy PSAP. These tasks include understanding core services, call routing, GIS, and data intake, including the requirements for evidence preservation of data elements such as text, video, and images.

⁷ Information mentioned can be found on pages 100–106 of that report.

OK911MA should also ensure that PSAP authorities are trained in state policies, procedures, requirements, and funding for NG9-1-1. This could include grant writing, an overview of NG9-1-1 concepts, and 9-1-1 addressing for an NG9-1-1 environment.

OK911MA should create a leadership development plan for local PSAP authorities with the intention of training for all aspects of managing an NG9-1-1 PSAP; promoting leadership at all levels for local, regional, state and national participation; and educating on career paths for local PSAP leaders. OK911MA may choose to use local training programs, enlist the help of the Operations committee to develop leadership training, use training options available from NENA and APCO, and follow training standards and recommendations from the National 911 Program and CALEA.

Conclusion

This *Oklahoma 9-1-1 Management Authority Strategic Plan* was designed to guide OK911MA toward its desired future for NG9-1-1. The strategic initiatives laid out as focal points for Oklahoma will serve as a roadmap to help OK911MA progress in the areas of governance, planning, and policy; communications; technology; GIS; funding; and operations and training. As OK911MA moves forward with implementing NG9-1-1, some priorities may shift based on milestone completion, technology advancements in the industry, or roadblocks encountered. Regular review of work completed against the initiatives will help establish a pattern of forward progress.

OK911MA is committed to helping deliver NG9-1-1 service to the state and is poised to continue working with stakeholders to implement the initiatives and priorities in this plan.

Appendix A – NG9-1-1 Feasibility Study Master Recommendations

Master Recommendations	
GIS	Status
1. [GIS leaders] Actively participate in the GI Council as a forum for coordinating GIS efforts across the state to achieve a greater return on investment.	Complete
2. [OK911MA and the Office of Geographic Information] Provide a toolset for validating road centerline and address point geospatial data against the legacy ALI and MSAG data tables. It also should maintain a training program for using this toolset	Complete
3. [GI Council] Maintain a consistent coordination forum to benefit the regions and individual jurisdictions in establishing processes that facilitate more frequent sharing of geospatial data and incident response best practices.	In Progress
4. [OK911MA and the Office of Geographic Information] Establish program metrics and milestones to demonstrate and measure progress in the establishment and sustainability of the NG9-1-1 geospatial data program from a statewide view. The tracking of these metrics also should be duplicated at the local level and status provided to the State for risk tracking purposes.	In Progress
5. [GI Council] Continue to maintain a common geospatial data process across the state that will meet or exceed current NENA standards, to normalize data collection, maintenance, and distribution practices for public-safety-grade data	In Progress
6. [GIS programs in Oklahoma] Work in a collaborative environment, both across jurisdictional boundaries and vertically through all levels of government, to ensure data integrity across the state.	In Progress
7. [GI Council] Assess annually the infrastructure supporting the GIS data repository to confirm alignment with the State’s goals for GIS data collection, aggregation, validation, and distribution to support public safety	In Progress
8. [GIS professionals in Oklahoma] Work with the GI Council to identify standards-based processes and procedures for GIS data, including extraction and dissemination to PSAP systems. <ul style="list-style-type: none"> a. Define and implement NENA-based GIS data standards. b. Design data workflows, from data steward to ESInet, including interdependencies and required schedules and deadlines. c. Develop SOPs for data creation and maintenance. 	In Progress
9. [OK911MA and the Office of Geographic Information] Coordinate the development and maintenance of the GI Council’s repository platform, which will include coordinating with other agencies and providing guidance on the design, review, and dissemination of maps and data files. Full system redundancy and elaborate security must be designed into the platform as core components.	In Progress
10. [Office of Geographic Information] Continue supporting public safety GIS programs at the local level through training and large-scale data collection programs.	In Progress

Master Recommendations	
11. [OK911MA and the Office of Geographic Information] Continue to promote the adoption of <i>The State of Oklahoma Geographic Information NG911 and Addressing Standard</i> for all public safety GIS datasets.	In Progress
12. [OK911MA and the Office of Geographic Information] Provide education, training, and collaboration opportunities for all data stewards to ensure program success.	In Progress
13. [OK911MA and the Office of Geographic Information] Provide stakeholders the training, governance, and outreach support necessary to successfully prepare geospatial data for the state's migration to NG9-1-1.	In Progress
14. [OK911MA and the Office of Geographic Information] Continue to support the GI Council to guide the NG9-1-1 implementation and to create and update the NG9-1-1 GIS strategic plan as needed.	In Progress
15. [Office of Geographic Information] Identify a senior-level GIS professional to oversee and coordinate the state's implementation of recommendations from this report and the NG9-1-1 GIS strategic plan.	Complete
16. [GI Council] Develop training requirements through coordination with both internal and external stakeholders, to disseminate information, gather user requirements, and raise capability awareness to maintain a sustainable program. a. Provide training on the advancements within the software and relational database management systems (RDBMS) used to create, maintain, store, and distribute GIS data. b. Provide updates on new requirements, standards, software, and training opportunities for GIS as they are discovered.	In Progress
17. Standardize GIS data across the state and coordinate with neighboring PSAPs in other states to realize a seamless, statewide 9-1-1 system.	In Progress
18. [OK911MA and the Office of Geographic Information] Identify the GIS data stewards at every jurisdiction within Oklahoma, and states neighboring an Oklahoma PSAP, and maintain a contact list for use by local GIS professionals.	In Progress
19. [GI Council] Establish a statewide datum that can be leveraged for regional data development.	In Progress
20. [GI Council] Define a geospatial data sharing methodology to reduce data update lag.	In Progress
21. [OK911MA and the Office of Geographic Information] Provide a toolset for cross-jurisdictional GIS data validation.	Complete
22. [OK911MA and the Office of Geographic Information] Create and maintain a centralized catalog of aggregated and validated statewide NG9-1-1-specific geospatial data.	Complete
23. Ensure PSAPs in Oklahoma are equal in GIS data availability, quality, and maintenance capabilities.	In Progress
24. [OK911MA and the Office of Geographic Information] Promote the use of the TFOPA scorecard at the local level as a progress tracking tool.	Not Started

Master Recommendations	
<p>25. [OK911MA and the Office of Geographic Information] Sponsor in-depth assessments within each jurisdiction to ensure NG9-1-1 readiness.</p> <p>26. [GI Council] Inventory existing GIS datasets within all jurisdictions across the state.</p> <p>27. Jurisdictions missing data, such as address points, or that are still using RR addressing should be funded first for database development projects.</p> <p>28. Jurisdictions with limited or no GIS data should be provided the assistance needed to develop their public safety datasets.</p>	In Progress
<p>29. [OK911MA and the Office of Geographic Information] Assist the GI Council in developing templates for interlocal agreements and SLAs.</p>	In Progress
<p>30. [OK911MA] Maintain a continuous funding stream for State-sponsored systems.</p>	Complete
<p>31. [OK911MA and the Office of Geographic Information] Promote the development and maintenance of GIS data to standards best suited for the specific environment in the state in the interest of interoperability.</p>	In Progress
<p>32. [OK911MA and the Office of Geographic Information] Cooperate on the development and delivery of an education and outreach program to increase awareness of regional and local jurisdictions for what is going to be expected for the transition to NG9-1-1.</p> <p>33. Promote adherence to the statewide data schema.</p> <p>34. Enforce the importance of coordinating data maintenance along jurisdictional boundaries.</p>	In Progress
<p>35. [OK911MA and the Office of Geographic Information] Promote and support the development of standards.</p>	Complete / In Progress
Governance: Legislative Guidance – Governance and State-level Authority	Status
<p>1. Ensure procurement authority for ESInet and NGCS, and authority over more than just grant administration, such as the ability to procure the network and core services if OK911MA desires to build a statewide NG9-1-1 solution, as well as oversee the design requirements to ensure interoperability of multiple NG9-1-1 systems if regional NG9-1-1 systems are entertained.</p>	In Progress
<p>2. Ensure that OK911MA has the authority to develop performance criteria critical to the function and performance of networks and systems following industry-accepted best practices and standards; include the criteria (e.g., interoperability, cybersecurity, network uptime, call-answer time, training) in legislation after soliciting input from stakeholders.</p>	In Progress
<p>3. Ensure that OK911MA has the authority to require connectivity and interoperability between various NG9-1-1 solutions if a statewide solution is not pursued and regional jurisdictions can purchase their own NG9-1-1 solution.</p>	Complete

Master Recommendations	
4. Verify that OK911MA can develop a master plan for NG9-1-1 and require local jurisdictional master plans to align with the State’s master plan. This should be required in statute. An NG9-1-1 master plan, with stakeholder involvement in the planning process, should be written into statute-defined requirements. In addition, local/regional jurisdictions should be required to implement NG9-1-1 service in accordance with the statewide master plan identified in the statute.	Complete
5. Define in statute shared responsibilities between OK911MA, regional, and local jurisdictions pertaining to legacy 9-1-1, NG9-1-1, and the transitory period until end state NG9-1-1 implementation.	Not Started
Governance: Funding Authority Clarification	Status
1. Ensure that OK911MA can establish eligible uses for all collected 9-1-1 funds (wireline, wireless, VoIP, and pre-paid wireless).	Complete
2. Ensure that OK911MA has oversight and audit authority over wireline fund use within approved eligible uses. How the funds are used is essential to both fiduciary responsibility and to ensure that sufficient funds exist to carry out OK911MA’s mission. OK911MA needs to ensure that enough money is available to implement NG9-1-1 service in Oklahoma. In addition, the FCC tracks states’ use of 9-1-1 funds and requests accurate reporting on an annual basis. Certification regarding the appropriate use of funds is required to be eligible for federal grants.	Complete
3. Clarify OK911MA’s use of wireless funds beyond the \$0.05 assigned to the 9-1-1 coordinator’s office: can the remaining \$0.70 of the wireless fund be used by the State to pay for the NG9-1-1 network, or must all of it be returned to the jurisdictions in the form of grants?	Complete
4. Remove the following from the statute: “Audit expenses shall be reimbursable pursuant to procedures established by OK911MA if the audit is approved by the Authority.” Local jurisdictions or the State should not hesitate to request an audit if they suspect an audit is necessary, nor should they have to pay for an audit regardless of whether it results in a correction.	Not Started
5. Ensure sufficient authority to secure and manage federal grants that are dependent on validation and verification of the use of funds statewide and locally.	Complete
Governance: Governance and State Level Authority	Status
1. Review OK911MA composition and representation: <ul style="list-style-type: none"> a. Determine if carrier/vendor representation on the board as voting members is still appropriate and consider moving them to nonvoting/advisory status. b. Consider whether some key stakeholders are missing from board representation (e.g., NGCS providers, cybersecurity SMEs, financial advisors, GIS) as voting or nonvoting members. c. Consider adding first responder stakeholder groups (e.g., fire/rescue, EMS and law enforcement associations) to board representation. 	In Progress
2. Consider changing the even number of board members to an odd number; implement an appeals process.	In Progress

Master Recommendations	
3. Require an annual or biannual report to the legislature to demonstrate NG9-1-1 progress.	In Progress
4. Develop a comprehensive statewide NG9-1-1 strategic plan with input from stakeholders that includes a vision, mission, and actionable goals with timelines.	In Progress
5. If regional NG9-1-1 systems are permitted, local/regional jurisdictions should be required to implement NG9-1-1 service in accordance with the statewide master plan. Develop a process for OK911MA approval.	Complete
6. Amend rules to ensure interoperability with the state NG9-1-1 system if the state is going to permit regional jurisdictions to implement an NG9-1-1 system.	In Progress
Governance: NG9-1-1 Implementation	Status
1. Consider revisions to statute that allow OK911MA to establish technical and operational standards as part of their fiduciary responsibility and oversight, including, but not limited to, interoperability and cybersecurity standards.	Not Started
2. Include the ability for operational and technical committees to recommend standards and best practices for technical requirements of NG9-1-1 systems, interoperability, data management, and security controls in rules.	In Progress
3. Consider revisions to statute that add responsibility to OK911MA to coordinate its activities with local 9-1-1 and public safety entities and ensure the responsibility and authority to provide technical assistance for effective statewide 9-1-1 operations.	Not Started
4. Develop template for MOUs and NDAs necessary to clarify roles and responsibilities between state and regional jurisdictions for financial, operational, and data sharing purposes.	Not Started
5. Ensure that for every authority given in statute or rules, OK911MA has a written QA policy and procedure.	Not Started
6. Include compliance timeframes in rules, master plan, and policies and procedures.	Not Started
Governance: NG9-1-1 Operations	Status
1. Provide OK911MA with the ability to collect data to achieve a comprehensive understanding of NG9-1-1 systems to evaluate general system performance.	Not Started
2. Require sufficient audit information/data from OTC to validate proper fee collection from wireless service and VoIP providers. (Administrative Rule 145:15-5-2)	Complete
3. Enable the sharing of essential PSAP data while protecting data confidentiality and privacy issues.	Not Started
4. Remove references in statute to specific state agencies and replace those references with functional descriptions.	In Progress
5. Change all terms in statute and rules to technology-neutral terms.	Complete

Master Recommendations	
6. Determine consistent minimum 9-1-1 record retention schedules and identify in rules and statutes.	Not Started
7. Add appropriate liability protections for technology providers and ensure references are technology- and vendor-agnostic.	Not Started
8. Require local jurisdictions to certify that they understand and comply with all federal laws such as ADA and HIPAA.	Not Started
9. To ensure consistent messaging, OK911MA should consider the need for additional responsibility for a comprehensive statewide public education program.	Not Started
10. Consider updating references to PSAP personnel to reflect the complex and larger role the PST plays in the emergency communications ecosystem.	In Progress
Governance: Funding	Status
1. Define eligible uses of 9-1-1 funds including NG9-1-1 elements in alignment with an NG911 strategic plan as assigned to the Technical Committee.	Complete
2. Define funding priorities based on NG9-1-1 strategic plan. Review and, if necessary, adjust on an annual basis.	In Progress
3. Strengthen statute language to protect against fund diversion (including interest from the fund) or funds being transferred to the general fund without a supermajority vote to secure the ability to receive future federal grant funds.	Not Started
Governance: Grantmaking	Status
1. Add enabling legislation that allows OK911MA to pursue, accept, and manage federal and private grant funds and gifts.	Not Started
2. Clarify in policy how grant funds can be used.	Not Started
Governance: Budget Oversight	Status
1. Allow OK911MA oversight and audit capability over wireline fund use.	Not Started
2. Add oversight of both wireline and wireless funds at the local level through their annual submission and approval of their annual 9-1-1 plan/forms.	Not Started
3. Update statute language and 9-1-1 forms/plans to replace “emergency telephone systems” with applicable NG9-1-1 terms for the network, core services, and CHE.	In Progress
4. Ensure statute includes the ability to request an audit of wireline service providers as needed to ensure accurate submission of 9-1-1 revenues.	Complete
5. Remove references to the carrier reimbursement for audit expense; audits requested of wireline and wireless carriers should be at the expense of the carrier.	Not Started
6. Remove reference in the statute that allows for cost recovery to wireless carriers and “successor technology.”	Not Started
7. Make applicable changes to allow for purchase or use of services from other state agencies to support NG9-1-1 implementation.	Not Started

Master Recommendations	
8. Add requirement in legislation for a report to the legislature prior to the start of the budget approval process (annually or biannually).	In Progress
Governance: Annual Review of Policy and Procedures	Status
1. [OK911MA] Formalize a process for policy review by engaging in an annual policy roundtable with staff and key stakeholders to review current policies, discuss any recommended changes, and identify any new policies for development.	Not Started
Governance: State Program Comparison – Audit	Status
1. [OK911MA] Consider conducting a baseline audit to ensure that the amount of 9-1-1/E9-1-1 fees collected from subscribers matches the service provider’s number of subscribers. The cost of conducting the audit will have to be weighed against the potential for increased fee collections. OK911MA may want to identify that the cost of conducting the audit is at a carrier’s expense.	Not Started
2. [OK911MA] Consider an audit of how local 9-1-1 jurisdictions are using 9-1-1 funds distributed to their agency to establish a clear understanding and to ensure compliance with federal requirements regarding fund diversion concerns.	Not Started
Governance: State Program Comparison – Standards	Status
1. [OK911MA] Determine NG9-1-1 standards to ensure an interoperable statewide level of service. <ul style="list-style-type: none"> a. If a statewide solution is selected, technical standards for local jurisdictions related to data and GIS sharing with border PSAPs, both within the state and with neighboring states, will be necessary; training guidelines, call routing standards, network management, overflow and system COOP standards, and many more issues will be required. b. If a hybrid approach is adopted, all of the above and many more standards will be required (e.g., technical interoperability and security standards to link jurisdictional controlled systems to the state network, data reporting requirements, cost reporting, policy and procedure coordination, and others). 	In Progress
Governance: State Program Comparison – Fee Collection	Status
1. Consider equalizing the rate of collection on wireline devices to match those of other service types. Neutrality of fee collection is a best practice that many states have adopted.	In Progress
Governance: State Program Comparison – Use of Funds	Status
1. [OK911MA] Guide local 9-1-1 jurisdictions in the use of funds already collected and distributed to ensure parity of 9-1-1 service across the state.	In Progress
Governance: State Program Comparison – State Planning Guidance	Status
1. [OK911MA] Take a strong role in guiding the design of the NG9-1-1 system and migration toward higher levels on the maturity matrix.	In Progress
2. Consider enhancing the role of OK911MA and the statewide 9-1-1 program in GIS oversight.	In Progress

Master Recommendations	
3. [OK911MA] Update data collection tool to ensure collection of the information requested by the FCC and the National 911 Program.	In Progress
Governance: State Program Comparison – Major Considerations	Status
1. Provide strong guidance and direction to enhance system effectiveness and fiscal responsibility.	In Progress
2. Audit fund use under current rules.	Not Started
3. Revise fund use opportunities for NG9-1-1.	Not Started
4. Audit fund collection.	Not Started
5. Direct migration strategies for NG9-1-1 implementation.	Not Started
6. Work with the Office of Geographic Information to enhance GIS for 9-1-1 in the state.	In Progress
7. Update data collection for national requirements.	In Progress
8. Establish interoperability standards and technical requirements.	In Progress
Governance: Interstate Communication – Transition	Status
1. Nurture champions and early adopters as examples of leaders willing to move the transition forward for improved service delivery.	In Progress
2. Stay informed of neighboring state transition activities for possible impact on the state system or border PSAP transition issues.	In Progress
Governance: Interstate Communication – Coordination	Status
1. Clearly define levels of authority and requirements with respect to network health and maintenance processes.	In Progress
2. Consider a communication plan that is informative and educational and serves as a vehicle to guide local 9-1-1 authorities in their responsibilities and requirements.	Not Started
3. [OK911MA] Initiate a strong guidance role as it relates to policy coordination.	In Progress
4. Engage stakeholders in the coordination of policies to ensure call routing flexibility, service continuity, and training standards among PSAPs.	In Progress
Governance: Interstate Communication – Governance	Status
1. Ensure strong, clear statewide governance policy and direction, regardless of the solution selected.	In Progress
2. [OK911MA] Ensure coordinated policies and procedures.	Not Started
3. Clearly define roles and responsibilities.	Not Started
Governance: Interstate Communication – Process	Status
1. Develop a master agreement with general requirements and the ability for local 9-1-1 jurisdictions to include their own operational and jurisdictional technical requirements; this will make local acceptance and legal review easier.	Not Started

Master Recommendations	
2. Formalize agreements and codify understanding between state and local authorities and between local authorities.	In Progress
3. Tie metrics and performance to desired outcomes, regardless of the solution option selected.	In Progress
4. Develop a mechanism to keep informed of local NG9-1-1 migration progress, especially if local jurisdictions will be allowed to implement their own systems. Expect and request regular progress updates and continually communicate progress reports to stakeholders.	Not Started
5. Mutually agree on testing requirements and performance measures.	Not Started
Governance: Interstate Communication – Financial	Status
1. Address cost-allocation openly and fairly; communicate financial demarcation and responsibility honestly.	In Progress
2. Improve knowledge and buy-in with communication on fiscal status reporting to educate stakeholders and keep them informed.	In Progress
3. Seed some small projects to get people working together and experiencing small “wins.”	In Progress
4. Encourage information-sharing on costs, fiscal reporting methods, grant opportunities, and other financial considerations that assist local jurisdictions and OK911MA.	In Progress
5. Inform on any changes, expansion, or contraction of 9-1-1 fund usage.	In Progress
Governance: Interstate Communication Recommendations – Federal Partner Collaboration	Status
1. Facilitate discussions between military installations and local 9-1-1 authorities related to NG9-1-1 migration.	In Progress
2. Explore ways the military can integrate its systems to the local jurisdictional service and improve situational awareness for both the military and the local jurisdiction and enhance mutual aid.	In Progress
3. Educate on the benefits of working together and the consequences of transitioning without collaboration and integration.	In Progress
4. Encourage consistency with the State plan.	In Progress
5. Provide leadership and assistance with formal agreements and interoperability models.	In Progress
Governance: Interstate Communication Recommendations – Major Considerations	Status
1. Enhance information sharing; develop a statewide communications plan to improve understanding and increase collaboration.	In Progress
2. Facilitate statewide standards development.	In Progress
3. Establish clear statewide governance policy and direction.	Not Started

Master Recommendations	
4. Tie metrics and performance to contracts to improve outcomes and increase understanding of responsibilities.	Not Started
5. Develop model interoperability agreements and encourage formalized understanding among 9-1-1 jurisdictions.	Not Started
6. Develop an equitable cost-allocation model.	In Progress
7. Facilitate integration and enhancement of the collaboration with federal installations and local jurisdictions.	In Progress
Training and Operations	
	Status
1. [OK911MA] Update legislation to recognize 9-1-1 call-takers as public safety professionals and re-classify 9-1-1 call-takers to more accurately reflect the expanded types of information for which they will be responsible in an NG9-1-1 environment.	In Progress
2. Continue to pursue enabling legislation to provide the authority to OK911MA to create 9-1-1 minimum training requirements that expand past the 9-1-1 call-taker role.	In Progress
3. Establish statewide adoption of certification and recertification programs for 9-1-1 PSTs based upon national standards.	Not Started
4. Expand 9-1-1 call-taker curriculum to include training on QA/QI.	Not Started
5. Increase training programs and curriculum to include training for dispatchers, CTOs, QA/QI specialists, and supervisory personnel.	Not Started
6. Hire a training coordinator to manage the statewide training program.	In Progress
7. Procure software to automate the compliance and audit process.	Not Started
8. Develop a centralized repository of training and educational resources to help individual PSAPs and regions meet minimum training standard requirements.	In Progress
9. Create a revision cycle process to ensure training standards are relevant.	Not Started

Appendix B – Next Generation 9-1-1 Cost Analysis Information

Vendor estimates and OK911MA financial data are provided below.

Assumptions are as follows:

- The cost analysis is based on population totals served by Oklahoma PSAPs provided by OK911MA.
- The cost estimates shown are rough order of magnitude (ROM) pricing provided by vendors during due diligence sessions and may not represent a true comparison of pricing between vendors.
- Estimates do not include PSAPs within the ACOG service area as ACOG is securing its own NG9-1-1 system.
- OK911MA financial data is based on the 9-1-1 Fee Deposit Report, and FY22 Continuous Budget Report presented at OK911MA’s March 3, 2022, board meeting.

Vendor Estimates from Due Diligence Sessions		Per Person / Per Month
Lowest Estimate		\$0.09
Highest Estimate		\$0.20
Total Population served by OK911MA supported PSAPs		3,353,944
NGCS and ESInet Total Cost Estimate per Year		
Lowest Estimate		\$3,622,259.52
Highest Estimate		\$8,049,465.60

OK911MA 5-Year Revenue & Expenditure Projections					
	Year One	Year Two	Year Three	Year Four	Year Five
Annual Income	\$2,492,617.00	\$2,542,469.34	\$2,593,318.73	\$2,645,185.10	\$2,492,617.00
Carryover	\$7,532,610.00	\$1,761,435.77	-\$4,014,612.68	-\$9,796,180.11	-\$7,532,610.00
Revenue Total	\$10,025,227.00	\$4,303,905.11	-\$1,421,293.96	-\$7,150,995.01	-\$10,025,227.00
Operational Expenses, Capital Outlay Total	\$1,524,218.75	\$1,569,945.31	\$1,617,043.67	\$1,665,554.98	\$1,524,218.75
Grant Program	\$300,000.00	\$309,000.00	\$318,270.00	\$327,818.10	\$300,000.00
Total Current Expenditures	\$1,824,218.75	\$1,878,945.31	\$1,935,313.67	\$1,993,373.08	\$1,824,218.75
NG9-1-1 Cost Estimate	\$6,439,572.48	\$6,439,572.48	\$6,439,572.48	\$6,439,572.48	\$6,439,572.48
NET - Amount available each year for NG9-1-1	\$1,761,435.77	-\$4,014,612.68	-\$9,796,180.11	-\$15,583,940.57	-\$1,761,435.77

* Grant funding is necessary to ensure rural Oklahoma is able to maintain parity of 9-1-1 service and technology.