



ARKANSAS STATEWIDE COMMUNICATION INTEROPERABILITY PLAN



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LETTER FROM THE STATEWIDE INTEROPERABILITY COORDINATOR

Greetings,

As the Statewide Interoperability Coordinator (SWIC) for Arkansas, I am pleased to present to you the 2021 Arkansas Statewide Communication Interoperability Plan (SCIP). The SCIP represents the State's continued commitment to improving emergency communications interoperability and supporting the public safety practitioners throughout the state. In addition, this update meets the requirement of the current U.S. Department of Homeland Security grant guidelines.

Representatives from across the State of Arkansas collaborated to update the SCIP with actionable and measurable goals and objectives that have champions identified to ensure completion. These goals and objectives focus on Governance, Technology and Cybersecurity, and Funding. They are designed to support our state in planning for new technologies and navigating the ever-changing emergency communications landscape. They also incorporate the state interoperability markers which describe Arkansas' level of interoperability maturity by measuring progress against 25 markers.

As we continue to enhance interoperability, we must remain dedicated to improving our ability to communicate among disciplines and across jurisdictional boundaries. With help from public safety practitioners statewide, we will work to achieve the goals set forth in the SCIP and become a nationwide model for statewide interoperability.

Sincerely,



Penny Rubow
Arkansas Statewide Interoperability Coordinator
Arkansas Department of Emergency Management

INTRODUCTION



The SCIP is a one-to-three-year strategic planning document that contains the following components:

- **Introduction** – Provides the context necessary to understand what the SCIP is and how it was developed. It also provides an overview of the current emergency communications landscape.
- **Vision and Mission** – Articulates Arkansas’ vision and mission for improving emergency and public safety communications interoperability over the next one-to-three-years.
- **Governance** – Describes the current governance mechanisms for communications interoperability within Arkansas as well as successes, challenges, and priorities for improving it. The SCIP is a guiding document and does not create any authority or direction over any state or local systems or agencies.
- **Technology and Cybersecurity** – Outlines public safety technology and operations needed to maintain and enhance interoperability across the emergency communications ecosystem.
- **Life Cycle Funding** – Describes the funding sources and allocations that support interoperable communications capabilities within Arkansas along with methods and strategies for funding sustainment and enhancement to meet long-term goals.
- **Implementation Plan** – Describes Arkansas’ plan to implement, maintain, and update the SCIP to enable continued evolution of and progress toward the State’s interoperability goals.

The Emergency Communications Ecosystem consists of many inter-related components and functions, including communications for incident response operations, notifications and alerts and warnings, requests for assistance and reporting, and public information exchange. The primary functions are depicted in the 2019 National Emergency Communications Plan.¹

The Interoperability Continuum, developed by the Department of Homeland Security’s SAFECOM program and shown in Figure 1, serves as a framework to address challenges and continue improving operable/interoperable and public safety communications.² It is designed to assist public

¹ [2019 National Emergency Communications Plan](#)

² [Interoperability Continuum Brochure](#)

safety agencies and policy makers with planning and implementing interoperability solutions for communications across technologies.

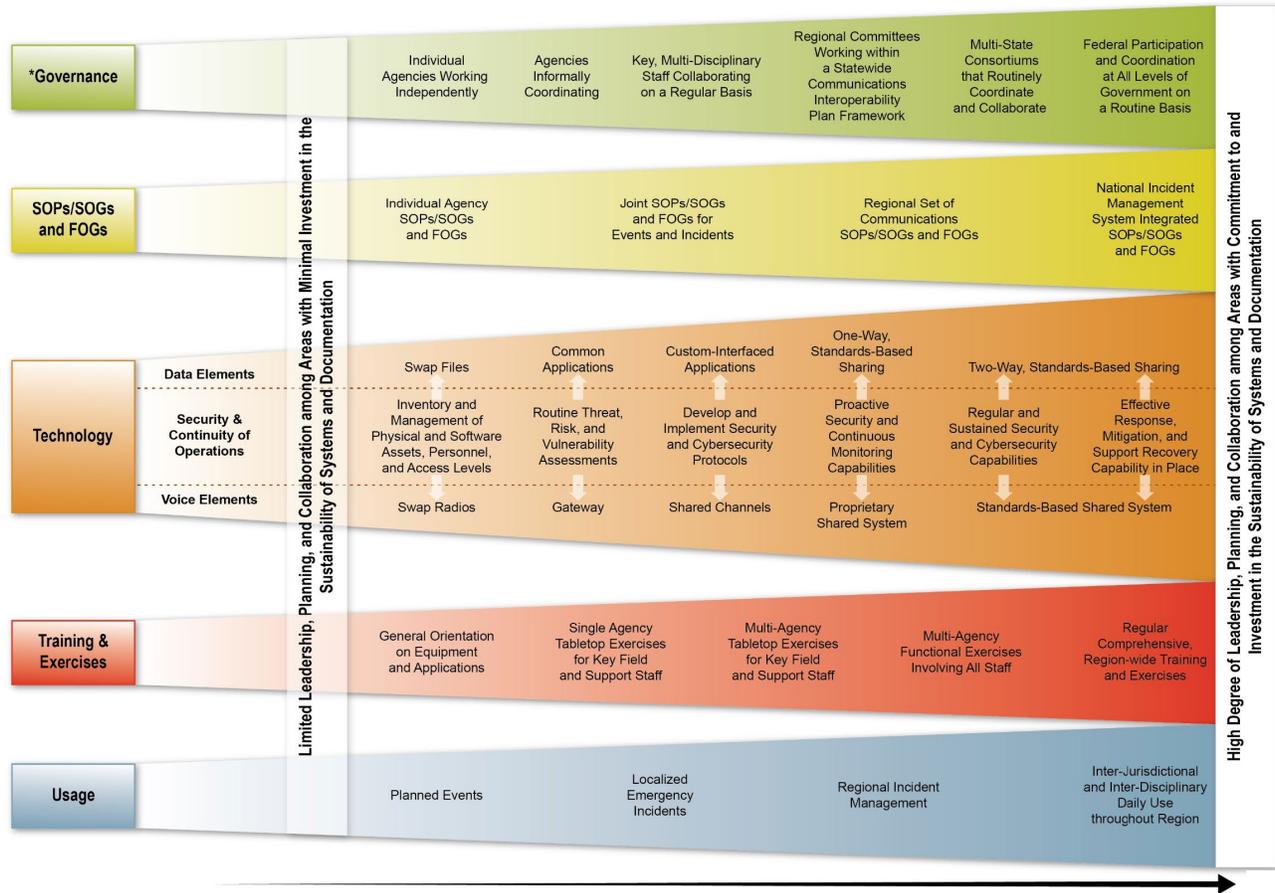


Figure 1: Interoperability Continuum

Interoperability and Emergency Communications Overview

Interoperability is the ability of emergency response providers and relevant government officials to communicate across jurisdictions, disciplines, and levels of government as needed and as authorized. Reliable, timely communications among public safety responders and between public safety agencies and citizens is critical to effectively carry out public safety missions, and in many cases, saving lives.

Traditional voice capabilities, such as land mobile radio (LMR) and landline 9-1-1 services have long been and continue to be critical tools for communications. However, the advancement of internet protocol-based technologies in public safety has increased the type and amount of information responders receive, the tools they communicate with, and complexity of new and interdependent systems. New technologies increase the need for coordination across public safety disciplines, communications functions, and levels of government to ensure emergency communications capabilities are interoperable, reliable, and secure.

An example of this evolution is the transition of public-safety answering points (PSAPs) to Next Generation 9-1-1 (NG9-1-1) technology that will enhance sharing of critical information in real-time using multimedia – such as pictures, video, and text – among citizens, PSAP operators, dispatch,

and first responders. While potential benefits of NG9-1-1 are tremendous, implementation challenges remain. Necessary tasks to fully realize these benefits include interfacing disparate systems, developing training and standard operating procedures (SOPs) and ensuring information security.

VISION AND MISSION

This section describes Arkansas' vision and mission for improving emergency and public safety communications interoperability:

Vision:

In order to better protect lives and property, the State of Arkansas will lead the Nation in establishing the ability for public safety stakeholders, across all disciplines and jurisdictions, to exchange information seamlessly, as authorized, on demand, and in real-time.

Mission:

Public safety organizations will work collaboratively with all stakeholders to achieve the Arkansas interoperability vision efficiently and effectively.

GOVERNANCE

The Arkansas Division of Emergency Management (ADEM) is Arkansas' homeland security and preparedness agency and serves as the State's coordination center for the capabilities necessary to prevent, protect against, mitigate the effects of, respond to, and recover from threats that pose the greatest risk to security. ADEM is a division of the Arkansas Department of Public Safety, established by the Transformation and Efficiencies Act of 2019. ADEM is responsible for the oversight of the Arkansas Wireless Information Network (AWIN), the Arkansas statewide public safety communications system. The SWIC serves as the Director of AWIN. The State's Emergency Operations Center (SEOC) is housed at ADEM.

The Arkansas Interoperable Communications Committee (AICC) provides general advice and guidance on interoperable communications strategic planning, funding, program policies and procedures. The Arkansas Interoperable Communications Executive Committee (AICEC) provides oversight for interoperable communications in Arkansas including executive support, fiscal oversight, legislative and administrative communications, strategy, and overall accountability.

In the future, Arkansas looks to make the AICC and AICEC more representative, strengthen and develop the AICEC working groups, and enhance outreach and education to the AWIN user community on system upgrades and capabilities.

The following table outlines goals and objectives related to Governance:

Governance	
Goal	Objectives
1. Strengthen/develop AICEC working groups	1.1 Ensure that public safety broadband, training, technology, cybersecurity, policy/administration and Communications Unit (COMU) can be addressed
2. Evaluate membership of governance committees	2.1 Make governing bodies more representative
	2.2 Re-establish a regular meeting cadence
3. Enhance outreach and education	3.1 Outreach and education to user community and legislature
	3.2 To better educate AWIN users on system upgrade and capabilities
4. Conduct AWIN cybersecurity assessment	4.1 Conduct Technical Assistance (TA) (high level risk assessment)

TECHNOLOGY AND CYBERSECURITY

Land Mobile Radio

AWIN is the primary communications system between public safety agencies in the State of Arkansas. AWIN is a statewide, multiple site, digital 700/800-Megahertz (MHz) trunked communications system using the Association of Public Safety Communications Officials (APCO) Project 25 (P25) standard. ADEM is currently in the process of an AWIN upgrade that will be completed in 2023. All radios onboarding to AWIN after December 2019 must be Time Division Multiple Access (TDMA) capable, however many users are still using legacy Frequency Division Multiple Access (FDMA) radios.

Stakeholders have expressed the need for increased AWIN coverage, as well as portable on street and in-building coverage. To increase interoperability on statewide channels, Arkansas plans to research and determine the viability of using the Advanced Encryption Standard (AES) with multi-key as the encryption standard for statewide channels on AWIN. This would not affect encryption standards on local channels, only statewide channels. Arkansas is considering opportunities to bridge secondary apps to push-to-talk over cellular and mission critical push-to-talk apps to AWIN.

Public Safety Broadband

Arkansas opted into FirstNet in 2017. FirstNet users in the state expressed the need for broader FirstNet coverage, more applications through FirstNet for first responders, and visibility at the Emergency Support Function 2 (ESF2) level into FirstNet and the carriers during an incident. Public safety personnel use multiple different broadband platforms and contractors in addition to FirstNet.

In the future, the state looks to deploy broadband to all PSAPs, as well as creating additional redundancy for backhaul.

9-1-1/Next Generation 9-1-1

The Arkansas 911 Board is tasked with implementing NG9-1-1, providing a plan for PSAP funding, and creating standards for PSAP interoperability. Arkansas currently has 101 primary PSAPs and is

consolidating down to 77 PSAPs. The State is in the process of establishing a statewide Emergency Services Internal Protocol Network (ESInet) for NG9-1-1.

Arkansas looks to assess the current state of 9-1-1 call handling equipment, computer aided dispatch, and logging recording to determine future PSAP needs. The State will also prioritize Continuity of Operations Plans (COOPs) to prepare PSAPs in the event of catastrophic failure and will provide continuing education for dispatchers.

Alerts and Warnings

Arkansas utilizes the Integrated Public Alert and Warning System (IPAWS) in addition to other alerting systems across the state. Only a handful of jurisdictions use IPAWS as implementation can be expensive for local jurisdictions. Arkansas looks to increase the number of IPAWS users across the state and add alerts and warnings to communications training and exercises.

Cybersecurity for Public Safety Technology

Cybersecurity for public safety technology is an increasing priority in the State of Arkansas. State agencies and larger jurisdictions maintain cybersecurity policies and training, which Arkansas would like to increase and expand to smaller agencies. Cybersecurity awareness and information sharing between agencies continues to be a focus as well. The State has created a whitepaper on encryption best practices and looks to create a formal cybersecurity response plan for public safety communications technologies at the state level.

Technology goals and objectives include the following:

Technology and Cybersecurity	
Goal	Objectives
5. Statewide ESInet for NG9-1-1	5.1 Complete procurement process by July 2021
	5.2 First PSAP live by July 2022
	5.3 All PSAPs live/completion of ESInet by July 2023
	5.4 Outreach and education to users on ESInet
6. Conduct AWIN Training	6.1 Update/standardize training materials
	6.2 Establish a training schedule for AWIN
	6.3 Conduct 60 sessions in 3 years
	6.4 Conduct train-the-trainer courses
	6.5 Establish training reporting process
7. Increase cybersecurity awareness	7.1 Establish public safety cybersecurity awareness training
	7.2 Request PSAP cybersecurity awareness TA
8. Develop model cyber incident response plan for smaller agencies	8.1 Assist smaller agencies in cybersecurity preparedness
	8.2 Request TA (future offering)
9. Conduct interoperability training and exercises	9.1 Recommend standardized training materials
	9.2 Outreach and education to users concerning interoperability
	9.3 Develop interoperable communication injects for exercises
	9.4 Collect and review after action reports from real world events and exercises

Technology and Cybersecurity	
Goal	Objectives
10. Gateway connectivity	10.1 Review and update existing policy to address cellular push to talk apps and mission critical push to talk
	10.2 Establish procedures/testing
	10.3 Create and execute gateway agreements
	10.4 Conduct training and exercises to include the collections of after-action reports

FUNDING

The Arkansas state legislature has appropriated \$8 million annually for AWIN maintenance, operation, and upgrades. To ensure AWIN had sustainable funding, Arkansas looks to develop a strategic investment plan, including funding to assist agencies in the transition to P25 Phase II and more funding to purchase radios at the local level. The State also would like to seek more funding for cybersecurity training and exercises, to include the collection of after-actions reports.

At the SCIP Workshop, stakeholders discussed various funding priorities for AWIN. The full AWIN Strategic Funding Plan can be found in Appendix B of this document. The table below shows how the participants ranked these priorities.

Arkansas Funding Priorities		
Rank	Funding Request	Priority Level
1	Address zone controller at ADEM (Spur)	High
2	Move zone controller from the MAC building to Roosevelt Road	Medium
3	Address spurs at remote sites	High (Evaluation), Medium (Execution)
4	Address barriers to joining AWIN	Low
5	Expanded coverage (Caddo Valley, Chicot County, Calhoun County, Buffalo River)	High
6	Add Microwave hop in north Jefferson County	High
7	Funding for removing Phase 1 radios from the system	Medium
8	Added capacity (Mount Magazine, Pine Mountain, Floyd, West Memphis, Jacksonville, Hampton)	High
9	Replace tower top lighting with LED	Medium
10	Purchase land currently being leased by AWIN	Low
11	Interoperability between PSAPS	Low

Funding goals and objectives include the following:

Funding	
Goal	Objectives
11. Develop strategic investment plan for AWIN	11.1 Identify and prioritize needs related to the AWIN infrastructure
	11.2 Identify and prioritize needs for capacity and coverage

	11.3 Identify opportunities to better support agencies joining AWIN
12. Request Grants Workshop TA	12.1 To receive better education about grants that are available for public safety communications
13. Sustainable annual funding for NG9-1-1 equipment and personnel	13.1 Educate legislature on need for sustainable funding for NG9-1-1 equipment and personnel
	13.2 Conduct a resource assessment of local PSAPs to aid transition to NG9-1-1
14. Develop a purchasing agreement for IPAWS software for local agencies	14.1 Increasing IPAWS usage and drive down software costs

IMPLEMENTATION PLAN

Each goal and its associated objectives have a timeline with a target completion date, and one or multiple owners that will be responsible for overseeing and coordinating its completion. Accomplishing goals and objectives will require the support and cooperation from numerous individuals, groups, or agencies, and will be added as formal agenda items for review during regular governance body meetings. The Cybersecurity and Infrastructure Security Agency's (CISA) Interoperable Communications Technical Assistance Program (ICTAP) has a catalog³ of technical assistance available to assist with the implementation of the SCIP. Technical assistance requests are to be coordinated through the SWIC.

Based on the discussions during the SCIP Workshop, CISA recommends the following TAs to support Arkansas' SCIP goals:

- Tactical Interoperability Communications Plan (TICP) Development/Implementation Workshop
- 9-1-1/PSAP/LMR Cyber Awareness
- 9-1-1/PSAP/LMR Cyber Assessment
- Grant Funding for Emergency Communications Webinar
- Cybersecurity Response Plan Workshop (Upcoming TA)

Arkansas' implementation plan is shown in the table below.

Goals	Objectives	Owners	Completion Date
1. Strengthen/develop AICEC working groups	1.1 Ensure that public safety broadband, training, technology, cybersecurity, Policy/administration and COMU can be addressed	SWIC, working group chairs	Ongoing
2. Evaluate membership of governance committees	2.1 Make governing bodies more representative	SWIC, governance committees (AICC, AICEC)	January 2022
	2.2 Re-establish a regular meeting cadence		
3. Enhance outreach and education	3.1 Outreach and education to user community and legislature	AWIN User Experience Lead, AWIN admin	Ongoing (start August 2022)
	3.2 To better educate AWIN users on system upgrade and capabilities		
4. Conduct AWIN cybersecurity assessment	4.1 Conduct TA (high level risk assessment)	SWIC, AWIN operations, Motorola, State Chief Information Security Officer (CISO)	December 2022

³ [Emergency Communications Technical Assistance Planning Guide](#)

Goals	Objectives	Owners	Completion Date
5. Statewide ESInet for NG9-1-1	5.1 Complete procurement process by July 2021	9-1-1 Board, local PSAPs	Ongoing
	5.2 First PSAP live by July 2022		
	5.3 All PSAPs live/completion of ESInet by July 2023		
	5.4 Outreach and education to users on ESInet		
6. Conduct AWIN training	6.1 Update/standardize training materials	AWIN operations	July 2024, after that ongoing
	6.2 Establish a training schedule for AWIN		
	6.3 Conduct 60 sessions in 3 years		
	6.4 Conduct train-the-trainer courses		
	6.5 Establish training reporting process		
7. Increase cybersecurity awareness	7.1 Establish public safety cybersecurity awareness training	SWIC, CISO	Ongoing
	7.2 Request PSAP cybersecurity awareness TA		
8. Develop model cyber incident response plan for smaller agencies	8.1 Assist smaller agencies in cybersecurity preparedness	SWIC, local agencies, CISO, private partners	July 2022
	8.2 Request TA (future offering)		
9. Conduct interoperability training and exercises	9.1 Recommend standardized training materials	SWIC, AWIN operations, state training officer, public safety academies, COMU, Radio Amateur Civil Emergency Service (RACES)	Ongoing
	9.2 Outreach and education to users concerning interoperability		
	9.3 Develop interoperable communication injects for exercises		
	9.4 Collect and review after action reports from real world events and exercises		
10. Gateway connectivity	10.1 Review and update existing policy to address cellular push to talk apps and mission critical push to talk	Policy working group, AWIN operations, system owners	Policy – January 2022 Creating agreements – Ongoing Training and exercises - Ongoing
	10.2 Establish procedures/testing		
	10.3 Create and execute gateway agreements		
	10.4 Conduct training and exercises to include the collections of after-action reports		
11. Develop strategic investment plan for AWIN	11.1 Identify and prioritize needs related to the AWIN infrastructure	AICEC, SWIC, AWIN operations	July 2021
	11.2 Identify and prioritize needs for capacity and coverage		
	11.3 Identify opportunities to better support agencies joining AWIN		

Goals	Objectives	Owners	Completion Date
12. Request Grants Workshop TA	12.1 To receive better education about grants that are available for public safety communications	SWIC, local users, CISA	October 2021
13. Sustainable annual funding for NG9-1-1 equipment and personnel	13.1 Educate legislature on need for sustainable funding for NG9-1-1 equipment and personnel	9-1-1 Board, local PSAPs, local elected officials	Educate – January 2023 Resource Assessment – January 2022
	13.2 Conduct a resource assessment of local PSAPs to aid transition to NG9-1-1		
14. Develop a purchasing agreement for IPAWS software for local agencies	14.1 Increasing IPAWS usage and drive down software costs	State procurement, ADEM	July 2013

APPENDIX A: STATE MARKERS

In 2019, CISA supported states and territories in establishing an initial picture of interoperability nationwide by measuring progress against 25 markers. These markers describe a state or territory's level of interoperability maturity. Below is Arkansas' assessment of their progress against the markers.

Marker #	Best Practices / Performance Markers	Initial	Defined	Optimized
1	State-level governing body established (e.g., SIEC, SIGB). Governance framework is in place to sustain all emergency communications	Governing body does not exist, or exists and role has not been formalized by legislative or executive actions	Governing body role established through an executive order	Governing body role established through a state law
2	SIGB/SIEC participation. Statewide governance body is comprised of members who represent all components of the emergency communications ecosystem.	Initial (1-2) Governance body participation includes: <input type="checkbox"/> Communications Champion/SWIC <input type="checkbox"/> LMR <input type="checkbox"/> Broadband/LTE <input type="checkbox"/> 9-1-1 <input type="checkbox"/> Alerts, Warnings and Notifications	Defined (3-4) Governance body participation includes: <input type="checkbox"/> Communications Champion/SWIC <input type="checkbox"/> LMR <input type="checkbox"/> Broadband/LTE <input type="checkbox"/> 9-1-1 <input type="checkbox"/> Alerts, Warnings and Notifications	Optimized (5) Governance body participation includes: <input checked="" type="checkbox"/> Communications Champion/SWIC <input checked="" type="checkbox"/> LMR <input checked="" type="checkbox"/> Broadband/LTE <input checked="" type="checkbox"/> 9-1-1 <input checked="" type="checkbox"/> Alerts, Warnings and Notifications
3	SWIC established. Full-time SWIC is in place to promote broad and sustained participation in emergency communications.	SWIC does not exist	Full-time SWIC with collateral duties	Full-time SWIC established through executive order or state law
4	SWIC Duty Percentage. SWIC spends 100% of time on SWIC-focused job duties	SWIC spends >1, <50% of time on SWIC-focused job duties	SWIC spends >50, <90% of time on SWIC-focused job duties	SWIC spends >90% of time on SWIC-focused job duties
5	SCIP refresh. SCIP is a living document that continues to be executed in a timely manner. Updated SCIPs are reviewed and approved by SIGB/SIEC.	No SCIP OR SCIP older than 3 years	SCIP updated within last 2 years	SCIP updated in last 2 years and progress made on >50% of goals
6	SCIP strategic goal percentage. SCIP goals are primarily strategic to improve long term emergency communications	<50% are strategic goals in SCIP	>50%<90% are strategic goals in SCIP	>90% are strategic goals in SCIP

	ecosystem (LMR, LTE, 9-1-1, A&W) and future technology transitions (5G, IoT, UAS, etc.). (Strategic and non-strategic goals are completely different; strategy – path from here to the destination; it is unlike tactics which you can "touch"; cannot "touch" strategy)			
7	Integrated emergency communication grant coordination. Designed to ensure state / territory is tracking and optimizing grant proposals, and there is strategic visibility how grant money is being spent.	No explicit approach or only informal emergency communications grant coordination between localities, agencies, SAA and/or the SWIC within a state / territory	SWIC and/or SIGB provides guidance to agencies and localities for emergency communications grant funding but does not review proposals or make recommendations	SWIC and/or SIGB provides guidance to agencies and localities for emergency communications grant funding and reviews grant proposals for alignment with the SCIP. SWIC and/or SIGB provides recommendations to the SAA
8	Communications Unit process. Communications Unit process present in state / territory to facilitate emergency communications capabilities. Check the boxes of which Communications positions are currently covered within your process: <input checked="" type="checkbox"/> COML <input checked="" type="checkbox"/> COMT <input type="checkbox"/> ITSL <input type="checkbox"/> RADO <input type="checkbox"/> INCM <input type="checkbox"/> INTD <input checked="" type="checkbox"/> AUXCOM <input type="checkbox"/> TERT	No Communications Unit process at present	Communications Unit process planned or designed (but not implemented)	Communications Unit process implemented and active
9	Interagency communication. Established and applied interagency communications policies, procedures and guidelines.	Some interoperable communications SOPs/SOGs exist within the area and steps have been taken to institute these interoperability procedures among some agencies	Interoperable communications SOPs/SOGs are formalized and in use by agencies within the area. Despite minor issues, SOPs/SOGs are successfully used during responses and/or exercises	Interoperable communications SOPs/SOGs within the area are formalized and regularly reviewed. Additionally, NIMS procedures are well established among agencies and disciplines. All

				needed procedures are effectively utilized during responses and/or exercises.
10	TICP (or equivalent) developed. Tactical Interoperable Communications Plans (TICPs) established and periodically updated to include all public safety communications systems available	Regional or statewide TICP in place	Statewide or Regional TICP(s) updated within past 2-5 years	Statewide or Regional TICP(s) updated within past 2 years
11	Field Operations Guides (FOGs) developed. FOGs established for a state or territory and periodically updated to include all public safety communications systems available	Regional or statewide FOG in place	Statewide or Regional FOG(s) updated within past 2-5 years	Statewide or Regional FOG(s) updated within past 2 years
12	Alerts & Warnings. State or Territory has Implemented an effective A&W program to include Policy, Procedures and Protocol measured through the following characteristics: (1) Effective documentation process to inform and control message origination and distribution (2) Coordination of alerting plans and procedures with neighboring jurisdictions (3) Operators and alert originators receive periodic training (4) Message origination, distribution, and correction procedures in place	<49% of originating authorities have all of the four A&W characteristics	>50%<74% of originating authorities have all of the four A&W characteristics	>75%<100% of originating authorities have all of the four A&W characteristics
13	Radio programming. Radios programmed for National/Federal, SLTT interoperability channels and channel nomenclature consistency across a state / territory.	<49% of radios are programmed for interoperability and consistency	>50%<74% of radios are programmed for interoperability and consistency	>75%<100% of radios are programmed for interoperability and consistency
14	Cybersecurity Assessment Awareness. Cybersecurity assessment awareness. (Public safety communications networks are defined as covering: LMR, LTE, 9-1-1, and A&W)	Public safety communications network owners are aware of cybersecurity assessment availability and value (check yes or no for each option) <input checked="" type="checkbox"/> LMR	Initial plus, conducted assessment, conducted risk assessment. (check yes or no for each option) <input type="checkbox"/> LMR <input type="checkbox"/> LTE	Defined plus, Availability of Cyber Incident Response Plan (check yes or no for each option) <input type="checkbox"/> LMR <input type="checkbox"/> LTE

		<input checked="" type="checkbox"/> LTE <input checked="" type="checkbox"/> 9-1-1/CAD <input checked="" type="checkbox"/> A&W	<input type="checkbox"/> 9-1-1/CAD <input type="checkbox"/> A&W	<input type="checkbox"/> 9-1-1/CAD <input type="checkbox"/> A&W
15	NG9-1-1 implementation. NG9-1-1 implementation underway to serve state / territory population.	Working to establish NG9-1-1 governance through state/territorial plan. <ul style="list-style-type: none"> Developing GIS to be able to support NG9-1-1 call routing. Planning or implementing ESInet and Next Generation Core Services (NGCS). Planning to or have updated PSAP equipment to handle basic NG9-1-1 service offerings. 	More than 75% of PSAPs and Population Served have: <ul style="list-style-type: none"> NG9-1-1 governance established through state/territorial plan. GIS developed and able to support NG9-1-1 call routing. Planning or implementing ESInet and Next Generation Core Services (NGCS). PSAP equipment updated to handle basic NG9-1-1 service offerings. 	More than 90% of PSAPs and Population Served have: <ul style="list-style-type: none"> NG9-1-1 governance established through state/territorial plan. GIS developed and supporting NG9-1-1 call routing. Operational Emergency Services IP Network (ESInet)/Next Generation Core Services (NGCS). PSAP equipment updated and handling basic NG9-1-1 service offerings.
16	Data operability / interoperability. Ability of agencies within a region to exchange data on demand, and needed, and as authorized. Examples of systems would be: - CAD to CAD - Chat - GIS - Critical Incident Management Tool (- Web EOC)	Agencies are able to share data only by email. Systems are not touching or talking.	Systems are able to touch but with limited capabilities. One-way information sharing.	Full system to system integration. Able to fully consume and manipulate data.
17	Future Technology/Organizational Learning. SIEC/SIGB is tracking, evaluating, implementing future technology (checklist)	<input checked="" type="checkbox"/> LMR to LTE Integration <input checked="" type="checkbox"/> 5G <input checked="" type="checkbox"/> IoT (cameras) <input type="checkbox"/> UAV (Smart Vehicles) <input checked="" type="checkbox"/> UAS (Drones) <input checked="" type="checkbox"/> Body Cameras <input type="checkbox"/> Public Alerting Software	<input checked="" type="checkbox"/> Wearables <input type="checkbox"/> Machine Learning/Artificial Intelligence/Analytics <input checked="" type="checkbox"/> Geolocation <input checked="" type="checkbox"/> GIS <input checked="" type="checkbox"/> Situational Awareness Apps-common operating picture applications (i.e. Force	<input type="checkbox"/> HetNets/Mesh Networks/Software Defined Networks <input checked="" type="checkbox"/> Acoustic Signaling (Shot Spotter) <input checked="" type="checkbox"/> ESInet <input type="checkbox"/> 'The Next Narrowbanding' <input type="checkbox"/> Smart Cities

		<input checked="" type="checkbox"/> Sensors <input type="checkbox"/> Autonomous Vehicles <input type="checkbox"/> MCPTT Apps	Tracking, Chat Applications, Common Operations Applications)	
18	Communications Exercise objectives. Specific emergency communications objectives are incorporated into applicable exercises Federal / state / territory-wide	Regular engagement with State Training and Exercise coordinators	Promote addition of emergency communications objectives in state/county/regional level exercises (target Emergency Management community). Including providing tools, templates, etc.	Initial and Defined plus mechanism in place to incorporate and measure communications objectives into state/county/regional level exercises
19	Trained Communications Unit responders. Communications Unit personnel are listed in a tracking database (e.g. NQS One Responder, CASM, etc.) and available for assignment/response.	<49% of public safety agencies within a state / territory have access to Communications Unit personnel who are listed in a tracking database and available for assignment/response	>50%<74% of public safety agencies within a state / territory have access to Communications Unit personnel who are listed in a tracking database and available for assignment/response	>75%<100% of public safety agencies within a state / territory have access to Communications Unit personnel who are listed in a tracking database and available for assignment/response
20	Communications Usage Best Practices/Lessons Learned. Capability exists within jurisdiction to share best practices/lessons learned (positive and/or negative) across all lanes of the Interoperability Continuum related to all components of the emergency communications ecosystem	Best practices/lessons learned intake mechanism established. Create Communications AAR template to collect best practices	Initial plus review mechanism established	Defined plus distribution mechanism established
21	Wireless Priority Service (WPS) subscription. WPS penetration across state / territory compared to maximum potential	<9% subscription rate of potentially eligible participants who signed up WPS across a state / territory	>10%<49% subscription rate of potentially eligible participants who signed up for WPS a state / territory	>50%<100% subscription rate of potentially eligible participants who signed up for WPS across a state / territory
22	Outreach. Outreach mechanisms in place to share information across state	SWIC electronic communication (e.g. SWIC email, newsletter, social media, etc.) distributed to relevant stakeholders on regular basis	Initial plus web presence containing information about emergency communications interoperability, SCIP, trainings, etc.	Defined plus in-person/webinar conference/meeting attendance strategy and resources to execute

<p>23</p>	<p>Sustainment assessment. Identify interoperable component system sustainment needs;(e.g. communications infrastructure, equipment, programs, management) that need sustainment funding. (Component systems are emergency communications elements that are necessary to enable communications, whether owned or leased - state systems only)</p>	<p>< 49% of component systems assessed to identify sustainment needs</p>	<p>>50%<74% of component systems assessed to identify sustainment needs</p>	<p>>75%<100% of component systems assessed to identify sustainment needs</p>
<p>24</p>	<p>Risk identification. Identify risks for emergency communications components. (Component systems are emergency communications elements that are necessary to enable communications, whether owned or leased. Risk Identification and planning is in line with having a communications COOP Plan)</p>	<p>< 49% of component systems have risks assessed through a standard template for all technology components</p>	<p>>50%<74% of component systems have risks assessed through a standard template for all technology components</p>	<p>>75%<100% of component systems have risks assessed through a standard template for all technology components</p>
<p>25</p>	<p>Cross Border / Interstate (State to State) Emergency Communications. Established capabilities to enable emergency communications across all components of the ecosystem.</p>	<p>Initial: Little to no established:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Governance <input type="checkbox"/> SOPs/MOUs <input type="checkbox"/> Technology <input type="checkbox"/> Training/Exercises <input type="checkbox"/> Usage 	<p>Defined: Documented/established across some lanes of the Continuum:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Governance <input checked="" type="checkbox"/> SOPs/MOUs <input checked="" type="checkbox"/> Technology <input checked="" type="checkbox"/> Training/Exercises <input checked="" type="checkbox"/> Usage 	<p>Optimized: Documented/established across all lanes of the Continuum:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Governance <input type="checkbox"/> SOPs/MOUs <input type="checkbox"/> Technology <input type="checkbox"/> Training/Exercises <input type="checkbox"/> Usage

APPENDIX B: ARKANSAS WIRELESS INFORMATION NETWORK STRATEGIC FUNDING PLAN, FISCAL YEARS 2022-2027

Introduction and Background

Arkansas will invest the proceeds from Act 660, the Public Safety Communications and Next Generation 911 Act of 2019 (hereafter referred to as “Act 660”) in initiatives designed to help meet the goal of ensuring that all public safety personnel in the state are able to access and rely on the Arkansas Wireless Information Network (AWIN) for emergency communications. This is best stated in the Arkansas Statewide Communications Interoperability Plan (SCIP):

Vision: In order to better protect lives and property, the State of Arkansas will lead the Nation in establishing the ability for public safety stakeholders, across all disciplines and jurisdictions, to exchange information seamlessly, as authorized, on demand, and in real-time.

The AWIN Strategic Funding Plan (hereafter referred to as “the Plan”) demonstrates the State’s commitment to the public safety community. The Plan identifies three initiatives containing eleven projects that will be funded by proceeds from Act 660. While supporting transformation of the AWIN system, these strategic investments will also support Arkansas communities that are struggling with access to the network.

This Plan covers the five-year period, from July 1, 2021, to June 30, 2027. The Arkansas Department of Public Safety, Division of Emergency Management (ADEM) is designated to receive funds from Act 660. ADEM determined that entering into a Bond agreement to raised funds needed to upgrade the AWIN system would be the most effective approach to achieving the project in a timely manner. The bond payments are taken from Act 660 funds on a quarterly basis. Any remainder is deposited into a cash fund that is managed by ADEM.

Public Safety personnel from across Arkansas came together to update the Arkansas SCIP and the foundation of this Plan was developed as part of that process. The Department of Homeland Security, Cybersecurity and Infrastructure Security Agency (DHS/CISA) supported the development of the Plan by gathering information, facilitating a series of workshops and documenting the SCIP.

Executive Summary

The AWIN Program will receive \$8 million dollars annually as authorized by the Public Safety Communications and Next Generation 911 Act of 2019. The majority of the \$8 million will go towards upgrading the AWIN system. This AWIN Strategic Funding plan was developed with input from approximately 200 public safety personnel from multiple jurisdictions and multiple disciplines in the state.

The planning participants identified and prioritized 11 initiatives to be addressed. These initiatives can be grouped into three main objectives: Increase AWIN Reliability, Address needs of current and future AWIN users, Reduce or avoid future costs. These initiatives are not included in the AWIN Upgrade project.

Arkansas Funding Priorities		
Rank	Initiatives	Priority Level
1	Address zone controller at ADEM (Spur ⁴)	High
2	Move zone controller from the MAC building to Roosevelt Road	Medium
3	Address spurs at remote sites	High (Evaluation), Medium (Execution)
4	Address barriers to joining AWIN	Low
5	Expanded coverage (Caddo Valley, Chicot County, Calhoun County, Buffalo River)	High
6	Add MW hop in north Jefferson County	High
7	Funding for removing Phase 1 radios from the system	Medium
8	Added capacity (Mount Magazine, Pine Mountain, Floyd, West Memphis, Jacksonville, Hampton)	High
9	Replace tower top lighting with LED lighting	Medium
10	Purchase land currently being leased by AWIN	Low
11	Interoperability between PSAPS	Low

This document provides additional detail for each initiative. The reader should be aware that these initiatives are in the preplanning phase; project details and costs are strictly high-level estimates.

Public Engagement and Priorities

This Plan reflects the thoughtful stakeholder input collected in the spring of 2021. The input period commenced with a survey that was distributed to approximately 1000 public safety personnel across the state of Arkansas. Personnel from DHS/CISA assisted with the collection and analysis of the survey information. During the month of June, three webinars were conducted that were aimed at collecting and clarifying the emergency communications needs. The last step, the SCIP Workshop, was conducted in July to finalize the SCIP and the AWIN Strategic Funding Priorities.

In total over 200 individuals, representing a diverse assortment of public safety organizations with equally diverse areas of interest participated in the process. These individuals represented law enforcement, fire services (both career and volunteer), emergency management, emergency medical services and all levels of government. Participants were actively engaged, asking the facilitators, AWIN leadership and each other clarifying questions about each project. Suggestions for improvement and possible additional projects were also discussed.

Available Funding Sources

The following is taken from the OFFICIAL STATEMENT - Arkansas Development Finance Authority, Public Safety Charges Revenue Bonds and explains the legislation that funds the Public Safety Trust Fund and how the funds flow through the system:

In the 2019 Regular Session of the Arkansas General Assembly, several pieces of legislation were enacted that impacted the administration and funding of AWIN. These included Act 702 which transferred AWIN to the Division and Act 910 that reorganized State

⁴ A "spur" in a network represents a location served by a single connection. High availability for critical sites (such as network controllers and high-capacity tower sites) typically incorporate designs to avoid these spur connections which represent a potential single point of failure if the circuit or microwave path fail

government agencies. Act 910, the Transformation and Efficiencies Act of 2019 (the "Transformation Act") consolidated 42 state agencies into 15 cabinet-level departments. The Department of Arkansas State Police and the Arkansas Department of Emergency Management were consolidated into the Department of Public Safety and became the Division of Arkansas State Police and the Arkansas Division of Emergency Management (the "Division"), respectively. Act 660, the Public Safety Communications and Next Generation 911 Act of 2019 fundamentally changed the funding of AWIN and the state wide emergency 911 system.

Act 660. Act 660 raised the rate of all monthly Section 318 Charges to \$1.30 per connection and raised Prepaid Wireless Transaction Charges to 10% of the value of the prepaid wireless service. Act 660 created the Arkansas Public Safety Trust Fund on the books of the Treasurer of State into which all Public Safety Charges Revenues are deposited. After September 30, 2019, Section 318 Charges collected from service providers began to be remitted by ADEM to the Treasurer of State for deposit in the Arkansas Public Safety Trust Fund. After the effective date of Act 660, DF&A began remitting monthly Prepaid Wireless Public Safety Charges to the Arkansas Public Safety Trust Fund in November 2019.

If sufficient moneys are available in the Arkansas Public Safety Trust Fund, they are first to be distributed as follows:

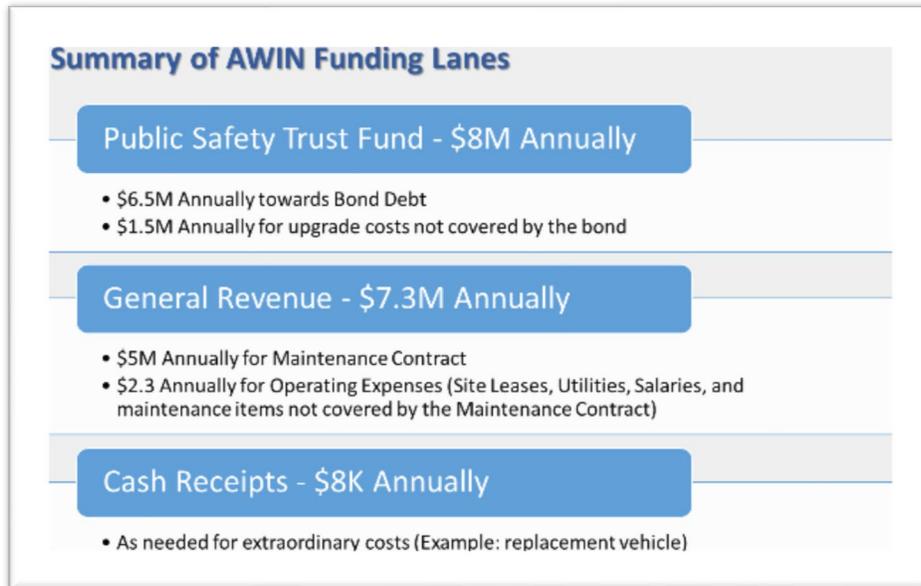
- (1) On or before the fifteenth business day of each month (beginning in December, 2019) Act 660 requires that up to fourteen thousand dollars (\$14,000) be distributed to the Division to provide administrative support to the Arkansas Public Safety Trust Fund.
- (2) If sufficient funds are available in the Arkansas Public Safety Trust Fund, on or before the fifteenth business day of each fiscal quarter (beginning July, 2020) Act 660 requires that money in the Arkansas Public Safety Trust Fund be distributed as follows:
 - (a) up to sixty-two thousand five hundred dollars (\$62,500) to ACLEST; and
 - (b) up to two million dollars (\$2,000,000) to the Division to support upgrades and maintenance for the AWIN (the "AWIN Quarterly Distribution").

The AWIN Quarterly Distribution is the source of revenues for loan repayments payments to the Issuer by the Division under the Loan Agreement. Between December 2019 and June 2020, Act 660 required that the Arkansas Public Safety Trust Fund withhold moneys necessary to make the distributions described above. Pursuant to the Loan Agreement, the Division has covenanted to affirmatively monitor the Act and any legislative amendments that may modify or impair the Public Safety Charges. The Division has covenanted to take such action within its control to prevent the impairment of its ability to receive and use the Public Safety Charges for the purposes set forth in the Loan Agreement.

Under Act 660 the state wide emergency 911 system as operated by the Arkansas Emergency Telephone Services Board became the "Next Generation 911 System" under the supervision of a newly created "911 Board". Previously, the Arkansas Emergency Telephone Services Board was the sole recipient of the Public Safety Charges. Under Act 660, the 911 Board receives monthly the balance of the of funds in the Arkansas Public Safety Trust Fund after the required distributions to the Division and the ACLEST described above.

Pursuant to the Loan Agreement, the Division is required to deposit the AWIN Quarterly Distribution in the Public Safety Charges Revenue Fund created under the Indenture. Portions of the moneys held in the Public Safety Charges Revenue Fund in excess of the next two Base Payments and other anticipated expenses as outlined in the Loan Agreement may be released to the Division to be used to support other upgrades and maintenance of AWIN.

In addition to the Public Safety Trust Fund AWIN also receives General Revenue for costs associated with the operation of AWIN. These funds are budgeted on a biennial basis.



Finally, ADEM allows the FBI, Entergy, and the National Weather Service space on a small number of AWIN towers. In exchange, these entities pay a small annual lease payment. These funds are kept in a cash fund that is used to pay for extraordinary expenses not covered by the AWIN operations and maintenance budget.

Strategic Funding Objectives

The planning participants identified three main areas that were crucial for ensuring that the state's emergency responder community has a public safety grade communication system.

Objective One:

Increase AWIN reliability

Objective Two:

Address Needs of current and future AWIN users

Objective Three:

Reduce or avoid future costs

Objective #1: Increase AWIN reliability

AWIN currently has an availability rate of 99.988%. While this seems impressive, the fact is that any communications systems are subject to certain risks. For the state of Arkansas, most of these risks come in the form of weather-related events. An ice storm can disrupt utility power for days at a time; a tornado can destroy a community's power and communication grid in a matter of seconds.

Planning participants identified three initiatives that would increase the reliability of the AWIN system:

1. Ensure redundancy on the South Zone system controller equipment installed at ADEM
2. Provide redundant infrastructure at sites that are considered spurs
3. Add microwave capacity in north Jefferson County

Initiative #1: Ensure redundancy on the South Zone system controller equipment installed at ADEM

Ranking – 1; Priority - High

Traffic on AWIN is managed by two Zone Controllers. The South Zone Controller is housed on the campus of ADEM. While the South Zone Controller is on a fiber ring, workshop participants expressed concern that there is a potential for failure of the fiber.

Risks: Failure of the fiber would take the South Zone Controller out of operation and would place all remote AWIN sites south of Little Rock in 'site trunking' – in other words these remote sites would become isolated from the rest of the system and would seriously impact AWIN users in the vicinity of the tower. When sites are in site trunking, users can only communicate with other users who are nearby.

Benefits: Addressing the redundancy issue will increase the reliability of the system.

Actions: A thorough network mapping study will be required to understand the potential failure points. Following that analysis, a solution will be identified, and an implementation plan and operating budget developed.

Anticipated costs: Depending on the solution selected this could be a one-time cost of \$1M - \$2M or potential annual recurring costs of \$40,000.

Initiative #2: Provide redundant infrastructure at sites that are considered spurs

Ranking – 3; Priority – High/Medium

Several of the remote tower sites are spurs off the high-availability microwave network. These spurs are sites that are connected to the network by only one path.

Risks: In general, the risk associated with spurs is at the site that links the spur back to the network. If the 'connecting site' loses connection with the rest of the network, the spur is down as well. This leaves users in the area with limited or no communications.

Benefits: Providing secondary connectivity back to the AWIN controllers will decrease the chances of users in proximity to the spurs becoming stranded when there is a failure at the connecting site.

Because of the design of AWIN it is possible to address these spur routes individually or a few at a time.

Action: Review the final Microwave Design that is being delivered as part of the AWIN Upgrade to identify spurs. Identify alternate methods of connecting the spurs to the AWIN system. Identify spurs that are the best candidates to alternate system connections (based on cost, population served, etc.) Implement alternate connectivity.

Anticipated Costs: \$1000 - \$1M depending on the solution identified.

Initiative #3: Add microwave capacity in north Jefferson County

Ranking – 6; Priority – High

The AWIN network relies on microwave backhaul to transport communications around the network. The microwave network is designed in such a way as to eliminate weak path links and ensure reliable communications. One path on the network has been identified as less than desirable and needs an additional microwave site to improve reliability and provide better signal transport.

Risks: Long distances between microwave links can lead to degraded, unreliable communications subject to weather and atmospheric path interruption.

Benefits: This additional link will increase the signal strength and ensure dependable communications.

Action: Identify a final site for installation of this equipment. Develop a plan with associated costs for the installation. For best results this move should be coordinated with the microwave work being performed as part of the AWIN Upgrade.

Anticipated Costs: \$1.5M.

Objective #2: Address needs of current and future AWIN users

AWIN functions largely as a co-op system. Public safety organizations provide a one-time donation, usually in the form of equipment or services, to become users on AWIN. The size of the donation is based on the number of individual users and the amount of network capacity needed by the organization.

While this approach is fair, it does not always remedy bigger issues with the system, such as areas of poor coverage that are outside well populated areas or dealing with an agency's outdated technology.

The following initiatives were identified as ways to better support current and future user needs:

4. Address barriers to joining AWIN
5. Expanded coverage (Caddo Valley, Chicot County, Calhoun County, Buffalo River)
6. Funding for removing Phase 1 radios from the system
7. Added capacity (Mount Magazine, Pine Mountain, Floyd, West Memphis, Jacksonville, Hampton)

Initiative #4: Address barriers to joining AWIN

Ranking – 4; Priority – Low

In the fall of 2006, a strategy to allow public safety entities that were not among the founding organizations to use AWIN was established. The AWIN New User Process – was developed to ensure that network demand added by new users did not adversely impact existing users. In a nutshell, the AWIN New User Process requires that new organizations joining AWIN install equipment that will off-set their increased network use.

Risks: User organizations may install equipment in areas where there is little or no need, just to meet the joining requirement. This model can be cost prohibitive for small Public Safety entities. Finally, this method presents engineering challenges and does not provide for controller management or the best utilization of system resources.

Benefits: Updating the AWIN New User Process to better accommodate new entities coming onto AWIN could ease the burden on smaller organizations and increase interoperability in the state.

Action: This effort would be submitted to the Arkansas Interoperable Communications Executive Committee (AICEC) Policy Working Group to review the process, review the equipment installation matrix, and make recommendations for updating. Research ways to partner with local organizations that want to become users of AWIN.

Anticipated Costs: These costs would vary depending on capacity and complexity of the projects submitted by local organizations.

Initiative #5: Expanded coverage (Caddo Valley, Chicot County, Calhoun County, Buffalo River)

Ranking – 5; Priority – High

Participants in the planning process identified four areas in the state that were commonly known to have less than adequate coverage.

- Highway 70 where it passes through **Caddo Valley** (Garland, Hot Spring and Clark counties) is a well-known route used by travelers, requiring better coverage for law enforcement and rescue/emergency medical services personnel.
- The east side of **Chicot County** is prone to flooding from the Mississippi River. Poor coverage in this area hampers coordination efforts of emergency management.
- Highways 167 and 274 in east **Calhoun County** are heavily used by law enforcement.
- Because of the mountainous terrain along the **Buffalo River** communications are “spotty” at best. Search and Rescue teams and emergency medical services are regularly called to this extremely popular tourist area.

Risks: Poor communications in these areas hamper the response time of public safety personnel.

Benefits: Minutes count when responding to an accident, injured persons or a lost hiker. Having additional coverage in these areas will help responders deliver aid more quickly.

Action: Identify potential sites, perform engineering analysis, and develop proposals.

Anticipated Costs: \$2M per site.

Initiative #6: Added capacity (Mount Magazine, Pine Mountain, Floyd, West Memphis, Jacksonville, Hampton)

Ranking – 8; Priority – High

Users in some areas of the state experience periodic busies (delays in being assigned a channel) when trying to make a call on AWIN. Users in the areas near the AWIN sites of Mount Magazine, Pine Mountain, Floyd, West Memphis, Jacksonville, and Hampton are the most affected.

Risks: Busies have the same effect on the user community as the system not being available – they are unable to make a call, and potentially unable to render aid to a citizen in trouble.

Benefits: This additional capacity would help to ensure that users are able to make calls.

Action: Measure and identify capacity issues after higher capacity TDMA network equipment is turned on at sites where busies are an issue. Identify which sites continue to have busies and determine the number of additional channels needed to alleviate congestion.

Anticipated Costs: \$250,000 per site.

Initiative #7: Funding for removing Phase 1 radios from the system

Ranking – 6; Priority – High

A single channel occupies a certain amount of radio spectrum. There are two different techniques to make use of this limited resource.

The first technique is called frequency division multiple access (FDMA). This method separates channels by frequency, so if users want to have two channels, they'll have two separate frequencies. If a conversation runs across a channel, it occupies the whole of the channel exclusively. There is only one conversation and one user at a time per radio channel. More radio channels require more frequencies.

There is an alternative technique: Time division multiple access (TDMA).

TDMA occupies a channel but allows two users to occupy the same channel at what appears to them to be the same time. An analogy could be the still shot frame rates in cinema, where at around 30 frames per second it gives the illusion of continuous movement, but it is actually a time shuttling exercise.

The upgrade to the AWIN system will be complete in 2023. Upon completion all network infrastructure channels will operate as TDMA channels, effectively doubling the channel capacity on AWIN.

To take advantage of the expanded capacity, subscriber radios (mobile and portable) must be TDMA enabled. Radios that are FDMA capable only will continue to operate on AWIN but will take up two channels. To take full advantage of the investment that the state has put in adding capacity to AWIN, FDMA only radios need to be replaced with TDMA enabled radios

Risks: AWIN users will not be able to take full advantage of TDMA in all situations. Also, the state will not be benefitting from the full functionality of the system upgrade.

Benefits: The TDMA upgrade provides additional capacity and in areas where congestion is an issue this additional capacity is needed now.

Action: Work with radio vendors to develop incentive programs for agencies that trade in FDMA only radios. Identify sources of grant funding to assist agencies to upgrade their radios.

Anticipated Costs: Cost varies depending on the solution identified.

Initiative #8: Establish interoperability between PSAPs

Ranking – 11; Priority – Low

The ability to alert neighboring dispatch locations to incidents that may be headed their way is critical to ensuring that the responding agencies are well informed and prepared to assist. Currently most of this notification takes place via telephone. Planning participants thought that the use of dedicated AWIN talkgroups should be evaluated to determine if that is a more efficient method of notification.

Risks: PSAPs would have to establish protocols for using the talkgroups that would ensure security. Dispatchers would need to be trained on using the talkgroups.

Benefits: Using an AWIN talkgroup in this way could increase the efficiency of dispatch operations.

Action: This effort would be submitted to the Arkansas 9-1-1 Board to determine the next steps and to establish a subcommittee to perform the research.

Anticipated Costs: This could be a low-cost project depending on the solution determined.

Objective #3: Reduce or avoid future costs

Planning participants recognize that AWIN is a costly program to operate. They identified a set of initiatives aimed at increasing program efficiency through reducing or avoiding costs, while maintaining optimal AWIN service.

The following initiatives were identified as ways to better support current and future user needs:

8. Move zone controller from the MAC building to Roosevelt Road
9. Replace tower top lighting with LED lighting
10. Purchase land currently being leased by AWIN

Initiative #9: Relocate North Zone system controller equipment to ASP property in south Little Rock

Ranking – 2; Priority – High

The North Zone Controller is currently located in the State Data Center on the Capitol Grounds. The cost associated with housing the equipment in the State Data Center is significant, and access for technicians after normal business hours can be difficult.

Risks: The State Data Center is aging, and in the past power outages have caused disruption of service on the AWIN system. If power is lost to a Zone Controller it leaves the remote sites served by that Zone Controller isolated from other sites on the system. Second, if there is an outage, because of strict security measures, system technicians are sometimes delayed in providing repair service due to restricted access to the equipment State Data Center. Finally, the ongoing cost of housing the equipment is high, and is anticipated to go even higher in the future.

Benefits: The ASP compound on Roosevelt Road is easier for service technicians to access, reducing our time to repair. The ongoing cost to house the equipment there is significantly less, thus saving critical operations funds.

Action: Develop a plan and associated costs for moving this equipment. This move should be coordinated with the final phases of the AWIN Upgrade when redundant controllers will be installed.

Anticipated Costs: \$2M.

Initiative #10: Replace tower top lighting with LED lighting

Ranking – 9; Priority – Medium

Most of the towers that make up the AWIN system were built in the mid 1980's. The lighting systems that were installed at the time were excellent, reliable systems, but over time the technology has changed. Repair parts for these older style incandescent lighting systems are becoming harder to obtain.

In 2009 the Arkansas General Assembly passed Act 1494 – *An act to promote the conservation of energy and natural resources in buildings owned by public agencies and institutions of higher education*. This act established the Sustainable Energy-Efficient Buildings Program to promote energy conservation in buildings owned by public agencies and buildings owned by institutions of higher education.

Risks: The Federal Aeronautics Administration (FAA) requires that towers be adequately marked and illuminated to ensure safety of aircraft operating in the vicinity of towers. Should a light fail, and parts not be available to replace it, accidents could occur.

Benefits: LED lighting, while initially expensive to install, is more cost-efficient in the long run. The tower lights will use less energy and LED technology offers longer lamp life cycles. Replacing the lighting on AWIN towers would, over time, reduce operating costs. This project can be completed on a site-by-site basis over a period of months or years.

Action: Develop a plan to purchase and install LED lighting.

Anticipated Costs: \$50,000 per site.

Initiative #11: Purchase land currently being leased by AWIN

Ranking – 10; Priority – Low

The State leases land for AWIN tower sites in many locations. These site leases have been in place 25 or more years and the property owners have changed. In some cases, property has transitioned owners several times. Current landowners often seek increased lease payments as competition for tower sites with commercial wireless commercial network providers increase demand.

Risks: Continuing to lease tower sites will result in increasing costs.

Benefits: The State would own the property outright and costs would be controlled.

Action: Continue to study the pros and cons of this effort. Identify property owners who may be willing to sell land where State towers are currently on their property.

Anticipated Costs: \$50,000 per site.

Conclusion

The AWIN Strategic Funding Plan satisfies the 2021 Arkansas SCIP Goal #11, “Develop a strategic investment plan for AWIN.” As previously stated, the project details and anticipated costs are strictly high-level estimates and are subject to change. This plan applies to fiscal years 2022 – 2027.

APPENDIX C: ACRONYMS

Acronym	Definition
AAR	After-Action Report
ADEM	Arkansas Division of Emergency Management
AES	Advanced Encryption Standard
AICC	Arkansas Interoperable Communications Committee
AICEC	Arkansas Interoperable Communications Executive Committee
APCO	Association of Public-Safety Communications Officials
AUXCOMM/AUXC	Auxiliary Emergency Communications
AWIN	Arkansas Wireless Information Network
A&W	Alerts and Warnings
CASM	Communication Assets Survey and Mapping
CISA	Cybersecurity and Infrastructure Security Agency
COML	Communications Unit Leader
COMT	Communications Unit Technician
COMU	Communications Unit Program
COOP	Continuity of Operations Plan
CISO	Chief Information Security Officer
DHS	Department of Homeland Security
E9-1-1	Enhanced 9-1-1
EAS	Emergency Alert System
ECD	Emergency Communications Division
EMAC	Emergency Management Assistance Compact
ESF	Emergency Support Function
ESInet	Emergency Services Internal Protocol Network
FDMA	Frequency Division Multiple Access
FirstNet	First Responder Network Authority
FOG	Field Operations Guide
GETS	Government Emergency Telecommunications Service
GIS	Geospatial Information System
HSGP	Homeland Security Grant Program
ICTAP	Interoperable Communications Technical Assistance Program
INCM	Incident Communications Center Manager
INTD	Incident Tactical Dispatcher
IP	Internet Protocol
IPAWS	Integrated Public Alerts and Warnings System
ISSI	Inter-RF Subsystem Interface
IT	Information Technology

Acronym	Definition
ITSL	Information Technology Service Unit Leader
LMR	Land Mobile Radio
MHz	Megahertz
MOU	Memorandum of Understanding
NECP	National Emergency Communications Plan
NENA	National Emergency Number Association
NG9-1-1	Next Generation 9-1-1
PSAP	Public Safety Answering Point
PTS	Priority Telecommunication Services
P25	Project 25
RACES	Radio Amateur Civil Emergency Service
RADO	Radio Operator
SCIP	Statewide Communication Interoperability Plan
SEOC	State Emergency Operations Center
SOP	Standard Operating Procedure
SWIC	Statewide Interoperability Coordinator
TA	Technical Assistance
TDMA	Time Division Multiple Access
TERT	Telecommunications Emergency Response Team
TICP	Tactical Interoperable Communications Plan
WPS	Wireless Priority Service