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Emergency Communications Systems

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Prepared by

Brianna Murphy

Wisconsin Legislative Fiscal Bureau
One East Main, Suite 301
Madison, WI 53703
http://legis.wisconsin.gov/lfb

Emergency Communications Systems

This paper discusses funding and operations for emergency communications systems administered by the Department of Military Affairs (DMA). Specifically, this paper provides information about programs administered by DMA's Office of Emergency Communications (OEC) and the Wisconsin Division of Emergency Management (WEM).

The Office of Emergency Communications supports the ability of emergency responders and residents to communicate in the event of accidents, natural disasters, terrorism, or other human-made disasters. The Office provides staff support to the Interoperability Council (IC) and administers the following programs: Next Generation 911 (NG911), the Wisconsin Interoperability System for Communications (WISCOM), Land Mobile Radio (LMR), and the Public Safety Broadband (PSB) program. The Office's responsibilities have been administered by a number of agencies since its creation in 2008. Under 2017 Act 59, the OEC was transferred from the Department of Justice to DMA. For the 2021-23 biennium, the OEC is allocated $33.1 million ($3.2 million GPR; $2.5 million PR; and $27.4 million SEG). Additionally, the OEC is allocated 4.0 PR and 3.0 SEG positions in 2021-22, and 4.0 PR and 5.0 SEG positions in 2022-23.

The Division of Emergency Management is responsible for coordinating the state's planning, preparedness, mitigation, response, and recovery efforts for natural and human-made disasters. The Division oversees the state emergency operations center (SEOC), which facilitates coordination among state and local agencies in the event of an emergency.

The Department's organizational structure is identified in Appendix I. A glossary of frequently used emergency communications terminology is provided in Appendix II.

Interoperability Council

In response to events such as car accidents, natural disasters, terrorism events, or high-speed pursuits, public safety officials from different disciplines and jurisdictions need to rapidly communicate. Interoperability refers to the ability of multiple parties to exchange information, even when disparate systems are involved.

The Interoperability Council was created in 2008 to develop strategies, standards, and guidelines to achieve statewide communications interoperability for the public safety community.

The 15-member IC consists of: (a) 10 members appointed by the Governor to four-year terms, including a chief of police, a sheriff, a chief of a fire department, a director of emergency medical services, a local government elected official, a local emergency management director, a representative of a federally-recognized tribe or band, a hospital representative, a local health department representative, and another person with expertise in interoperable communications; (b) the Attorney General or designee; (c) the Adjutant General (head of DMA) or designee; (d) the Secretary of the Department of Natural Resources or designee; (e) the Secretary of the Department of Transportation or designee; and (f) a representative from the Department of Administration with knowledge of information technology.

In addition, the IC has chartered subcommittees to provide advice on specific programs as

follows: (a) the statutorily-established 911 subcommittee, which consists of 19 voting members; (b) the WISCOM subcommittee, which consists of 22 voting members; (c) the LMR subcommittee, which consists of 17 voting members; and (d) the PSB subcommittee, which consists of 15 voting members. All subcommittee members are appointed by the IC.

Next Generation 911

Current System

Overview. Under current law, 911 is established as the statewide emergency services telephone number. Basic 911 service was first established in the 1960s as a voice-only service, meaning that the caller had to provide location and callback information verbally in order to receive assistance. In the 1980s, the system was upgraded to "Enhanced 911," which automatically recorded the caller's landline telephone number and address. The system was last updated in the 1990s to "Wireless Enhanced 911," which provides a mobile caller's number and approximate location. The current Wireless Enhanced 911 service consists of separate networks maintained by telephone service providers across Wisconsin through contractual relationships with local governments.

The state has 122 public safety answering points (PSAPs), locally-administered call centers that answer and process 911 calls. As of 2019 (the most recently available data), Wisconsin PSAPs employed 2,115 public safety personnel, served 2,288 first responder agencies, and handled approximately three million 911 calls each year.

Funding. In general, 911 services are funded and administered on the local level. Local units of government are responsible for PSAP operations, including costs associated with personnel compensation, workspace requirements, dispatch radio systems, computer aided dispatch systems, and 911 call handling equipment (CHE), also referred to as customer premise equipment (CPE).

The current 911 system is primarily supported through three fees: (a) a landline fee assessed per county based on the number of access lines and population, collected by carriers and applied to the cost of providing 911; (b) a portion of the monthly fee of $0.75 on each assigned telephone number, deposited to the police and fire protection (PFP) fund; and (c) a $0.38 fee per transaction on all prepaid wireless services, deposited to the PFP fund.

The police and fire protection fund supports state programs and provides direct financial assistance to local governments through the shared revenue program. The shared revenue program is also funded by a capped, sum-sufficient general purpose revenue (GPR) appropriation, such that any PFP funds allocated for state programs are offset by an equal increase in GPR. In 2021-22, $753.0 million was distributed to local governments through the shared revenue program ($54.9 million from the PFP fund). Local entities have discretion in allocating shared revenues, and a portion may be used to offset the cost of providing 911 services. [For more information, see the informational paper entitled, "Shared Revenue Program."]

Next Generation 911

Overview. To create an interoperable 911 system that is compatible with current and emerging digital technologies, emergency response agencies nationwide are upgrading to the "Next Generation 911" system. Under current law, DMA is responsible for supporting the development of NG911 in Wisconsin. Appendix III compares the wireless enhanced 911 system and the NG911 system.

According to DMA, a statewide NG911 system will: (a) provide equal access for all callers, including the deaf and hard-of-hearing; (b) resolve current infrastructure limitations among PSAPs by

creating a shared statewide network; (c) improve resiliency and reduce system downtime; (d) provide an increase in situational awareness through data sharing with first responders; (e) deliver increased location accuracy for all calls; (f) facilitate mutual aid collaborations between PSAPs; (g) provide the ability to re-route 911 calls during crises, periods of high call volume, and service outages; (h) support a variety of consumer devices as technology evolves; (i) enhance financial efficiencies; and (j) support the ability to change or add connections during emergencies. In addition to 911 voice capabilities, NG911 will enable the public to transmit text, images, video, and data to 911.

The NG911 system consists of three key components, described further below: (a) the Emergency Services Internet Protocol Network (ESInet), a statewide internet-based network shared by all public safety agencies; (b) PSAP equipment (CHE/CPE), which facilitate the transmission of information between callers and emergency responders; and (c) Geographical Information System (GIS) data, which route calls and messages to the correct PSAP.

Once NG911 is implemented, the system's network will be operated on the state-level, while local units of government will retain fiscal and administrative responsibility for PSAP operations. Local entities will also need to upgrade answering equipment (CHE/CPE) to ensure that 911 calls can be processed under the new system.

Funding. The state has supported the development of NG911 with allocations from the PFP fund. Through 2021-22, DMA has spent $1,839,700 from the PFP fund on NG911 ($280,200 in 2018-19, $273,300 in 2019-20, $537,400 in 2020-21, and $748,800 in 2021-22). In addition, DMA received one-time federal support of $2.9 million in August, 2019, to help PSAPs purchase equipment compatible with NG911.

Under 2019 Act 9, one-time funding of $19.7 million was provided for NG911 and the appropriation was modified from an annual to biennial appropriation. (A biennial appropriation allows funds to be expended over the two-year period of a biennium, rather than on a one-year basis.) Since funds were provided on a one-time basis, no base funding was provided for the 2021-23 biennium.

In the 2021-23 biennium, 2021 Act 58 provided $25,288,200 SEG for NG911. Further, $1,500,000 SEG was placed in the Joint Finance Committee's supplemental appropriation for GIS grants. On May 31, 2022, the Joint Committee on Finance released funding for GIS grants and created 2.0 SEG positions, as described below in the section on geographic information systems data. In addition to the 2.0 SEG positions created for NG911, a previously existing 1.0 PR position functions as the NG911 program manager. This position is funded from justice information systems fee receipts. Receipts are generated from a $21.50 fee assessed for certain court proceedings, such as civil, small claims, forfeiture, and wage earner or garnishment actions.

Emergency Services Internet Protocol Network. The first step to implement NG911 is to create the ESInet, an internet-based network that will connect PSAPs across the state. The ESInet will provide for broadband speed transmissions and facilitate the delivery of messages and data that public safety agencies use for field operations.

The Department solicited bids for the ESInet through a request for proposal (RFP) in March, 2020. The ESInet contract was executed with AT&T in June, 2021. Since then, DMA has been negotiating participation agreements with PSAPs joining the network. Additionally, several outreach sessions were conducted to inform PSAPs about ESInet. As of September, 2022, 58 PSAPs have signed participation agreements. The Department anticipates that ESInet will be activated by the end of 2022-23.

The Department has spent $629,200 to build the ESInet as of August, 2022. The cost of the contract with AT&T to build the ESInet is established at $81.6 million, assuming all 122 PSAPs join the system (the pricing structure is based upon the number of PSAPs that join). Ongoing costs for ESInet will also depend on the number of PSAPs that join, but are estimated at $9 million annually for system operations, maintenance, and security audits, assuming 100% participation by PSAPs. The Department anticipates monthly recurring charges for ESInet to commence in 2022-23 when PSAPs are live on the system. Costs for the ESInet project include: (a) call access services, including equipment and circuits required by carriers to send data and calls to PSAPs; (b) core connections, including the design of data centers to facilitate call routing and data transmission; and (c) PSAP connections, including the software needed to allow PSAPs to receive 911 calls.

Public Safety Answering Point Equipment. In general, local governments are responsible for purchasing 911 call answering equipment (CHE/CPE). To receive and process calls through the NG911 system, PSAPs must have call answering equipment compatible with NG911 technology. According to the 2019 Statewide 911 System Assessment (the latest information available), 49 out of 98 of responding PSAPs (50 percent) already owned compatible equipment. Of the remaining 49 PSAPs (50 percent) that indicated they were not ready to transition to NG911 with their current equipment, 29 (30 percent) indicated that they had plans to upgrade or replace the equipment within two years. The remaining 20 PSAPs (20 percent) did not have compatible equipment nor plans to purchase such equipment.

State and federal support has been made available to help PSAPs facilitate the transition to NG911. Under 2019 Act 26, a competitive state grant program was created to help PSAPs purchase equipment compatible with NG911 and to train employees.

The Department received $2.9 million in federal grant funds to assist PSAPs with equipment upgrades. In June, 2020, DMA awarded 24 federally-funded grants totaling $2.2 million, as listed in Table 1. Priority was given to agencies that did not have NG911-capable equipment, and recipients were required to provide a 40 percent match. In September, 2020, DMA announced a second round of grants to award additional federal funds. Table 2 lists the recipients of the second round of grants, which were distributed in February, 2021, and also required a 40% match. As of September, 2022 (the latest information available), 35 PSAPs were able to complete either partial upgrades or full replacements of their answering equipment (CHE/CPE) using federal grants.

Table 1: PSAP Federal Grant Recipients, Round One

Award Agency	Grant Amount
Barron County Sheriff's Department	$76,200
Bayfield County Sheriff's Office	77,000
Bayside Communications Center	100,600
Cedarburg Police Department	59,200
Clark County Sheriff's Office	57,700
Crawford County Communications Center	75,600
Dodge County Sheriff's Office	109,800
Eau Claire Communication Center	276,500
Florence County Sheriff's Office	11,100
Franklin Police Department	16,100
Iron County Sheriff's Department	93,000
Juneau County Sheriff's Office	102,600
Kewaunee County Sheriff's Department	125,300
Lafayette County Sheriff's Office	99,400
Menominee County Sheriff's Office	79,900
Minocqua Police Department	62,200
Muskego Police Department	12,600
Oconto County Sheriff's Office	79,700
Portage County Sheriff's Office	198,400
Richland County Sheriff's Department	14,900
Sauk County	134,000
Waukesha County Communications	122,300
Winnebago County Sheriff's Office	125,500
Wisconsin Dells Police Department	72,900
Total	$2,182,500

Table 2: PSAP Federal Grant Recipients, Round Two

Award Agency	Grant Amount
Bayfield County Sheriff's Office*	$4,600
Crawford County Communications Center*	10,700
Franklin Police Department*	65,700
Green Lake County Sheriff's Office	31,200
Greenfield Police Department	65,900
Hartford Police Department	5,800
Juneau County Sheriff's Office*	4,900
Lafayette County Sheriff's Office*	5,900
Langlade County Sheriff's Office	9,700
Manitowoc County	104,900
Marinette County Dispatch	70,200
Minocqua Police Department*	3,000
Rock County Communications Center	48,900
Sawyer County Sheriff's Office	12,700
UW – Madison Police Department	12,800
Watertown Police Department	12,100
Waushara County Sheriff's Office	15,000
Winnebago County Sheriff's Office*	3,800
Total	$487,800

*Denotes supplemental awards to round one subgrantees for existing grant projects

Geographical Information System Data. The NG911 system uses GIS data to accurately route calls to the correct PSAP. In the current 911 system, the caller's location is determined after the call is answered by a PSAP, at which point the call may be transferred to a more appropriate PSAP. In the case of a wireless caller, the address is often approximate. To decrease call transfers and response times, NG911 uses GIS data to determine the caller's location before the call is answered to immediately route the call to the correct PSAP. Associated data elements include street centerlines, address points, mile markers, PSAP boundaries, and emergency service zone boundaries.

Wisconsin does not currently have a statewide GIS dataset capable of supporting NG911. Therefore, DMA has developed a plan to create a statewide GIS dataset for NG911. In May, 2020, DMA announced that Geo-Comm, Inc. would conduct a GIS gap analysis for Wisconsin to identify potential sources of data, develop database standards, and estimate costs. The GIS gap analysis report was published in June, 2021. The report indicated that the statewide GIS accuracy was 85.55% for all errors identified and 97.75% for critical errors requiring resolution to enable NG911 call routing and location validation. The goal is for each PSAP to operate with critical error-free GIS data. As part of the Gap Analysis Project, the Wisconsin NG911 GIS Data Standard and Best Practices document was created to provide a common GIS data model, set minimum accuracy benchmarks, and establish best practices for creating and maintaining GIS data layers that will meet Wisconsin's NG911 GIS data requirements. The Data Standard and Best Practices document is based on the National Emergency Number Association NG911 GIS Data Model.

In March, 2022, the OEC published a NG911 GIS Implementation Plan to outline the tasks necessary at the state and local levels for preparing local GIS data for call routing on a NG911 system. Tasks include implementing GIS standards, determining and performing quality control to ensure all critical errors are resolved, and educating GIS data providers and 911 authorities at all levels of government.

Under 2021 Act 261, enacted on April 15, 2022, a competitive grant program was created to help counties compile GIS data for NG911. The program will award grants to county land information offices to be used for: data preparation, gathering, and creation; geographic information system staffing; data preparation and collection contracts; and training. Grants may not fund general county overhead or costs for providing emergency services or emergency services equipment. The 2021-23 budget reserved $1.5 million SEG from the police and fire protection fund for NG911 GIS grants in the Joint Committee on Finance's supplemental appropriation.

In a 13.10 meeting on May 31, 2022, the Finance Committee approved the transfer of $1.5 million SEG in 2022-23 from the supplemental appropriation to the Department's Next Generation 911 appropriation to provide GIS grants and administer the grant program. Additionally, the Committee approved the creation of 2.0 SEG positions, including a GIS specialist and a GIS grants specialist; however, the Committee specified that these positions must be funded using the Department's base budget in the 2023-25 biennium. The GIS specialist will oversee data preparation, upgrade the database, ensure GIS standards are correct for a NG911 system, monitor and assist counties with GIS data questions and validation, work with local governments to collect and use data, and work with NG911 contractors to ensure GIS data elements are tested and routing properly. Act 261 requires grant development and administration for GIS grants to counties, which entails management of the GIS and PSAP grant programs, including developing grant guidance, evaluating applications, administering awards, and monitoring compliance with program requirements and performance. The GIS grants specialist position will perform these tasks. The cost of the two positions is $236,000 SEG annually, including salaries, fringe benefits, and supplies and services.

In June, 2022, the OEC released a RFP for NG911 GIS data management services to assist the state in implementing GIS data in NG911. Vendor responses were due in July, 2022, and were still being evaluated as of December, 2022. Additionally, in August, 2022, the OEC opened the application period for competitive GIS grants for NG911. Applications were due in October, 2022, and award documents are expected to be released by the end of 2022.

Implementation Considerations. The Department indicates that as a "home rule state," much of the decision-making related to public safety is handled at the local level in Wisconsin. According to DMA, the NG911 program will be administered on a state-guided, local control basis. For example, while the statewide ESInet will create the capacity to connect PSAPs, participation in the network will be voluntary. Further, while consolidating PSAPs could increase efficiencies by requiring fewer call centers to purchase new equipment, current law does not allow the state to require consolidation. Equipment capabilities and training requirements also vary throughout the state, which creates challenges when transitioning to a statewide network.

Individual PSAPs will have the choice of implementing certain features, such as text-to-911, which allows residents to communicate via text message rather than voice call. Differences in service could create confusion as residents navigate which features are available in their area.

Wisconsin Interoperability System for Communications

Current System

Overview. The Wisconsin Interoperability System for Communications is a radio system that permits emergency responders from varying public safety disciplines to communicate across jurisdictions during major disasters and large-scale incidents. In addition, state and local agencies may elect to use WISCOM as their primary radio system. The system was developed in 2012 and installed by the State Patrol with equipment procured from EF Johnson. Since the system is reaching its end-of-life, DMA is in the process of procuring the system's replacement.

As of December, 2022, WISCOM consists of communications equipment installed at 140 tower sites statewide. The system was built to support 95% mobile radio coverage statewide, while also allowing agencies the ability to join and enhance the coverage with additional sites. The State Patrol also has a mobile site on wheels that can provide

or enhance WISCOM communications coverage in an emergency. Appendix IV shows the location of WISCOM tower sites.

In total, WISCOM is used by 1,200 local, state, federal, tribal, and non-governmental agencies (18 federal agencies, 12 state agencies, 994 local and tribal agencies, and 176 non-governmental agencies). These agencies have over 44,000 registered subscriber radios connected to the network, with approximately 19,000 radios accessing the network each month.

The core system consists of five Very High Frequency (VHF) channels that permit emergency responders to carry on four simultaneous conversations in a given area utilizing a particular radio tower. Utilizing the VHF band for WISCOM has enabled the state to develop statewide coverage with fewer radio towers and lower infrastructure expense. However, the VHF band on which WISCOM primarily relies does not penetrate buildings as well as other radio bands and can be difficult to utilize in urban settings with increased radio traffic. In addition, portable radios have weaker antenna ranges and may not be able to gain access to the system from all locations.

Under 2017 Act 59, DMA was required to submit an interoperability report describing the initiative's status and challenges, as well as recommendations for changing the statutory authority of the interoperability council and legislative or executive actions to promote interoperability. The report, published in December, 2018, identified WISCOM system challenges, including insufficient financial resources for maintenance, inadequate staffing levels, coordination issues across agencies, and infrastructure problems stemming from improper installation. The report indicated that staff had made improvements to technical challenges by adopting a single set of installation and lightning protection standards, bringing sites into conformance with adopted standards.

Funding. To develop and construct the current WISCOM system, the state spent approximately $45.2 million derived from federal funds ($29.6 million), general purpose revenue ($4.8 million), program revenue ($5.5 million), and segregated funding ($5.3 million). In addition, approximately $8.6 million was spent for subscriber units utilized to access the system, such as dispatch consoles and radios.

Funding for the interoperable communications system appropriation is $1,246,900 PR annually during the 2021-23 biennium, from justice information systems fee receipts. The Department has assigned 2.0 PR positions to manage WISCOM. In addition, WISCOM is allocated $1,345,000 GPR and $700,000 PR annually in the 2021-23 biennium for maintenance.

Further, DMA is authorized to charge a fee to local, state, federal, and non-governmental entities (such as hospitals) for use of the WISCOM system. While several agencies utilize the system, including the Department of Natural Resources and the Department of Transportation (State Patrol), most agencies are not assessed fees in recognition of their contributions to system development and maintenance. The Department has also decided not to charge local public safety agencies as it believes charging a fee may decrease use of the WISCOM system by local entities, which could impact public safety in the state.

In 2021-22, DMA collected $42,425 in fee revenue for WISCOM use. Revenue was generated from charging the federal Drug Enforcement Administration for registered radios and the Wisconsin Department of Health Services for hospitals with a WISCOM base station.

System Replacement

Under 2017 Act 59, DMA was required to upgrade or replace WISCOM. According to DMA, WISCOM must be upgraded or replaced to ensure the system can deliver public-safety grade communications to current users, expand to support

other users at the state and local levels, and provide interoperability with other communications systems. The current system's key components have reached their end-of-life, and the system's technical specifications have a limited ability to provide expanded coverage and capacity concurrent with program demand.

As directed under Act 59, DMA issued a RFP to replace the WISCOM system in October, 2018. To support related costs, Act 59 provided $464,000 GPR annually to purchase software, equipment, and services starting in 2018-19. However, the RFP was placed on hold because of a statewide moratorium on RFPs during the gubernatorial transition in November, 2018.

Under 2019 Act 9, the requirement that DMA issue a RFP for WISCOM was repealed. Instead, in May, 2020, DMA solicited a request for information (RFI) to develop requirements and specifications for the next iteration of WISCOM. According to DMA, the RFI was the first phase of a competitive procurement approach that sought to engage the vendor community and experts in public safety communications to collaborate on solutions for the design, construction, implementation, support, and maintenance of the interoperable communications system. Information gathered through the RFI informed the scope and objective of the subsequent RFP. The Department indicated that gathering information from vendors prior to re-soliciting a RFP reduced system costs and improved the quality and reliability of proposals.

According to the RFI, the next iteration of WISCOM must meet the following requirements: (a) deliver at least 95% service area reliability across the state, with higher levels in selected areas; (b) provide best performance for diverse daily users, given that VHF has been the frequency band of choice in rural areas while 700/800MHz is prevalent in urban areas; (c) have the ability to improve coverage through future expansions; and (d) support statewide interoperability through interconnections to mutual-aid channels, external radio systems, and authorized broadband users. Additionally, the system must comply with industry standards that support multi-vendor interoperation (support for user radios from various companies without proprietary technologies) and best practices for the design and construction of the system.

The 2021-23 biennial budget, Act 58, required the Department to: administer the current and future statewide public safety interoperable communication system; enter into agreements for maintenance and support of the current system; and enter into agreements for the maintenance and support of, upgrades to, and enhancements for the replacement system. Act 58 also directed DMA to issue a RFP for the replacement of WISCOM. Further, the Act provided $500,000 GPR in 2022-23 to DMA for WISCOM management consulting services and placed $6 million GPR in 2022-23 in the Joint Finance Committee's supplemental appropriation for potential release to DMA for initial WISCOM replacement costs.

The Department released the RFP on November 30, 2021. On August 22, 2022, the Department sent a notice of intent letter to the selected vendor, L3Harris Technologies, Inc. The RFP received a protest to the intent to award. The Department indicates that contract negotiations will not begin until the protest has been resolved. The final cost for building the new radio network will include the following: (a) communication sites, physical sites that contain, transmit, receive, and control equipment; (b) backhaul sites, used to bring the radio signal back to main communication sites; (c) consoles, equipment that enable the dispatch center to communicate with field personnel; and (d) peripheral equipment, such as remote base stations, remote control consoles, handheld chargers, and amplifiers to ensure coverage inside of buildings.

Upgrading the state's interoperable radio network will require an overlap of the existing WISCOM system and the replacement system. In September, 2019, DMA signed a five-year contract

with EF Johnson to continue providing maintenance on the WISCOM system. The Department indicates that the extended maintenance agreement is needed to ensure the current system remains viable as the state moves forward with a future system.

Other Emergency Communications Systems

The Department of Military Affairs also administers the state emergency operations center, the Land Mobile Radio program, and the Public Safety Broadband program.

State Emergency Operations Center

The Department operates the SEOC, located in Madison, to facilitate the coordination of state agencies during an emergency. Depending on the gravity of the situation, the SEOC may be activated, at which time staff from pertinent agencies coordinate a response in the SEOC or using the virtual SEOC system. A duty officer is on call 24 hours a day to receive calls from counties and local jurisdictions relating to emergency situations. For calls requiring elevation to a higher level, the duty officer may call the bureau directors and/or the Division Administrator. The duty officers continuously monitor events through frequent contacts with the National Weather Service, Department of Transportation, and county emergency management offices.

The status of the SEOC is updated in response to severe weather and other emergency situations. The Department categorizes event levels from one through five, with five being the lowest level of emergency and one being the highest.

Financial support is generally provided by DMA's emergency management services general program operations appropriation, allocated $1,164,200 GPR and 10.08 GPR positions in 2022-23. In the event of a Presidential declaration of major disaster, costs may be supported by the federal government. For example, during the COVID-19 pandemic, the activation was funded by the Coronavirus Aid, Relief, and Economic Security Act. The Division anticipates a reimbursement of $435,000 from FEMA for the COVID-19 response from 2020-21 and 2021-22.

Land Mobile Radio/The Communications Unit Workgroup (COMU WG)

As a home rule state, public safety agencies are not required to join WISCOM and can instead build their own radio systems. The LMR program helps manage these other public safety radio frequencies and coordinate interoperability with WISCOM. The LMR program also helps manage the state's mutual aid frequencies to ensure the resource is equitably available to all public safety agencies. The communications unit (COMU) workgroup, attached to the LMR subcommittee, establishes a standardized approach to the command, control, and coordination of on-scene incident management.

Public Safety Broadband (PSB)

The public safety broadband program aims to create a nationwide interoperable high-speed wireless network for police, fire, emergency medical, and other public safety officials. Beginning in early 2023, the program will provide users with dedicated spectrum and broadband capabilities to ensure that first responders have voice and data access at all times. FirstNet, an authority within the U.S. Department of Commerce, is authorized to develop, build, and operate the network nationwide through a contract with AT&T. In addition, DMA has allocated 1.0 SEG position, funded by the PFP fund, to assist with PSB.

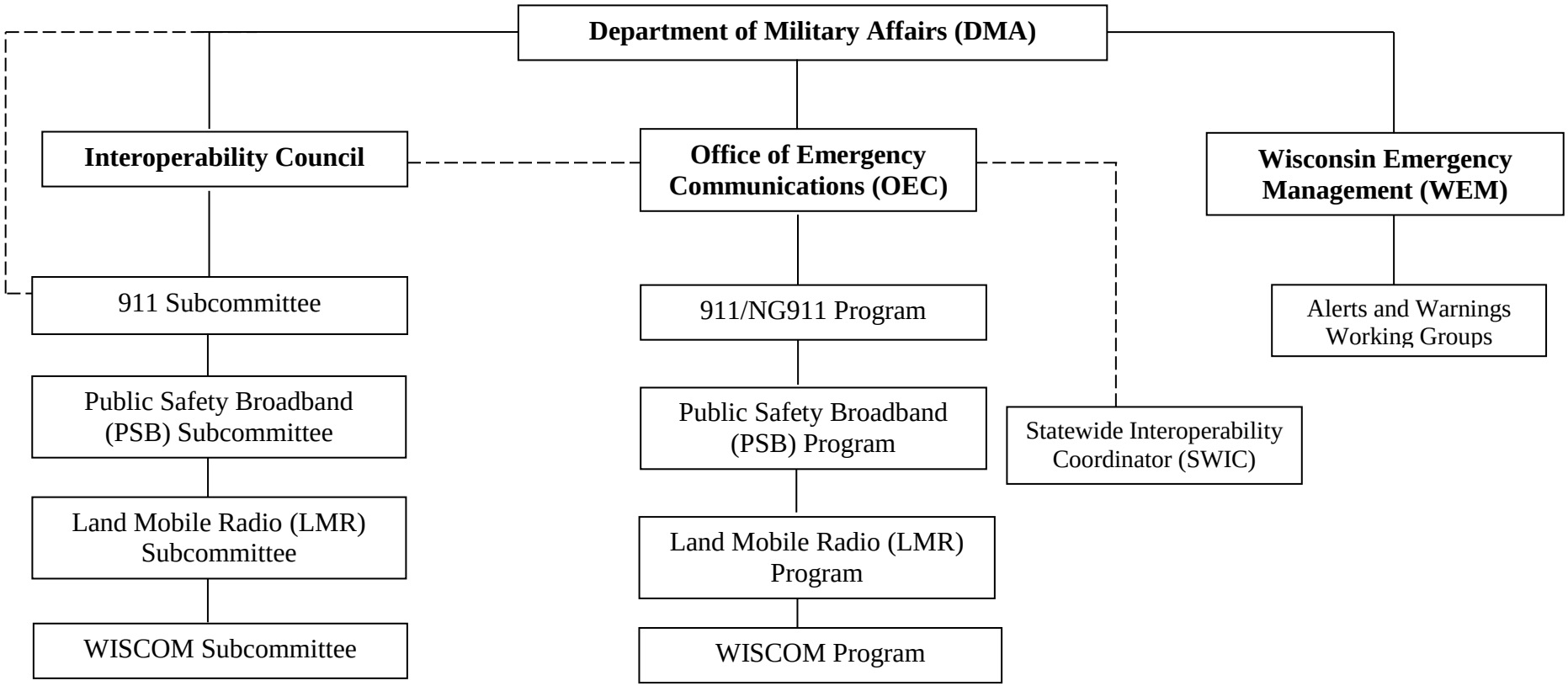
In 2017, FirstNet and AT&T delivered a PSB plan for Wisconsin. Based on the plan, the Governor was required to opt-in and allow AT&T to build out the network, or opt-out and instead build

a statewide network that would interconnect with the nationwide network. In 2017, the Governor notified FirstNet that Wisconsin would opt-in to the nationwide network.

AT&T is near the end of the initial five year implementation period. The company has completed many of the initial coverage and deployable asset build-out milestones, but have yet to meet all of the subscriber goals set in the state plan.

APPENDIX I

Emergency Communications Organizational Chart



APPENDIX II

Glossary of Emergency Communications Terminology

911 – A telephone number to report emergencies that require a public safety agency response.

911 System – The network, database, and customer premise equipment required to provide 911 service.

Automatic Location Identification (ALI) – The automatic display at the PSAP of the caller's telephone number, the address/location of the telephone, and supplementary emergency services information.

Automatic Number Identification (ANI) – The telephone number associated with the access line from which a call originates.

Backup Public Safety Answering Point (Backup PSAP) – Typically, a disaster recovery answering point which serves as a backup to the primary PSAP and is not co-located with the primary PSAP.

Base Station – A wireless communications device that acts as both a transmitter and receiver installed at a fixed location (such as a tower site).

Computer Aided Dispatch (CAD) – A computer-based system which aids PSAP personnel by automating selected dispatching and record keeping activities.

Consolidated PSAP – A facility where multiple public safety agencies operate as one 911 entity.

Customer Premise Equipment (CPE) – Equipment used by PSAPs to answer and process 911 calls. Also called call handling equipment (CHE).

Dedicated Trunk – A telephone circuit used for a single purpose, such as transmission of 911 calls.

Emergency Services Internet Protocol Network (ESInet) – A managed IP network that is used for emergency services communications, and which can be shared by all public safety agencies. It provides the IP transport infrastructure upon which independent application platforms and core functional processes can be deployed, including, but not restricted to, those necessary for providing NG911 services.

Enhanced 911 Service – A service that directs 911 calls to appropriate PSAPs based on selective routing and provides the capability for automatic number identification and automatic location identification.

Federal Communications Commission (FCC) – For emergency communications, the FCC is responsible for overseeing the regulation of telecommunications services providers that provide 911 services.

First Responder – A person (such as a police officer or an emergency medical technician) who is among those responsible for going immediately to the scene of an accident or emergency to provide assistance.

First Responder Network Authority (FirstNet) – An independent authority within the Department of Commerce that provides emergency responders with the first nationwide, high-speed, broadband network dedicated to public safety.

Geographic Information System (GIS) – A computer software system that visualizes geographic aspects of data. It contains the ability to translate implicit geographic data (such as a street address) into an explicit map location. It has the ability to query and analyze data to receive results in the form of a map. It is used to graphically display coordinates (i.e. Latitude/Longitude from a wireless 911 call).

Interoperability – The ability of disparate public safety agencies to work together.

Interoperability Council (IC) – A Wisconsin governance body created under s. 15.315(1)(a) and tasked with making recommendations and assisting the Department of Military Affairs with public safety interoperability tasks identified under s. 323.29(2).

Land Mobile Radio (LMR) – A classification of FCC radio communications used by private business, state and local governments, and others to coordinate resources during emergency scenarios.

Legacy Network – A 911 network that is operating as a basic or enhanced 911 system.

Maintenance – The effort to repair unscheduled and scheduled deficiencies of a communications system to keep the system running at peak performance including, but not limited to, upkeep of physical infrastructure and equipment and software upgrades.

Mobile Radio – A two-way radio device physically installed in a vehicle; usually equipped with a rooftop antenna and a handheld microphone. This radio can typically transmit at a power of 15 to 100 watts.

Mutual Aid Frequencies – A common set of frequencies that are used during incidents in which multiple agencies may respond.

National Emergency Number Association (NENA) – The association strives to provide standards, certification programs, legislative representation, and technical assistance for managing 911 systems.

Next Generation 911 (NG911) – Next Generation 911 means a statewide emergency number system regardless of technology platform that does all of the following: (a) provides standardized interfaces from requests for emergency assistance; (b) processes all types of requests for emergency assistance, including calls, non-voice, and multimedia messages; (c) acquires and integrates data useful to the delivery or routing and handling of requests for emergency assistance; (d) delivers requests for emergency assistance and data to appropriate public safety answering points and emergency responders; (e) supports data and communications needs for coordinated incident response and management; and (f) provides a secure environment for emergency communications.

Portable Radio – A two-way radio device typically worn in a radio case (holster) on the hip of the user. Portable radios typically transmit at a lower power (3 watts) than their mobile counterparts.

Primary PSAP – A PSAP equipped with automatic number identification and automatic location identification displays and is the first point of reception of a 911 call.

Public Safety Agency – A functional division of a public agency which provides firefighting, law enforcement, medical, or other emergency services.

Public Safety Answering Point (PSAP) – A facility equipped and staffed to receive and process 911 calls. A primary PSAP receives the calls directly. If the call is relayed or transferred, the next receiving PSAP is designated a secondary PSAP.

Redundancy – Duplication of components, running in parallel, to increase reliability.

Response Agency – The agency with the legal or consensual obligation to respond to a call for service.

Secondary PSAP – A PSAP to which 911 calls are transferred from a Primary PSAP.

Selective Routing – The routing of a 911 call to the proper PSAP based upon the caller's location.

Selective Transfer – The capability to transfer a 911 call to a response agency by operation of one of several buttons typically designated as police, fire, and emergency medical.

Short Message Service (SMS) – Under NG911, residents in need of emergency services can use SMS, or text messages, to reach the PSAP.

Statewide Interoperability Coordinator (SWIC) – Each state and territory has a designated SWIC, responsible for coordinating with emergency response leaders to facilitate interoperability.

Very High Frequency (VHF) – The frequency band from 30 Megahertz (MHz) to 300 MHz and is the main frequency band utilized by the WISCOM system.

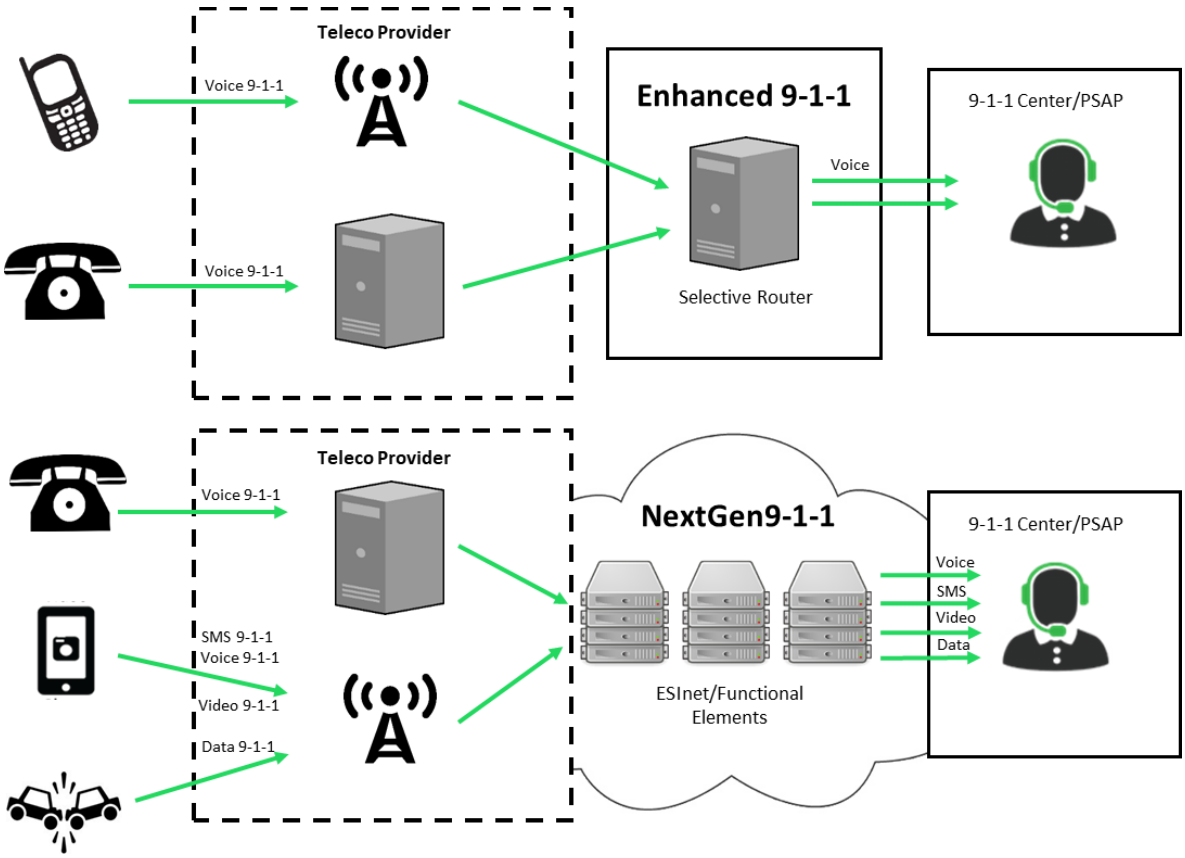
Wireless Telecommunications – Telecommunications services under Commercial Mobile Radio Service, including Cellular, Personal Communications Services, Mobile Satellite Services, and Enhanced Specialized Mobile Radio.

Wireline Enhanced 911 Service – Service provided by a wireline carrier that connects a subscriber dialing or entering the digits 911 to a PSAP.

Wisconsin Interoperable System for Communications (WISCOM) – A shared statewide, Very High Frequency, digital radio network that first responders in communities across the state may use to communicate with each other for daily operations, major disasters, and large-scale incidents.

APPENDIX III

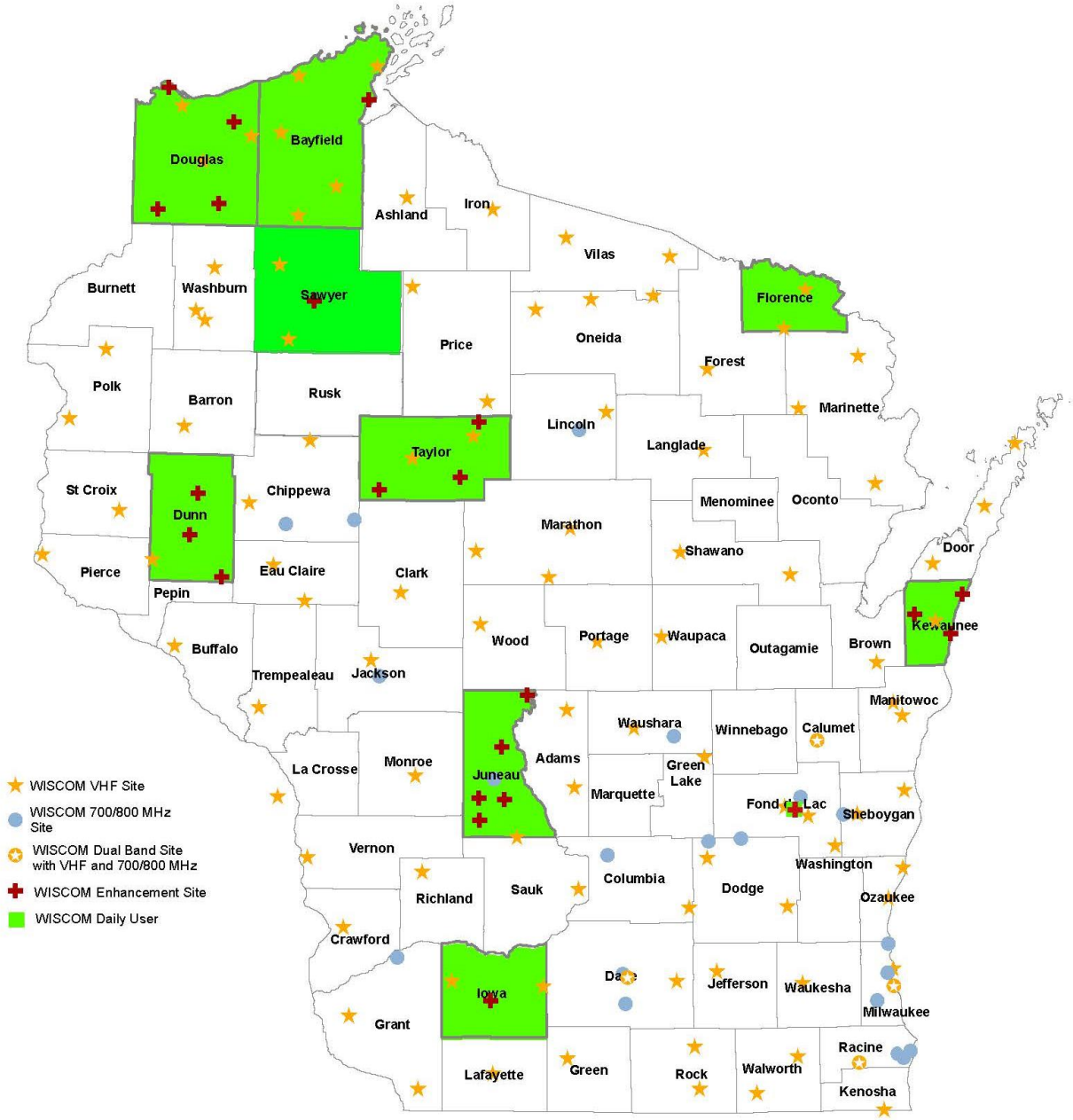
Comparison of 911 System Operations



Source: Department of Military Affairs.

APPENDIX IV

WISCOM Tower Sites



Source: Department of Military Affairs.