

IOWA DEPARTMENT OF HOMELAND SECURITY & EMERGENCY MANAGEMENT

2018

911 Annual Report



V. Joyce Flinn, Director

[This page is intentionally blank.]

Table of Contents

- Introduction 4**
- Legislative Updates to Iowa Code 5**
- Current Status and Modernization of the E911 System 5**
 - Wireline 911..... 5**
 - Wireless Next Generation 911..... 5**
 - Redundancy and Secondary Network 7**
 - Text-to-911..... 7**
 - Geographic Information Systems, Aerial Photography, and NG911 8**
 - 911 Operating Surplus Funds Available to Local 911 Service Boards 9**
- Subscriber Surcharges and Distribution 9**
 - Prepaid Wireless and VoIP Surcharges 10**
 - Wireless Surcharge Distribution 10**
- Conclusion 11**
- Attachment 1: Iowa’s Public Safety Answering Points..... 12**
- Attachment 2: SIP-Enabled PSAPs 13**
- Attachment 3: Text-to-911-Enabled PSAPs 14**
- Attachment 4: Approved GIS Grant Applications 15**
- Attachment 5: Revenues and Expenditures 16**

Introduction

The Iowa Department of Homeland Security and Emergency Management (HSEMD) submits this 911 annual report to the Iowa General Assembly's standing committees on government oversight pursuant to Iowa Code § 34A.7A (3) (a). This section of the Code requires the 911 program manager to advise the General Assembly of the status of 911 wireline and wireless implementation and operations, the distribution of surcharge receipts, and an accounting of revenue and expenses of the 911 program.

The state's 911 system consists of 113 public safety answering points (PSAPs) across 99 counties. These PSAPs handle both landline and wireless emergency 911 calls from within Iowa. The wireline 911 system was launched in Iowa in 1988 and is managed by local 911 service boards. The funding to support the system is obtained through local contributions and a landline phone surcharge authorized by Iowa Code § 34A. Wireless 911 capability was added to the system beginning in 1998. Funding to support wireless coverage was addressed through an ongoing surcharge on wireless phone users' monthly bills and is managed by the Iowa Department of Homeland Security and Emergency Management pursuant to Iowa Code § 34A.7A. Recently, the department converted the wireless 911 network from analog technology to an emergency services IP network (ESInet) referred to as a Next-Generation (NG) 911 network. From Oct. 1, 2017, through Sept. 30, 2018, this NG911 network processed 920,644 wireless 911 calls to Iowa's PSAPs. Local PSAPs are the primary users of the NG911 network and answer and dispatch resources for more than 98 percent of all wireless 911 calls in Iowa. The Iowa Department of Public Safety (DPS) handles the remainder of the wireless 911 calls.

As mentioned above, the wireless portion of the 911 system is currently undergoing a significant upgrade to an IP-based system. The first phase of a multiphase effort into what is called the NG911 network has converted analog/copper trunking to the local PSAPs to a statewide, IP-based Ethernet

network. The IP-based backbone was completed in November 2012 and leverages the Iowa Communications Network (ICN). The second phase of the network upgrade is nearly complete. This phase of NG911 includes updating individual PSAPs to IP-enabled call handling equipment and logging recorders. Ninety-two percent of the state's PSAPs are fully end-to-end IP-enabled. As of January 2019, all but two of the local 911 PSAPs are capable of receiving Text-to-911. Work has also begun toward the State's virtual consolidation efforts, technologically merging the legacy wireline network with the Next-Generation IP-based network, as well as sharing technology for call-processing equipment at the PSAPs.

Iowa Code § 34A requires that each county in the state establish a joint 911 service board that has authority over the local PSAP. Each board has the responsibility to develop a countywide 911 service plan, detailing the manner and cost for the implementation of a wireline and wireless 911 system for the geographical area of the PSAP. As of today, all 99 counties have approved countywide 911 service plans.

The Iowa Department of Homeland Security and Emergency Management has the responsibility to review and approve the countywide 911 service plans. HSEMD is also responsible for the overall administration of Chapter 34A through a program administrator appointed by the HSEMD director.

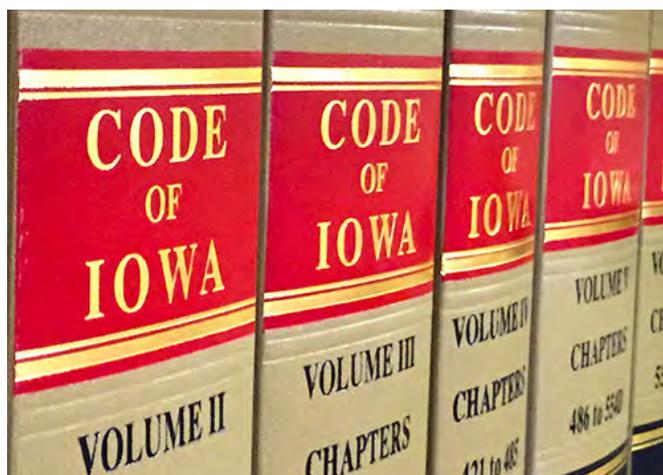


Legislative Updates to Iowa Code

During the 2018 legislative session, the following changes were made to the Iowa Code with the passing of House File 2254:

- Directing HSEMD to implement virtual consolidations (merging legacy wireline network with the existing NG911 network and introducing shared PSAP services).
- Allowing the department to make payments to vendors based on the above infrastructure.

This effort is expected to save local PSAPs approximately \$6 million per year in local expenses.



Current Status and Modernization of the E911 System

Iowa has continued to maintain two different 911 networks that do not interface with each other. Technology currently exists to merge the wireline and wireless networks into a single 911 system. House File 2254 directed HSEMD to implement a plan to combine the wireline 911 network with the NG911 network. The Plan on Virtual 911 Consolidation can be found [here](#). HSEMD is currently working with the ICN and the NG911 core services provider (Comtechtel Systems, or Comtech) to implement the changes to deliver wireline 911 calls over the ESInet.

Wireline 911

The wireline 911 system is a legacy system that has been developed and implemented by the local joint 911 service boards. As such, the system is comprised of a variety of differing network elements. These differing network elements have led to a system of disparate 911 networks, which include direct trunking to the PSAP, locally selectively-routed calls, and regionally selectively-

routed calls. Trunk-based legacy systems are only capable of delivering wireline 911 calls. In the future, these networks will transport calls to an ICN-managed aggregation point, where they will then be delivered to Comtech call logic centers (CLCs) via the ESInet, for proper call delivery to the PSAPs.

Wireless Next Generation 911

Network

The current wireless 911 system is an enhanced 911 (E911) system that is undergoing a lengthy, multiple-phase transition to a Next-Generation (NG911) system. An E911 system can give automatic address or location data and routing capabilities as allowed by this system. An NG911 system is IP-based rather than analog-based, allowing for more precise call delivery, diverse routing, and transferring of calls.

Figure 1 on the following page outlines some of the differences between enhanced and NG11.

Current Status and Modernization of the E911 System

The ESInet consists of 113 local and Iowa Department of Public Safety (DPS) primary PSAPs (Attachment 1). The ESInet also includes two redundant CLCs connected by 50 MB circuits to handle the call volume and call routing. The two call logic centers are located in Davenport and West Des Moines. While the ESInet primarily uses fiber from the ICN, the CLCs, State equipment in the PSAPs, and the policy call-routing and handling functions are managed through a contract with Comtech. The Comtech contract is entering year eight of a maximum 10-year contract.

HSEMD and Comtech have continuously worked to upgrade the software and programming at the data centers for the way calls are delivered via IP. These upgrades use the National Emergency Number Association (NENA) i3 standard for call delivery. The ultimate goal of these upgrades is a NG911 network that will ultimately support the use of text, video, and picture messaging to 911, and also seamless transfers and rollovers of emergency calls in the case of maintenance issues or outages. Once multimedia messaging services (MMS) become available from the wireless carriers, and are capable of being processed and displayed by the PSAPs' call taker equipment, they will be implemented in Iowa.

PSAPs

As of Dec. 31, 2018, 112 of 113 PSAPs have upgraded their call-handling equipment to NG911. These 112 PSAPs are now technologically capable of receiving network-delivered IP-based calls.

Currently, there are 104 PSAPs that have migrated and are truly receiving end-to-end IP-enabled wireless calls over the ESInet all the way to their call-taker screens. In the remaining cases, additional local software upgrades, or the purchase of an IP-capable logging recorder, may be needed before migration to a true IP-based call environment is possible. (Attachment 2).

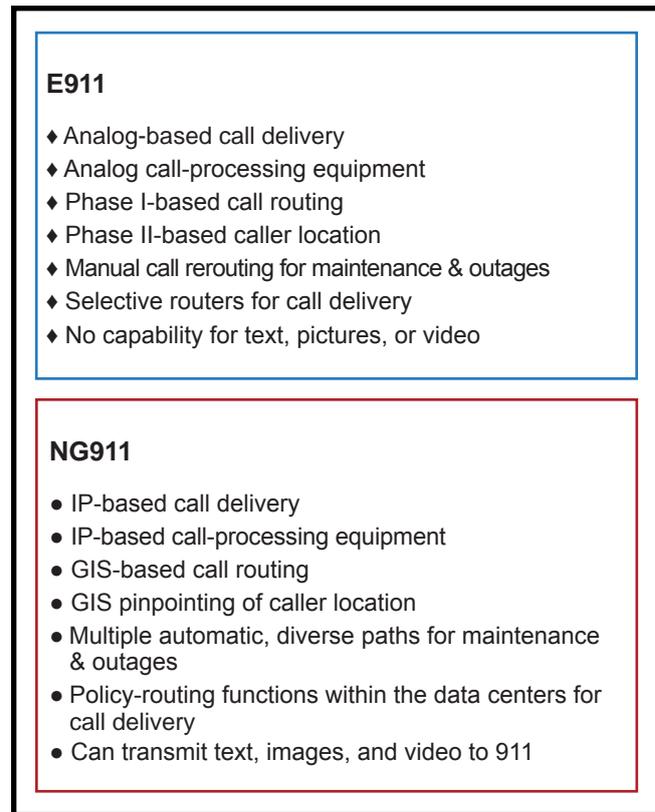


Figure 1

HF2254 also allowed HSEMD to put in place the infrastructure that will allow PSAPs to share certain technology. The main effort is to share call processing equipment (CPE), and also allow for sharing of logging recorders, mapping, computer-aided dispatch, and emergency medical dispatch. These components of a PSAP formerly needed to be physically housed in each PSAP at a great cost to the State and/or PSAP. However, through technological advances, the entire state could conceivably share this equipment. To that point, 25 of the state's PSAPs have indicated their interest in participating in this shared-services environment. These 25 PSAPs are scheduled to be converted to the shared-services environment within the first six months of 2019.

Current Status and Modernization of the E911 System

Along with a shared-services environment, the wireline migration onto the Next Generation network will begin implementation in early 2019 and be completed within the first six months of the year.

Throughout this four-year process of identifying the best way to achieve statewide cost savings in the 911 program, HSEMD has produced a number of reports:

- [2014: 911 Efficiencies Study](#)
- [2015: 911 PSAP Data Analysis Report](#)
- [2016: Study of Adequacy of \\$1 Surcharge and Biennial Cost Report](#)
- [2018: Plan on Virtual 911 Consolidation](#)
- [2018: Updated NG911 Operations Plan](#)

Redundancy and Secondary Network

Realizing the need for additional redundancy, HSEMD began a project with Comtech to provide additional safeguards in the event of a statewide or large regional outage of the ESInet. Thirteen of the largest PSAPs were identified to act as part of a secondary ESInet. Completely diverse fiber, circuits, and State systems were used to build this second network, separate from the primary ICN backbone. Currently, HSEMD, along with its vendor partners, has established redundant connectivity to 11 of the 13 PSAPs. Those 11 PSAPs continue to receive their wireless calls in the case of a large outage or maintenance.

HSEMD is working with all of the PSAPs in the next phase of the project. This next phase would alternate calls from the regular, single connected PSAPs to the large, redundant PSAPs in the case of a large outage—in effect, creating regional back-up facilities. Significant planning, coordination, and procedural efforts go into this concept. Not only must the 911 call ring into a regional back up facility, but the call must then be quickly dispatched. The statewide NG911 GIS mapping and aerial photography projects discussed later in the report help facilitate the dispatch of calls. HSEMD is also working with

the Iowa Statewide Interoperable Communications System (ISICS) to ensure there is appropriate radio communication between PSAPs. HSEMD has dedicated \$450,000 in Homeland Security Grant Program funding—separate from 911 surcharge monies—to ensure the PSAPs have access to this statewide radio system.



Text-to-911

In an effort to facilitate the more rapid deployment of Text-to-911, HSEMD contracted with six CPE vendors to implement Text-to-911 in the PSAPs. This contract was implemented where existing vendor or customer relationships existed, and merely seeks to fund and centralize the rollout of the service statewide. Text-to-911 has been shown to save lives in other states in incidents including home intrusions and domestic violence, and is instrumental for the deaf and hard-of-hearing community. Even in Iowa, positive outcomes have been achieved through the use of Text-to-911. Currently, 108 PSAPs representing 97 of Iowa's 99 counties are able to receive Text-to-911, as shown in Attachment 3. The State's three DPS PSAPs are technically ready to receive Text-to-911, however at this point there is not a way to route texts to DPS PSAPs.

Current Status and Modernization of the E911 System

Geographic Information Systems, Aerial Photography, and NG911

Geographic Information Systems (GIS) technology provides the critical data backbone of the NG911 network and is key for call routing, call handling, call delivery, location validation, and emergency response. Data from GIS also provides dispatchers and responders access to additional information such as location and details about the caller to include the caller's service provider or telematics. Information sharing is essential to building statewide GIS datasets, as more than 100 different data owners need to share information for the NG911 system. HSEMD completed its three-year, \$1.3 million contract with Surdex to provide aerial photography for use in all 113 PSAPs. A seamless, statewide imagery dataset can be used as a base map for the NG911 GIS activities in Iowa. Telecommunicators can use this imagery, along with the GIS data, to help provide situational awareness throughout the state to dispatch responders. The aerial photography is already being shared with other State government agencies and all levels of local government. This data is available upon request.

In 2017, SF 500 created GIS grants to assist local 911 service boards in the creation, improvement, and maintenance of their GIS information. In FY 2018, HSEMD granted \$505,130.36 for local 911 services to each PSAP to help facilitate this critical local data. For FY 2019, HSEMD has modified the grant program, creating an incentive grant once local GIS data meets certain benchmarks for the grant:

- Overall NG911 GIS accuracy at or above 98 percent and submission of all required data layers; and
- Automatic location identification (ALI) synchronization to GIS Road Centerline accuracy of 50 percent or above; and
- Master street address guide (MSAG) synchronization to GIS Road Centerline accuracy of 50 percent or above; or
- Meet two out of the three benchmarks and see an increase of 25 percent or more in the third benchmark.

In a further effort to drive the increased frequency of providing updated information, the grant is split into two six-month periods, where half of the total grant is eligible each period. In FY 2019, through December 2018, HSEMD has granted a statewide total of \$390,000 (Attachment 4).

HSEMD, with support from GeoComm Inc., has developed and updated statewide NG911 GIS standards for Iowa. A committee of local GIS partners continue to assist with ongoing review and revision of the standards. The standards and GIS database schema provide a template and direction for the NG911 GIS community. The local GIS data feeds the statewide GIS portal, which is available for all PSAPs to share common data and location information available through the mapping systems at the PSAPs. HSEMD and GeoComm continue to work on assessing local data and providing reports where GIS data corrections or updates are needed. GeoComm is serving the Iowa NG911 GIS portal allowing the locals to upload their GIS data and view all of the other datasets in Iowa. HSEMD will continue to work with GeoComm to process the data and aggregate the information for use in the statewide NG911 GIS system.



Current Status and Modernization of the E911 System

911 Operating Surplus Funds Available to Local 911 Service Boards

Beginning in FY 2016 via HF 2439, the Iowa Legislature began to modify local 911 service board access to the 911 surcharge operating surplus. Consolidation grants became available for PSAPs wishing to physically consolidate. A maximum of \$200,000 per PSAP (with a local match) is available for the actual cost of physically combining PSAPs. In three years of the grant being available, no PSAPs have applied for a physical consolidation grant.

Annually, a total of \$100,000 is available for Iowa 911 Communications Council travel, 911 public

education, and training for 911 professionals. Since this funding was first made available in FY 2016, \$149,675.73 has been used to train more than 1,600 911 professionals, \$47,000 has been approved for public education efforts, and \$14,000 has been used for 911 council travel.

According to Iowa Code Section 34A.7A, funds remaining in the operating surplus are to be passed through to PSAPs equally. In FY 2018, there was a \$7 million cap on the amount that could be passed through. A total of \$6.9 million was passed through to local 911 service boards, or \$61,093.06 per PSAP. There is no cap on pass-through funding for FY 2019.

Subscriber Surcharges and Distribution

Funding for the wireline and wireless portions of the 911 system are set in Iowa Code § 34A.7 and 34A.7A, respectively. In July 2013, the Iowa General Assembly set the surcharge for both wireline and wireless 911 services at \$1 per month per access line across the entire state. The wireline surcharge is deposited in the local 911 service fund and disbursements are made by the local 911 service board. The wireless surcharge is deposited in the State 911 Emergency Communication Fund administered by HSEMD. For the 12 months ending Sept. 30, 2018, the wireless surcharges totaled \$27,432,449, an increase of \$589,936 from the same time frame the previous year.

HSEMD has the responsibility to order the implementation of the surcharge with each telephone service company providing landline service within the 911 service area. Within the state, there are 175 competitive local exchange service providers. Each local telephone service provider remits collected surcharge funds directly to the respective local 911 service board on a quarterly basis.



In FY 2017, the total of wireline surcharges were \$10,809,437, a decrease of \$354,131 from the previous year.

Subscriber Surcharges and Distribution

Prepaid Wireless and VoIP Surcharges

In 2012, Iowa Code § 34A.7B authorized a surcharge on prepaid wireless phone transactions. The prepaid surcharge is remitted to the Iowa Department of Revenue, which transfers all remitted prepaid wireless 911 surcharges to the State treasurer for deposit in the 911 emergency communications surcharge fund. In 2013, Iowa Code § 34A.7A was amended to allow the prepaid wireless surcharge to increase or decrease proportionately to the wireless surcharge. As a result of that change, the prepaid surcharge is currently 51 cents per prepaid transaction, and the total revenue generated for this surcharge for the 12 months ending with Sept. 30, 2018, is \$2,197,234. This amount is \$51,132 less than the same time frame the previous year.

In 2012, the definition of a communication service provider in Iowa Code § 34A.2 was amended to include service providers that transported information over the Internet, including VoIP companies. These companies are now required to collect and remit surcharges as a communications service provider.

Cable TV companies that sell static VoIP services as part of a bundled package also pay their collected surcharges to the local wireline 911 service boards. Nomadic VoIP providers (e.g. Vonage) that are not restricted to a particular location pay the surcharges assessed to their customers to HSEMD through the State 911 emergency communications service surcharge.

Wireless Surcharge Distribution

The bulk of the 911 surcharge revenue is obtained through the wireless surcharge. Under Iowa Code § 34A.7A (2), the collected surcharges must be distributed in the following order (Attachment 5):



1. To Homeland Security and Emergency Management for program administration, an amount equal to that appropriated by the General Assembly. In 2018, this amount was \$250,000.
2. To joint 911 service boards, 60 percent of the total surcharge funds generated for communications equipment utilized in the implementation and maintenance of 911 services within the local PSAP. Iowa Code §34A.7A (2) sets out how the 60 percent amount is to be distributed among the 113 PSAPs in the state. For the 12 months ending Sept. 30, 2018, this amount was \$17,777,810, an increase of \$323,282 from the previous 12 months.
3. To wireless service providers, 10 percent of surcharge funds generated from July 1, 2013, through June 30, 2026, to recover their costs of providing 911 wireless phase one services. For the 12 months ending Sept. 30, 2018, this amount was \$874,613, an increase of \$195,324 from the previous 12 months.
4. To Next Generation 911 network providers, 911 call processing equipment providers, 911 call transport providers, and third-party 911 automatic location identification database

Subscriber Surcharges and Distribution

providers, for the costs of maintaining and upgrading the Next Generation 911 network functionality, 911 call processing equipment, and 911 call transport from the NG911 network to local PSAPs, including local GIS Grants. For the 12 months ending Sept. 30, 2018, this amount was \$4,932,848.79, a decrease of \$586,819.

5. For the purposes of development of public awareness and educational programs related to the use of 911, and for the expenses of the

Iowa 911 Communications Council for travel and training. For State FY 2018, the amount spent on these items was \$96,483 out of the allowable \$100,000. This was an increase of \$26,576 spent the previous fiscal year.

6. For the virtual consolidation efforts approved through HF2254, \$1,000,123 in operating surplus has been expended thus far on creating the infrastructure needed for the new environments.

Conclusion

Advancements in technology allow for more accurate, efficient, and redundant systems that enable citizens to contact 911 to access life-saving resources. It is truly a transformative time for the entire emergency communications ecosystem. As technology evolves and advances, the people of Iowa expect its public safety lifeline to adapt and make parallel strides to stay technologically relevant. As more and more citizens maintain only a mobile phone, it is imperative the NG911 system be able to receive calls, transfer calls, visualize the caller's environment, and dispatch the right responders with the right equipment, all in a matter of seconds. Along with Text-to-911 being implemented statewide, we continue to push for increased caller location information as well as the capability for photos and video to be received by the PSAP from callers contacting 911 that subsequently can be relayed to responders in the field. The coming deployment of FirstNet, which will provide a dedicated public safety high speed wireless data network, will serve to transport this additional data to first responders. The deployment of FirstNet and the integration of the 911 system is already being discussed. Another integration discussed previously is the dispatch component of

the 911 call. HSEMD is helping to fund access to the Iowa Statewide Interoperability Communications System which will assist in the dispatch of 911 calls from regional back-up facilities. The cost-saving measures achieved through virtual consolidation will save local PSAPs money, allowing them to consider implementing the ever-evolving world of emerging technologies in the public safety communications field.

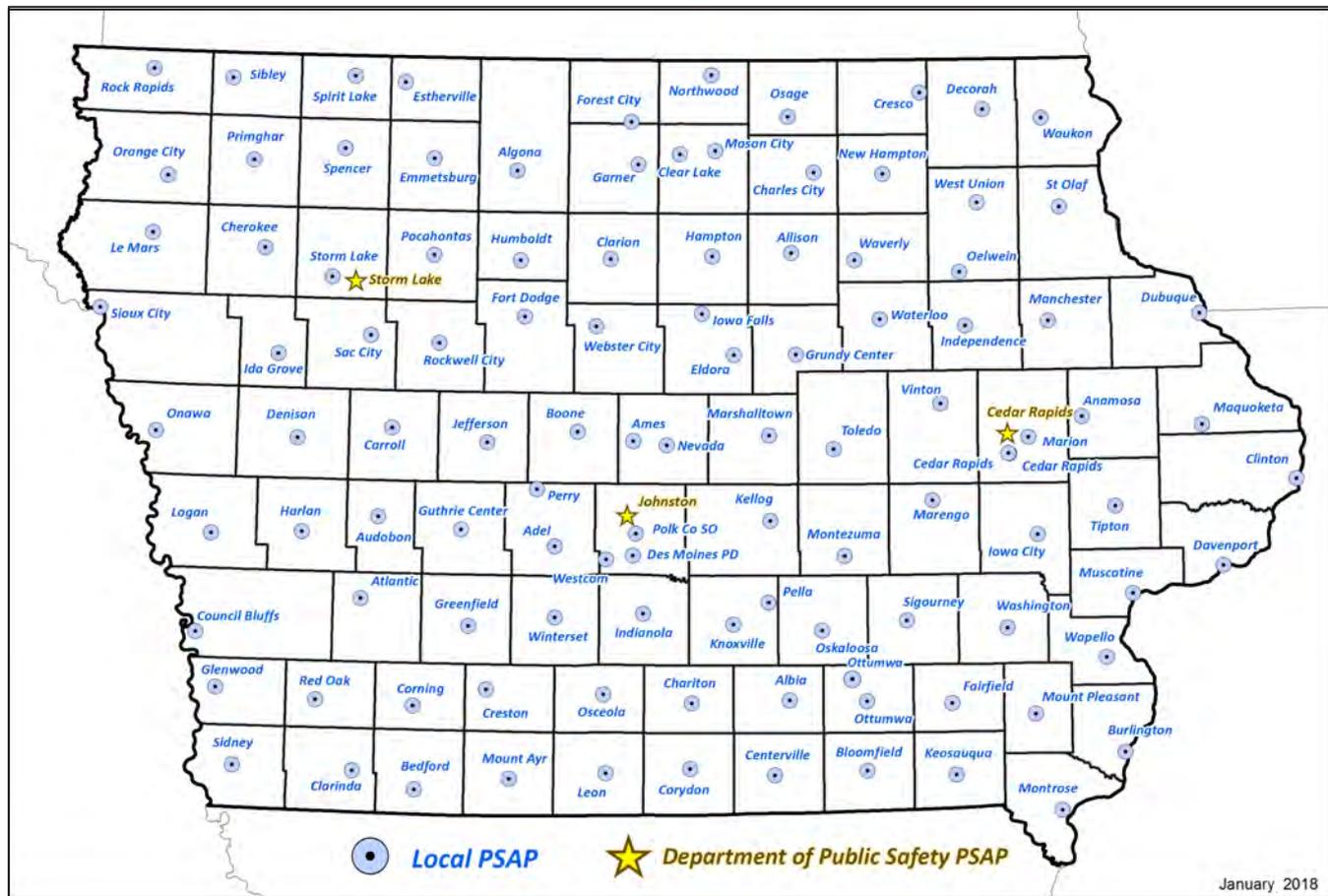
The Iowa Department of Homeland Security and Emergency Management will continue to work in a collaborative manner with the Iowa 911 Communications Council, the Iowa Utilities Board, the Iowa Telecommunications Association, the Iowa Statewide Interoperable Communications System Board, the Iowa Communications Network, and local 911 service boards to maintain and improve the level of 911 services within the state.

For more information about Iowa's 911 program, visit: www.homelandsecurity.iowa.gov.

Inquiries may be directed to the 911 program administrator at 515.725.3231 or 911@iowa.gov.

Attachment 1

Iowa's Public Safety Answering Points

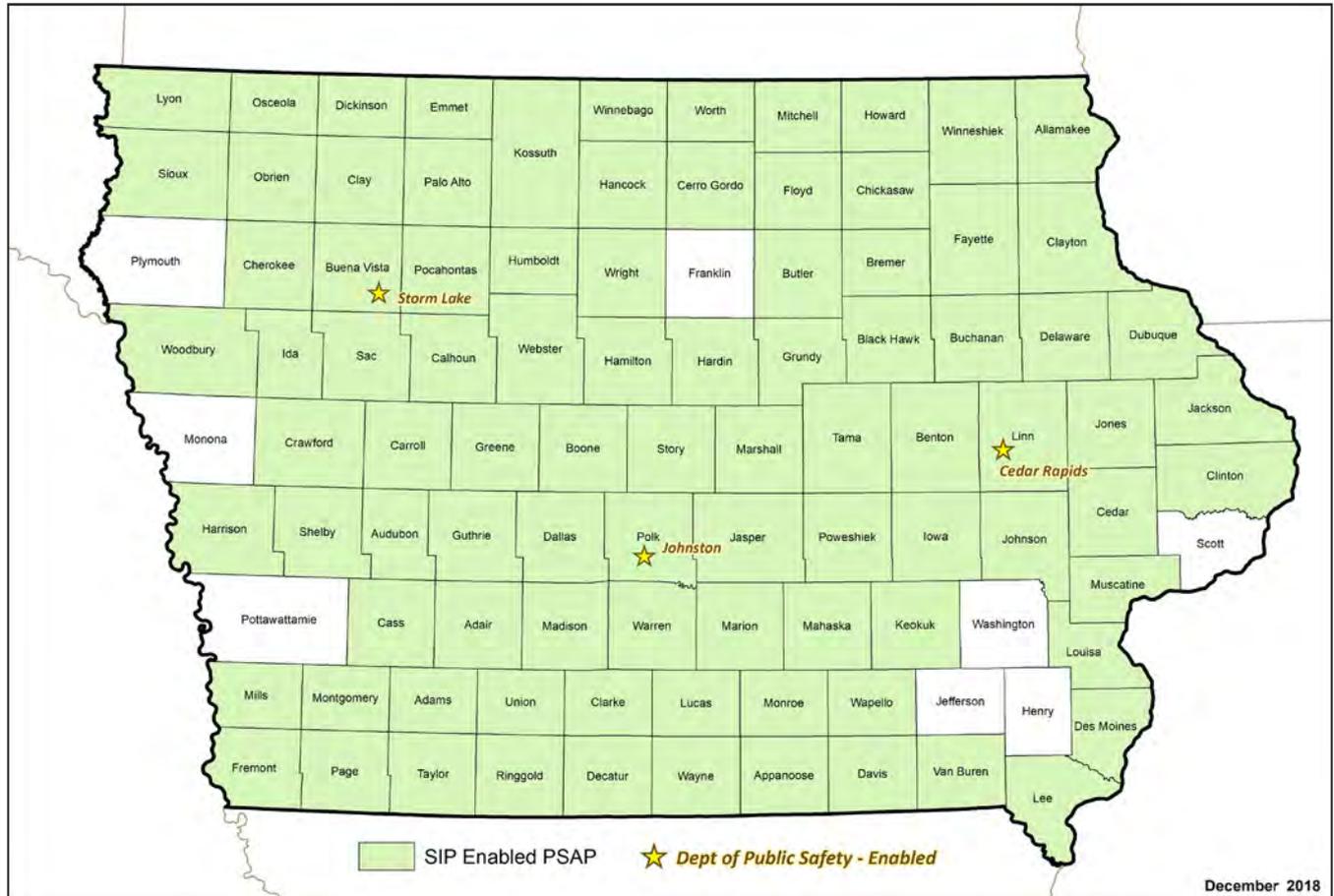


January 2018

Attachment 2

SIP-Enabled PSAPs

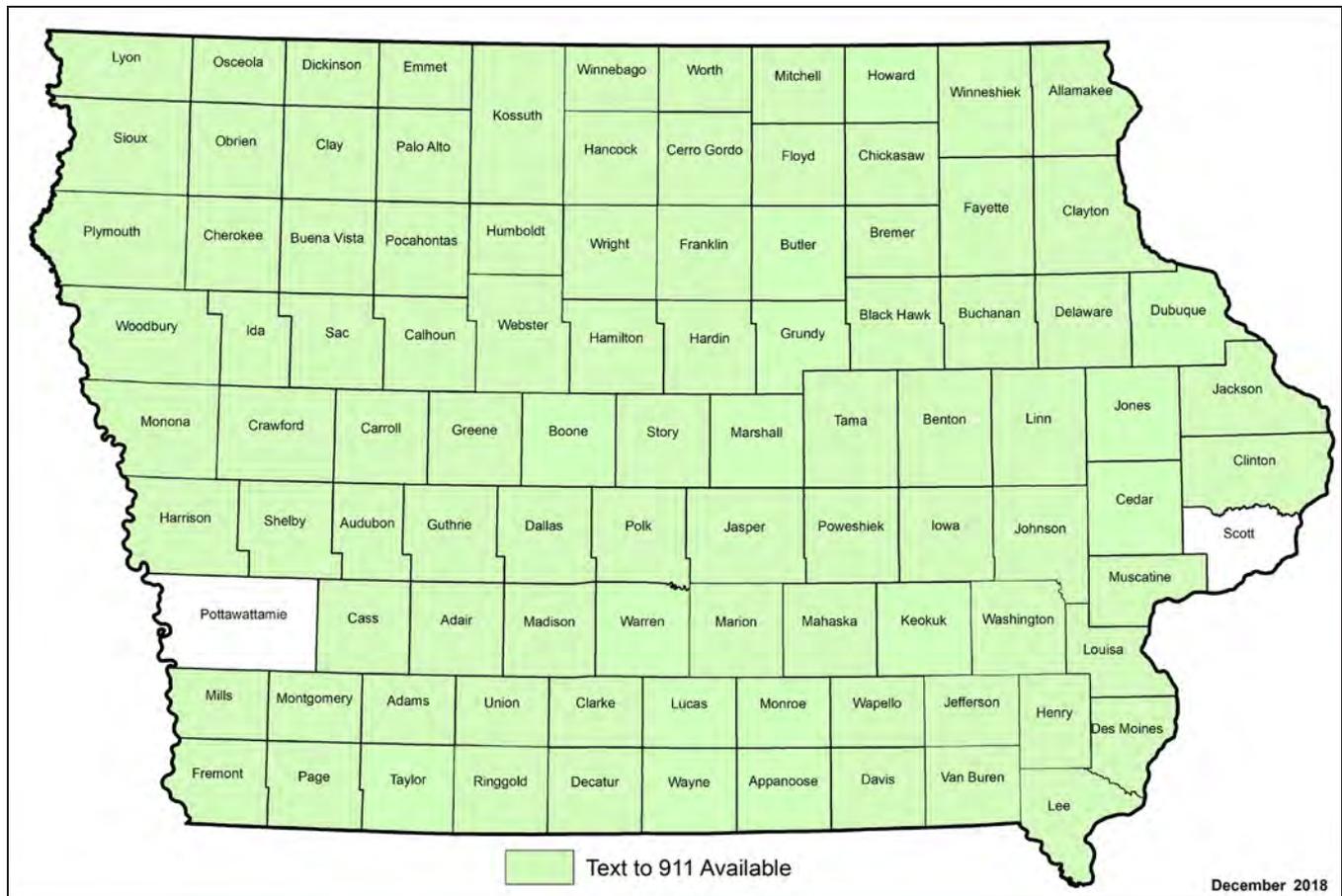
PSAPs receiving end-to-end IP-enabled wireless calls over the ESInet



Attachment 3

Text-to-911-Enabled PSAPs

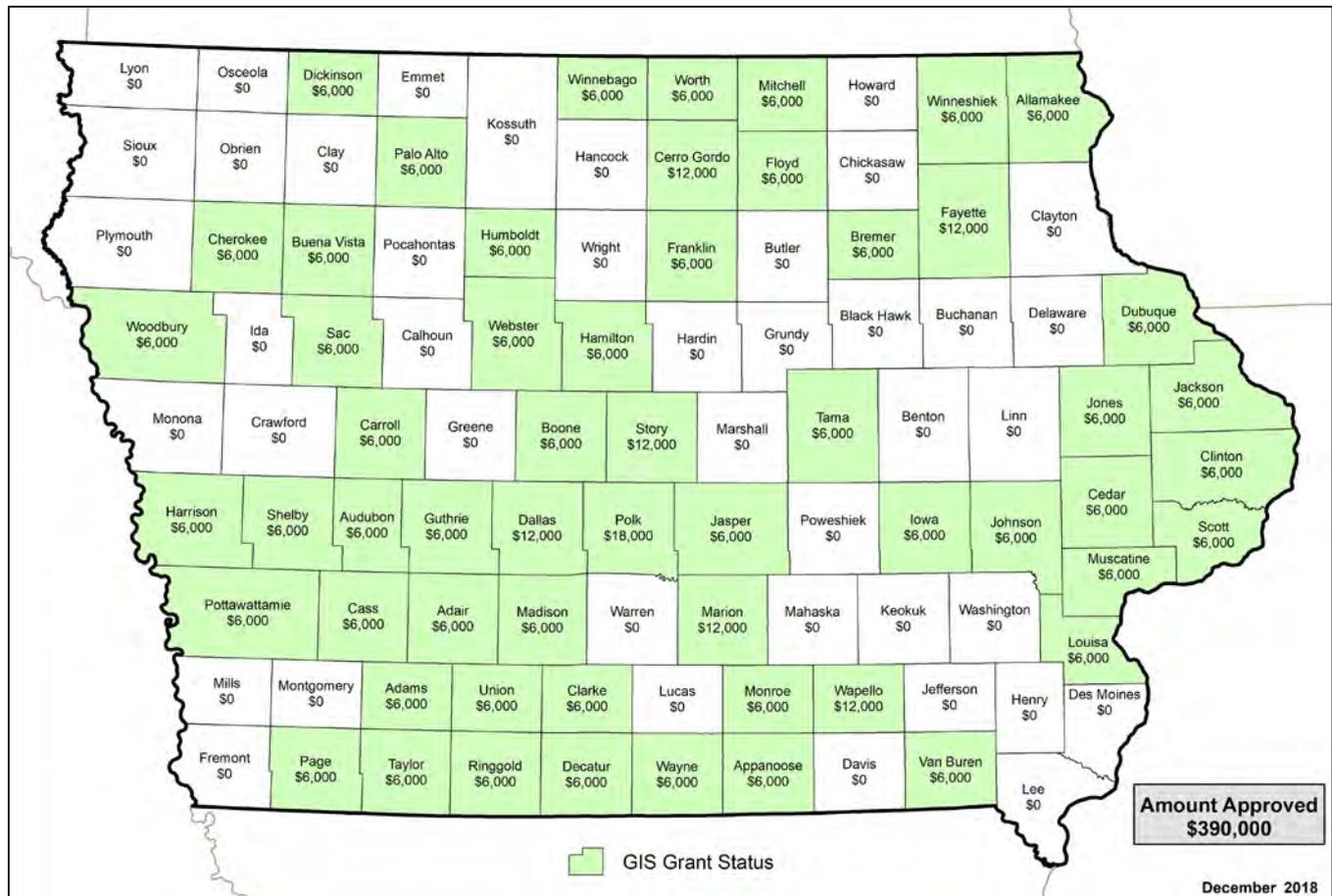
*PSAPs capable of receiving text messages**



**As of 2018, five mobile carriers allow Text-to-911 in Iowa: AT&T, Sprint, T-Mobile, U.S. Cellular, and Verizon. (T-Mobile acquired the carrier i-Wireless in 2018.)*

Attachment 4

Approved GIS Grant Applications



Attachment 5

Revenues and Expenditures

Oct. 1, 2017, through Sept. 30, 2018

	Q2 2018	Q3 2018	Q4 2018	Q1 2019	Totals
Surcharge Funds Received	\$ 7,338,614.10	\$ 7,336,026.04	\$ 7,407,711.34	\$ 7,547,332.00	\$ 29,629,683.48
Interest	\$ 40,119.30	\$ 46,162.76	\$ 56,145.28	\$ 77,708.37	\$ 220,135.71
Total Revenues	\$ 7,378,733.40	\$ 7,382,188.80	\$ 7,463,856.62	\$ 7,625,040.37	\$ 29,849,819.19

Expenditures

HSEMD Administration	*	*	*	\$ 250,000.00	\$ 250,000.00
Wireless Service Providers-cost recovery for wireless Phase 1 services	\$ 245,814.89	\$ 205,918.63	\$ 219,743.21	\$ 203,136.29	\$ 874,613.02
Network Costs (includes NG contract, transport, aerial photography, GIS contract, GIS grants, text to 911)	\$ 1,146,948.20	\$ 1,277,999.73	\$ 1,387,064.36	\$ 1,120,836.50	\$ 4,932,848.79
PSAP Distribution (60% of surcharge revenue)	\$ 4,403,168.46	\$ 4,401,615.62	\$ 4,444,626.80	\$ 4,528,399.20	\$ 17,777,810.08
Subtotal Expenditures	\$ 5,795,931.55	\$ 5,885,533.98	\$ 6,051,434.37	\$ 6,102,371.99	\$ 23,835,271.89
Carryover to Operating Surplus	\$ 1,582,801.85	\$ 1,496,654.82	\$ 1,412,422.25	\$ 1,522,668.38	\$ 6,014,547.30

Operating Surplus

Existing Surplus Amount	\$ 15,092,148.90	\$ 16,666,414.41	\$ 18,140,151.77	\$ 12,584,027.82	
Surplus Revenues	\$ 1,582,801.85	\$ 1,496,654.82	\$ 1,412,422.25	\$ 1,522,668.38	\$ 6,014,547.30
Surplus Subtotal	\$ 16,674,950.75	\$ 18,163,069.23	\$ 19,552,574.02	\$ 14,106,696.20	
Surplus Expenses					
Council Travel, Public Education, PSAP Supervisor Training	\$ 8,536.34	\$ 22,917.46	\$ 65,029.50	\$ 23,102.96	\$ 119,586.26
Consolidation Grants and Surplus Paid Out	\$ -	\$ -	\$ 6,903,516.70	\$ -	\$ 6,903,516.70
Virtual Consolidation				\$ 1,000,123.47	\$ 1,000,123.47
Remaining in Surplus	\$ 16,666,414.41	\$ 18,140,151.77	\$ 12,584,027.82	\$ 13,083,469.77	

Total Combined Expenses	\$ 5,804,467.89	\$ 5,908,451.44	\$ 13,019,980.57	\$ 7,125,598.42	\$ 31,858,498.32
--------------------------------	------------------------	------------------------	-------------------------	------------------------	-------------------------

*Full annual allocation of \$250,000 was provided to HSEMD in Q1, 2018.