

IOWA DEPARTMENT OF HOMELAND SECURITY & EMERGENCY MANAGEMENT

2016 Enhanced 911 Annual Report



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Table of Contents

Introduction	4
Legislative Updates to Iowa Code Chapter 34A	5
Current Status and Modernization of the E911 System	6
Wireline 911.....	6
Wireless Next Generation 911.....	6
Redundancy and Secondary Network	7
Text-to-911.....	7
Geographic Information Systems, Aerial Photography, and NG911	7
Grants to Local PSAPs.....	8
Future 911 Considerations	8
Subscriber Surcharges and Distribution	9
Prepaid Wireless and VoIP Surcharges	9
Wireless Surcharge Distribution	10
Conclusion	10
Attachment 1: Iowa’s Public Safety Answering Points.....	12
Attachment 2: SIP-Capable PSAPs.....	13
Attachment 3: SIP-Enabled PSAPs	14
Attachment 4: Text-to-911-Enabled PSAPs	15
Attachment 5: 2016 Traditional Carryover Grant–Amount Expended.....	16
Attachment 6: 2016 GIS Grant–Amount Expended	17
Attachment 7: 2017 Consolidation Grant Overview.....	18
Attachment 8: Revenues and Expenditures	19
Attachment 9: Annual Wireless Call Volume and Cost Per Call	20
Attachment 10: Percentage of Wireless Calls Per PSAP.....	23

Introduction

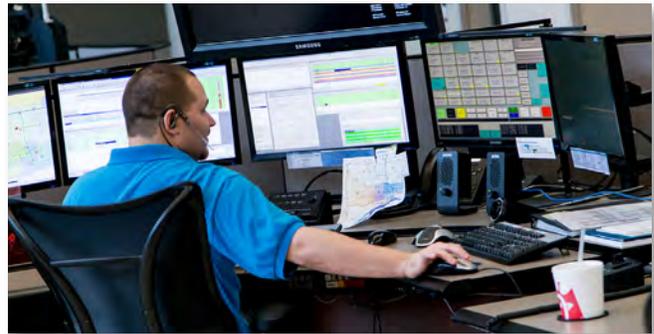
The Iowa Department of Homeland Security and Emergency Management (HSEMD) submits this Enhanced 911 (E911) annual report to the Iowa General Assembly's standing committees on government oversight pursuant to Iowa Code § 34A.7A (3) (a). This section of the Code requires the E911 program manager to advise the General Assembly of the status of E911 wireline and wireless implementation and operations, the distribution of surcharge receipts, and an accounting of revenue and expenses of the E911 program.

The state's E911 system consists of 113 Public Safety Answering Points (PSAPs) across 99 counties. These PSAPs handle both wireline and wireless 911 calls for the citizens of Iowa who make emergency calls.

Iowa PSAPs answered 873,946 wireless 911 calls during the 12-month period from Oct. 1, 2015, through Sept. 30, 2016. The annual cost per wireless call ranged from \$6.13 per call to \$136.06 per call, depending on the county. The number of calls per PSAP during that same period ranges from 48 to 16,234 per month. Local PSAPs are the primary users of the NG911 network, which answer and dispatch resources for 98.22 percent of all wireless 911 calls in Iowa. The Iowa Department of Public Safety handles the remainder of the wireless 911 calls (Attachment 10). Wireline calls, on the other hand, are answered only by local PSAPs.

Upgrades to the state's 911 system are critical. The wireline 911 system was started in Iowa in 1988, originally codified in Iowa Code Chapter 34, and is managed and financed by local 911 service boards through local funding and a landline surcharge system under Iowa Code Chapter 34A. The wireless capability was added to the system in 1998, funded through a wireless surcharge on monthly users' bills, and managed by HSEMD pursuant to Chapter 34A.

The wireless portion of the 911 system is currently undergoing a significant upgrade to an Internet



Scott County PSAP

Protocol (IP)-based system. The first phase of a multi-phased effort into what is called the Next Generation 911 (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. The second phase of the NG911 network upgrade is currently in progress and expected to be completed in July 2017. This phase includes updating individual PSAPs to IP-enabled call-handling equipment and logging recorders. When completed, this upgrade will ultimately allow PSAPs to receive IP-based signaling for the delivery of emergency calls that include text, video, and picture messaging (though it will be 5-10 years before video and picture messaging become available). Eleven PSAPs are currently able to receive Text-to-911. Additional future enhancements of next generation efforts have already started, and include improved GIS mapping and database and address reconciliation to improve the automatic location services. When completed, this will allow a dispatcher to pinpoint the caller on recent GIS imagery of the geographical area the PSAP covers.

It's increasingly important to begin thinking of the 911 system, including the individual PSAPs as a complex, multi-faceted, interconnected IT network that is capable of interacting with multiple devices. PSAPs are no longer individual dispatch centers operating independently, but rather a part of the whole 911 network in Iowa.

Introduction *(continued)*

Chapter 34A of the Iowa Code requires that each county in the state establish the joint enhanced 911 service board that has authority over the local PSAP. Each board has the responsibility to develop a countywide E911 service plan, detailing the manner and cost for the implementation of a wireline and wireless E911 system for the PSAP geographical area. As of today, all 99 counties have approved E911 service plans.

HSEMD has the responsibility to review and approve the countywide E911 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 Chapter 34A

Since its inception in 1988, Iowa's 911 program has continually progressed through periods of change and modernization of the system. Following the changes to implement wireless 911 calls in 1998, the State soon sought increased call location accuracy, which was achieved in 2007. In 2011, the State began a multi-phase, multi-year paradigm shift from an E911 system to an NG911 system. Previous legislation tasked HSEMD with studying the actual costs of operating a PSAP. A biennial report based on these studies, published in January 2016, has provided the State with the ability to determine how much is spent statewide on 911 service. The report allows Iowa to comprehensively look at new expense data, identify where funds are being spent, and shows where cost savings could be achieved.

During the 2016 legislative session, the following provisions were incorporated with the passing of HF 2439:

- A \$4.3 million lease payment to be funded out of the E911 operating surplus for the statewide land mobile radio (LMR) project. This followed up legislation from 2015 which made an initial \$4 million payment toward the project.
- The percentage of total wireless surcharge passed through to the local level changed from



46 percent to 60 percent – a nearly \$4 million increase statewide.

- The legislature allocated \$100,000 for E911 council travel, PSAP operators, and public education related to 911.
- Local consolidation grants were implemented in place of PSAP enhancement and geographic information system (GIS) grants.
- HSEMD was also tasked with studying consolidation. [The 911 Consolidation Study report can be viewed here.](#)
- Reimbursement by HSEMD of communications service providers was expanded to be inclusive of NG911 services.

Current Status and Modernization of the E911 System

Iowa maintains two different 911 networks that do not interface with each other; the wireless 911 system is dynamic and provides automated rerouting of calls when necessary, whereas the wireline 911 system is not as technologically robust and requires such changes to be made manually. However, technology currently exists to merge the two networks into a single 911 system.

Wireline 911

The wireline 911 system is a legacy system that has been developed and implemented by the local joint E911 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.

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 below outlines some of the differences.

The core wireless 911 network, or ESInet (Emergency Services IP Network) consists of 113 local and Iowa Department of Public Safety (DPS) primary PSAPs (Attachment 1). The ESInet also includes two redundant data centers connected by two 50 MB circuits to handle the call volume and call routing. The two data centers are located in Davenport and West Des Moines. While the ESInet primarily uses fiber from the Iowa Communications Network (ICN), the data centers, State equipment in the PSAPs, and the policy call routing and handling functions are managed through a contract with Comtech TCS. The Comtech TCS contract is currently in year six of a 10-year maximum contract.

Data centers receive incoming 911 calls directly from the wireless carriers and route the calls based on the location of the caller to the corresponding PSAP. If a call is received at a data center and it is unable to process the call, the call will be automatically rerouted to another data center.

HSEMD and Comtech TCS have continually worked to upgrade the software and programming



E911	NG911
<ul style="list-style-type: none"> ◆ Analog-based call delivery ◆ Analog call-processing equipment ◆ Phase I-based call routing ◆ Phase II-based caller location ◆ Manual call rerouting for maintenance & outages ◆ Selective routers for call delivery ◆ No capability for text, pictures, or video 	<ul style="list-style-type: none"> ● IP-based call delivery ● IP-based call-processing equipment ● GIS-based call routing ● GIS pinpointing of caller location ● Multiple automatic, diverse paths for maintenance & outages ● Policy-routing functions w/in the data centers for call delivery ● Can transmit text, images, and video to 911

Figure 1

Current Status and Modernization of the E911 System (continued)

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. Once these services 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, 2016, 112 out of 113 PSAPs have upgraded their call-handling equipment to NG911. These 112 PSAPs are now technologically capable of receiving the network delivered IP-based calls, although in some 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 (Attachment 2). Additionally, 77 PSAPs have migrated and receiving end-to-end IP-enabled wireless calls over the ESInet all the way to their call-taker screens (Attachment 3). This process is expected to be complete by July 2017.

Redundancy and Secondary Network

Realizing the need for additional redundancy, HSEMD began a project with Comtech TCS 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 the secondary ESInet. Completely diverse fiber, circuits, and State systems were used to build a second network, separate from the primary ICN backbone. The secondary ESInet is able to automatically route calls during an outage to the 13 PSAPs that would answer calls on behalf of the area experiencing the outage. There is an ongoing cost for managing this network of approximately \$259,000 annually, and the secondary ESInet has been built at a cost of \$101,355. Two PSAPs are yet to be added, which will complete the network.

Text-to-911

In an effort to facilitate the more rapid deployment of Text-to-911, HSEMD has contracted with four customer premise equipment (“call processing equipment”) vendors to implement Text-to-911 in the PSAPs. This contract was put in place 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 intruders, domestic violence situation, 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. As of Dec. 31, 2016, 12 PSAPs in Iowa are able to receive Text-to-911, as shown in Attachment 4. The process is expected to be complete by July 2017.

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 has signed a 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. It saves a significant amount of money as many counties were contracting for flights on their own – at an approximate cost of \$60,000 per county – and the data was not shareable outside that jurisdiction.

Current Status and Modernization of the E911 System (continued)

The critical NG911 statewide GIS work has slowed considerably due to the removal of the GIS grant from last year's budget appropriation. HSEMD had budgeted \$15,000 per PSAP for the next 10 years through grants to assist with the additional costs associated with GIS data creation and maintenance. Sustainable GIS funding is critical to the GIS portion of the NG911 upgrade for call routing and location validation functions.

HSEMD, with support from GeoComm Inc., has developed and updated statewide NG911 GIS standards for Iowa. A committee of local GIS partners continues 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.

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, who in turn will continue its work processing data and aggregating the information for use in a statewide NG911 GIS system.

Grants to Local PSAPs

HSEMD has historically had the authority to pass through grants to the local PSAPs. These carryover grants led to an additional \$9.3 million in 2015 and \$11.1 million in 2016 being provided to the local 911 service boards for needed upgrades at PSAPs. The transition to NG911 would not have been possible without these grants. PSAPs leveraged these grants for the procurement of modernized call-handling equipment, improved radio infrastructure, digital call recorders, and modern mapping and computer aided dispatch (CAD) technology. In 2016, of the \$11.1 million in total grants, \$1 million was earmarked specifically for the purposes of improving critical GIS data at the local level. GIS is the future of 911

call routing and location accuracy. The State has a contract for aggregating the data, providing statewide standards, and a statewide portal for the data. However, at its core, the data creation and maintenance is a local function. Attachments 5 and 6 show the grant funds provided to local 911 service boards in FY 2016.

Through HF 2439, a maximum amount of \$4.4 million was approved for consolidation grants. Approved applicants are listed in Attachment 7.

Future 911 Considerations

Now is the time to determine how 911 will look in Iowa for the next 5-10 years. Ongoing and planned future NG911 initiatives are sustainable into the future under the current model. However, NG911 provides opportunities for significant cost savings, standardization throughout the state, economies of scale, and shared services at the technological level. Many of these ideas and possibilities are discussed in detail in the 911 Consolidation Study report, released by HSEMD on Jan. 11, 2017. Technology and public expectation of services provided continue to change and expand. To keep the 911 system viable, Iowa must include equipment replacement considerations in future initiatives.

One of the initiatives discussed at length in the consolidation report is to further standardize the wireline and wireless networks. A merger of the two networks would give the same NG911 capabilities to the legacy network. The potential for modernization of the legacy/wireline network is critical to the overall modernization of the state's 911 infrastructure. The recommendation to move from costly call-handling technology in every PSAP is discussed at length in the consolidation report. The report recommends a shared-service environment, with a set number of call-processing equipment located regionally throughout the state. This would allow PSAPs to access the call-handling system with only display monitors in their PSAP. Centralization of equipment and costs will reduce the overall statewide cost of 911.

Subscriber Surcharges and Distribution

Funding for the wireline and wireless portions of the E911 system were set in Iowa Code § 34A.7 and 34A.7A, respectively. In July 2013, the 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 E911 service fund and disbursements are made by the local E911 service board. The wireless surcharge is deposited in the E911 Emergency Communications Fund administered by HSEMD. For the 12 months ending Sept. 30, 2016, the wireless surcharges totaled \$26,706,625, an increase of \$665,782 from the same time frame the previous year.

HSEMD has the responsibility to order the implementation of the surcharge with each telephone service provider that provides service within the E911 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 E911 service board on a quarterly basis. In FY 2016, wireline surcharges totaled \$12,390,169, an increase of \$74,164 from the previous year.

Prepaid Wireless and VoIP Surcharges

In 2012, Iowa Code § 34A.7B authorized a 33-cent 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 E911 Emergency Communications 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, 2016, is \$2,145,471. This amount is \$144,403 more 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 voice over Internet protocol (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 (such as Mediacom) pay their collected surcharges to the local wireline E911 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 E911 emergency communications service surcharge.

Subscriber Surcharges and Distribution *(continued)*

Wireless Surcharge Distribution

The bulk of the E911 surcharge revenue is obtained through the wireless surcharge. Under Iowa Code § 34A.7A (2), the collected surcharges must be distributed in the following order:

1. To Homeland Security and Emergency Management for program administration, an amount equal to that appropriated by the General Assembly. In 2016, this amount was \$250,000.
2. To joint E911 service boards, 46 percent of the total surcharge funds generated for communications equipment utilized in the implementation and maintenance of E911 services within the local PSAP. Iowa Code § 34A.7A (2) (e) and (2) (a) – (c) sets out how the 46 percent amount is to be distributed among the 113 PSAPs in the state. For the 12 months ending Sept. 30, 2016, this amount was \$14,284,715, an increase of \$1,405,603 from the previous 12 months. As previously mentioned, this percentage has been changed to

60 percent. The first distribution payments at the new rate were received by local service boards in October 2016, representing the months of July-September 2016. This one quarter with the higher surcharge rate is included in the totals from Oct. 1, 2015, through Sept. 30, 2016.

3. To wireless service providers, 10 percent of surcharge funds generated for the three-year period of July 1, 2013, through June 30, 2016, to recover their costs of providing E911 wireless phase one services. For the 12 months ending Sept. 30, 2016, this amount was \$522,294, a decrease of \$31,056 from the previous 12 months.
4. To communication service providers, wireline carriers for eligible expenses for transport costs of calls between the E911 network routers and the local PSAPs. For the 12 months ending Sept. 30, 2016, this amount was \$2,982,225, an increase of 546,865.

Attachment 8 shows a detailed accounting of revenue and expenses for the 12 months ending Sept. 30, 2016.

Conclusion

Advancements in technology allow for more accurate, timely, redundant systems that enable citizens to contact 911 to access life-saving resources. While cost savings in some areas have been achieved through economies of scale and creation of the ESInet, continued funding and resources still need to be dedicated to the program. Future expenses for life-cycle replacement and emerging technologies need to be considered as we continue to work toward a fully implemented, end-to-end NG911 environment. 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 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. Text-to-911 success stories continue to emerge nationwide. Recent successes highlight how an individual is able to text while hiding during a home invasion and how



Conclusion *(continued)*

a deaf or hard-of-hearing individual is able to reach vital services. Along with Text-to-911 being implemented statewide, we continue to push for the capability for pictures and video to be received by the PSAP via 911, and relayed to responders in the field. The deployment of Firstnet and the integration of the 911 system is already being planned and discussed.

The Iowa Department of Homeland Security and Emergency Management will continue to work in a collaborative manner with the Iowa E911 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.

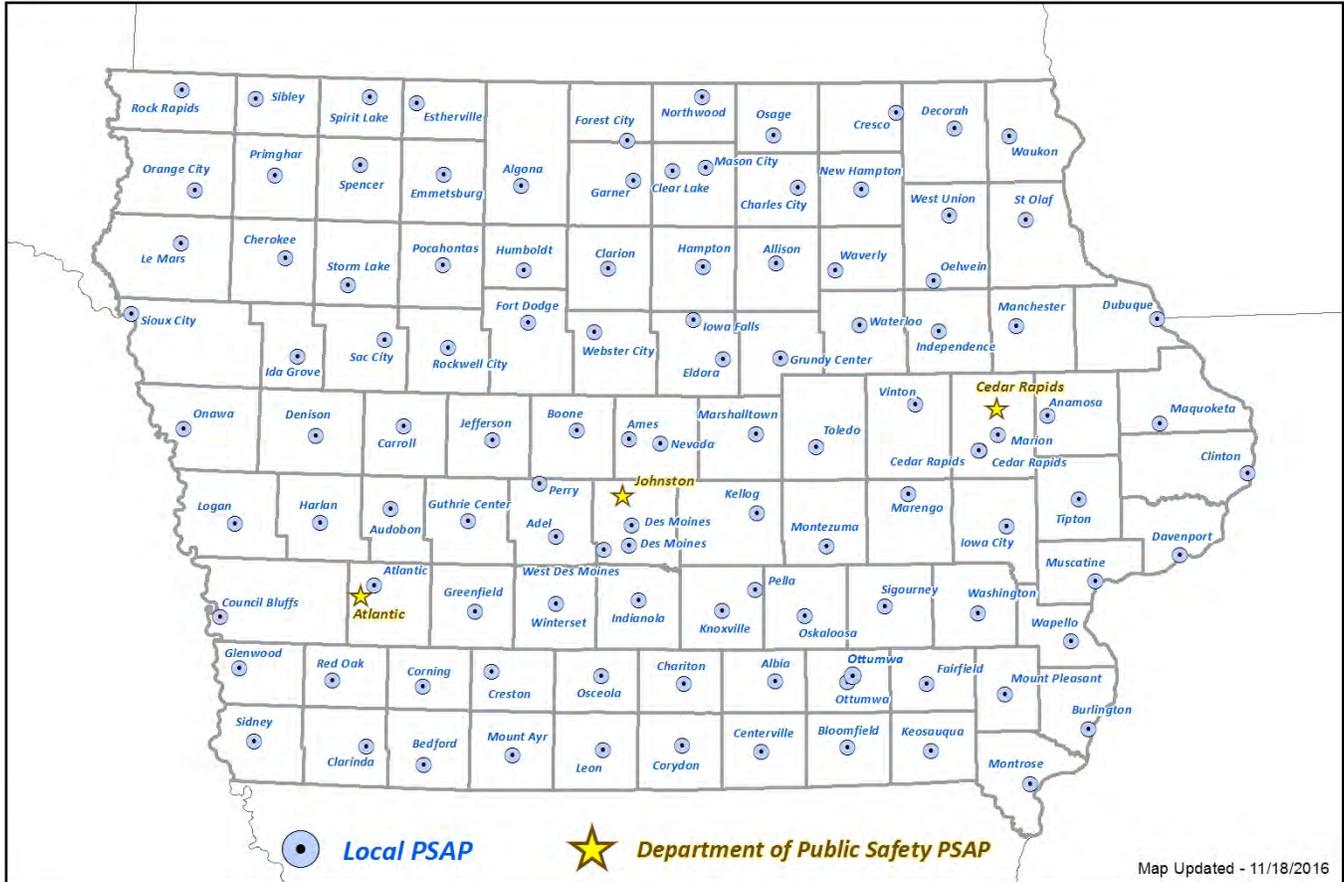
For more information about Iowa's E911 program, visit: www.homelandsecurity.iowa.gov.

Inquiries may be directed to the E911 program administrator at 515.725.3231 or E911@iowa.gov.



Attachment 1

Iowa's Public Safety Answering Points



Attachment 2

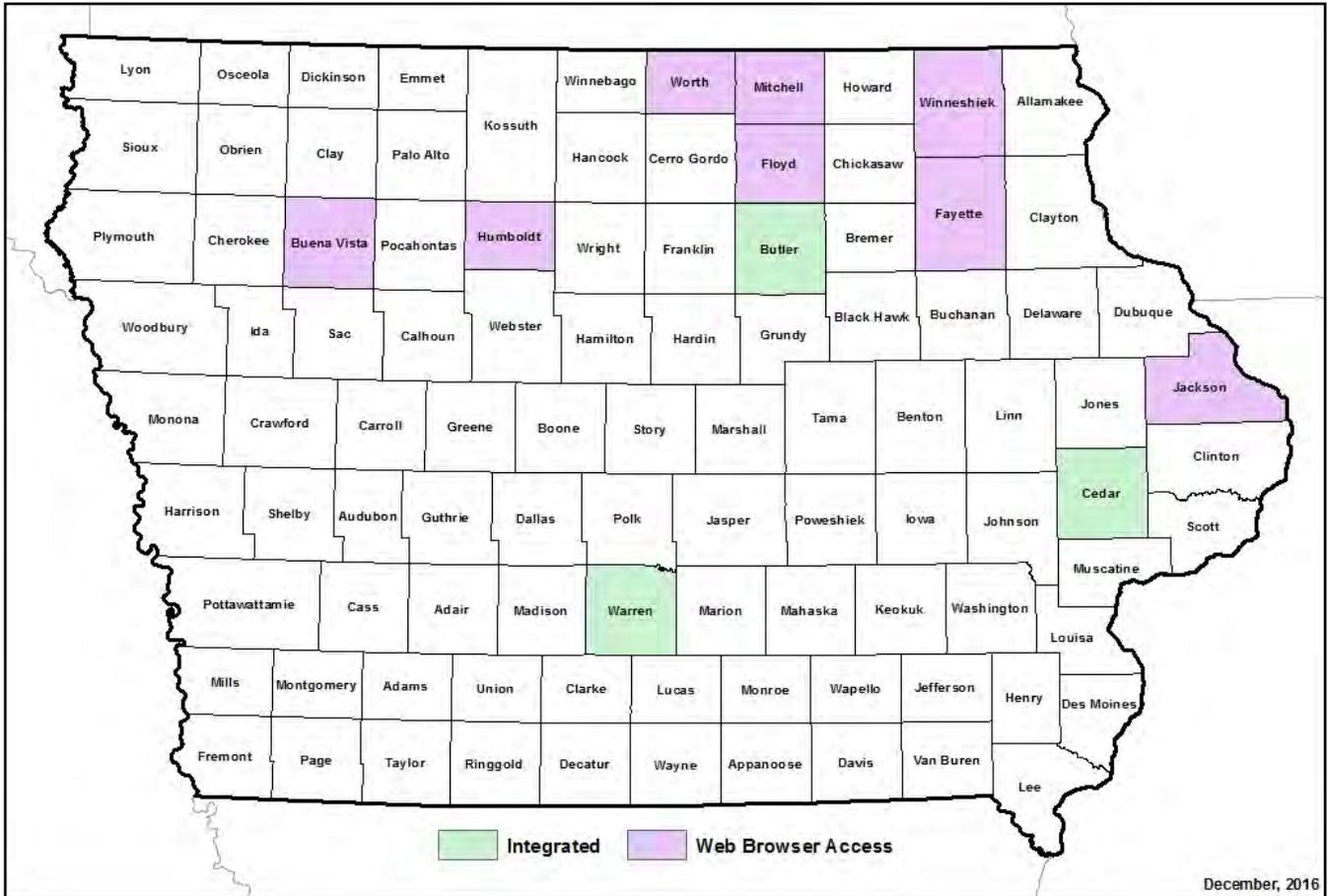
SIP-Capable PSAPs

PSAPs that are capable of receiving an IP-enabled call



Attachment 4

Text-to-911-Enabled PSAPs*

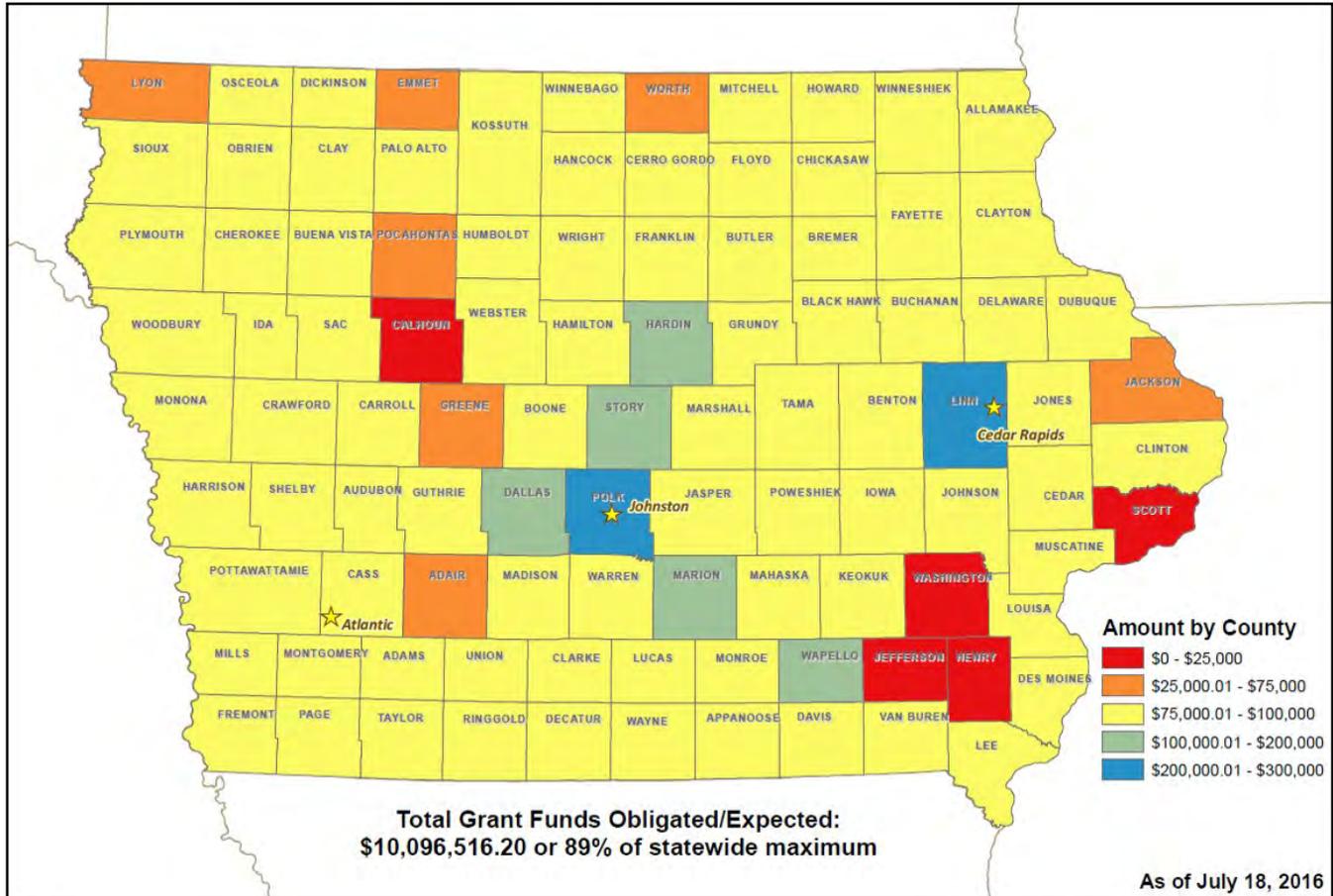


*Fayette County has two PSAPs that are Text-to-911-enabled

Attachment 5

2016 Traditional Carryover Grant: Amount Expended

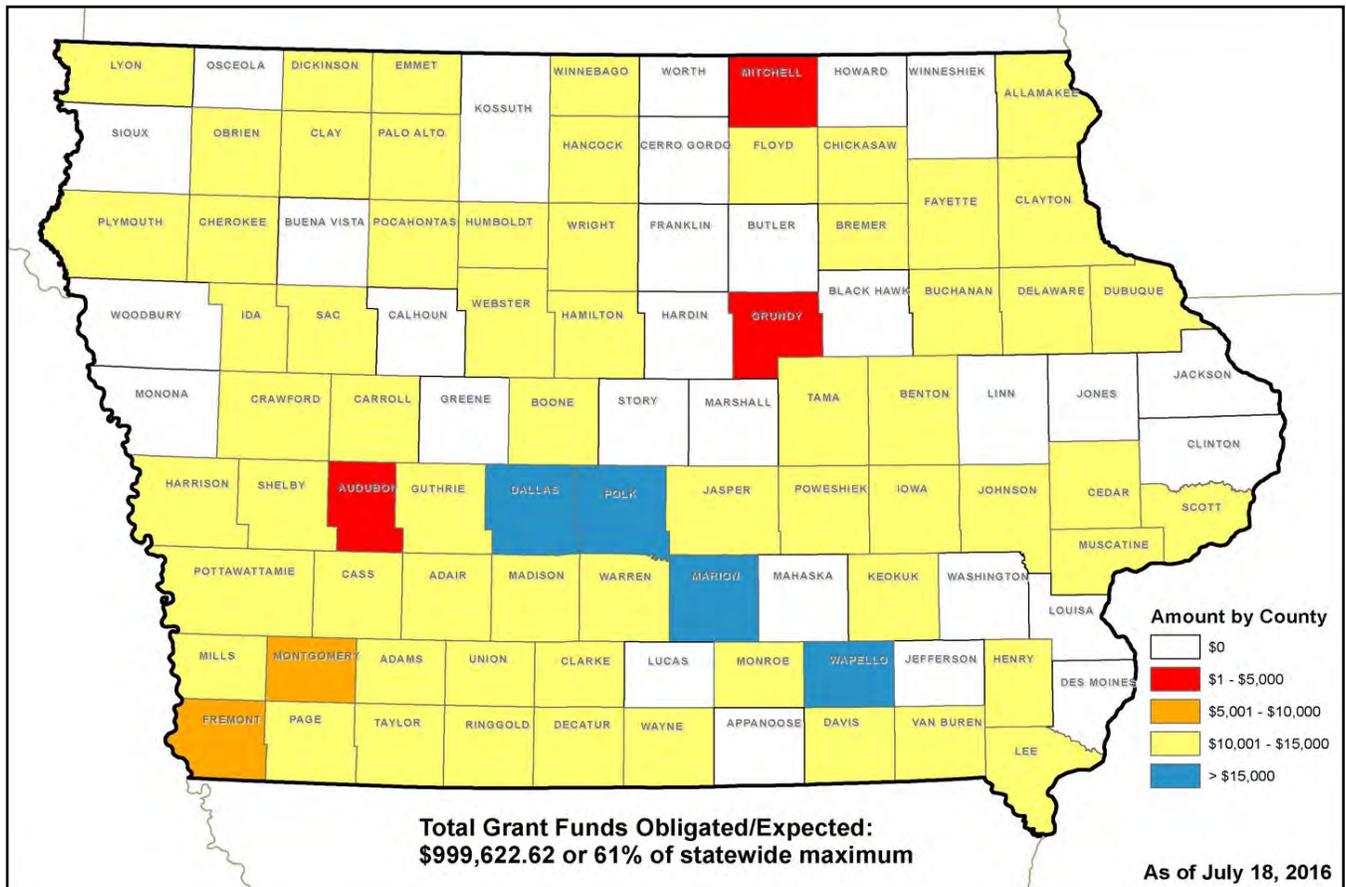
As of July 18, 2016



Attachment 6

2016 GIS Grant: Amount Expended

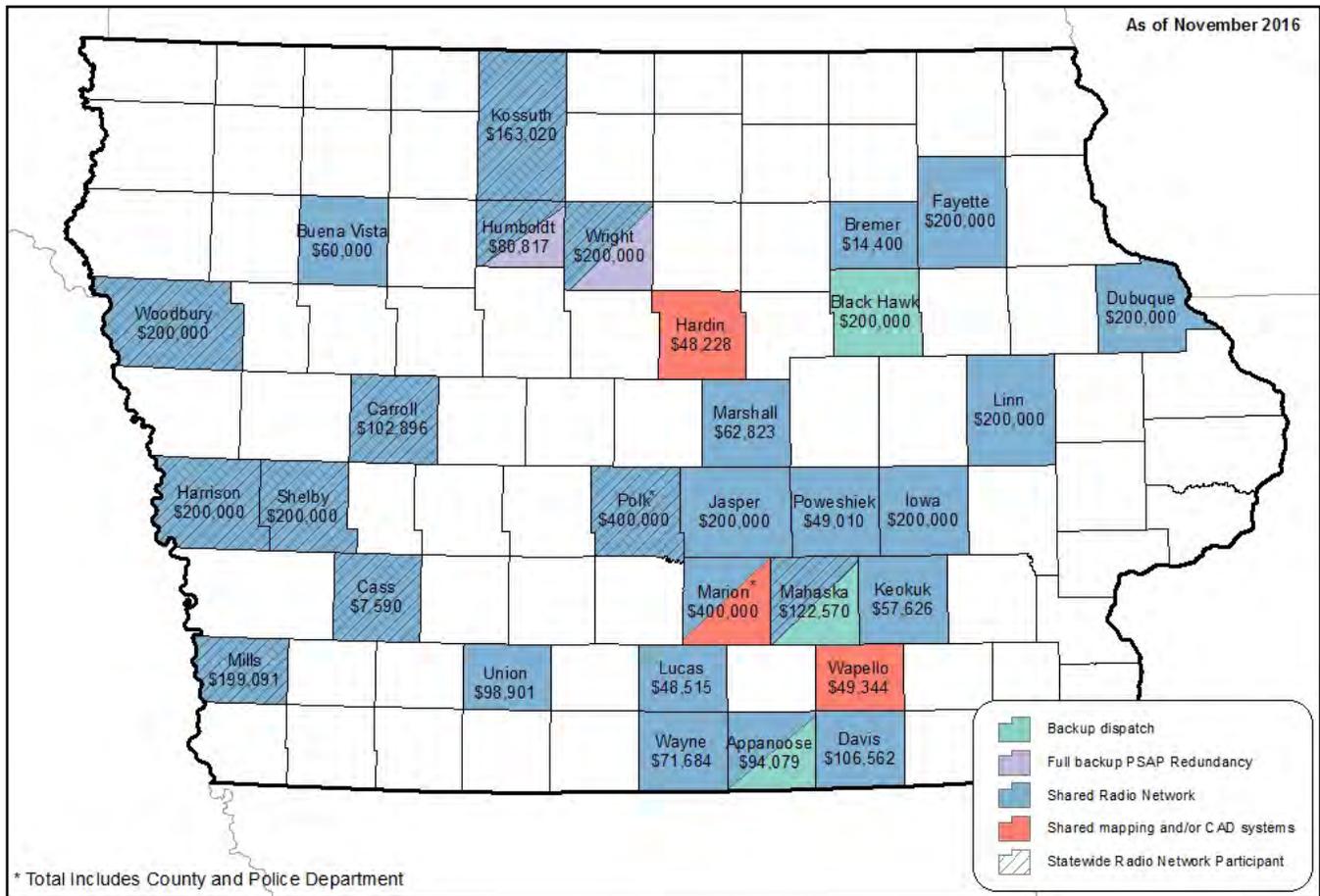
As of July 18, 2016



Attachment 7

2017 Consolidation Grant: Overview

As of November 2016



Attachment 8

Revenues and Expenditures

Oct. 1, 2015, through Sept. 30, 2016

Revenues by FY Qtr	Q1 2017	Q4 2016	Q3 2016	Q2 2016	Totals
Surcharge Funds Received	\$ 7,204,641.32	\$ 7,218,427.03	\$ 7,202,424.76	\$ 7,235,519.22	\$ 28,861,012.33
Interest	\$ 38,159.18	\$ 41,002.64	\$ 26,970.40	\$ 27,687.79	\$ 133,820.01
Total Revenues					\$ 28,994,832.34
Expenditures					
HSEMD Funding-used to administer 911 program, i.e. personnel costs, travel, supplies, equipment, Auditor fees for program audits	\$ 62,500.00	*	*	*	\$ 62,500.00
Wireless Service Providers-cost recover for wireless Phase 1 services	\$ 127,618.80	\$ 127,723.89	\$ 129,922.24	\$ 137,029.39	\$ 522,294.32
Network and Selective Router-costs for ICN circuits, TCS contract, transport services, selective router, and automatic location services	\$ 938,233.69	\$ 804,123.12	\$ 620,369.07	\$ 619,500.06	\$ 2,982,225.94
Operating Surplus Expenditures-future network and equipment upgrades and PSAP equipment upgrades	\$ -	\$ 7,683,135.95	\$ 2,872,815.00	\$ 951,912.56	\$ 11,507,863.51
PSAP Distribution	\$ 4,322,784.79	\$ 3,320,476.43	\$ 3,313,115.39	\$ 3,328,338.84	\$ 14,284,715.45
Council Travel, Public Education, PSAP Supervisor Training	\$ 103.35	\$ 37.05	\$ 2,464.30	\$ 298.04	\$ 2,902.74
Payment to Statewide LMR	\$ 4,300,000.00		\$ 4,000,000.00		\$ 8,300,000.00
Total Expenditures	\$ 9,751,240.63	\$ 11,935,496.44	\$ 10,938,686.00	\$ 5,037,078.89	\$ 37,662,501.96
Additional to Operating Surplus	\$ 1,791,663.22	\$ 3,010,168.87	\$ 3,165,988.46	\$ 3,178,338.84	\$ 11,146,159.39

* Full annual allocation of \$250,000 was provided to HSEMD in Q1, 2016

Attachment 9

Annual Wireless Call Volume and Cost Per Call

Oct. 1, 2015, through Sept. 30, 2016

County	Total Calls	Average Calls Per Month	Total Payments	Annual surcharge remittance per call
Polk	194,805	16,234	\$ 1,194,232.02	\$ 6.13
Scott	96,430	8,036	\$ 612,725.09	\$ 6.35
Linn	64,091	5,341	\$ 483,694.45	\$ 7.55
Black Hawk	44,887	3,741	\$ 345,053.59	\$ 7.69
Johnson	36,608	3,051	\$ 306,280.87	\$ 8.37
Pottawattamie	47,434	3,953	\$ 420,138.57	\$ 8.86
Woodbury	38,930	3,244	\$ 359,367.35	\$ 9.23
Des Moines	15,663	1,305	\$ 159,140.87	\$ 10.16
Dubuque	22,175	1,848	\$ 225,645.05	\$ 10.18
Story	16,694	1,391	\$ 192,797.90	\$ 11.55
Muscatine	11,986	999	\$ 141,956.11	\$ 11.84
Wapello	10,191	849	\$ 134,319.80	\$ 13.18
Clinton	14,778	1,232	\$ 198,838.98	\$ 13.46
Cerro Gordo	11,832	986	\$ 165,607.88	\$ 14.00
Lee	10,479	873	\$ 147,984.52	\$ 14.12
Public Safety	1,398	117	\$ 19,775.97	\$ 14.15
Marshall	10,761	897	\$ 155,120.92	\$ 14.42
Warren	9,479	790	\$ 148,101.07	\$ 15.62
Jasper	11,065	922	\$ 182,174.92	\$ 16.46
Dallas	7,958	663	\$ 144,700.79	\$ 18.18
Webster	9,363	780	\$ 170,549.28	\$ 18.22
Marion	5,564	464	\$ 129,851.58	\$ 23.34
Cedar	5,194	433	\$ 125,717.13	\$ 24.20
Boone	4,860	405	\$ 122,736.54	\$ 25.25
Mills	3,755	313	\$ 95,260.75	\$ 25.37
Henry	3,704	309	\$ 94,207.14	\$ 25.43
Bremer	3,614	301	\$ 94,382.11	\$ 26.12
Mahaska	4,479	373	\$ 120,401.19	\$ 26.88
Dickinson	3,133	261	\$ 85,836.85	\$ 27.40
Poweshiek	4,456	371	\$ 122,219.39	\$ 27.43
Iowa	4,268	356	\$ 121,363.79	\$ 28.44
Washington	4,151	346	\$ 118,263.17	\$ 28.49
Cass	3,824	319	\$ 115,462.80	\$ 30.19
Hamilton	3,893	324	\$ 117,872.86	\$ 30.28
Jefferson	2,882	240	\$ 89,840.51	\$ 31.17
Sioux	4,858	405	\$ 153,745.61	\$ 31.65
Floyd	3,142	262	\$ 101,540.70	\$ 32.32
Tama	4,148	346	\$ 142,102.90	\$ 34.26
Harrison	3,970	331	\$ 137,971.61	\$ 34.75
Buchanan	3,200	267	\$ 113,395.20	\$ 35.44

Attachment 9 (continued)

Annual Wireless Call Volume and Cost Per Call

Oct. 1, 2015, through Sept. 30, 2016

County	Total Calls	Average Calls Per Month	Total Payments	Annual surcharge remittance per call
Louisa	2,236	186	\$ 83,059.40	\$ 37.15
Jones	3,025	252	\$ 112,918.98	\$ 37.33
Benton	3,677	306	\$ 139,233.59	\$ 37.87
Hardin	2,917	243	\$ 115,231.66	\$ 39.50
Buena Vista	2,849	237	\$ 112,702.08	\$ 39.56
Montgomery	2,096	175	\$ 83,475.11	\$ 39.83
Jackson	3,090	258	\$ 124,860.94	\$ 40.41
Clay	2,735	228	\$ 110,652.09	\$ 40.46
Carroll	2,667	222	\$ 109,760.23	\$ 41.15
Page	2,558	213	\$ 105,594.84	\$ 41.28
Worth	1,878	157	\$ 78,646.67	\$ 41.88
Appanoose	2,208	184	\$ 98,709.91	\$ 44.71
Crawford	2,896	241	\$ 134,117.64	\$ 46.31
O'Brien	2,332	194	\$ 108,566.45	\$ 46.56
Fayette	2,928	244	\$ 141,054.75	\$ 48.17
Decatur	2,083	174	\$ 100,771.79	\$ 48.38
South Central Iowa Regional Board	13,375	1,115	\$ 667,996.04	\$ 49.94
Emmet	1,490	124	\$ 76,606.06	\$ 51.41
Plymouth	3,069	256	\$ 158,989.58	\$ 51.81
Winnebago	1,413	118	\$ 76,046.32	\$ 53.82
Grundy	1,715	143	\$ 93,799.09	\$ 54.69
Delaware	1,959	163	\$ 107,355.10	\$ 54.80
Wright	1,957	163	\$ 107,988.95	\$ 55.18
Franklin	1,717	143	\$ 98,081.55	\$ 57.12
Humboldt	1,403	117	\$ 81,436.84	\$ 58.04
Winneshiek	2,139	178	\$ 126,127.50	\$ 58.97
Clayton	2,421	202	\$ 144,078.20	\$ 59.51
Fremont	1,600	133	\$ 95,373.64	\$ 59.61
Butler	1,776	148	\$ 106,837.61	\$ 60.16
Lucas	1,341	112	\$ 80,859.66	\$ 60.30
Calhoun	1,730	144	\$ 104,829.96	\$ 60.60
Cherokee	1,735	145	\$ 105,838.38	\$ 61.00
Monroe	1,302	109	\$ 80,682.87	\$ 61.97
Chickasaw	1,487	124	\$ 93,072.90	\$ 62.59
Monona	1,911	159	\$ 126,125.40	\$ 66.00
Allamakee	1,799	150	\$ 119,168.84	\$ 66.24
Lyon	1,541	128	\$ 106,506.12	\$ 69.11
Hancock	1,499	125	\$ 103,964.24	\$ 69.36

Attachment 9 (continued)

Annual Wireless Call Volume and Cost Per Call

Oct. 1, 2015, through Sept. 30, 2016

County	Total Calls	Average Calls Per Month	Total Payments	Annual surcharge remittance per call
Osceola	1,056	88	\$ 73,633.98	\$ 69.73
Shelby	1,494	125	\$ 106,728.02	\$ 71.44
Ida	1,096	91	\$ 79,112.55	\$ 72.18
Greene	1,426	119	\$ 103,076.55	\$ 72.28
Howard	1,163	97	\$ 86,081.68	\$ 74.02
Mitchell	1,012	84	\$ 84,630.28	\$ 83.63
Palo Alto	1,202	100	\$ 101,701.49	\$ 84.61
Sac	1,208	101	\$ 103,136.87	\$ 85.38
Van Buren	1,021	85	\$ 87,967.94	\$ 86.16
Keokuk	1,125	94	\$ 102,878.35	\$ 91.45
Kossuth	1,719	143	\$ 169,308.42	\$ 98.49
Pocahontas	997	83	\$ 101,874.18	\$ 102.18
Davis	798	67	\$ 89,054.96	\$ 111.60
Wayne	708	59	\$ 92,158.58	\$ 130.17
Ringgold	692	58	\$ 93,910.04	\$ 135.71
Audubon	573	48	\$ 77,962.75	\$ 136.06
TOTAL:	873,946	72,829	\$ 14,284,715.45	\$ 16.35
AVERAGE	\$ 18,398.86	1,533		\$ 45.49
MEDIAN	\$ 2,865.50	239	\$ 111,677.09	\$ 40.43

Attachment 10

Percentage of Wireless Calls Per PSAP

Oct. 1, 2015, through Sept. 30, 2016

County/PSAP	Percentage of wireless calls
Allamakee	0.21%
Appanoose	0.26%
Audubon	0.07%
Benton	0.43%
Black Hawk	5.21%
Boone	0.56%
Bremer	0.42%
Buchanan	0.37%
Buena Vista	0.33%
Butler	0.21%
Calhoun	0.20%
Carroll	0.31%
Cass	0.44%
Cedar	0.60%
Cerro Gordo	1.37%
Co SO	1.19%
Clear Lake PD	0.18%
Cherokee	0.20%
Chickasaw	0.17%
Clay	0.32%
Clayton	0.28%
Clinton	1.72%
Crawford	0.34%
Dallas	0.92%
Co SO	0.77%
Perry PD	0.16%
Davis	0.09%
Decatur	0.24%
Delaware	0.23%
Des Moines	1.82%
Dickinson	0.36%
Dubuque	2.58%
Emmet	0.17%
Fayette	0.34%
Co SO	0.18%
Oelwein PD	0.16%
Floyd	0.36%
Franklin	0.20%
Fremont	0.19%
Greene	0.17%
Grundy	0.20%
Hamilton	0.45%
Hancock	0.17%
Hardin	0.34%
Co SO	0.24%
Iowa Falls PD	0.10%

County/PSAP	Percentage of wireless calls
Harrison	0.46%
Henry	0.43%
Howard	0.14%
Humboldt	0.16%
Ida	0.13%
Iowa	0.50%
Jackson	0.36%
Jasper	1.28%
Jefferson	0.33%
Johnson	4.25%
Jones	0.35%
Keokuk	0.13%
Kossuth	0.20%
Lee	1.22%
Linn	7.44%
Co SO	1.18%
CR JCA	5.39%
Marion PD	0.87%
Louisa	0.26%
Lucas	0.16%
Lyon	0.18%
Mahaska	0.52%
Marion	0.65%
Co SO	0.44%
Pella PD	0.21%
Marshall	1.25%
Mills	0.44%
Mitchell	0.12%
Monona	0.22%
Monroe	0.15%
Montgomery	0.24%
Muscatine	1.39%
O'Brien	0.27%
Osceola	0.12%
Page	0.30%
Clarinda PD	0.05%
Shenandoah PD	0.07%
Palo Alto	0.14%
Plymouth	0.36%
Pocahontas	0.12%
Polk	22.62%
Co SO	4.58%
DMPD	14.24%
Westcom	3.81%
Pottawattamie	5.51%

County/PSAP	Percentage of wireless calls
Poweshiek	0.52%
Ringgold	0.08%
Sac	0.14%
Scott	11.20%
Co SO	3.39%
Bettendorf	0.99%
Davenport	6.82%
Shelby	0.17%
Sioux	0.56%
Story	1.94%
Co SO	0.74%
Ames PD	1.20%
Tama	0.48%
Van Buren	0.12%
Wapello	1.18%
Co SO	0.30%
Ottumwa PD	0.88%
Warren	1.10%
Washington	0.48%
Wayne	0.08%
Webster	1.09%
Winnebago	0.16%
Winneshiek	0.25%
Woodbury	4.52%
Worth	0.22%
Wright	0.23%
South Central Iowa Regional Board	1.55%
Adair	0.36%
Adams	0.07%
Clarke	0.28%
Guthrie	0.18%
Madison	0.28%
Taylor	0.11%
Union	0.27%
Public Safety	0.16%
TOTAL:	
DPS Transfers	1.78%