DOCUMENT CHANGE HISTORY

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INTRODUCTION

The South Dakota State 9-1-1 Master Plan marks the culmination of more than 20 years of studying, planning and implementing modest improvements to the legacy 9-1-1 service in South Dakota (State). In 2009, the eleven-member, Governor appointed South Dakota 9-1-1 Coordination Board (Board) was formed. The Board was tasked with several specific tasks including the creation of this plan. To date, the Board has accomplished all of its original legislative mandates with the exception of one; the establishment of a State 9-1-1 Master Plan.

Overview and History of 9-1-1

When 9-1-1 service was first introduced, 9-1-1 calls were sent to a single destination based on the caller's telephone exchange. Since there was and is little or no correlation between a telephone exchange boundary and the emergency responder's jurisdiction, a 9-1-1 call could end up at a Public Safety Answering Point (PSAP) that did not serve the caller's location. This early 9-1-1 service, now known as Basic 9-1-1, did not provide any telephone number or location information with the call; it was a voice service only; the caller had to provide his or her location and call back information.

Significant advancement in 9-1-1 technology occurred with the introduction of enhanced 9-1-1 (E9-1-1) in the 1980s. This level of service enabled a 9-1-1 call to be selectively routed to the PSAP serving the caller's location, and delivered that call with automatic number identification (ANI) and automatic location information (ALI).

The pace of change in telecommunications technology continues to increase rapidly. Voice over Internet Protocol (VoIP), text messaging and picture messaging are being enthusiastically adopted by consumers for their everyday communications; and these same consumers expect to be able to use these technologies to communicate with 9-1-1 which is not possible in South Dakota today.

New challenges posed by these technologies threaten to undermine the historical success of the E9-1-1 system. The current system architecture will prevent the E9-1-1 system from being able to meet those challenges. The E9-1-1 network was designed to support E9-1-1 service to the wireline telephone system. Unfortunately, the design has changed little since its introduction in the early 1980s, which was actually based on 1970s analog technology. This means the current E9-1-1 system handles voice very reliably, but can only handle a very small amount of data. While this was adequate for the wired world of the 80s and 90s, wireline telephone service is now declining. Many citizens are converting their telephone service to wireless or other newer technologies. Many are not maintaining wireline service at all, opting instead for mobile or VoIP services. As reliability of these services increases, more and more people will adopt them as their only telephone service. This shift is having a dramatic impact on PSAPs.

South Dakota's current 9-1-1 system is approaching the end of its useful life. It uses outdated systems to deliver 9-1-1 calls and location data for landline voice, landline telecommunications device for the deaf (TDD), wireless voice, VoIP and telematics systems to the PSAPs. Each introduction of a new communication technology or expansion of an existing system requires significant engineering and system modifications.

All system changes that occurred at the local level over the past 20 years took place with virtually no state level coordination. The lack of state coordination is primarily why the modest improvements that did occur, took 20 years

to achieve. Three of the Indian reservations in South Dakota are still without E9-1-1 services (Cheyenne River, Pine Ridge and Rosebud).

The existing 9-1-1 system is based on technologies that were established decades ago and is a barrier to creating an integrated emergency call management system that has the ability to exchange voice, data, text, photographs and live video through the 9-1-1 emergency communications centers. These capabilities would assist law enforcement, fire departments and emergency medical services in tailoring their response to conditions at the scene of the emergency. An advanced, integrated 9-1-1 system would also provide the ability to quickly and easily reroute emergency calls to another call center when the primary answering point is unavailable or overloaded. The incorporation of these advanced capabilities would enhance the ability to provide more efficient, effective and dynamic emergency responses. The new system is referred to as Next Generation 9-1-1 (NG9-1-1).

Purpose

The purpose of the State 9-1-1 Master Plan is to communicate the vision of the South Dakota NG9-1-1 System to stakeholders so that they may be actively engaged in its development and deployment. The State 9-1-1 Coordination Board's State 9-1-1 Master Plan presents a South Dakota perspective of the system's functionality, management, operations and governance. Additionally, a high level transition plan is provided in section 8.1 of this plan to chart the course of the Board's initiatives and activities on this extensive, multi-year effort. The plan will also address key current 9-1-1 related financial, legislative, operational and technical issues.

Additionally, the purpose of this document is to ensure the successful transition of all South Dakota PSAPs from the current 9-1-1 system to the South Dakota NG91-1 System and the management and operation of the system for optimal security and efficiency. To accomplish these goals, the Master Plan will:

- Identify the functional requirements for a statewide host remote 9-1-1 call answering system , the Emergency Services Internet Protocol Network (ESInet) that will be needed to interconnect the host and remote sites , and the data required to support the NG9-1-1 system
- Identify related financial, legislative, operational and technical issues and define the governance and system management necessary for optimal security, scalability, functionality and efficiency of the system.

1. CURRENT 9-1-1 ENVIRONMENT

South Dakota is the sixteenth largest state in terms of size encompassing 77,123 square miles with a population of approximately 833,000 in 66 counties. Its population includes several Native American tribes which account for about 8.3 percent of the population. South Dakota's two largest cities are Sioux Falls and Rapid City respectively. South Dakota contains 33 PSAPs including four on Indian Reservations to provide 9-1-1 service to the citizens of the state.

South Dakota Indian Reservations are sovereign entities whose adherence to South Dakota Codified Laws and Administrative Rules related to 9-1-1 is voluntary. Three of the Indian Reservations in South Dakota remain without E9-1-1 services (Cheyenne River, Pine Ridge and Rosebud). Some tribal entities have enacted their own 9-1-1 surcharges. No portion of any 9-1-1 surcharge collected on these reservations is remitted to the state.

1.1 Current Legislative and Regulatory Environment and Program Structure

In 2008, a new era of 9-1-1 in the State was initiated by the South Dakota Legislature. The eleven-member, Governor appointed South Dakota 9-1-1 Coordination Board was formed. The Board was tasked with several specific tasks and given administrative rule making authority. The 911 Coordination Fund; 9-1-1 surcharge revenue from prepaid wireless service, was created within the State treasury. The Board was given authority to make disbursements from the fund for 9-1-1 related expenses. Board members represent cities, counties, professional organizations, associations and service providers. One member is from the Department of Public Safety. All members are appointed to staggered three year terms.

Specifically, the South Dakota 9-1-1 Coordination Board is legislatively tasked with the following duties:

- Evaluate all current PSAPs and systems for their capability to administer systems.

Develop plans for the implementation for a uniform Statewide 9-1-1 system covering the state.

- Monitor the number and location of PSAPs or systems and the use of 9-1-1 emergency surcharge funds in their administrative and operational budgets.
- Develop criteria and minimum standards for operating and financing PSAPs or systems.
- Develop criteria for the eligibility and amount of reimbursement of recurring and nonrecurring costs of PSAPs or systems.
- Develop criteria for the implementation of performance audits of the use of 9-1-1 fees utilized in the operation of the 9-1-1 system.
- Report annually to the Governor and Legislature about the operations and findings of the board and any recommendations for changes to 9-1-1 service in the State.
- Report to GOAC per SDCL 34-45-20

The board employs a 9-1-1 coordinator within the Department of Public Safety to assist with the coordination of the statewide 9-1-1 system. The 9-1-1 Coordinator acts as a conduit from the board to those involved across the State in the day-to-day activities of operating a PSAP. The 9-1-1 Coordinator provides local governments in South Dakota with assistance in implementing 9-1-1 emergency telephone systems in their area by addressing Statewide issues

common to all 9-1-1 systems and providing the information and guidance needed by local jurisdictions to make their endeavor successful.

The Board did promulgate rules in accordance with its statutory authority and is currently working on amending their rules in 50:02 to prepare for the NG9-1-1 environment.

With considerable input from the Board and widely supported by stakeholders, starting with centralized collection at the State level of an increased 9-1-1 surcharge on all monthly billed telecommunication services, 9-1-1 underwent significant changes again during the 2012 Legislative session. A two percent 9-1-1 surcharge on prepaid wireless service collected at the retail point of sale was also passed. The legislation provided a long overdue funding increase for local 9-1-1 PSAPs and will result in a projected $20 million over the next six years for NG9-1-1.

1.2 Current 9-1-1 Technology

Each of the 33 PSAPs in the state operates their own local 9-1-1 call answering system. Some of the systems cost upwards of $700,000. Many PSAPs have traditionally replaced or refreshed these systems on five to seven year cycles.

Today, two selective routers located in Century Link central offices in Sioux Falls and Rapid City route virtually all 9-1-1 calls to PSAPs. The existing 9-1-1 network radiates out to all PSAPs from these two locations.

A majority of the 33 PSAPs are capable of accepting Phase II wireless calls. The majority of the PSAPs are connected to a national 9-1-1 database; but approximately four operate their own 9-1-1 database.

1.3 Economics

1.3.1 Funding History

Dedicated funding for 9-1-1 in South Dakota was first enacted in 1989. At that time, the South Dakota Legislature established a maximum monthly surcharge of 75 cents per user line that was collected by telephone service providers and remitted to the local governing body responsible for levying the assessment. The entire surcharge was to be used by the local governing bodies to pay for recurring and non-recurring costs related to 9-1-1. Prior to the 2012 legislative changes that restructured 9-1-1 funding, all local governing bodies that established a surcharge were levying the maximum 75 cents per line.

1.3.1.1 Funding Restructured in 2012

The 2012 Legislature enacted significant changes to 9-1-1 funding with the passage of Senate Bill 174. As it relates to funding, the significant changes made by this 2012 legislation include:

- Centralized the collection of all surcharge revenues with the South Dakota Department of Revenue (DOR)
- Increased the monthly per-line surcharge rate from $.75 to $1.25
- Established a uniform two percent point-of-sale surcharge on prepaid wireless services

- Directed increased revenues to:
  - PSAPs
  - NG9-1-1

These changes will result in an annual increase in PSAP funding Statewide from approximately $8.2 million to an estimated $9.7 million to pay for recurring and non-recurring costs. In addition, it is estimated that $20 million will be generated to support NG9-1-1 implementation over the six years through July 2018 when the monthly per-line surcharge will revert to $1.00 under the sunset provisions of Senate Bill 174.

1.3.2 Current Funding Mechanism(s)

Per South Dakota Codified Law 34-45 the surcharge is distributed into the Public Safety 911 Emergency Fund and the South Dakota 911 Coordination Fund as follows: Seventy percent of the surcharge collected is distributed back to the public agency where the surcharge was collected and the remaining thirty percent is deposited into the Public Safety 911 Emergency Fund. Twenty-six percent of this fund is distributed based on population to eligible PSAPs. A PSAP is eligible to receive a distribution from the Public Safety 911 Emergency Fund if the PSAP is in compliance with the standards for operation and utilization of PSAPs as determined by the board and either serves a population of more than thirty thousand or covers an area that includes three or more counties.[1]

Figure 1 on the following page shows the breakdown of the $1.25 surcharge as explained above.

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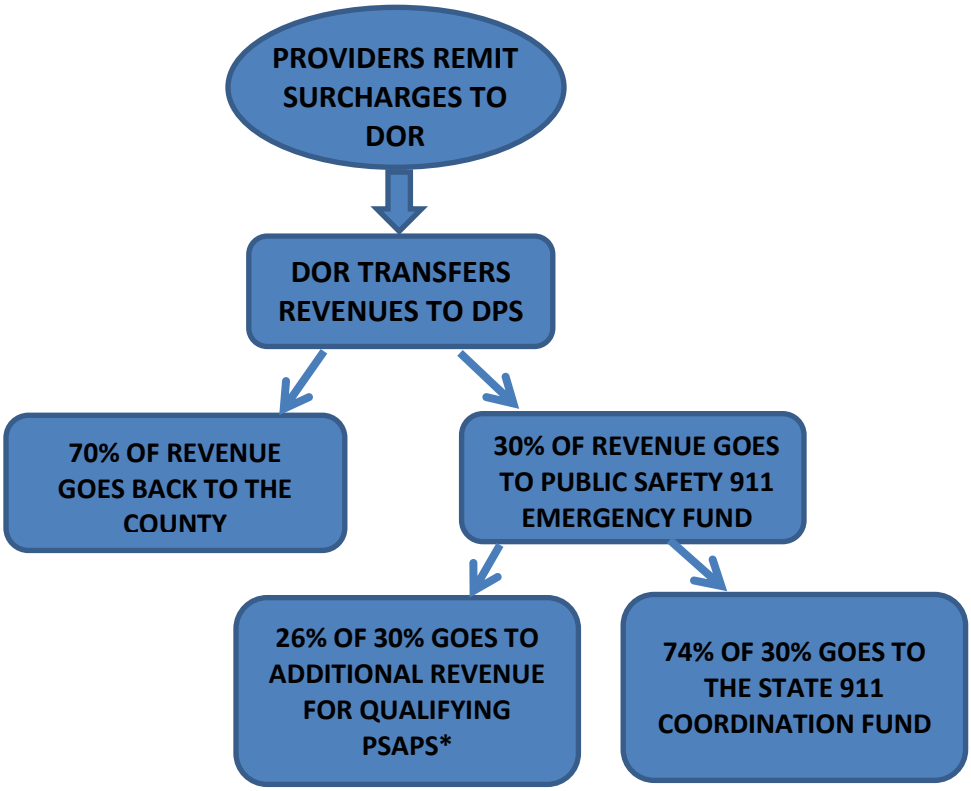
[1] CL 34-45



*PSAP serves a population of more than 30,000 or covers an area of three or more counties and is in compliance with Administrative Rules (ARSD 50:02:04).

Figure 1—Surcharge Breakdown

Seventy-four percent of the funds in the Public Safety 911 Emergency Fund are to be transferred to the South Dakota 911 Coordination Fund. The entire two percent of prepaid wireless transactions are also deposited into the 911 Coordination Fund. The 911 Coordination Fund may be used to fund the State 9-1-1 Coordinator position, PSAP grants, the NG9-1-1 system, and operating expenses of the Board.

1.3.3 Current Revenues and Costs

In 2012, the restructuring of the surcharge was in effect for the second half of the year. The total expenditures by the PSAPs were just over $21 million and the total amount of revenue generated was just over $9 million. Based on this 2012 data, surcharge revenues funded approximately 43 percent of all 9-1-1 expenditures Statewide; a slight decrease from the previous years.

For fiscal year 2013, the Board expenditures were just over $213 thousand. It is important to note that for the first three months of the prepaid wireless surcharge (July, August and September of 2012), the carriers were allowed to retain 100 percent of the surcharge as an administrative fee. The prepaid wireless revenue is anticipated to increase when an entire 12 months are collected for fiscal year 2014. In addition, with the Board planning for the transition to NG9-1-1, state expenditures will increase over the next several years.

1.3.4 Next Generation Considerations

It is the goal of the Board to pay all one time and recurring NG9-1-1 costs from the 911 Coordination Fund. The 911 Coordination Fund receives revenues generated by the two percent 9-1-1 surcharge on prepaid wireless service and approximately $0.27 of the $1.25 surcharge on monthly billed phone service. This funding is intended to support the Statewide costs of implementing and operating the NG9-1-1 system.

The Board believes the projected $20 million in funding for NG9-1-1 over the first six years (2012 to 2018) will provide the funding needed to cover all one-time and annual recurring costs through 2018.

As mentioned above, in July 2018, the current $1.25 surcharge on monthly billed phone service reverts to $1.00. Under the final adopted language of Senate Bill 174, beginning in July 2018, all revenue generated by the remaining $1.00 surcharge will then support recurring and non-recurring PSAP expenses. From July 2018 forward, none of the surcharge on monthly billed phone service will be available to support the ongoing costs of NG9-1-1. The costs associated with development of the NG9-1-1 infrastructure, as well as the ongoing cost of maintaining the system once it is in place remain uncertain. The Board will continually monitor and frequently project recurring NG9-1-1 costs and if justified, will recommend legislation to ensure adequate funding beyond June 2018 to support the Statewide costs of the NG9-1-1 system.

The two percent surcharge on prepaid wireless service is projected to generate $717,000 in revenue in 2013. With no growth in this revenue stream, this $717,000 annually would be available to support the costs of the State 9-1-1 Coordinator, the 9-1-1 Board, and annual recurring NG9-1-1 Statewide system costs.

1.3.5 Allocation/Distribution of State Funding for Equipment and Operations

1.3.5.1 Appropriate Use of Surcharge Funds

The Board is empowered by statute to establish by administrative rule the allowable uses of surcharge revenues, which the Board has done. Administrative Rule Chapter 50:02:04:07 thru 50:02:04:13 covers the allowable uses of surcharge revenues along with the compliance review process. It appears that, based upon the Board's monitoring of county and PSAP financial reports; compliance with this administrative rule continues to improve. However, some instances of non-compliance have been noted and the Board's ability to enforce compliance is very limited. Absent statutory authority to enforce compliance; the Board will continue to monitor financial reports for non-compliance and encourage voluntary compliance, in cooperation with the Department of Legislative Audit, the South Dakota Municipal League and the South Dakota Association of County Commissioners through training and education. The Board has developed an extensive Frequently Asked Questions (FAQ) page on the Board home page.

1.3.5.2 Appropriate Mix of Surcharge Funding and Other Local Funding

Prior to the changes enacted by the South Dakota Legislature in 2012, 9-1-1 surcharge revenues provided less than 50 percent of the funding needed to pay the cost of providing 9-1-1 service Statewide. The balance of these costs was funded by local dollars diverted from other county and city revenue streams. Clearly, with the changes implemented in 2012, the share of 9-1-1 costs Statewide covered by surcharge revenues will increase, but the Board will need to determine what the appropriate mix is. In the long term, communities across the State and all 9-1-1 stakeholders will benefit by an open discussion to arrive at a consensus, if possible, on the appropriate share of 9-1-1

costs that should be covered by 9-1-1 surcharge revenues. The Board intends to lead this discussion and, in addition, take the lead in developing a long-term strategy to achieve and maintain the appropriate balance of funding sources following NG9-1-1 implementation.

1.3.5.3 Sustainability of Funding

Twenty-three years passed between 1989 when the first $.75 per line surcharge was enacted into law and 2012 when the rate was raised to $1.25 per line. Many things relative to 9-1-1 changed during that time – not the least of which was the cost of providing modern 9-1-1 dispatch services. Fortunately, during this time when the cost of providing 9-1-1 services was rapidly escalating, the use of wireless technology was exploding and, along with it, the revenues generated by the $.75 per line 9-1-1 surcharge also increased. The extraordinary expansion in the use of cell phones had a positive influence on counties' and cities' ability to keep up with increasing 9-1-1 costs over the past 23 years. It appears doubtful that cities and counties can expect similar growth in 9-1-1 surcharge revenues over the next couple of decades.

It is uncertain if the future growth in 9-1-1 surcharge revenues will keep pace with the cost of providing 9-1-1 services. The $1.25 per line surcharge rate is temporary, as mentioned above, and will roll back to $1.00 per line in 2018. There is no statutory mechanism to address inflationary increases in the cost to provide 9-1-1 services. The Board will maintain focus on the future funding of 9-1-1 and will lead the discussion to identify opportunities to improve the sustainability of the 9-1-1 surcharge revenues.

1.3.5.4 Surcharge Remittance Audits

Funding of 9-1-1 services is dependent upon surcharge revenues collected by many service providers and retailers. Collecting and remitting the appropriate 9-1-1 surcharge revenues is required by State law. However, without periodically auditing the records of these private companies to determine if the appropriate amounts have been remitted to the South Dakota DOR, there is limited assurance that remittances are as they should be. The Board will work with DOR to determine what audit coverage can be coordinated with DOR's sales and use tax audit program and the appropriate cost-sharing that could be associated with auditing the 9-1-1 surcharge revenue remittances.

1.3.5.5 Grants to PSAPs Program

The Board created a grant program in order for PSAPs to get financial assistance in order to comply with 9-1-1 administrative rules. Since the inception of the Grant Program in 2010 only two PSAPs have applied for funding. When the Board originally approved the program they ear marked up to $200,000 from the 911 Coordination Fund that would be available for grants to PSAPs. To date they have granted a total of $32,274.06 for two PSAP grants.

The goal of the grant program is to provide financial assistance to PSAPs that need help in funding non-recurring costs necessary to achieve or maintain compliance with the standards set out in Administrative Rules of South Dakota (ARSD) sections 50:02:04:02 (General operational standards), 50:02:04:03 (Call taking standards), 50:02:04:04 (Communication with field units), 50:02:04:05 (Facilities and equipment) and 50:02:04:06 (Technical standards). Grant money must be used to fund the purchase of property identified as allowable nonrecurring costs in

ARSD 50:02:04:10 (Nonrecurring Costs). Any property acquired with grant funds must be used for the direct benefit of the PSAP throughout the useful life of the property.
The maximum amount of any single grant award is $50,000. Eligible applicants are South Dakota cities, counties or federally recognized Indian tribes that operate one of the 33 established PSAPs in the State. An application submitted for the benefit of a PSAP that is operated jointly by two or more cities and/or counties under a formal joint powers or cooperative agreement must be submitted by one of the sponsoring governmental entities. The applicants must be in compliance with South Dakota Codified Laws (SDCL), 34-45-34 Enhanced 911 Service and established Financial Standards set out in ARSD 50:02:04:07. There is one application period for each funding cycle and applications are due on or before March 31 for the initial funding cycle.

Public Safety Answering Points are required to provide a cash match of at least 50 percent of the total project costs. The Board has discussed the 50 percent match but to date has not taken action to change it..

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2. FUTURE ENVIRONMENT

The South Dakota NG9-1-1 System will be initiated with the implementation of a Statewide host remote 9-1-1 platform. Several initial beta test PSAPs will be interconnected via IP-based facilities and systems. This beta test is intended to demonstrate the ability to form the Statewide ESInet. The initial ESInet will be expanded to eventually provide all connectivity between individual PSAPs creating a fully functional Statewide ESInet.

The Statewide ESInet will enable call access, transfers and backups among and between PSAPs within South Dakota, and potentially, across the region and nation. Additionally, the ESInet will potentially provide access to other emergency services organizations such as poison control centers, telematics service providers such as OnStar, alarm monitoring companies and Federal agencies such as the Federal Emergency Management Agency (FEMA). Thus, it is an interconnected and interoperable system of local, regional and national emergency services networks.

An ESInet is designed to enable access to public emergency services, when the technology is fully developed and commercially available by any personal communication device regardless of mobility and/or technology. This includes emergency calls[2] using text messages, instant messages, voice and video from handheld devices, laptop and desktop computers and wireless and wireline phones. An ESInet will have the capability to pass information to enhance the response, such as an image of the scene of an accident. It would also be capable of accessing information designed to facilitate emergency services such as a caller's medical records or the building plans of the caller's location. An ESInet will provide the connectivity to enable the PSAPs and the general public the ability to receive up-to-date information, warnings, and/or instructions on large-scale events.

2.1 Geographic Data for the Next Generation 9-1-1 System

The current legacy 9-1-1 network uses customer telephone records and tabular databases listing street names, address ranges, etc. to determine which PSAP a 9-1-1 call should be routed to. The NG9-1-1 system will use a dynamic Geographic Information System (GIS) to make emergency call routing function (ECRF) and location verification function (LVF) decisions. Specific National Emergency Number Association (NENA) standards for this data are being finalized. The standards will ensure all NG9-1-1 GIS data nation-wide will be compatible. The Board, recognizing the potential challenges associated with creating this data, will make its procurement the State's top priority. Not only will the NG9-1-1 system need this data, but Statewide Public Safety GIS datasets will be of immense value to virtually all aspects of Public Safety in South Dakota as they do not exist today.

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[2] The term "call" is used in this document to indicate any real-time communication – voice, text, or video- between a person needing assistance and a 9-1-1 Dispatcher in a PSAP.

Currently, numerous jurisdictions throughout the State maintain GIS location data at the local level or within regionalized areas. The Board expects to contract with a qualified, experienced vendor to aggregate various disparate GIS datasets into a single State-wide NG9-1-1 GIS dataset. This GIS dataset will be the primary database for NG9-1-1, where all location related data is derived.

Local GIS data from numerous sources such as county, tribal, municipal or PSAP jurisdictions is typically stored in different formats. Aggregating this data for provisioning within ECRF and LVF systems presents unique challenges for NG9-1-1 systems to properly function. The Board will look to this vendor to establish the process and mechanisms necessary to compile, process and assimilate this localized GIS data into a single NG9-1-1 dataset.

In addition to aggregating the base GIS data, the vendor will also develop a system and process to ensure the data is kept as current as possible moving forward. Numerous key stakeholders will be involved in the development of the maintenance process, including local city and county GIS and IT staff, tribal officials and vendors that maintain local GIS data for numerous cities and counties in the State.

The aggregation and maintenance of this GIS dataset must provide for near real time updates of the geospatial data and is expected to facilitate the following:

- Update receipt and integration of geospatial data from each 9-1-1 entity's GIS
- Perform quality assurance on the data to meet accuracy standards
- Facilitate and coordinate resolution of conflicting geospatial datasets
- Execute timely export of the geospatial data on a permission basis
- Assure dynamic (real time) changes to routing geospatial data, and its export

2.2 Connectivity and Equipment

The South Dakota NG9-1-1 System will provide connectivity at two geo-diverse locations. A third site may be developed for added redundancy as needed. Each PSAP will be connected to these locations via an IP network with equipment and software associated with each 9-1-1 call taker workstation. The Board will ascertain if any existing 9-1-1 equipment currently in use can be leveraged and used in the NG9-1-1 system.

It has been identified that IP-based connectivity is already at or near virtually every PSAP; however, the build out costs to connect IP directly to the PSAP is unknown at this time. The ESInet could be provided by one or multiple service providers. Any service provider will be required by contract to meet or exceed the NENA i3 standards when deploying an ESInet within the State.

The Board will seek recommendations regarding where to specifically locate the core 9-1-1 equipment. Factors that will be considered include one time and recurring costs to install and host the equipment, site security, future expansion potential and the sites' ability to host the equipment long-term. Potential locations for the core equipment would likely include the current selective router sites, ESInet provider facilities, PSAPs, government buildings or facilities, and other secure data centers.

Following host 9-1-1 controller installation, appropriate equipment will be installed at the following initial beta test PSAP locations: Brookings, Mitchell, Pierre, Rapid City, Sioux Falls, and Winner. These PSAPs are geographically diverse and represent a variety of small to large PSAP operations (population served) by South Dakota standards.

The ESInet connectivity will then be established and system testing, network stabilization, operational policies, automatic transfer protocols, maintenance procedures and other aspects of the new NG9-1-1 system will be established. The six beta test sites will operate in dual mode (legacy and NG9-1-1 network) for some period of time. Actual system costs will be determined allowing the Board to plan and project future revenue needs. The equipment and ESInet provider(s) will be contracted to bring the remaining PSAPs onto the hosted system, in order of population served, by the end of 2017. Emergency Services IP Network connectivity will be provided to each PSAP at the same time they are connected to the hosted system. Public Safety Answering Points will continue to be responsible for legacy connections not provided by the State ESInet system. Legacy network connections will be terminated based on established ESInet criteria. The goal is to have all PSAPs on ESInet connections no later than December 31, 2017 as identified in the following timeline:

Migration Date Activity	Hosted 9-1-1 Systems
July 1, 2014- Beta Test PSAPs	Brookings, Mitchell, Pierre, Rapid City, Sioux Falls, Winner
December 1, 2014- Migration to Host	Aberdeen, Canton, Huron, Mobridge, Watertown, Sturgis, Yankton
July 31, 2015- Migration to Host	Deadwood, Elk Point, Lake Andes, Madison, Sisseton, Spearfish, Vermillion
December 31, 2016- Migration to Host	Belle Fourche, Redfield, Custer, Hot Springs, Tyndall, Flandreau, Howard, Britton, Clear Lake, Eagle Butte*, Ft. Thompson*, Mission*, Porcupine*
By December 31, 2017	Full migration to ESInet connectivity by all PSAPs
	*PSAPs will migrate to the Host upon entering into an agreement with the Board.

Table 1—Transition Timeline – PSAP Migration to Hosted 9-1-1 System[3]

2.3 Emergency Services Internet Protocol Network Backbone

An IP-enabled network infrastructure will be used to interconnect individual PSAPs, local and regional ESInets and potentially other emergency services networks beyond South Dakota boundaries. It must be engineered and managed to provision the bandwidth necessary to carry the volume of traffic for all PSAPs in South Dakota, currently numbering thirty three (33). Most PSAPs will be connected directly to the ESInet backbone. Some may be connected to the ESInet backbone via regional ESInets.

In order to evolve the ESInet to provision other emergency services, the network infrastructure must be easily and

[3] All PSAPs and the areas they serve must be at the E911 service level for wireline and wireless before the PSAP/area can be migrated to the NG911 system.

seamlessly scalable and extensible. Furthermore, the network infrastructure must be Public Safety grade. It must meet a higher standard of availability, resiliency, reliability, security and survivability than non-mission critical enterprise network infrastructure.

It is anticipated that commercial IP-based facilities will be utilized as the State level ESInet backbone. The service provider(s) will be required to use advanced network technologies such as Multi-Protocol Label Switching (MPLS), Virtual Private Networks (VPNs) and Quality of Service (QoS).

State level ESInet application provider(s) will provide core services related to generic IP-enabled networks such as address allocation, domain name systems, services broker and network monitoring and management. State level ESInet application operator(s) may also provide multimedia services such as bridges, system loggers and media servers. If Regional ESInets are established, they may choose to utilize some of the core services at the State level, but are expected to bear the responsibility of all services being provided within their Regional ESInet.

2.4 Emergency Services Internet Protocol Network Core Functions

Calls presented to an ESInet by carriers, enterprises or other entities must follow the NENA i3 standards. The ESInet core functions are shown in Figure 2 below and are explained further in this section. Although Regional ESInets are not expected in South Dakota, they are included in the diagram as an illustration of how they would connect to the network. Other ESInets could include South Dakota Regional ESInets as well as other State or National ESInets.

South Dakota Conceptual Next Generation 9-1-1 Network

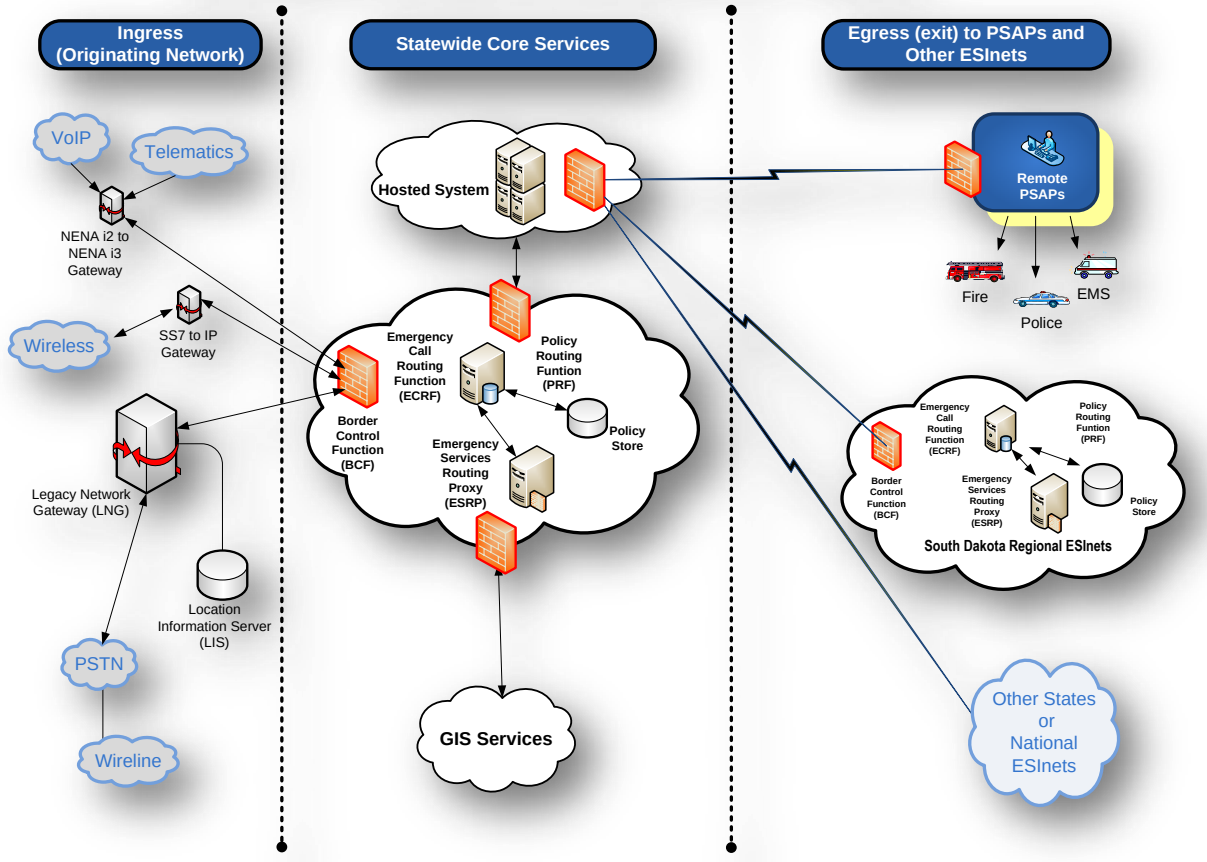

Figure 2—ESInet Core Functions

2.4.1 Ingress – Originating Network

Originating calls and the format required by the carrier(s) and other providers will be further researched and discussed to determine the methods and systems best suited for the statewide ESInet. The vision for requirements is as follows.

VoIP and Telematics – includes all originating calls that do not fall under traditional wireless and wireline calls.

Wireless – includes traditional wireless calls originating from cellular phone users. Current delivery holds the expectation that the provider deliver the call via an SS7 to IP gateway.

Wireline –includes traditional wireline calls. As CAMA might no longer be utilized as a mode of call delivery to the statewide ESInet, South Dakota intends to require the carrier(s) to provide a legacy network gateway to deliver calls to the statewide ESInet. Call information should include ALI data from the provider. Providers may choose to utilize a Location Information Server for this function.

2.4.2 Statewide Core Services

At a high level, South Dakota envisions the Statewide core services to consist of the functions required to gather call information from the originating source and other processes, as required, to deliver calls to the appropriate PSAP. In other words, core services are the call processing portion of the network.

Host Remote Call Answering System - South Dakota intends to provide a host remote call taking system as a core service with the local PSAPs connected remotely. The host equipment is expected to reside at a minimum of two diverse locations to provide redundancy.

Border Control Functions – this function begins with a firewall to protect the Statewide ESInet from malicious activity from the originating call providers at the point of ingress and from PSAPs, other ESInets or other services with access to the Statewide core services. Other border control functions may include verifying the call information configuration.

Emergency Services Routing Proxy – the call information is collected and then subsequently delivered to the appropriate PSAP or other ESInets. Within this function includes:

- **Emergency Call Routing Function** – determines the location information for the appropriate PSAP.
- **Policy Routing Function and the Policy Store** – determines if the PSAP is available to receive the call. Policies may include information regarding PSAP availability to support receiving calls.

GIS Services – utilizes a GIS database to determine additional information regarding the call location.

2.4.3 Egress to Public Safety Answering Points and Other Emergency Services Internet Protocol Network

The Egress side of the network diagram on page 14 depicts the call delivery portion of the ESInet. The call is delivered through the Statewide core services to the PSAP or other ESInets. Additional Border Control Functions,

such as a firewall, may exist at the point of ingress to the PSAP or other ESInets. Within South Dakota, this process is expected to be simplified with the existence of the host remote call answering system.

2.5 Emergency Services Applications

Basic application services are imbedded functions that utilize the network backbone as a transport and enhance the operation of the ESInet by providing the ability to share these applications across PSAPs. At this time, national standards and/or requirements for many ESInet application services are incomplete. However, as the standards are published South Dakota will assess the applications and incorporate those deemed meaningful and cost effective into existing state policies. The following applications may be included within the network capabilities.

Smart-phone applications – Numerous applications are available today. These applications allow citizens to pre-load a variety of data about themselves, their medical condition, medications, emergency contacts, etc. that could be shared with PSAPs and responders if or when the person makes a 9-1-1 call. Such applications may also allow 9-1-1 callers to share pictures and videos they may have of suspects and incidents with the PSAP while talking to 9-1-1 dispatchers.

Text to 9-1-1- Allows citizens to communicate with a PSAP via text messaging. This application provides Deaf, hearing and speech impaired callers with improved communication options for reporting emergencies and requesting emergency assistance. Also provides callers under duress, such as during home invasions, kidnappings, etc. with alternate method of contacting PSAPs and emergency services.

Event Notification – Provides event notification intended to interact with the Policy Store, such as:

- Department of Homeland Security when certain types of incidents occur triggering a specialized incident correlation process.
- Amber Alerts relevant to the jurisdiction (location-sensitive event).
- Hazardous Material (HAZMAT) alerts.
- Integrated Transportation System closed road advisories for an Emergency Operations Center.

Emergency Agency Directory – Will provide an automated number, such as a star code, to contact registered PSAPs.

2.6 Operations in a Next Generation 9-1-1 Environment

With the transition to NG9-1-1, PSAP personnel across South Dakota will undergo changes in roles and responsibilities. New technology will give way to new forms of communications that will be available to PSAP call-takers, dispatchers and management staff. While this technology is implemented to improve 9-1-1 service levels, PSAPs will need to be prepared for how to handle these new forms of “calls” coming into the PSAP such as text, video and telematics. These technology changes will be ever present in the years to come and training programs should be planned for across the State.

Data sharing across the PSAPs will also be increasing with the transition to NG9-1-1. This will be a new challenge for many PSAPs and will require updated training. Operational standards and policies should be created or updated in response to the anticipated changes in PSAP operational models.

There are also many operational management decisions that will need to be made as the State moves closer to the transition to NG9-1-1, such as when to accept text messages or deploy specific applications.
The Board's operational rules are found in administrative rule 50:02:04. The Board has begun to amend those rules to facilitate the transition to NG9-1-1 and will continue to amend the rules as the system progresses and the operational environment changes.

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3. GOALS, OBJECTIVES AND MEASURES

3.1 Developing Goals, Objectives and Measures

The goals a state sets for itself are high-level, general directions. The objectives a state sets for achieving the goals are concise, specific and measurable. Each objective should have a deadline for completion and an associated metric to measure progress. Objectives are updated as they are completed or at least annually, even if the duration of activities associated with an objective is longer than one year.

In order to meet the consensus goals, the Board identified several actionable objectives. The goals and objectives are interrelated and may be executed concurrently.

Goal One: South Dakota will have a statutory environment that does not impede but rather facilitates the implementation of and transition to NG9-1-1.

Objective 1.1: The Board will plan for another review of the 9-1-1 regulatory framework for new roadblocks after NG9-1-1 system specifications and requirements are defined and decisions are finalized.

Objective 1.2: The Board will work with the legislature to expand its statutory authority to include the authority to operate and manage a State-level ESInet.

Objective 1.3: The Board will work with the legislature to legislate a broad definition of "call" that includes other types of communications, in addition to voice calls, that could be used to request 9-1-1 service.

Objective 1.4: The Board will work with the legislature to combine the relevant portions of the definitions for Basic 911,[4] Enhanced 911[5] and 911 emergency reporting system or "911 system[6] to establish a strong and unified definition of 911 that covers all potential technologies and eliminates the existing technology specific definitions that will not require individual statutory treatment in the NG911 environment.

Objective 1.5: The Board will work with the legislature to amend the statute to remove the definitions for "Interconnected Voice over Internet Protocol (VoIP)"[7] and "Wireless telecommunications service"[8], as well as the

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4 SDCL 34-45-1(1)
5 SDCL 34-45-1(3)
6 SDCL 34-45-1 (6)
7 SDCL 35-45-1(5)
8 SDCL 34-45-1 (23)

several references to wireless telecommunications service and "Interconnected Voice over Internet Protocol service" that occur throughout the statute[9] since the existing definition for "Telecommunications service"[10] covers any technology capable of accessing 911.

Objective 1.6: The Board will work with the legislature to amend and expand the confidentiality provision found in SDCL 1-27-1.5(5) to include a provision that protects any type of data associated with any type of 9-1-1 call and permit the aggregation and analysis of general call data. The statute should also be amended to provision for access restrictions to network stored data. The 911 board will promulgate rules to establish policies and procedures, setting access rights, controls and processes.

Objective 1.7: The Board will work with the legislature to expand the statutory liability protection provided in SDCL 34-45-17 to clearly cover all NG9-1-1 services and be broad enough to encompass all players involved in provisioning NG9-1-1. Amendments should specifically extend liability protection beyond the PSAP environment to all entities involved in the emergency response and make clear that the liability protection extends to persons and entities providing NG9-1-1, including providers of external data sources that support or supplement the normal information sent with a 9-1-1 call. Amendments should also apply the liability protections to NG9-1-1 service providers generally and define NG9-1-1 service provider broadly as a person or entity that is merely involved in providing 9-1-1 service and only needs to utilize NG9-1-1 in whole or in part in order to gain protection in order to adequately provide liability coverage to all applicable entities to assure that new types of providers will be comfortable about providing NG9-1-1 services and components.

Objective 1.8: The Board will work with the Legislature to obtain statutory authority to enforce compliance of administrative rules on the appropriate use of surcharge funds by PSAPs.

Goal Two: The Board will create new administrative rules as the 9-1-1 system transitions and will routinely update all administrative rules.

Objective 2.1: The Board will create a timeline and procedure for updating all administrative rules.

Objective 2.2: The Board will create administrative rules related to the operational impacts from new NG9-1-1 services such as social media, applications and text messaging.

Objective 2.3: The Board will continue to update its rules to remove references to "enhanced 9-1-1" and other dated terminology in order to establish and maintain a timeless regulatory environment.

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9 SDCL 34-45-1(7),(18),(20),(21); SDCL 34-45-5, SDCL 34-45-7
10 SDCL 35-45-1 (22)

Objective 2.4: The Board will create an administrative rule detailing the compliance program for appropriate use of surcharge funds including plans for bringing PSAPs into compliance and penalties for non-compliance.

Goal Three: South Dakota will have a competitive marketplace and a technology neutral environment where the State and carriers communicate and keep each other apprised of NG9-1-1 plans and developments in order to assure that all of the individual NG9-1-1 components and NG9-1-1 plans will be easily accessible and able to work together to deliver NG9-1-1.

Objective 3.1: The Board will create a communications plan for coordination with the carriers and NG9-1-1 service providers.

Objective 3.2: The Board will work with selective router providers to amend tariff language as necessary, or otherwise enter into permitted agreements to allow for interconnection so that term language can be addressed up front. Current tariffs may not be broad enough to allow selective routers to route calls to potential transitional network components such as LNG instead of directly routing to a PSAP because existing tariffs specify that regulated Incumbent Local Exchange Carrier (ILECs) will route 9-1-1 calls directly to PSAPs.

Objective 3.3: The Board will work with ILECs to assure that tariffs allow for 9-1-1 authorities or new 9-1-1 System Service Providers (SSPs) to receive relevant routing, location and other related 9-1-1 information from the incumbent SSPs at reasonable, cost-based rates and terms. Unbundled 9-1-1 services will prevent 9-1-1 authorities from bearing continued legacy costs that are no longer needed during the transition.

Objective 3.4: The Board will work with the 9-1-1 service provider to account for the responsibility for cost distribution for the decreasing use of shared legacy components, like selective routers, to prevent increased costs during the transition when legacy components are still relied on.

Objective 3.5: The Board will create a detailed NG9-1-1 transition plan and perform an in depth financial analysis of the cost of transition and on-going maintenance for NG9-1-1 in order to determine future funding needs.

Goal Four: The Board has a process and procedure for measuring the efficiency of PSAPs.

Objective 4.1: The Board should explore ideas regarding PSAP efficiency and identifying and overcoming the challenges to measuring the efficiency of the State's PSAPs. In order to effectively plan for the future of 9-1-1 in South Dakota, it is critical that a reliable method of measuring the efficiency of the State's PSAPs be developed.

Objective 4.2: The Board will create a communications plan to include and advise the South Dakota Indian Reservations of the NG9-1-1 transition plan and encourage their participation. In order to provide the highest level of 9-1-1 service to the citizens of South Dakota, it is essential that the Board include the Indian Reservations in the planning and implementation process.

Goal Five: All PSAPs in the state will connect to the NG9-1-1 network.

Objective 5.1: The Board will draft procedures for PSAPs to connect to the NG9-1-1 network.

Objective 5.2: The Board will decide what they will require of PSAPs to connect to the network and define minimum NG9-1-1 services a PSAP will be required to provide.

Objective 5.3: The Board will create an administrative rule that will detail connection requirements.

Goal Six: PSAPs will have the ability to share Statewide platforms.

Objective 6.1: The Board will identify platforms that PSAPs will have the opportunity to share on the new system.

Objective 6.2: The Board will establish what is needed in order for PSAPs to accept and share these platforms.

Goal Seven: The Board manages the acquisition, implementation and maintenance of a Statewide NG9-1-1 network.

Objective 7.1: The Board will issue Request for Proposals (RFPs) for equipment and services necessary for the NG9-1-1 network.

Objective 7.2: The Board will create an administrative rule detailing the requirements for connecting to the statewide ESInet.

Objective 7.3: The Board will establish the functional requirements for the NG9-1-1 network core functions and ensure they meet at a minimum the published standards as they are completed.

Objective 7.4: The Board will establish processes and procedures for resolving and escalating contract and service issues by working collaboratively with all of the state's 9-1-1 entities for the following:

- Contract and service issues resolution and escalation
- Data quality assurance
- Security and data rights management

Goal Eight: Increase the number of PSAPs that apply for the Grants to PSAPs Program in order to bring more PSAPs into compliance with administrative rules.

Objective 8.1: Reduce the matching requirement from the current level of 50 percent of the project cost in order to make the program more affordable and accessible.

Goal Nine: The Board will work with DPS to discuss the possibility of hiring and additional full time employee to manage the NG9-1-1 Deployment and Implementation Project on behalf of the Board. This NG9-1-1 Program Manager would be responsible for the overall direction, coordination, implementation, execution, control and completion of the NG 9-1-1 projects assuring consistency with the Board's strategy, commitments and goals. The Program Manager would be the single point of accountability for project delivery and escalations.

3.2 Tracking Progress

The Board and 9-1-1 Office staff may adopt a policy or make a bylaw addition that stipulates one month each year when the appropriate subcommittee is responsible for bringing forth administrative rule updates, and reports on progress towards achieving these goals.

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4. RESOURCE ALLOCATION

The South Dakota 9-1-1 Coordination Board was given rule-making authority to set standards for the operation of PSAPs.

4.1 Next Generation 9-1-1 Non-recurring Cost Considerations

There are many costs associated with transition from a legacy 9-1-1 system to a NG9-1-1 system. The costs described in this section are not included in the financial analysis, but are significant and must be considered in the decision-making process. In most cases, these costs are non-recurring. During the initial transition phase from the legacy system to the NG9-1-1 system, there will be a period during which it will be necessary to pay current legacy system costs, while also paying for the NG9-1-1 system. It is difficult to estimate the length of time necessary to maintain the two systems simultaneously as there are many factors that contribute to this timeframe. The transition period will need to be tightly managed to minimize the time the two systems would operate in parallel, thereby minimizing transition costs. A detailed analysis and timeline of the NG9-1-1 transition will need to be conducted in order to more accurately predict costs.

Another consideration is the cost of public education and outreach needed for the transition to NG9-1-1. It will be necessary to educate the public on new services available as a result of NG9-1-1 and on the appropriate use of these services. Public education campaigns can be as basic as creating an informational brochure or as extensive as creating and airing public service messages. The costs associated with these efforts vary widely. The board will need to determine the level of outreach and factor the associated costs into its NG9-1-1 transition plan.

Outreach to stakeholders, PSAPs and other entities will be necessary during the NG9-1-1 planning and transition phases. The board will need to coordinate an effort, possibly through focus group meetings, to address the following:

- System participation
- Interconnection to other entities
- Governance planning
- Other regional needs based on the new system

In the transition to NG9-1-1, PSAP telecommunicators may be faced with changing job responsibilities. Training will be needed on new data, new protocols, equipment, and other media that expand traditional functions within the PSAP. Consistent training standards and implementation will require planning and uniform implementation statewide.

There will be administrative costs involved with planning and implementing the transition to NG9-1-1. For example, scoring, awarding and negotiating an RFP for the procurement of system components will require extensive time and effort. It will be necessary to study call volume statistics to plan for future needs. In addition, managing the actual transition will be a time consuming task, the board may need to have a resource dedicated to managing the transition process. Finally, there will be future costs that are unforeseen at this time, but must be taken into consideration

4.2 Projected Revenue

The reports from the Department of Revenue were utilized to determine the average monthly line count based on the reports from July 2012 through May 2013. The average line count was 854,505. In determining the two percent wireless fund amount, the amounts listed as received beginning August 2012, in the 911 fund condition statement dated June 30, 2013 were utilized. The average monthly amount received was $59,764. As this is a new surcharge, it is not feasible to predict at this time if that revenue will increase through 2018, so a flat monthly rate was utilized for the calculation.

The expenditures reported in the 911 Coordination Fund Condition Statement dated May 31, 2013 were used to project Board expenditures going forward with the addition of anticipated contracted fees for consulting services. The table below shows the projected yearly revenue minus the projected yearly expenditures through 2018. A balance of just over $20 million is available to expend on the NG9-1-1 transition.

	2013	2014	2015	2016	2017	2018*
9-1-1 Coordination Fund Current Balance	$2,617,608.00	$4,578,478.08	$7,795,602.70	$11,199,515.31	$14,603,427.93	$18,007,340.55
Estimated Revenue from $1.25 surcharge*	$1,859,061.08	$2,788,591.62	$2,788,591.62	$2,788,591.62	$2,788,591.62	$1,397,213.29
Estimated Revenue from 2% wireless prepaid**	$478,112.00	$717,168.00	$717,168.00	$717,168.00	$717,168.00	$717,168.00
Total	**$4,954,781.08**	**$8,084,237.70**	**$11,301,362.31**	**$14,705,274.93**	**$18,109,187.55**	**$20,121,721.83**
Total Known Expenditures^	**$376,303.00**	**$288,635.00**	**$101,847.00**	**$101,847.00**	**$101,847.00**	**$101,847.00**
	$4,578,478.08	**$7,795,602.70**	**$11,199,515.31**	**$14,603,427.93**	**$18,007,340.55**	**$20,019,874.83**

** 6 months of 1.25 revenue for 2018 and then per statute the surcharge reverts to $1.00 and money is no longer allocated to the 9-1-1 Coordination Fund.*
***The wireless prepaid revenue and the line count for the $1.25 estimate is based on actual collections for FY2013 and then that number is used to project the revenue going forward.*

Figure 3—Projected Yearly Net Revenue

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5. UPDATING THE PLAN

Statewide 9-1-1 planning is a detailed, dynamic process that will take several years to complete its transition and must be maintained once in place. As a result, the State Plan should be a dynamic, up to date document that will require review and possible updates on a regular basis. These updates will help to keep the Board and participating entities accountable to the objectives in the plan. Regular updates will keep the PSAPs throughout the State up to date on the status of the network and other initiatives. During plan reviews, the Board and participating entities will need to assess the status of progress on the plan objectives. Goals and objectives within the Plan may need to be updated at that time, or at a set time determined by the Board.

Official updates to the plan will be made once per year in the month of June and an official version will be released shortly thereafter. Revisions and updates will be tracked throughout the year, but the official plan update will be made in June with the approval of the Board. This yearly review will assure that the Plan remains relevant but prevents constant changes to the plan which may become unmanageable to the responsible party. This review schedule will allow flexibility in NG9-1-1 planning and maintenance as regulations and technology changes.

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6. MECHANISM(S) FOR OVERSEEING AND MANAGING THE STATE'S 9-1-1 SYSTEM

As South Dakota moves through the procurement process for NG9-1-1 components, more detail should be added to this section of the plan. Once it is clear how the network will be implemented, the Board will know better their needs for stakeholder involvement, feedback, and role definition (9-1-1 authorities, service providers, equipment vendors, etc.); performance and implementation metrics; appropriate project and change management; coordinated development, distribution and application of best practices and operational policy as it relates to Statewide connectivity. Policies and procedures are often based upon institutional relationships in a state, along with related roles and responsibilities.

The 9-1-1 Coordinator, employed by the Board, provides local governments in South Dakota with assistance interpreting the 9-1-1 laws and administrative rules in their area and by addressing Statewide issues common to all 9-1-1 centers and providing information and guidance needed by local jurisdictions to make their endeavor successful. The Board also provides guidance to local governments on a wide variety of topics. This mechanism will continue to be used for the NG-9-1-1 project, the implementation of a statewide redundant IP network backbone, and the migration of existing E9-1-1 circuits and PSAPs onto it.

The Board together with the Coordinator will have responsibility for the basic mechanism for overseeing and managing the state's 9-1-1 system with the following responsibilities:

- Coordinating the development and implementation of the state 9-1-1 plan
- Providing a single point of accountability for statewide 9-1-1 issues related to the plan
- Updating the plan annually
- Coordinating 9-1-1 implementation activities Statewide
- Providing a clearing house for information about State, local and national 9-1-1 issues
- Gathering and disseminating information on how the plan's initiatives are progressing
- Being the liaison between local and regional 9-1-1 stakeholders and the State, as well as Federal agencies

7. MECHANISM FOR INITIATING AND MONITORING A NEXT GENERATION 9-1-1 IMPLEMENTATION PROJECT

By statute, the Board has the authority to:

- Set minimum standards for operation of public safety answering points, determine criteria for reimbursement for nonrecurring costs and the amount of reimbursement, and oversee the coordination of 911 services within the state.[11]
- Determine criteria for reimbursement for nonrecurring costs and the amount of reimbursement[12]
- Oversee the coordination of 911 services within the state[13]
- Promulgate of rules regarding operational standards, coordination of service and expenditures. The board may promulgate rules pursuant to chapter 1-26 setting:
  - Minimum technical, operational and procedural standards for the operation and utilization of a public safety answering point
  - Requirements and amounts for reimbursement of recurring and nonrecurring costs
  - Standards for coordination of effective 911 service on a Statewide basis
  - Allowable expenditures of the 911 emergency surcharge proceeds collected pursuant to SDCL 34-45-4[14]
- Solicit proposals to coordinate and implement an upgrade to the 911 emergency service system of all public safety answering points.[15]

7.1 Transition Plan

The South Dakota NG9-1-1 environment will differ considerably from the current 9-1-1 environment. The changes are not limited to only standards and technology. They include the governance, management and operation of the system and the delivery of services. The changes affect the entire 9-1-1 community, including the general public and other emergency services. The planning and transition to NG9-1-1 will be an extensive, multi-year effort.

Conceptually, transition will begin with acquisition of the Statewide GIS data that will support critical NG9-1-1 core functions, build-out of IP networks to and between host sites and the PSAPs, installation of an IP-based host remote 9-1-1 call answering system to serve all PSAPs in the State, followed by implementation of the

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11 SDCL 34-45-18
12 *Id.*
13 *Id.*
14 SDCL 34-45-18.2
15 SDCL 34-45-12

applications that provide next generation functionality.

The Board will be the planning and implementation coordinating body for the deployment and operation of the South Dakota NG9-1-1 system. As such, South Dakota is aligned with the proposed federal regulation for the E911 Grant Program authorized under the Ensuring Needed Help Arrives Near Callers Employing 911 (ENHANCE 911) Act of 2004, which permits only States to apply for grant funds on behalf of all eligible entities located within their borders. Furthermore, South Dakota will be positioned to coordinate with the E911 Implementation Coordination Office (ICO), created by the ENHANCE 911 Act of 2004, in creating the National Plan for the transition to an IP-enabled emergency communications network.

7.1.1 Governance, Cost Allocation, Legal and Regulatory

The roles and responsibilities of 9-1-1 stakeholders from PSAPs to state government will likely evolve as NG9-1-1 matures. The Board will facilitate the definition of roles and responsibilities of local, regional and State government through stakeholder involvement. This will ensure an effective and seamless deployment and operation of NG9-1-1, and provide guidance and accountability.

If, for whatever reason, the Board is unable to cover all core NG9-1-1 costs from the 911 Coordination Fund, the Board would work to establish a fair share methodology of cost allocation based on population amongst the 9-1-1 entities. In the future, this same cost allocation methodology could be applicable to other emergency services sharing the ESInet.

With the availability of more data associated with the 9-1-1 caller and his/her location, the confidentiality of personally identifiable information (PII) will have to be examined and protected. The Board will facilitate and coordinate this effort with its stakeholders.

7.1.2 Development and Implementation

Following adoption of this plan the Board will be responsible for the development, procurement and implementation of the components of the South Dakota NG9-1-1 System. Performance standards will be defined by the Board in collaboration with 9-1-1 entities and in adherence to appropriate standards.

The Board will establish the requirements for interconnection to the State level ESInet. Regional ESInets (if any) will be required to meet the established rules and adhere to appropriate standards, in order to interconnect to the State level ESInet. The relevant terms of interconnection will be developed and revised by the Board in collaboration with the 9-1-1 entities.

7.1.3 System Management and Operations

The South Dakota NG9-1-1 System will be a comprehensive emergency communications system with enhanced capabilities that allows for greater flexibility than today's 9-1-1 system. The NG9-1-1 services are expected to expand beyond the 9-1-1 services provided today and will require higher levels of interaction and coordinated response among South Dakota 9-1-1 stakeholders both vertically and horizontally. Next Generation 9-1-1 core functions and services and NG9-1-1 database management services will be acquired as managed services, where

possible. It is anticipated that all identified components will be provided by commercial vendors and service providers via long-term contracts.

The Board will be responsible for the management of the State level ESInet, its core functions and services and related NG9-1-1 databases. The Board will manage the contracts and provide oversight for the services rendered.

Via contracts with the selected network providers, the Board will facilitate and coordinate the effort by 9-1-1 entities to:

- Prepare and train call-takers to work in a multimedia environment, and utilize the increased quantity and quality of information available with the call
- Prepare themselves and PSAP Administrators to handle contingency planning without geographic constraints, including developing agreements with neighboring PSAPs and other 9-1-1 entities
- Prepare for deployment, maintenance and oversight for their local infrastructure
- Prepare themselves and 9-1-1 data administrators to handle widely dispersed and highly replicated databases inherent in the NG9-1-1 System

Processes and procedures for resolving and escalating contract and service issues will be developed collaboratively with 9-1-1 entities for the following:

- Contract and service issues resolution and escalation
- Data quality assurance
- Security and data rights management

7.1.4 Public Education

The Board will facilitate and coordinate this effort with 9-1-1 entities to identify the key message to the public and deliver that message in a timely and effective manner. The phased deployment of NG9-1-1 will require the general public to be aware of where, when, what and how NG9-1-1 services are available. New communications options for the elderly, deaf and hard of hearing, disabled, and non-English speaking populations will also need to be addressed in the effort to manage the public's expectation.

7.1.5 Summary of Transition Timeline

The proposed timeline transitioning PSAPs to the host remote 9-1-1 call answering system may be conservative. Transitioning all PSAPs to a common 9-1-1 platform, utilizing the existing legacy 9-1-1 network, can likely be accomplished well before 2017 (see Page 12). This step alone would be a major advancement for 9-1-1 in South Dakota and would create numerous opportunities to improve 9-1-1 within the State. It is likely that the project timeline will evolve and change several times through the process. Effective communication between the Board, selected vendors, service providers, 9-1-1 entities and stakeholders is the most crucial factor to overall success in the end.

Timing of the transition to a fully deployed NG9-1-1 system is dependent on three primary factors:

- Availability of funding
- Ability of the Board to manage the overall transition
- The active participation of all 9-1-1 entities and stakeholders to include the service providers

The NG9-1-1 system will require cooperative agreements and big-picture thinking from the stakeholders as 9-1-1 is transformed from a small scale local, individually controlled patchwork of systems to a single Statewide Public Safety emergency communication system.

The selected vendor of the hosted IP based 9-1-1 controller will play a primary role in the NG9-1-1 system long-term build-out and operation.

The selected ESInet provider will perhaps play the most crucial role in providing not only the IP based connectivity but the NG9-1-1 systems core functions as well.

Funding provided for NG9-1-1 by the South Dakota Legislature is a projected total over six years rather than an up-front lump sum. The phased approach of this plan will mesh well with the funding to help ensure overall project success.

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APPENDIX A—ACRONYMS

-A-	
ALI	Automatic Location Identification
ANI	Automatic Number Identification
ARSD	Administrative Rules of South Dakota
-B-	
BCF	Border Control Function
BIA	Bureau of Indian Affairs
-C-	
CPE	Customer Premise Equipment
-D-	
DOR	Department of Revenue
-E-	
E9-1-1	Enhanced 9-1-1
ECRF	Emergency Call Routing Function
ENHANCE 911	Ensuring Needed Help Arrives Near Callers Employing 911
ESInet	Emergency Services Internet Protocol Network
ESRP	Emergency Services Routing Proxy
-F-	
FAQ	Frequently Asked Questions
FEMA	Federal Emergency Management Agency
-G-	
GIS	Geographic Information System
-H-	
HAZMAT	Hazardous Materials
-I-	
ICO	Implementation Coordination Office
ID	Identification

IdAM	Identity and Access Management
IETF	Internet Engineering Task Force
ILEC	Incumbent Local Exchange Carrier
-L-	
LIS	Location Information Server
LNG	Legacy Network Gateway
LoST	Location to Service Translation
LVF	Location Validation Function
-M-	
MPLS	Multiprotocol Label Switching
MSAG	Master Street Address Guide
-N-	
NENA	National Emergency Number Association
NG9-1-1	Next Generation 9-1-1
-P-	
PIDF-LO	Presence Information Data Format Location Object
PII	Personally Identifiable Information
PRF	Policy Routing Function
PSAP	Public Safety Answering Point
-Q-	
QoS	Quality of Service
-R-	
RFP	Request for Proposal
-S-	
SDCL	South Dakota Codified Laws
SD PUC	South Dakota Public Utilities Commission
SIP	Session Initiation Protocol
SSP	System Service Provider

-T-	
TDD	Telecommunication Device for the Deaf
-U-	
USDOT	United States Department of Transportation
-V-	
VoIP	Voice over Internet Protocol
VPN	Virtual Private Network