Utah 911 Committee

STATE OF UTAH

DEPARTMENT OF PUBLIC SAFETY

9-1-1 COMMITTEE

LEGISLATIVE REPORT FYE 2012

February 13, 2013

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1 EXECUTIVE SUMMARY

The purpose of this document is to:

- Present an activity report on the State of Utah 9-1-1 Committee,
- Articulate the need for the 9-1-1 system in Utah to transition to Next Generation 9-1-1 (NG9-1-1),
- Define funding requirements for the transition to NG9-1-1,
- Set the stage for the transition from a legacy 9-1-1 system to a statewide Next Generation 9-1-1 system.

1.1 Utah's Transition to Next Generation 9-1-1

1.1.1 What is NG9-1-1?

Next Generation 9-1-1 a nation-wide initiative aimed at updating the existing 9-1-1 infrastructure. This new technology will improve emergency communications and meet public expectations for today's digital mobile society. Under this new system, the public will be able to contact 9-1-1 centers from any device, anytime and anywhere. The new system will eventually have the ability to transmit images, text, video, and other data to PSAPs which will ultimately enhance the response from law enforcement, fire, and EMS.

NG9-1-1 may also be described as a system of emergency services networks that interconnect 9-1-1 call centers (i.e., Public Safety Answering Points or PSAPs). The network is designed to replicate traditional E9-1-1 features and functions such as a caller's number, location, and any other information associated to how the caller is accessing 9-1-1 (i.e., landline telephone, cell phone, payphone, etc.).

In addition to the traditional E9-1-1 features and functions, NG9-1-1 offers many new features and functions that the traditional telephone system is unable to deliver. These include, but are not limited to the following:

- Texting to 9-1-1,
- Significant improvements to caller/device location determining technology
- Capability for 9-1-1 to process photos, video, multimedia, floor plans, and any other data-centric information-based technology;
- Enabling intelligent and instantaneous wide area public notifications by text, Facebook, and email,
- Receiving automatic crash notifications from vehicles involved in collisions or accidents,
- Transmitting emergency medical patient information to trauma centers,
- Intelligent caller and data transfer,
- Determining caller location through enhanced mapping and Geographic Information Systems (GIS) systems on a statewide basis,
- Reducing equipment purchases by enabling equipment sharing from PSAP to PSAP,
- Improved 9-1-1 call rerouting to alternate or backup PSAPs for situations involving equipment outages, line failure, disasters, or circumstance that requires call re-routing, and

- More reliable public to PSAP access through improvements to network technology (i.e., redundant facilities = less network failures).

1.1.2 Reasons for Transition

The following is a synopsis of why Utah needs to immediately start planning its transition to NG9-1-1:

- The current traditional telephone system is incapable of delivering texting, photos, videos, automatic crash notifications, emergency medical information, building floor plans or any other multimedia information to 9-1-1,
- Cell phones are the dominant communications device, and the use of texting has surpassed voice usage,
- Our society, and especially the hard of hearing community, rely heavily on text messaging,
- The public is increasingly using cell phones, Voice over Internet Telephone (VoIP) systems, and other non-traditional technologies to reach 9-1-1, and
- Enhanced call transfer from region to region is difficult.

In short, advancements in consumer communications technology have one important characteristic in common: **Utah's legacy 9-1-1 system cannot deliver any of this information to its 9-1-1 centers.**

1.1.3 Stakeholder Expectations

Utah's stakeholders have high expectations concerning the support they receive from our 9-1-1 centers.

Citizen's expectations include but are not limited to the following:

- Seamless access to 9-1-1 from any device from anywhere in the state,
- Fast and efficient call answer,
- 9-1-1 knowing where a caller is located,
- Professional service from well trained and professional telecommunicators,
- Lifesaving instructions provided in a clear and concise manner,
- Fast and efficient response from our emergency service providers, and
- Access to accurate public safety related information.

Emergency responders also have high expectations. Utah's law enforcement, fire, and emergency medical professionals have needs that include but are not limited to the following:

- Quality information concerning scene safety for responders and the public,
- Lockdown procedures for schools and high public access facilities,
- Maps and floor plans of public and private facilities,
- Hazmat information,
- Multimedia capabilities (i.e. photos, video)
- Ubiquitous call processing,
- Faster Response times,
- Better Radio Coverage,

- Delivery of life saving pre-Arrival Instructions for callers in danger or peril

1.2 Planning Our Next Steps

The goal of the 9-1-1 Committee and the state of Utah will be assisting our PSAPs in the planning and roll out of regional broadband IP-based 9-1-1 networks known as regional Emergency Services IP Networks (ESInets). The ESInets will carry all data required for the delivery of public safety dispatching services in a Next Generation 9-1-1 environment. These ESInets must be compatible with each other as well as a combined statewide ESInets. The statewide network must also be compatible with interstate networks that are expected, like Utah, to be developed in the future. All Utah ESInets must have well engineered network facilities that encompass principles of diverse routing and redundant technologies.

1.2.1 Request for Proposals – NG9-1-1

In May of 2012, Utah issued a Request For Proposal (RFP) that invited qualified firms to submit proposals that covered the building, transition to, and maintenance of capable NG9-1-1 capable call delivery systems and equipment.

In February 2013, the state awarded contracts awarded to the successful proposers; however, funding of the NG9-1-1 system remains a significant roadblock to deployment of the new technology.

Is short, the transition to the NG9-1-1 platform across the state is ready to proceed. Funding remains the next significant challenge.

1.2.2 Ongoing 9-1-1 Committee Oversight

The 9-1-1 Committee continues to be responsible to oversee the procurement of NG9-1-1 compatible customer premise equipment at every PSAP. In addition, the Committee will continue to ensure that ancillary equipment associated to call delivery in an NG environment meets the National Emergency Number Association (NENA) i3 solution, or any other NG related technologies that contribute to a PSAP's success.

The Committee must be diligent in ensuring that all NG centric protocols meet or exceed the appropriate NENA and other recommended standards, and that they are incorporated into the network, the 9-1-1 call processing equipment (also known as Customer Premises Equipment (CPE)), or any other technologies germane to the efficient and cost effective operation of the PSAP.

1.3 Funding Requirements

Funding considerations are a major limitation to accomplishing the goals of Utah's 9-1-1 stakeholders. Possible solutions to overcoming our funding limitations must occur or Utah will be unable to move forward with an effective NG9-1-1 roll out. Analysis of the current funding model reveals that at best, Utah will be held to the status quo of only being barely able to afford replacing and upgrading PSAP CPE. Refer to Figure 1 – 8¢ Fund Actual Revenues and Obligated Expenditures (2007 – 2012).

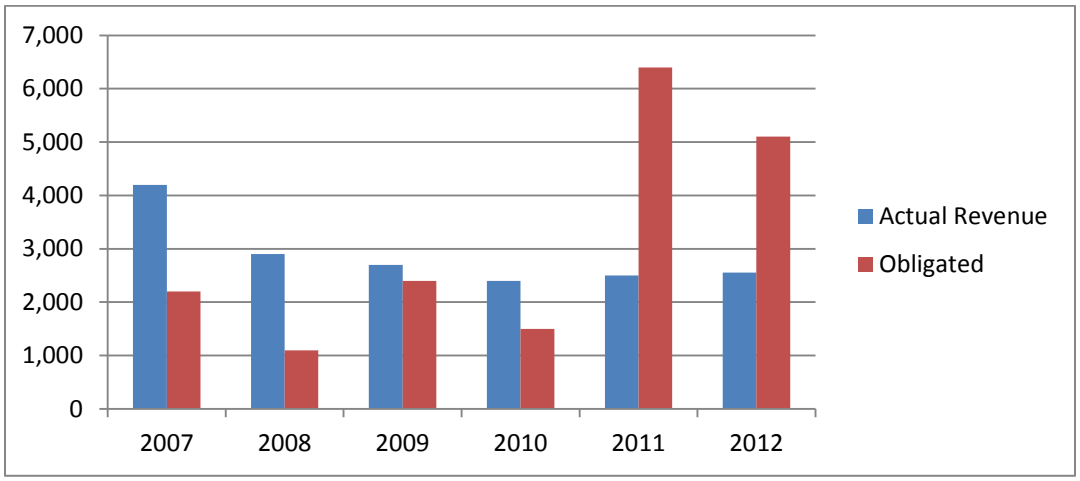


Figure 1 – 8¢ Fund Actual Revenues and Obligated Expenditures (2007- 2012)

Figure 1 (above) reveals that current revenues have essentially remained unchanged. In order to meet forecasted obligations, revenues must increase.

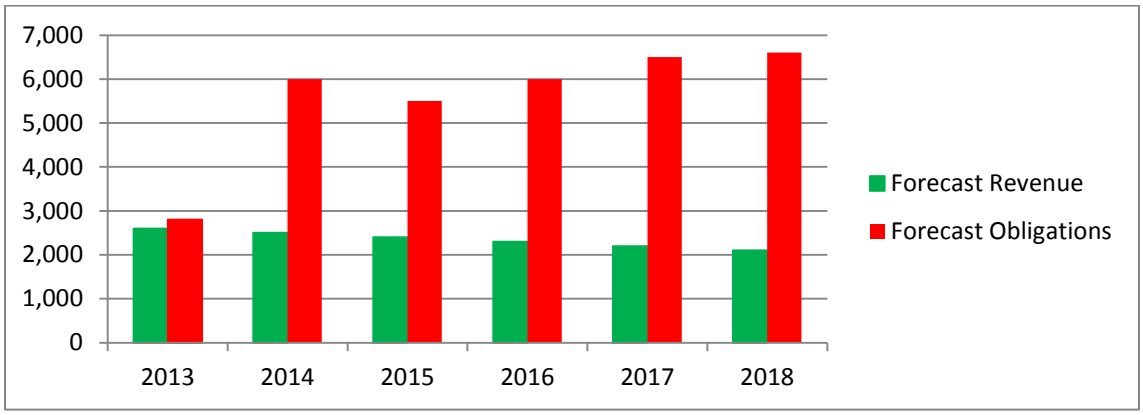


Figure 2 – 8¢ Fund Forecasted Revenues and Expenditures (2013 - 2018)

The forecasted obligations shown above in Figure 2 – 8¢ Fund Forecasted Revenues and Expenditures (2013 – 2018) are based on the proposed installation and maintenance of a series of statewide ESInets. These ESInets are intended to interconnect all Utah PSAPs together in an emergency services network. The bulk of the expenditures associated with the ESInet roll out are associated to the procurement and installation of network interface devices, routers, and recurring network fees. Included in this forecast are additional costs of network monitoring, upgrading existing CPE equipment, training and other associated costs.

1.4 Changes to Legislation and Regulation

Achieving the transition to NG9-1-1 will require changes to the current statutes and rules. The 9-1-1 Committee is prepared to move forward with recommendations and supporting data

intended to substantiate the need to modify the current funding model. Our goal is to facilitate the modification to statutes and regulations to enable and facilitate implementation of interconnected ESInets across Utah.

2 HISTORY AND EVOLUTION OF 9-1-1

2.1 Three-Digit Dialing and Emergency Assistance

The three-digit telephone number "9-1-1" has been designated the universal emergency number throughout North America to request emergency assistance. It is as a nationwide telephone number that is intended to give the public fast and easy access to Police, Fire and Emergency Medical Services by quickly connecting callers to the appropriate Public Safety Answering Points (PSAP).

In 1957 the National Association of Fire Chiefs first recommended the need for a simple number for the public to call when reporting fires.

2.2 Winnipeg Was First

In 1959, the City of Winnipeg, Manitoba was the first North American city to implement a 3-digit telephone number (9-9-9) to enable its citizen's fast access to emergency services. An interesting video clip of this story is available at:
http://www.youtube.com/watch?v=_lmNzt_W7zU

2.3 The President's Commission on Law Enforcement

In 1967, President's Commission on Law Enforcement and Administration of Justice recommended that a "single number should be established" nationwide for reporting emergency situations. Use of different telephone numbers for each type of emergency was determined contrary to purpose of a single, universal number. Other federal agencies and various state and local governmental officials also supported and encouraged this recommendation. As a result of immense interest in this issue, President's Commission on Civil Disorders turned to Federal Communications Commission (FCC) for a solution.

2.4 AT&T Establishes "9-1-1"

In November 1967, FCC met with American Telephone and Telegraph Company (AT&T) to find a means of establishing a universal emergency number that could be implemented quickly. In 1968, AT&T announced that it would establish digits "9-1-1" (nine-one-one) as emergency code throughout United States. This code 9-1-1 was chosen because it best fit exact needs of all parties involved. First, and most importantly it meets public requirements because it is brief, easily remembered and can be dialed quickly. Second, because it is a unique number never having been authorized as an office code, area code, or service code, it best meets long range numbering plans and switching configurations of US telephone industry.

2.5 Congress Backs AT&T

Shortly thereafter, Congress backed AT&T's proposal and passed legislation allowing use of only numbers 9-1-1 when creating a single emergency calling service, thereby making 9-1-1 a standard emergency number nationwide. A Bell System policy was established to absorb cost of central office modifications and any additions necessary to accommodate 9-1-1 code as part of general rate base. Enhanced 9-1-1 or E9-1-1 subscriber, usually a PSAP is responsible for paying network trunking costs according to tariff rates and purchasing answering equipment from their vendor.

Canada recognized advantages of a single emergency number and chose to adopt 9-1-1 rather than use a different means of emergency reporting service, thus unifying concept and giving 9-1-1 international stature.

2.6 The First 9-1-1 Call

On February 16, 1968, Senator Rankin Fite completed first 9-1-1 call made in United States at Haleyville, AL. Alabama Telephone Company was its telecommunications carrier. Haleyville 9-1-1 system is still in operation today. On February 22, 1968, Nome, AK implemented 9-1-1 service.

2.7 Nationwide Adoption of 9-1-1

In March 1973, US Office of Telecommunications issued a national policy statement which recognized benefits of 9-1-1, encouraged nationwide adoption of 9-1-1, and provided establishment of Federal Information Center to assist units of government in planning and implementation. This intense interest in 9-1-1 is attributed primarily to recognition of characteristics of modern society, i.e. increased incidence of crime, accidents and medical emergencies, inadequacy of existing emergency reporting methods, and continued growth and mobility of the US population.

2.8 Call Routing Issues

When 9-1-1 was first introduced, calls were sent to a single destination based on the caller's telephone exchange. This was problematic as local telephone exchange boundaries and the emergency service boundaries seldom matched were the same. It was commonplace that 9-1-1 calls would end up at the wrong PSAP, and the caller would have to be transferred to the correct PSAP. In addition, the very first 9-1-1 systems did not provide the calling party's number or the address or the emergency.

In early 1970s, AT&T began development of sophisticated features for 9-1-1 with a pilot program in Alameda County, CA. The feature was "selective call routing." This pilot program supported theory behind Executive Office of Telecommunication's Policy. By end of 1976, 9-1-1 was serving about 17% of the population of USA. In 1979, approximately 26% of population had 9-1-1 service, and nine states had enacted 9-1-1 legislation. At this time, 9-1-1 service was growing at rate of 70 new systems per year. By 1987, 50% of US population had access to 9-1-1 emergency service numbers.

2.9 Texting to 9-1-1 Pilot Project

In August 2009, first successful "text messages" were sent from cellular telephones to the Black Hawk Consolidated Public Safety Communications Center (Black Hawk 9-1-1 Center) in Waterloo, Iowa.

2.10 Cell Phones and 9-1-1

Wireless callers brought a whole new set of issues to 9-1-1. As cell phones became more popular, calls from wireless devices steadily increased and began to cause serious call handling issues for PSAPs. In addition, caller location became even a bigger problem as there was no

technology in place that could determine where the wireless device was located. When a significant event took place, a deluge of wireless 9-1-1 calls would hit the PSAPs and completely overwhelming the technology as well as the hapless call taker.

As technology advanced, wireless service providers began developing methods for determining caller location. Currently, the wireless service providers use the following methods for locating cell phone callers. Both technologies deliver the "X" and "Y" geographic coordinates for the wireless device:

- **Handheld Based Solution** - The handheld based solution uses a GPS receiver within the phone to calculate the phone's location based on GPS satellite transmissions.
- **Network Based Solution** - The network based solution triangulates the phone's location using signals from multiple cell towers.
- **Hybrid Solution** – The Hybrid solution determines the caller location using a combination of GPS and Network technology to determine caller location.

2.11 9-1-1 Today

The Cellular Telephone Industry Association (CTIA) reports that there as of June 2012, there were 320 million wireless subscribers in the US:
http://www.ctia.org/advocacy/research/index.cfm/aid/10323

According to the National Emergency Number Association an estimated 240 million calls are made to 9-1-1 in the U.S. each year. According to the FCC, one-third are wireless calls; in many communities, it is one-half or more of all 9-1-1 calls:
http://www.nena.org/default.asp?page=911Statistics

As of January 2013 the United States had 6,087 primary and secondary PSAPs in 3,135 Counties. This includes parishes, independent cities, boroughs and Census areas.

As well, NENA reports that 97.1% of PSAPs have Phase II capability, and that over 95% of the US population has Phase II access to 9-1-1.

An estimated 240 million calls are made to 9-1-1 in the U.S. each year. According to the FCC, one-third are wireless calls; in many communities, it's one-half or more of all 9-1-1 calls.

3 Utah's 9-1-1 System

3.1 9-1-1 Comes to Utah

Utah's 9-1-1 Emergency Telecommunications System was established circa 1986 as a method of achieving rapid, direct and accurate resident, business and visitor calling for dispatch of police, fire and medical emergency personnel. New technologies developed during the 1990s that enabled the delivery of a caller's telephone phone number referred to as Automatic Number Identification – ANI, as well as the location of the service address of the telephone number known as Automatic Location Identification (ALI) to a Public Safety Answering Point (PSAP). At first, 9-1-1 calls were routed to PSAPs according to telephone central office boundaries; however, it soon became evident that an additional feature called Selective Call Routing was necessary to route calls to PSAPs according to the jurisdiction of emergency service providers. This feature, known as Enhanced 9-1-1 (E9-1-1) would ensure that 9-1-1 calls would be delivered to the specific PSAP assigned the responsibility of call taking and dispatching emergency services responsible for the caller's location.

In 1976, Bountiful, Utah became first area in Utah served by 9-1-1. Salt Lake County followed and Utah County was added in 1980. Utah State Legislature enacted legislation to fund 9-1-1 statewide in 1985. Since adoption of that statute, progress accelerated. Utah's first Enhanced 9-1-1 system, Weber County, began service in 1989. Davis and Salt Lake County followed in 1990 and Utah County in 1991. Partnership of local exchange carrier, local government and state legislature enabled Utah to provide Enhanced 9-1-1 to virtually entire state.

3.2 Utah 9-1-1 Committee Established

In July 2004, Utah State Legislature passed legislation establishing Utah 9-1-1 Committee. This enabling legislation memorializes enhancing, upgrading, overseeing, funding and coordinating improvements to Utah's 9-1-1 Emergency Telephone Communications System, via Department of Public Safety's 9-1-1 Committee. At that time, a statutory limit on local amount of dedicated E9-1-1 telephone surcharge collected per residential or commercial telephone line per month was increased to 65¢ from 53¢. This same legislation also provided an additional13¢ dedicated E9-1-1 telephone surcharge collected per residential or commercial telephone line per month remitted to State of Utah, administered by State 9-1-1 Committee created by this legislation. This 13¢ dedicated surcharge administered by State of Utah 9-1-1 Committee provides grants to PSAPs statewide to originate, upgrade equipment and implement Phase II.

In original enabling legislation, 4¢ of dedicated E9-1-1 telephone surcharge collected per residential or commercial telephone line per month was retained by State of Utah to reimburse wireless providers cost of deploying Phase II from telephone carriers' perspective. No wireless carriers ever sought reimbursement; therefore in 2007 the Utah State Legislature enacted a bill to reduce dedicated E9-1-1 telephone surcharge to 61¢ from 65¢ and transfer accumulated 4¢ Fund to Utah 9-1-1 committee then enact decrease to 8¢ from13¢ effective in 2007 instead of 2008 and finally expiry on July 1, 2011. Legislators intended additional funding, i.e. more money than was collected in that area available for PSAPs located in counties of classes 3 through 6.

3.3 Wireless Caller Location Issues in Utah

3.3.1 Phase I Technology

Cell phone technology has had a dramatic effect on 9-1-1 call processing. Calls from wireless devices (cell phones) now exceed the number of calls from traditional landline telephones. Since the advent of wireless devices, caller location has been a major challenge to the delivery of emergency services. The initial technology implemented to address caller location was known as “Phase 1”. This technology provides the PSAP with the 9-1-1 caller’s cellular telephone number, location of cellular tower receiving the call, and which “face” of the tower that is receiving the call. In other words, Phase 1 technology provides a general geographic location of where the caller is located.

3.3.2 Phase II Technology

Phase II technology is intended to provide PSAPs with the caller’s number along with the geographic coordinates (X/Y) of the wireless device. Depending on a variety of factors, caller location accuracy may vary from 50% to 90%. Fortunately, as technology improves, the location of wireless callers is becoming more reliable; however, Phase II accuracy is affected by topographic variables as well as the proximity of cellular towers to caller location. To date, the vast majority of Utah is serviced by Phase II technology, with only extreme remote areas of the state without Phase II service. Areas that are not covered with Phase II technology are covered by Phase 1 technology.

Wireless 9-1-1 with Automatic Number Identification (ANI), Automatic Location Identification (ALI) along with the caller’s geographic coordinates, also known as “Phase II” has been successfully deployed throughout most of Utah.

In short, Utah is virtually 100% Phase II compliant for 9-1-1 emergency calls.

3.4 Voice over Internet Protocol (VoIP)

Voice over Internet Protocol (VoIP) also presented challenges to Utah PSAPs. Similar to wireless, caller location and accurate call back information were issues for PSAPs. Although things have improved for fixed VoIP telephones (e.g., Comcast), nomadic (or portable) VoIP devices (because of their portability) still present caller location issues to PSAPs.

3.5 Enhanced 9-1-1 Service in Utah

Enhanced 9-1-1 service now encompasses virtually all Utah’s population. The 9-1-1 Committee worked diligently with sparsely populated areas such as Daggett, Rich, western Box Elder and western Tooele Counties to install, test and complete this upgrade to Enhanced 9-1-1.

The majority of 9-1-1 calls are now directly to the correct PSAP, reducing the number of call transfers and therefore ensuring more efficient emergency call processing and faster emergency service delivery times. In addition, E9-1-1 enables callback number and location verification.

3.6 Issues Concerning the Future of 9-1-1 in Utah

There is a growing misalignment in the public's expectations of the capabilities of Utah's 9-1-1 system. The citizens of Utah as well as the visitors to this great State expect that our 9-1-1 system is capable of accommodating all the latest consumer technologies .Section 4 of this report describes in detail the looming changes to Utah's 9-1-1 infrastructure.

4 Next Generation 9-1-1

Technological advances in communication services are challenge E9-1-1 systems across the nation and are stretching the legacy technology it to its limit. The decline of the traditional public switched telephone network (PSTN) and the increase in wireless and non-traditional methods of accessing 9-1-1 has resulted in approximately 60% of emergency calls to 9-1-1 are placed from non-traditional devices (i.e. cell phones, VoIP, etc.).

Next Generation 9-1-1 a nation-wide initiative aimed at updating the existing 9-1-1 infrastructure. This new technology will improve emergency communications and meet public expectations for today's digital mobile society. Under this new system, the public will be able to contact 9-1-1 centers from any device, anytime and anywhere. The new system will eventually have the ability to transmit images, text, video, and other data to PSAPs which will ultimately enhance the response from law enforcement, fire, and EMS.

4.1 What is Next Generation 9-1-1?

Next Generation 9-1-1 is an Internet Protocol (IP) based system comprised of:

- Managed IP-based networks (ESInets),
- Functional elements (applications), and
- Databases that replicate traditional E9-1-1 features and functions and provide additional capabilities.

NG9-1-1 is also designed to provide connectivity (network access) to emergency services from all connected communications sources, as well as provide multimedia data capabilities for PSAPs and other emergency service organizations.

4.2 Public Expectations

The pressing need for texting to 9-1-1 is further pressuring PSAPs to engage technology that enables the inevitable shift from traditional to non-traditional calls for help. Although Utah has provided emergency telephone service to wireless users by implementing the Phase II wireless solution, PSAPs do not yet have capability to receive text messages or any other digital information from callers such as photos, video (multimedia), automatic crash data (OnStar), emergency medical patient information, or other developing technologies such as 9-1-1 related smart phone applications. These smart phone “apps” as they are known, are appearing more frequently and are being offered as a smarter way to get help from emergency responders, when in fact, many smart apps actually contribute to delays in getting an emergency response.

4.3 What NG9-1-1 Does For Utah

NG9-1-1 offers many new features and functions that the traditional telephone system is unable to deliver. These include, but are not limited to the following:

- Texting to 9-1-1
- Significant improvements to caller/device location determining technology
- Capability for 9-1-1 to process photos, video, multimedia, floor plans, and any other data-centric information-based technology

- Enabling intelligent and instantaneous wide area public notifications by text, Facebook, and email
- Receiving automatic crash notifications from vehicles involved in collisions or accidents
- Transmitting emergency medical patient information to trauma centers
- Intelligent caller and data transfer
- Determining caller location through enhanced mapping and Geographic Information Systems (GIS) systems on a statewide basis
- Reducing equipment purchases by enabling equipment sharing from PSAP to PSAP
- Improved 9-1-1 call rerouting to alternate or backup PSAPs for situations involving equipment outages, line failure, disasters, or circumstance that requires call re-routing.
- More reliable public to PSAP access through improvements to network technology (i.e., redundant facilities = less network failures)

4.4 Reasons for Transition

The following is a synopsis of why Utah needs to immediately start planning its transition to NG9-1-1:

- The current traditional telephone system is incapable of delivering texting, photos, videos, automatic crash notifications, emergency medical information, building floor plans or any other multimedia information to 9-1-1,
- Cell phones are becoming the dominant communications device,
- Our society, and especially the hard of hearing community, rely heavily on text messaging;
- The public is increasingly using cell phones, Voice over Internet Telephone (VoIP),systems, and other non-traditional technologies to reach 9-1-1, and
- Enhanced call transfer from region to region is difficult.

In short, advancements in consumer communications technology have one important characteristic in common: **Utah's legacy 9-1-1 system cannot deliver this information to its 9-1-1 centers.**

4.4.1 Request for Proposals – NG9-1-1

In May of 2012, Utah issued a Request For Proposal (RFP) that invited qualified firms to submit proposals that covered the building, transition to, and maintenance of NG9-1-1 compatible call delivery systems and equipment.

In February 2013, the state awarded contracts awarded to the successful proposers; however, funding of the NG9-1-1 system remains a significant roadblock to deployment of the new technology.

Is short, the transition to the NG9-1-1 platform across the state is ready to proceed. Funding remains the next significant challenge.

4.4.2 Utah's NG9-1-1 Pilot Project

In late 2012, an ESInet Pilot Project went on line and provided IP connectivity to Davis, Weber, Morgan and Salt Lake Counties. This proof of concept pilot, which is a precursor to NG9-1-1, has networked together Weber Area Dispatch 9-1-1 & Emergency Services District, Salt Lake Communications Center/DPS, and Salt Lake Valley Emergency Communications Center. This effort has proven that PSAPs in Utah can be interconnected using the ESInet concept, and that calls for any of the above locations can be seamlessly answered anywhere on the network. Refer to Exhibit F – Utah NG9-1-1 Pilot Project Network Diagram for network diagrams of this system, and the counties that now have connectivity to the ESInet.

4.4.3 Changes to Existing Legislation

Through our association with the National Association of State 9-1-1 Administrators (NASNA), the National 9-1-1 Program, and the Federal Communications Commission (FCC), recommendations for potential changes to current statutes that will be required to enable the deployment of NG9-1-1 in Utah are currently being developed.

It is expected that our recommendations and supporting data will be ready for consideration during the 2014 session of the Utah State Legislature.

5 Utah 9-1-1 Committee

5.1 Committee Structure

House Bill 36 of the 2004 legislative session created the Utah 911 Committee. The bill was signed by the Governor on March 23, 2004. Utah Code, Section 53-10-601, now directs the Utah 911 Committee to provide recommendations on technical, operational, and financial issues related to statewide Wireless E9-1-1 issues.

The 9-1-1 Committee structure is comprised of eighteen (18) members representing the Public Safety Answering Points, wireline and wireless carriers, Department of Public Safety and Division of Technology Services, whose expertise includes a diverse cross section of communications skills.

5.2 New Program Director

In May 2012, after seven years of service, Bill Jensen retired from his position of 9-1-1 Program Manager. After a brief job search, the Committee hired Eric Parry as the new Director of the State of Utah 9-1-1 Program. Mr. Parry is a certified Emergency Number Professional (ENP) with over forty years of experience in public safety. His expertise encompasses law enforcement, 9-1-1 implementation, NG9-1-1 feasibility studies, PSAP consolidation, national and international public safety consulting as well as being a recipient of the National Emergency Number Association's William E. Stanton award which is a lifetime achievement award for service to 9-1-1.

5.3 Committee Responsibilities

The Committee's charge is to review and make recommendations to the Division, Bureau of Communications, Public Safety Answering Points, and State Legislature on:

- Technical and operational issues for the implementation of a unified statewide wireless and land-based E-911 emergency system;
- Specific technology and standards for the implementation of a unified statewide wireless and land-based E-911 emergency system;
- Expenditures by local public service answering points to assure implementation of a unified statewide wireless and land-based E-911 emergency system and standards of operation;
- Mapping systems and technology necessary to implement the unified statewide wireless and land-based E-911 emergency system;
- Administration of telephone line customer surcharge (wire and wireless) funds as provided in the enabling legislation;
- Assisting as many local entities possible, at their request implementing recommendations of the Committee; and
- Fulfilling all other duties imposed on the Committee by the Legislature and enabling legislation.

5.4 Collections and Disbursements

Since its inception in July 2004, the state has collected and disbursed over $146M to Utah PSAPs. The 61¢ surcharge continues to be distributed by the Utah State Tax Commission to

PSAPs across the state on a monthly basis. These funds are used to support PSAP operations costs as defined in legislation.

The 9-1-1 Committee, through the 8¢ per line surcharge, has awarded approximately $23.9M in grants to Utah PSAPs. The majority of the grant requests from this fund include the cost of upgrading and maintaining the equipment used by PSAPs to answer and process 9-1-1 calls.

In 2007, Utah State Legislature authorized July 1, 2007 as date for reduction in the telephone surcharge rates to 8¢ from 13¢, to 61¢ from 65¢ and elimination of 4¢ Fund. Moreover, it allowed transfer of accumulated monies in the 4¢ fund (approximately $3.6M) to the 9-1-1 Committee for use in its statewide Phase II rollout effort. This indicated a strong commitment by State Legislature to upgrade the 9-1-1 system to better serve all Utah citizens and visitors well when emergency police, fire or medical assistance is needed.

Note that the 8¢ Fund was due to sunset on June 30, 2011 but S.B. 86 Sunset Reauthorizations introduced to the 2011 General Session extended this fund through to July 1, 2021.

Actual Committee revenues and expenses in the 8¢ Fund for fiscal years 2007 through 2012 are shown in Chart 1 (below):

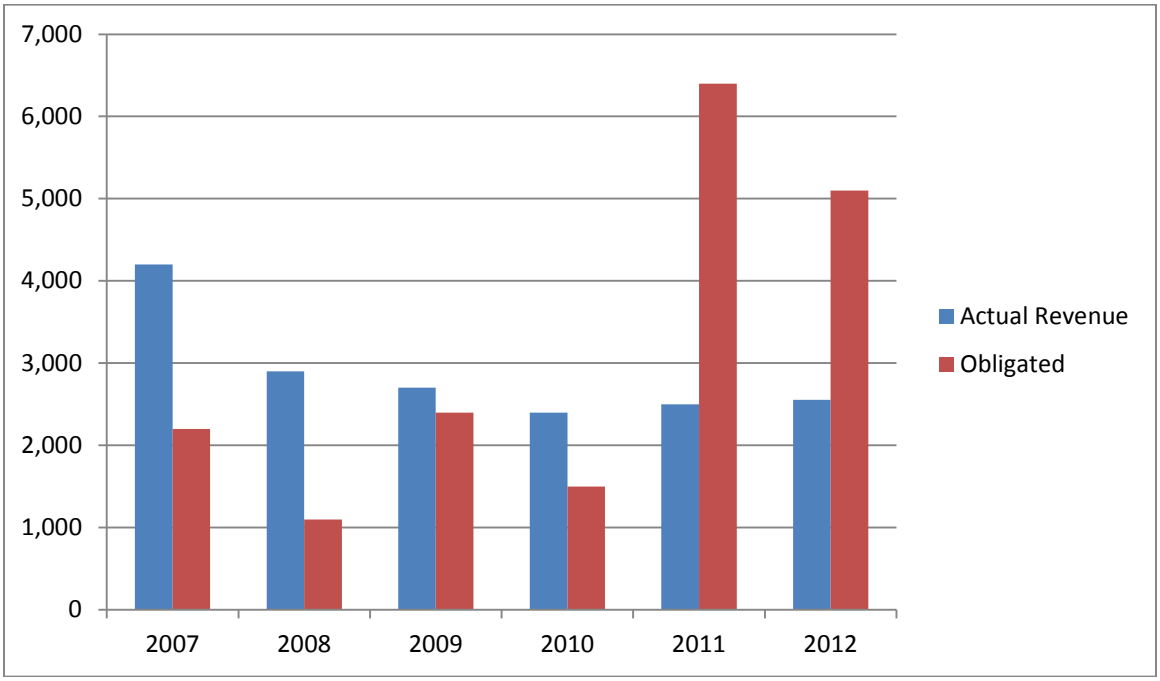


Chart 1 – 8¢ Fund Actual Revenues and Expenditures (2006 - 2012)

5.5 Committee Objectives

As the 9-1-1 Committee undertakes its role as outlined in the enabling legislation, it continues to recognize and prioritize the following key issues and objectives:

- Support Statewide initiatives for NG9-1-1 systems and equipment;

- Collect and analyze 9-1-1 call processing data in an effort to improve PSAP systems and operations on a statewide basis;
- Maintain a straightforward grant-funding mechanism to equitably, compliantly and legitimately distribute the 8¢ Fund that enables PSAP upgrades to NG9-1-1 technology;
- Enhance public awareness of "How to best use Utah's 9-1-1 emergency system" through an ongoing dynamic public education campaign using public broadcasting and modern Internet technologies;
- Monitor PSAP expenditures of 9-1-1 funds and provide guidance to PSAPs on the rules and procedures for allowable expenditures;
- Provide technical, financial and administrative expertise and advice in effecting NG9-1-1 upgrades to PSAPs;
- Monitor 9-1-1 telephone surcharges, including Point of Sale revenue, charged to all devices capable of accessing Utah PSAPs;
- Coordinate with the Utah State Tax Commission (USTC) on collection of 9-1-1 dedicated surcharge funds from wireline and wireless carriers; and
- Providing GIS expertise via State's Automated Geographic Reference Center (AGRC) to help PSAPs develop and maintain local mapping and addressing databases.

5.6 Committee Accomplishments

5.6.1 Grants Management and Monies Appropriated

From April 2005 through June 2012, Committee has approved grants compiled on Exhibit D.

5.6.2 Procedures - Application for and Expenditure of Grant Funds

The Committee continues to develop clear and concise procedures for PSAPs in their grant application process. The grant application process continues to evolve in a straightforward and relevant manner. Grant approvals continue to occur at monthly Committee meeting.

5.6.3 Procedures – Purchase of Approved 9-1-1 Equipment using Grant Funds

PSAPs may purchase technically-approved 9-1-1 equipment at Utah State Contract prices. Following equipment delivery, installation, implementation, testing and PSAP training, Committee reimburses PSAP on a "not to exceed approved grant amount". Unspent encumbered funds are returned to the 8¢ Fund. Payment of approved PSAP capital equipment and operating expenditures is reimbursement directly from the State to the PSAP.

5.6.4 Compliance

In addition to overseeing the 8¢ dedicated fund, the Committee continues to develop clear and concise procedures for expenditure of the 9-1-1 61¢ Funds. For fiscal year ended of June 2012, over $17.2 million has been distributed to counties and cities specifically for PSAP use in 9-1-1 call taking. There is approximately $6.4 million of grant requests still pending reimbursement. PSAPs must use these funds strictly in compliance with "9-1-1 Allowable and Non-Allowable Expenditures" regulations or face de-obligation of grant funds.

5.6.5 9-1-1 Dedicated Funds Collected and Obligated

From its inception through June 30, 2012, the 8¢ Fund accumulated over $24.5 million with amounts expended and obligated through that date on approved grants exceeding $23.9 million.

5.7 Forecast for Fiscal Year Ending June 2013

5.7.1 Revenue

Forecast $2.6 million.

5.7.2 Grant Applications and Fund Obligations

Forecast new grant applications of approximately $2.8 million.

5.7.3 Operating Expenses

Director's salary, benefits, conferences, statewide travel, equipment and supplies of about $0.2 million.

5.8 Planning the Transition to Next Generation 9-1-1

5.8.1 NENA i3 Solution

In 2011, NENA released an NG9-1-1 recommended standard otherwise known as the NENA i3 solution. This standard supports end-to-end IP connectivity where gateways are used to accommodate legacy wireline and wireless origination networks that are non-Internet Protocol.

NENA i3 introduced the concept of an Emergency Services IP network (ESInet), which is designed as an IP-based inter-network (network of networks) that can be shared by all public safety agencies that may be involved in any emergency. The i3 enabled PSAP is capable of receiving IP-based signaling and media for delivery of emergency calls conformant to the i3 standard.

With NG9-1-1, VoIP and other Internet Protocol (IP)-enabled 9-1-1 systems, this critical need for PSAP equipment rapidly adaptable to new technology and capable of supporting new devices must be fulfilled. The move from today's legacy telephone and wireless 9-1-1 systems to NG9-1-1 requires concentration on key technical, operational, and legislative issues.

5.8.2 Future Technologies and 9-1-1

Future technologies such as Wi-Fi and WiMax networks will enable residents to communicate via IP-enabled devices from areas such as cities, airports, hotels or any other area so equipped with wireless network capabilities. Current 9-1-1 systems were never designed to receive calls from such non-traditional devices that have the capability of sending voice, video, text, graphics, and anything that in a digital format. In short, there is a whole new generation where voice is no longer method of choice for communicating with each other. Text messaging is by far the communications of choice for Generation X, Y and Z.

We live in a technology, consumer driven economy, and VoIP, text messaging, and multi-media technologies enabled primarily by smart phone apps are being enthusiastically embraced by all segments of our society.

Although the data arriving at a PSAP will increase, the location of the device (i.e. the caller) will continue to be a challenge to PSAPs and emergency responders. Ultimately, technology will be developed to enable all devices to be “self-locating” either through IP network location technologies or Global Positioning Systems (GPS) or both

5.8.3 The 9-1-1 Committee and NG9-1-1

The goal of the 9-1-1 Committee and the state of Utah will be assisting our PSAPs in the planning and roll out of regional broadband IP-based 9-1-1 networks known as regional Emergency Services IP Networks (ESInets). The ESInets will carry all data required for the delivery of public safety dispatching services in a Next Generation 9-1-1 environment. These ESInets must be compatible with each other as well as a combined statewide ESInets. The statewide network must also be compatible with interstate networks that are expected, like Utah, to be developed in the future. All Utah ESInets must have well engineered network facilities that encompass principles of diverse routing and redundant technologies.

The 9-1-1 Committee continues to be responsible to oversee the procurement of NG9-1-1 compatible customer premise equipment at every PSAP. In addition, the Committee will continue to ensure that ancillary equipment associated to call delivery in an NG environment meets the NENA i3 solution, or any other NG related technologies that contribute to a PSAP’s success.

The Committee must be diligent in ensuring that all NG centric protocols meet or exceed the appropriate NENA and other recommended standards, and that they are incorporated into the network, the 9-1-1 call processing equipment (also known as Customer Premises Equipment (CPE)), or any other technologies germane to the efficient and cost effective operation of the PSAP.

5.8.4 Funding Requirements

The upgrading of Utah PSAPs to NG9-1-1 will continue to be a complex and costly effort. The planning for the migration to statewide NG9-1-1 will be challenging to forecast; however, the need to move forward with new technologies cannot be overstated.

The migration to NG9-1-1 systems and equipment is essential to the ongoing delivery of emergency services across Utah. The decline of the traditional public switched telephone network continues along with the rise of wireless and other non-traditional means of contacting our PSAPs. Texting to 9-1-1 is perhaps the most pressing issue, and with the ever increasing use of text messaging in our society, the need to move forward to adopt new technologies is not only pressing, but inevitable. New applications (i.e., “apps”) for smart phones are being developed and marketed with the intent of simplifying access to PSAPs, when in fact these diversionary apps may delay emergency response.

5.8.5 NG9-1-1 Ready

Our future forecast of revenues and obligations are not sufficient to transition Utah PSAPs to a statewide NG9-1-1 platform; however, the Committee has been able to upgrade most PSAPs to be "NG Ready". In other words, to complete the transition to NG9-1-1, a series of regional interconnected ESInets is the next significant step.

5.9 Committee Activities Ending June 2012

During the fiscal year ending June 2012, Committee's activity comprised:

- Funding Primary and Secondary PSAPs' Phase II and NG9-1-1 equipment,
- Obligating $5.1 million for statewide infrastructure enhancement and extended maintenance on PSAP equipment (refer to EXHIBIT B - PSAP PHASE II and NG9-1-1 EQUIPMENT STATUS 01JAN2013) ,
- Expanding collection of telephone surtax to pre-paid cellular devices;
- Assisting smaller PSAPs into NG9-1-1 equipment upgrades,
- Continuing a public education campaign aimed at reducing the number of non-emergency calls to 9-1-1,
- Installing a 9-1-1 call data collection interface at all PSAPs intended to enable the analysis of technical and operational data on a statewide basis,
- Monitoring NG9-1-1 PSAP equipment selection to ensure compatibility the NENA i3 solution (i.e., enabling texting to 9-1-1, receiving emergency calls from other non-traditional devices, sending and receiving multimedia messages and files, telematics data, and enhanced Global Positioning System (GPS) data, in real time format, interconnection to other Emergency Services internet protocol Networks (ESInets, etc.),
- Reviewing NG9-1-1 standards, legislation and funding for PSAPs irrespective of telecommunications vehicle or medium – legacy systems, cellular technology, etc.; and
- Advising PSAPs experiencing increased cost of operations, replacement of obsolete equipment, constant staff training and upgrades, electronic transfer of data, and current "Legacy" technology and equipment versus NG9-1-1 issues.

5.10 Committee Activities in FY 2013

Over the next fiscal year, the Committee's objectives are:

- Develop rules and improving grant award criteria;
- Analyze PSAP 9-1-1 call data statistics to evaluate PSAP equipment and operations requirements;
- Continue to improve public education in an effort to reduce non-emergency calls to 9-1-1; and
- Support the ongoing implementation of NG9-1-1 PSAP equipment and facilities throughout Utah.

Funding considerations are a major limitation to accomplishing the goals of Utah's 9-1-1 stakeholders. Possible solutions to overcoming our funding limitations must be developed or Utah will be unable to move forward with an effective NG9-1-1 roll out.

Analysis of the current funding model reveals that at best, Utah will be held to the status quo of only being barely able to afford replacing and upgrading PSAP CPE. Refer to Figure 1 – Forecasted Revenues and Expenditures (2010 - 2015).

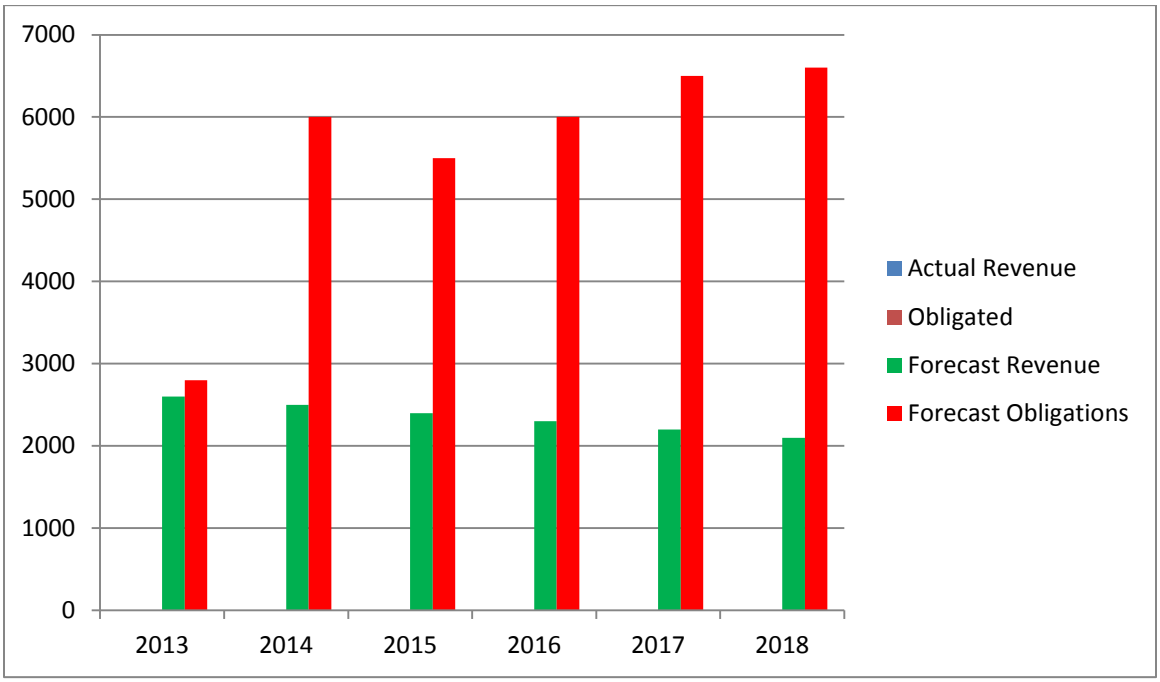


Figure 1 – Forecasted Revenues and Expenditures (2013 - 2018)

The forecasted obligations shown in Figure 1 are bases solely on the installation and maintenance of a series of statewide ESInets that interconnect all Utah PSAPs.

5.11 Changes to Legislation and Regulation

Achieving the transition to NG9-1-1 will require changes to the current statutes and rules. The 9-1-1 Committee is prepared to move forward with recommendations and supporting data to substantiate the need to modify the current funding model. Our goal is to facilitate the modification to statutes and regulations to enable and facilitate implementation of interconnected ESInets across Utah.

5.12 Our Mission

In order to meet our citizen's expectations as well as our emergency responders who put their lives on the line on a daily basis, the acquisition of additional funding for 9-1-1 in the state of Utah must receive the highest priority possible.

At the end of the day, Utah PSAPs must be enabled to:

- Send the right equipment
- With the right responders
- With complete scene information
- In the right way

- To the right place
- At the right time, and
- Do the right things for our citizens until help arrives

EXHIBIT A – STATUTE REQUIRED INFORMATION

Statute Required Information

(a) the total aggregate surcharge collected by local entities and the state in the last fiscal year (ended June 30, 2012) under §69-2-5 and §69-2-5.6

- §69-2-5 - 61¢ Fund - $22,339,770
- §69-2-5.6 - 8¢ Fund - $2,852,312

(b) the amount of each disbursement from the fund

Currently, the 61¢ Fund is administered by Utah State Tax Commission (USTC) and monthly distributions of amounts received from wireline and wireless carriers are remitted to counties and cities to fund local PSAP operational expenses. Conversely, the 8¢ Fund is administered by State of Utah 9-1-1 Committee wherein most fund distribution costs are made subsequent to Committee ratification via majority vote at monthly Committee meetings.

(c) the recipient of each disbursement and describing the project for which money was disbursed

The 61¢ Fund proceeds are distributed monthly to counties and cities wherein obligation to fund local PSAP operations exist, i.e. personnel, training and specific-to-911-call-taking operational costs. Conversely, the 8¢ Fund is distributed by grant only, wherein application to 9-1-1 Committee has been completed by a Grantee PSAP. See attached Exhibit D for compilation of grants approved through June 30, 2012.

(d) the conditions, if any, placed by the committee on disbursements from the fund

Grantees must comply with all terms contained therein specific Grant Agreements, i.e. Federal Communications Commission (FCC) 9-1-1 regulations, 9-1-1 Committee allowable and non-allowable expenditure regulations and procedures, State of Utah Department of Public Safety operational rules and regulations, State of Utah purchasing and procurement procedures, Emergency Services Phone Fee - UCA §69-2-5(2)(c)(iii), and Unified E911 Phone Fee - UCA §69-2-5(1).

(e) the planned expenditures from the fund for the next fiscal year

Although specific grant application and Committee approvals will ultimately determine fund expenditures for future fiscal years, Committee expects to obligate approximately $3,000,000 in grants for 9-1-1 equipment, software, implementation, testing, network charges and PSAP training during fiscal year ending June 2013.

(f) the amount of any unexpended funds carried forward

The 61¢ Fund is generally distributed by USTC within 60 days of receipt to local government entities. Unobligated funds carried forward at fiscal year end June 30, 2012, was approximately $0.7 million.

(g) a cost study to guide the Legislature towards necessary adjustments of both the Statewide Unified E-911 Emergency Service Fund and the monthly emergency services telephone charge imposed under §69-2-5

Based upon Committee's studies, experience and its knowledge of PSAP operations statewide, current monthly emergency services telephone charge imposed under §69-2-5, i.e. 61¢ per wireless and wireline telephone per month is seriously insufficient to adequately fund 9-1-1 PSAP operations in all but the largest PSAPs in Utah counties of classes 1 and 2. Moreover, the Statewide Unified E-911 Emergency Service Fund, i.e. 8¢ per wireless and wireline telephone

per month is also seriously inadequate to fulfill its charge of keeping State's PSAPs in future compliance. Significant reasons that both Funds are grossly inefficient:

- Cost of network fees for NG9-1-1 roll out will grossly exceed existing line and network costs; and
- Smaller PSAPs will simply be unable to fund expansion and growth for eligible NG9-1-1 systems and equipment.

The Committee's enabling legislation, which was schedule to sunset on June 30, 2011, but S.B. 86 – Sunset Reauthorizations introduced to the 2011 General Session extended this Fund through to July 1, 2021. Unfortunately, the cost of procuring and maintaining 9-1-1 call taking systems and equipment continues to increase. The Committee forecasts that it will be only able to maintain the status quo for equipment after life replacement. Funding for additional ESInets that would enable the interconnection of disparate PSAPs across the state is beyond the funding capabilities of both the 61¢ and the 8¢ Funds. In addition, there is a growing perception among our citizens that texting to 9-1-1 and social media sites such as Facebook are regularly monitored by PSAPs, and that these methods are perfectly acceptable for reporting emergencies. Nothing could be further from the truth. Utah is a state where its citizens, particularly in their time of need, not only expect, but demand that 9-1-1 services are available by whatever means – text message, social media, smart phone apps – and that our emergency services know exactly where emergency services are required. This is not the case in Utah. To provide an ESInet (or a series of regional, interconnected ESInets) would require an annual expenditure of $2M in potential network fees alone. Additional necessary equipment such as routers and gateway interface equipment would further burden the funding of the transition to NG9-1-1. In short, if Utah is to transition to NG9-1-1, additional revenues must be immediately pursued.

(h) a progress report of local government implementation of wireless and land-based E-911 services including:

(i) a fund balance or balance sheet from each agency maintaining its own emergency telephone service fund;

Most local PSAPs expend their 61¢ Fund monies within 30 to 90 days of receipt from USTC. A minority of the smaller PSAPs, through very judicious expenditure of these funds have retained a portion for anticipated new equipment expense. Usually, however these retained funds have resulted in increased repair expense wherein older equipment has been used beyond its useful life.

In larger PSAPs, receipt of larger distributions allows easier accumulation of funds; however their PSAPs require geometrically larger capital expenditure when equipment is at end of its useful life, generally after three to five (3-5) years.

(ii) a report from each public safety answering point of annual call activity separating wireless and land-based 911 call volumes; and

Please see attached Exhibit C.

(iii) other relevant justification for ongoing support from the Statewide Unified E-911 Emergency Service Fund.

Currently, 8¢ Fund generates approximately $2.7 million each fiscal year of which $300,000 is appropriated to the Automated Geographic Reference Center, leaving the 911 committee approximately $2.4 million. This aggregate amount funds Enhanced 9-1-1 call processing equipment and systems at statewide PSAPs, particularly:

- Hardware, software, connectivity and peripherals directly attributable to the delivery of 9-1-1 service;
- 9-1-1 controller/telephone equipment and software;
- 9-1-1 trunks, administrative lines for 9-1-1 center and remote 9-1-1;
- Hardware and modems, Automatic Call Distribution (ACD) and call management software, Time stamp and clock hardware, computer workstations, Telecommunications Device for the Deaf (TDD) equipment;
- GIS mapping associated database costs; and
- Connectivity, software licensing, interfaces, maintenance and service agreements for any of above.

As previously stated, the ability of Utah's PSAPs to maintain and expand current level of professional service to Utah's citizens, businesses and visitors particularly in an environment of costs increasing faster than dedicated 9-1-1 revenues is being compromised by lack of funding. Unless current funding models change, the transition to NG9-1-1 at best will be a long and arduous journey.

EXHIBIT B - PSAP PHASE II and NG9-1-1 EQUIPMENT STATUS 01JAN2013

PSAP Phase II and NG9-1-1 Equipment Status 01JAN2013

PSAP	Phase II Completed Date	Has NG9-1-1 Capable Equipment	Needs NG9-1-1 Capable Equipment
Beaver County	2007	X	
Bountiful City PD	2007	PROCURING	
DPS Box Elder Communications	2008	X	
DPS Cedar Communications	2008	X	
DPS Price Communications	2007	X	
DPS Richfield Communications	2007		X
DPS Uintah Basin Communications	2008	X	
Clearfield City PD	2008	X	
Davis County	2008	X	
Emery County	2007	X	
Garfield County	2008	X	
Grand County	2008	X	
Juab County	2008		X
Kane County	2008	X	
Layton City	2008	X	
Logan City Communications	2007	X	
Millard County	2008		X
Orem City PD	2008	X	
Pleasant Grove City PD	2007	X	
Provo City PD	2008	X	
Rich County	2008	X	
Salt Lake City 9-1-1	2008	X	
San Juan County	2008	X	
Sanpete County	2008		X
Springville City PD	2007	X	
Saint George City PD	2007	X	
Summit County	2007	X	
Tooele County	2007	X	
Utah Valley	2007	X	
Wasatch County	2007	X	
Weber Area Dispatch	2008	X	
Valley Emergency Comms. Center	2006	X	

EXHIBIT C – UTAH PSAP 9-1-1 CALL ACTIVITY (2012)

*UTAH PSAP 9-1-1 Call Activity (2012)

PSAP	Total 9-1-1 Calls	Daily Average
Beaver County	3414	9.4
Bountiful City PD	18915	51.8
DPS Box Elder Communications	15886	43.5
DPS Cedar Communications	15524	42.5
DPS Price Communications	6918	19.0
DPS Richfield Communications	7729	21.2
DPS Uintah Basin Communications	17900	49.0
Clearfield City PD	11903	32.6
Davis County	41784	114.5
Emery County	4709	12.9
Garfield County	1781	4.9
Grand County	6555	18.0
Juab County	4513	12.4
Kane County	2550	7.0
Layton City	22161	60.7
Logan City Communications	26233	71.9
Millard County	5609	15.4
Orem City PD	29109	79.8
Pleasant Grove City PD	7609	20.8
Provo City PD	31387	86.0
Rich County	1435	4.0
Salt Lake City 9-1-1	139643	382.6
San Juan County	6693	18.3
Sanpete County	6069	16.6
Springville City PD	9263	25.4
Saint George City PD	36322	99.5
Summit County	15994	43.8
Tooele County	23494	64.4
Utah Valley	55075	150.9
Wasatch County	6632	18.2
Weber Area Dispatch	92589	253.7
Valley Emergency Comms. Center	312832	857.1

(*The 9-1-1 Call Activity statistics are obtained from ECaTS data and are subject to confirmation.)

EXHIBIT D - 9-1-1 GRANTS APPROVED AND FUNDS OBLIGATED

9-1-1 GRANTS APPROVED AND FUNDS OBLIGATED

Grantee	Organization	County	Item	Approved	Obligated	Paid	Completed	$ remaining
Daggett County	Primary PSAP	Daggett	Phase II equipment	Apr-2005	119,334	119,334	Feb-2008	0
Beaver County	Primary PSAP	Beaver	Phase II equipment	Sep-2005	93,800	93,800	Apr-2006	0
Emery County	Primary PSAP	Emery	Phase II equipment	Sep-2005	129,576	118,422	deobligated	0
Rich County	Primary PSAP	Rich	Phase II equipment	Sep-2005	169,000	169,000	Dec-2008	0
Sevier County	Primary PSAP	Sevier	Phase II equipment	Sep-2005	65,967	0	deobligated	0
Wayne County	Primary PSAP	Wayne	Street signs	Sep-2005	114,000	84,804	deobligated	0
City of Layton Police	Primary PSAP	Davis	Phase II equipment	Sep-2005	35,704	35,704	Sep-2007	0
Vernal Communications Center	Primary PSAP	Uintah	Phase II equipment	Oct-2005	131,003	131,003	Feb-2006	0
Price Communications Center	Primary PSAP	Carbon	Phase II equipment	Oct-2005	128,389	128,389	Feb-2007	0
Box Elder Communications Center	Primary PSAP	Box Elder	Phase II equipment	Oct-2005	150,000	150,000	Jun-2007	0
VECC	Primary PSAP	Salt Lake	Phase II equipment	Nov-2005	700,000	700,000	Apr-2006	0
San Juan County	Primary PSAP	San Juan	Phase II equipment	Nov-2005	150,000	149,918	Jul-2006	0
Weber Consolidated Dispatch	Primary PSAP	Weber	Phase II equipment	Nov-2005	411,198	411,198	Apr-2007	0
Grand County	Primary PSAP	Grand	Phase II equipment	Dec-2005	150,048	148,806	Mar-2007	0
Garfield County	Primary PSAP	Garfield	Phase II equipment	Jan-2006	132,700	132,700	Jan-2006	0
San Juan County/Navajo Nation	Primary PSAP	San Juan	Phase II equipment	Jan-2006	150,000	0	deobligated	0
Tooele County	Primary PSAP	Tooele	Phase II equipment	Jan-2006	150,000	150,000	Mar-2006	0
Utah Traffic Operations Center	Secondary PSAP	Salt Lake	Phase II equipment	Jan-2006	176,760	176,760	Jul-2007	0
Juab County	Primary PSAP	Juab	Phase II equipment	Feb-2006	130,000	127,015	Nov-2008	0
Kane County	Primary PSAP	Kane	Phase II equipment	Feb-2006	164,263	164,263	Feb-2009	0
Millard County	Primary PSAP	Millard	Phase II equipment	Feb-2006	115,000	104,765	Oct-2008	0

St George Communications	Primary PSAP	Washington	Phase II equipment	Feb-2006	236,746	236,746	Mar-2007	0
Summit County	Primary PSAP	Summit	Phase II equipment	Mar-2006	150,000	150,000	Jun-2007	0
Iron County	Primary PSAP	Iron	Phase II equipment	Apr-2006	122,490	122,490	Feb-2007	0
Sevier County	Primary PSAP	Sevier	Phase II equipment	Apr-2006	111,000	111,000	Apr-2006	0
Springville Department of Public Safety	Primary PSAP	Utah	Phase II equipment	Apr-2006	125,000	125,000	Aug-2007	0
Weber Consolidated Dispatch	Primary PSAP	Weber	Phase II mapping software	May-2006	143,631	143,631	Apr-2007	0
Logan City Police	Primary PSAP	Cache	Phase II equipment	May-2006	233,000	233,000	Jun-2006	0
Salt Lake County	Secondary PSAP	Salt Lake	Phase II equipment	Jun-2006	750,000	750,000	Feb-2008	0
Davis County	Primary PSAP	Davis	Phase II equipment	Jul-2006	164,586	0	deobligated	0
Sanpete County	Primary PSAP	Sanpete	Phase II equipment	Jul-2006	112,826	112,826	Feb-2007	0
St George Communications	Primary PSAP	Washington	Phase II equipment	Aug-2006	79,445	79,445	Feb-2008	0
Qwest Communications	Statewide	All	Cedar City tandem	Aug-2006	525,000	525,000	Oct-2007	0
Utah County	Primary PSAP	Utah	Phase II equipment	Sep-2006	250,000	229,468	deobligated	0
Wasatch County	Primary PSAP	Wasatch	Phase II equipment	Oct-2006	150,000	150,000	Mar-2007	0
City of Pleasant Grove Police	Primary PSAP	Utah	Phase II equipment	Nov-2006	89,202	89,202	Nov-2007	0
Piute County	Primary PSAP	Piute	Street signs	Jan-2007	75,000	75,000	Feb-2008	0
VECC	Primary PSAP	Salt Lake	Phase II equipment	Jan-2007	283,167	283,167	Feb-2007	0
Clearfield City	Primary PSAP	Davis	Phase II equipment	Feb-2007	17,000	17,000	Mar-2007	0
Iron County	Primary PSAP	Iron	CAMA trunks	May-2007	5,252	5,051	May-2012	0
City of Orem Police	Primary PSAP	Utah	Phase II equipment	May-2007	135,639	135,639	Sep-2007	0
Bountiful City Police	Primary PSAP	Davis	Phase II equipment	Jun-2007	121,560	121,559	Jul-2008	0
Price Communications Center	Primary PSAP	Carbon	Network	Jun-2007	40,000	40,000	Aug-2011	0
San Juan County/Grand County	Primary PSAP	San Juan	Phase II E2 links	Jun-2007	87,143	54,569	Mar-2011	0

Uintah County	Primary PSAP	Uintah	GIS equipment	Aug-2007	13,855	13,530	Nov-2007	0
Duchesne County	Primary PSAP	Duchesne	GIS equipment	Aug-2007	16,355	13,530	Nov-2007	0
Park City Police	Secondary PSAP	Summit	Phase II equipment	Aug-2007	98,072	98,072	Feb-2012	0
Emery County	Primary PSAP	Emery	Network	Sep-2007	45,000	45,000	Jan-2012	0
Wasatch County	Primary PSAP	Wasatch	GIS equipment	Sep-2007	13,855	13,530	Mar-2008	0
Park City Police	Secondary PSAP	Summit	Maintenance	Oct-2007	10,958	10,958	Apr-2008	0
Provo City Police	Primary PSAP	Utah	Phase II equipment	Oct-2007	220,049	220,049	Feb-2008	0
St George Communications	Primary PSAP	Washington	Phase II equipment	Mar-2008	27,530	26,080	Sep-2008	0
Penna Powers Brian Haynes	Statewide	All	Public Education	Mar-2008	300,000	300,000	Mar-2009	0
St George Communications	Primary PSAP	Washington	Back-up facility equipment	Jun-2008	193,194	0		0
Valley Emergency Communications Center	Primary PSAP	Salt Lake	Study-Next Gen	Jun-2008	37,000	37,000	Jan-2011	0
Sanpete County	Primary PSAP	Sanpete	Phase II equipment	Jun-2008	139,136	0	deobligated	0
Sevier County	Primary PSAP	Sevier	Phase II equip, network + trunks	Aug-2008	227,678	0	deobligated	0
Daggett County	Primary PSAP	Daggett	GIS equipment	Aug-2008	16,455	16,455	Nov-2008	0
Sanpete County	Primary PSAP	Sanpete	Phase II equipment	Sep-2008	245,686	245,683	Dec-2008	0
Logan City Police	Primary PSAP	Cache	Phase II equipment	Sep-2008	457,798	457,595	Jun-2009	0
Tooele County	Primary PSAP	Tooele	Phase II equipment	Sep-2008	380,360	380,360	Dec-2008	0
St George Communications	Primary PSAP	Washington	Phase II equipment	Sep-2008	280,314	0	deobligated	0
Sevier County	Primary PSAP	Sevier	Phase II equipment	Oct-2008	44,603	0	deobligated	0
Park City Police	Secondary PSAP	Summit	Maintenance	Oct-2008	15,000	15,000	Sep-2009	0
Davis County	Primary PSAP	Davis	Phase II equipment	Nov-2008	286,252	263,803	Nov-2009	0
Price Communications Center	Primary PSAP	Carbon	Phase II equipment	Dec-2008	311,909	311,909	Aug-2011	0
Piute County	Primary PSAP	Piute	Street signs	Mar-2009	15,000	15,000	Dec-2012	0

Springville Department of Public Safety	Primary PSAP	Utah	Phase II equipment	Apr-2009	192,622	187,964	Nov-2009	4,658
Sevier County	Primary PSAP	Sevier	Phase II equipment	Apr-2009	179,866	179,866	Oct-2009	0
Emery County	Primary PSAP	Emery	Maintenance	May-2009	13,532	0		0
St George Communications	Primary PSAP	Washington	Back-up facility equipment	May-2009	209,005	0		0
City of Layton Police	Primary PSAP	Davis	Phase II equipment	Jun-2009	289,594	289,029	Feb-2010	0
Garfield County	Primary PSAP	Garfield	Maintenance	Sep-2009	7,204	7,204	May-2012	0
Penna Powers Brian Haynes	Statewide	All	Public Education	Oct-2009	300,000	300,000	Dec-2010	0
Rich County	Primary PSAP	Rich	Maintenance + network	Oct-2009	97,745	78,997	Mar-2010	18,748
Price Communications Center	Primary PSAP	Carbon	Maintenance	Oct-2009	33,080	21,568	Aug-2011	0
Vernal Communications Center	Primary PSAP	Uintah	Phase II equipment	Oct-2009	331,204	331,204	Dec-2010	0
Park City Police	Secondary PSAP	Summit	Maintenance	Oct-2009	13,000	13,000	Feb-2011	0
Box Elder Communications Center	Primary PSAP	Box Elder	Maintenance	Jan-2010	17,124	0		17,124
City of Orem Police	Primary PSAP	Utah	Phase II equipment	Apr-2010	293,812	293,812	Jul-2010	0
Iron County	Primary PSAP	Iron	Phase II equipment	Apr-2010	222,286	222,286	Jan-2011	0
Clearfield City Police	Primary PSAP	Davis	Phase II equipment	Jun-2010	197,501	197,501	Sep-2011	0
PSAPs Statewide	Primary & Secondary	All	Years 4 + 5 Maintenance	Jul-2010	2,100,000	1,669,142		430,858
Iron County	Primary PSAP	Iron	Phase II equipment	Aug-2010	2,403	2,403	Jan-2011	0
Univ of Utah Police Dept	Secondary PSAP	Salt Lake	Phase II equipment	Oct-2010	214,060	141,209		72,851
Penna Powers Brian Haynes	Statewide	All	Public Education	Oct-2010	300,000	300,000		0
Park City Police	Secondary PSAP	Summit	Maintenance	Nov-2010	13,000	12,477		523

San Juan County	Primary PSAP	San Juan	Phase II equipment	Feb-2011	238,597	0		238,597
Rich County	Primary PSAP	Rich	Phase II equipment	Feb-2011	93,097	93,097	May-2011	0
Grand County	Primary PSAP	Grand	Phase II equipment	Apr-2011	219,436	219,436	Nov-2011	(0)
Beaver County	Primary PSAP	Beaver	Phase II equipment	Apr-2011	223,415	223,415	Apr-2012	(0)
Beaver County	Primary PSAP	Beaver	Years 4 + 5 Maintenance	Apr-2011	44,616	44,616	Apr-2012	0
Kane County	Primary PSAP	Kane	Phase II equipment	Apr-2011	319,742	319,742	Dec-2012	0
Kane County	Primary PSAP	Kane	Years 4 + 5 Maintenance	Apr-2011	47,013	13,145	Dec-2012	0
Salt Lake City PD	Primary PSAP	Salt Lake	Phase II equipment	May-2011	1,084,610	0		1,084,610
Salt Lake City PD	Primary PSAP	Salt Lake	Years 4 + 5 Maintenance	May-2011	437,732	0		437,732
Park City Police	Secondary PSAP	Summit	Phase II equipment	Jun-2011	215,954	215,954	Aug-2012	(0)
Summit County	Primary PSAP	Summit	Phase II equipment	Jun-2011	417,763	0		417,763
Wasatch County	Primary PSAP	Wasatch	Phase II equipment	Jun-2011	334,408	334,408	Nov-2012	0
Davis County Sheriff	Primary PSAP	Davis	Phase II equipment	Jun-2011	82,208	78,918	Apr-2012	3,290
Sevier County	Primary PSAP	Sevier	signage	Jul-2011	56,261	32,050	Dec-2011	24,211
Grand County	Primary PSAP	Grand	Phase II equipment	Jul-2011	74,768	73,644	Nov-2011	1,124
San Juan	Primary PSAP	San Juan	Phase II equipment	Jul-2011	83,607	0		83,607
Garfield County	Primary PSAP	Garfield	Phase II equipment	Aug-2011	214,760	184,124	Dec-2012	30,637
Box Elder County	Primary PSAP	Box Elder	Phase II equipment	Aug-2011	252,779	252,779	Dec-2012	0
Provo City PD	Primary PSAP	Utah	Phase II equipment	Oct-2011	181,577	181,577	Aug-2012	0
Provo City PD	Primary PSAP	Utah	Years 4 + 5 Maintenance	Oct-2011	87,157	87,157	Aug-2012	0
St. George PD	Primary PSAP	Washington	Phase II equipment	Oct-2011	207,139	0		207,139
St. George PD	Primary PSAP	Washington	Back-up facility equipment	Oct-2011	115,661	0		115,661
St. George PD	Primary PSAP	Washington	Years 4 + 5 Maintenance	Oct-2011	98,131	0		98,131
VECC (replaced)	Primary PSAP	Salt Lake	Upgrade Equipment	Oct-2011	0	0		0
VECC (replaced)	Primary PSAP	Salt Lake	Network Development	Oct-2011	0	0		0
Utah Valley	Primary PSAP	Utah	Phase II equipment	Nov-2011	446,036	446,036	Jul-2012	0

Communications								
Utah Valley Communications	Primary PSAP	Utah	Years 4 + 5 Maintenance	Nov-2011	66,883	66,883	Jul-2012	0
Emery County	Primary PSAP	Emery	Equipment plus Maint.	Dec-2011	262,020	245,754		0
Pleasant Grove	Primary PSAP	Utah	Equipment plus Maint.	Jan-2012	213,612	198,959	Jul-2012	0
Utah Valley Communications	Primary PSAP	Utah	Year 6 Maint.	Jan-2012	163,337	163,337	Mar-2012	0
Weber Area 9-1-1	Primary PSAP	Weber	Year 6 Maint.	Feb-2012	80,231	80,231	Apr-2012	0
Salt Lake Communications Center/DPS	Secondary PSAP	Salt Lake	Year 6 Maint.	Mar-2012	22,760	22,760	Apr-2012	0
Salt Lake Communications Center/DPS	Secondary PSAP	Salt Lake	Equipment plus Maint.	Mar-2012	335,384	177,404	Dec-2012	157,980
Salt Lake Communications Center/DPS	Secondary PSAP	Salt Lake	Years 4 + 5 Maintenance	Mar-2012	65,446	0		65,446
Park City Police	Secondary PSAP	Summit	Maintenance	Apr-2012	12,000	8,884	Oct-2012	3,116
Weber Consolidated Dispatch	Primary PSAP	Weber	Equipment plus Maint.	May-2012	946,286	19,366	Dec-2012	926,920
Weber Area 9-1-1	Primary PSAP	Weber	Network Upgrade	May-2012	17,271	0		17,271
Rich County	Primary PSAP	Rich	Equipment	May-2012	246,235	246,235	Aug-2012	0
VECC	Primary PSAP	Salt Lake	Equipment	Jun-2012	22,043	0		22,043
VECC	Primary PSAP	Salt Lake	Equipment plus Maint.	Jun-2012	800,643	475,748	Dec-2012	324,895
UPD	Primary PSAP	Salt Lake	Equipment	Jul-2012	558,905			558,905
Rich County	Primary PSAP	Rich	UPS	Oct-2012	7,889	7,889		0
Bountiful City Police	Primary PSAP	Davis	CPE Upgrader	Nov-2012	204,365			204,365
UPD	Secondary PSAP	Salt Lake	Equipment Maintenance	Dec-2012	54,470			54,470
Total					$25,653,773	$18,330,437		$5,622,676

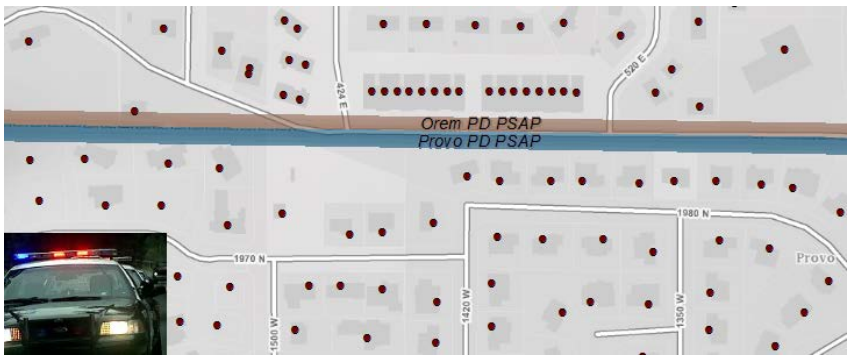
Current Year		
Grants	825,629	
Obligated Before Current Yr	7,982,637	(includes Penn Powers of $100,000 and addition summit, Wasatch amounts of $64,743)

EXHIBIT E - AGRC E9-1-1 ANNUAL REPORT

AGRC E9-1-1 Annual Report

AGRC E-911 Annual Report (FY12)

Statewide Road and Address Mapping in Support of Utah Emergency Response



State of Utah
Automated Geographic Reference Center
1 State Office Building, Room 5130
Salt Lake City, Utah 84114
(801) 538-3665
agrc@utah.gov
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Summary

State Fiscal Year 2012

The Automated Geographic Reference Center (AGRC) has continued to improve the statewide road and address digital map (geographic information system or GIS) data during this past year in support of emergency response and other state and regional government business needs.

At a statewide level, the address data carried on GIS-formatted road centerline and address point map data layers has an overall 99% geocode match rate, measured against registered voter addresses. Additionally, the volume of locational information for commonly recognized places such as businesses and public facilities has increased and is more accessible for many dispatch centers.

This report provides a more detailed list of accomplishments and activities, highlighted for selected counties.

Background

AGRC provides map data and technical support to build and enhance content in the State Geographic Information Database (SGID) funded through the 911 restricted find, per state statute (below).

> *53-10-605. (1) Subject to an annual legislative appropriation from the fund to:*
> *(c) the state's Automated Geographic Reference Center in the Division of Information Technology Services, an amount equal to 1 cent per month levied on telephone services under Section 69-2-5.6 shall be used to enhance and upgrade statewide digital mapping standards.*

AGRC provides coordination, data integration, and quality assurance to aggregate and enhance local government data to make it functional as a statewide map data layer. 911 restricted funding is used exclusively to ensure that public safety-related map data layers function at high level for purposes of incident location, response, and map-based analysis to inform decision making to improve efficiency and performance.

Other statute specifies that the State Geographic Information Database (SGID), managed by AGRC, is the central clearinghouse for geospatial data, for local, state, federal and tribal agencies in Utah.

The ability of the E-911 call system to function effectively increasingly depends on accurate map and data. These systems rely on accurate road centerline address and other descriptive information to map the location of the call and get responders to the right place. In addition to the geographic location of roads, additional information is needed including:

- road name and type
- address ranges for both sides of street
- mileposts ranges
- seasonal restrictions

- alias road names and type
- travel speeds
- one way restrictions
- cartographic codes
- jurisdictional information
- surface types

GENERAL PROJECT GOALS

The long-term project goals presented to the E-911 Committee are summarized below and are provided in **Appendix A**.

- Centerline-based Address Location: Accurate geographic locations can be derived from the dataset's road geometry and their addressing values for at least 95% of valid Utah addresses statewide.
    - STATUS: High match rates in urban areas greatly contribute to statewide match rate of 99% but rural county match rates are significantly lower, but improving.
      Work in Box Elder, Cache, Duchesne, Iron, Sanpete, and Sevier, together with Federal addressing support for the Utah Broadband Mapping Project show promise for meeting this goal in each county.

- Routing: Point to point optimal route solutions can be found statewide through network analysis on the road centerline's travel cost estimate value including: speed limit, surface type, seasonal closures, directional restrictions.
    - STATUS: In progress. Preliminary derivative network-routing datasets have been produced to test basic data content requirements and functionality for routing applications. Data elements have been added to the statewide roads dataset to support basic drive time and routing analysis.

- Point-based Address Location: Work with local government and state agencies to compile and derive a Master Address List (MAL) of all physical addresses and their geographic point locations for 95% of valid Utah addresses statewide. Counties are scheduled to provide the data to AGRC at year end of 2012 but it is anticipated that this date will be extended for some counties into the first quarter of 2013. The data will be integrated into a statewide dataset and be made available to agencies as downloadable datasets and address location services during Spring 2013.
    - STATUS: In progress. Refer to **Appendix B** for the status of each county.

Figure 1 is an example of address points in Saint George that were generated from the centroids of parcel polygon boundaries.

APPROACH

AGRC has utilized funding from the E-911 Restricted Fund levy to support local public safety answering points (PSAP) and county offices with the following priority activities and their associated tasks:

1) **Centerline Data Creation, Collection, and Integration**
   - Incorporating local roads data updates into the statewide roads data layer
   - Field collection of road centerline and address data
   - Field verification of addressable road centerlines
   - New addressing systems and new address grid generation
   - System-level readdressing and address grid generation at local level
   - Resolving individual local address assignment issues
2) **Centerline Data Maintenance**
   - Initiating enhancement edits to statewide roads data layer
   - Maintaining topological connectivity for the road network
   - Developing or refining milepost reference systems
   - Enhancing and testing of routing capability
3) **Centerline Data Quality Assessment**
   - Geocoding performance assessment & metric development
4) **Centerline Standards and Coordination**
   - Data standards development and promotion
   - Maintaining metadata for road centerline datasets
   - Database administration and public data access provision

These efforts represent the work of approximately 3 full time equivalent (FTE) units of technical labor.

2012 ACCOMPLISHMENTS

The statewide roads GIS database consists of nearly 400,000 road features, with the capability to store 57 pieces of descriptive information with each road feature. Appendix A describes in detail both the efforts made by AGRC to update and publish the statewide roads dataset as well as technical assistance provided to county and municipal government and PSAPs in the organization, maintenance, and use of address and roads data.

Appendix A

AGRC publishes updates to the state road centerline GIS database approximately every two months. The following updates synopsis summarizes when and where major updates were made this year:

- August 3, 2011: Beaver, Box Elder, Emery, Millard, Uintah, Weber
- October 6, 2011: Sevier, Tooele, Washington
- December 13, 2011: Rich, San Juan, Utah
- February 1, 2012: Daggett, Morgan, Salt Lake, Wasatch, Washington, Weber
- June 7, 2012: Box Elder, Cache, Davis, Garfield, Iron, Salt Lake, Summit, Utah, Washington
- August 1, 2012: Duchesne, Iron, Rich, Salt Lake, Uintah, Weber
- October 3, 2012: Davis, Emery, Millard, Piute, Washington, Wayne
- December 5, 2012: Salt Lake, Sevier, Tooele, Wasatch, Utah

Other Significant Updates:

- Blue Stakes of Utah provides AGRC feedback on each county and is a valuable resource that helps improve the quality and accuracy of the statewide road centerline database.
- Base Map Services: AGRC freely serves out seven online base maps, with five of them being actively maintained on a regular schedule. The caches are standardized on a subset of the Google, Microsoft, and ESRI (Environmental Systems Research Institute) scale levels that are applicable to Utah. The seven overall online base map themes are Streets, Hybrid, Imagery, Lite, Terrain, Topo, and Hillshade.

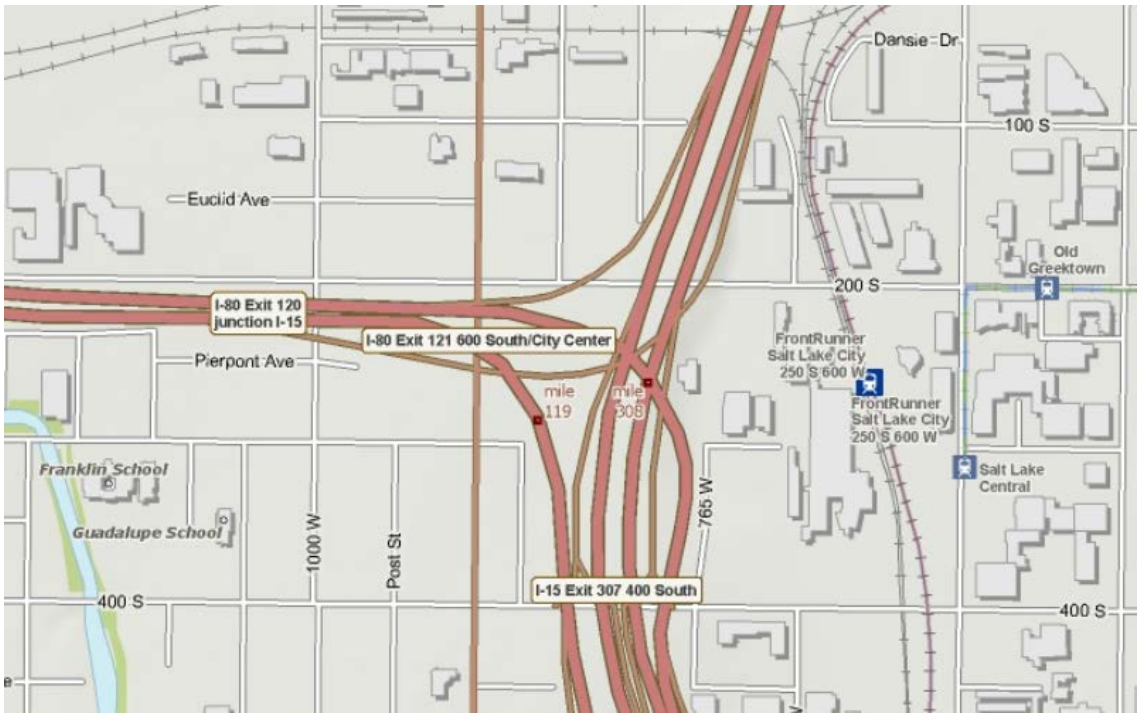


Figure 2 is an example of AGRC's 'Streets' Base Map Tile Cache. This section in Salt Lake City includes building footprints, TRAX lines and TRAX stops, highways, highway milepost markers, local streets, and school locations.

- Significant data improvements were made within every county of the state. The list below attempts to illustrate activities undertaken in support of specific counties and PSASPs with respect to coordination, consultation, address system refinement, and road and address data maintenance during the past year.

Box Elder Communications Center (Box Elder County)

- AGRC made additional improvements and updates to the street centerline data and Spillman zone areas and corrected addressing errors reported by dispatchers; created and loaded the updated GIS data files to the Spillman server

Cedar City Communications Center (Iron County & neighboring counties)

- AGRC performed a major Spillman CAD data update specific to the needs of the Cedar City Communication Center; data enhancements included corrections to street names, address ranges, and directionals, correcting and refining the EMS, fire, and law zone boundaries, and incorporating new street centerlines
- AGRC created Spillman compliant data for all the facilities on Southern Utah University campus to give the PSAP the capability of dispatching to specific buildings and floors when necessary
- AGRC incorporated the most current street data available for Millard, Beaver and Washington Counties for dispatching State agencies; previous street data was limited to selected sections of major roads
- AGRC made corrections to the Virgin River Gorge in the street centerline data so this area would be Spillman compliant for dispatch by Arizona Public Safety
- AGRC created additional common place points of business locations and interstate exits that include different versions of exit names
- AGRC made changes to the method of entering milepost locations on highways by using common place points and including milepost markers in half mile increments, thus resulting in higher spatial accuracy and Spillman compliancy
- AGRC converted the 2011 NAIP (National Agricultural Imagery Program) aerial photography layers into a format that is compatible with the CAD software; the Cedar Communications Center now has imagery for Iron County as a base layer in their Spillman CAD maps
- AGRC performed a Spillman maintenance update that included corrections and requested changes to the street centerline data
- AGRC made additional improvements and updates to the street centerline data and Spillman zone areas and corrected addressing errors reported by dispatchers; created and loaded the updated GIS data files to the Spillman server

Garfield County Sheriff Office (Garfield County)

- AGRC prepared and submitted mapping data for the ORION MapStar system; data included street centerlines, county parcels, municipal boundaries, rivers, lakes, and city park locations
- AGRC participated in a training for the Cassidian Orion Vela mapping software and assisted the County by helping them determine the most effective way of preparing the GIS data to work in the system properly

Garfield

- AGRC utilized resources provided by the Garfield County Recorder to make addressing improvements to the street centerline data; enhancements included adding new street names, updating and correcting address ranges, updating directionals, and aligning street segments

Iron

- AGRC utilized resources provided by the Iron County Address Coordinator to document, verify, and correct street names, street types, address ranges, and directionals in the street centerline data
- AGRC utilized resources provided by the Iron County Address Coordinator to make addressing improvements to the street centerline data in the Cedar City and Enoch areas
- AGRC utilized resources provided by the Iron County Address Coordinator to correct and update the county's road identification and numbering system attributes in the street centerline data; AGRC documented discrepancies in cases where the road name did not match the address or the County 'B' road name
- AGRC met with the Iron County Address Coordinator to verify street names and to assign address ranges on new streets; field checked street signs to ensure they correspond to the physical addresses on the street
- AGRC met with the Iron County Address Coordinator regarding street name and addressing issues in Beryl, Cedar City, Kanarraville, and Parowan; discrepancies were documented and corrections were made to street names, street types, address ranges, and directionals in the street centerline data
- AGRC met with the Iron County Address Coordinator to determine where the address grid in Parowan should be adjusted to be consistent with the street names and address ranges that fall on the boundary
- AGRC met with the Iron County Address Coordinator to identify and attribute unnamed streets, street types, address ranges, and directionals in the street centerline data that are in the unincorporated areas of the county
- AGRC field checked addresses and street signs in Enoch and Cedar City to ensure they are consistent with the street centerline data; corrections were made to the street centerline data where necessary

Rich

- AGRC cross checked the Rich County 'Streets List' and MSAG with the street centerline data to improve and correct street names, address ranges, and directionals

Richfield Communications Center (Piute, Sevier, Wayne Counties)

- AGRC performed a Spillman CAD data update specific to the needs of the Richfield Communication Center; the update included new and revised street centerlines, address points for all of Sevier County, corrected address points for Garfield, Piute, and Wayne Counties, and corrected EMS and fire zone boundaries
- AGRC crosschecked the MSAG (master street address guide) to the street centerline data and recommended changes that should be made to the MSAG data in order for it to geocode with the current street centerline data; the local MSAG administrator will evaluate the recommended changes and submit changes to Intrado as needed
- AGRC converted the 2011 NAIP (National Agricultural Imagery Program) aerial photography layers into a format that is compatible with the CAD software; the Richfield Communication

Center now has imagery for Sevier, Piute, and Wayne Counties as a base layer in their Spillman CAD maps

- AGRC made additional improvements and updates to the street centerline data and Spillman zone areas and corrected addressing errors reported by the dispatchers; created and loaded the updated GIS data files to the Spillman server

Salt Lake Traffic Operations Center (Salt Lake and Utah Counties)

- AGRC completed a major Spillman data update which included the modification of street segments in Utah County that fall on city boundaries and/or cities and the unincorporated county; Utah County has separate address system origins for each city and unincorporated county so a given street segment could have up to three different sets of coordinate names, aliases, and address ranges; for each of these unique situations, AGRC modified the street's geometry so that each segment is completely within their corresponding city or unincorporated boundary (see **Figure 3**)

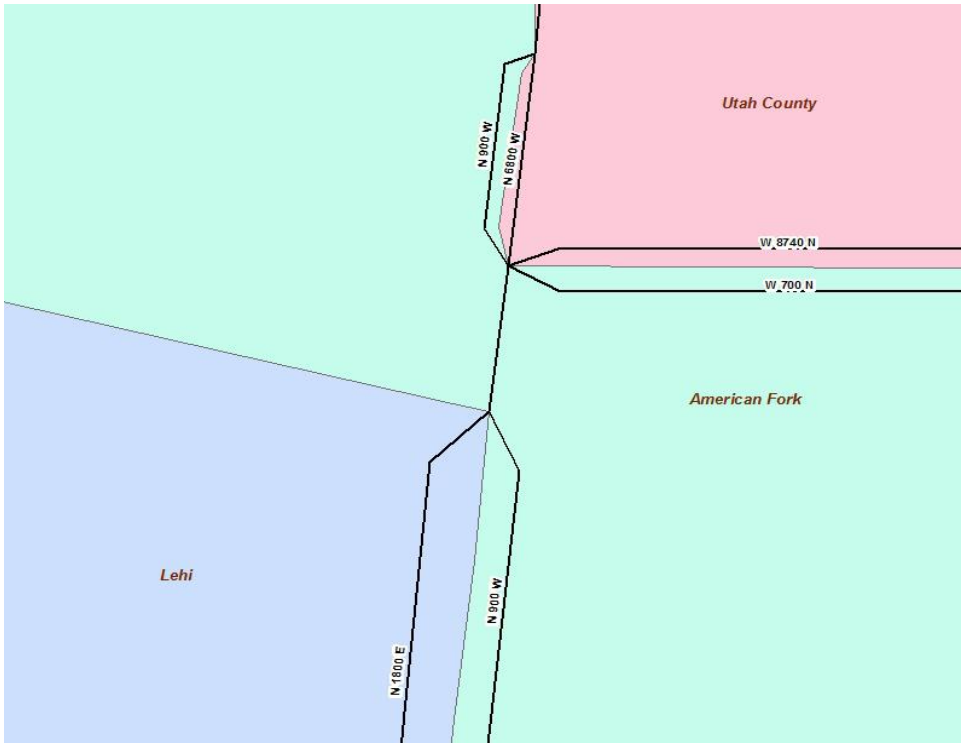


Figure 3 is an example of the modified streets in Utah County that lie between jurisdictional boundaries and are associated with multiple address systems.

- AGRC updated the common place point GIS dataset provided by VECC and loaded it into the Spillman system
- AGRC incorporated common place points for unique locations reported by Utah Wildlife Resources Officers and corresponding street segments for remote locations not already on the existing addressed streets
- AGRC created 100 common place points representing the Utah Department of Corrections' facilities and courts throughout the state and added their corresponding street segments for facilities outside of Salt Lake and Utah Counties

- AGRC populated all of the Spillman specific fields which included properly identifying segments where the new UDOT Saratoga Springs Maintenance Station has responsibility
- AGRC added and made corrections to the tables in the Spillman server so they will completely correspond to the unique fields stored in the street centerline data
- AGRC created Spillman data files from the GIS street and point data, loaded the data into the Spillman server, performed tests to ensure the system was working properly, and made corrections where necessary
- AGRC created and installed a GIS dataset for the Positron Communications System

Uintah Basin Communication Center (Daggett, Duchesne, Uintah Counties)

- AGRC completed a Spillman maintenance update that included the creation of additional common place points requested by the Uintah Basin Communication Center

Washington County

- AGRC met with Toquerville Officials to identify and document addressing issues and to assess the town's address grid boundary; AGRC field checked street signs to ensure they are consistent with the street centerline and address point data
- AGRC corrected addressing issues in the street centerline data and made adjustments to the address grid for the Toquerville area
- AGRC field checked street signs and documented typos and errors in Leeds to ensure that the Leeds Fire Department orders the correct signs
- AGRC field checked addresses in Leeds to ensure they are consistent with the street centerline data; corrections were made to the street centerline data where necessary
- AGRC assigned addresses for a new shopping plaza in Leeds, created a small map of the new addresses, and provided it to the Leeds Deputy Clerk/Recorder and the Leeds Fire Department for their records
- AGRC utilized a list of addresses provided by the Leeds Deputy Clerk that are under consideration for being changed; AGRC documented the reasons why the addresses may change and provided the report to the Leeds Deputy Clerk
- AGRC cross checked a list of addresses provided by Leeds and incorporated the corresponding parcel number into the table so Washington County can refer to the correct property; the finished product will be sent to the County Assessor's Office for their records
- AGRC met with the Enterprise City Administrator to verify and field check addresses to ensure they are consistent with the street centerline and address point data
- AGRC met with the Washington County Planner to verify and determine if the county address grid boundary is represented correctly; adjustments were made to the boundary and consideration was taken in areas where the integrity of existing addresses and road junctions needed to be preserved
- AGRC met with the Washington County Clerk to verify addresses in the street centerline data in Virgin Town and Rockville
- AGRC assigned new addresses in the Pine Valley area and sent the information to the Washington County Planner who will inform the residents of their new address
- AGRC utilized resources provided by Washington County to make corrections to the street centerline, address point, and parcel databases that were previously using incorrect street names

- AGRC met with the Washington County Planner to create an address grid for the Pine Valley area and crosschecked new addresses provided by the Pine Valley Fire Department to ensure the grid was configured correctly
- AGRC met with the Washington County Deputy Election Clerk regarding incorrect addresses in New Harmony (see **Figure 4**) and Winchester Hills that need to be changed; AGRC and the Washington County Planner are still in the process of dealing with these issues

Figure 4 shows an area in New Harmony (Washington County) where the house numbers are inconsistent with their corresponding street name.

- AGRC utilized resources provided by the Washington County Assessor's Office for the Winchester Hills Subdivision and made improvements and corrections to street centerline and address point data; enhancements included modifying address point locations so they lie within the correct parcel, deleting duplicate address points, and correcting address ranges
- AGRC field checked addresses and street signs in the Winchester Hills Subdivision to ensure they are consistent with the Washington County street centerline and address point data; AGRC and the Washington County Planner notified Saint George City which street signs will need to be changed
- AGRC utilized resources from the Washington County Planner to cross check and correct street names, address ranges, and directionals in the street centerline data
- AGRC utilized resources from the Washington County Building Department and officials from the Town of Pinto to refine the address grid and to ensure that the addresses are consistent with the street centerline data and address grid; assigned new addresses based off the address grid
- AGRC met with Enterprise City Administrator to verify the city's address list against the street centerline and address point data

- AGRC field checked addresses to ensure they are consistent with the street centerline data and made corrections to the parcel and address point data in the unincorporated areas near Enterprise
- AGRC met with Dixie National Forest Officials, the Pine Valley District Ranger, and Saint George City to verify road names and to ensure that the county and Forest Service are using road names consistently
- AGRC utilized resources provided by the Washington County Clerk to verify corner lot addresses and to determine where the entrance is/will be for the property
- AGRC met with St. George City regarding street name discrepancies within the street centerline and address point data and identified a street sign in the Winchester Hills Subdivision that needs to be corrected
- AGRC met with the Washington County Engineer regarding road names that need to be verified to ensure they are consistent between the Washington County General Plan and the street centerline data
- AGRC met with the Washington County Public Works Department regarding a road name issue in the Virgin Town area; new addresses need to be assigned on a road known by the county as Smith Mesa Road and known by Virgin Town as Mesa Road; AGRC will make the necessary changes in the street centerline and address point data once the issue is resolved
- AGRC met with the Washington County Planner regarding address discrepancies on 5300 West, which was once in the unincorporated county and has since been annexed into Hurricane, and field checked the addresses of buildings to ensure they are consistent with the street centerline data
- AGRC met with the Washington County Planner to document and verify addresses in Hurricane City that used to be part of the unincorporated county; AGRC will make the necessary changes in the street centerline and address point data once Hurricane City and the county finalize a solution
- AGRC utilized resources from Hurricane City to verify and make corrections to sections of 200 South that were previously addressed incorrectly in the street centerline data
- AGRC modified the Washington County address grid boundaries to correspond to the recent annexations made to the Hurricane City boundary
- AGRC met with the Washington County School District regarding incorrect address on Grass Valley Road and addresses that do not match with their corresponding street signs in Pine Valley
- AGRC utilized resources from the Washington County Planner to assign new addresses in areas within the unincorporated county
- AGRC utilized resources from the county to cross check building permit addresses to ensure they match their corresponding street name and the address ranges in the street centerline data cover the addresses
- AGRC contacted Washington City regarding incorrect addresses that do not match the address point data or the records maintained by the County Assessor Office; AGRC made corrections to the street centerline data based on information provided by Washington City

Washington County Dispatch Center (Washington County)

- AGRC completed a major Spillman CAD data update specific to the needs of the Washington County Dispatch Center; data enhancements included corrections and updates to the street centerline, address points, and common place point data; updated law, fire, and EMS boundaries, and facilities at Dixie State College and optimized them for the Spillman CAD system
- AGRC incorporated street aliases and address points for the first time in the Spillman CAD data

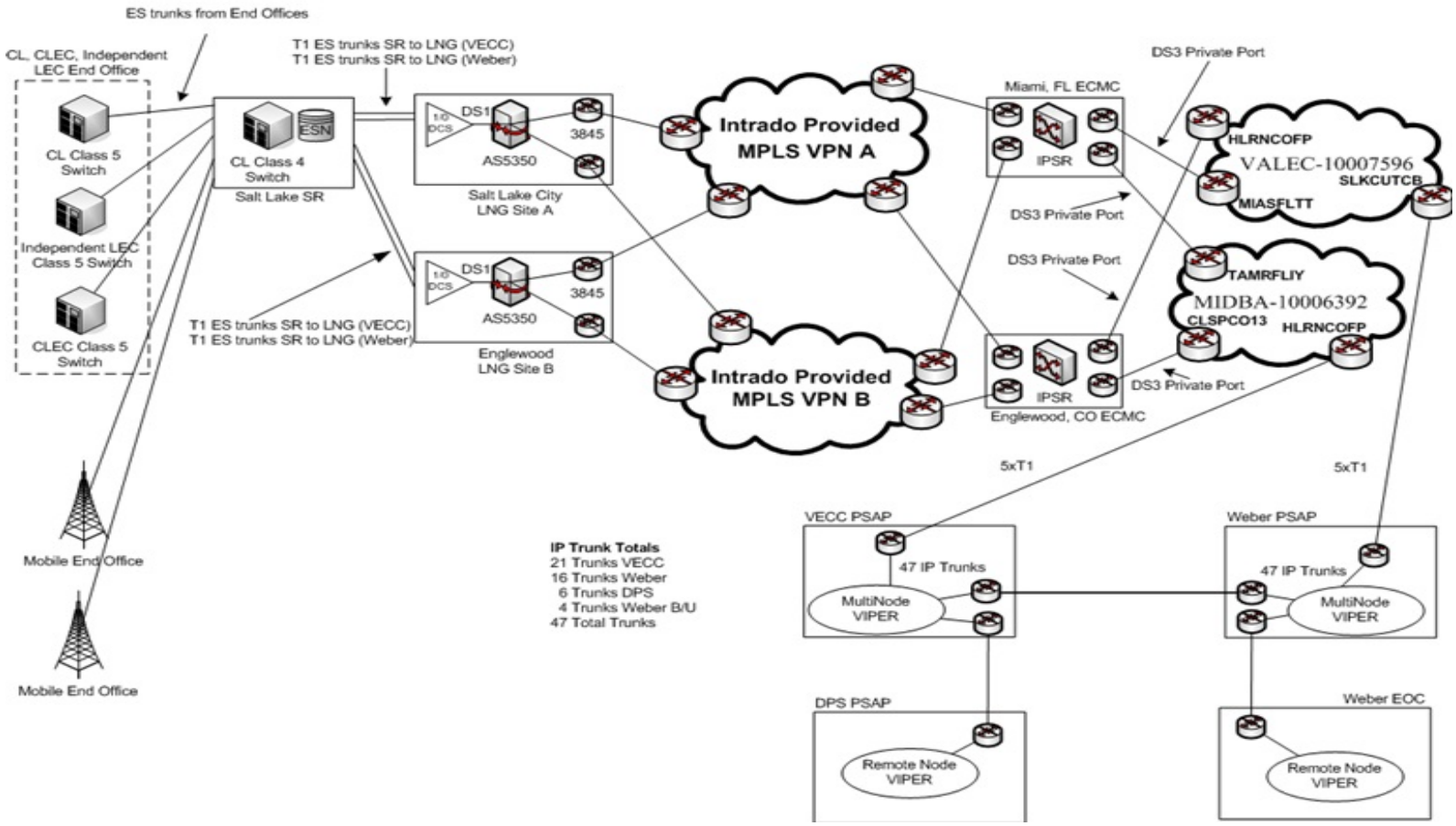
- AGRC created over 36,000 address points in Washington County and geocoded them against the Spillman street segments for verification
- AGRC incorporated street centerline data that is within 50 miles of the Washington County boundary and improved the ability to locate and dispatch to buildings and parking lots on the Dixie State College campus
- AGRC converted the 2011 NAIP (National Agricultural Imagery Program) aerial photography layers into a format that is compatible with the CAD software; the Washington County Dispatch Center now has imagery as a base layer in their Spillman CAD maps
- AGRC made a site visit to the dispatch center and loaded the data into the Spillman CAD system; the data was then tested and corrections were made where necessary
- AGRC incorporated data for the Arizona Strip along I-15 so this area can now be located and dispatched to by the CAD system

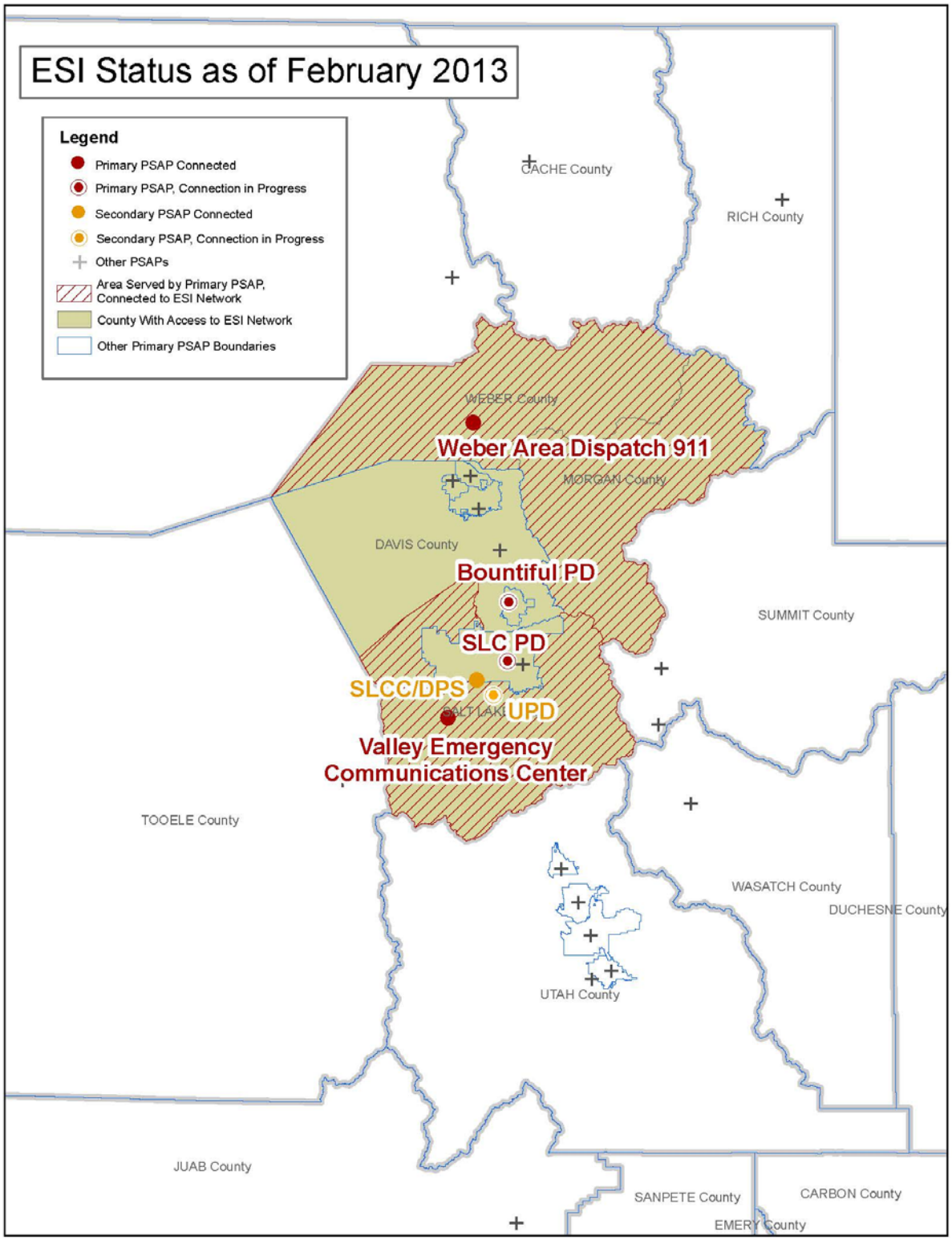
Appendix B
Master Address List (MAL) Status By County

County	MAL Contract	Status
Beaver	Yes	In Progress
Box Elder	Yes	In Progress
Cache	Yes	In Progress
Carbon	Yes	In Progress
Daggett	Yes	In Progress
Davis	No	N/A
Duchesne	Yes	In Progress
Emery	Yes	In Progress
Garfield	No	Self-Funded, Will Share Data
Grand	Yes	In Progress
Iron	Yes	In Progress
Juab	Yes	In Progress
Kane	Yes	In Progress
Millard	Yes	In Progress
Morgan	Yes	In Progress
Piute	Yes	In Progress
Rich	Yes	In Progress
Salt Lake	No	Self-Funded, Will Share Data
San Juan	Yes	In Progress
Sanpete	Yes	In Progress
Sevier	Yes	In Progress
Summit	Yes	In Progress
Tooele	Yes	In Progress
Uintah	Yes	In Progress
Utah	No	Self-Funded, Will Share Data
Wasatch	Yes	In Progress
Washington	Yes	In Progress
Wayne	Yes	In Progress
Weber	Yes	In Progress

EXHIBIT F – UTAH NG9-1-1 PILOT PROJECT NETWORK DIAGRAMS

Greater Wasatch Multi-Node Project
NG911 Network Diagram




ESI Status as of February 2013
Legend
Primary PSAP Connected
Primary PSAP, Connection in Progress
Secondary PSAP Connected
Secondary PSAP, Connection in Progress
Other PSAPs
Area Served by Primary PSAP, Connected to ESI Network
County With Access to ESI Network
Other Primary PSAP Boundaries
CACHE County
RICH County
WEBER County
Weber Area Dispatch 911
MORGAN County
DAVIS County
Bountiful PD
SUMMIT County
SLC PD
SLCC/DPS
UPD
SALT LAKE
Valley Emergency Communications Center
TOOELE County
WASATCH County
DUCHESNE County
UTAH County
JUAB County
SANPETE County
CARBON County
EMERY County