9-1-1 SYSTEM

Introduction

A study of the 9-1-1 system, including an examination of the surcharge in terms of how it is spent and whether it is sufficient and the consequences of Internet telephone service.

9-1-1 is the official national emergency number in the United States and Canada. Dialing 9-1-1 quickly connects the caller to a Public Safety Answering Point (PSAP) dispatcher trained to route the call to local emergency medical, fire, and law enforcement agencies.

The 9-1-1 network is a vital part of our nation's emergency response and disaster preparedness system. Upgrades in the 9-1-1 network to provide emergency help more quickly and effectively are constantly being made. For example, most 9-1-1 systems now automatically report the telephone number and location of 9-1-1 calls made from wireline phones, a capability called Enhanced 9-1-1 or E9-1-1.

There are three types of service levels in South Dakota as shown on the map in Appendix A: Pre-Basic, Basic, and Enhanced. The descriptions of each are:

- Pre-Basic 9-1-1: The PSAP has a call-forward arrangement that forwards the dialed 9-1-1 into the seven or ten digit emergency number at the PSAP and/or may deliver Commercial Caller ID. There are no specialized 9-1-1 equipment or features.

- Basic 9-1-1: When a caller dials 9-1-1, the call is directly connected to the PSAP. However, no call data is delivered, and the equipment at the PSAP could be simply a telephone set.

- Enhanced 9-1-1: Automatic Number Identification (ANI) - When a caller dials 9-1-1, the call is directly connected to the PSAP. The telephone number of the caller is delivered to the PSAP with the 9-1-1 call. The PSAP would have a telephone set and a display module for the telephone number.With Automatic Number Identification and Selective Routing (ANI/SR), the PSAP has a published 9-1-1 number so when a caller dials 9-1-1, the call is directly connected to the PSAP. This service level contains both the call-back number and the ability for the call to be routed to the proper PSAP based on the location of the caller and the appropriate jurisdiction to respond to the emergency call. The PSAP would have a telephone set and a display module for the telephone number. With Automatic Number Identification, Automatic Location Information and Selective Routing (ANI/ALI/SR), the PSAP has a published 9-1-1 emergency number so when a

caller dials 9-1-1, the call is directly connected to the PSAP. This service level contains three enhancements: delivery of the call-back number, the location from which the emergency call was placed, and the ability of the call to be routed to the proper PSAP. The PSAP would have telecommunications equipment such as integrated computer and telephone displays which would enable the personnel to answer and respond to the emergency calls.

It is estimated that of the 150 million calls that were made to 9-1-1 nationally in 2000, 45 million of them were made by wireless telephone users—that's 30 percent. This is a ten-fold increase from nearly 4.3 million wireless 9-1-1 calls just 10 years ago, and the number will more than double to 100 million calls in the next five years. It is anticipated that by 2005, the majority of 9-1-1 calls will be from wireless callers.

Recognizing the need to improve wireless 9-1-1 service, the Federal Communication Commission (FCC) passed rules in 1996 (Report and Order 94-102) that required all wireless carriers to provide pinpoint location information to the PSAPs or 9-1-1 dispatch centers by December 31, 2005. There are two phases to the FCC's 9-1-1 rules:

- Phase I provides the PSAP with the wireless phone call back number. This is important in the event the cell phone call is dropped. Phase I also provides the PSAP with the location of the cell tower that picked up the call. However, the large geographic coverage of most cell towers makes Phase I of minimal benefit to call takers in locating emergency victims or callers. The deadline for Phase I was April 1, 1998 or within 6 months of being requested by the PSAP, whichever comes later.

- Phase II allows call takers to receive both the caller's wireless phone number and specific location information accurate to within 50 to 100 meters, depending on the technology used- handset or network. The deadline for wireless carriers to implement phase II is December 31, 2005. (Handset solution- location technology is embedded into the wireless handset, such as a Global Positioning System (GPS) chip or software modifications. Network solution- location technology is located in the E9-1-1 network and uses triangulation from cell towers to calculate the callers location).

Since most areas of the country will not have wireless E9-1-1 by the December 31, 2005 deadline, Congress is considering legislation that attempts to spur states to implement and sufficiently fund E9-1-1. Proposed legislation would provide matching grants only to those states that have designated a single officer or governmental body as the statewide E9-1-1 coordinator and established an implementation plan. It would also require the FCC to audit states' E9-1-1 funds twice a year in an attempt to make certain that state E9-1-1 funds are distributed to PSAPs.

South Dakota is in the process of taking the necessary steps to be eligible for the federal match grants. South Dakota Association of County Commissioners (SDACC) has undertaken the role of coordinating 9-1-1 services for all counties in South Dakota. SDACC also hired a consultant, Intrado, Inc. to develop a 9-1-1 plan, which provided

county commissioners with the capital and operation costs for deploying wireless Phase II E9-1-1 service in each county.

Intrado, Inc. found that the 9-1-1 service levels varied from Pre-Basic 9-1-1, Basic 9-1-1, and Enhanced 9-1-1 between the 41 public service answering points within South Dakota. The cost to upgrade the PSAPs from their current level to Phase II Wireless is shown below.

Pre-Basic 9-1-1 Service Levels

There are 13 PSAPs serving 83,523 people (11 percent of the population) at this service level.

		Per Capita Costs
Capital outlay:	$2,470,000	$29.57
First year operational costs:	$1,434,770	$17.18
Estimated total cost:	$3,904,770	$46.75
Average cost per PSAP:	$300,367	
Projected annual recurring cost:	$1,045,885	$12.52

Basic 9-1-1 Service Levels

There are 3 PSAPs serving 19,062 people (2.5 percent of the population) at this service level.

		Per Capita Costs
Capital outlay:	$433,000	$22.72
First year operational costs:	$307,498	$16.13
Estimated total cost:	$740,498	$38.85
Average cost per PSAP:	$246,833	
Projected annual recurring cost:	$221,137	$11.60

Enhanced 9-1-1 Service Levels

There are 25 PSAPs serving 652,259 people (86 percent of the population) at this service level.

		Per Capita Costs
Capital outlay:	$4,163,500	$6.38
First year operational costs:	$6,835,088	$10.48
Estimated total cost:	$10,998,588	$16.86
Average cost per PSAP:	$439,944	
Projected annual recurring cost:	$5,402,722	$8.28

Total Costs for Deployment of Wireless Phase II Statewide

There are 41 PSAPs within South Dakota serving a population of 754,844 people.

		Per Capita Costs
Capital outlay:	$7,066,500	$9.36
First year operational costs:	$8,577,356	$11.36
Estimated total cost:	$15,643,856	$20.72
Average cost per PSAP:	$381,557	
Projected annual recurring cost:	$6,669,744	$8.83

A breakdown by PSAP, level of service, and population served can be found in Appendix B.

Voice over the Internet Protocol (VoIP)

Voice over the Internet Protocol (VoIP) allows one to make telephone calls using a computer network, over a data network like the Internet. VoIP converts the voice signal into a digital signal that travels over the internet then converts it back at the other end so the caller can speak to anyone with a regular phone number. When placing a VoIP call using a phone with an adapter, the caller hears a dial tone and dial just as always. VoIP may also allow a caller to make a call directly from a computer using a conventional telephone or a microphone.

The Federal Communications Commission (FCC) has worked to create an environment promoting competition and innovation to benefit consumers. Historically, the FCC has not regulated the Internet or the services provided over it. On February 12, 2004, the FCC found that an entirely Internet-based VoIP service was an unregulated information service. On the same day, the FCC began a broader proceeding to examine what its role should be in this new environment of increased consumer choice and what it can best do to meet its role of safeguarding the public interest.

PSAP's in South Dakota have some major concerns when dealing with the prospect of VoIP becoming a widely used way of communicating. Due to the FCC ruling that found VoIP to be an unregulated information service, South Dakota can not place the same 75 cent surcharge charged on a telephone or wireless line on an Internet bill.

VoIP influences South Dakota in two ways. First VoIP affects the call handling process today, and second VoIP will, at least in the mid-term, potentially affect the revenues collected by local, state, and federal agencies from customer's telephone bills.

Through a unique partnership with the VoIP industry, the National Emergency Number Association (NENA) and the Voice Over the Network coalition (VON) have forged an agreement that covers six key points. This agreement hopes to make the transition to VoIP as smooth as possible.

1. Immediate routing of 9-1-1 callers to the PSAP via the public switched telephone system within three to six months from the date of the agreement. This is an interim measure to resolve the immediate problem of meeting the federal requirement that telephone callers be able to dial 9-1-1 for emergency services.

2. The VoIP provider will coordinate with the local or regional providers when they deploy their service. This is important because the 9-1-1 call takers will often be the first to notice when 9-1-1 calls start coming in through the public switched telephone network and not the 9-1-1 network. The call takers will need to be briefed on what is happening.

3. The VON coalition will actively support NENA and industry work towards an interim solution that includes delivery of VoIP 9-1-1's call through the existing 9-1-1 network, providing call-back number, and in some cases, initial location information.

4. The VON coalition will actively support the NENA and industry work towards long term solutions that include delivery of 9-1-1 calls to the proper PSAP, providing call-back number to the PSAP, providing, location of caller, and ensuring that PSAP's have direct IP connectivity.

5. The VON coalition is working with NENA to develop an administrative approach to maintaining funding of 9-1-1 resources at a level equivalent to those generated by current or funding processes.

6. NENA and the VON coalition are working to develop consumer education projects involving various industry participants and NENA public education members to create suggested materials so that consumers are fully aware of 9-1-1 capabilities and issues.

9-1-1 Emergency Surcharge

In 1989, the South Dakota Legislature adopted SDCL Chapter 34-45, which authorized emergency telephone service (9-1-1) and placed the responsibility for providing the service with local governments. The Legislature allowed local governments to impose a surcharge up to 75 cents per month on telephone lines in South Dakota which provided the funding for 9-1-1.

> 34-45-4. Monthly uniform charge--Use of proceeds. Upon compliance with § 34-45-2, the governing body may impose a monthly uniform charge in an amount not to exceed seventy-five cents per line on each local exchange access line of the governing body's jurisdiction for which the 9-1-1 system will be provided. The proceeds of this charge shall be utilized to pay for nonrecurring and recurring costs of the 9-1-1 related service. No such charge may be imposed upon more than one hundred local exchange access lines or equivalent service, per customer account billed, per month.

Legislation approved in 1992 amended § 34-45-8 to direct that 1 cent of the 75 cents per month surcharge on each phone line be remitted to the South Dakota Coordination Fund, administered by the Division of Emergency Management for support of the 9-1-1 program. This Act was then repealed effective June 30, 1999.

The implementation of a statewide 9-1-1 service would not be successful without the direct participation and guidance from the local exchange carriers and wireless service providers. Currently there are thirty incumbent local exchange carriers and seven wireless carriers in South Dakota. The carriers charge the 9-1-1 emergency surcharge to all subscribers for each telephone or wireless line not to exceed one hundred lines. The local exchange carrier can deduct and retain one percent of the collected amount or twenty-five dollars, whichever amount is greater, each month as the cost of administration for collecting the charge. The current 9-1-1 structure does not provide a cost recovery element for wireless carriers to deploy the necessary infrastructure to bring enhanced 9-1-1 services to the state, similar to the mechanism in place for the wireline companies.

The 9-1-1 emergency surcharge is remitted on a quarterly basis no later than 30 days after the close of the calendar quarter to the local government. The local government is to establish a special fund, apart from the general fund to administer the 9-1-1 program, and the surcharge is subject to an annual review. On a statewide basis, it is estimated that the 9-1-1 emergency surcharge covers 50-60 percent of the costs for implementing the existing 9-1-1 system, with the balance being paid from the local government general fund. The estimated statewide 9-1-1 surcharge collected in 2003 was $5,773,221.

An issue of whether the 9-1-1 emergency surcharge should be collected and remitted to counties by companies who sell wireless handsets and prepaid cards of minutes which allows consumers to make and receive wireless calls has become a concern for counties in the past year. In fact one company has stated that they would no longer collect the surcharge, and plans to request a refund of the 9-1-1 emergency surcharge funds previously remitted because their interpretation of the language in SDCL 34-45-5 and 34-45-6 uses the terms "billings" and "billed service user". This language in their opinion makes this only applicable to customers who receive bills. Their service does not have a billing relationship with their customers, and therefore they contend that the law is not applicable to them.

The Department of Legislative Audit (DLA) has been given the charge of performing audits of local governments. DLA currently performs the audit for all counties in the state and a select number of cities, usually done on a rotating basis.

During an audit a representative sample of all receipts and all disbursements of the local government agency are selected for testing. The audit does not contain specific required audit steps related to the testing of the collection of the E-911 surcharge or the disbursement of the E-911 funds.

If a receipt for the E-911 surcharge was randomly selected for audit testing, the following verifications would be performed.

- DLA would identify what the entity had set as the “monthly uniform charge” for E-911 and verify that the amount received was in agreement with the established rate.

- DLA would review the documentation received with the receipt from the local exchange access company.

- DLA would determine that the receipt was properly coded and recorded to the established “911 Service Fund” of the entity.

If a disbursement (voucher) from the “911 Service Fund” was randomly selected for audit testing, the following verifications would be performed.

- DLA would review the voucher to determine that it was mathematically accurate and contained adequate supporting documentation to support the total voucher.

- DLA would verify that the voucher contained the appropriate approval signatures

- DLA would verify that the voucher was properly coded and recorded to the “911 Service Fund”.

- DLA would verify that the item or service purchased complied with South Dakota Codified Laws 34-45-1, 3 & 4.

South Dakota 9-1-1 Coordinated Statewide System Task Force - 1998

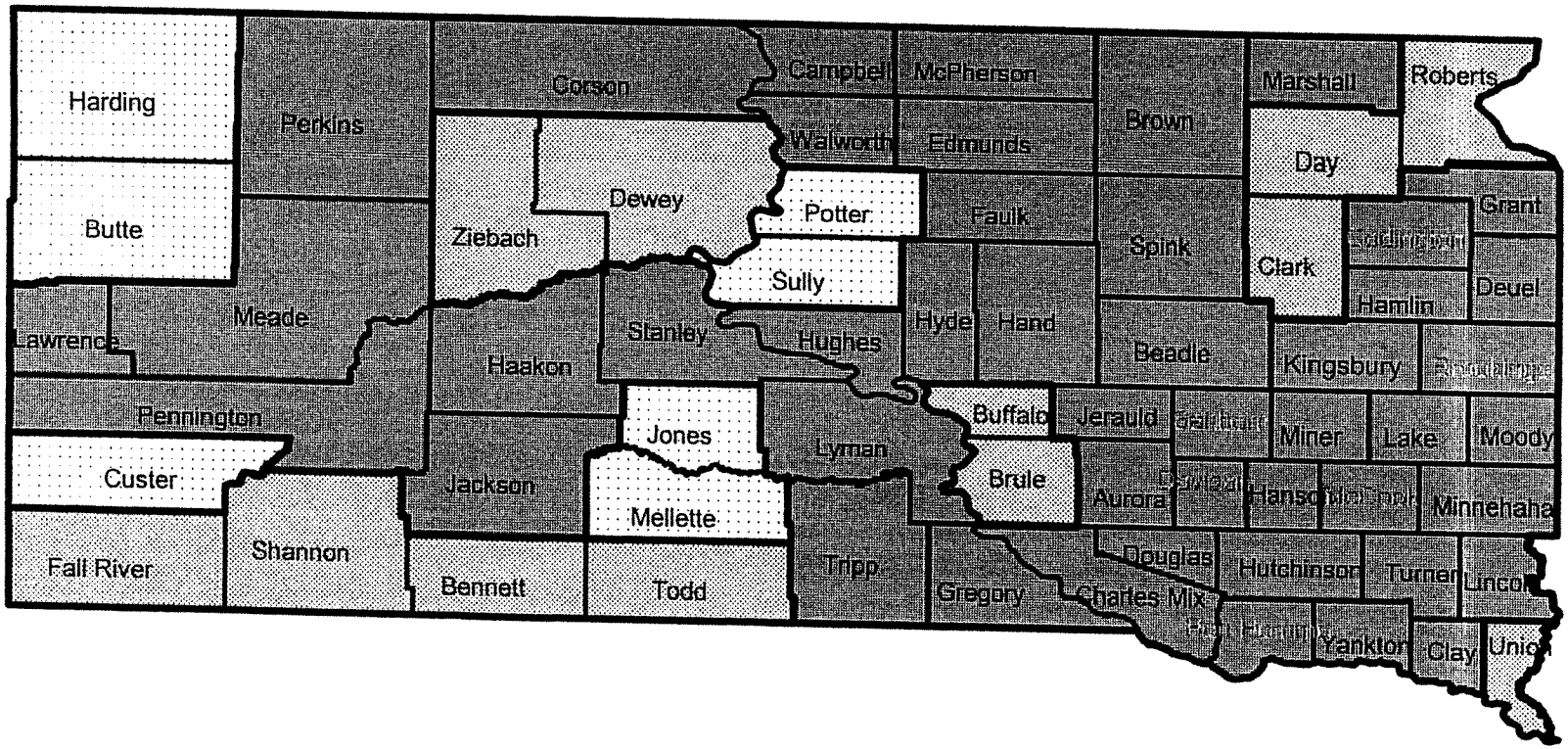
The 1998 Legislature approved legislation to establish a South Dakota 9-1-1 Coordinated Statewide System Task Force. The Task Force was charged with evaluating the current 9-1-1 emergency reporting system in South Dakota, develop a plan for implementation of a coordinated statewide system covering as much of the state as is practicable, and provide recommendations for the implementation, operation, and funding of such a coordinated statewide 9-1-1 system in a report to the Governor. The Executive Summary from the South Dakota 9-1-1 Task Force can be found in Appendix C.

Conclusion

South Dakota's 9-1-1 system is changing due to federal mandates that require states to upgrade their 9-1-1 systems for wireline, wireless, and VoIP. The federal mandates will cost South Dakota counties millions of dollars to upgrade the 41 PSAP's across South Dakota as well ongoing operational costs. These costs will put even more of a burden on already insufficient 9-1-1 funds.

This issue memorandum was written by Aaron Olson, Fiscal Analyst for the Legislative Research Council. It is designed to supply background information on the subject and is not a policy statement made by the Legislative Research Council.

South Dakota 9-1-1 Service Levels



Enhanced- 47 Counties
Pre-Basic- 12 Counties
Basic- 7 Counties

This map outlines the current 9-1-1 service levels of PSAPs serving these counties and may not reflect that level of service for 100 percent of the geographic area served by the primary PSAP.

APPENDIX "A"

Appendix B

PSAP / Agency Name	Level of Service	Population Served ****
Bennett County Sheriff's Office	Pre-Basic	3,574
BIA Law Enforcement Crow Creek Agency	Pre-Basic	2,032
Bon Homme County Sheriff	Enhanced	7,260
Brookings Police Department	Enhanced	28,220
Brown County Regional Communications Center	Enhanced	35,460
Brule County Sheriff's Office	Pre-Basic	5,364
Butte County Dispatch Center	Basic	9,094
Cheyenne River Tribal Police	Pre-Basic	8,491
Clark County Sheriff's Department	Pre-Basic	4,143
Clay County Emg Svc & Communications Center	Enhanced	13,537
Custer County Communications	Basic	7,275
Day County Sheriff's Office	Pre-Basic	6,267***
Deuel County Sheriff's Office	Enhanced	4,498
Douglas/Charles Mix County Sheriff's Office	Enhanced	17,600
Fall River County Sheriff's Office	Pre-Basic	7,453
Grant County	Enhanced	7,847
Huron Police Department	Enhanced	44,174
Kyle Tribal Police Department	Pre-Basic	12,466*
Lake County 9-1-1 Communications	Enhanced	11,276
Lawrance County Sheriff's Office	Enhanced	21,802**
Lincoln County Central Communications	Enhanced	32,980
Marshall County Sheriff's Office	Enhanced	4,576
Meade County Sheriff's Office	Enhanced	24,253
Mellette County	Pre-Basic	2,083
Minor County Dispatch	Enhanced	5,559
Minnehaha Metro Communications	Enhanced	148,281
Mitchell Police Department	Enhanced	38,845
Moody County Sheriff's Department	Enhanced	6,595
North Central Regional E9-1-1	Enhanced	30,519
Pennington County 9-1-1	Enhanced	93,691
Pierre Police Department	Enhanced	23,673
Pine Ridge Tribal Police Department	Pre-Basic	12,466*
Potter County Sheriff's Office	Basic	2,693
Roberts County Sheriff's Department	Pre-Basic	10,016
Rosebud Tribal Police Department	Pre-Basic	9,050
Spearfish Police Department	Enhanced	21,802**
Spink County	Enhanced	10,094
Union County Sheriff Office	Pre-Basic	12,584
Watertown Police Department	Enhanced	31,437***
Winner Police Department	Enhanced	10,325
Yankton Police Department	Enhanced	21,653

* Overlap of Shannon County with Kyle Tribal Police & Pine Ridge Tribal Police Departments

** Overlap of Lawrence County Sheriff Office & Spearfish Police Department

*** Overlap of Day County with Day County Sheriff Office & Watertown Police Department

**** Population numbers based upon the 2002 United States Census Data

EXECUTIVE SUMMARY

The Executive Summary is provided to give the reader a brief synopsis of the legislative directed 9-1-1 study and the process that the Task Force used to arrive at the final recommendations.

The Review Process by the Task Force

The initial meeting of the 9-1-1 Task Force was held on July 22, 1998. Since then, four subsequent meetings were held in Pierre wherein public comment was solicited from PSAP coordinators, law enforcement agencies, county commissioners, and members of the public.

At its first meeting, the members of the 9-1-1 Task Force arrived at certain preliminary decisions with respect to the direction of the inquiry and possible goals and resultant decisions that would be arrived at by the Task Force.

The first issue to be considered was that of statewide 9-1-1 coverage. The Task Force held a unanimous view that universal 9-1-1 service should be available to every person within this state and accessible from any telephone, whether from wireline or wireless.

The Task Force defined "9-1-1" for South Dakota as the coordinated, competent and rapid response to any call for emergency assistance from the public. The Task Force also determined that in the best interest of the citizens of South Dakota there should be acceptable minimum levels of service at every PSAP operating within the state and that, ultimately, all PSAPs should provide enhanced 9-1-1 service (automatic number identification and automatic location identification).

The Task Force technical consultant visited almost every 9-1-1 center within South Dakota to observe its operation and speak with staff regarding issues that they considered relevant. Representatives of the Task Force also met with county commissioners at their annual meeting in Sioux Falls, and visited some of the local PSAPs.

During the Task Force hearings, detailed discussions were conducted regarding the role of PSAPs in South Dakota, the desirability of universal 9-1-1 service within the state, and the current and future roles of State Radio Communications as their operation affects the 9-1-1 centers.

There is no coordinated, coherent, uniform 9-1-1 system within the State of South Dakota presently. The problem is compounded by a lack of any interoperable radio communications system, except for the current low-band facilities operated by State Radio Communications.

As a result of extensive discussions among Task Force members and public participants at the hearings, the Task Force arrived at certain conclusions and findings. Recommendations based upon such findings are included in this report.

9-1-1 Issues

During the course of its study and deliberation, the Task Force was confronted with a number of significant issues that were raised by PSAP administrators, as well as county representatives and the public. These issues included:

- Is the answering and dispatch of calls a local jurisdictional issue within cities or counties that cannot or should not be delegated to other agencies;

- Is the answering and dispatch of calls a local prerogative of law enforcement and emergency response agencies;

- Can a county or municipal government refuse to participate in a 9-1-1 system and dispatch their calls for service;

- Do the county residents have a right to determine who dispatches their police, fire and other medical emergency calls;

- Does each County have a right to determine whether they wish to fund a 9-1-1 center;

- Should 9-1-1 revenues be utilized to supplement other staff functions, such as jail and administrative, secretarial, and clerical duties.

- The Legislature decided ten years ago that the provision of 9-1-1 service was a local issue and should not involve state participation. The establishment of a surcharge amount is a local taxpayer issue that involves the raising of funds for local law enforcement operations.

TASK FORCE RECOMMENDATIONS

The Task Force adopted by unanimous vote, the following recommendations:

1. There is a current and immediate need for a statewide integrated and coordinated interoperable public safety communications network. This system would provide voice, data, and radio communications links to all responding agencies that deliver emergency services within South Dakota. The network should allow a PSAP to communicate with any emergency responder within the geographic boundaries served by such PSAP. The network should also provide for communications between PSAPs, and between responding agencies who render assistance outside of their normal jurisdiction.

2. The State of South Dakota should integrate telecommunications functions and facilities of those agencies that currently operate their own systems into one cohesive and integrated network. These agencies should include State Radio Communications, Bureau of Information and Telecommunications (BIT), Division of Emergency Management, Public Broadcasting (SDPB), Department of Transportation (DOT), and the Highway Patrol.

3. Enhanced 9-1-1 services should be available from every telephone in South Dakota. All wireline and wireless customers should reach an E-9-1-1 center when they initiate a request for emergency services, by dialing 9-1-1.

4. The provisioning and delivery of all Enhanced 9-1-1 services and facilities within the State should conform to minimum technical, operational, and procedural standards, as determined by a statewide 9-1-1 governing body.

5. Universal statewide access to Enhanced 9-1-1 services can be provided by a fewer number of currently operational and planned Public Safety Answering Points, without causing any loss or degradation in the quality and level of service presently received by the public.

6. There is a present need for a Comprehensive Telecommunications Plan to facilitate and optimize the structure and utilization of statewide integrated telecommunications networks and services.

   Such a plan should consider and encompass current and future communications technology, the development of technical and operational standards for such a network, oversight of Public Safety Answering Points, and relevant regulatory issues.

The Executive Branch of government should be responsible for developing such a plan by September 1, 1999. This would provide sufficient time for research, planning, public hearings, input, and revision of the final plan and report, prior to the Year 2000 legislative session.

7. The Comprehensive Telecommunications Plan should be reviewed by the 9-1-1 Task Force or similar group to reflect a divergence of interests and perspectives, in order to insure that all users of such services are represented.

8. The Comprehensive Telecommunications Plan should propose one or more model configurations for the consolidation of Enhanced 9-1-1 centers throughout South Dakota and for the provision of service to areas not presently served by a 9-1-1 center. For each proposed location, a detailed cost benefit analysis should be provided that analyzes the geographic, technical, economic, and quality of service issues that would result from such consolidation of one or more PSAPs.

9. Each PSAP should be required to obtain a full audit report on 9-1-1 traffic from US West Communications, and to provide that information to the Task Force and Office of Governor, for the completion of the Comprehensive Telecommunications Plan.