SB

55

HOUSE COMMITTEE REPORT

(11)
Date Referred: March 1, 1995 FURTHER REFERRALS:

Date of Committee Action: 3/20/95

The FINANCE Committee considered: SB 55

SENATE BILL NO. 55 REPEALING SUNSET OF ENHANCED 911 SYSTEM

"An Act repealing the sunset of the enhanced 911 emergency reporting systems."

recommends it be replaced with the following committee substitute _____ [ ] the same title [ ] a new title

[ ] additional referral to _____ Committee
[ ] attached amendment(s)

ADOPTS: _____ Letter of Intent

ATTACHES NEW FISCAL NOTE(s): (Dept) APPROVES PREVIOUS: (Dept/Date)

[ ] fiscal note(s) _____ [ ] fiscal note(s) _____

[ ] zero fiscal note(s) _____ [✓] zero fiscal note(s) DCED 2/3/95
DPS 2/3/95
DHSS 2/3/95

SIGNING WITH RECOMMENDATIONS		DP	DNP	NR	AM
	MULDER	✓			
	MARTIN			✓	
	PANNELL				X
	Kohring	X			
	Grussendorf				X
	BROWN				✓
	NAVARRE				✓
	Kelly	✓			
	Thomas	X			
	FOSTER			X	
	Hanley	X			

CO CHAIR'S SIGNATURE _____ _____

FISCAL NOTE

No. 1

Bill Version: SB55

(S) Publish Date: 2/3/95

STATE OF ALASKA
1995 LEGISLATIVE SESSION

Revision Date:

Title: "An Act repealing the sunset of the enhanced 911 emergency reporting systems."

Sponsor: Senator Torgerson

Requestor: 1

Department Affected: Commerce and Economic Development

BRU: Alaska Public Utilities Commission

Component:

COMPONENT SERIAL NO. 364

Expenditures/Revenues: (Thousands of Dollars)

OPERATING EXPENDITURES	FY 96	FY 97	FY 98	FY 99	FY 00	FY 01
PERSONAL SERVICES	0	0	0	0	0	0
TRAVEL	0	0	0	0	0	0
CONTRACTUAL	0	0	0	0	0	0
SUPPLIES	0	0	0	0	0	0
EQUIPMENT	0	0	0	0	0	0
LAND & STRUCTURES	0	0	0	0	0	0
GRANTS, CLAIMS	0	0	0	0	0	0
MISCELLANEOUS	0	0	0	0	0	0
TOTAL OPERATING	0	0	0	0	0	0
CAPITAL EXPENDITURES	0	0	0	0	0	0
CHANGE IN REVENUES ( )	0	0	0	0	0	0

FUND SOURCE (Thousands of Dollars)

1002 Federal Receipts	0	0	0	0	0	0
1003 GF Match	0	0	0	0	0	0
1004 GF	0	0	0	0	0	0
1005 GF/Program Receipts	0	0	0	0	0	0
1006 GF/MHTIA	0	0	0	0	0	0
Other	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0

Estimate of current year (FY 95) cost: $ 0

POSITIONS

FULL-TIME	0	0	0	0	0	0
PART-TIME	0	0	0	0	0	0
TEMPORARY	0	0	0	0	0	0

ANALYSIS: (Attach a separate page if necessary.)

Prepared by: Robert A. Lohr, Executive Director
Division: Alaska Public Utilities Commission

Phone: 276-6222
Date: 1/27/95

Approved by Commissioner: William L. Hensley
Agency: Commerce and Economic Development

Date: 1/27/95

PREPARER TO PROVIDE ALL DISTRIBUTION COPIES TO GOVERNOR'S LEGISLATIVE OFFICE
For further distribution information call the Governor's Legislative Office

Rev 10/94/GB/dgl345fn.gb

FISCAL NOTE

STATE OF ALASKA
1995 LEGISLATIVE SESSION

BILL ... No. 2
Bill Version: SB55
(S) Publish Date: 2/3/95

Revision Date: _____ Dept. Affected: Public Safety
Title: Repeal Sunset of Enhanced 911 System DPS Statewide Support
Component: Commissioner's Office
Sponsor: Torgerson
Requestor: (S) Labor and Commerce COMPONENT SERIAL NO. 0523

EXPENDITURES/REVENUES: (Thousands of Dollars) (inflation not included)

OPERATING	FY 96	FY 97	FY 98	FY 99	FY 00	FY 01
PERSONAL SERVICES						
TRAVEL						
CONTRACTUAL						
SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	-0-	-0-	-0-	-0-	-0-	-0-
CAPITAL EXPENDITURES	-0-	-0-	-0-	-0-	-0-	-0-
CHANGE IN REVENUES ( ) Revenue Code	-0-	-0-	-0-	-0-	-0-	-0-

FUNDING: (Thousands of Dollars)

1002 Federal Receipts						
1003 GF Match						
1004 GF						
1005 GF/Program Receipts						
1006 GF/MHTIA						
Other						
TOTAL	-0-	-0-	-0-	-0-	-0-	-0-

Estimate of current year (FY 95) impact: $ _____

POSITIONS:

FULL-TIME	0	0	0	0	0	0
PART-TIME	0	0	0	0	0	0
TEMPORARY	0	0	0	0	0	0

ANALYSIS: (Attach a separate page if necessary.)
No significant impact is anticipated to the department.

Prepared By: Lee Ann Lucas, Special Assistant to the Commissioner Phone: 465-4322
Division: Commissioner's Office Date: 1/30/95
Approved by Commissioner: Ronald L. Otte Date: 1/30/95 1-30-95
Agency: Ronald L. Otte, Dept. of Public Safety

PREPARER TO PROVIDE ALL DISTRIBUTION COPIES TO GOVERNOR'S LEGISLATIVE OFFICE
For further distribution information call the Governor's Legislative Office

Rev 11/94

No. 3

STATE OF ALASKA
1995 LEGISLATIVE SESSION

Bill Version: SB 55
(S) Publish Date: 2/3/95

Revision Date:
Title: An act repealing the sunset of the enhanced 911 emergency report system
Sponsor: Torgorsen
Requestor: Senate L&C

Dept. Affected: Health and Social Services
BRU: State Health Services
Component: EMS Training & Licensing
COMPONENT SERIAL NO. 297
See also (SN#):

Expenditures/Revenues: (Thousands of Dollars)

OPERATING	FY96	FY97	FY98	FY99	FY00	FY01
PERSONAL SERVICES						
TRAVEL						
CONTRACTUAL						
SUPPLIES						
EQUIPMENT						
LAND & STRUCTURES						
GRANTS, CLAIMS						
MISCELLANEOUS						
TOTAL OPERATING	0.0	0.0	0.0	0.0	0.0	0.0
CAPITAL EXPENDITURES						
CHANGES IN REVENUES ( )						

FUND SOURCE (Thousands of Dollars)

FUND SOURCE	FY96	FY97	FY98	FY99	FY00	FY01
1002 Federal Receipts						
1003 GF Match						
1004 GF						
1005 GF/Program Receipts						
1008 GF/MHTIA						
Other (please specify)						
TOTAL	0.0	0.0	0.0	0.0	0.0	0.0

POSITIONS:

POSITIONS	FY96	FY97	FY98	FY99	FY00	FY01
FULL-TIME						
PART-TIME						
TEMPORARY						

Estimate of any current year (FY95) cost: $0.0

ANALYSIS: (Attach a separate page if necessary)

This bill repeals the sunset clause of the 1993 Legislation which enabled cities and boroughs to collect surcharges on telephone bills to pay for the establishment, funding, use, operation and maintenance of enhanced 911 emergency systems. There is no fiscal impact on the state for this tax collection.

Prepared by: Peter M. Nakamura, MD, MPH
Phone: (907) 465-3090
Division: Public Health
Date: 01/31/95
Approved by Commissioner: Karen Perdue, Commissioner
Date: 2/1/95
Agency: Department of Health & Social Services

PREPARER TO PROVIDE ALL DISTRIBUTION COPIES TO GOVERNOR'S LEGISLATIVE OFFICE
For further distribution information, call the Govenor's Legislative Office

Rev 1/95 ... /OAS_DHSS

ROLL CALL
HOUSE FINANCE COMMITTEE

MEETING OF 3/20/95

SUBJECT Amendment 1
SB 55

MEMBER	YES	NO
NAVARRE	✓	
PARNELL		✓
THERRIAULT		✓
BROWN	✓	
GRUSSENDORF	✓	
KELLY		✓
KOHRING		✓
MARTIN	—	✓
MULDER		✓
HANLEY		✓
FOSTER	—	
TOTAL		

PASSED: 3

FAILED: ~~6~~ 7

Failed 3-7

9-LS0541\A.3
Cramer
3/17/95

AMENDMENT

OFFERED IN THE HOUSE BY REPRESENTATIVE BROWN

TO: SB 55

Page 1, line 1, after "**Act**":

Insert "**relating to the enhanced 911 emergency reporting systems and**"

Page 1, after line 2:

Insert new bill sections to read:

"* **Section 1.** AS 29.35.137(1) is amended to read:

(1) "**911 service area**" or "**enhanced 911 service area**" means the **area** within a municipality's jurisdiction that has been designated to receive **basic or** enhanced 911 service; the designation of an area to receive **a basic or** [AN] enhanced 911 system under AS 29.35.131(a) does not designate the area as a "service area" for purposes of art. X, sec. 5, Constitution of the State of Alaska;

* Sec. 2. AS 29.35.137(2) is amended to read:

(2) "enhanced 911 equipment" means the equipment dedicated to the operation of, or use in, the establishment, operation, or maintenance of **a basic or** [AN] enhanced 911 system, including customer premises equipment, automatic number identification or automatic location identification controllers and display units, printers, cathode ray tubes, recorders, software, and other essential communication equipment required by the system;"

Page 1, line 3:

Delete "**Section 1.**"

Insert "**Sec. 3.**"

9-LS0936\A
Cramer
3/17/95

HOUSE CONCURRENT RESOLUTION NO.

IN THE LEGISLATURE OF THE STATE OF ALASKA

NINETEENTH LEGISLATURE - FIRST SESSION

BY REPRESENTATIVE BROWN

Introduced:
Referred:

A RESOLUTION

Suspending Uniform Rules 24(c), 35, 41(b), and 42(e) of the Alaska State Legislature concerning Senate Bill No. 55, relating to enhanced 911 emergency reporting systems.

BE IT RESOLVED BY THE LEGISLATURE OF THE STATE OF ALASKA:

That under Rule 54 of the Uniform Rules of the Alaska State Legislature, the provisions of Rules 24(c), 35, 41(b), and 42(e) of the Uniform Rules, regarding changes to the title of a bill, are suspended in consideration of Senate Bill No. 55, relating to enhanced 911 emergency reporting systems.

Alaska State Legislature

SENATOR
JOHN TORGERSON
DISTRICT D

SESSION ADDRESS
STATE CAPITOL, ROOM 427
JUNEAU, ALASKA 99801-1182
(907) 465-2828
FAX (907) 465-4779

Senate

S.B. 55 - SPONSOR STATEMENT

This bill repeals the delayed Amendment provisions of the enhanced 911 emergency reporting systems, as enacted in 1993.

The legislation adopted in 1993 (SB 97) was supported by many groups and organizations across Alaska, including the Alaska Fire Chiefs Association, the Anchorage Police Department, the Anchorage Telephone Utility, and the Kenai Peninsula Borough.

The 1993 legislation (SB 97) was amended in the House so that the surcharge provisions of the bill would sunset in three years - July 1, 1996. As I understand it, the amendment was intended to allow for a state wide planning effort by the Telecommunications Information Council (TIC). (The amendment was also supported by the sponsor, who viewed it as a "pilot program" and the sunset allowed for review of the value of the "program".)

My review of the minutes and packets of the TIC (and it's appointed Emergency Communications Task Group - ECTG) indicates that they are reviewing the possibility of federal and/or state funding for enhanced 911 systems.

At this point in time, I suggest that a funding source for such a state wide system is remote. But at the same time, there are enhanced 911 systems in the state which are operating, and need to be assured of the ability to assess a surcharge to ensure those operations.

Those systems have proven to be a viable and critical service. In my district, the Kenai Peninsula Borough, we have put the system in place and it is well received and supported by the public.

This bill, SB 55, removes the "sunset" provisions of the 1993 legislation. The effect of this is to allow municipalities to continue to impose a surcharge for 911 services after July 1, 1996, which in turns provides for this critical service in those areas which employ the enhanced 911 service.

Alaska State Legislature

SENATOR
JOHN TORGERSON
DISTRICT D

SESSION ADDRESS
STATE CAPITOL, ROOM 427
JUNEAU, ALASKA 99801-1182
(907) 465-2828
FAX (907) 465-4779

Senate

DATE: February 9, 1995

RE: **Bill Analysis : Senate Bill 55 - Enhanced 911 systems**

This bill repeals three sections of 1993 SLA CH. 57 - the enhanced 911 systems legislation, (Sections 5, 6, and 8.)

Section 5: the language shown below in bold **will be deleted on July 1, 1996.**

A municipality may, by resolution or ordinance, elect to provide an enhanced 911 system at public safety answering points and may purchase or lease the enhanced 911 equipment or service required to establish or maintain an enhanced 911 system at public safety answering points from a local exchange telephone company or other qualified vendor, **and may impose a 911 surcharge, in an amount to be determined by the municipality, on all local exchange access lines in the area to be served by the enhanced 911 system. For a municipality with a population of 100,000 or more, the surcharge may not exceed 50 cents per month per local exchange access line. For a municipality with fewer than 100,000 people, the surcharge may not exceed 75 cents per month per local exchange access lines. For a municipality with fewer than 100,000 people, the surcharge may not exceed 75 cents per month per local exchange access line .** The area served by a system may be all of a city, all of a unified municipality, or all or part of the area within a borough and may include the extraterritorial jurisdiction of a municipality in accordance with AS 29.35.020.
The governing body of a municipality shall review the 911 surcharge annually to determine whether the current level of the surcharge is adequate, excessive, or insufficient to meet anticipated enhanced 911 system needs. The municipality may only use the surcharge for the enhanced 911 system.

SB 55 REPEALS THIS DELAYED AMENDMENT, SO THAT THE LANGUAGE STAYS .

Section 6: There were six subsections in the original legislation which **will be repealed in their entirety on July 1, 1996.**

Five of the subsections are in AS 29.35.131, subsections (b), (c) , (d), (e), (f), as shown in the attached copy of 1993 SLA CH. 57.

Section 6 also repealed AS 29.35.137 (4) , a definition which also is shown in the attached copy of the SLA.

SB 55 REPEALS THE DELAYED AMENDMENTS WHICH DELETE THESE SUBSECTIONS ON JULY 1, 1996. THE EFFECT OF SB 55 IS THAT THESE SECTIONS WOULD STILL BE LAW.

(3) Section 8 of the original legislation states that Sections 5 and 6 of the legislation (the sections making the delayed amendments to (a) and deleting (b) thru (f)) take effect July 1, 1996. This is actually the "sunset" provision of the legislation.

SB 55 REPEALS THIS SECTION WITH THE SUNSET TIME FRAME OF JULY 1, 1996, WHICH IN TURN IMPLEMENTS THE DELAYED AMENDMENTS OF SECTIONS 5 AND 6 OF THE LEGISLATION.

The effect of SB 55 then, is to repeal the language which, in effect, "repealed" certain portions of the enhanced 911 system authorization on July 1, 1996.

Fairbanks North Star Borough
809 Pioneer Road P.O. Box 71267 Fairbanks, Alaska 99707-1267 907/459-1000

February 24, 1995

The Honorable Jake Lestenkof
Adjutant General
Department of Military and
Veterans Affairs
P. O. Box 5800
Ft. Richardson, AK 99505-0800

Dear General Lestenkof,

I just received a copy of a letter dated February 2, 1995, by Mr. Jim Harpring, Communications Officer for DMVA, to Representative Kay Brown. In his letter, Mr. Harpring provides comments on Senate Bill No. 55 sponsored by Senator John Torgerson which extends certain lapse dates on Enhanced 911 emergency communication systems. Senate Bill No. 55 has already passed the Senate and is in the House. It is my understanding that because of Mr. Harpring's letter, Representative Brown has asked for another hearing in House Finance on this bill.

The Fairbanks North Star Borough supports Senator Torgerson's bill as written and we have serious concerns with Mr. Harpring's recommendations, especially his suggestions of APUC oversight and funding issues for local and statewide E911 systems. Simply put, if Mr. Harpring believes that our 80,000 residents in the Fairbanks North Star Borough are going to pay 8% - 15% of their revenue for an E911 emergency communication system for the rest of Alaska, he is just plain nuts.

I am not saying a statewide E911 system doesn't have some merit, providing, of course, the Governor wishes to make it a legislative priority. However, I don't believe Senate Bill No. 55 is the appropriate vehicle to propose such an idea. If

the Governor wishes to propose such a concept as a statewide E911 system, he should do it, perhaps, at a later date.

The Fairbanks North Star Borough Assembly has adopted the report and recommendations from our consultant, The Warner Group, as presented in the Enhanced 9-1-1 Telephone System and Central Emergency Dispatch System Strategic Plan. With support from my administration and the community, the Fairbanks North Star Borough Assembly recently appropriated funds to implement the plan. Revenue for the implementation is generated from the $.75 per line surcharge which has been collected since January 1, 1994.

The Fairbanks North Star Borough strongly encourages passage of Senate Bill 55 in order to provide continuation of authority to collect the surcharge beyond June 30, 1996, so the E911 System can be dependably maintained after installation. It is expected that we will reduce the surcharge to a level sufficient to cover the lower annual operating expenses once the capital costs have been met.

Let me address some of the specific recommendations in Mr. Harpring's letter.

The concept of taking a significant percentage of locally generated E911 surcharge funds for a statewide project may have some serious repercussions. What would stop state government from then demanding a small percentage of property tax, bed tax, or sales tax for some other worthwhile project with statewide implications? It seems totally inappropriate to siphon locally generated funds, originally intended as a local surcharge, for the needs of other municipalities, i.e., a general statewide telephone tax. The safety of other Alaskan residents, as provided through an E911 system, must be addressed through some other funding mechanism.

Well over half of the state's current population will have an E911 system within the next 1.5 years. The remainder of the state, under the leadership of the individual municipality, currently has authority to collect a surcharge to bring E911 into their individual communities, if they desire. If the proposed state telephone tax is intended to support every community, are there emergency response agencies in *every* community? One should also take into consideration the number of phones and population to determine cost effectiveness of investing in an E911 system for every community in Alaska.

Contrary to statements made by Mr. Harpring, the Fairbanks North Star Borough does not anticipate any overlapping jurisdictional problems. Our local E911 system will incorporate all three civilian telephone systems, i.e., Fairbanks Municipal Utilities System (FMUS), Pacific Telecommunications, Inc. (PTI), and

Summit Telephone Company. Representatives from all three companies serve on the local E911 Advisory Committee. Technology permits *any* 911 call from *anywhere* within the Fairbanks North Star Borough to be routed to the primary PSAP established under the upcoming project.

Mr. Harpring may have confused the issue of an E911 with that of dispatching emergency services. Although many people feel that an E911 system and dispatch responsibilities should be conducted under one agency, the state E911 surcharge law restricts revenue to implementing and operating just the E911 component. An E911 system is intended to collect vital information through the use of telephone company databases, telephone lines, and computers. It is up to the local governments to decide how this information will be used, i.e., how its local emergency services will be dispatched and how the E911 information will be used to support the responding fire/police/ambulances.

Fiduciary oversight should remain with local government. The Fairbanks North Star Borough is committed to proper oversight of funds generated by the surcharge program. Surcharge funds cannot be used for any other purpose except to fund acquisition and implementation of the E911 system and annual recurring expenses directly related to the system. We have identified these recurring costs to include hardware/software maintenance, telephone line charges, and frequent updating of databases.

Introducing the APUC in fiduciary oversight may not be possible since certain telephone companies, like FMUS, are not under the regulatory control of the APUC. The Fairbanks North Star Borough surcharge account and distribution of funds will be audited as part of annual external audit requirement, results of which are available to anyone.

Finally, the Fairbanks North Star Borough intends to work with its consultant to address the issue of overflow of E911 calls during serious emergencies, a similar process which already occurs between the Municipality of Anchorage and Fort Richardson. According to The Warner Group, providing for overflow back-up is quite feasible as is the sharing of ANI information between E911 systems in, for example, the Fairbanks North Star Borough and the Matanuska-Susitna Borough. However, the sharing of ALI information between areas of the state will be considerably more complicated.

The concept of redundant systems which can operate during disasters is very important. That is why William Shechter, Fairbanks North Star Borough Emergency Manager, is available to work on a statewide E911 Master Plan with DMVA should you so desire. However, it is just as important to realize that,

depending on the nature of the disaster, one's phone company may be destroyed to the point of being completely inoperative for incoming or outgoing calls.

In summary, I mean no disrespect of Mr. Harpring or his concepts. But let's not goof up a relatively straightforward piece of legislation supported by probably every municipality in Alaska.

With kind personal regards, I am

Sincerely yours,

Jim Sampson
Borough Mayor

JS:rlf

cc: Pat Pourchot, Legislative Liaison, Office of the Governor
Senator John Torgerson
Representative Kay Brown
Tom Moyer, Fairbanks Director, Office of the Governor
Hank Hove, Fairbanks North Star Borough Assembly
Linda Anderson, FNSB Legislative Liaison
Nadine Winters, Special Assistant to the Mayor

KENAI PENINSULA BOROUGH
144 N. BINKLEY · SOLDOTNA, ALASKA · 99669-7599
BUSINESS (907) 262-4441 FAX (907) 262-1892

February 23, 1995

DON GILMAN
MAYOR

Senator John Torgerson
Alaska State Legislature
State Capitol, Room 427
Juneau AK 99801-1182

Dear Senator Torgerson:

The Kenai Peninsula Borough supports your legislation repealing the sunset date of July 1, 1996. As stated in a prior position statement, the Kenai Peninsula Borough Assembly upon recommendation of the Borough administration, established the repeal of the sunset as one of its legislative priorities for 1995.

We have made a quick review of the recommendations that the Alaska Division of Emergency Services made in a letter to Representative Kay Brown. Without specific comment back from the KPB 9-1-1 Advisory Board, which has not had an opportunity to review these recommendations, we offer these general comments.

We feel it would be in the best interest of the State to get the present E 9-1-1 users and other technical specialists together after the passage of this present legislation to look at some of the recommendations being made in the letter to Representative Brown. As presently proposed, we cannot support a statewide E-9-1-1 system. The current user charge that we have in place for Kenai Peninsula Borough residents should not be used to fund another area of the State -- this is not a tax!

If the State wants to have statewide E-9-1-1 responsibility, then along with it they will have the liability for a poor response or system failure. Keep what we have presently in place and then, if we are going to try to develop a statewide capability, get the jurisdictions and agencies at the local level to come together to discuss these issues.

We support the present legislation and encourage you not to support any amendments to the bill at this time.

Sincerely,

Ross Kinney

Ross Kinney
Administrative Officer

Homer
Volunteer
Fire
Department

604 east pioneer avenue
homer, alaska 99603
907/235-3155
fax 907/235-3157

Senator John Torgerson
State Capital, Room 427
Juneau, Alaska 99801-1182

February 23, 1995

Dear Senator Torgerson:

I would like to comment on the proposed E-911 legislation on behalf of myself and Mike Daugherty the Director of Public Safety.

Homer is very strong supporter of the E-911 system and we support your legislation to remove the sunset on the funding mechanism. We also have some specific concerns about some proposed amendments that have come to our attention.

We are not prepared to support a statewide E-911 system as proposed. Existing E-911 systems should not be "taxed" to fund services in other areas. Current E-911 charges are a local fee for service not a State revenue. If the State wishes to support the expansion of E-911 it should do so with it's general funds or some sort of statewide fee or assessment. That funding should be made available equitably to all E-911 systems including existing systems.

The issue of standardization of equipment and protocols can be easily addressed by consensus standards. National standards exist and are being adopted by the local E-911 systems. A simple ad-hoc committee composed of the existing E-911 systems including the telephone companies that provide the technologies can handle this issue. The State's role should be limited to simply encouraging the local E-911 systems to adopt these standards and protocols unless the State chooses to become involved in directly funding the installation and operations of the systems.

The issue of fiduciary oversight is simply not a State responsibility unless the State chooses to provide the service. The issue of APUC oversight has already been addressed and does not need to be revisited.

We encourage you to not support amendments to the bill that create a greater State role in E-911 until the need for such a role is clearly identified at the grass roots level as a consensus among current and future E-911 systems.

Sincerely,

Robert Paul Purcell
Fire Chief

TONY KNOWLES, GOVERNOR

DEPARTMENT OF MILITARY
AND VETERANS AFFAIRS
ALASKA DIVISION OF EMERGENCY SERVICES

PO BOX 5750
FT. RICHARDSON, AK 99505-5750
PHONE: (907) 428-7000

February 2, 1995

The Honorable Kay Brown
Alaska House of Representatives
Room 517
State Capitol
Juneau, Alaska 99801-1182

Dear Representative Brown:

I appreciate the opportunity to comment on the current Enhanced 9-1-1 (E-911) legislation and provide some options for consideration to improve it.

By examining the background history of the legislation it is immediately apparent that there is a definite need for this service and that the current legislation was long overdue. My understanding of the background history is as follows:

Background History:

As you may remember, the original E-911 legislation was necessary because the limited basic 911 (B-911) service available in a few of the larger urban areas did not adequately support their emergency response needs.

The original E-911 proposal was drafted by the Anchorage Telephone Utility (ATU) in 1990-1991 because ATU's six year old B-911 Alive Corporation System could not be maintained. In fact, the Alive Corporation went out of business shortly after they installed the B-911 system for the Municipality of Anchorage (MOA).

Essentially, in support of the original legislation, ATU proposed modification of their DMS100 Centrex switching concept to accommodate an E-911 service. They proposed special Automatic Call Distribution (ACD) instruments with Video Display Terminals (VDT) be installed at the Anchorage Police Department (APD), Anchorage Fire Department (AFD) and the Alaska State Trooper (AST) Dispatch Centers. APD would act as the primary Public Safety Answering Point (PSAP) and AFT and AST dispatch centers as secondary PSAPs or (SPSAPs). Under ATU's proposal all E-911 calls for the Anchorage area would first be routed to APD for screening and routing. ATU proposed paying for this upgrade via

a monthly phone line surcharge because at that time 37 other states were funding their E-911 overhead mandates using this methodology.

Following ATUs original proposal, they sought support from DMVA for the E-911 concept described above. Senator Pierce supported ATU's first initiative; however, she did not introduce the legislation until 1992. A total of three bills, SB-97, HB-166 and HB-142, were introduced in support of E-911.

In May 1992 Commissioner Cox authored a letter to Mr. Kevin O'Leary, Chief of Police, MOA, outlining the Department's concerns with the E-911 proposed legislation. In essence, his concerns and reservations were: (a) funding of the system; (b) lack of mandated standardization amongst common carriers and local telephone exchange companies; (c) lack of addressing an overall concept for PSAPs and SPSAPs, and; (d) standardization of the programming protocol. While most of these concerns were basically workable, the single major point of concern was the lack of specificity in the legislation on exactly how the State would transition to a statewide E-911 system. The transition to a statewide concept was never addressed and the legislation was passed.

In essence, the current legislation is extremely attractive to the urban areas. It is funding neutral from the State appropriations perspective, it provides a service that the majority of the populcus desires and, because of technology, i.e., the Automatic Number Identification (ANI) and Automatic Location Identification (ALI), complements all facets of emergency service response. Although the initial legislation is functional, my concerns are that the legislation does not address the following:

- **No provisions are provided for a statewide E-911 service.** Since there are no provisions, each community can design their own E-911 protocol. This is commendable from a legislative perspective; however, what happens when, following a disaster, a community's E-911 service is pre-empted and all E-911 calls go unanswered because of the lack of a statewide standardized SPSAP transition protocol.

RECOMMENDATION: Amend the current legislation to provide for a long range plan for a statewide E-911 service.

- **There are no incentives for small independent telephone exchanges supporting rural areas to implement the service.** Since the payment of costs for E-911 services is basically left to the local jurisdictions, the primary emphasis for evoking an E-911 service is, by default, an urban responsibility.

Only the urban areas can currently support the high start-up cost and acquire the needed revenue for the reoccurring cost associated with this service. Currently, the MOA and the Kenai Peninsula Borough (KPB) have implemented the E-911 service. The Matanuska-Susitna Borough (MSB) and the Fairbanks North Star Borough's (FNSB) are in the process of implementing the service. These communities are all supported by large urban based populations, have basically only a few local exchange common carrier service providers, and have centrally controlled emergency service response.

In essence, the urban areas implementing the E-911 concept is a self fulfilling prophecy. A need is identified, funds are acquired, the system is implemented, it operates as designed, and a service is rendered. However, no one has taken the initiative to question the requirement for an overall statewide response -- especially as it affects the small rural areas. What happens if an emergency call originates immediately outside the E-911 exchange area or the rural system's B-911 system is pre-empted because of equipment failure and no one answers the phone when you request an emergency response.

The situation experienced with the B-911 service at Healy, AK in September 1993 should be an indication of how vulnerable the State is when a statewide E-911/911 concept has not been correctly addressed and provisions made to accommodate the citizens and tourist needs.

As you may remember, Golden Valley Electric (GVE) was dispatching for the various emergency services in the Healy area prior to 1993. After review of this policy by GVE's legal counsel, GVE elected not to continue to assume the responsibilities for B-911 dispatch in this area of the State. After discussion with the Division of Telecommunications (DIS), a determination was made that dispatch personnel at the University of Fairbanks (UAF) would assume this responsibility and DIS would back-hall the 911 traffic from the Healy area via the State microwave to UAF. Mr. Libby, Deputy Commissioner, DOA, objected to this concept because no Department had budgeted for this additional DIS communications responsibility.

Again, if a statewide 911 plan had been available, the meetings and agreements necessitated by the Healy incident may have been averted.

Compounding this rural service funding issue is the overlapping of emergency response service areas and the overlapping of services provided by various tariff local exchange providers.

Currently, emergency response jurisdictions overlap local telephone exchange tariff areas. In fact, the MOA and the KPB have geographical areas where the ALI and ANI information must be provided to another emergency service response provider after the emergency information is initially provided to their central dispatch.

In the KPB alone there are five local telephone exchange providers inputting into the E-911 system which in-turn supports numerous types of emergency response providers. Some of these providers are contacted via individual pager systems, i.e., small rural volunteer fire departments, some are contacted directly from a central dispatch location via VHF base stations and repeaters, while others use the State paging system.

When the MSB and FNSB's implement their E-911 concept, they will also have to deal with this overlapping jurisdictional responsibility.

RECOMMENDATION: Amend the current legislation to allow for a portion of all E-911 funds generated from all jurisdictional areas to be placed in a central escrow account. Administration of the account would be maintained by an E-911 Committee. The Committee would be chaired by one of the Departments having emergency response accountability. The revenue could then be used by rural communities as "seed money" to implement their B-911 requirements and possibly an E-911 service. These communities could only borrow from the account based upon a proposal for basic or enhanced 9-1-1 service. The funds distributed would be via a non interest bearing State loan to the community.

The E-911 Committee members could be selected from the communities that have already implemented an E-911 service, from the Legislature and from commercial communications providers.

After reviewing the source funding for the communities that have implemented the E-911 service, I feel that, after implementing their service, these communities could afford to divert 8-15 percent of their 911 revenue into this account. This funding transition could take place within three to four years after the initial service was operational and the cost stabilized.

- **Standardization of equipment is not addressed in the current legislation.** I do not endorse a sole source procurement concept to standardize the interface equipment amongst the 25 plus local exchange carriers. I do endorse the existing standards specified by committees such as Associated Public-Safety Communications Officers (APCO) 911 Standards, National Association of State 911 Administrators (NASNA) and

the 1992 Americans with Disabilities Act (ADA)/Telecommunications Devices for the Deaf (TDD). Through a statewide standardization of terminal equipment and uniformity of the ALI/ANI internal protocols for the PBX/Centrex equipment, all citizens would benefit.

RECOMMENDATION: Establish a requirement that E-911 systems be mutually complementary in their ability to reroute emergency information between existing and upgraded Centrex and PBX systems.

- **The current legislation does not address any fiduciary oversight of the funds generated as a result of the revenue acquired from this service.** In fact, the current legislation is so vague, that cost normally associated with obtaining and maintaining the services are left to the discretion of the local jurisdiction. The APUC does not regulate this service, cap the cost, nor, are they in any way involved in the charges passed on to the E-911 service provider by the local exchange carrier.

As an example, the Kenai Borough has been assessed a yearly reoccurring cost of approximately $46,600 by their local telephone exchange provider. This "access line update charge" is for the updating the ALI and ANI information. Is this a reasonable charge? Under the current legislation it is because no authority is empowered to challenge these costs.

Additionally, how much revenue is required to maintain an E-911 system after it is fully operational? The current legislation fails to mandate or provide guidance for audit of the system. Nor does it provide for a public record detailing the operational cost; therefore, over a period of time, the revenues collected to support the service may possibly be viewed as discretionary. In fact, the only reference to audit of the E-911 surcharge addresses the, "... remittance of the 911 surcharge." ("The municipality may, at its own expense, require an annual audit of a local exchange telephone company's books and records concerning the collection and remittance of the 911 surcharge".)

RECOMMENDATION: Require the APUC to regulate and audit the cost associated with the revenues generated and costs incurred to maintain the E-911 service.

Since Alaska's E-911 legislation was modeled after New Mexico's E-911, I feel the State could learn from their initiative. Oversight of cost was addressed in their legislation.

As I have discussed previously with you, the need for the E-911 service is absolutely necessary. However, hearings should be scheduled to address these and possibly other concerns. The current legislation is a start, but with any initiative of this magnitude, change is inevitable. Since this legislation affects each and everyone of us on a daily basis, I encourage you to provide the necessary forum for public comment.

If I can be of any further assistance please feel free to contact me at (907) 428-7011.

Sincerely,

JH:lf

Jim Harpring
Communications Officer

TONY KNOWLES, GOVERNOR

DEPARTMENT OF MILITARY AND VETERANS AFFAIRS

P.O. BOX 5800
FORT RICHARDSON, AK 99505-5800
PHONE: (907) 428-6000

OFFICE OF THE COMMISSIONER

February 2, 1995

FEB 9 1995

The Honorable Kay Brown
Alaska House of Representatives
Room 517
State Capitol
Juneau, Alaska 99801-1182

Dear Representative Brown:

Please find enclosed Mr. Jim Harpring's recommendations concerning the current Enhanced 9-1-1 legislation you requested.

As previously stated by Commissioner Cox, DMVA is very supportive of the statewide 911 concept. Through legislative initiatives we have the opportunity to revisit SB-97 and attempt to address some of language that will make this concept more attractive to the rural communities.

If DMVA can be of any further assistance, please feel free to contact me or Mr. Ervin Paul Martin, Director, DES, concerning the statewide 911 concept.

Sincerely,

Jake Lestenkof
Commissioner

JL:JH:lf
Enclosure: as stated

c:\msoffice\harpring\911leg.doc

L.2.k

KENAI PENINSULA BOROUGH
144 N. BINKLEY • SOLDOTNA, ALASKA • 99669-7599
BUSINESS (907) 262-4441 FAX (907) 262-1892

DON GILMAN
MAYOR

POSITION STATEMENT - SB 55

REPEALING THE SUNSET FOR THE ENHANCED 911 EMERGENCY REPORTING SYSTEMS

The Kenai Peninsula Borough supports Senate Bill 55 as introduced on January 26, 1995, by Senator Torgerson. This bill amends AS 29.35.131 by repealing the sunset date of July 1, 1996; thereby allowing municipalities to continue to collect and administer a surcharge for E-911 services.

The Borough switched over to an enhanced 911 system in October 1993. The surcharge provides additional funding that is required for operation of the enhanced portion of the system. If no State legislation is passed to repeal the sunset date, it will be extremely difficult for municipalities to provide and fund E-911 services.

Upon recommendation of the Borough administration, the Kenai Peninsula Borough Assembly established the repeal of the sunset as one of its highest legislative priorities for 1995. We seek your support in passage of this legislation to allow us and other municipalities to continue serving the public with this much needed service. We appreciate your consideration of Senate Bill 55 and are ready to provide you with any assistance or information you may require.

Kenai Peninsula Borough

By: Bonnie Golden
for Don Gilman, Borough Mayor

February 1, 1995
Date

820 Glacier Avenue • Juneau, Alaska 99801
Telephone (907) 586-5322
Fax (907) 586-8323

1 February 1995

Senator John Torgerson
State Capitol Room 427
Juneau Alaska, 99801-1182

Subject: Senate Bill 55

Dear Senator Torgerson

Capital City Fire/Rescue and the Juneau Police Department support your efforts to remove the "sunset" provisions of the amendment to SB97(1993) that eliminates the surcharge provisions on 1 July 1996.

The City/Borough of Juneau is presently in the process of converting the Public Safety Dispatch program to an Enhanced 911 system. Continued funding is vital to the successful completion and operation of this project. As federal or state funding for enhanced 911 systems is a remote possibility, the CBJ needs to be assured of the ability to continue to assess a surcharge as needed.

Your introduction of this legislation and support for this vital and critical public safety service is greatly appreciated.

Sincerely,

Charles E. Lundfelt
Fire Chief

cc: Mark Palesh, City Manager
Richard Gummow, Juneau Police Department
Clark Gruening, Gruening & Spitzfaden
Chief Billy Harris, President, Alaska Fire Chiefs Association

Municipality of Anchorage

P.O. Box 196650
Anchorage, Alaska 99519-6650
Telephone: (907) 343-4431
Fax: (907) 343-4991

Rick Mystrom, Mayor

OFFICE OF THE MAYOR

February 6, 1995

Senator John Torgerson
Alaska State Legislature
State Capitol
Juneau, AK 99801-1182

Dear Senator Torgerson:

The Municipality of Anchorage strongly supports Senate Bill No. 55, "An Act repealing the sunset of the enhanced 911 emergency reporting systems."

It has been our experience that enhanced 911 emergency reporting is truly life saving technology for rapid response of police, fire, or emergency medical services. The funding of this service through a telephone bill surcharge is a cost effective method of allowing the Municipality of Anchorage to make this service available.

We urge passage of this legislation so municipalities throughout the state can continue to provide this vital service.

Sincerely,

Rick Mystrom
Mayor

Fairbanks North Star Borough
809 Pioneer Road P.O. Box 71267 Fairbanks, Alaska 99707-1267 907/459-1000

February 15, 1995

The Honorable John Torgerson
Alaska State Legislature
State Capitol
Juneau, AK 99801-1182

Dear Senator Torgerson,

I am writing to you to express my appreciation for your efforts in introducing Senate Bill No. 55, which repeals certain sunset provisions of enhanced 911 legislation passed by the Alaska Legislature in 1993.

There is perhaps no more important service government can provide its citizens than emergency medical services and basic public safety reporting systems. Senate Bill 55 allows local municipalities around Alaska to continue to provide enhanced 911 capabilities not only in the development and installation of these systems, but most importantly the yearly operational costs of these systems. The Fairbanks North Star Borough appreciates your hard work and efforts on our behalf and on behalf of all municipalities in Alaska.

With kind personal regards, I am

Sincerely yours,

Jim Sampson
Mayor

JS:rlf

cc: Don Gilman, Mayor, Kenai Peninsula Borough
Kevin Ritchie, Executive Director, Alaska Municipal League

MARK S. JOHNSON, MPA; ROBERT TREDWELL, PhD

Rural EMS Communications

Many parts of rural America still lack the most basic EMS access, dispatch and medical-control communications systems.

TWO VEHICLES COLLIDE HEAD-ON ALONG AN ISOLATED TWO-LANE highway, 20 miles from the nearest town, resulting in serious injuries to the occupants. A passing motorist, recognizing the seriousness of the incident, drives several miles down the road to find a telephone. Upon locating one, he discovers there's no 911 central emergency access number, so he calls the operator to request assistance on reporting the emergency. Precious minutes are wasted as the operator tries to determine which emergency-response agencies to contact.

Approximately 20 minutes later, an ambulance squad arrives at the scene of the crash, and the crew quickly discovers there are four seriously injured victims and that extra help will be needed at the scene. Unfortunately, the EMTs are out of radio range and can't contact dispatch, so they ask another bystander to drive to a telephone to make the call. In the meantime, they begin assessing and treating the injured victims. Ordinarily, they would call the receiving hospital to report the severity of the injuries and request treatment instructions, but, once again, they're out of radio range. This means they must initiate treatment without on-line medical control. Depending on their area of jurisdiction and level of certification, they may or may not be able to initiate ALS procedures without it.

—Mark S. Johnson, MPA, is chief of the Emergency Medical Services Section of the Alaska Department of Health and Social Services and chairman of the National Association of State EMS Directors Communications Committee. Robert Tredwell, PhD, is former EMS director for Maine and currently a consultant to the National Association of State EMS Directors.

They load the two most critical patients into the ambulance. Several more minutes pass before the second ambulance arrives on the scene. The first ambulance crew reports on its assessment of the other two victims and then leaves the scene to head for the hospital. The crew drives several miles before finally being able to contact the hospital on the radio to report the condition and estimated arrival time of the victims. Because the receiving hospital is a small rural facility, its staff relies on on-call physicians to cover the ED. The on-call physician is immediately contacted, but she doesn't arrive at the hospital until several minutes after the first ambulance gets there. When she discovers that there are four injured victims, she solicits assistance from another on-call physician and contacts the regional trauma center to request an air ambulance. By the time the second on-call physician arrives at the hospital, one of the victims has succumbed to her injuries.

Is this scenario possible only in the most extremely isolated rural areas of the United States?

Unfortunately, it can occur in many parts of rural America.

On May 7, 1990, the National Association of State EMS Directors (NASEMSD) hosted a meeting in Washington, DC, that focused on ways to improve or expand EMS communications in suburban, rural and wilderness settings. Invited participants included state EMS directors, state telecommunications staff members and experts from a wide range of public and private organizations with expertise in rural EMS communications issues. This meeting was funded through a grant from the U.S. Department of Transportation, National Highway Traffic Safety Administration.

Although some EMS communications problems are common to both urban and rural areas, there are specific problems in some rural areas, including delayed access to the EMS system, slower response times and lack of EMS radio-system coverage. According to a survey conducted by the NASEMSD Communications Committee in 1988, 31 states reported lack of EMS radio-system coverage or radio-dead spots in some rural areas. Depending on the geographic area and available resources, a variety of possible solutions may be appropriate to solve these problems.

RURAL SETTINGS

Small population, sparse settlement and remoteness are characteristics intuitively associated with "rural," but they exist on a continuum.[1]

As defined by the U.S. Bureau of the Census, rural areas are the remaining areas that are not captured in Census' urban definitions or in the U.S. Office of Management and Budget's "Metropolitan Statistical Areas (MSAs)." The Census definition of "rural" includes residents of small towns and cities, but excludes those living in towns with larger than 2,500 people, many of whom might be considered rural by those living in more urbanized areas. On the other hand, MSAs can include areas that are sparsely populated and could

be considered rural because metropolitan areas may have significant variations within the MSA. About 40% of the Census-defined rural population lives within MSAs, and about 14% of the MSA population live in Census-defined rural areas.[1]

To help clear up some of this confusion for health program planners, the National Rural Health Association has proposed a classification system that includes four types of rural areas:[1]

1. Adjacent rural areas—counties contiguous to or within MSAs that are very similar to their urban neighbors;
2. Urbanized rural areas—counties with 2,500 or more residents, but distant from an MSA;
3. Frontier areas—counties with population densities of less than 6 persons per square mile;
4. Countryside rural areas—the remainder of the country not covered by other rural designations.

Note: Alaska has less than one person per square mile, so it is primarily a wilderness area, which may be considered a fifth category.

When planning for rural EMS communications systems, such factors as population density, geography, availability of road systems and distances to medical-treatment facilities should be taken into account when determining what types of communications technology are most appropriate and cost-effective.

ACCESS TO THE EMS SYSTEM

Statewide 911 Emergency Access Numbers. The primary advantage of a 911 central access number is that callers have one easy-to-remember number to use to access emergency services in a given geographic area. They don't have to look up a variety of numbers, thereby saving valuable time.

Universal access to emergency services via 911 has been mandated in 14 states, but statewide 911 access to EMS is actually available in only a few states (California, Connecticut, Delaware, Maryland, Rhode Island, Minnesota and Oregon).[2] Twenty-nine other states were at least half covered by 911 access, as of 1990 (see *Table I*). Unfortunately, 911 central emergency access numbers still do not exist in many parts of rural America.

U.S. 911 systems generally fall into three groups, and each has optional features:

Basic. The telephone company has arranged lines so that all calls from a single area or prefix are made into a central location, known as a public-safety answering point (PSAP).

Expanded. (This isn't a commonly used term.); automatic number identification (ANI). The telephone number from where the call is originating appears on the call-taker's screen.

Enhanced. ANI *plus* automatic location identification (ALI). In addition to the telephone number, the address of the calling party is displayed on the screen at the call-taker's position. Dispatch is also able to tell whether the call originates from a residence, business or coin phone, and there's a code for each proper response provider. All calls are selectively routed to a single PSAP.

There are "mini" enhanced systems known by several names: SALI, which is an acronym for stand-alone ALI, and CALLS, an acronym for caller's address location system. With the CALLS system, the address is in an on-premise personal computer and is taken from telephone-company billing records. CALLS has more screen area in which to insert directions for reaching the house/business.

The telephone-company switching office must have the necessary equipment to handle enhanced systems. Without street addresses, enhanced 911 systems cannot provide information to quickly locate callers, costing valuable lifesaving seconds of response time. This can be a significant problem in rural areas. The full benefits of selective routing and ALI features can be achieved only with comprehensive address information.

Highway Call Boxes. Along remote stretches of rural highways or freeways, motorists who must drive to the nearest telephone to report a vehicle crash or another medical emergency use up valuable time. To reduce emergency reporting times, several states have installed call boxes along highways. Florida, for example, has installed totally self-contained, user-powered call boxes, located about 1 mile apart on both sides of interstates, at a cost of about $20,000 per mile (or $10,000 per call box). There are 1,782 call boxes along 920 miles of interstate highways.

911 coverage

EMS editors polled state EMS offices when compiling statistics for the annual Buyer's Guide to determine what percentage of their population is covered by 911. The results follow.

State	Percentage
Alabama	60
Alaska	90
Arizona	85% by population
Arkansas	25-50
California	100
Colorado	85
Connecticut	100
Delaware	100
District of Columbia	100
Florida	98.5
Georgia	64
Hawaii	95
Idaho	63
Illinois	57
Indiana	49
Iowa	Not available
Kansas	50% area, 80% by population
Kentucky	45
Louisiana	Unknown/perhaps 50
Maine	25
Maryland	100
Massachusetts	38
Michigan	60
Minnesota	100
Mississippi	50-60
Missouri	61
Montana	Not available
Nebraska	65
Nevada	85
New Hampshire	20
New Jersey	20; rest have operator intercept. Implementation of E-911 under way.
New Mexico	75
New York	75
North Carolina	60
North Dakota	33
Ohio	25
Oklahoma	30
Oregon	95
Pennsylvania	60
Rhode Island	100
South Carolina	50
South Dakota	60
Tennessee	83
Texas	60
Utah	85
Vermont	20
Virginia	70
Washington	40
West Virginia	35
Wisconsin	50
Wyoming	97
Virgin Islands	100 (922 phone number)

When a citizen needs to report an emergency, he pulls a handle that cranks a spring inside the call box and turns a small generator to provide power for the call. The boxes are very rugged and have been used for about 15 years, featuring short-burst, coded messages, not two-way voice.

Experience in Florida has demonstrated that about 45%–55% of the calls received are service calls, 20%–25% are police calls, 1%–2% are medical calls and about 20%–25% are subsequently canceled.

The caller can choose the type of message to be sent and, after 1 minute, a second message can be sent (for example, one police call and one ambulance call). There is no mechanism for fire calls in the system. Calls are distributed to the appropriate Highway Patrol stations throughout the state.

Each box is tested every 2 months, and about 15% typically need work, with about 6% nonfunctional. If the call box isn't working, the confirmation light on the box won't come on. Maintenance on these boxes averages about $60 per year, per box.

There are also other types of call boxes on the market, including cellular trunked systems, which are used in California, or highway call boxes that utilize microwave relays to 911 answering centers, as used in Alaska.

MEDICAL CONTROL/DISPATCH

EMS communications systems differ from their police and fire counterparts because emergency-care providers must be able to communicate with dispatchers and hospitals to get treatment instructions and to alert receiving hospitals as to the number, condition and estimated arrival times of patients. States have taken different approaches to this problem.

VHF Radio Systems. A common approach in rural EMS communications is to rely on VHF (very high frequency) high-band radios, which enable line-of-sight communications (approximately 15 miles' range on flat terrain). VHF systems are simplex systems, meaning that the radios can send a message in only one direction at a time. Since EMS frequencies currently (as of early 1991) are licensed by the Federal Communications Commission (FCC) in the Special Emergency Radio Service (SERS), repeaters are not allowed, resulting in some range limitations in rural areas. Other factors that affect the range include power output and antenna height. SERS frequencies are also shared in many areas with school buses, beach patrols or other SERS-eligible services, which may result in frequency congestion or interference problems.

To prevent interference or monitoring of medical communications by unrelated agencies, many EMS services have installed some type of coded squelch system in ambulances, dispatch centers and receiving hospitals.

UHF Radio Systems. In other areas, EMS communications systems use UHF (ultra high frequency) radio systems. UHF systems may be full duplex systems, meaning that the radios can send and receive messages simultaneously.

The FCC has designated 10 UHF medical channels within the UHF spectrum in the Special Emergency Radio Service. A licensee is authorized to use all 10 frequencies and, although these frequencies generally don't have as long a range as VHF frequencies, they can penetrate buildings better, which is a benefit in more urbanized areas. Mobile relay or repeater stations may be used to extend range, and coded squelch systems are typically used.

Radio Telephone Switching Systems. Other states have opted for systems through which ambulance crews can talk to staff at dispatch centers and hospitals well beyond the normal ranges of VHF and UHF radio systems. Alabama, for example, interfaces its EMS radios—typically, UHF radios—with telephone lines using a radio telephone switching system (RTSS). Separate codes are used for each county and each hospital. This system greatly expands the ranges of the EMS radios in areas served by telephone lines.

The RTSS is designed to be simple and easy to use, as basic as talking on the telephone. It's also durable and able to perform all necessary functions required by EMS agencies.

The RTSS is full duplex, capable of transmitting an EKG signal and, at the same time, provides physician/paramedic interrupt capabilities. The paramedic is able to transmit an EKG and simultaneously talk over the strip, giving the physician full control at all times.

Alabama uses four UHF MED channels in each RTSS base station and the first three letters in the spelling of the county for access (e.g., Tuscaloosa—TUS). This captures the receiver of the RTSS base station and transmits a simulated dial tone back to the portable radio. Once the paramedic receives this dial tone, he then presses the RE-LO (regional—local speed dial); if he needs to talk with the regional hospital, he simply touches the "*" button. If he needs the local hospital, he touches the "#" key. The speed dial then dials the selected hospital. If the paramedic speed-dials the regional hospital and, after stabilizing the patient the regional physician wants to talk with the local hospital, all the paramedic needs to do to create a conference call is to touch the "LO" (for local) button, which contacts the local physician. After the two doctors and the paramedic talk, the physicians will decide where to transport the patient. If, at any time, either physician wants to get another opinion, the paramedic can press the line not being used and dial any number, anywhere, for assistance.

Alabama has been using the RTSS since the mid-1970s. Areas with strong medical control have experienced few or no problems. In areas where medical control leaves something to be desired, there have been some problems. The most rural areas of the state have been experimenting with portable radios using half duplex. This has solved some problems in getting paramedics to support the system. Paramedics have many items to carry and, when using the full duplex box, find weight to be a problem. The hand-held portable makes it easier; however, users give up some of the system capabilities: full duplex and the physician/paramedic interrupt.

Alabama EMS continues to try to improve the RTSS and, at the same time, to look for other ways to accomplish medical-control communications.

Mountaintop Relays. Idaho interfaces with EMS radios with mountaintop microwave base stations linked to a statewide dispatch center in Boise, which is able to monitor every EMS radio transmission in the state. This center dispatches several rural ambulance services and quick-response units (first responders). It can provide back-up communications for all ambulance services, can patch together radio and telephone networks, and can coordinate multiple-casualty disaster responses, hazardous-materials responses, search and rescues, and many other emergency-response functions.

Mountaintop relay systems also exist in other states, including Nevada, Northern California and New Mexico.

Microwave Relays. Alaska interfaces EMS radios with microwave relays along major highways, extending EMS radio-communications ranges hun-

dreds of miles by converting the radio frequencies into telephone frequencies and back to radio frequencies on the receiving end. The microwave relays can accommodate a wide variety of radio systems for state and local emergency-service agencies, including EMS, state police, emergency (disaster) services, forest-fire-fighting crews and road-maintenance crews, among others. This system also uses satellite telephone relays in some areas.

The Maryland EMS Communications System has two parts: EMSTEL (the EMS telephone) and the EMSCS (EMS communications system). EMSTEL is in transition from a system that used dedicated, wired telephone lines to one relying on a backbone microwave system. Ambulance transmissions are relayed to county 911 dispatch centers over the UHF MED frequencies and are then patched through to hospitals on EMSTEL and microwave systems.

800-MHz Public-Safety Trunked Systems. The FCC has designated the Associated Public-Safety Communications Officers (APCO) to plan and coordinate the 800-MHz public-safety radio frequencies (821–824 MHz and 866–869 MHz). When the FCC opened these frequencies for development, a National Public Safety Planning Advisory Committee was formed to propose ways in which this spectrum might be efficiently used. This committee issued a report that the FCC adopted, calling for the formation of an advisory committee in each state and territory, as well as in a few large metropolitan regions. The regional advisory committees were charged with developing a regional plan, and the FCC agreed to license users in the 800-MHz public-safety frequency bands only if they complied with the regional plan for their area. It's very important for EMS agencies to be represented on these advisory committees to ensure that EMS needs are addressed. As of early 1991, 16 regional plans have been accepted by the FCC. These are primarily in urban areas where frequency congestion is heaviest.

These 800-MHz public-safety plans include provisions for radio-frequency trunking. Trunking enables more efficient use of the radio-frequency spectrum and reduces interference from users competing for the same frequencies. A trunked system is like the queues that many airlines use at ticket counters, where all passengers form a single line and the next available ticket agent calls the person at the front of the queue. The advantage of this system is that it tends to narrow the range of delays experienced by the quickest- and slowest-served customers or users. In a supermarket (where the single queue method isn't used), if someone in front of a line ties up the cashier for a long time, everyone else in that line waits, while other lines may move ahead more quickly. In the airline queue system, customers in line are taken by other servers or agents as they become available.

In a trunked radio system, a call to one hospital (e.g., St. Elsewhere) is put through, usually by a computer, on the first available frequency; the next call

(e.g., General Hospital) gets through on the next available frequency, and so on. Once one call is completed, that frequency is freed up and goes back into the pool of available frequencies. This eliminates the need for the emergency-care provider to try different frequencies until an available one is found.

Because of its advantages in reducing frequency congestion, trunking is an attractive technical solution to a number of emergency-service radio problems. It is now permitted by the FCC and being used in the 800-MHz band, but the technology exists for other frequency-band trunking, including the UHF bands. To date, the FCC has not authorized trunking in the UHF band.

In addition, 800-MHz systems cannot use mobile repeaters, creating a problem for EMS responders who need medical-control radio communications at the patient's side, inside a building.

Another problem is that manufacturers use different architecture or protocols within their radio equipment. Thus, if one manufacturer's system is used in one service area and another manufacturer's system is used in a neighboring service area, EMS responders in the two areas can't communicate with each other on their trunked systems.

The regional 800-MHz plans must contain provisions for updates and revisions. EMS agencies should ensure that future needs are accounted for in the revision's formula.

Although 800-MHz trunking offers a viable solution to frequency-congestion problems, which are most prevalent in urban areas, the major drawback to 800-MHz radio systems for rural areas is the limited range of these frequencies, so many more repeaters are typically needed to cover a given geographic area. This significantly increases the costs of providing 800-MHz radio systems in rural areas. For this reason, VHF and UHF radio systems will probably continue to be used in rural areas in the foreseeable future.

Land Mobile Satellite Communications. In remote rural areas, especially in several sparsely populated western states, providing EMS radio-communications coverage can be extremely expensive, requiring many relay towers and base-station repeaters. A promising new alternative to terrestrial radio systems for these areas is land mobile satellite communications. Several national and international companies have entered this field, and digital radio satellite data communications systems are available on the market today, often used by major trucking fleets for vehicle tracking and scheduling.

Satellites will permit ubiquitous coverage of virtually all of North America, except for a few areas that may be "shadowed" by mountains, depending on the angle to the satellite from any given place on the ground.

New technology enables mobile satellite antennas, which are omnidirectional. This means it's no longer necessary to have a large satellite dish aimed at a fixed point in the sky. These omni-

continued on page 65

continued from page 22

directional antennas are small and lightweight, and can be placed on ambulances, aircraft or even on backpacks of search-and-rescue teams.

With this new technology, voice, data and picture images can be transmitted. These systems can also be tied into regular telephone networks. Within a few years, virtually the entire world could be covered by land mobile satellite communications, using either radios or cellular telephones.

The speed at which this new technology will be adopted by emergency services will probably depend on the initial cost of the equipment, plus fees for each call on the satellite.

Cellular Telephone. Cellular telephones are becoming very popular in most urban areas in North America, and cellular systems are beginning to spread to rural areas in many states. Most rural areas still don't have good cellular-telephone coverage because the cost of providing it is often too great, relative to the potential return. Cellular systems require numerous stations (cells), and the cost to provide complete coverage in rural areas is very high. For this reason, cellular has developed first in large market areas and will probably gradually spread to suburban and rural areas.

Some of the advantages of cellular telephones for EMS communications include an alternative means of communication in radio-dead spot areas, ease of use and easy access to the regular telephone system, and duplex (two-way) voice communications. Cellular systems can also provide mobile 911 emergency access.

A disadvantage of cellular telephones for EMS is that dedicated lines usually aren't available, and cellular systems can become overloaded, especially during disaster situations. And, during multiple-casualty incidents or major disasters, it can be operationally difficult to coordinate multiple cellular-telephone users in the field.

Many EMS professionals believe cellular telephones can be a good supplement to EMS communications, but they should not be relied upon exclusively.

Coded Squelch and Other Selective Calling. When different emergency services in a given geographic area share the same radio frequencies, a coded squelch system is often used to alleviate interference and confusion. The VHF Marine Band Channel 16 is an example of an open squelch system. When one person transmits on channel 16, everyone else tuned in to that channel within radio range can hear the transmission. For EMS and other emergency services, it isn't desirable to have anyone hear a transmission, other than the person intended to receive the message. Thus, a coded squelch system may be used to alert the intended receiver, while blocking the transmission to unintended receivers, even if they are tuned to the sending radio frequency (or channel).

There are two basic types of coded squelch: tone-coded and digital. Other less effective means of coding include

single-tone access and touch-tone. These are generally used to alert a station that a mobile is calling. Each type of coded squelch or access type is incompatible with others, and if a wide-area system is desired, it will be necessary to use a common method. It's important that state EMS communications plans address this problem and that coded squelch systems are coordinated, to provide for intercommunications and to reduce interference. Selective calling systems aren't regulated by the FCC, and local coordination is essential, as well as coordination of the use of frequencies and channels.

If codes aren't coordinated, it's possible for two different services to be using the same codes on the same frequencies, thereby hearing each other's transmissions—or even worse, responding to a transmission or receiving instructions intended for someone else.

AEROMEDICAL FREQUENCIES

With the growing number of helicopter and fixed-wing aeromedical services nationwide, there's a need for air-to-ground radio frequencies to enable communication between aircraft and hospitals, and between aircraft and ground ambulance services, when aeromedical services respond to emergencies.

Under current FCC regulations (Part 90), aircraft public-safety transmissions are secondary to ground-service transmissions. Generally, radio frequencies available to land mobile services can be used on aircraft, with some restrictions established by the FCC in Section 90.423 of its rules and regulations. Whenever an aircraft uses a radio frequency, it's like using an extremely high transmitting/receiving tower, and it can interfere with other communications on that frequency over a wide area. Consequently, there's a need for more dedicated EMS air-to-ground frequencies.

This issue needs to be addressed as the FCC considers a petition for establishment of an Emergency Medical Radio Service under Part 90 of the FCC rules and regulations.

RADIO-FREQUENCY MANAGEMENT

Radio frequencies in the United States are regulated by the Federal Communications Commission. Two main radio services affecting public safety and EMS are:

1. The public-safety radio services, including specific channels and radio frequencies for the police radio service, the fire radio service, local government radio service, highway maintenance radio service and the forestry-conservation radio service;

2. The special emergency radio service, including frequencies for medical services, rescue organizations, the physically handicapped, veterinarians, beach patrols, disaster relief organizations, school buses and emergency repair of public communications facilities.

Currently, EMS radio systems are licensed under the special emergency radio service, including:

- 20 VHF low-band frequencies in the 33-MHz to 47.66-MHz band;
- 13 VHF high-band frequencies in

the 155-MHz band;

- 10 paging-only frequencies in the 33-MHz and 450-MHz bands;
- 10 UHF medical-only channels in the 462–463-MHz and 467–468-MHz bands;
- 800-MHz channels on a shared basis with other public-safety trunked radio services.

In spring 1990, the International Municipal Signal Association (IMSA) and the International Association of Fire Chiefs (IAFC) filed a petition with the FCC for a separate emergency medical radio service, to be included within the public-safety radio service. It requested restriction for EMS use of the 10 UHF medical channels, five of the VHF high-band channels, conversion of four UHF paging channels to full two-way channels and continued eligibility for EMS access to the other remaining special emergency radio service frequencies. This petition was developed in cooperation with the National Association of State EMS Directors.

IMSA and IAFC, along with the National Association of Business and Educational Radio (NABER), are currently the FCC-designated frequency coordinators for the special emergency radio service. Under the new petition, IMSA and IAFC would be the frequency coordinators for the new EMS radio service, and NABER would be the frequency coordinator for the SERS. IMSA also currently coordinates the fire radio service frequencies in the public-safety radio service.

APCO currently coordinates the police radio service, the local government radio service and the 800-MHz public-safety radio service, using local advisers to help coordinate these frequencies. APCO has endorsed the IMSA/IAFC petition for an emergency medical radio service.

There have been numerous reports of EMS radio-frequency congestion problems in both urban and rural areas. With designation of a separate EMS radio service, many people think this problem will be alleviated somewhat, but not completely solved.

With new digital technology being developed, new radios will be able to utilize narrower frequency bands, therefore significantly increasing the number of frequencies available within each band; however, converting to this new technology will require costly replacement of existing radios by EMS agencies.

It is hoped by many in the EMS field that all states will develop comprehensive EMS radio-communications plans, and that these plans will be used by the FCC and its frequency coordinators in the future when licensing EMS radio frequencies.

STATE EMS COMMUNICATIONS PLANS

A survey of all U.S. states and territories by the National Association of State EMS Directors in 1988 revealed that 46 states had at least partial EMS communications plans, seven had no plan and two didn't respond.[3] Of those with plans, 41 addressed the UHF MED channels and 37 addressed VHF

high-band frequencies. Eleven addressed VHF low-band frequencies, six addressed radio telephone switching systems (RTSS), 14 addressed air-ambulance frequencies, and eight were in the process of addressing 800-MHz public-safety frequencies. Twenty-three states and territories reported EMS dispatcher-training programs at least in some areas, 27 did not have any EMS dispatcher training, and five states or territories didn't respond.[4]

Many parts of rural America still lack the most basic EMS access.

The obvious conclusion from these surveys is that most state EMS programs didn't have comprehensive EMS communications plans to address all current problems and to plan for future EMS communications system development. For this reason, the NASEMSD Communications Committee is holding workshops this year to assist states in evaluating current EMS communications plans and to identify issues to be addressed in developing or updating these plans.

CONCLUSION

Many parts of rural America still lack the most basic EMS access, dispatch and medical-control communications systems. There's a wide variety of technological solutions available. Depending on factors such as geography and demographics, some technologies may be more appropriate or cost-effective than others to meet the needs of any particular area.

A very important impediment to developing effective EMS communications systems is the lack of sufficient radio channels, both in the VHF and UHF portions of the spectrum. Another significant problem is lack of funding. It's imperative that steps be taken to work with the FCC to secure additional channels and to explore local, state and federal potential for sources of funding. This may be in the form of grants or development of revenue through special assessments or taxes.

It is hoped that, before the turn of the century, there will be adequate EMS communications system coverage for all populated areas of the United States.

REFERENCES

- 1. *Defining "Rural" Areas: Impact on Health Care Policy and Research*. Prepared by Maria Hewitt, Analyst, Office of Technology Assessment Health Program, April 1989.
- 2. The National EMS Clearinghouse. *State EMS Office: Communications Programs and Disaster Preparedness*. Lexington, KY: The Council of State Governments, Iron Works Pike, 1988.
- 3. Johnson MS, Neal RT. *The States of EMS Communications* (unpublished). Lexington, KY: The National Association of State EMS Directors, Council of State Governments, 1988.
- 4. *State EMS Office: Communications Programs and Disaster Preparedness*. Produced by the Sam Channel National EMS Clearinghouse and the Charles MacMathias National Study Center for Trauma and EMS, 1988. ■