MINUTES OF THE MEETING OF THE APPROPRIATIONS SUBCOMMITTEE ON ELECTED OFFICIALS/HIGHWAYS AND TRANSPORTATION February 8, 1983

The meeting was called to order at 1:05 p.m. by Chairman Quilici. All members of the committee were present except Senator Keating and Senator Stimatz, who were excused.

CHAIRMAN QUILICI said this meeting is an informal hearing on telecommunications. One reason for this hearing is to try to get together on the state of Montana telecommunications. This committee felt there was no continuity with the system. Senator Dover and Chairman Quilici requested the state agencies come before this committee to make a presentation on telecommunications.

MORRIS BRUSETT, Director of the Department of Administration, said last year there was concern expressed by this committee for an overall telecommunications system. Since then, a telecommunications plan was put together and that is what we will be presenting today. There are several options available for consideration. Those options are: 1) land/mobile radio program; 2) telephone system replacement; and 3) alternate transmission systems.

HIRAM SHAW, Communications Division, Department of Administration, passed out copies of the agenda for the presentation. He also passed out copies of responses from the primary users of the state land/mobile radio system.

MR. SHAW said, in going over the telecommunications plan for 1982, the people working with the plan found the present system of the land/mobile radio to be fragmented and uncoordinated. There is no single point for management statewide. A number of recommendations were made in the plan:

1. Expand the high band pilot programs.

- 2. Introduction of mutual aid radio frequencies.
- 3. Conversion to high band frequency be encouraged.
- 4. A statewide "backbone" transmission system be implemented.

MR. SHAW said many agencies have out-of-date radios that are older than ten years, which is the minimal accepted time for a radio.

The hearing was turned over to the state agencies for their presentations. Minutes of the Meeting of the Appropriations Subcommittee on Page -2 Elected Officials/Highways and Transportation - February 8, 1983

#### MONTANA HIGHWAY PATROL

COLONEL R. W. LANDON, representing the Montana Highway Patrol, said he didn't want to be repetitious of previous testimony. He said the state agencies that seem to be further ahead in converting to high band and doing a good job of dispatching are the state emergency medical people and the Department of State Lands.

COLONEL LANDON said it is not the intent of the Highway Patrol to do dispatching for the two agencies. He said the Highway Patrol is incapable of dispatching for State Lands during fire control periods because the people that operate the radios are actually coordinating the fires, giving the orders and coordinating resources. The emergency medical system has a good communications system and there is really nothing the Highway Patrol can do to help them. As far as dispatching for other state agencies, the Highway Patrol is very willing to lend any assistance they can. The Highway Patrol will be capable of dispatching on the Highway Department's frequency on non-business hours, weekends and nolidays. The Highway Patrol would take the calls for the Highway Department and if someone needed to be called out, the Highway Patrol could contact someone from the Highway Department and pass the informa-This would give the Highway Patrol better command tion on to them. and control of their people and people of the other state agencies because they would have to be checking in service and out of service and would have to be accountable for their time. This would increase efficiency and productivity.

COLONEL LANDON said the state agencies would be interdependent on the Highway Patrol. The Highway Patrol would be interdependent on the Highway Department for the installation of the communications system so that the cost would be minimized.

COLONEL LANDON said the reason for getting involved in high band is that over 50% of the local law enforcement people have switched to high band. The Highway Patrol has to switch over to high band to be able to communicate with the law enforcement agencies. The eastern part of Montana is the critical area as far as going to high band at this particular time. The western part of Montana has not switched over to high band yet.

SENATOR DOVER asked if the Highway Patrol has a line where the State Lands and emergency medical people could call into the Highway Patrol. Under the common aid channel, which is in the planning stages, that would be available. When the Highway Patrol goes to high band the capabilities will also be there.

SENATOR DOVER asked if the one band could be run through the Highway Patrol's repeater. Colonel Landon said he is talking about car-to-car relay. In order to relay the signal over great distances, you have to have mobile relays. You are keying a repeater on a

frequency and picking it up on the other side of the mountain. That is very costly. We are proposing to have only two frequencies and two repeaters on each one of the towers; one for the Highway Department frequency and one for the Highway Patrol frequency. Under FCC, we could put the police types on the Highway Patrol frequency and the non-police types on the Highway Department frequency. When the "backbone" communication program is in place, you could go to more trequencies without these repeaters. You could have a multitude of frequencies.

SENATOR DOVER asked if the repeaters that will be purchased initially will be able to fit into the whole program or will they become obsolete. Colonel Landon said they would not become obsolete. As long as the repeaters were capable of functioning, they could be utilized somewhere in the system. It may be that the repeaters could be moved to another part of the state and utilized again.

COLONEL LANDON said once the system is implemented in eastern Montana, the same system will have to be implemented in western Montana. The system will be implemented in eastern Montana in 1984-1985 and the system will be implemented in western Montana in 1986-1987. He said this plan is an interdependent plan of agencies depending on each other to make it work.

#### DEPARTMENT OF HIGHWAYS

DON GRUEL, Maintenance Division, Department of Highways, said from the experiences they have had in the pilot program, this will be a good system. He said there will not be the interruptions or skips that are experienced with the low band. There will be better coverage of the highways. The Department of Highways people can now converse with other agencies and respond to problems they come The Department of Highways has better mobile-to-mobile up against. conversations and can coordinate work in the field better. The central dispatch provides a better sense of security for the drivers who are out in the field alone.

MR. GRUEL talked about the low band system. He said the Highway Department has 791 low band radios and 70 base stations. Of the 791 radios, 477 are from 10 to 20 years old. Of the 70 base stations, 49 are at least ten years old and 16 of those base stations are older.

MR. GRUEL said the Department of Highways initially proposed to fund this system two different ways. In the 1984-85 communications budget, there is \$135,000 for equipment, for each year, to convert to high The first year's money would be enough to cover the Havre area band. and the second year's funding would be used to cover another area. It would take about 10 years to complete the system throughout the Under the two biennium operation, the cost to the Department state.

Minutes of the Meeting of the Appropriations Subcommittee on Page -4-Elected Officials/Highways and Transportation -February 8, 1983

would be \$798,600, per each biennium. The eastern half of the state would be completed during the first biennium and the western half of the state would be completed during the second biennium.

CHAIRMAN QUILICI said the first proposal would cover the Havre area during the first year and some other area during the second year. He asked what area would be covered during the second year. Mr. Gruel said they would probably cover the Glendive district.

#### DEPARTMENT OF STATE LANDS

DICK SANDMAN, Fire Chief for the Division of Forestry, passed out copies of EXHIBITS 1, 2 and 3 and explained those exhibits to the committee. Exhibit 1 shows the fire protection programs the Department of State Lands now have. Exhibit 2 is a cost curve that shows the cost of fires by size class over a ten-year period. Exhibit 3 lists the duties a fire dispatcher has to know. Mr. Sandman said the dispatchers are actually fire coordinators.

MR. SANDMAN said the Department of State Lands is charged, by Law, to protect the natural resources from fire.

MR. SANDMAN gave a slide presentation on the Division of Forestry.

In the 1920's, Montana was burning 406 million board feet of timber per year in western Montana. There is now a 93% reduction in what used to be burned, which was 30% of the annual harvest. We have 30% of the annual harvest available to us to use because we are no longer burning it up. According to the University of Montana, that is worth 1,885 jobs, \$83 million in personal income. To generate that same amount of income, Montana would have to have 1.5 million tourists per year. The division is not only interested in saving resources, lives and homes, they are interested in suppressing fires at a small size so state general fund money can be saved.

MR. SANDMAN said radios allow the Division of Forestry employees to fight fires at night. There is a visibility problem when fighting fires during the day. Firefighters have to be kept aware of escape routes because many of them work many days in a row and get "rummy". Radios provide those firefighters with the information they need. Air-ground communication is also very important. The people in the helicopters can inform the ground crews of any change in the fire, etc.

The Department of State Lands uses the high band base radio which is tied in with mountaintop repeaters. Mr. Sandman said you have to be careful not to have too many people on those repeaters because you can get a lot of interference.

MR. SANDMAN said there are mobile radios in every truck. The equip-

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 February 8, 1983

ment is painted yellow for high visibility and a number 1s painted on the top of the vehicles. The aircraft can communicate with the vehicle to tell those people where the fire is and where they should be in relation to that fire. Each tanker has a portable radio so that the aircraft can guide the tanker into the fire.

Every fire coordinator has to know a 3,000-4,000 acre area. He also has to know the weather. That information is then sent, by radio, to the people in the field. The high band network system is used by the firefighters working on the fire. The low band network system is used by the camp operation.

MR. SANDMAN said there is a statewide fire frequency that any of the fire departments can get in on but most of those departments do not have high band.

MR. SANDMAN said he supports the concept of mutual frequencies as long as the forestry division does not lose their own frequency for fire fighting.

#### DEPARTMENT OF MILITARY AFFAIRS

CHIEF WARRANT OFFICER JERRY OSTREM explained a program they call SECURE, which means State Emergency Communication Using Radio Effectively. In 1981, the Federal Communications Commission authorized use of certain frequencies to the states for use during disasters. This is not a part of what other departments are trying to do. The Montana National Guard has a system in operation. These stations are primarily in the eastern portion of the state because they do not have the radios to put in the western part of the state. The system can be expanded to put radios in each National Guard location in the state. The system would provide a daily administrative communication system where the guards can accomplish day-to-day tasks, transmitting messages from the local commanders to the higher headquarters.

With SECURE alone, it would be very difficult to justify the cost involved because SECURE is only authorized for use on an emergency use basis. By combining the two systems where the frequencies are compatible, Montana would have a very viable program. There are several advantages that would be realized. There would be an immediate point-to-point long-range communications system where no repeaters would be necessary. If phones go out, there would be no means to communicate with anyone. All National Guard units have emergency power units that can provide power by radios. The system would save the Department of Military Affairs and the state of Montana money by reducing the number of long distance phone calls. The National Guard would also have the capability of communicating with the surrounding states. Minutes of the Meeting of the Appropriations Subcommittee on Page -6-Elected Officials/Highways and Transportation February 8, 1983

The Federal Emergency Medical Agency matching funds for this program are available and there is a high priority for states to participate in the program.

Although this system is designed for primary use by the Department of Military Affairs, any asset the National Guard has is available for disasters.

SENATOR DOVER asked how long it would take to get this system operating. Mr. Ostrem said it would not take long, maybe a couple of months.

#### BOARD OF CRIME CONTROL

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LARRY PETERSON, Chief of the Research and Planning Bureau, Board of Crime Control, passed out copies of EXHIBIT 4.

MR. PETERSON said the Board's position is to serve as a facilitator to solve problems of Land/mobile communications as well as telecommunications.

The Board of Crime Control now has a law enforcement teletype communications system. The Board is recommending, due to the limitations on the switcher and the age of the switcher, the switcher be replaced. That switcher provides for a system that serves criminal justice

The Board of Crime Control endorses that idea that the state of Montana implement a central advantage communications system.

MR. PETERSON said a mutual and frequency is needed for law enforcement, fire control and local governments.

MR. PETERSON said Montana needs a responsible entity to assist the agencies in securing frequencies they really need.

MR. PETERSON went over EXHIBIT 4 with the committee. He said the Board of Crime Control endorses the telecommunications network.

CHAIRMAN QUILICI said, because of lack of time, he would close this hearing and hold another hearing at a later date to cover the last two items on the agenda. (Alternate Transmission Systems and discussion by the subcommittee.)

CHAIRMAN QUILICI said it might be a good idea to put all the telecommunications proposals in the Long-Range Building Committee and let them come up with some funding for the proposals.

CHAIRMAN QUILICI said he would advise the state agencies of the scheduling of the next hearing on telecommunications for the

Minutes of the Meeting of the Appropriations Subcommittee on Page -7-Elected Officials/Highways and Transportation - February 8, 1983

state of Montana.

The meeting was adjourned at 2:30 p.m.

<u>- Zmlm</u> Chairman JOE QUÍ

Vicki Lofthouse ecretary



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EXHIBIT 2 4400,000 2-8-83 Fire Suppression <u>Average of Costs</u> 1966-1975 With+7% to 1981 360 320 -280 Dollars 240 200,000 160 • 120 80 6,000 Acres +5,000 10 1]4 1,000

100

300

-5,000

### Pre-positioning of Initial Attack Forces:

- Fire Conditions Weather Fuels Special hazards
- Values at Risk Subdivision Thinned stands
- Available Resources--Activity Level State and local Industry Woods crews Other fire agencies Support organizations

#### Initial Attack:

Location of Legal Fires

- Initial Attack Strategy and Tactics Manpower Equipment Air operations and costs
- Calculation of Rates of Spread Acreage increase over time

Hazards

Power lines Mine shafts Road conditions Locked gates

State Laws and Regulations Investigation Documentation Speed and strength of attack

Fiscal

Purchasing of materials Agreements and contracts Billing statements and audits Fire supplementals and FEMA

### <u>Re-positioning of Resources:</u>

Movement of manpower and equipment Restrictions on use Agreements Hours worked Activity at other locations

#### Followup:

Fire reports Time records Vehicle reports Purchased materials--bills Meals Refurbishing of tankers Equipment repairs and maintenance Accident reports Injury claims SBAS--Fire number Computer data

No Fires Burning:

Warehouse Sharpening tools Washing fire hose Repackaging tool units

# FREQUENCY COORDINATION (SB 117)

ASSIGNS RESPONSIBILITY

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DEVELOPS A FREQUENCY PLAN

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ESTABLISH MUTUAL AID FREQUENCIES

LICENSING ASSISTANCE

PROVIDE FCC COORDINATION

# MONTANA HIGHWAY PATROL <u>CENTRAL DISPATCH</u> (PILOT)

- TO IMPROVE SUPERVISION OF PATROL OFFICERS
- TO INCREASE THE EFFECTIVENESS OF PATROL DISPATCH

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TO PROVIDE CENTRAL DISPATCH SERVICE FOR STATE LAW ENFORCEMENT / PUBLIC SAFETY AGENCIES

TO IMPROVE EMERGENCY COMMUNICATIONS

## TELECOMMUNICATIONS NETWORK

RECOMMENDED BY "TELECOMMUNICATIONS PLAN 82" (1981 HB 827)

WILL ACCOMMODATE:

.

#### TELEPHONY DIGITAL LAND-MOBIL

REDUCE USER COSTS

PROVIDE FOR:

THE RAPID EXCHANGE OF INFORMATION

BASED ON THE FINDINGS OF ITS CRIMINAL JUSTICE INFORMATION SYSTEMS COMMITTEE, THE MONTANA BOARD OF CRIME CONTROL BELIEVES THAT IF THE STATE OF MONTANA, ITS POLITICAL SUBDIVISIONS, AND CRIMINAL JUSTICE AGENCIES ESPECIALLY ARE TO DEVELOP COST-EFFECTIVE, EFFICIENT, COMPATIBLE COMMUNICATIONS SYSTEMS FOR THE RAPID EXCHANGE OF INFORMATION; THE STATE SHOULD PROCEED TO ESTABLISH, IMPLEMENT, AND MAINTAIN A STATEWIDE, CENTRALLY MANAGED TELECOMMUNICATIONS NETWORK CAPABLE OF ACCOMMODATING DIGITAL, LAND-MOBILE, TELEPHONY, DATA AND TEXT TRANSMISSIONS.

THIS CONCLUSION SUPPORTS THE PROPOSED CENTRALLY MANAGED TELECOMMUNICATIONS TRANSMISSION SYSTEM AS DEVELOPED BY THE DEPARTMENT OF ADMINISTRATION, COMMUNICATIONS DIVISION. BASED ON THE FINDINGS OF ITS CRIMINAL JUSTICE INFORMATION SYSTEMS COMMITTEE, THE MONTANA BOARD OF CRIME CONTROL BELIEVES THAT IF THE STATE OF MONTANA, ITS POLITICAL SUBDIVISIONS, AND CRIMINAL JUSTICE AGENCIES ESPECIALLY ARE TO DEVELOP COST-EFFECTIVE, EFFICIENT, COMPATIBLE COMMUNICATIONS SYSTEMS FOR THE RAPID EXCHANGE OF INFORMATION; THE STATE SHOULD PROCEED TO ESTABLISH, IMPLEMENT, AND MAINTAIN A STATEWIDE, CENTRALLY MANAGED TELECOMMUNICATIONS NETWORK CAPABLE OF ACCOMMODATING DIGITAL, LAND-MOBILE, TELEPHONY, DATA AND TEXT TRANSMISSIONS.

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### VISITORS' REGISTER

| HOU             | SE APPROPRIATIONS | SUB COMMITTEE          | ON             |     |
|-----------------|-------------------|------------------------|----------------|-----|
| TELECOMMUNICAT  | IONS              | Date February          | <u>8, 1983</u> |     |
| PONSOR          |                   |                        | - <b>-</b>     |     |
| NAME            | RESIDENCE         | REPRESENTING           | SUPPORT        | OPP |
| Richard Sandman | Missoula          | Dept. Stat Lands       |                | 1   |
| Hiram Bhaw      | Helena            | Dect. admin - Communic |                |     |
| John Nerses     | Helene            |                        |                |     |
| TIM JOHNSTON    | HELENA            | // //                  |                |     |
| Jutch Meyer     | Helena            | Highway Patrol         | •              |     |
| N.E. GH.II      | //                | Military Albairs       |                |     |
| Jun 26 Stress   | Alena             |                        |                |     |
| C.J. Dubertoon  | Helen.            | i * Q22                | ,)<br>,)       |     |
| Jack Sedawich   | Helara            | Dept of Twentere for   |                |     |
| CESS Broken     | Helena            | Pept of Livester       | k              |     |
| DON GRUEL       | Kelena            | Dept Highin            | 10-            |     |
| Col Rie Landon  | Helen             | Highway Patro          |                |     |
| Jan Paleron     | Helena            | Cin Control            |                |     |
|                 |                   |                        |                |     |
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IF YOU CARE TO WRITE COMMENTS, ASK SECRETARY FOR LONGER FORM.

PLEASE LEAVE PREPARED STATEMENT WITH SECRETARY.

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| , PONSOR                               |   |   |                  |          |
| NAME                                   | RESIDENCE   | REPRESENTING  | SUPPORT          | OPPO     |
| Pichand Sandman                        | n Missoula  | Dept. Stat Land   | 5                |          |
| Hircom Shaw                            | Helena  | Dect. admin - Communi                                   | cs.              |          |
| John Nerses                            | Helene  | <i>i</i> , <i>i</i> ,                                   |                  |          |
| TIM JOHNSTON                           | HELENA  | // //   |                  |          |
| Rutch Meyer                            | Helena  | Highway Patro   | (                |          |
| N. C. C.H. II                          | //  | military Alleris  | /                |          |
| Jam De Strens                          | Helena  |   |                  |          |
| C. Lubuston                            | Helen   | 1 h QE.   | S)               |          |
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IF YOU CARE TO WRITE COMMENTS, ASK SECRETARY FOR LONGER FORM.

PLEASE LEAVE PREPARED STATEMENT WITH SECRETARY.

## STATE OF MONTANA

## TELECOMMUNICATIONS PRESENTATION 1983

| AGENDA |  |  |  |  |
|--------|--|--|--|--|
| 1.     | Introduction:  | Morris L. Brusett, Director<br>Department of Administration                            |  |  |
| 2.     | Overview of Land/Mobile<br>Radio Program   | Hiram Shaw, Telecommunications<br>Development Bureau<br>Department of Administration   |  |  |
| 3.     | Agency Presentations<br>A. Montana Highway<br>B. Department of Hi<br>C. Department of St<br>D. Department of Mi<br>E. Board of Crime C | Patrol<br>ghways<br>ate Lands<br>litary Affairs<br>ontrol                              |  |  |
| 4.     | Telephone System<br>Replacement  | John Neraas, Administrator<br>Department of Administration<br>Communications Division  |  |  |
| 5.     | Alternate Transmission<br>Systems  | Tim Johnston, Telecommunications<br>Development Bureau<br>Department of Administration |  |  |
| 6.     | Subcommittee Discussion  |  |  |  |

#### STATE OF MONTANA TELECOMMUNICATIONS PRESENTATION 1983

#### OUTLINE: LAND MOBILE RADIO PRESENTATION

 Land Mobile addressed in Telecommunications Plan - 82 prepared under HB 827

FINDINGS:

- A) Present system for L/M Radio fragmented, uncoordinated
- B) State & Local Radio users need
   Better quality communications
   Interagency communications
- C) Recommendation Land Mobile Radio Management Program Elements .Expand High Band Pilot Programs .Introduce Mutual Aid Radio Frequencies .Encourage Conversion to High Band .Provide a statewide "Backbone" transmission system capable of handling Land/Mobile Radio
- Part of plan identified cost estimates for conversion from Low Band to High Band.
  - -Senator Dover, in response to requests coming in for radio apprpriations, asked that Dept. of Administrtion prepare a comprehensive picture of who was requesting what.
  - -Letter from M. Brusett to key agencies those with principal responsiblilty for public safety communications.
  - -Matrix system shows each agency's requests. They are here to comment on their part of L.M. Radio.
  - -Board of Crime Control also represented here because of their strong role in radio planning and endorsement of statewide radio and telecommunications systems.
- 3. Matrix-
  - A) Need for statewide and interagency communications--Communications with other state/local agencies.
     -Expansion of dispatch capabilities, and encouraging sharing of dispatch.
     -Highways
     -Highway Patrol

### State of Montana

"Telecommunications Presentation - 1983

- B) Preference for High Band Radio
   Interagency communications
   Reduction in interference
- C) Modest increase in F.T.E.s few Depts. have fulltime radio personnel.

Highway Patrol - Because of Law Enforcement Teletype System. (LETS).

Highways - Because they perform maintenance and technical support for most agencies.

## STATE OF MONTANA TELECOMMUNICATIONS A REPORT TO THE COVERNOR

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Prepared by:

Communications Division Department of Administration May 4, 1982

### STATE OF MONTANA

### TELECOMMUNICATIONS PRESENTATION 1983

OUTLINE: TELEPHONE SYSTEM REPLACEMENT

I. Major Issues

-Economics -Regulatory -Technology

II. Feasibility Study - 1981 - "Big 4"

Long Term Savings = \$5.5 million

III. Actual Savings - "Big 4" - Based on Low Bid

Long Term Savings - \$11-14 million

IV. Description of New Service

-SL-1 -Stored Program Controlled -Features

V. Impact on Management Control

-Network Design -ARS -Station Billing

VI. Future Plans

-Great Falls -Deer Lodge Valley -Northern Montana College -Smaller State Locations -Network Compatibility

#### INTRODUCTION

The Montana State government, colleges and universities are one of the largest users of telephone services and equipment in Montana. Expenditures in this area totaled more than \$4.5 million in FY 31 per the SBAS year-end report. Increasing pressures from inflation, technical obsolescence and changes in the regulated telecommunications environment have caused the State to perform a comprehensive review of current and projected utilization of these services and equipment.

In 1980, the State evaluated alternatives to existing telephone equipment by comparing Mountain Bell's proposed system to that offered by the ROLM Corporation, a private telecommunications equipment supplier. The important conclusion reached in that process, although a final decision was not reached, was that existing equipment was obsolete and would require replacement.

The four major systems that are proposed for replacement in this report currently lease Centrex service from Mountain Bell:

1. Eastern Montana College Billings, Montana

- 2. Montana State University Bozeman, Montana
- 3. University of Montana Missoula, Montana
- 4. State Capitol Complex Helena, Montana

Existing Centrex services utilize large, electro-mechanical switching devices to provide telephone services. Each of the four systems also provide service to other State agencies located off-premises.

The main purpose of this report is to describe the rationale for seeking competitive bids for the replacement of those systems with modern Private Branch Exchanges (PBX), using the advanced capabilities of these new switching devices.

The Communications Division, Department of Administration, in conjunction with a consulting firm, Telecommunications International, Inc., has studied the current situation regarding both the problems inherent with Centrex service and the identification of cost and service improvement potentials for the State's telephone system.

There are three major areas that have been considered in this process:

- 1\_ Financial
- 2. Technical
- 3. Regulatory

<u>FINANCIAL</u> – Costs for basic Centrex and other electro-mechanical switching devices (service and equipment) currently provided by Mountain Bell to 18 separate switching locations within State government have increased from 40–65% during the period from June, 1980 to October, 1981. These price increases were experienced during a period of time when few significant changes occurred in either system size or basic engineering. The recent request for rate increases filed by Mountain Bell with the Montana Public Service Commission would result in an additional 25–40% increase in service and equipment charges for State agencies, colleges and universities.

<u>TECHNICAL</u> — Centrex and other electro-mechanical switching devices are considered "<u>obsolete</u>" from a regulatory viewpoint. This means that these electro-mechanical technologies will not be furnished as a new service to existing customers or new applicants. Additional equipment will be added to current systems only if the existing switching equipment is capable of providing the requested service and the required additional equipment is available from existing or recovered stork.

American Telephone & Telegraph (AT&T) is phasing out the use of these outdated switching devices, such as the State of Montana Centrex. These switches are becoming more expensive to maintain and additional equipment is becoming increasingly scarce.

Electro-mechanical switching equipment has been steadily replaced with systems using computercontrolled technology. Modern, fully electronic switching systems, like the Western Electric <u>Dimension</u> offered by AT&T are highly compact, consume less power, provide quicker response, require less maintenance and offer a greater range of user features and cost control devices.

An explanation of a few of these features will serve to demonstrate the advanced capabilities of these new switching devices:

<u>Automatic Route Selection</u> – The switching system selects the most economical route to use for long distance calls. In addition, the system will also determine to what degree the particular user may "advance" through this analysis to the eventual point of being allowed to originate a toll call via the most expensive route – Direct Distance Dialing (DDD).

This capability would simplify dialing procedures and should significantly lower long distance costs.

Station Message Detail Recording – This feature provides a record of calling station, starting time, call duration, all digits of the called number and the specific trunk or trunk group used for outgoing calls.

<u>Call Forwarding</u> – This feature allows the user to automatically reroute all incoming calls to his station to a pre-programmed number.

Automatic Callback – When a call is made to a number that is busy, the initiation of the call can activate this feature which, when both parties become free, will automatically ring both parties and connect them.

-- 1 ---

Area Code Restriction -- The ability of the switching equipment to selectively identify 3-digit area codes and either allow or deny passage of long distance calls to those specific area codes.

Last Number Redial – Memory capability of the system which enables the user to dial a special access digit and activate the automatic redialing of the last number called.

This is not intended to be a comprehensive list of all system and station features. It is important to recognize, however, that these new switching devices give a full range of controls and features that allow both improved management capabilities and more efficient station operation. This combination should provide more cost effective communications by providing cost-control features while improving user productivity.

<u>REGULATORY</u> – The established trend of rapidly rising Centrex costs is not only the result of technical obsolescence, but is also a result of Bell's preparation for the pending deregulation of the telephone industry. In 1980, the Federal Communications Commission (FCC) ruled that AT&T must sell or lease terminal equipment through a subsidiary which would compete equally with companies outside the Bell system.

To prepare for the competition, Bell has begun a strategy which "facilitates the replacement of obsolete equipment with newer systems that are less costly to maintain . . . and repricing of old equipment would be necessary whether or not the compan, had a migration strategy". <sup>1</sup> In April, 1932, the FCC announced that it intends to gather evidence on the Bell migration strategy. State commissions and the House Telecommunications Sub-committee have gathered evidence, including documents and testimony "which seem to indicate a systematic effort by AT&T to raise the tariffed rates on its old electro-mechanical terminal equipment while at the same time waging an intensive sales campaign for its electronic equipment". <sup>2</sup>

On January 8, 1982, AT&T agreed to a settlement of the antitrust suit brought by the United States Department of Justice. Under the terms of the settlement, AT&T will divest itself of all operating telephone companies after 18 months, while retaining Bell Labs and Western Electric.

All customer premises equipment, presently provided under tariff and regulation by the operating companies, will be transferred to AT&T at the end of this 18 month period. After this time AT&T will offer customer premises equipment in a completely unregulated manner, through an affiliate or subsidiary completely separate from the regulated Long Lines Division.

The effect of divesting the operating companies will be to end all possible cross-subsidization of local and intra-state transmission services from Long Lines interstate revenue. This will lead to a rapid and potentially severe increase in the cost of these services. The consensus of expert opinion is that the cost of local dial tone service will probably double within two years. Meanwhile, the rate increases presently pending before and approved by various regulatory agencies will not be affected by the settlement prior to divestiture occurring.

Representative Timothy Wirth (D-Col.), Chairman of the House Subcommittee on Telecommunications, has stated that, "Staggering increases appear to be in store" and former AT&T Chairman John D. DeButts has warned that, "The result of this decision is that the local customer is going to have to pay more for his service.".

i – Wall Street Journal, April 24, 1981 2 – Telephone News, April, 26, 1982

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#### CONCLUSION

In August, 1981, a consulting firm, Telecommunications International, Inc. (TII), was retained by the State to more clearly identify any cost and service improvement potentials inherent in the State's telephone system. That report details these potentials as Phase One of a three-phase telecommunications review and improvement project.

For that Feasibility Analysis and Needs Assessment, the four largest users of State telephone equipment were studied: the Helena Capitol Complex, Montana State University, the University of Montana and Fastern Montana College.

At each of these locations, a replacement model for the current telephone system was constructed which would impact current problems or shortcomings presently existing. Based on this model, a ten year cash flow analysis was performed to provide an estimate of replacement costs based on current industry averages.

From both a cost and regulatory service viewpoint, at all four study locations, it appears favorable to replace the current, obsolete equipment with newer systems. Based on these preliminary indications, the Communications Division is recommending that Phase Two of this project be undertaken. It is specifically recommended that competitive bids for replacement telephone systems be solicited utilizing a detailed Request for Quotation to be circulated through the telecommunications marketplace.

Once competitive bids are received and evaluated, a final cash flow analysis will be performed utilizing true cost quotations. At this point, the decision will be made whether to proceed into Phase Three (system installation) or not.





### STATE OF MONTANA

## TELECOMMUNICATIONS PRESENTATION

1983

## STATE OF MONTANA TELECOMMUNICATIONS PRESENTATION 1983

| OUTLINE: Telecommunications Transmission System   |            |
|---|------------|
| I. Issues   |            |
| <ul> <li>A. Regulatory</li> <li>1. Definition of TELPAK tariff</li> <li>2. Present TELPAK "grandfathered"</li> <li>3. Proposed elimination of TELPAK <ul> <li>a. Letter from Bell</li> <li>b. Other states</li> <li>-grandfathered in Wyoming &amp; Idaho</li> <li>-to be eliminated this year in Colorado,</li> <li>Mexico and Oregon</li> </ul> </li> </ul> | Ν.         |
| <ul> <li>B. Economic</li> <li>1. TELPAK rates have increased 74% over last 5 years</li> <li>2. No cost-effective alternative at this time</li> <li>3. Examples of impact of elimination of TELPAK</li> <li>a. LETS costs</li> <li>b. CSD costs</li> </ul>   |            |
| II. Alternative Transmission System   |            |
| <ul> <li>A. Associated P &amp; C Engineers' feasibility study <ol> <li>Analysis done by A.E.</li> <li>Conclusion arrived at by A.E.</li> <li>Additional communities</li> <li>Increased cost and system configuration control</li> <li>Enhanced electronic mail capabilities</li> <li>Data speed and quality should be great improved</li> </ol> </li> </ul>   | י<br>1 y   |
| <ul> <li>B. How transmission system addresses user needs</li> <li>1. Land/Mobile radio         <ul> <li>a. Control links</li> <li>b. Central dispatch</li> </ul> </li> </ul>  |            |
| <ul> <li>2. Data communication <ul> <li>a. LETS (75% of the network)</li> <li>b. CSD (90% of the network)</li> <li>1. Increased data speeds</li> <li>2. Should improve quality</li> </ul> </li> </ul>   |            |
| 3. Telephone systems<br>a. Increased cost control<br>b. Coupled with regional switching concept allow<br>more efficient and cost-effective use of th<br>voice network   | / S<br>1 e |
|   |            |

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#### State of Montana Telecommunication Presentation 1983

3

- Projected savings с.
  - 1. Assumptions
    - 10% rate increases annually a.

      - b. 15-year useful life of equipment
        c. G.O. bonds are 15-year issue
        d. Maintenance based on current switch replacement project

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2. Total amount between \$35 and \$39 million





| WITNESS STATEMENT                 |              |
|-----------------------------------|--------------|
| Name Kichard Sandman              | Committee On |
| Address 2705 Missoula Most 57801  | Date         |
| Representing State Lands-Forestry | Support      |
| Bill No.                          | Oppose       |
|                                   | Amend        |

AFTER TESTIFYING, PLEASE LEAVE PREPARED STATEMENT WITH SECRETARY.

Comments: Division of Forestry supports the concept of a Statewide mutual aid frequency as long as it 2. does not: Eliminate the system now in use to detect and report and attack forest fires; and not eliminate the decentralized Fire Coordinator system. 4. The current High Band radio system with local Fix Coordinators has proven both effective in attacking fires and in reducing suppression costs. A centralized dispatch system which would eliminate the Fire coordinators would result in higher state suppression costs, increased loss of resources and lives. and lives, gument or points of your testimony. This will assist the committee secretary with her minutes.

A Statewide mutual and frequency should be FORM CS-34 in addition to the local work frequencies 1-83 now in use by the Dept. of State Lands.

## DEPARTMENT OF ADMINISTRATION DIRECTOR'S OFFICE



TED SCHWINDEN, GOVERNOR

(406) 449-2032

MITCHELL BUILDING

<u>- STATE OF MONTAN</u>

HELENA, MONTANA 59620

February 3, 1983

Honorable Joe Ouilici Chairman Joint Legislative, Judicial & Administrative Subcommittee Montana State Legislature State Capitol Helena, Montana 59620

Dear Representative Quilici:

I am pleased to provide the enclosed information pertaining to land/mobile radio plans by departments of the Executive and Judicial Branches of state government for the forthcoming biennium.

The Department of Administration's <u>Telecommunications Plan 82</u> addressed the need for improving the quality of radio communications and the ability of agencies to communicate with one another effectively. We suggested the continuing conversion of state agency radios from "low band" to "high band" frequencies, and we stressed the importance of ongoing statewide radio management as a solution to the present fragmentation and uncoordinated radio development in Montana. We documented the results of the "High Band Pilot Project" conducted by the Department of Highways and Highway Patrol, and supported the expansion and completion of statewide high band conversion based on the success of these programs.

Each of the state agencies principally responsible for public safety radio operations was polled to determine their proposals for radio activity for the next biennium and beyond. A sample of the letter forwarded to these agencies, their responses, and a summary matrix of these responses is enclosed.

The following themes emerge from these responses:

- 1. Recognition of the need for statewide, interagency communications.
- 2. A preference for high band radio based on interagency communications, enhanced quality of radio transmissions and the normal replacement of obsolete equipment.

Honorable Joe Quilici Page 2

> 3. The trend towards regional and central dispatch of numerous state agencies on a 24-hour basis to enable efficient management of the state's diverse field operations.

The growth of land mobile radio communications throughout the state requires comprehensive attention to interagency cooperation and planning. We appreciate this opportunity to present a unified picture of this complex and critical area.

Sincerely,

Moris

Morris L. Brusett Director

MB/HS/tp

## DEPARTMENT OF ADMINISTRATION DIRECTOR'S OFFICE



Mr. Gary Wicks, Director Dept. of Highways 2701 Prospect Ave. Helena, MT 59620



Dear Mr. Wicks:

Senator Harold L. Dover has requested that the Department of Administration, Communications Division, prepare a plan of action for consideration of all land mobile radio appropriations for FY 84-85, as well as plans which may extend beyond that biennium.

A special session of the Joint Legislative, Judicial and Administrative Subcommittee will be requested for next week to review this plan and to hear presentations from departments requesting land mobile radio appropriations.

In order to complete this plan, your assistance is requested in providing the following information to the Communications Division:

- List of all radio equipment requested by your Department for FY 84 and FY 85, and cost per item. Plans you have for further requests in FY 86 and beyond.
- Technical justification for proposed land mobile radio equipment, including plans you have for installation of such equipment (location, intended use, and impacts on your radio communications capabilities). Indication of whether this equipment is low band, high band, UHF, or other. Map showing current and proposed areas of coverage.
- 3. FTEs devoted to land mobile radio communications, existing and proposed, and their functions.
- 4. Cost justification/savings, as a result of the requested appropriation.
- 5. Plans for joint use of any radio facilities with other state agencies or with any other public or private entities.
6. Present and future methods for dispatching your personnel with land mobile radio.

Please provide this information by 12:00 noon, Monday January 31, 1983, to Hiram Shaw, Communications Division, Room 222 Mitchell Building (449-2586). Your assistance is most appreciated.

Sincerely

Morris L. Brusett Director

MLB/tp

|                              | COMMENTS                 |          | Sixty percent radios over 6 years old.           | Consider central dispatch through Highway Patrol.<br>Current dispatch is through regional base stations<br>and sheriffs' office. | Would depend on statewide transmission system for<br>use in hazardous waste response. | Sixty percent radios over 10 years old (1983). | More efficient use of F.T.E.s and vehicles<br>through quicker response to public need and co-<br>ordinated response between agencies. | Low band radios are outdated. | Patrol shares transmitter sites and repeaters with<br>Dept. of Highways and other state agencies. | 24-hour dispatch, regional & central, enabled for other state agencies, using DOH system, in part. | Replacement of outdated equipment and addition of<br>new communications capabilities. | Low band radios are outdated.      |   |
|------------------------------|--------------------------|----------|--|--|---|--|---|-------------------------------|---|--|---|------------------------------------|---|
| IO PROPOSALS                 | LOW BAND TO<br>HIGH BAND |          | Х  |  |   | X  |   | X                             |   |  |   | ×                                  |   |
| FY 1984 - 85 LAND/MOBILE RAD | VAL F.T.E.               | FY 85    | -0-  |  | -0-   | -0-  |   | +4.35                         |   |  | -0-   | -0-                                |   |
|                              | ADDITION                 | FY 84    | -0-  |  | -0-   | +1   |   | +7.65                         |   |  | -0-   | -0-                                |   |
|                              | UDGETED F.T.E.           | FY 83    | -0-  |  | -0-   | 10   |   | ω                             |   |  | -0-   | 1                                  |   |
|                              | ESTIMATE B               | FY 86-81 | \$ 47,238  |  | -0-   | 798,603  |   | 693,969                       |   |  | Not<br>Available  | Not<br>Available                   | • |
|                              | BUDGET<br>REQUEST        | FY 84-85 | \$110,967  |  | -<br>0-   | 798,603  |   | 815,514                       |   |  | 39,137  | 164,850                            |   |
|                              | AGENCY                   |          | FISH, WILDLIFE & PARKS<br>(Law Enforcement Div.) |  | HEALTH<br>(Emergency Medical)   | HIGHWAYS<br>(Communications Bureau             |   | HIGHWAY PATROL                |   |  | INSTITUTIONS<br>(Corrections)<br>(Women's Center)<br>(Pine Hills)<br>(Warm Springs)   | STATE LANDS<br>(Forestry Division) |   |

| LAW ENFORCEMENT SERVICES  |                            |                  |         | R.<br>T.  | 8<br>8  |     |   |
|---|----------------------------|------------------|---------|-----------|---------|-----|---|
| DIV.<br>(Criminal Investigation<br>Bureau)<br>(Fire Marshal Bureau)<br>(Law Enforcement<br>Academy) | -0                         | Not<br>Available | -0-     | -0-       | -0-     | ×   | Practically all radios over 10 years old; all<br>low band.<br>Difficulty communicating with law enforcement<br>due to no high band equipment. |
| (Identification<br>Bureau)  |                            |                  |         |           |         |     | Interest in statewide transmission system to en-<br>hance field staff communication.  |
| LIVESTOCK<br>(Brands Enforcement)   | 50,500                     | Not<br>Available | .50     | -0-       | -0-     | ×   | Most radios over 10 years old.<br>Need to communicate with state and local law en-<br>enforcement.  |
|   | -<br>                      |                  |         |           |         |     | No dispatch capability at present. Plan to use<br>Highway Patrol dispatch.  |
| MILITARY AFFAIRS<br>(D&ES and Guard)  | 168,720 (1)                | 24,033           | -0-     |           | -0<br>- | (2) | High frequency radio is a separate point-to-point system.   |
|   |                            |                  |         |           |         |     | Daily use by Dept.; Governor would have daily and emergency access.   |
| REVENUE<br>(Legal & Enforcement Div.  | -0-                        | Not<br>Available | -0-     | -0-       | 0-      |     | Difficulty communicating with law enforcement due<br>to no high band equipment.   |
|   |                            |                  |         |           |         |     | Interest in statewide transmission system to en-<br>hance field staff communication.  |
| ADMINISTRATION<br>(Communications Division)   | 23,434                     | 25,000           | -0      | -0-       | -0-     |     | Prepare frequency utilization plan in cooperation with all state and local agencies.  |
| 1   |                            |                  |         |           |         |     | Implement statewide mutual aid frequencies for police, fire and local government (includes state agencies).                                   |
| <pre>(1) \$102,310 State \$66,41 (2) Not AL icable: Syste</pre>                                     | ) Federal.<br>em is not co | ompatible with V | HF, UHF | icrowave. |         |     |   |

(2) Not A icable: System is not compatible with VHF, UHF microwave.

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### DEPARTMENT OF MILITARY AFFAIRS



 TED SCHWINDEN. GOVERNOR
 PO BOX 4789

 STATE OF MONTANA
 HELENA. MONTANA 59604

January 28, 1983

Department of Administration Communications Division Mitchell Building Helena, MT 59620

ATTN: Hiram Shaw

Dear Hiram,

Per the letter of 26 January 1983 from Morris Brusett to General Duffy regarding the Department of Military Affairs proposed communications systems, please see the following:

1. (FIXED -BASE STATIONS) 16 each, High Frequency (H.F.) Single Sideband (SSB) Trancievers. 200 watts PEP Unit cost 5,000.00 ea. \$80,000 This cost includes antennas, phone patch, and installation hardware

(MOBILE STATIONS) 7 each HF, SSB Tranceivers 200 watts PEP Unit cost 5,800.00 40,600 This cost included antennas and installation.

2. See attachment #1 for full justification and explanation of the SECURE (State Emergency Communication Using Radio Effectively) system.

The system we have and are trying to expand with this proposal <u>IS NOT</u> low band or high band VHF (Very High Frequency) or UHF (Ultra High Frequency). It is not FM as most other state communications are, nor is it AM as commercial broadcast stations.

It is High Frequency (H.F.) Single Sideband (SSB). This system is not compatible with VHF or UHF and microwave.

3. At the present time, the Department has no FTE's for communications. One additional FTE (Engineer Communications II) is requested to provide technical support to insure operational readiness for all day-to-day and other state systems used during emergencies. In addition, this FTE is necessary to provide state coordination and approval on local government requests for Federal

AEGANALD

AN EQUAL OPPOPTIJNITY EMPLOYER"

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COMMUNIC, DEPARTMENTING

#### Communications Division

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January 28, 1983

financial assistance to upgrade local communications and warning systems. Personnel costs only are requested. Additional costs would be FY 84 - \$24,087, FY 85 - \$24,033 and because it involves Federal grants to local government, 50% of the costs are borne by the Federal Government. This function was performed in the past under contract with the Communications Division, Department of Administration but they are unable to support this additional workload in the future.

| 4. | TOTAL COST OF EQUIPMENT                | \$120,600 |
|----|--|-----------|
|    | Federal FEMA Share                     | 42,350    |
|    | Net General Fund Share                 | \$ 78,250 |
|    | Estimated Annual Long Distance Savings | \$ 6,000  |

5. This system is only for use by the Department of Military Affairs including Disaster and Emergency Services and the Governor. However, in an emergency or disaster situation other agencies and Departments could use the system for routing message traffic.

6. In an emergency situation where telephone communication is out or extremely overloaded the Department of Military Affairs does not have any other method of reaching the units in the State to give them emergency response orders and guidance. During a disaster the only system available is thru Amateur Radio Operators or Highway Department Maintenance Section, and Highway Patrol and these systems become overloaded almost immediately.

This radio system provides immediate, point-to-point, long range voice communication. No intermediate repeaters are needed only the radio on the transmitter end and the one on the receiving end.

We will be available to attend the special hearing to explain our system. Please let me know time and place as soon as possible.

Sincerely,

K. E. COTTRILL CPT, AG, MT ARNG Adm. Centralized Services ATTACHMENT 1

### STATEWIDE RADIO COMMUNICATION NETWORK (SECURE)

The creation of the DMA statewide radio communication network is brought about by combining three resources/assets into one combined concept.

First is the Disaster and Emergency Services Division "SECURE" communications system proposal.

#### **BACKGROUND:**

In November 1981, FCC in a new ruling (FCC Docket 80-7) allocated portions of the High Frequency Radio Spectrum (2MHz - 10 MHz) to be used by states to establish long range communications. This HF Spectrum does not depend on relay points and is not line-of-sight, so should permit long as well as short-range communications within the State and with adjacent states. The frequencies allocated are licensed to states and are for disaster uses only with the exception of a weekly test not to exceed sixty(60) minutes.

#### JUSTIFICATION:

The State of Montana has no statewide emergency radio capabilities. In times of emergency, we must depend on other over taxed in-place state systems such as Montana Highway Patrol and Highway Maintenance. We also utilize the Radio Amateur Civilian Emergency Services (RACES). This capability is provided by volunteer licensed ham operators. This proposal would provide base sets in all large counties and high hazard (nuclear and natural) areas, and in addition, would provide mobile capabilities strategically located where full time employees are available to allow complete state coverage in short periods of time.

#### **PROPOSED LOCATIONS:**

| Bas | e Station Location | Nuclear Threat | Operational EOC |
|-----|--------------------|----------------|-----------------|
| 1.  | Helena             | Risk/Host      | Yes             |
| 2.  | Great Falls        | Risk           | No              |
| 3.  | Billings           | Risk           | No              |
| 4.  | Miles City         |                | Yes             |
| 5.  | Missoula           | Risk           | Yes             |
| 6.  | Glasgow            | Risk/Host      | Yes             |
| 7.  | Kalispell          | Host           | Yes             |
| 8.  | Butte              | Risk           | Yes             |
| 9   | Bozeman            | Host           | Yes             |

#### Mobile/Portable Radios:

Helena
 Helena
 Helena
 Helena

5.

D.E.S.

Governor

Emergency Response Vehicle

Billings
 Miles City

Great Falls

### STATE RADIO SYSTEM AND SECURE MONTANA ARMY NATIONAL GUARD DEPARTMENT OF MILITARY AFFAIRS (DES AND GOVERNOR'S OFFICE)

This proposed communication system is not intended for use by any other agency of State Government such as Law Enforcement or Highway Department. In an emergency these and other agencies could route traffic over this system, but not on a day-to-day basis.

The Montana National Guard has a requirement for a High Frequency (HF), Single Side Band (SSB) radio net in each of its unit locations. This communication net would be used on a daily basis for routine administrative traffic between the individual units and the several headquarters in the State. The use of the net in this manner will mean a substantial savings in long distance telephone bills at units which do not have the State telephone system available to them. (See attachment 2)

The system would also be an invaluable asset during a natural or mancaused disaster in which the National Guard is assigned to disaster recovery operations.

The Montana Guard already has thirteen (13) Base station HF SSB radios 7 of which are currently operational. Six (6) antennas are in a state of total deterioration and require re-installation. The existing radios are located in Helena, Bozeman, Billings, Miles City, Culbertson, Dillon and Chinook. The other six (6) were/are located at Lewistown, Kalispell, Missoula, Glasgow, Malta and a spare in Helena. These radios operate in the frequency spectrum of 3-30 Mhz with a power of up to 2000 watts PEP USB or LSB.

The Guard has no radio capability at the following unit locations (15): Great Falls, Plentywood, Sidney, Glendive, Havre, Harlowton, Livingston, Butte, Anaconda, Deer Lodge, Hamilton, Whitefish, Libby, Shelby, Belgrade.

\* Expanding the Guard's system has already been proposed and justified as mentioned above. (See attachment 1). \*

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The FCC has recently allocated frequencies to the states for emergency communications "State Emergency Capability Using Radio Effectively (SECURE)" in the frequency range of 2-10 Mhz and SSB emission.

The major drawback of the SECURE is that the frequencies can only be used during an actual emergency and for periodic testing of the radios.

The high cost of the radio equipment and associated antennas etc., make the SECURE system extremely difficult to justify for such a limited use system. Currently available systems such as Amateur Radio RACES would probably be as good or better. However when adding SECURE into the Guard's net and expanding the number of radios to each unit location it takes on a totally different character.

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424.1. **4**2.5.5

1. The Guard currently has 16 frequencies assigned for its use from 2-10 Mhz, (the band for SECURE). These are authorized for use on a daily 24 hour basis.

2. The Guard's current radios are compatible with SECURE frequencies in the 3-10 Mhz range. These SECURE frequencies would be available during emergencies in addition to those that the Guard already has.

3. Disaster and Emergency Services (DES) is a division of the Department of Military Affairs. Therefore, DES would be authorized to participate in the NG net on a daily basis for routine communications. Local DES coordinators at the City/County level could participate in the system if their local government provided the radio equipment. They could use the equipment in case of an emergency in any event, and the total NG system would be available.

CONCEPT OF OPERATION:

The thirteen (13) Guard radios, which are able to operate at 2000 watts of power will be, or are, located in strategic unit locations throughout the State.

The 16 new radios (SECURE equipment) would be positioned throughout the remainder of the units in the State.

DES could have two (2) radios on hand to dispatch to remote disaster sites where a NG radio is not readily available.

The Governor could have a radio for mobile operation throughout the State in his vehicle. This would permit him access to the complete NG system. For example:

1. The Governor is travelling somewhere in the State, i.e. Circle-Jordan area, and his office in Helena must contact him. He has a radio in his vehicle.

2. His office contacts the NG Hqs in Helena who immediately puts out the radio call. Contact is made and if it is of phone patch quality the office is in direct voice contact with the Governor. If it is not phone patch quality the message is then relayed by the radio operator.

3. Contact is not made by State Hqs for some reason. So we would in turn direct another unit to attempt contacting the Governor's vehicle. In this case, possibly Miles City. Contact is made and if it is of phone patch quality a patch could be set up; otherwise messages could be relayed. If the unit that makes initial contact does not have phone patch capability then messages are relayed over the radio.



Second is the National Guard as a Military Organization. It has a requirement for a communication system not dependent upon land lines which is operable on a regular basis for emergency and routine communications. This system has been being built upon for several years until it reached its present inventory of thirteen (13) radios. This number falls short of meeting the needs of 25 locations where National Guard units are located. Seven (7) mobile units would allow improved remote location emergency communication.

Third is the Department of Military Affairs as a State Agency. It is faced with not enough money to adequately fund the remote units telephone expenses. At the present time fourteen (14) units do not have WATTS line service and they are forced to make a substantial number of long distance phone calls daily. A majority of these calls are to other units of the National Guard and to the various Headquarters with the Montana Guard. If each unit had a radio set located in the armory then most of the calls to other units could be made by radio, reducing the long distance telephone costs.

When these three requirements were merged together we found that each could be satisfied by the purchase of sixteen (16) radios. We also were aware of Governor Schwinden's desire to have better communication with his Helena office and therefore decided to request his inclusion into the system.

The total requirement for equipment for the total program is as follows:

29 Radios positioned in 25 locations

7 Mobile units positioned in 5 locations

This would cover the State of Montana with a Radio Network as shown on the attached map.

This system would provide the following:

1. A non-land line communication system state wide in case of a disaster.

2. A non-land line communication system state wide for Military use in case of an emergency.

3. A non-land line communication system for day-to-day use by the Department of Military Affairs.

4. A non-land line communication system for the Governor to use when travelling to remote locations.

5. A better communication system for the Adjutant General and his commanders who could communicate with all units at one time.

The above scenario is a normal work day. Nighttime operation will be limited by:

1. Lack of personnel at unit armories.

2. Radio wave propagation at night is different than daylight hours which necessitates the use of different frequencies and antennas. For example, communication from Helena to Jordan at 1000 hours (10:00 A.M.) could be accomplished on a frequency between 7.6 - 8.1 Mhz. At 2100 hours (9:00 P.M.) frequencies between 3.5 - 5 Mhz would be used.

However in disaster or emergency conditions the Guard armory radio could be manned on a 24 hour basis which would solve the problem posed in 1. above.

In some Guard locations it may be possible to locate the local DES coordinator at the armory if the local coordinator does not have adequate office space. But in any event, an antenna could be installed at the local EOC and when and if needed the radio could be relocated to operate from the EOC.

### MONTANA

### DEPARTMENT OF

1

### FISH, WILDLIFE AND PARKS

Helena, MT 59620 January 27, 1983



# RECEIVED

FEB 01 1983

DEPT. OF ADMINISTRATION DIRECTORS OFFICE

Mr. Morris L. Brusett, Director Department of Administration Mitchell Building Helena, MT 59620

Dear Morris:

Information requested from this agency in relation to the land mobile radio plan is as follows:

- 1a. Radio equipment requested for FY 84 is 85 100 watt high band mobile radios, cost per item \$1,305, total cost \$110,967.
  - b. Radio equipment requested for FY 85 is 8 100 watt 4 channel high band base radios, cost per item \$2,423, total cost \$19,384.

10 - 100 watt high band boat radios, cost per item \$1,305, total cost
\$13,054.

16 - 45 watt 4 channel high band portable radios, cost per item \$927, total cost \$14,800.

Total amount requested FY 85, \$47,238.

- c. Request for FY 86 will be 60 100 watt 2 channel high band mobile radios for ex officio wardens, cost per item \$927, total cost \$55,620.
- 2. A radio communications system is essential for our Law Enforcement Division as Montana state game wardens are constantly on the move or are located at work sites that vary from day to day. Also, wardens are stationed throughout the state at remote areas and communication with other law enforcement agencies is essential. All present equipment is low band and is used for law enforcement.

Base stations will be located at Kalispell, Missoula, Bozeman, Great Falls, Billings, Glasgow, Miles City, and Helena. Mobile stations will be located in each warden district (see attached). Mr. Morris L. Brusett Page 2 January 27, 1983

- 3. No FTE's are devoted to land mobile radio communications. It is not anticipated that any will be assigned in the future.
- 4. Cost justification: About 60% of present low band radios are over six years old and will need replacing even without the conversion. Without the conversion the Department of Fish, Wildlife and Parks Enforcement Division would become isolated and unable to communicate with other agencies. By converting now it will save the money that would be used in replacing present units, and the conversion would still have to be completed at a later date.
- 5. The only plans for joint use of radio facilities by this department has been a consideration to use the central dispatch of the Highway Patrol.
- Present and future methods for dispatching our personnel with land mobile radios is through the regional headquarters base stations and local sheriff's offices.

Sincerely, James W. Flynn Director

js

cc: Kent Hiram Shaw





#### MONTANA STATE HIGH BAND NETWORK

### Department of Highways Non-Law Enforcement Section

The Department of Highways' participation within the State High Band Network will be extremely beneficial to the many agencies currently using land mobile radios as well as the Department of Highways.

The proposed network will consist of two sections. One section will be devoted to law enforcement agencies while the other portion will be devoted to statewide coverage for all other agencies not associated with law enforcement.

Both sections will be connected to the Helena central dispatch center and share buildings and towers throughout the State. The non-law enforcement section of the network will also be utilized as the Department of Highways routine work system. Also, during routine work hours, the present Department of Highways divisional headquarters will handle all emergency and priority traffic generated by local non-law enforcement two-way mobile users who elect to utilize this service. Control of this section of the network can be reverted to the central dispatch center any time upon request of the local user or upon request of the central dispatch center itself.

After office hours within the divisional headquarters, all traffic will be handled by the central dispatch center. This will provide for 24 hours dispatching for all potential non-law enforcement users. This is a feature which has never been available to the Department of Highways' mobiles nor to any other mobile radio users. Users, other than the Department of Highways, have never even had a system statewide of any type as the Department of Highways is the only agency which has a statewide system at the present time.

The agencies, other than the Department of Highways, will profit greatly by being able to contact their units with coverage statewide. The Department of Highways will profit by having their system tied together and the resulting 24 hour a day dispatching of the central dispatch center after hours and weekends. The Department of Highways will still be able to handle all of their routine work as well as the statewide road information gathering service with even better efficiency due to the abilities built into the new system.

Bringing the non-law enforcement section into central dispatch will also provide for possible FTE savings for the Department of Highways. Currently during the winter months, it is necessary to provide for extending the coverage time for dispatching in each division six a.m. to eleven p.m. seven days per week. This requirement could be reduced by the control of this part of the network from central dispatch.

The present Department of Highways radio system, while covering approximately 95% of the State's highways, is not tied together to a central location. More than 60% of the radio equipment is be beyond the ten year lifespan of this type of equipment. To keep this system operational will require a substantial outlay. Considering the potential for FTE savings, higher reliability of all new equipment, increased coverage, and increased efficiencies involved with their savings in fuel and manpower, converting to high band within the proposed network will provide for much better service at reduced cost over the foreseeable future of this program.

RH: sb: 227R

### DEPARTMENT OF HIGHWAYS HIGH BAND CONVERSION

The Pilot Program in the Great Falls Division has shown the gains which can be expected by a radio system in the VHF High Band frequencies of operation. The Department of Highways is committed to this conversion and its expansion throughout the rest of the Highway radio system.

The commitment is based on the following:

- 1. The present low band radios in the Highway system will be 94% beyond their expected life span of ten years at the end of the proposed implementation period. An accelerated replacement program will be necessary to upgrade the old system to a minimum level.
- 2. It was the desire of the 1981 Legislature to implement a planned radio system which will consolidate all state agency radio users into a usable network for emergency operations. The high band system proposed will fit in with such a plan.
- 3. It is desirable to provide a system which offers more usable features which will result in increased savings in fuel, manpower and vehicle usage.

All cost accounting is based on a ten year period, which is the serviceable life of a two-way radio.

General maintenance costs for the radio system beyond ten years would be similar for both low and high band types of systems. However, the high band type of system would give greater savings in manpower, vehicle usage, and fuel cost than possible with the existing low band system.

The Great Falls Pilot Program has shown many advantages and has proved a very usefull tool in determining the pros and cons of implementing a complete changeover to high band.

Advantages:

- 1. Increased coverage through cheaper Mobile Relays.
- 2. Compatible with other state agencies systems for intercommunication.
- 3. Easily expandable to increase range of coverage in fringe areas.
- 4. Virtual elimination of "skip" type of interference.
- 5. Less expensive antennas and hardware with a greater variety of equipment available.
- 6. Lower annual cost through years five to ten (savings due to having all new equipment).
- 7. All new equipment will result in increased reliabilities.

Department of Highways High Band Conversion Page 2

- 8. More readily adaptable to microwave and other long distance control schemes.
- 9. More efficient use of equipment. (One Mobile Relay radio will replace three radios in the old system).
- 10. Possible FTE savings if tied into the proposed statewide network.

### Disadvantages:

- 1. Approximately \$569,221 more initially to implement high band conversion than minimally upgrade the old system to an appropriate level.
- 2. Slightly choppy reception from moving vehicles in fringe areas.
- 3. More susceptible to multi-path distortion.

#### Bottom Line:

This original installation cost will be offset by annual savings due to all new equipment in years five through ten. Further savings offsetting this amount would result should this system be tied into the overall proposed Montana State High Band Network. This will provide a system which very well could provide cost savings to the users through more efficient operations as well as provide for intercommunications with co-agencies for mutually beneficial operations as well. Department of Highways High Band Conversion Page 3

### FY-84/85 High Band Implementation

Conversion from the low band system to the high band system will occur in the following highway divisions in the order of presentation:

Havre Lewistown Wolf Point Glendive Miles City Billings

### Cost breakdown:

| Radios - Base, Mobiles, Others<br>(includes antennas, cables, etc.) | \$ 811,800 |
|---|------------|
| Sites - Acquisition, Power, etc.<br>(four additional locations)     | 15,000     |
| Additional Hardware<br>(Control consoles, Interfaces, etc.)         | 5,000      |
| Equipment Total   | 831,800    |
| 1 Extra FTE (Installations)   | 22,171     |
| 1 Extra Vehicle Rental  | 2,695      |
| Total   | \$ 856,666 |

Note: Appropriations for FY-84/85 are for \$798,603. This will take the above listed implementation to a point half-way through the Billings Division. The completion of the Billings system will continue in FY-86 and timed so as to make the conversion continuous.

The net increase in appropriations for the Highway Department radio equipment will be \$538,603 for the biennium or \$264,302 per year; \$135,000 per year for routine replacement will be eliminated. FY-86/87 appropriations should be the same as FY-84/85 to continue and complete the conversion for the Highway radio system to high band.

### DEPARTMENT OF HIGHWAYS PROJECTED EXPENDITURES 1983 thru 1993 for LOW BAND RADIO

| YEAR  | MOBILES      | COST    | BASES | COST    | EXTENSION     | 1          |
|-------|--------------|---------|-------|---------|---------------|------------|
| FY 83 | 477          | 504,189 | 65    | 195,000 | 699,189       |            |
| FY 84 | 41           | 43,337  | 5     | 15,000  | 58,337        |            |
| FY 85 | 2            | 2,114   | 5     | 15,000  | 17,114        |            |
| FY 86 | 14           | 14,798  | 5     | 15,000  | 29,798        |            |
| FY 87 | 113          | 119,441 | 5     | 15,000  | 134,441       | (938,879)* |
| FY 88 | 56           | 59,192  | 0     | -0-     | 59,192        |            |
| FY 89 | 35           | 36,995  | 0     | -0-     | 36,995        |            |
| FY 90 | 20           | 21,140  | 0     | -0-     | 21,140        |            |
| FY 91 | 21           | 22,197  | 0     | -0-     | 22,197        |            |
| FY 92 | 0            | -0-     | 0     | -0-     | -0-           |            |
| FY 93 | 0            | -0-     | 0     | -0-     | -0-           |            |
| TOTAL | 10 Year life | cycle   |       |         | - \$1,078,403 |            |

In 1983 mobiles are currently 60% obsolete In 1983 bases are currently 93% obsolete

| Implementation of High Band FY 84/85,FY 86/87      | \$1,508,100 |
|--|-------------|
| Replacement of obsolete Low Band FY 84/85, FY86/87 | 938,879     |
| Added cost to implement High Band                  | 569,221     |
| Additional savings years 88 thru 93                | 139,524     |
| Total 10 year life cycle cost of High over Low     | \$429,697   |

\* Total cost outlay during same time frame as High Band Implementation to maintain Low Band system.

Department of Justice



### MONTANA HIGHWAY PATROL

303 N. Roberts, Helena, Montana 59601 (406) 449-3000



January 31 1983

Mr. Hiram Shaw Communications Division Department of Administration Room 222 Mitchell Building Helena, Montana 59620

Dear Mr. Shaw:

The following is with reference to your correspondence dated January 26, 1983.

1. EASTERN PROPOSAL - HIGHWAY PATROL COMMUNICATIONS - REGION II, WESTERN PORTION REGION V - (INCLUDES BILLINGS)

| FTE  | $\frac{FY 1984}{7.65}$  | FY 1985<br>12.00   |
|--|---|--|
| PERSONAL SERVICES:<br>Salaries<br>Employee Benefits 20%<br>Total   | \$127,016<br>25,403<br>\$152,419  | \$192,545<br><u>38,509</u><br>\$231,054  |
| OPERATING EXPENSES:<br>Contracted Services<br>Supplies & Materials<br>Communications<br>Travel<br>Rent<br>Reps & Mnt<br>Other Expenses | \$ 3,710<br>2,719<br>22,440<br>5,625<br>2,544<br>5,904<br>11,060<br>\$ 54,002 | <pre>\$ 1,590<br/>2,083<br/>22,324<br/>5,625<br/>2,697<br/>6,258<br/>1,124<br/>\$ 41,701</pre> |
| EQUIPMENT:   | \$264,089   | \$ 72,249  |
| TOTAL PROGRAM:   | \$470,510   | \$345,004  |

Mr. Hiram Shaw January 31, 1983

### EQUIPMENT LIST - EASTERN COMMUNICATIONS SYSTEM - FY 1984

### HELENA COMMAND

| 1 Printer                         | \$<br>3,000 |
|-----------------------------------|-------------|
| 3 Dispatch consoles \$20,000 each | 60,000      |
| 3 Video terminals \$1,565 each    | 4,695       |
| Tape recorder - 24 hour           | 12,000      |
| Tape recorder - short term        | 500         |
| 10 UHF antennas \$200 each        | 2,000       |
| 10 UHF links \$4,000 each         | 40,000      |
| Test Equipment                    | 20,000      |

### REGION V SOUTH CENTRAL AND CENTRAL

| Lewistown base station        | \$       |      |
|-------------------------------|----------|------|
| Billings base station         | 4,957    |      |
| 49 Mobiles \$1,445 each       | 70,805   |      |
| 9 Antennas \$200 each         | 1,800    |      |
| 7 Duplexers \$706 each        | 4,942    |      |
| 7 Towers \$1,000 each         | 7,000    |      |
| 7 Mobiles relays \$3,919 each | 27,433   |      |
| •                             | <u> </u> | ,894 |

TOTAL

\$264,089

\$142,195

### EASTERN COMMUNICATIONS SYSTEM - FY 1985

### REGION IV EASTERN

| \$<br>4,957   |
|---------------|
| 4,957         |
| 40,460        |
| 5,000         |
| 2,118         |
| 3,000         |
| <u>11,757</u> |
| \$            |

TOTAL

\$ 72,249

Mr. Hiram Shaw January 31, 1983

WESTERN PROPOSAL - HIGHWAY PATROL COMMUNICATIONS -REGION I, WESTERN REGION II SOUTHWEST

|   | FY 1986  | <u>FY 1987</u>  |
|---|--|---|
| FTE   | 7.65   | 12.0  |
| PERSONAL SERVICES:  |  |   |
| Salaries<br>Employee Benefits 20%   | \$127,016<br>  | \$192,545<br>38,509   |
| Total   | \$152 <b>,</b> 419   | <b>\$231,</b> 054   |
| OPERATING EXPENSES:   |  |   |
| Contracted Services<br>Supplies & Materials<br>Communications<br>Travel<br>Rent<br>Reps & Mnt<br>Other Expenses | \$ 2,019<br>2,083<br>12,709<br>5,625<br>2,544<br>5,703<br>11,060 | \$ 2,140<br>2,208<br>13,471<br>5,625<br>2,697<br>6,045<br>1,124 |
| Total   | \$ 41,743  | \$ 33,310   |
| EQUIPMENT:  | \$149,854  | \$ 85,589   |
| TOTAL PROGRAM:  | \$344,016  | \$349,953   |

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Mr. Hiram Shaw January 31, 1983

### EQUIPMENT LIST - WESTERN COMMUNICATIONS SYSTEM - 1986

### HELENA COMMAND

| 2 | Video terminals \$1,565 each     | \$ 3,130 |
|---|----------------------------------|----------|
| 2 | Dispatch terminals \$20,000 each | 40,000   |
| 4 | UHF links \$4,000 each           | 16,000   |
| 4 | UHF antennas \$200 each          | 800      |

### REGIONS I - WESTERN

| Missoula base station        | \$ 4,957 |
|------------------------------|----------|
| Kalispell base station       | 4,957    |
| 43 Mobiles \$1,445 each      | 62,135   |
| 3 Mobile relays \$3,919 each | 11,757   |
| 5 Antennas \$200 each        | 1,000    |
| 3 Duplexers \$706 each       | 2,118    |
| 3 Towers \$1,000 each        | 3,000    |
|                              |          |
|                              |          |

\$ 89,924

\$ 59,930

TOTAL

\$149,854

WESTERN COMMUNICATIONS

REGION III - SOUTHWEST

| Butte base station           | \$ <sup>.</sup> 4,957 |
|------------------------------|-----------------------|
| Bozeman base station         | 4,957                 |
| 40 Mobiles \$1,445 each      | 57 <b>,</b> 800       |
| 5 Antennas \$200 each        | 1,000                 |
| 3 Mobile relays \$3,919 each | 11,757                |
| 3 Duplexers \$706            | 2,118                 |
| 3 Towers \$1,000 each        | 3,000                 |

TOTAL

\$ 85,589

\_Mr. Hiram Shaw January 31, 1983

2. Installation would be done by Dutch Meyer with cooperation of the Highway Department. Justification would be better radio coverage to catch up with the state of the art modernization of equipment; minimization of skip interference, and to reduce crowding of channels. Present equipment is outdated.

Locations: picked as need arises and as mountain tops are available with necessary power and facility to house the equipment. In all cases we will strive to share present buildings of other state agencies. For the most part at the present time there is no definite list of particular mountains that they will be chosen as need arises and as coverage patterns are ascertained in that particular area.

It will be a combination of high band UHF and possibility of 920 mhz. equipment.

- 3. Currently the Highway Patrol has 8 FTE's devoted to operation of the state teletype system (LENS) and land mobile radio dispatching. We propose 7.65 additional FTE's for FY 1984 and 4.35 additional for FY 1985. These communications officers would dispatch for all state agencies on a twenty-four hour 365 day basis.
- 4. Modernization of equipment to replace outdated equipment now on hand. More than 50% of local sheriffs and police have converted to high band. We need to catch up with their communication common frequencies.
- 5. Patrol will share many mountain top buildings transmitter sites with other agencies particularly the Highway Department and State Lands. Plans also of Patrol would be to share repeaters with all other state law enforcement agencies.
- 6. Presently Highway Patrolmen are dispatched by sheriffs' offices in each of the 56 counties in the state and have been for many years. Future plans entail patrolmen being dispatched by regional Highway Patrol offices and/or by central dispatch in Helena. This will give better control of individual officers and of the agency in general.

Sincerely,

COLONEL R. W. LANDON

Chief Administrator

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## **DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES**



TED SCHWINDEN, GOVERNOR

COGSWELL BUILDING

- SIALE OF MONIANA

HELENA, MONTANA 59620

January 27, 1983

Mr. Hiram Shaw Communications Division Room 222, Mitchell Building Department of Administration Helena, Montana 59620

Dear Mr. Shaw:

In response to Morris Brusett's January 26, 1983, request concerning land mobile radio appropriations, the following information is presented.

- 1. The Department has not requested any land mobile communications equipment in their 1984-1985 budget. There are no specific plans for purchase of communications equipment in FY 86 and beyond. However, there certainly may be some applications for the Department of Health and Environmental Sciences if the statewide backbone microwave system is installed. Our Emergency Medical Services Bureau would very much like to work cooperatively with you in any planning or development efforts to assure that local EMS system needs for dispatch and medical control are accommodated.
- 2. Not applicable.
- 3. A small portion of one FTE's time in the EMS Bureau is spent providing technical assistance to local EMS providers in the design and operation of EMS Communications Systems.
- 4. Not applicable.
- 5. There are no current plans for joint use of radio facilities.
- 6. No Department of Health personnel are dispatched via land mobile radio and there are no plans to do this. The EMS Bureau does carry VHF communications equipment (on EMS channels) with them when travelling throughout the state. Any future method of land mobile communications would be dependent on the potential development of a statewide microwave system. The hazardous materials response team has the need to communicate with a variety of emergency response agencies.

Letter to Hiram Shaw January 27, 1983 Page 2.

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The Department of Health and Environmental Sciences does not itself greatly utilize land mobile radio communications. However, the EMS Bureau has, via categorical grant funding, provided substantial assistance to local EMS providers in the development of VHF communications systems for dispatch of EMS personnel and hospital to ambulance communications.

Should you need any additional information, please contact either myself or Drew Dawson of the EMS Bureau.

Sincerely,

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John J. Drynan, M.D. Director Department of Health & Environmental Sciences

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### DEPARTMENT OF INSTITUTIONS



MEMORANDUM February 3, 1983

TO: Hiram Shaw Communications Division Mitchell Building FROM: CUTT CHISHOLM, Deputy Director Department of Institutions

SUBJECT: Requested information on radio equipment request.

Enclosed please find the information you requested in your letter of January 26. The information forwarded to you on the enclosure represents requests for radio equipment in the 84/85 biennium budget by institution or program area. Since we were overlooked in the mailing of the original memorandum, I did not have the time to address issue number 3, which relates to FTE's devoted to radio communication equipment. I can, if necessary, report this information under separate cover at a later date. However, there are no FTE's anywhere in the Department of Institutions whose job exists solely for the purpose of operating and maintaining radio communications equipment. All of the radio equipment currently used or requested for purchase within the Department is used by our employees as a function of their job for administrative and communication purposes only. Relative to the other five categories of information, I hope that we have adequately addressed them for your purposes at this time. If however, you feel you need additional information, please feel free to contact me directly.

CC:sd

#### DEPARTMENT OF INSTITUTIONS

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| 1. | CORRECTIONS   | Quantity | Justification   | <u>184</u>    |
|----|---|----------|---|---------------|
|    | Two-Way Radios<br>(new equipment) for:<br>Billings - (3)<br>Great Falls - (1)<br>Bozeman - (1)<br>Helena - (2)<br>Butte - (2)<br>Missoula - (3) | 12       | Every Officer/Counselor in state would have<br>a radio in their car. Radios required<br>because of amount of travel & for protection<br>of field officers when engaged in arrest of<br>client. (quote from Capital Communications.<br>@ \$1,140.50  | \$13,687      |
|    | Mobile Radio Units @ 1,090<br>Installation <u>100</u><br>1,190  | 5        |   | <b>5,</b> 950 |
| 2. | WOMEN'S LIFE SKILL CENTER   |          |   |               |
|    | Hand-held Walkie-Talkie   | 1        | Needed to afford adequate coverage in<br>emergency situations. While the 3 we now<br>have should be adequate in most cases we<br>need an additional one available to cover<br>down time for repairs.  | 800           |
| 3. | PINE HILLS  |          |   |               |
|    | Radio, Mobile, 2-way F.M.   | • • • •  | A replacement schedule for 2-way radios is<br>suggested as being necessary for budget pro-<br>jecting and maintaining adequate communication<br>levels. We presently have 7 mobile units in<br>agency vehicles. Four of the units are<br>approximately 10 years old and 3 have been<br>purchased in the past 3 years. The average<br>life expectancy of these units is estimated<br>to be 8-10 years according to local law<br>enforcement officials. The primary purpose |               |
|    |   |          | of these units are to assist in searching for<br>runaways and transporting students. Campus<br>security also depends greatly on these radios<br>in the performance of their duties.   | · .           |
|    |   | 01 ea    | This request would replace a 10 yr. old radio<br>presently mounted in Plant Manager's vehicle.<br>That radio is operating at minimal level. A<br>radio repairman has suggested that repair costs<br>would be considerable based on the fact that<br>parts are no longer being made for that model.  | 775           |

|    |  | Quantity | Justification  |
|----|--|----------|--|
| 3. | Pine Hills (continued)   |          |  |
|    | Radio, base station,<br>two-way F.M.   |          | The base station is used for a variety of pur-<br>poses such as searching for runaways, campus<br>security, and backup communication when phones<br>are out. The unit currently being used is<br>operating with decreased efficiency. The<br>controls do not work properly and it has been<br>in to the Motorola repair facility in Blgs on<br>two occasions for repair. Technicians at<br>that facility have recommended that the unit<br>be replaced rather than repaired due to the<br>cost of repair and the fact that replacement<br>parts are not available. |
|    |  | . 01 ea  | Replacement of this unit should meet the<br>Agency's needs for 15 years. It would also<br>allow us to use the old low efficiency unit<br>for backup in an emergency.   |
|    | Radio, two-way,portable,<br>hand held, low band,<br>4.5 watt, GE 2 channel   | 4 ea     | Replace 8, 0.5 watt, hand held type, 7 yrs.<br>old that have been slightly better than<br>toy radios. No trade in value. 4.5 watt<br>should provide a range of 5 miles. These  |
|    | • • • • • • • • • • • • • • • • • • •  |          | radios are needed for security and opera-<br>tional purposes.  |
|    | Radio, mobile, 4 channel<br>100 watts, crystals for<br>4 channels 754<br>capability of<br>4 channels <u>37</u><br>1582 | 2        | Currently we use forestry low band portables.<br>We need radios on the institutional and<br>sheriff's office channel for security and<br>operational purposes.   |
| 4. | WARM SPRINCS   |          |  |
|    | Paging System  | 1        | Currently a small paging system exists at Galen<br>campus. This system will accommodate up to 10<br>pagers. Due to the size of the consolidated<br>campus people are constantly on the move from<br>one area to another & often it is difficult to<br>contact them when the need arises. If the sit-<br>uation is urgent it is necessary to send someone<br>looking for them. In addition, the expanded  |
|    | · ·  |          | paging system would enable us to readily contact<br>personnel serving in an on-call status. This re-<br>quest calls for a new 100 watt base station; con-<br>version of existing 11 pagers to the WS frequency<br>& purchase of 28 new pagers with a 100 capacity  |
|    |  | •        | encoder.   |

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-Page Two

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<u>'85</u>

\$1,118

\$ 2,993

84

\$1,677

\$12,137

TOTALS

\$38,019

\$1,118

### DEPARTMENT OF STATE LANDS



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TED SCHWINDEN, GOVERNOR



February 2, 1983

CAPITOL STATION

1625 ELEVENTH AVENUE HELENA, MONTANA 59620

REGLIDED

FLD : A

COMMUNICATION INVISION HELEVIA, STATUS ANAL

Mr. Hiram Shaw Communications Division Department of Administration Capitol Station Helena, MT 59620

Dear Mr. Shaw:

Attached is the information requested in Mr. Brusett's letter of January 26 regarding land mobil radio appropriations. I apologize that the information is not in the same format as Mr. Brusett's letter, but I am confident it answers all the questions.

Sincerely,

Vanno / Cerro

Dennis Hemmer, Commissioner Department of State Lands

jc
c: Bob Griffes

### DEPARTMENT OF STATE LANDS DIVISION OF FORESTRY

### Communications Requirements:

When we speak of the communication needs of a fire agency, such as the Division, we are addressing four essential parts that illustrate those needs. These parts can be broken down as follows:

(A) The requirement to have some form of communication between the fire agency and the public.

(B) There must be some means of communicating within the fire agency itself during both emergency and nonemergency situations.

(C) There are a variety of fire agencies in the state that we need to have the capability of communacating with during both emergency and non-emergency situations.

(D) The last need is to have a means of communication between the fire agency and other agencies that may provide support.

We can further break these parts or needs down into what is required of each. For instance, when we are discussing communications between the fire agency and the public, just what kind of communications are we in need of or discussing? Calls received from the public may be of an 6 emergency or non-emergency nature. Like many fire agencies we may have separate phone listings to receive each of these type of calls. The non-emergency are normally of an administrative nature and are handled by various personnel within our agency. The calls of an emergency nature are handled much diffirently. These calls may be received through a central dispatch such as 911 or our own agency fire dispatch. These calls are normally reports of wildfires and are classified as emergency type calls. Personnel receiving these calls directly or by relay from a central answering service are trained and familiar in the methods of handling reported fire emergencies. This part of our agency need is

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one of receiving information and exchanging information from the general public. Most of the communication is handled by the use of telephone system.

The next and one of the most essential communication need of our agency is within the agency itself during both emergency and non-emergency situations. Due to the nature of our type of work, many of our personnel are required to be in the field during most of their work day. It is necessary to maintain contact with these personnel through the use of two-way radio communication systems. The following examples will give you an idea on how we utilize two-way radio communications. This will be expanded on later.

1. A fire dispatcher receives a report on a wildfire and in turn relays this information to a patrolling tanker crew who is then sent to the fire.

2. To maintain the safety of fire crew personnel and to keep the fire dispatcher informed at all times of crew and equipment locations, requires the reporting in of fire personnel periodically.

3. The dispatcher needs to continue giving vital information to responding fire personnel so that they are kept informed of the nature and extent of the emergency to which they are responding.

4. Upon arrival at a fire, fire personnel may request further assistance and will also report the status of the wildfire to the dispatcher.

5. The two-way radio is utilized to receive reports of fires by other division personnel working in the field, patrolling fire tanker crews, agency patrol aircraft, and from both our own lookouts and from cooperating fire agency lookouts.

Our third communication need is with other fire agencies such as the U.S. Forest Service, Bureau of Land Management, county fire fighting personnel, and volunteer fire companies to name just a few. Much of our wildland protection borders on the protection responsibility of other fire agencies. Two-way radio communications in the field between units of
the different agencies is a problem because of the different frequencies assigned to each agency and the limitations of the radio equipment used. We will still need to have our individual agency frequencies to reduce overcrowding and interference but with the advent of the synthesizer type radios which are all-channel type capable of dial-up of numerous frequencies, we can possibly communicate with other fire agencies on a common frequency during periods of fire emergency.

The final communication need we have is between us . as a fire agency and other agencies that are not directly involved in fire suppression duties but may provide support to us. As with the need for public communication, the need for communication with other non fire agencies is quite similar and is usually conducted through the use of the telephone system.

The area that we would like to address mainly in our communications needs is the one involving communications within our own agency and with other fire agencies using the two-way radio system. This system is a vital tool that is used in normal day to day administrative work, providing a communication link between office locations, between the office and mobile units, and between the mobile units themselves.

The Division of Forestry has fire protection responsibility for all state and private lands. To provide adequate protection to these scattered lands, we have found it necessary to develop a system of two-way radio communications. Our main emphasis has been in the western part of the state where we have direct protection responsibility for thousands of acres of commercial timber lands. The topography of western Montana does not lend itself to being an area where two-way radio communication can be easily accomplished. This is due to the mountainous terrain which has the adverse effect of blocking radio transmissions. To overcome this problem and to still provide the necessary communications required, we have installed our radio base stations and our mobile relays on the mountain tops to help get better radio coverage from our various office locations. Other public and private agencies have also found it necessary to locate their radio systems in the same manner. In fact, we share many of these locations with other users. Understandably, many of these fixed-radio mountain top locations are remote and therefore lack the necessary power sources and protection needed for the radio equipment to operate. To provide what is needed to operate these mountain top locations, we have joined with other agencies to share the costs at these sites. Practically all of our mountain top locations are shared with other agencies to save on costs and to also provide for security from vandalism and destruction of some expensive radio equipment.

One question that may come to mind is why don't we just use the same radio units and frequencies on these mountain tops or at other fixed radio locations. To answer this we need to look at various factors such as, the capabilities of the present day radio equipment, the rules and regulations we operate under as set-down by the Federal Communications Commission (FCC), and the needs of our own agency as well as other agencies.

First, we should discuss the capabilites of existing radio equipment. Presently, fixed station equipment is limited as to the number of frequencies each unit can transmit and receive on. If and when state of the art changes do come about in fixed and mobile relay stations, then there would be absolutely no reason for agencies not to consolidate and use the same equipment as long as there is no interference during periods of two-way radio transmission. We should keep in mind that even though the same' equipment is used, there is still a definite need for our agency, as I'm sure there is for others, to operate on our individual frequencies to function properly. In fact, we are guided by FCC rules which spellout the areas of the radio spectrum assigned to our particular needs. Blocks of radio frequencies have been set aside for use by the various conservation agencies at the state level, such as the Division of Forestry. FCC rules do allow us to share

to compute fire danger levels, receive fire danger indices from outlying locations, interpret and forward on to fire personnel, maintain the dispatch center itself to include: Maps and charts, 2) Fire danger readings posted for 1) public and firefighter information, 3) Locations of all manpower and equipment for quick reference, 4) Locations of all legal burns and also actual wildfire posted, 5) Fire occurence maps current, and 6) All fire records current. Our fire dispatchers may also assist the fire foreman in the operation of the fire cache. They must be able to plot fire locations from azimuth readings that are transmitted from fire lookouts and patrol aircraft and be able to identify these locations on maps using their knowledge of geographic features and public land survey systems. They must be very knowledgeable in land ownership patterns in their area of dispatch responsibility as well as a knowledge of the exact boundaries of each of the fire protection agencies that may be involved. Our dispatchers also need to have a good working knowledge of our fire rules and regulations and of the various cooperative fire agreements that we operate under.

In summary, I would like to reiterate the importance of our present communication network to our overall operation. I've tryed to show the importance that the two-way radio network and the fire dispatcher play in protecting our natural resources and sometimes even lives. We have found time and time again that one of the most critical items present in our fire suppression arsenal has been the two-way radio. Without suitable communications, costs tend to excellerate and losses of property and lives is greatly increased.

Page o

certain assigned emergency frequencies during periods of need but use must be relinquised after the emergency is over. The use would also require that all agencies operate in the same radio bandwidth and have the equipment that is capable of operating across the length of this bandwidth.

The greatest single restriction on the shared use of present equipment and frequencies is the individual agency communications use requirements. Our agency use of our assigned radio frequencies can be extremely heavy during periods of peak fire activity. For example, we should review and expand on the various duties of our present fire dispatchers and their extensive use of our radio system.

The Division has a number of fire dispatch offices that are located at sites where we have fire protection responsibility. The accompaning map illustrates the variety of locations where we need to have fire dispatch offices to handle the heavy summer fire loads. Each of these offices has an assigned seasonal dispatcher who is required to perform certain duties. They must also be able to act quickly to reports of wildfires and to take the necessary and appropriate steps that may save lives and property. During periods of wildfire activity, the dispatcher may receive calls from a variety of sources both through the telephone and the radio. They must be able to handle incoming calls rapidly and efficiently. They must also guickly dispatch personnel and equipment in adequate numbers to fit the situation and be prepared to initiate reinforcement actions at a moments notice. In addition to initial attack dispatching, they must receive and handle requests for supplies from the various fire lookouts and for equipment and manpower needs from fire guard stations and from personnel on going fires. They must also keep in constant contact with fire crews and patrol aircraft to avoid confusion and to facilitate the shortest possible control time of fires. In addition to duties involving the operation of our communication systems, our dispatchers are required to use the various fire weather station instruments

Two-way radio equipment is the only means available that provides the versatility required in handling emergency fire situations. It provides immediate communications for our personnel to order manpower and equipment, obtain situation updates, and make intelligent decisions during fire emergencies. Radio keeps our firefighting personnel in touch with dispatch offices, facilitates reporting of fire or other emergencies, a means of requesting needed assistance immediately, and is a critical link in providing information to other fire units. We also use radio in other day to day timber and fire management work such as fire prevention, law enforcement, slash disposal, and timber sales. We feel that radio has promoted the efficient use of our manpower and equipment and also provided a vital safety factor for personnel in the field.

1.

- 2. We presently employ one fulltime FTE in the Division of Forestry who devotes the majority of his time to system design and layout. He is also required to assist in new installations and repair work as required. Most of our present repairs and maintenance on radio equipment is contracted to local shops. In addition to the radio engineer, a number of fire management staff and field supervisory personnel spend a percentage of their daily workload in planning, budgeting and purchasing of radio equipment.
- 3. The use of radios has assisted the Department in the efficient use of manpower and equipment throughout the years. This use has saved the taxpayer thousands of dollars in the efficient use of state funded manpower and equipment. The savings to the natural resources that may have been lost through the years due to wildfire runs in the millions of dollars.
- 4. The majority of our present fixed radio sites are shared with other public and private agencies. The following fixed sites are presently sharing power, housing for security and protection, and antenna tower facilities with other radio users.

| Blacktail Mountain | (Kalispell Area) |   | Base/Mobile Relay |
|--------------------|------------------|---|-------------------|
| Meadow Peak        | (Kalispell Area) | - | Mobile Relay      |
| Sentinel Mountain  | (Missoula Area)  |   | Base/Mobile Relay |
| Union Peak         | (Missoula Area)  | - | Mobile Relay      |
| Bridger Ridge      | (Bozeman Area)   | - | Mobile Relay      |
| North Hills        | (Helena Area)    |   | Base/Mobile Relay |
| Judith Peak        | (Lewistown Area) | - | Mobile Relay      |
| Sacrifice Cliffs   | (Billings Area)  |   | Mobile Relay/Base |
| South of Roundup   | (Billings Area)  |   | Mobile Relay      |

Much of the department radio equipment in use is approaching 5. a useful life that exceeds the 10 year limit and is in need of replacement. Other factors affecting our increase in purchases for the 1984-85 biennium is our expansion of fire and land management responsibilities in the last couple of years. Expanded fire protection and assistance to counties with cooperative agreements with the department has placed a need for us to expand our communications in the eastern part of the state. We are also in the final process of eliminating and replacing much of our old lowband system with the much more efficient highband system. The majority of radios being purchased will be for use in the fire management program. A few new units will be required for field personnel in other programs such as timber management and range management. All new equipment will be in the Highband VHF frequencies (142-174 MHz). We do have a couple of UHF frequencies (300-300 MHz) in use as control links for highband stations and may require more but have not determined that need yet in our future plans. Some use will be made of the old lowband system but it will be fazed out of our operations almost entirely. The attached map will give an idea of present radio fixed locations and planned expansion over the next two years. Further expansion beyond this time can only be determined by increases in our fire and land management responsibilities. We have know way of knowing at this time, whether our responsibilities will expand and therefore result in requests for increased radio communications.



| Requesting Office      | Number  | Item  | FY LY<br>Replacemen         | 44<br>t New                      | F_198<br>Replacement                       | 5<br>New           |
|------------------------|---|---|-----------------------------|----------------------------------|--|--------------------|
| Fire Management        | очто<br>С<br>С<br>С<br>С<br>С<br>С<br>С<br>С<br>С<br>С<br>С<br>С<br>С<br>С<br>С<br>С<br>С<br>С<br>С | Mobile Units<br>Portables, Light<br>Portable Repeater<br>Portable, Heavy for repeat<br>Antennas for repeater unit | \$12,000<br>\$12,000<br>cer | \$ 3,500<br>\$ 2,500<br>\$ 2,500 | \$12,000<br>\$10,500                       | \$5,000            |
| Kalispell Land Office  | ഗഗപയപ   | Portables, Light<br>Mobile Units<br>Radio Charger<br>Speaker/Mike Remote Units<br>Mobile Relay Unit               | \$'3,400<br>\$600           | \$ 5,400<br>\$ 850<br>\$ 700     | \$ 3,600<br>\$ 3,600<br>\$ 700<br>\$ 5,000 | \$1,80(            |
| Missoula Land Office   | ч<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1<br>1    | Base Stations<br>Portables, Light<br>Mobile Relay Unit<br>Solar Panel for relay                                   | \$ 6,000<br>\$13,100        | \$ 1,200                         | -<br>-<br>-                                | \$5,00(<br>\$4,000 |
| Helena Land Office     | 9   | Mobile Units  |                             |                                  | \$12,000                                   |                    |
| Lewistown Land Office  | ศตศศ  | Mobile Relay Unit<br>Mobile Unit<br>Base Station<br>Repeater/duplexor   |                             | \$ 4,500<br>\$ 2,800             | \$ 2,400<br>\$ 3,000<br>\$ 5,000           |                    |
| Billings Land Office   | ЧЧ  | Repeater/duplexor<br>Base Station   | \$ 5,000                    |                                  | \$ 5,000                                   |                    |
| Miles City Land Office | 2024  | Mobile Units<br>Portables, Light<br>Base Station<br>Repeater/duplexor   |                             | \$ 2,600<br>\$ 3,000             |  | \$2,50C<br>\$4,00C |
| TOTALS                 |   |   | \$52,100                    | \$27,650                         | \$62,800                                   | \$22,306           |

FY1984 Costs \$79,750 FY1985 Costs \$85,100 Total \$164,850

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noor CAPITOL STATION TED SCHWINDEN, GOVERNOR HELENA MONTANA 59620 (406) 449-2044

January 31, 1983

TO: Hiram Shaw Communications Division Department of Administration FROM: Mes Graham, Administrator Brands-Enforcement Division RE: January 26, 1983 Memo (Radio)

In answer to your requests, I will answer as follows:

1.) We have requested to purchase 32-8 channel land - mobile radios in 1984 -85. We have been told by your shop that these will run approximately \$1500.00 per radio. We also plan to purchase one base station with an approximate cost of \$2500.00.

2.) We simply have to go with new radios since most of ours were purchased in the 1960's. We plan to purchase all high band equipment. In many areas of the state we cannot communicate with other law officers and will have to maintain both high and low band land mobile radios in our vehicles until such time as all agencies are able to convert. We always use the state Department of Highways installation services. I am enclosing a District Inspector map. Each district will have land-mobile; four in Helena plus the base station. Each Chief Inspector at the markets has a land-mobile unit.

3.) We do not have specific FTE's assigned as radio specialists. I would assume that on a yearly basis we will use 05% of one FTE on this matter.

4.) We have planned for the purchase of these and have set monies aside for this purpose. We have to replace older low band equipment and do not want to waste money on low band.

5.) It is our plan at this time to tie in with the Highway Patrol and utilize their dispatch abilities. This is being done with Montana Highway Patrol concurrence.

6.) Same as number 5, except in the future we will follow the state plan.

Thank you for your efforts. We will cooperate in any way we can. I plan to attend the hearing.

#### "AN EQUAL OPPORTUNITY EMPLOYER"



# DEPARTMENT OF REVENUE



TED SCHWINDEN. GOVERNOR

MITCHELL BUILDING

- STATE

HELENA, MONTANA 59620

NC:SI

January 31, 1983

MEMORANDUM

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- TO: Jon Meredith, Administrator Legal and Enforcement Division
- FROM: Rick Day, Supervisor Investigation Program

SUBJECT: Department of Administration Request, Radio Communication Memorandum dated 1/26/83, (Telephone Request, Dept. of Administration 1/28/83)

The Legal and Enforcement Division, investigations program currently has 12 low band mobile radio units. Ten of these units are in field service and are operated under FCC Mobile license call sign KS7320 issued to the Department of Revenue. The units are primarily used by field investigators as a method of communication with other law enforcement agencies. The radios also provide the Helena office with a method of contacting investigators while they are conducting field investigations.

The program does not have plans to expand this capability in the near future and has not requested additional units in the fiscal year 84-85. However, we have requested additional manpower and will place the two units which are in storage at their disposal if the positions are approved by the legislature. The program may have to request one additional mobile unit in fiscal year 86. We may also need to add two hand held units. It should be noted that we hope to hold off on purchases of new radios pending the outcome of discussions which would switch law enforcement to high band frequencies.

As our personnel are based throughout the state we do not routinely use our radios as a method of dispatch, but rather as a method of communication with other law enforcement personnel. At present our personnel do encounter some difficulty in communicating with local law enforcement due to the use of both high and low band frequencies by local law enforcement agencies. On occasion we do find it necessary to contact our field units and at this time we accomplish this through local sheriff and police departments. I would hope we will be able to continue this practice but we would support a statewide radio communication system which would provide use with a petter or means or communicating with our field staff.

# DEPARTMENT OF ADMINISTRATION

COMMUNICATIONS DIVISION



January 31, 1983

# MEMORANDUM

T0: Morris Brusett Director John Neraas FROM: Administrator

SUBJECT: Land/Mobile Radio

In response to your letter of January 26, 1983, I am submitting information pertaining to Senate Bill 117, "Authorizing the Department of Administration to Develop and Maintain a Mobile Public Safety Radio Use Plan."

The Communications Division does not operate land/mobile radios. However, we have been serving as the Associated Public-Safety Communications Officers (APCO) coordinator for local govenment, special emergency, and police frequencies with the Federal Communications Commission (F.C.C.)

Sente Bill 117 would enable us to continue in that role as well as 1) Serve as the state's FCC contact for all mobile radio public safety frequencies; 2) Develop and maintain a radio frequency use plan; 3) Adopt rules to implement the plan; and 4) Obtain input from all state and local radio users.

One F.T.E. is provided for through our general appropriation. We are requesting one additional .50 F.T.E. to assist with this function.

We feel that the principal cost savings will be the reduction in rejections and delays of state and local license applications to the F.C.C.

### January 19, 1983

SENATE BILL 117: AUTHORIZING THE DEPARTMENT OF ADMINISTRATION TO DEVELOP AND MAINTAIN A MOBILE PUBLIC SAFETY RADIO USE PLAN

# SUBSTANCE OF PROPOSED LEGISLATION This bill authorizes the D of A to:

- Serve as the state's FCC contact for all mobile radio public safety frequencies.
- 2. Develop and maintain a radio frequency use plan.
- 3. Adopt rules to implement the plan.
- 4. Obtain imput from all state and local users.

# FORM OF PROPOSED LEGISLATION

A new act (Senate Bill 117). Could be an amendment to 2-17-302 MCA.

#### BACKGROUND

This bill is by request of the Board of Crime Control. Letters of support from Chiefs of Police and Sheriffs & Peace Officers Assn. are attached.

The intent is to pinpoint responsibility for land mobile radio frequency planning in a single agency. Local law enforcement associations felt the D of A was more neutral and had the experience to perform this responsibility. An advisory council was recommended to obtain input from these associations.

The key points are:

1. Pinpointing responsibility and authority.

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- 2. Filing a plan with the FCC lets all users know there they stand and speeds up FCC processing and approval of licenses. It also strengthens our hand with Canada and should reduce delays in Canadian OK of our licenses.
- 3. Provides authority for issuing rules to govern statwide mutual aid frequencies and other rules which may clean up confusion and reduce radio interference.

A statement of intent is attached.

COSTS

About \$5000 in fees, for preparation of license applications will help offset the \$11,717 estimated cost of implementing SB 117. The balance of \$6,717 would be absorbed by the Communications Revolving Fund.

The principal F.T.E. needed and most costs are already incorporated in the Communications appropriation request. An additional 50% F.T.E. (Secretary II) is requested, along with funds to support meetings of an advisory council.

# OUTLINE: STATEMENT OF INTENT: LAND MOBILE RADIO FREQUENCY UTILIZATION LEGISLATION

### PROBLEM DEFINITION

Land mobile radio frequencies are licensed by the FederaT Communications Commission upon application by eligible state and local users (as defined in FCC Rules & Regulations) and review by the FCC. The review process includes a requirement that local coordination be conducted to assure maximum use of availiable frequencies and to minimize interference caused by overlapping of frequencies on the same channel or adjacent channels. Currently, that coordination is conducted for six types of radio services by four separate national associations recognized by the FCC as responsible for coordination in their radio service areas. These radio services are: local government, police, fire transportation, conservation and special emergencies. Coordination must take into account utilization of frequencies in Montana, and if the user is located close to the four adjacent states or Canada, frequency use in these locations also needs to be identified. Besides checking interference patterns, coordination also takes into account such factors as radio antenna height and power, types of use intended for the requested frequency and other technical features of proposed radio systems.

Frequency coordination is fragmented at the present time. Coordination between users throughout the state is poor. The demand for new frequencies is increasing each year, while the FCC severly restricts the available number of frequencies which may be used by state and local public safety agencies. There is no frequency utilization plan in place for Montana and present state policy and statutory authorites do not clearly identify responsibility for frequency coordination and utilization. Consequently, frequency utilization is coordinated on an ad hoc basis with a strong likelihood for error and confusion.

State and local users of land mobile radio require accurate and timely responses to their license applications. Delays, inappropriate or insufficient responses can severly restrict their ability to install needed radio communications as well as budget for purchases of new radio equipment. Public safety users are responsible for managing critical communications in their functions of dealing with life-threatening problems of fire, crime, medical emergencies, natural and man-made disasters and other emergencies.

Interagency communications is practically nonexistent in Montana. New statewide common (mutual aid) frequencies are in various stages of planning. However, administration of statewide frequencies which will enable agencies to communicate with one another is not presently provided for through existing statutes.

Finally, there is no mechanism currently in place to enable participation by state and local radio users in determining the mutual use of radio frequencies or establishing standards for frequency utilization. A consequence of this is that the FCC has no guidance from Montana as to how we wish to organize frequency allocations. This results in additional time delays, inadequate frequency use, and greater probability that interference among users will occur. There are 706 such frequencies.

### NEEDS STATEMENT

The FCC relies heavily on the recommendations of local frequency coordination. From each license applicant, the FCC requires a field study indicating the degree of probable interference to existing stations on the same channels within 75 miles of the proposed station and a signed statement that all existing cochannel licenses within 75 miles of the proposed station have been notified of the applicant's intention to file an application.

The main function of frequency utilization planning is to enable the allocation of frequencies on an orderly basis and make public safety radio communications a more valuable tool. A frequency utilization planning process would relieve the individual agency applying for licenses of the requirement that they make interference studies prior to being licensed on a particular frequency. Any agency may file license applications directly to the FCC, but must, then, undertake its own frequency study.

There are presently more than 1100 state and local agencies in Montana licensed for 9,500 mobile radios, portable radios, base stations, relays, and repeaters. These agencies share frequencies which must be allocated in such a way as to restrict interference with other radio users in Montana as well as adjacent states and Canada.

In order to assure effective frequency utilization, the following is needed.

- 1. Statutory authority to identify administrative responsibility for statewide frequency utilization and local user input.
- 2. Development and maintenance of a statewide frequency utilization plan which includes:
  - Designation of frequency usage and allocation

standards, to be also submitted to the FCC, enabling the facilitation of frequency applications.

- Designation of technical standards applying to types of radio usage.
- Identification of policies and procedures for management of statewide mutual aid frequencies.

### PROPOSED SOLUTION

Statutory authority for frequency management in the public safety radio services should be located in a single state agency. The Department of Administration has substantial authority in communication systems (2-17-301 to 2-17-306 M.C.A), is "neutral" by not being a principal user of radio frequencies and has experience in coordinating local government and police radio service frequencies. Such authority should provide that the Department be the single point of state government contact with the FCC for land mobile radio purposes. It is proposed that the present communication systems statute be amended to provide additional authority in land mobile radio management.

The Department of Administration should be directed to obtain input from all state and local users of public safety radio services to assure that frequency utilization planning is consistent with the concerns of the user community. In order to obtain that input, an advisory council for land mobile radios should be established for an initial two-year period to deal exclusively with issues of land mobile radio frequency utilization, advising the Director of the Department of Administration.

### STATE OF MONTANA

FISTAL NOTE

Form RD.15

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REQUEST NO. \_\_\_

| · · · · ·   |                       |                 |                      | 10/11/00/15            |
|---|-----------------------|-----------------|----------------------|------------------------|
| n compliance with a written request received          | January 13,           | _ , 1983        | , there is hereby su | bmitted a Fiscal Note  |
| for <u>Senate Bill 117</u> pursuant to                | Title 5, Chapter 4,   | , Part 2 of the | Montana Code Ann     | otated (MCA).          |
| Background information used in developing this Fiscal | Note is available fro | m the Office o  | f Budget and Program | m Planning, to members |
| of the Legislature upon request.                      |                       |                 |                      |                        |

### DESCRIPTION OF PROPOSED LEGISLATION:

Senate Bill 117 designates the Department of Administration as the contact agency within the State of Montana to assist the Federal Communications Commission (F.C.C.) in the coordination of land mobile public safety radio frequencies; requests that the department develop and maintain a land mobile public safety radio frequency utilization plan; enables the department to adopt rules to implement the plan; and requires the department to obtain input from all state and local users of public safety radio services.

### **ASSUMPTIONS:**

- 1) There are 942 radio licenses in the state. There will be approximately 100 requests for F.C.C. license renewals or new applications per year, generating annual revenues of approximately \$5,000.
- 2) There will be a 14 person frequency utilization advisory council. Five members will require per diem and travel expenses for 6 meetings.
- 3) One-half FTE above the current staffing level and related travel and expenses will be absorbed by the communications revolving fund. This position is needed to process license applications, manage an automated frequency and license file, and assist with the advisory council.

### FISCAL IMPACT:

|                     | FY 84     | FY 85                                 | •                                     |
|---------------------|-----------|---------------------------------------|---------------------------------------|
| Revenue:            |           | · · · · · · · · · · · · · · · · · · · |                                       |
| Under Current Law   | \$ O      | \$ O                                  |                                       |
| Under Proposed Law  | 5,000     | 5,000                                 |                                       |
| Increase In Revenue | 5,000     | 5,000                                 | · · · ·                               |
| Expenditures:       |           | •                                     |                                       |
| Personal Services   |           |                                       |                                       |
| Under Current Law   | \$ 0      | \$0                                   |                                       |
| Under Proposed Law  | 7,107     | 7,107                                 |                                       |
| Increase            | 7,107     | 7,107                                 |                                       |
| Operating Expenses  |           | •                                     |                                       |
| Under Current Law   | 0         | 0                                     |                                       |
| Under Proposed Law  | 4,610     | 4,610                                 | 0                                     |
| Increase            | 4,610     | 4,610                                 |                                       |
| Total Expenditures  | 11,717    |                                       | Dand M Lew                            |
| Net Effect          | (6 717)   | (6 717)                               | BUDGET DIRECTOR                       |
|                     | (0,111)   | (0,111)                               | Office of Budget and Program Planning |
|                     | Continued |                                       | a = 1 - 1 - 8 - 8 - 7                 |
| · ·                 | oonernaea |                                       | Date:                                 |

# COMMENTS:

Excess expenditures (net effect) will be absorbed by Communications Revolving Fund.

# LOCAL IMPACT:

Preparing a plan and filing it with the F.C.C. will result in fewer rejections by F.C.C. and Canada and less time for both local and state agencies, thus resulting in cost savings.

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FISCAL NOTE 4:L/2

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| Legislature LC 0280/01                                       |           | LC 0280/01  |
|--|-----------|---|
|  | •         |   |
|  |           |   |
| Wirate gul No. 112   | 4         | public safety radio frequency utilization plan.               |
| INTRODUCED BY Die Halloche Ve Unter My Surfice               | 2         | (2) The plan must include but is not limited to:              |
| BY REQUEST OF THE BOARD OF CRIME CONTROL TAT, MU             | . M       | (a) frequency usage and allocation standards relating         |
| Decorrege stratucy & Convin                                  | \$        | to radio antenna height and power, types of use intended for  |
| A BILL FOR AN ACT ENTITLED: "AN ACT AUTHORIZING THE          | ŝ         | the requested frequency, and other technical features of      |
| DEPARTMENT OF ADMINISTRATION TO DEVELOP AND MAINTAIN A LAND  | 9         | proposed radio systems;                                       |
| MOBILE PUBLIC SAFEIY RADIO FREQUENCY UTILIZATION PLAN; AND   | 7         | <pre>(b) technical standards applying to types of radio</pre> |
| PRUVIDING AN EFFECTIVE DATE."                                | 8         | 1 ages u  |
|  | 6         | (c) policies and procedures for the management of             |
| BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF MONTANA:    | 10        | statewide mutual aid frequencies.                             |
| Section L. Legislative recognition FCC contact               | 11        | Section 3. Rulemaking authority. [1] The department of        |
| agency. The legislature recognizes that prior to issuing a   | 12        | administration may adopt rules to implement the land mobile   |
| land mobile public safety radio license, the federal         | <b>E1</b> | public safety radio frequency utilization plan provided for   |
| communications commission (FCC) attempts to coordinate the   | 14        | in [section 2].   |
| license application with other licenses to minimize the      | 15        | (2) The department shall obtain input from all state          |
| interference caused by the overlapping of frequencies on the | 16        | and local users of public safety radio services.              |
| same channel or an adjacent channel. The department of       | 17        | Section 4. Effective date. This act is effective July         |
| administration is the contact agency within the state of     | 16        | l, 1983.  |
| Nontana to assist the FCC in the coordination of land mobile |           | -End-   |
| public safety radio frequencies.                             |           |   |
| Section 2. Land mobile public safety radio frequency         |           |   |
| utilization plan. (1) In order to assist the federal         |           |   |
| communications commission in the coordination of land mobile |           |   |
| public safety radio frequencies, the department of           |           |   |
| administration shull develop and maintain a land mobile      |           |   |
|  |           | INTRODUCED BIL  |
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# DEPARTMENT OF ADMINISTRATION COMMUNICATIONS DIVISION



# January 31, 1983

# MEMORANDUM

T0: Morris Brusett Director (zioas John Neraas FROM: Administrator,

SUBJECT: Land/Mobile Radio

In response to your letter of January 26, 1983, I am submitting information pertaining to Senate Bill 117, "Authorizing the Department of Administration to Develop and Maintain a Mobile Public Safety Radio Use Plan."

The Communications Division does not operate land/mobile radios. However, we have been serving as the Associated Public-Safety Communications Officers (APCO) coordinator for local govenment, special emergency, and police frequencies with the Federal Communications Commission (F.C.C.)

Sente Bill 117 would enable us to continue in that role as well as 1) Serve as the state's FCC contact for all mobile radio public safety frequencies; 2) Develop and maintain a radio frequency use plan; 3) Adopt rules to implement the plan; and 4) Obtain input from all state and local radio users.

One F.T.E. is provided for through our general appropriation. We are requesting one additional .50 F.T.E. to assist with this function.

We feel that the principal cost savings will be the reduction in rejections and delays of state and local license applications to the F.C.C.

### January 19, 1983

SENATE BILL 117: AUTHORIZING THE DEPARTMENT OF ADMINISTRATION TO DEVELOP AND MAINTAIN A MOBILE PUBLIC SAFETY RADIO USE PLAN

SUBSTANCE OF PROPOSED LEGISLATION This bill authorizes the D of A to:

- Serve as the state's FCC contact for all mobile radio public safety frequencies.
- 2. Develop and maintain a radio frequency use plan.
- 3. Adopt rules to implement the plan.
- Obtain imput from all state and local users.

### FORM OF PROPOSED LEGISLATION

A new act (Senate Bill 117). Could be an amendment to 2-17-302 MCA.

### BACKGROUND

This bill is by request of the Board of Crime Control. Letters of support from Chiefs of Police and Sheriffs & Peace Officers Assn. are attached.

The intent is to pinpoint responsibility for land mobile radio frequency planning in a single agency. Local law enforcement associations felt the D of A was more neutral and had the experience to perform this responsibility. An advisory council was recommended to obtain input from these associations.

The key points are:

- 1. Pinpointing responsibility and authority.
- 2. Filing a plan with the FCC lets all users know there they stand and speeds up FCC processing and approval of licenses. It also strengthens our hand with Canada and should reduce delays in Canadian OK of our licenses.
- 3. Provides authority for issuing rules to govern statwide mutual aid frequencies and other rules which may clean up confusion and reduce radio interference.

A.statement of intent is attached.

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COSTS

About \$5000 in fees, for preparation of license applications will help offset the \$11,717 estimated cost of implementing SB 117. The balance of \$6,717 would be absorbed by the Communications Revolving Fund.

The principal F.T.E. needed and most costs are already incorporated in the Communications appropriation request. An additional 50% F.T.E. (Secretary II) is requested, along with funds to support meetings of an advisory council.

# OUTLINE: STATEMENT OF INTENT: LAND MOBILE RADIO FREQUENCY UTILIZATION LEGISLATION

# PROBLEM DEFINITION

Land mobile radio frequencies are licensed by the FederaT Communications Commission upon application by eligible state and local users (as defined in FCC Rules & Regulations) and review by the FCC. The review process includes a requirement that local coordination be conducted to assure maximum use of availiable frequencies and to minimize interference caused by overlapping of frequencies on the same channel or adjacent channels. Currently, that coordination is conducted for six types of radio services by four separate national associations recognized by the FCC a s responsible for coordination in their radio service areas. These radio services are: local government, police, fire transportation, conservation and special emergencies. Coordination must take into account utilization of frequencies in Montana, and if the user is located close to the four adjacent states or Canada, frequency use in these locations also needs to identified. Besides checking interference patterns, be coordination also takes into account such factors as radio antenna height and power, types of use intended for the requested frequency and other technical features of proposed radio systems.

Frequency coordination is fragmented at the present time. Coordination between users throughout the state is poor. The demand for new frequencies is increasing each year, while the FCC severly restricts the available number of frequencies which may be used by state and local public safety agencies. There is no frequency utilization plan in place for Montana and present state policy and statutory authorites do not clearly identify responsibility for frequency coordination and utilization. Consequently, frequency utilization is coordinated on an ad hoc basis with a strong likelihood for error and confusion.

State and local users of land mobile radio require accurate and timely responses to their license applications. Delays, inappropriate or insufficient responses can severly restrict their ability to install needed radio communications as well as budget for purchases of new radio equipment. Public safety users are responsible for managing critical communications in their functions of dealing with life-threatening problems of fire, crime, medical emergencies, natural and man-made disasters and other emergencies.

Interagency communications is practically nonexistent in Montana. New statewide common (mutual aid) frequencies are in various stages of planning. However, administration of statewide frequencies which will enable agencies to communicate with one another is not presently provided for through existing statutes.

Finally, there is no mechanism currently in place to enable participation by state and local radio users in determining the mutual use of radio frequencies or establishing standards for frequency utilization. A consequence of this is that the FCC has no guidance from Montana as to how we wish to organize frequency allocations. This results in additional time delays, inadequate frequency use, and greater probability that interference among users will occur. There are 706 such frequencies.

### NEEDS STATEMENT

The FCC relies heavily on the recommendations of local frequency coordination. From each license applicant, the FCC requires a field study indicating the degree of probable interference to existing stations on the same channels within 75 miles of the proposed station and a signed statement that all existing cochannel licenses within 75 miles of the proposed station have been notified of the applicant's intention to file an application.

The main function of frequency utilization planning is to enable the allocation of frequencies on an orderly basis and make public safety radio communications a more valuable tool. A frequency utilization planning process would relieve the individual agency applying for licenses of the requirement that they make interference studies prior to being licensed on a particular frequency. Any agency may file license applications directly to the FCC, but must, then, undertake its own frequency study.

There are presently more than 1100 state and local agencies in Montana licensed for 9,500 mobile radios, portable radios, base stations, relays, and repeaters. These agencies share frequencies which must be allocated in such a way as to restrict interference with other radio users in Montana as well as adjacent states and Canada.

In order to assure effective frequency utilization, the following is needed.

- Statutory authority to identify administrative responsibility for statewide frequency utilization and local user input.
- 2. Development and maintenance of a statewide frequency utilization plan which includes:
  - . Designation of frequency usage and allocation

standards, to be also submitted to the FCC, enabling the facilitation of frequency applications.

- Designation of technical standards applying to types of radio usage.
- Identification of policies and procedures for management of statewide mutual aid frequencies.

### PROPOSED SOLUTION

Statutory authority for frequency management in the public safety radio services should be located in a single state agency. The Department of Administration has substantial authority in communication systems (2-17-301 to 2-17-306 M.C.A), is "neutral" by not being a principal user of radio frequencies and has experience in coordinating local government and police radio service frequencies. Such authority should provide that the Department be the single point of state government contact with the FCC for land mobile radio purposes. It is proposed that the present communication systems statute be amended to provide additional authority in land mobile radio management.

The Department of Administration should be directed to obtain input from all state and local users of public safety radio services to assure that frequency utilization planning is consistent with the concerns of the user community. In order to obtain that input, an advisory council for land mobile radios should be established for an initial two-year period to deal exclusively with issues of land mobile radio frequency utilization, advising the Director of the Department of Administration. STATE OF MONTANA

REQUEST NO.

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### FISCAL NOTE

Form BD-15

097-83

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| In compliance with a written request receivedJanuary 13,, 19, there is hereby submitted a Fiscal Note                              |  |
| for Senate Bill 117 pursuant to Title 5, Chapter 4, Part 2 of the Montana Code Annotated (MCA).                                    |  |
| Background information used in developing this Fiscal Note is available from the Office of Budget and Program Planning, to members |  |
| of the tenislature upon request.   |  |

### DESCRIPTION OF PROPOSED LEGISLATION:

Senate Bill 117 designates the Department of Administration as the contact agency within the State of Montana to assist the Federal Communications Commission (F.C.C.) in the coordination of land mobile public safety radio frequencies; requests that the department develop and maintain a land mobile public safety radio frequency utilization plan; enables the department to adopt rules to implement the plan; and requires the department to obtain input from all state and local users of public safety radio services.

### **ASSUMPTIONS:**

- 1) There are 942 radio licenses in the state. There will be approximately 100 requests for F.C.C. license renewals or new applications per year, generating annual revenues of approximately \$5,000.
- There will be a 14 person frequency utilization advisory council. Five members' will require per diem and travel expenses for 6 meetings.
- 3) One-half FTE above the current staffing level and related travel and expenses will be absorbed by the communications revolving fund. This position is needed to process license applications, manage an automated frequency and license file, and assist with the advisory council.

# FISCAL IMPACT:

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|                     | FY 84     | FY 85   | •                                     |
|---------------------|-----------|---------|---------------------------------------|
| Revenue:            |           | •       |                                       |
| Under Current Law   | \$ O      | \$ O    | -                                     |
| Under Proposed Law  | 5.000     | 5,000   |                                       |
| Increase In Revenue | 5,000     | 5,000   |                                       |
| Expenditures:       |           | · .     |                                       |
| Personal Services   |           |         |                                       |
| Under Current Law   | \$ 0      | \$ O    | •                                     |
| Under Proposed Law  | 7,107     | 7,107   |                                       |
| Increase            | 7,107     | 7,107   |                                       |
| Operating Expenses  |           |         |                                       |
| Under Current Law   | 0         | 0       |                                       |
| Under Proposed Law  | 4,610     | 4,610   | Δ                                     |
| Increase            | 4,610     | 4,610   |                                       |
| Total Expenditures  | 11,717    | 11,717  | Dand In Leu                           |
| Net Effect          | (6 717)   | (6 717) | BUDGET DIRECTOR                       |
|                     | (0,111)   | (0,111) | Office of Budget and Program Planning |
| •                   | Continued |         | Date: 1-18-83                         |

# COMMENTS:

Excess expenditures (net effect) will be absorbed by Communications Revolving Fund.

# LOCAL IMPACT:

Preparing a plan and filing it with the F.C.C. will result in fewer rejections by F.C.C. and Canada and less time for both local and state agencies, thus resulting in cost savings.

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|                       |  |   |   |
| -1                    | Afrester give No. 112  |   | l public safety radio frequency utilization plan.                         |
| ~                     | INTRODUCED BY Drul Hyllohr Ve Unterhay alertice              |   | (2) The plan must include but is not limited to:                          |
| n                     | BY REQUEST OF THE DOARD OF CRIME COMTROL TT, ML              |   | <ol> <li>(a) froquency usage and allocation standards relating</li> </ol> |
| 5                     | Contraction therein a Contraction                            |   | to radio antenna height and power, typos of use intended for              |
| ŝ                     | A BILL FOR AN ACT ENTITLED: "AN ACT AUTHORIZING THE          |   | 5 the requested frequency, and other technical features of                |
| <b>. و.</b>           | DEPARTMENT OF ADMINISTRATION TO DEVELOP AND MAINTAIN A LAND  | • | b proposed radio systems;   |
| 1                     | MOBILE PUBLIC SAFETY RADIO FREQUENCY UTILIZATION PLAN; AND   | · | <pre>/ (b) technical standards applying to types of radio</pre>           |
| <b>⇔</b> <sup>1</sup> | PROVIDING AN EFFECTIVE DATE."                                |   | ) usage;  |
| 6                     | -  |   | ? (c) policies and procedures for the management of                       |
| 10                    | BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF MONTAWA:    | 1 | ) statewide mutual aid frequencies.                                       |
| 11                    | Section 1. Legislative recognition - FCC contact             | - | L Section 3. Rulemaking authority. (1) The department of                  |
| 12                    | agency. The legislature recognizes that prior to issuing a   | 1 | 2 administration may adopt rules to implement the land mobilo             |
| 13                    | land mobile public safety radio license, the federal         | - | 3 public safety radio froquency utilization plan provided for             |
| 14                    | communications commission (FCC) attempts to coordinate the   | Ĩ | f in [section 2].   |
| 15                    | license application with other licenses to minimize the      | 7 | 5 (2) The department shall obtain input from all state                    |
| 16                    | interference caused by the overlapping of frequencies on the | Ĩ | b and local users of public safety radio services.                        |
| 17                    | same channel or an adjacent channel. The department of       | T | 7 Section 4. Effective date. This act is effective July                   |
| 18                    | administration is the contact agency within the state of     | 1 | B 1, 1983.  |
| 19                    | Montana to assist the FCC in the coordination of land mobile |   | -End-   |
| 20                    | public safety radio frequencies.                             |   |   |
| 21                    | Section 2. Land mobile public safety radio frequency         |   |   |
| 22                    | utilization plan. (1) In order to assist the federal         |   |   |
| 23                    | communications commission in the coordination of land mobile |   |   |
| 24                    | public safety radio frequencies, the department of           | - |   |
| 25                    | administration shall develop and maintain a land mobile      |   |   |
|                       |  |   |   |
|                       |  | - |   |