SPECIFICATIONS

FOR

PROPOSAL FOR STATEWIDE

INTEGRATED COMMUNICATIONS

SYSTEM

STATE OF IOWA

DEPARTMENT OF GENERAL SERVICES

DIVISION OF COMMUNICATIONS

SPECIFICATION NO. 450-0003

DATE 11/02/79

Recommendation:

TO: The Communications Advisory Council

BY: The Data Communications Task Force

SUBJECT: Iowa Statewide Data Communications Network

DATE: July 30, 1979

I. Introductory Statements

In the period of existance of the Data Communications Task Force the participating agency members have spent many, many hours in identifying the task at hand and what role we are to play in accomplishing this task. We began with confusion and ended with organization. This was made possible only through diligent work and complete cooperation from all members.

The Task Force participated in the efforts of Northwestern Bell Telephone in the Bell Telephone voluntary study of our data communications network needs. Northwestern Bell Telephone presented a general proposal and indicated the need for approval before continuation of their detailed design. After much deliberation by all Task Force members it was unanimously decided that we did not have the needed level of technical expertise to determine if the proposal was the best solution to our network problems. At this time we wrote a response to Northwestern Bell Telephone explaining the situation and thanking them for their voluntary participation to date.

The "statement of purpose" for our task force to date has been "to provide recommendations to the Communications Advisory Council for the conceptual design of a common, statewide data communications network to serve the needs of participating public agencies".

The "objectives" of our task force in seeking such a conceptual design has been "to permit sharing of hardware and software resources and to allow for ease of future growth".

As of July 30, 1979 all participating members of this task force agree wholeheartedly that there must be a design and implementation of a statewide data communications network. We also have come to realize that the overall goal should not solely rest with dollar savings in line and equipment costs, but should include and capitalize on a greatly improved and a more organized service to all data communication users. Initial dollar savings may not be possible, however, if designed properly future dollar savings will be inevitable.

I feel as chairman of this task force that much has been accomplished in a short time. Yet there must be much more accomplished in the near future.

However, per chance that nothing takes place beyond July 30, 1979 the one thing that will have made our efforts worth while is the spirit of cooperation between participating agencies that has grown throughout the past six months.

III. Summary of Inventory

There are 8 major computer systems that are now being used by agenices that have representation in the Data Communications Task Force.

The following participating agencies have a major system:

Comptrollers Data Processing	Des Moines
Department of Transportation	Ames
Department of Public Instruction	Cedar Rapids
Department of Public Safety	Des Moines
Iowa State University	Ames
Job Services of Iowa	Des Moines
State University of Iowa	Iowa City
University of Northern Iowa	Cedar Falls

There are an estimated 1,200 terminals supported by these 8 major computer systems.

There are also any number of mini-computers supported by one of the major computers. We have no estimate of the total number.

There are two pilot computer services that are being experimented with for the counties.

1. The on-line motor vehicle registration system.
2. The dial up voter registration system.

The Department of Public Safety is also connected to computers in Arizona, Washington D.C., Polk-Des Moines and the Quad Cities.

The detailed inventory consists of a considerable volume of paper. In an attempt to conserve on paper usage we are not including this detail in this report. The detail information is available if anyone wishes to look at it.

In the annex of this report is the explanation of how our inventory was taken. Also there is a copy of the inventory form used by our task force to obtain the needed detail.

We could include staggering figures of the miles of telephone lines being used and the number of characters of data being transmitted daily, however, we feel that this kind of detail would not be meaningful in this recommendation. As soon as we print such detail it is out of date due to the dynamic growth that is now taking place in the usage of data processing facilities. The fact that we have an estimated 1,200 terminals being supported by 8 major computer systems in Iowa is proof enough that Iowa needs a data communications network.

IV. Summary of Predicted Growth

Predicted growth varies greatly from agency to agency. From the information provided by the participating agencies the following is the predicted growth over the next three years.

Fiscal Year	Lowest Projection	Highest Projection
1980	5%	30%
1981	5%	40%
1982	5%	40%

This growth will be in number of computer applications supported, number of terminals supported, number of agencies supported, and in the computer hardware needed.

V. Obvious Needs

1. To develop and install a data communications network that:

   A. is flexible and adaptable to future trends in technology.
   B. is acceptably transparent to the user and the application.
   C. provides data security according to Federal and State regulations.
   D. defines vendor involvement.

2. To define the administration necessary to:

   A. manage and continually research improvements to a common data communications service for state and sub-state agencies.
   B. assess network costs in a manner which allows each agency to analyze cost benefits.
   C. develop and maintain an inventory of agency data communications requirements.

3. To identify management commitment to:

   A. participate in development of a statewide data communications network.
   B. install and operate the statewide network.

VI. Problems

1. Approval of dedication of the necessary staff's time and other resources needed to develop and install the data communications network.

2. There presently is no mechanism that insures that the participating state agencies will adhere to the policies and procedures set forth by the Data Communications Task Force.

3. The design of the network is dependent on the agencies participating in its use and the use of such a network by participating agencies is dependent on the network design. (Chicken and egg syndrome.)

VII. Recommendation of Solutions & Changes

A. The Data Communications Task Force would like to proceed by immediately attaining the proper level of technical knowledge from each agency to form a task force sub-group to design a data communications network. The efforts of this sub-group would be coordinated through the Data Communications Task Force and will become the basis of the data portion of a statewide plan.

B. Immediate

1. a. Identify technical staff and other resources required.
   b. Ask Communications Advisory Council for needed support.
   c. Use staff and resources to design a data communications network.
   d. Use staff and resources to install the designed network.

2. Identify and recommend needed administrative structure.

3. Identify and recommend needed guidelines for monitoring and insuring continued participation by agencies.

4. Develop timetable to accomplish all established activities.

C. 3-5 Years

Enhance features and facilities to enable additional state agencies and/or sub-state agencies to be included in the established and functional network.

D. Because of constant change in the "state of the art" in data processing and data communications we do not feel comfortable in presenting plans beyond 5 years in the future. However, we will continually re-evaluate our position and future needs as we continue our work.

How Inventory Was Taken:

1. Sub-committee identified those details describing present networks which should be used to deliniate design parameters of a shared data communications network.

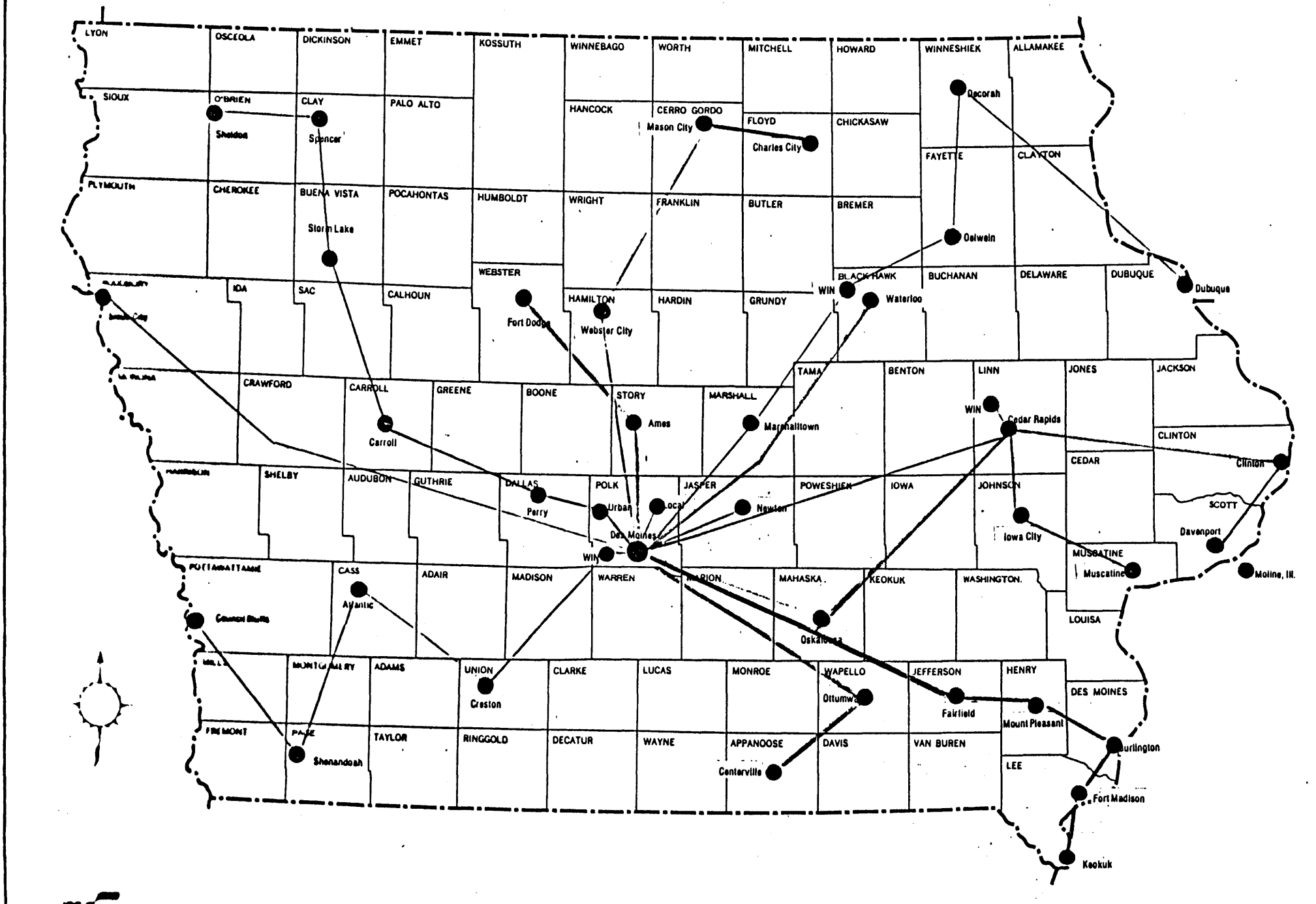
2. Present form to entire task force for approval. Approval was received.

3. The form and request for this inventory information was distributed by task force members to their respective staff.

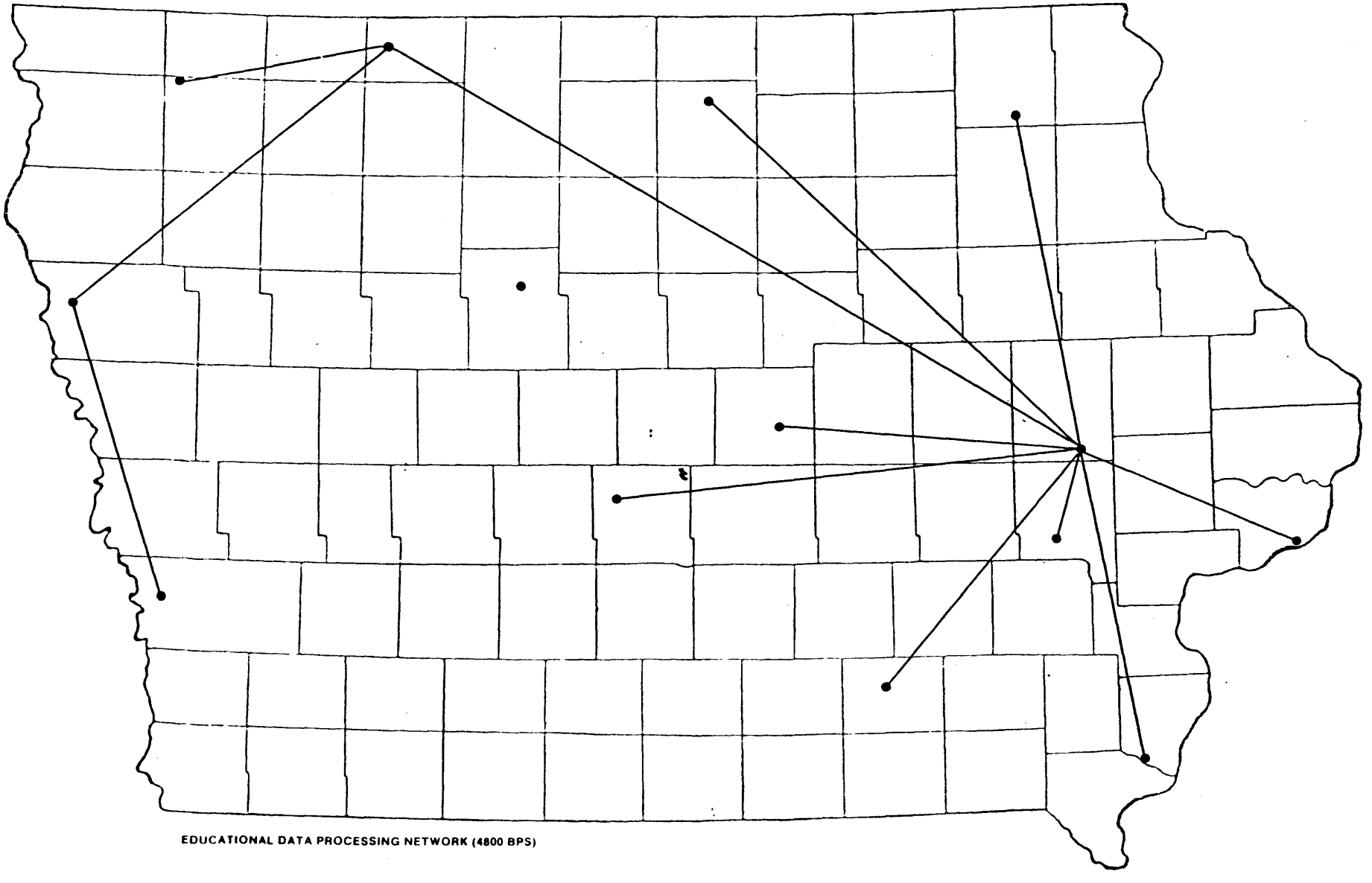
4. Initial plans to develop computer programs to support input retention and summarization of the detail data were established.

5. Portions of the survey detail have been returned to the task force. This information is being accumulated and organized by the task force sub-committee in a single manual that will be continually updated. Due to the volume of documents involved and due to the incomplete status at this time we are not including this detail as part of this recommendation. However, it is available should anyone be interested.

The inventory is 65% complete as of July 30, 1979.

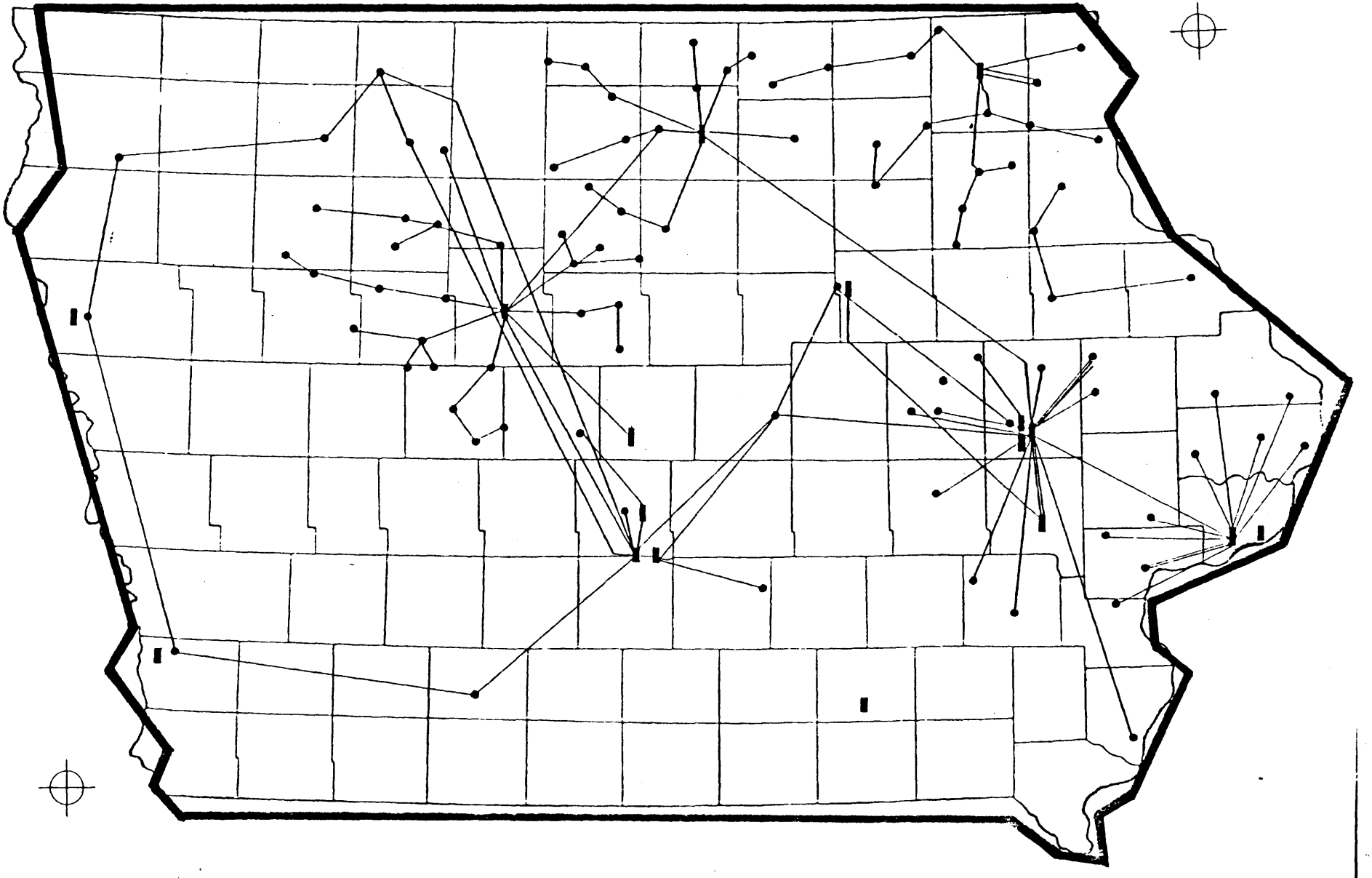


JOB SERVICE DATA COMMUNICATIONS NETWORK

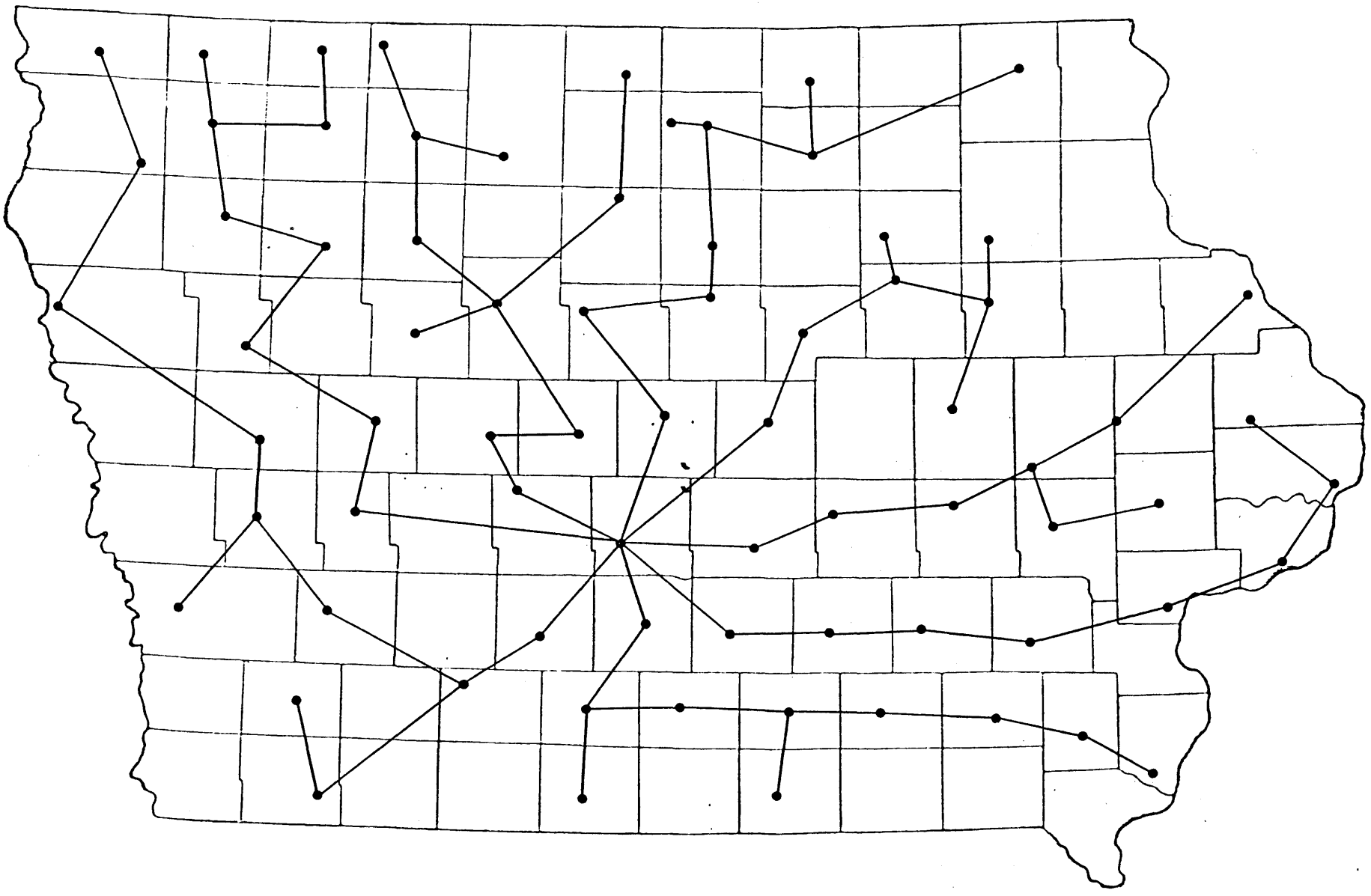


EDUCATIONAL DATA PROCESSING NETWORK (4800 BPS)

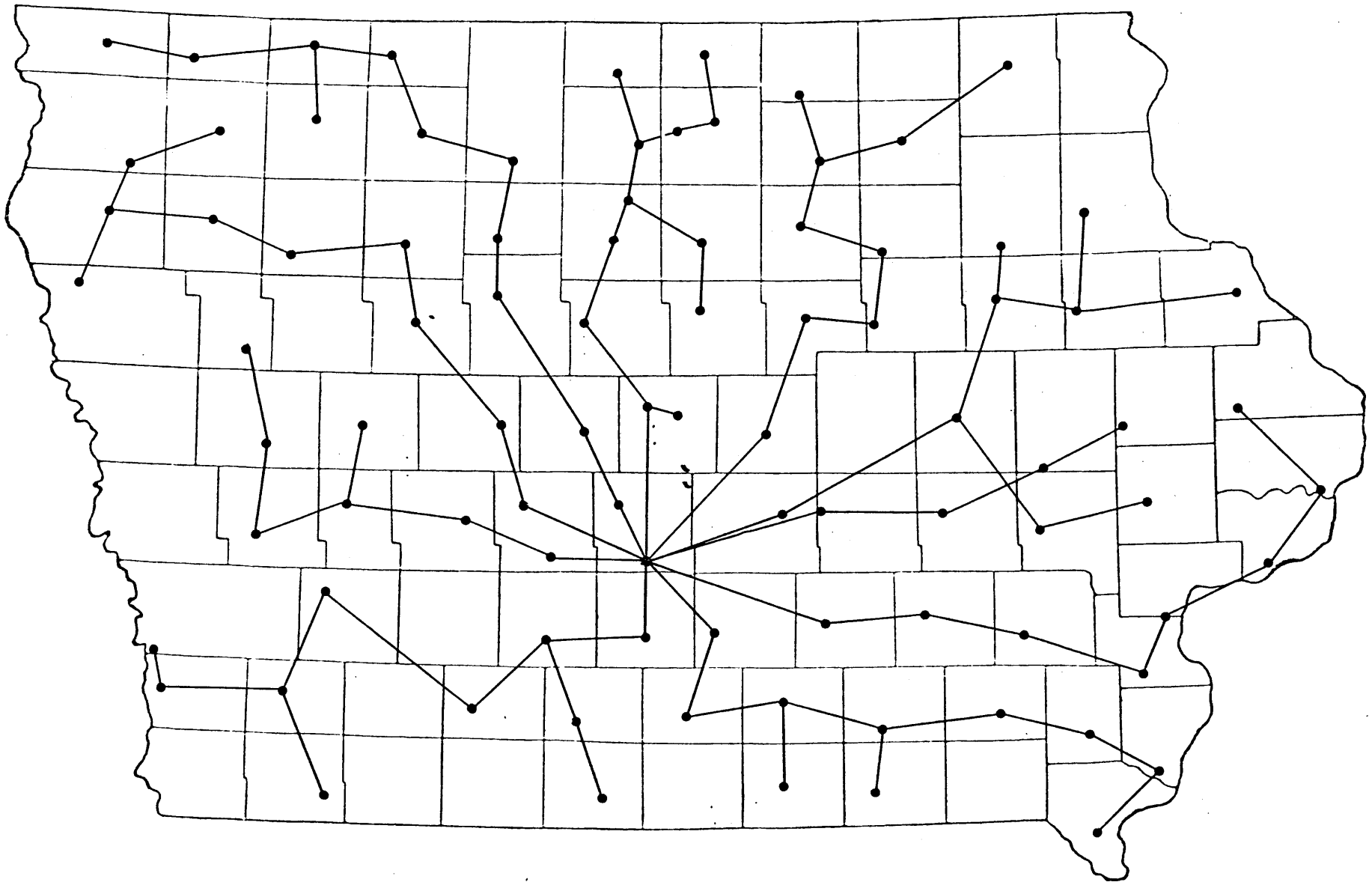
CURRENT NETWORKING - EDUCATION



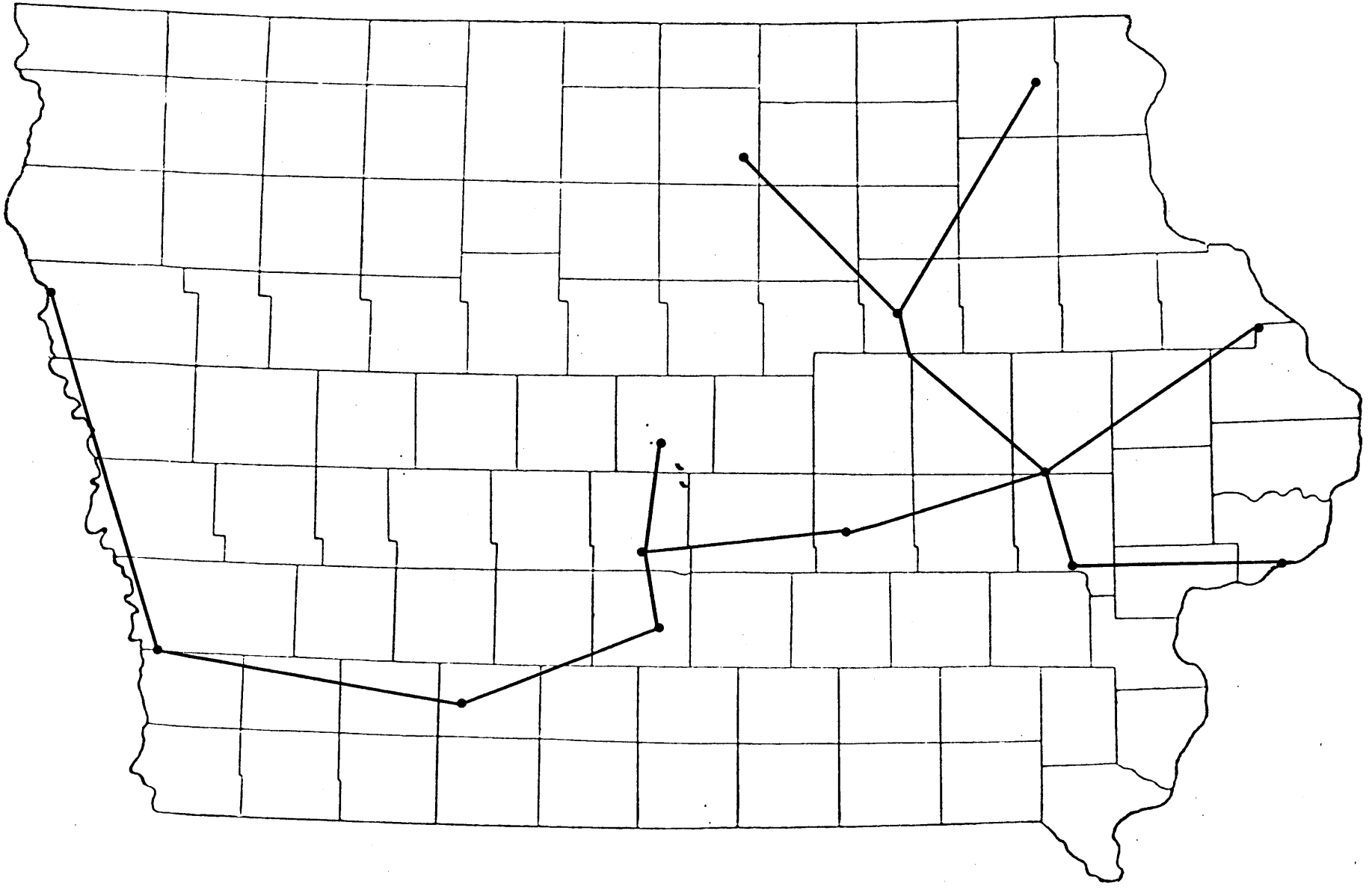
EXISTING TRACIS NETWORK



NEW TRACIS NETWORK



CURRENT 1-LITE NETWORK



VOICE COMMUNICATIONS

APPENDIX B

VOICE COMMUNICATIONS TASK FORCE

REPORT TO COMMUNICATIONS ADVISORY COUNCIL

I. General

The Voice Communications Task Force has solicited, from the various departments and agencies represented on the task force, information relative to the problems, concerns and the current and future expectations of the state voice communications system as it pertains to telephone communications. The information submitted ranged from very general comments to detailed concise requests. The primary input originated from those agencies headquartered in Des Moines and currently served by the state central system.

There was no question as to a continuing increase in demand for telephone communication service and some fear expressed that the system may not respond quickly enough to an expected surge in demand brought about by decreasing fuel supplies and the energy and cost conservation measures being implemented. It is expected that a marked reduction in travel will take place and a corresponding increase in state business will be conducted by telephone.

The task force gave primary concern to the informational needs of management and to providing a high level of service to state government at a least cost alternative that would be beneficial, fair and equitable to the agencies served.

It was repeatedly emphasized that cooperation between agencies was a must and that the common goal was for efficient operation and service to the people of Iowa.

II. & III. Existing Networks and Summary of Inventory

It was not deemed practical to itemize the number of telephone instruments served by the system or the ARS configuration as these are constantly changing as agencies grow, expand or are relocated. Nor was it felt to be pertinent to the report.

IV. Summary of Predicted Growth

The number of unknown factors prevented a realistic prediction of growth in voice communications.

V. Obvious Needs

The most obvious need is for management information for both the using agencies and the Communications Division.

VI. Problem Statements are self-evident in the recommendations.

VII. Recommendations

The task force recommends:

1. That a central billing system be implemented that provides an essential tool for departmental/agency management. The billing must be timely, be based on sound cost accounting and provide detail on the originating station, date and time call placed, destination and duration. The billing system should also include reoccuring and non-reoccuring charges which would accommodate basic service, installation, credit card, third party calls and potentially telegram charges. The billing system should be on a cost per minute basis to provide the most cost effective system.

VII. Recommendations (Continued)

2. Computer programs that would provide an analysis of the ARS tapes to determine traffic concentration which would permit the Communications Division to make changes in the system configuration to respond to changing demands and to achieve a true least cost routing and truly manage the system.

3. Periodic data be provided the using departments that clearly reflects cost savings.

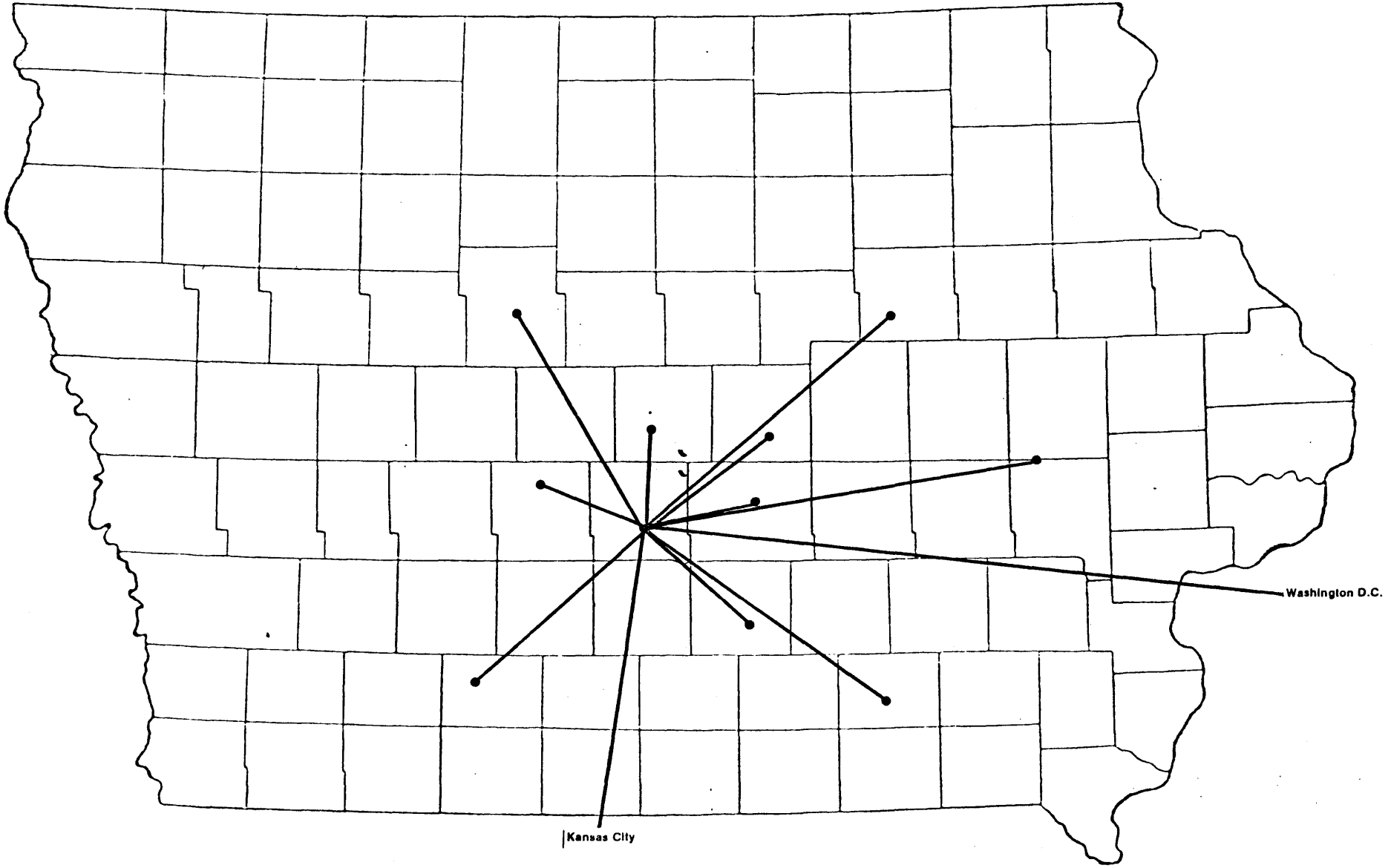
4. The establishment of an In-WATS system that would serve both the general public and more importantly state employees working in the field and regional and district office employees. The system must have an adequate basis for cost charge back to the benefiting department/agencies. Automatic remote access should be part of any In-WATS system installed.

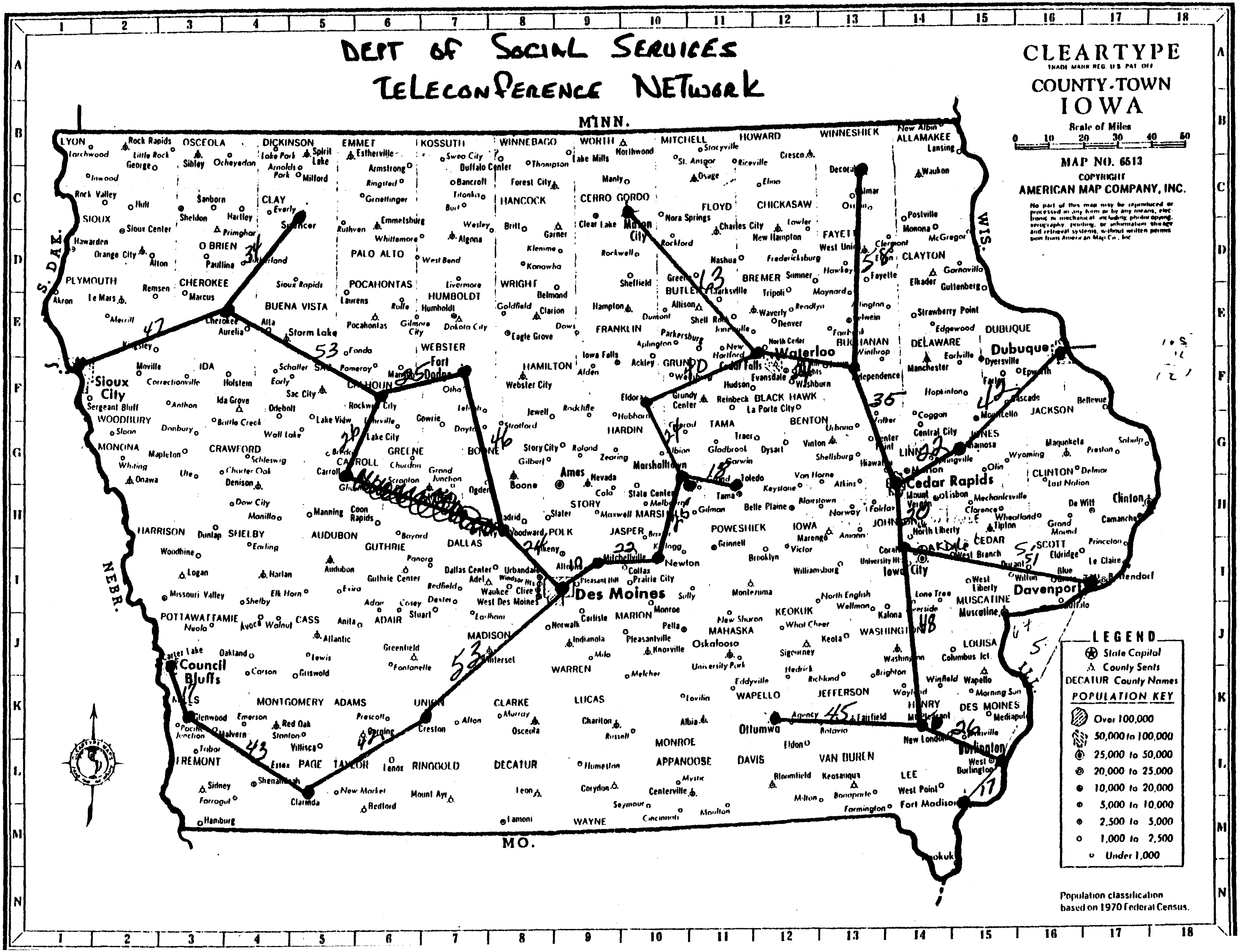
5. The development of a state wide tele-conferencing network that would serve all of state government including the area schools and the regents' institutions. This appears to be a must in view of the potential gasoline savings as a result of reduced travel.

6. A reexamination of the existing state telepac networks, including all existing leased lines, for possible relocation to better serve existing users and provide communication service to areas not now being served. This is intended to serve voice and data, facsimile and radio. Perhaps the Communications Division should become a common carrier and lease service to other state agencies.

To implement the above recommendations it is essential that the responsibility and authority be assigned to the Division Communications.

VOICE FX NETWORK




DEPT OF SOCIAL SERVICES
TELECONFERENCE NETWORK
CLEARTYPE
TRADE MARK REG. U.S. PAT. OFF.
COUNTY-TOWN
IOWA
Scale of Miles
0 10 20 30 40 50
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MINN.
S. DAK.
NEBR.
MO.
WIS.
LEGEND
State Capital
County Seats
DECATUR County Names
POPULATION KEY
Over 100,000
50,000 to 100,000
25,000 to 50,000
20,000 to 25,000
10,000 to 20,000
5,000 to 10,000
2,500 to 5,000
1,000 to 2,500
Under 1,000
Population classification based on 1970 Federal Census.
Sioux City
Des Moines
Council Bluffs
Cedar Rapids
Waterloo
Dubuque
Davenport
Iowa City
Ottumwa
Burlington
Fort Dodge
Ames
Marshalltown
Mason City
Spencer
Cherokee
Carroll
Creston
Clarinda
Glenwood
Newton
Toledo
Eldora
Decorah
Independence
Fairfield
Fort Madison
Muscatine
Clinton
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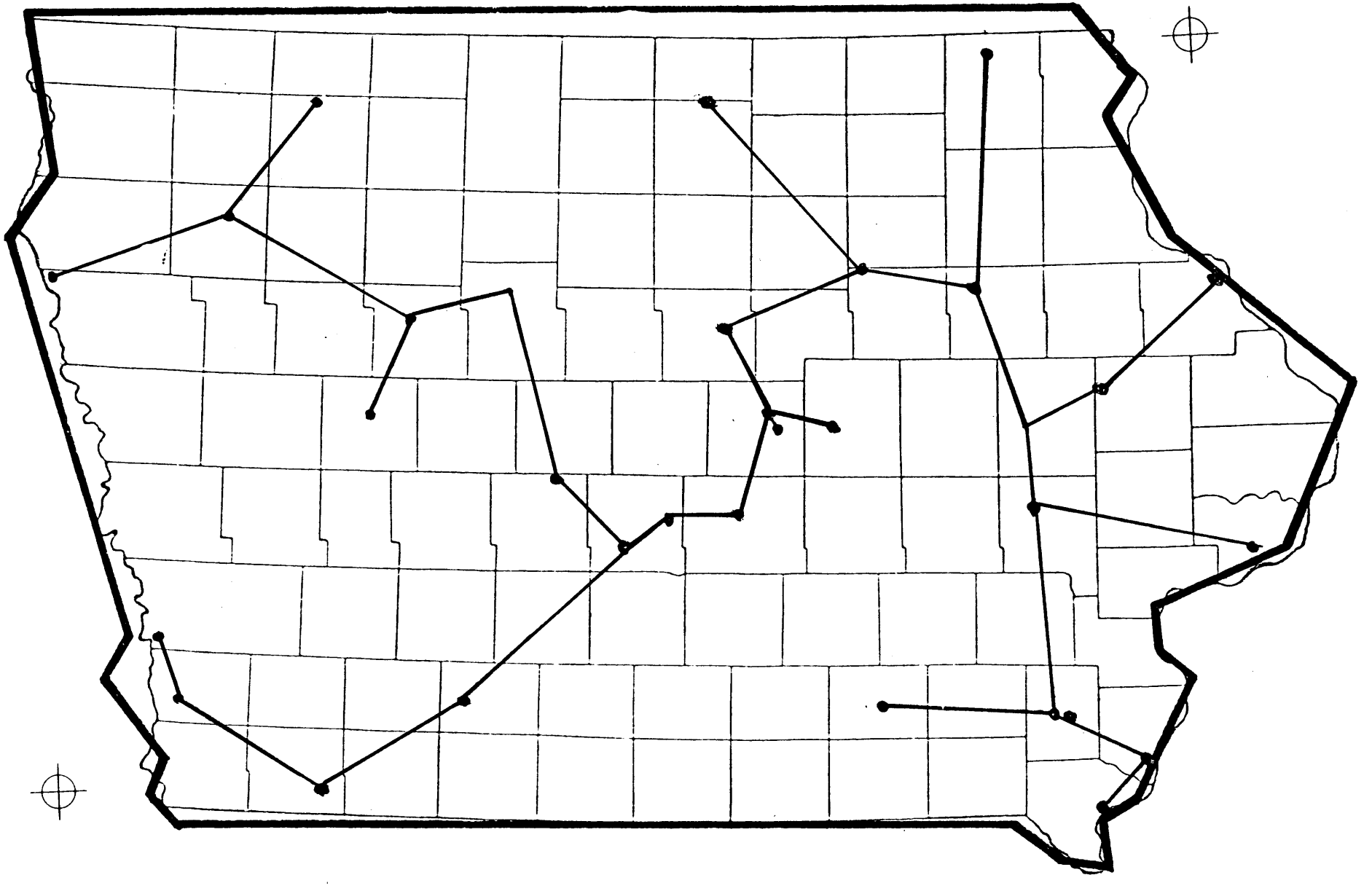
Dept. of Social Services
Teleconference Network



LAND MOBILE COMMUNICATION

APPENDIX C

ADVANCEMENTS IN THE IOWA PUBLIC SAFETY COMMUNICATIONS SYSTEM

NEAR FUTURE:

1. Base station telephone patching capabilities enabling the Trooper to have direct person-to-person converstations.
2. Transmitter station automatic identification devices to relieve the operator of the FCC requirement.
3. Implement DPS and LEA remote channel switchover. Remote frequency switching will provide the redundancy for increased reliability.
4. Statewide repeater and base station antenna radiation pattern testing with antenna changes and/or orientation to increase signal levels in the marginal areas. In addition, documented field strength and antenna pattern tests will be conducted for the mobiles.

NEXT FIVE YEARS:

1. Microwave control between remote stations and base stations should be implemented to reduce control operating costs. The nine communications areas should also be linked together. This linkage will allow control of any communication area from any other communications area.
2. Automatic mobile identification and pre-selected "10-code" messages.
3. Base station mini-computer system to:
   A. automatically route the mobile signal to any pre-selected communication area
   B. decode and display the automatic mobile identification
   C. establish priority of importance among the calling mobiles
   D. provide direct interface between the mobile units and the CAD and I.O.W.A. system
4. Printed copy read-out for mobiles.
5. Mobile repeaters enabling a Trooper with a hand-held to communicate through his mobile equipment back to his base station.

FIVE YEARS AND BEYOND:

1. Narrow band single sideband techniques for greater transmission distances with considerably reduced power will be available. The increasing frequency congestion will demand SSS or some digital voice technique.
2. Satellite communications for the Iowa DPS and other state DPS systems for interstate communications is within todays' technology. Present satellite costs are prohibitive but are being reduced rapidly and should become cost effective by 1985.

WUA/ss
4/24/79

SCHEDULE 4: TOWERS

Provide a list of: 1. Radio towers, including latitude, longitude height, elevation above sea level for the location.

2. Each antenna including antenna heights at each location and function if readily available.

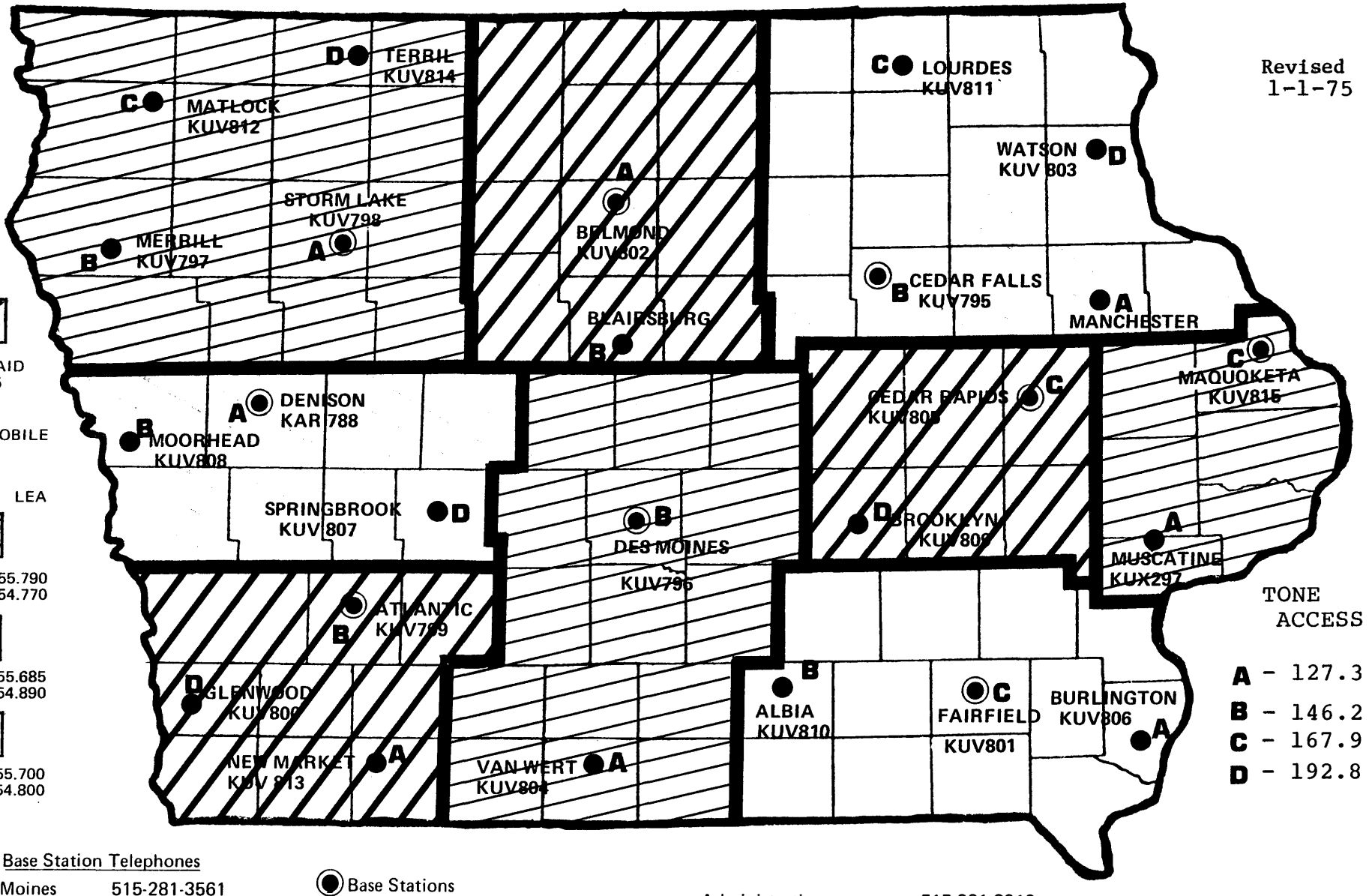
TOWER LOCATION	COST	RE-PLACEMENT COST	LATITUDE	LONGITUDE	BASE ELEVATION	TOWER HEIGHT	ANTENNAS FUNCTION	ANTENNAS HEIGHT
Des Moines 5912 2nd Ave.	$50,000	$100,000	41°40'05"	93°37'18"	910'	452'	BASE LEA P-T-P spare	452' 432' 402' 372'
Waterloo 2E of 63 & 1S of 412	$	$40,000	42°26'37"	92°22'42"	956'	400'	BASE LEA P-T-P spare	400' 370' 340' 310'
Cedar Rapids 1.75 W on 30	$40,000	$40,000	41°58'00"	91°43'00"	880'	220'	BASE LEA P-T-P spare	220' 190' 160' 130'
Maquoketa 3SW on 130	$40,000	$40,000	42°05'30"	90°44'00"	786'	320'	BASE LEA P-T-P spare	320' 290' 260' 230'
Fairfield 5N on 1	$40,000	$40,000	41°05'00"	91°58'00"	800'	320'	BASE LEA P-T-P spare	320' 290' 260' 230'
Lewis 9SW on 6	$40,000	$40,000	41°19'00"	95°06'00"	1300'	320'	BASE LEA P-T-P spare	320' 290' 260' 230'
Belmond 4.5N on 69	$40,000	$40,000	42°54'30"	93°37'00"	1230'	320'	BASE LEA P-T-P spare	320' 290' 260' 230'
Storm Lake Jct 71 & 7	$40,000	$40,000	42°36'00"	95°00'24"	1460'	320'	BASE LEA P-T-P spare	320' 290' 260' 230'
Denison 1.4W on 141	$40,000	$40,000	42°02'00"	95°24'00"	1370'	320'	BASE LEA P-T-P spare	320' 290' 260' 230'

TOWER LOCATION	RE-PLACEMENT COST	COST	LATITUDE	LONGITUDE	BASE ELEVATION	TOWER HEIGHT	ANTENNAS FUNCTION	ANTENNAS HEIGHT
Muscatine SW entr. to Wildcat Den Park	$20,000	$20,000	41°27'48"	90°53'20"	730'	180'	BASE LEA	180' 150'
Lourdes 1.5N on 63	$30,000	$30,000	43°17'10"	92°17'50"	1265'	295'	BASE LEA	295' 265'
Gunder .5S & 1W on gravel road	$20,000	$20,000	42°57'52"	91°31'56"	1135'	180'	BASE LEA	180' 160'
Harpers Ferry 6NW on Co.Rd. A52	$20,000	$20,000	43°15'33"	91°11'48"	1180'	180'	BASE LEA	180' 160'
Holy Cross 1.5N & 1.5E	$30,000	$30,000	42°37'27"	90°58'12"	1220'	295'	BASE LEA	295' 265'
Moorhead entr. to Prep Canyon St. Park	$25,000	$25,000	41°54'30"	95°56'00"	1300'	120'	BASE LEA	120' 100'
Springbrook 3500' NE of entr. to Springbrook St. Park	$20,000	$20,000	41°46'46"	94°27'34"	1226'	190'	BASE LEA	190' 170'
Albia .7N on 137	$20,000	$20,000	41°03'06"	92°48'08"	950'	190'	BASE LEA	190' 170'
Burlington 2W on 34 & .5N on Co.Rd.	$30,000	$30,000	40°50'02"	91°12'46"	706'	280'	BASE LEA	280' 260"
Glenwood 3N on 275 & .25W	$30,000	$30,000	41°05'53"	95°46'17"	1260'	280'	BASE LEA	280' 260'
New Market 1.75N	$30,000	$30,000	40°45'50"	90°54'00"	1250'	280'	BASE LEA	280' 260'
Blairsburg W Jct. 20 & 69	$25,000	$25,000	42°28'20"	93°38'30"	1225'	220'	BASE LEA	220' 190'
Terril 1.9W	$20,000	$20,000	43°17'57"	95°00'36"	1425'	190'	BASE LEA	190' 170'
Merrill 4W	$20,000	$20,000	42°44'00"	96°22'30"	1220'	190'	BASE LEA	190' 170'
Matlock 1.25E & .5S	$20,000	$20,000	43°14'35"	95°54'04"	1440'	190'	BASE LEA	190' 170'
Van Wert 1/8 SW of I-35 interchg	$30,000	$30,000	40°52'00"	93°45'36"	1130'	280'	BASE LEA	280' 260'
Brooklyn 5N on Co.Rd. V18 at Kent Church	$20,000	$20,000	41°48'20"	92°26'42"	970	190'	BASE LEA	190' 170'

TOWER LOCATION	COST	RE-PLACEMENT COST	LATITUDE	LONGITUDE	BASE ELEVATION	TOWER HEIGHT	ANTENNAS FUNCTION	ANTENNAS HEIGHT
Post 2 Osceola .25E of 34 & I-35	$1000	$2000	41°02'00"	93°48'00"	1125'	100'	1 antenna	
Post 3 Atlantic E Jct. 71 & 6	$700	$1500	41°24'16"	94°56'45"	1290'	50'	1 antenna	
Post 5 Cherokee .5NW of 59 & 3	$1000	$2000	42°46'27"	95°33'53"	1366'	100'	1 antenna	
Post 6 Spencer 2603 Hwy. Blvd.	$700	$1000	43°10'00"	95°09'14"	1335'	45'	1 antenna	
Post 7 Ft. Dodge 1407 E. St.	$1000	$2000	42°29'19"	94°11'53"	1120'	100'	1 antenna	
Post 8 Mason City 1W on 18	$	$2000	43°08'48"	93°15'31"	1169'	80'	1 antenna	
Post 10 Oelwein E of City Limits on Hwy. 3	$1000	$2000	42°40'13"	91°53'28"	1120'	100'	1 antenna	
Post 12 Davenport 3112 E. Kimberly Rd.	$1000	$2000	41°33'20"	90°31'41"	661'	100'	1 antenna	
Post 13 Mt. Pleasant .9S of 34 & 218	$700	$1500	40°57'06"	91°32'00"	691'	50'	1 antenna	
Post 14 Ottumwa 2331 Roemer Ave.	$1000	$2000	41°00'37"	92°23'58"	698'	100'	1 antenna	
Capitol Security Penthouse Lucas Bldg. Des Moines	$0	$0	41°35'30"	96°36'00"	870'	150'	1 antenna	

STATE PATROL COMMUNICATIONS

Revised
1-1-75



MUTUAL AID
155.475

STATEWIDE MOBILE
155.430

	BASE	LEA
B	155.640	155.790
M	154.650	154.770
B	155.655	155.685
M	154.755	154.890
B	155.565	155.700
M	154.665	154.800

TONE ACCESS

A - 127.3
B - 146.2
C - 167.9
D - 192.8

6-21

Base Station Telephones

Des Moines	515-281-3561
Atlantic	712-243-3854
Denison	712-263-4333
Storm Lake	712-732-1341
Belmond	515-444-5511
Cedar Falls	319-266-1124
Maquoketa	319-652-3651
Cedar Rapids	319-363-5629
Fairfield	515-472-5747

◉ Base Stations

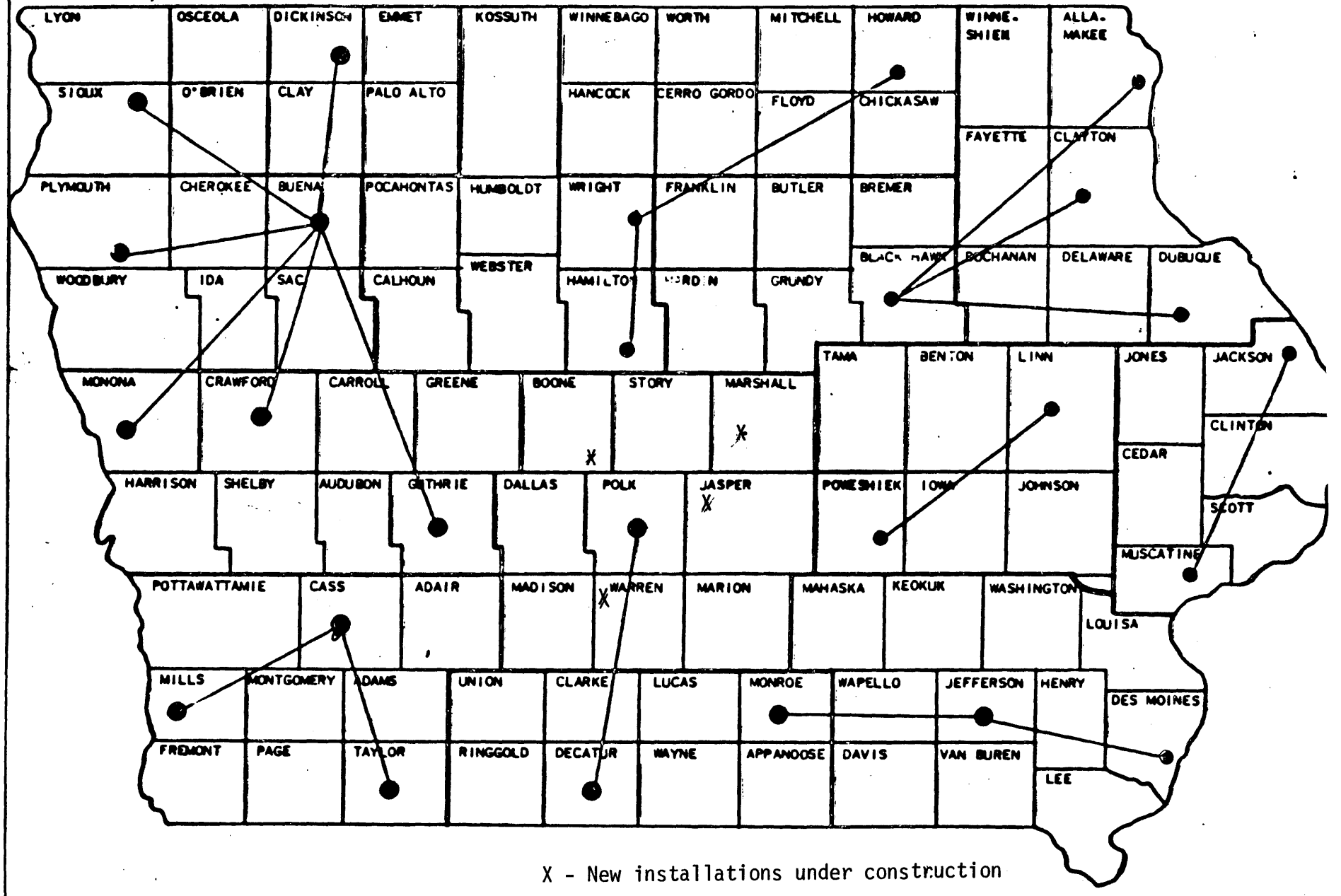
● Repeater Stations

Toll Free Highway Emergency Phone

1-800-362-2200

Administration	515-281-3913
Development Director	515-281-3159
Frequency Coordinator	515-281-3159
Operations Coordinator/ Training	515-281-3703
Technical Support	515-281-3175

IOWA DEPARTMENT OF PUBLIC SAFETY
Base Station Interconnect
COMMUNICATIONS DIVISION



X - New installations under construction

● - Existing

Maintenance and Construction:

The two-way radio system is cellular and has a repeater in each of Iowa's 99 counties. The system cannot operate on a direct, vehicle-to-vehicle basis. Both vehicles must be within range of the same repeater. The repeater will automatically retransmit the messages. Transmission from one corner of the state to another corner is not possible.

Design:

1. The single-channel mobile and control station receive and transmit on one channel and one tone. The single channel unit can only be used in the area in which it is assigned. All communication with this unit must be on that area's channel and tone.

2. Multi-channel mobile and control stations receive on either of the channels. The receiver will respond to either F or G tones. The transmitter will transmit on either channel and on any of the area tones.

3. The headquarters area repeater station receives both channels and F or G tone, as well as the area standard tone. It transmits on only one channel and the standard area tone, plus F or G tone depending on the channel. F if channel 1 and G if channel 2.

4. Construction radios are multi-channel mobile and control stations. They receive and transmit on either of two channels depending on the channel selector switch. The transmitter will transmit any of the area tones. The receiver is not tone controlled, therefore it will respond to all traffic on the selected channel.

MVE:

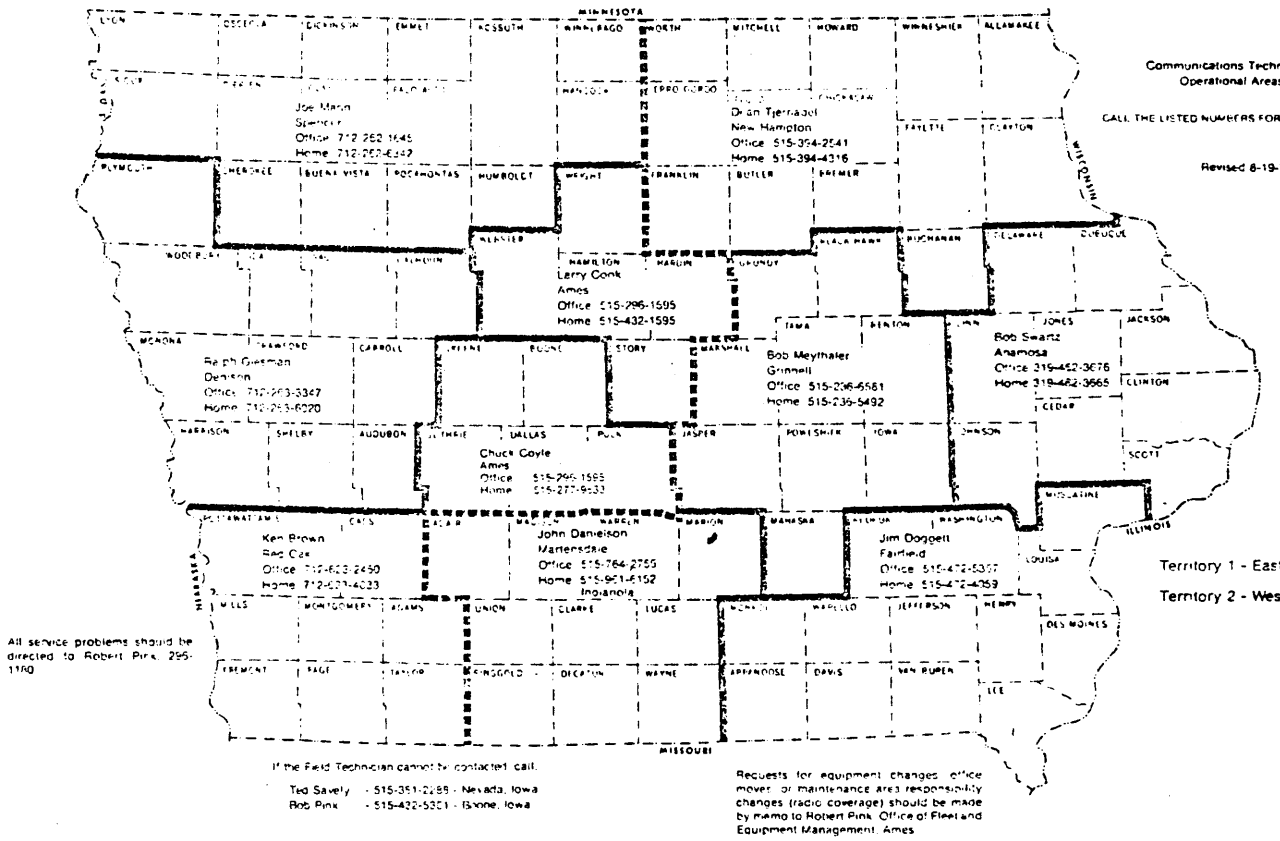
This system operates on the DPS Radio System with the addition of one simplex channel for departmental traffic.

Administration System:

This system is a telephone patch system with the mobile operator bein in control. Two repeaters are used. One in Des Moines turned on with the "Ø" on the mobile touch tone pad. Another repeater is used in the Ames area turned on with the "*" on the mobile touch tone pad. Each repeater has a mobile range of about 30 miles.

Paging System:

This is leased from Electronic Engineering and covers Des Moines and Ames (2 systems).

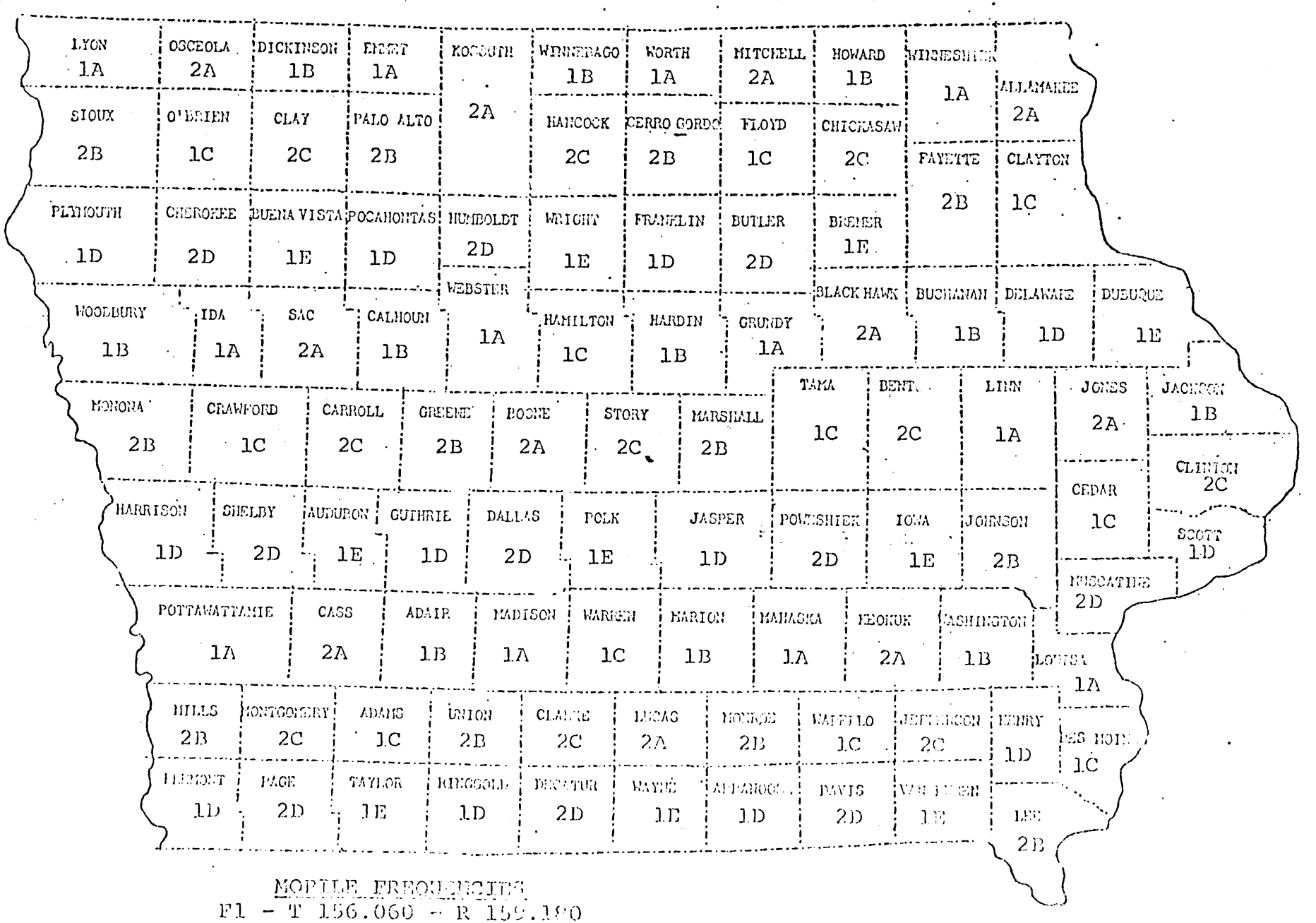

Communications Technicians
Operational Areas
CALL THE LISTED NUMBERS FOR RADIO MAINTENANCE
Revised 8-19-77
Joe Main
Spencer
Office 712-262-1645
Home 712-262-6342
Dean Tjernagel
New Hampton
Office 515-394-2541
Home 515-394-4316
Larry Cook
Ames
Office 515-296-1595
Home 515-432-1595
Ralph Guesman
Denison
Office 712-263-3347
Home 712-263-6020
Bob Meythaler
Grinnell
Office 515-236-6561
Home 515-236-5492
Bob Swartz
Anamosa
Office 319-462-3676
Home 319-462-3665
Chuck Coyle
Ames
Office 515-296-1595
Home 515-277-9633
Ken Brown
Red Oak
Office 712-623-2460
Home 712-623-4033
John Danielson
Martensdale
Office 515-764-2755
Home 515-962-6152
Inqianola
Jim Doggett
Fairfield
Office 515-472-5357
Home 515-472-4359
Territory 1 - East of dash line
Territory 2 - West of dash line
All service problems should be directed to Robert Pink, 296-1160
If the Field Technician cannot be contacted call,
Ted Savely - 515-351-2288 - Nevada, Iowa
Bob Pink - 515-432-5301 - Boone, Iowa
Requests for equipment changes, office moves, or maintenance area responsibility changes (radio coverage) should be made by memo to Robert Pink, Office of Fleet and Equipment Management, Ames

90

A - 192.8 - 7A
B - 167.9 - 6Z
C - 127.3 - 3A
D - 156.7 - 5A

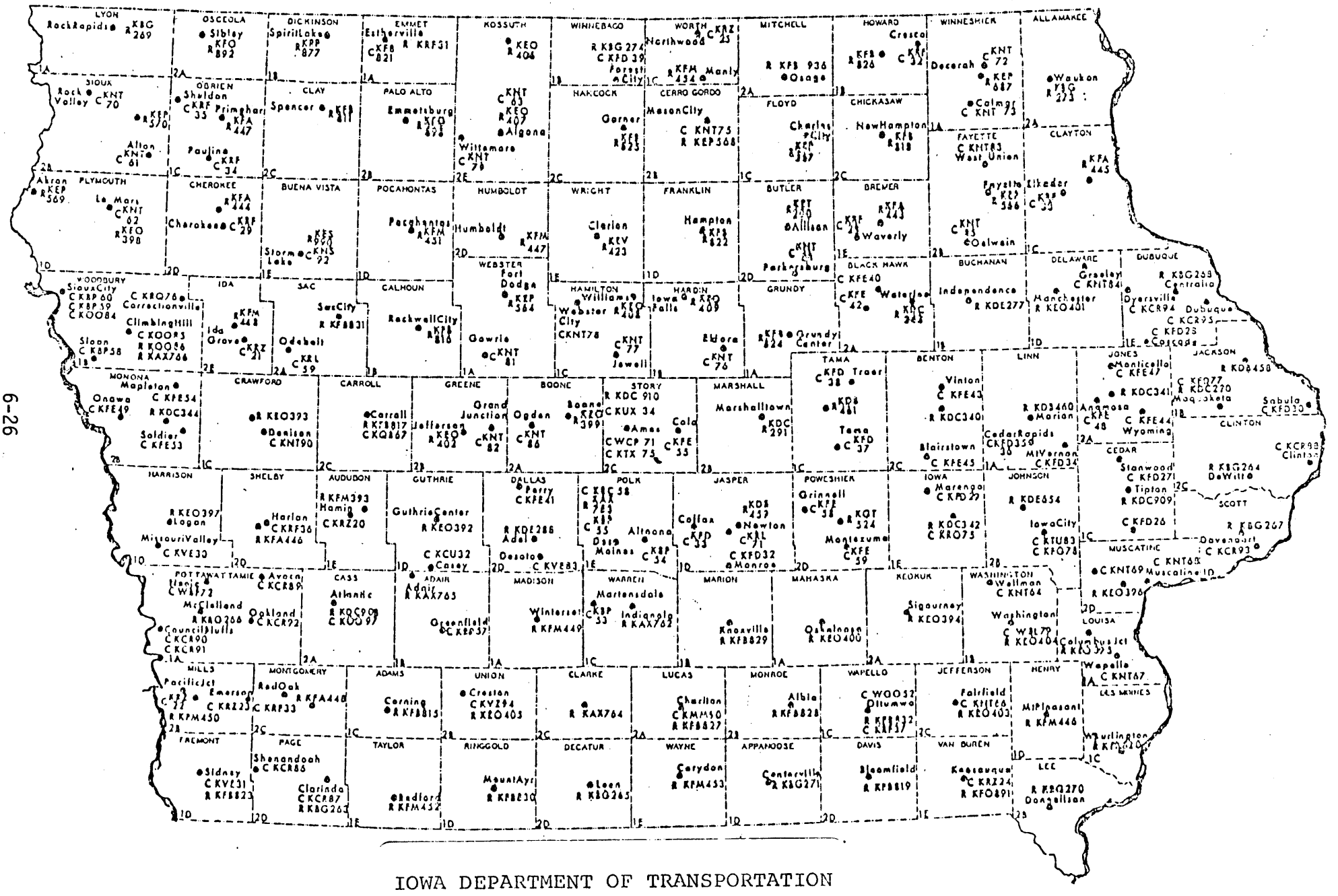
E - 179.9 - 6B
F - 110.9 - 2Z
G - 103.5 - 1A

IOWA OUTLINE MAP

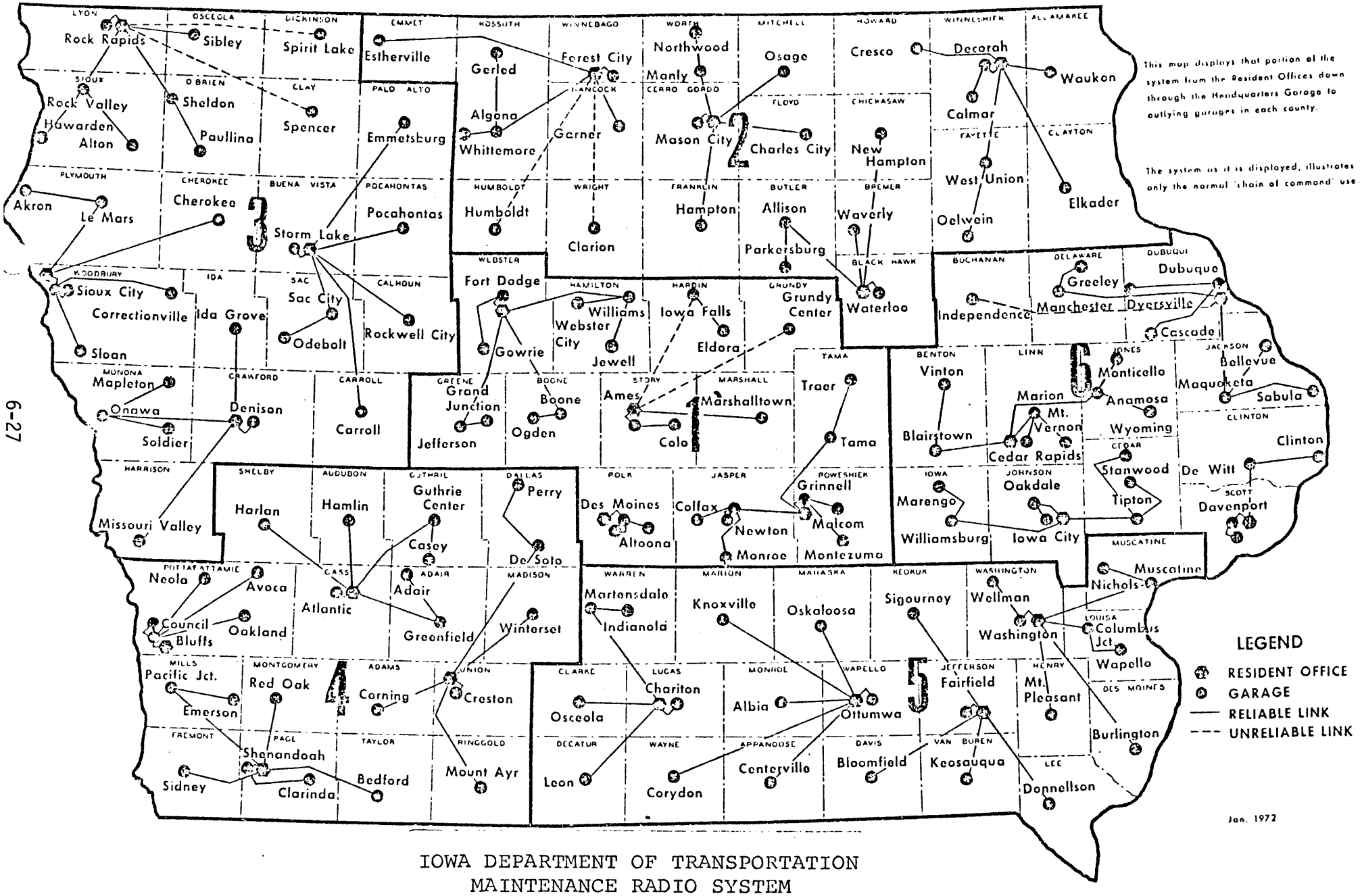


MOBILE FREQUENCIES
F1 - T 156.060 - R 159.120
F2 - T 156.105 - R 159.195

6-25



IOWA DEPARTMENT OF TRANSPORTATION
HIGHWAY MAINTENANCE
FIXED TRANSMITTER LOCATIONS

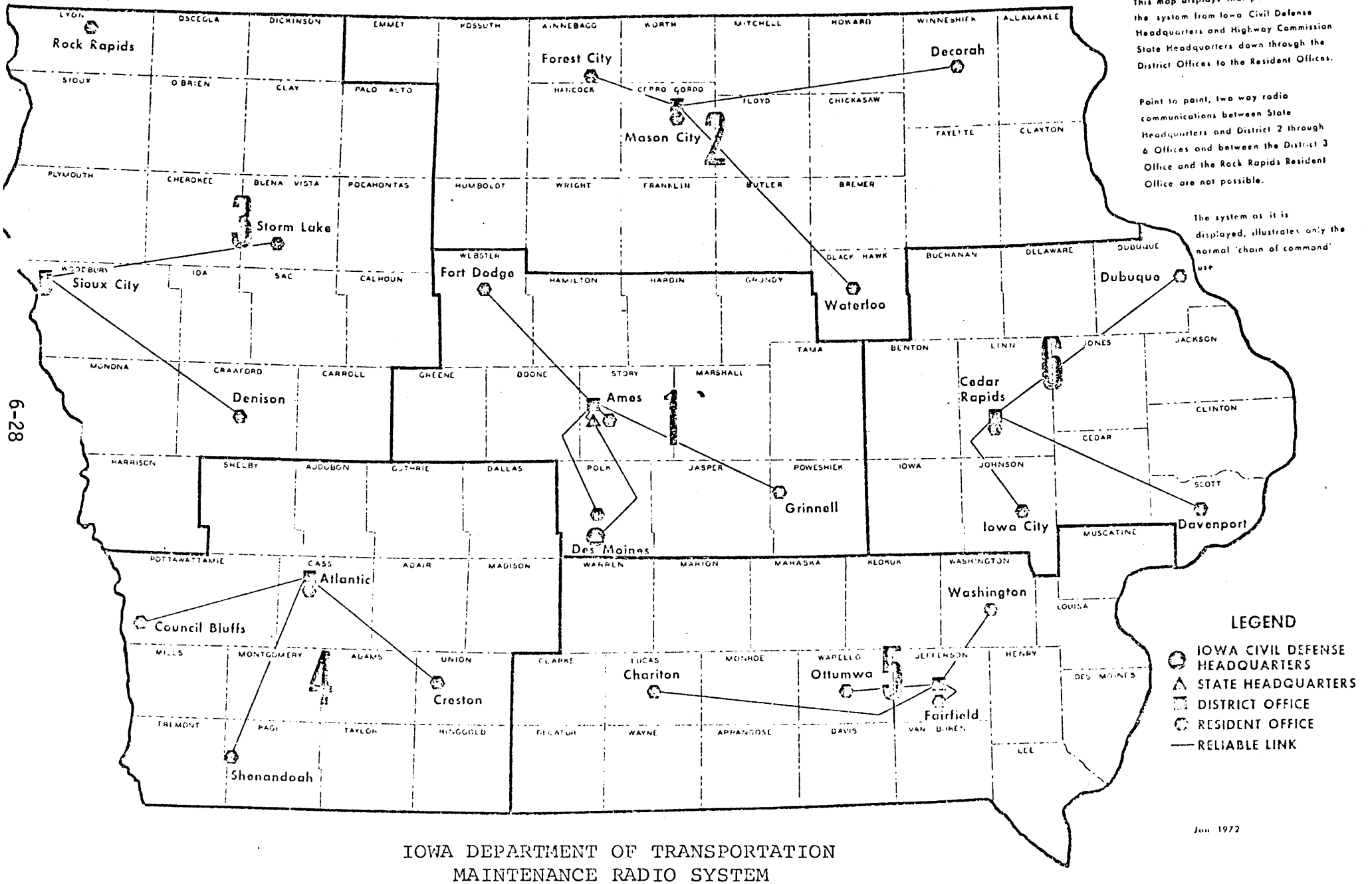


This map displays that portion of the system from the Resident Offices down through the Headquarters Garage to outlying garages in each county.

The system as it is displayed, illustrates only the normal 'chain of command' use.

Jan. 1972

IOWA DEPARTMENT OF TRANSPORTATION
MAINTENANCE RADIO SYSTEM



This map displays that portion of the system from Iowa Civil Defense Headquarters and Highway Commission State Headquarters down through the District Offices to the Resident Offices.

Point to point, two way radio communications between State Headquarters and District 2 through 6 Offices and between the District 3 Office and the Rock Rapids Resident Office are not possible.

The system as it is displayed, illustrates only the normal 'chain of command' use

LEGEND

- IOWA CIVIL DEFENSE HEADQUARTERS
- STATE HEADQUARTERS
- DISTRICT OFFICE
- RESIDENT OFFICE
- RELIABLE LINK

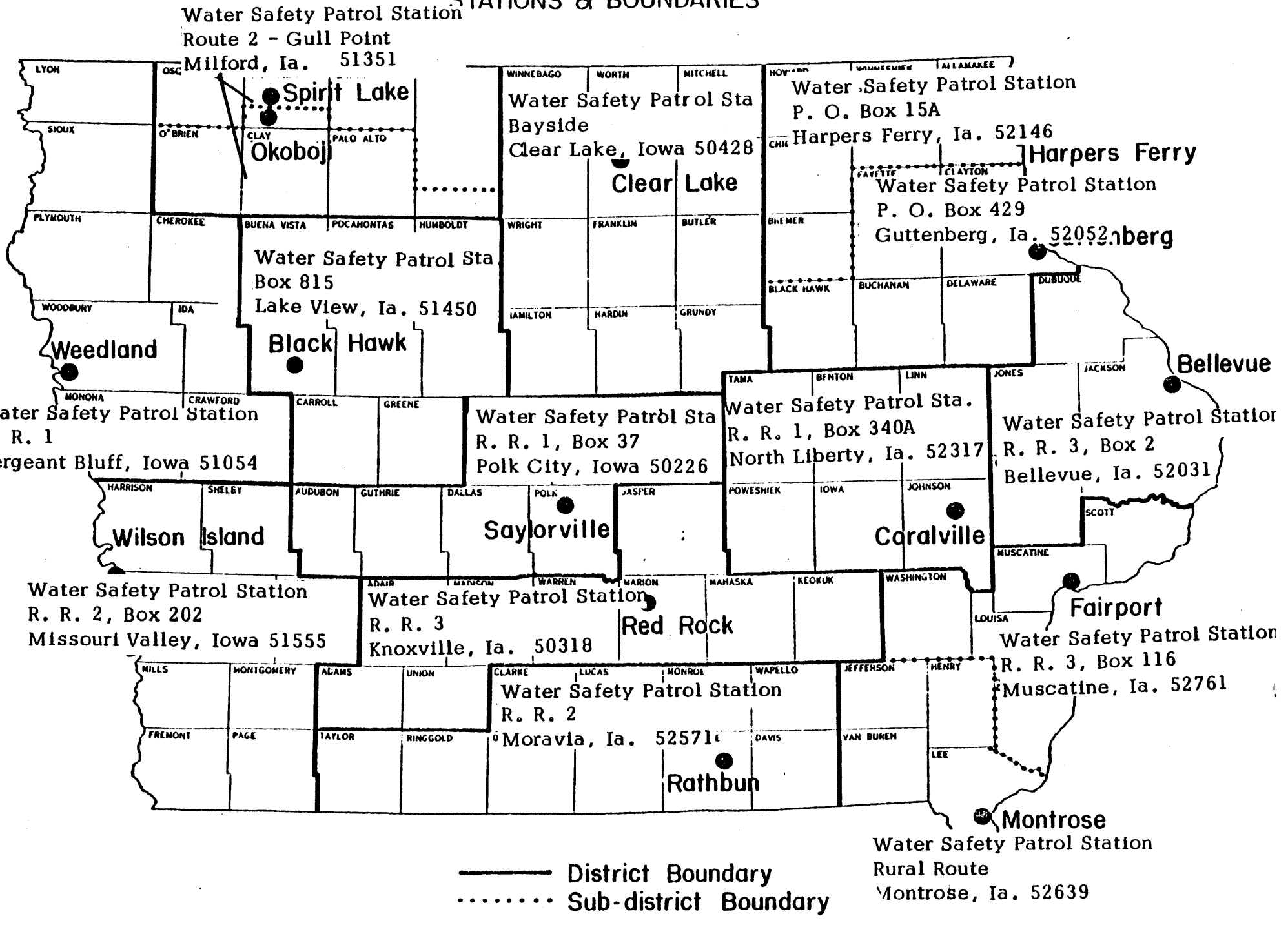
Jan 1972

IOWA DEPARTMENT OF TRANSPORTATION
MAINTENANCE RADIO SYSTEM

Tower Inventory (Replacement Cost)

Schedule 4

Height	Count	Value (Dealer Net)	Total Value
200	3	4,910	14,730
180	4	3,169	12,676
175	2	3,169	6,338
150	10	2,576	25,760
125	1	2,024	2,024
120	4	1,625	6,500
100	24	1,241	29,784
80	12	797	9,564
75	3	797	2,391
60	7	443	3,101
50	19	417	7,923
40	14	271	3,794
		Scale House	
30	20	100	2,000
50	6	160	960
		Construction	
40	10	120	1,200
			128,745
		Connectors	
		6 RA-2E Kits @ $1136	
Antenna-dB-224	104	196.15	20,399.60
Antenna-dB-222	26	102	2,652
Coax' - 3,170' - 7/8"		1.54	4,881.80
Coax' - 6,920' - 1/2"		.90	6,228
		TOTAL	$170,922.40


Water Safety Patrol Station
Route 2 - Gull Point
Milford, Ia. 51351
Spirit Lake
Okoboji
Water Safety Patrol Sta
Bayside
Clear Lake, Iowa 50428
Clear Lake
Water Safety Patrol Station
P. O. Box 15A
Harpers Ferry, Ia. 52146
Harpers Ferry
Water Safety Patrol Station
P. O. Box 429
Guttenberg, Ia. 52052
Water Safety Patrol Sta
Box 815
Lake View, Ia. 51450
Black Hawk
Weedland
Water Safety Patrol Station
R. R. 1
Sergeant Bluff, Iowa 51054
Water Safety Patrol Sta
R. R. 1, Box 37
Polk City, Iowa 50226
Water Safety Patrol Sta.
R. R. 1, Box 340A
North Liberty, Ia. 52317
Bellevue
Water Safety Patrol Station
R. R. 3, Box 2
Bellevue, Ia. 52031
Wilson Island
Saylorville
Coralville
Water Safety Patrol Station
R. R. 2, Box 202
Missouri Valley, Iowa 51555
Water Safety Patrol Station
R. R. 3
Knoxville, Ia. 50318
Red Rock
Fairport
Water Safety Patrol Station
R. R. 3, Box 116
Muscatine, Ia. 52761
Water Safety Patrol Station
R. R. 2
Moravia, Ia. 52571
Rathbun
Montrose
Water Safety Patrol Station
Rural Route
Montrose, Ia. 52639
District Boundary
Sub-district Boundary

SYSTEMS	LOCATION	USED FOR	INSTALLATION COSTS	OWNED EQUIPMENT COSTS ORIGINAL COST	OWNED EQUIPMENT COSTS PERMANENT COST	ESTIMATED ANNUAL COSTS LEASED SERVICE & EQUIPMENT	ESTIMATED ANNUAL COSTS MAINTENANCE/ REPAIR/ OPERATE
1.	Statewide Enforcement						
2.	Statewide Enforcement						
3.	Statewide Enforcement						

SCHEDULE 3, ORGANIZATION, NEEDS, PROBLEMS, PROCEDURES, POLICIES

List of the System Requirements:

A. Who talks to whom? Inter and Intradepartmental.

B. When? What hours of the day, which days of the week? Twenty-four hours, seven days a week.

C. What areas are covered? Statewide.

D. What are the response times needed? Immediately (emergency).

E. Which other agencies do you need to communicate with? State troopers, county sheriffs, local police departments, rescue units.

Attached is a copy of the DPS procedural manual.

The department is interested in initiating a paging system for key administrative personnel. There will be an increase in the number of radios to equip new and additional personnel.

SCHEDULE 4

TOWER LOCATION	COST	RE-PLACEMENT COST	LATITUDE	LONGITUDE	BASE ELEVATION	TOWER HEIGHT	ANTENNAS FUNCTION	ANTENNAS HEIGHT
Okoboji	1,000	4,000	43°22'10"	95°09'35"	1440	100'	LEA 25'	Base 125'
Weedland	4,000	4,000	42°22'00"	96°24'45"	1084	100'	LEA 25'	Base 125'
Wilson Island	4,000	4,000	41°25'30"	96°00'30"	998'	80'	LEA 25'	Base 100'
Clear Lake	2,500	4,000	43°07'00"	93°25'00"	1240	100'	LEA 25'	Base 125'
Saylorville	4,000	4,000	41°45'15"	92°42'05"	880	100'	LEA 25'	Base 125'
Red Rock	2,500	4,000	41°24'06"	93°03'44"	802	80'	LEA 25'	Base 100'
Rathbun	2,500	4,000	40°51'23"	92°56'42"	952	100'	LEA 25'	Base 125'
Coralville	2,500	4,000	41°46'29"	91°33'50"	720	80'	LEA 25'	Base 100'
Harpers Ferry	4,000	4,000	43°17'05"	91°08'30"	648	100'	LEA 25'	Base 125'
Bellvue	4,000	4,000	42°14'46"	90°24'53"	609	100'	LEA 25'	Base 125'
Fairport	4,000	4,000	41°26'01"	90°55'20"	560	100'	LEA 25'	Base 125'
Montrose	4,000	4,000	40°32'30"	91°25'37"	540	100'	LEA 25'	Base 125'
Guttenberg	Proposed							
Black Hawk	2,500	4,000	42°18'06"	93°02'10"	1231	100'	LEA 25'	Base 125'

DIV. OF

HEADQUARTERS IOWA NATIONAL GUARD
Office of The Adjutant General
Camp Dodge
MAILING ADDRESS:
RR #1, GRIMES, IOWA 50111

DEPT. OF GENERAL SERVICES
STATE OF IOWA

AGIA-POTO-P

23 April 1979

Land Mobile Radio Task Force
Communications Division
Level A
Hoover Building
Des Moines, Iowa 50319

In response to Land Mobile Task Force Inquiry, the following inventory is submitted:

a. Schedule 1 - Personnel. Not applicable to the Iowa National Guard. No individuals assigned these areas in State status.

b. Schedule 2 - Two-Way (Non-Broadcast) Minimum Equipment is provided:

SYSTEM	BASE STATUS	REMOTE CONTROL	REPEATERS	MOBILE RADIOS	PORTABLES	PAGING UNITS
1	1	0	0	0	0	0
2	0	0	0	0	6	0

SYSTEM	LOCATION	USED FOR	INSTALLATION COSTS	ESTIMATED ANNUAL COST
1	1 station at Camp Dodge & 1 station at Disaster Services	Civil Defense or Disaster Emergencies	$1500	
2	Camp Dodge	Disaster Emergencies	$3600	$100

AGIA-POTO-P 23 April 1979
Land Mobile Radio Task Force

SYSTEM 1 — FM Radios purchased from state funds (1978) for alternate communications between HQ Iowa National Guard (Camp Dodge) and Disaster Services in State Complex. 138-174 MHz. 35-watt MASTR Executive II - General Electric - Operating Frequency - 139.00 MHz. Antenna - 3 dipole YAGI.

SYSTEM 2 — Six portable FM Radios purchased from state funds (1968) for internal communications during state emergencies. Motorola 30-54 MHz - Model 421DCN-1130AW - Operating Frequencies - 38.4 & 38.5 - 1.4 watt.

c. Schedule 3 - Not applicable.

d. Schedule 4 - Towers.

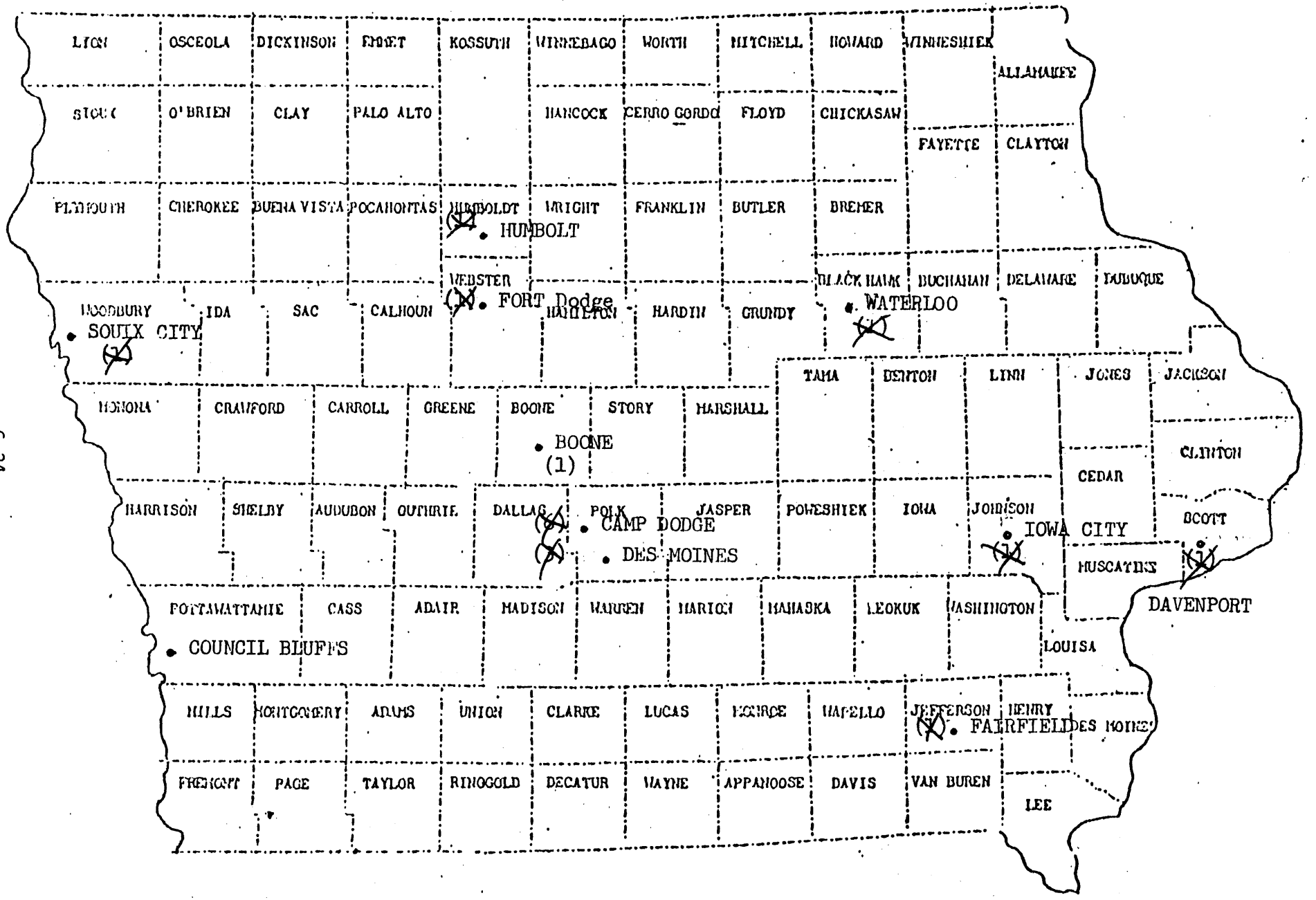
TOWER LOCATION	REPLACEMENT COST	LATITUDE	LONGITUDE	BASE ELEV	TOWER HEIGHT	ANTENNAS. FUNCTION	ANTENNAS. HEIGHT
CSMS-Cp Dodge	$2000	41.42N	93.44W	835'	50'	HF voice	50'
AGO-Cp Dodge	$2000	41.42N	93.44W	835'	50'	HF voice	50'
Armory-Cp Dodge	$2000	41.42N	93.44W	835'	50'	HF voice	50'
Des Moines	$2000	41.33N	93.42W	810'	50'	HF voice	50'
Boone	$1000	42.06N	93.88W	1147'	50'	HF voice	50'
Davenport	$2000	41.54N	90.61W	753'	50'	HF voice	50'
Fort Dodge	$1000	42.51N	94.16W	1160'	50'	HF voice	50'
Fairfield	$1000	41.01N	91.96W	797'	50'	HF voice	50'
Humboldt	$1000	42.72N	94.22W	1095'	50'	HF voice	50'
Iowa City	$1000	41.66N	91.53W	661'	50'	HF voice	50'
Sioux City	$1000	42.49N	96.39W	1097'	50'	HF voice	50'
Waterloo	$1000	42.50N	92.33W	870'	50'	HF voice	50'
Council Bluffs	$2000	41.26N	95.82W	980'	50'	HF voice	50'

FOR THE ADJUTANT GENERAL:

HAROLD M. THOMPSON
Colonel
Plans, Operations and Training Officer

TOWER LOCATIONS DEPARTMENT PUBLIC DEFENSE (IA ARNG)

~~( ) NUMBER OF TOWERS~~



DEPARTMENT OF PUBLIC DEFENSE
OFFICE OF DISASTER SERVICES
STATE OF IOWA
HOOVER STATE OFFICE BUILDING
ROOM A-29
DES MOINES, IOWA 50319
PHONE: (515) 281-3231

ROBERT D. RAY
GOVERNOR

DONALD C. HINMAN
DIRECTOR

April 30, 1979

Capt. Ted Godfrey, Chairperson
State Communications Advisory Council
Land Mobile Task Force
Communications Division, Dept. of Public Safety
Wallace Bldg.
L O C A L

Dear Ted:

I will not be able to attend the meeting scheduled for May 3.

Please present the Office of Disaster Services' requirement for communications to the committee. The requirement is: need to have direct radio contact from the State Emergency Operations Center to every designated county 24-hour Emergency Operations Center.

Henry
H. J. Boccella
Communications
and Warning Officer

Approved.

Donald C. Hinman
Director

DCH:HJB:ecr

OFFICE OF DISASTER SERVICES

RADIO DATA

NO.	FREQUENCY	CALL	LICENSE EXP. DATE	RADIO CLASS	COUNTY	CITY
1	2.0 - 30 MHz	KNC - 79 (CDNARS)	Federal CD	C - Control FEDERAL CD	77 - Polk	Des Moines
2	3.4 - 30 MHz	WCØAAJ (RACES) WAØCIQ (CLUB) (Collins S-Line)	Oct. 5, 1983 Mar. 9, 1984 DDS	C - Control Amateur	77 - Polk	Des Moines
2	3.4 - 30 MHz	WCØAAJ (RACES) WAOCIQ (CLUB) (KWM-2A)	Oct. 5, 1983 Mar. 9, 1984 ODS	C - Control Amateur	77 - Polk	Des Moines
2A	T/R CH1-146 34 94 CH2-146 94 CH3-146 16 76 CH4-146 76 CH5-146 22 82 CH6-146 46 CH7-146 147.5	WCØAAJ (RACES) WAØCIQ (Club) (2 Meter)	Oct. 5, 1983 Mar 9, 1984 ODS	MR-Mobile Rrptr Amateur	77 - Polk 77 - Polk	Des Moines Des Moines
3	4509 KHz	KAF 358	Exp.	C - Control Civil Air Patrol	77 - Polk	Des Moines
3A	4583.5 KHz	KAF 358	CAP.	"	77 - Polk	Des Moines
4	26.620 MHz	KAF 358	EXP. CAP.	"	77 - Polk	Des Moines
5	154.280 MHz	KBV-927	Dec. 23, 1980	C - Control	77 - Polk	Des Moines
5A	154.265 MHz	KBV-927	ODS			
6	139.00 MHz	F7D	Military-NG	C - Control	77 - Polk	Des Moines
7	161.70 MHz	KFV-375	Feb. 1, 1980	C - Control	77 - Polk	Des Moines

NO.	FREQUENCY	CALL	LICENSE EXP. DATE	RADIO CLASS	COUNTY	CITY
8	C-1 156.060 T 159.180 R C-2 156.105 T 159.195 R	KRC-58	April 10, 1979 ODS	C - Control DOT	77 - Polk	Des Moines

OFFICE OF DISASTER SERVICES

RADIO DATA

NO.	ANTENNA LOCATION LAT.	LONG.	SITE ELEV.	HEIGHT	ANTENNA LOCATION
1	41° 35' 26"	93° 35' 56"	89'	N/A	Hoover Penthouse Roof
2	41° 35' 26"	93° 35' 56"	77' 8"	12'	South Side Hoover Penthouse (doublet)
2	41° 35' 30"	93° 36' 00"	120' 7"	50'	Top of Northeast 50' Tower on Lucas Penthouse (Hi-gain TH3MK3 #388)
2A	41° 35' 26"	93° 35' 56"	77' 8"	100'	At 66' level-Hoover (DB 222)
3	41° 25' 26"	93° 35' 56"	77' 8"	12'	Northside Hoover Penthouse (Doublet)
3A	41° 25' 26"	93° 35' 56"	77' 8"	12'	Northside Hoover Penthouse (Doublet)
4	41° 25' 26"	93° 35' 56"	77' 8"	100'	At 88' Level-Hoover (PD-128-509)
5	41° 35' 30"	93° 36' 00"	120' 7"	50'	At 45' Level on Northeast Tower Lucas Penthous
5A	41° 35' 30"	93° 36' 00"	120' 7"	50'	At 45' Level on Northeast Tower Lucas Penthous
6	41° 35' 30"	93° 36' 00"	120' 7"		At 37' Level on Northeast Tower on Lucas Penthouse (BB 230)
7	41° 35' 30"	93° 36' 00"	120' 7"		On North Central Parapet of Lucas Penthouse Ro
8	41° 35' 30"	93° 36' 00"	120' 7"	50'	On top of Central Tower on Roof of Lucas Penthouse (DB 222)

FREQUENCY LISTING - OFFICE OF DISASTER SERVICES

1. 2.0 - 30 MH - Civil defense national radio system (KNC-79)
   (WCØAAJ - RACES) (WAØCIQ - Club)

2. 3.4 - 30 MH - KWM-2A, Collins S-Line (3990.5 KHZ-State Opr. Freq.)

2A. Polk Co.

		T/R	
Channel 1	146	34/94	Repeater on east side
" 2	146	94/94	Direct operation w/o repeater) Cedar Rapids repeater
" 3	146	16/76	Not used here
" 4	146	76/76	Direct operation TR at south side
" 5	146	22/82	Local repeater at Methodist Hospital
" 6	146	46/46	Local channel
" 7	146	147.5/147.5	RACES channel

3. 4509 KH - CAP (KAF 358)

3A. 4583.5 KH - CAP (KAF 358)

4. 26.620 MHZ - CAP (KAF 358)

5. 154.280 MH - Fire Mutual Aid - Fire Radio Service (KBV-927)

5A. 154.265 MH - Fire Radio Service (KBV-927)

6. 139.00 MH - National Guard Military Freq. (FTD)

7. 161.70 MH - Emergency Broadcast System (KFV-375)

8. C-1 156.060 T
   159.180 R - DOT Control Mobile Relay (KRC 58)
   C-2 156.105 T
   159.195 R

SCHEDULE 3: ORGANIZATION, NEEDS, PROBLEMS, PROCEDURES, POLICIES

1. Attach a table of organization as it relates to 2-way radio communication, if available.

2. Enclose a map of the geopraphical region covered by each base station, if available.

3. Enclose a list of the system requirements:

   A. Who talks to whom?

   B. When? What hours of the day, which days of the week?

   C. What area (s) is (are) covered?

   D. What are the response times needed?

   E. Which other agencies do you need to communicate with?

4. Enclose a list of problems.

5. Attach a copy of the standard operation procedures and policies used for 2-way radio communication, if available.

6. Attach planning information for 1979 to 1984. Be complete, including regular replacement and additions/changes planned or under study. Inclusion of this plan does not imply a final decision or a committment of plans.

7. Include copies of any agreements your organization has for providing services to other agencies.

SEE ATTACHED SCHEDULE 3

SCHEDULE 3: ORGANIZATION, NEEDS, PROBLEMS, PROCEDURES, POLICIES

1. Does not apply

2. Enclosed

3. A. 1. Ambulance to County Communications Center (Must have statewide capability)
   2. Ambulance to hospital (Must have statewide capability)
   3. Ambulance to any law enforcement vehicle, rescue unit, or other ambulance (Must have statewide capability)

   B. 24 hours, 7 days

   C. Basic plan is on county-by-county basis for entire state.

   D. Same general constraints as law enforcement and fire

   E. All law enforcement patrol vehicles, other EMS providers, hospitals and county communications centers

4. 1. VHF frequency coordination

   2. Obtaining local compliance to State Plan

   3. Education of Vendors

   4. System management at local level

   5. Additional funding needed for comprehensive system

5. These will vary slightly from county to county, but are expected to be consistent with law enforcement system and APCO procedures

6. 1978-79: Two previously funded regions (Midlands and Sioux-Lakes) will continue to receive funds. One new region (Southeast) is receiving implementation funds.

   1979-80: Three previously funded regions will recieve funds; one new region, as yet not named, will be funded.

   1980-81: One region (Midlands) will have completed funding cycles; three regions will be funded, and one new region will be funded.

   1981-82: Sioux-Lakes Region completes funding cycle. Three previous and and new region will be funded.

   1982-83: Southeast Region scheduled to complete funding. Final new region will be added, and three continued.

1983-84: Region implementing in 1980 will reach end of cycle; as regions complete their fifth year of funding, they will supposedly be totally operational, both in basic life support and advanced life support. Funding will cease as HEW program winds down.

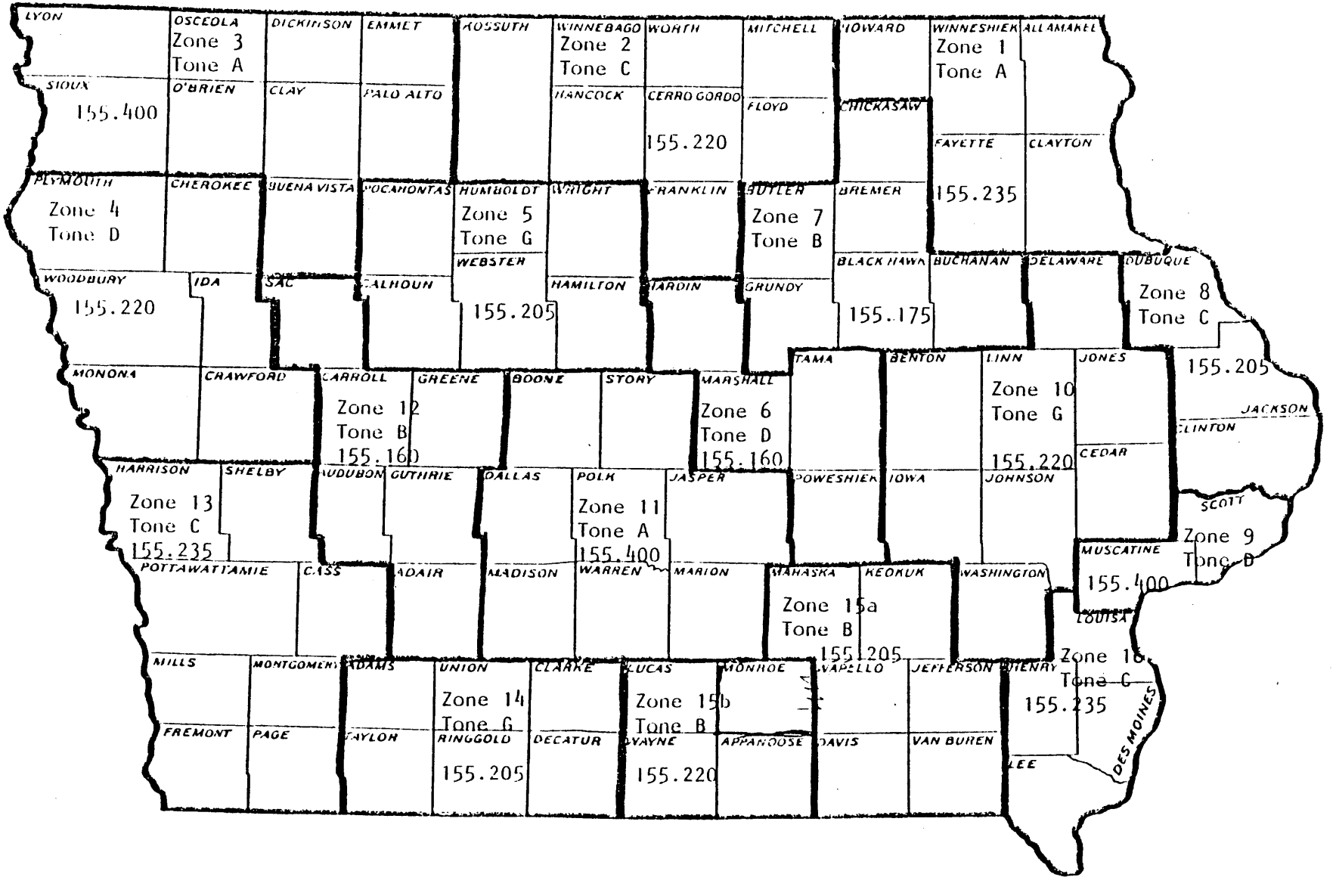
Work involved during this period will consist of:

1. Basic VHF capability between ambulance-hospital-communications center and paging for ambulance crews
2. Improvement of public access to emergency help
3. Where supported by other equipment and training, the installation of UHF equipment for medical data telemetry (MDT).

STATE OF IOWA

EMS COMMUNICATIONS REGIONAL CHANNEL AND TONE ASSIGNMENTS

REGION	REGIONAL FREQUENCY (MHz)	REGIONAL CTCS TONE (Hz)	LETTER DESIGNATION
1	155.235	82.5	A
2	155.220	110.9	C
3	155.400	82.5	A
4	155.220	127.3	D
5	155.205	192.8	G
6	155.160	127.3	D
7	155.175	94.8	B
8	155.205	110.9	C
9	155.400	127.3	D
10	155.220	192.8	G
11	155.400	82.5	A
12	155.160	94.8	B
13	155.235	110.9	C
14	155.205	192.8	G
15a	155.205	94.8	B
15b	155.220	94.8	B
16	155.235	110.9	C



CP-14807

Planned Communications Regions, Tone Codes and Regional Frequencies

BROADCAST TASK FORCE

APPENDIX D

October 31, 1979

TO: Communications' Advisory Council

FROM: Broadcast Task Force

SUBJECT: Needs Statement

The Broadcast Task Force has addressed a variety of needs and has identified and discussed these needs in the Broadcast Task Force Report. Financial projections associated with these needs are also summarized in the report.

As a first step in Iowa communications planning, the Broadcast Task Force would emphasize as priority needs the completion of both the Iowa public radio and television systems and interconnection of same. Further, serious commitment must be made to the systematic capital equipment replacement needs of the State's public radio and television broadcast stations.

Attached is a summary of all the needs discussed in the Broadcast Task Force Report, as well as a 10-year projected financial summary of both new and replacement needs.

The Broadcast Task Force supports the Budget and Planning Task Force recommendation that a qualified technical consulting firm be retained to review all Task Force recommendations that apply to a potential state interconnect. These consultants should answer questions related to interconnection costs, technology, efficiency, structure, and routing. The Broadcast Task Force stands ready to work with these consultants in meeting the above stated goals.

RT:ja

Enclosures

cc: Budget and Planning Task Force

With the preceding discussion serving as background to the broadcast-related issues, the Broadcast Task Force herewith respectfully submits the following recommendations as its contribution to the development of a systematic, well-designed, and coordinated proposal for a state of Iowa communications planning effort.

Recommendation #1

The Broadcast Task Force recommends that the public radio broadcast system of the state of Iowa be expanded so as to provide a satisfactory public radio signal to all citizens of the state. That, in view of the scarcity of broadcast spectrum space, additional public radio transmitting facilities should be funded and developed as quickly as possible to assure that this diminishing spectrum resource is allocated for appropriate Iowa utilization. That this radio construction be accomplished as follows:

A. In view of the high priority for activation of new stations currently existing at the federal level, it is critical that Iowa move with dispatch in establishing its public radio requests for the National Telecommunications and Information Administration's Public Telecommunications Facilities Program funds.

B. Station facilities and production centers already developed in Iowa City, Ames, Sioux City, Cedar Rapids, and Cedar Falls should be maintained at current levels except where institutional and/or state system planning requirements might dictate modification. Where duplicate broadcast facilities currently exist, institutions which administer these facilities should review the current program purposes and mission of these facilities to assure that unreasonable or unnecessary duplication does not exist.

C. That, given the geographical area and population base to be served, the proposed facilities at Council Bluffs, including local origination capability and staff, be developed at levels which currently exist at other public radio production centers, thereby permitting the Council Bluffs operation to be a full-service facility. That the license be held and filed for by Iowa Western Community College and that state capital funds already appropriated for federal matching purposes be held until the current interference problems are resolved and the federal funds can be granted.

D. That state appropriations to support plans for Iowa Central Community College to construct and hold the license for a less than full-service operation be approved during the 1979-80 legislature and that the concept of the station's plan to incorporate local programming into a radio broadcasting vocational training program be encouraged.

E. In order that the state of Iowa may remain fiscally responsible in its public radio development, no fully-staffed, sophisticated production centers, beyond those in Ames, Iowa City, Cedar Rapids, Cedar Falls, Sioux City, Council Bluffs, and Fort Dodge, be developed or permitted in the near future.

F. That, in order to complete adequate public radio coverage in the state, all remaining public radio stations be constructed and developed as "repeater" facilities. This to be accommodated through the following approach:

(1) That a full-power FM station be constructed in Mason City to be operated by North Iowa Area Community College. That this station be developed as "repeater" station of either the station from the University of Northern Iowa or Iowa State University with very limited local program capability. That state capital appropriations be provided in 1980-81 and operating appropriations begin in fiscal year 1981 or 1982.

(2) That a medium-power FM station be constructed in Ottumwa to be operated by Indian Hills Community College. That this station be developed as a "repeater" station from Iowa State University broadcasting facilities with very limited local program capability. That the state capital appropriations be provided in 1981-82 and the operating appropriations begin in 1982-83.

(3) That a low-power FM station be constructed in the Fort Madison area to be operated by Southeastern Community College in West Burlington. That this station be developed as a "repeater" station from the University of Iowa with very limited local program capability. That the state capital appropriations be provided during 1982-83 and that the operating appropriations begin in fiscal year 1983 or 1984.

G. That, in constructing these public broadcast stations, the planning process include utilization of existing state resources, i.e., towers, land, buildings, etc., wherever possible.

H. That filing for frequency assignments and construction permits for the remaining stations commence immediately, technical consultation to be coordinated with the Iowa Public Broadcasting Network and assistance in preparation of Federal Communications Commission documents be coordinated for the "repeater" stations by those existing stations which will provide the major share of programming.

(1) North Iowa Area Community College assisted by the University of Northern Iowa or Iowa State University public radio staff.

(2) Indian Hills Community College assisted by Iowa State University public radio staff.

(3) Southeastern Community College assisted by University of Iowa public radio staff.

I. That this radio plan be made totally operational within the next five years and, once operational, that field measurements be taken to assess the "service characteristics to Iowa citizens." Should such field strength measurements reveal unserved pockets, at that point it would be appropriate for consideration of low-power repeater stations to fill such reception voids. It is further recommended that, until this basic grid of transmitting facilities is in place, no state-supported institution be authorized to proceed with new radio broadcast facility construction.

Recommendation #2

The Broadcast Task Force recommends that a basic core state program service be developed, based on the resources of the production centers, consisting of programs to be made available simultaneously in all areas. This program service should include programs of both a general audience and an instructional nature. That this program schedule be developed under the auspices of the Public Radio Managers Council, and that equipment and installation fees for the establishment of the network facility be made available at a cost of approximately $200,000. Further, that this technical facility be located at WOI Ames, and that annual operating funds to operate the center be made available at a cost of approximately $53,000.

Recommendation #3

The Broadcast Task Force recommends that, at reasonable cost, a radio interconnection system be developed in stages to permit the distribution of the state radio service, sharing of other programming as needed, and connection of "repeater" stations to production center station facilities. That the planning and design of this interconnection system be integrated into other state communication distribution needs which may result from the state-wide communication planning process, and that the components of this interconnection reflect the design parameters as described in Exhibit #12.

Recommendation #4

The Broadcast Task Force recommends that a satisfactory public television signal be made available to all the state's citizens as soon as possible. To accomplish this, that the television translator project proposed by the Iowa Public Broadcasting Network which provides television service to Dickinson, Allamakee, Winneshiek, Appanoose, Wayne, Decatur, and Ringgold Counties be authorized and incorporated into the state communication planning process as quickly as possible.

Recommendation #5

The Broadcast Task Force recommends that, in order for the state of Iowa to save significant financial costs and avoid the potential of continued common carrier rate increases, an interconnection of the existing public television transmitters in the state be accomplished as quickly as possible. That this television interconnection be interfaced with other state telecommunications traffic distribution, including public radio, and that the technical requirements of the television interconnect meet the specifications as outlined in Exhibit #11.

Recommendation #6

The Broadcast Task Force recommends that, in order to assure continued public radio and television broadcast service to the state's citizens, the state of Iowa adequately prepare for systematic replacement of equipment currently in place. That this be accomplished by appropriating sufficient annual funds to replace both radio and television facilities as the need arises. The Broadcast Task Force further recommends that the legislature consider a sum in the amount of $790,000 annually (1979 dollars not adjusted for inflation) for ten years as a sum sufficient to accomplish this objective.

Recommendation #7

The Broadcast Task Force recommends that the Iowa Public Broadcasting Network be encouraged to extend its current public and instructional television programming through the widest possible means of telecommunications distribution. This is to include interface with alternative delivery systems such as cable television, video cassettes and discs, TV translators, and a variety of interconnection capabilities such as standard microwave, instructional television fixed service, and multipoint distribution systems.

Recommendation #8

The Broadcast Task Force recommends that, in order to assure cost effective facilities while at the same time providing sufficient space and equipment for the state telecommunications mission of the 80's and 90's, consideration be given to the establishment of a telecommunications center for Des Moines-based government communications entities. That communication functions of the Division of Communications, Public Safety, Iowa Public Broadcasting Network, Disaster Relief, Social Services, Department of Public Instruction, and other state agencies with a telecommunications mission might be housed in an appropriately designed and constructed facility.

Recommendation #9

The Broadcast Task Force recommends, in order to assure coordinated planning and to avoid unnecessary duplication of facilities or expenditures, that a central coordinating unit be established in state government to monitor the growth and development of all telecommunications-related projects of state agencies, and where necessary make recommendations to the appropriate authority within state government that the agency's proposal is or is not in accord with Iowa communications planning.

Recommendation #10

The Broadcast Task Force recommends, in order to assure professional and thoughtfully planned broadcast interface with the Iowa communications plan, that, when necessary, knowledgeable and experienced private engineering consultants be utilized. That use of consultants be limited to only those areas where current state communications employees do not have sufficient time to research and develop complicated and detailed engineering recommendations. That these consultants, when utilized, be employed to prepare sophisticated and complex system analysis which would be difficult for current state staff to administer properly and with care.

Recommendation #11

That the Broadcast Task Force remain intact and, when necessary, meet to review any broadcast concerns which fall within the five areas of responsibility of the Task Force, and, where necessary, provide information and recommendations to the Communications Advisory Council on these broadcast-related matters on a regular basis.

10-YEAR RADIO-TELEVISION CAPITAL PROJECTION
(Not Adjusted for Inflation)

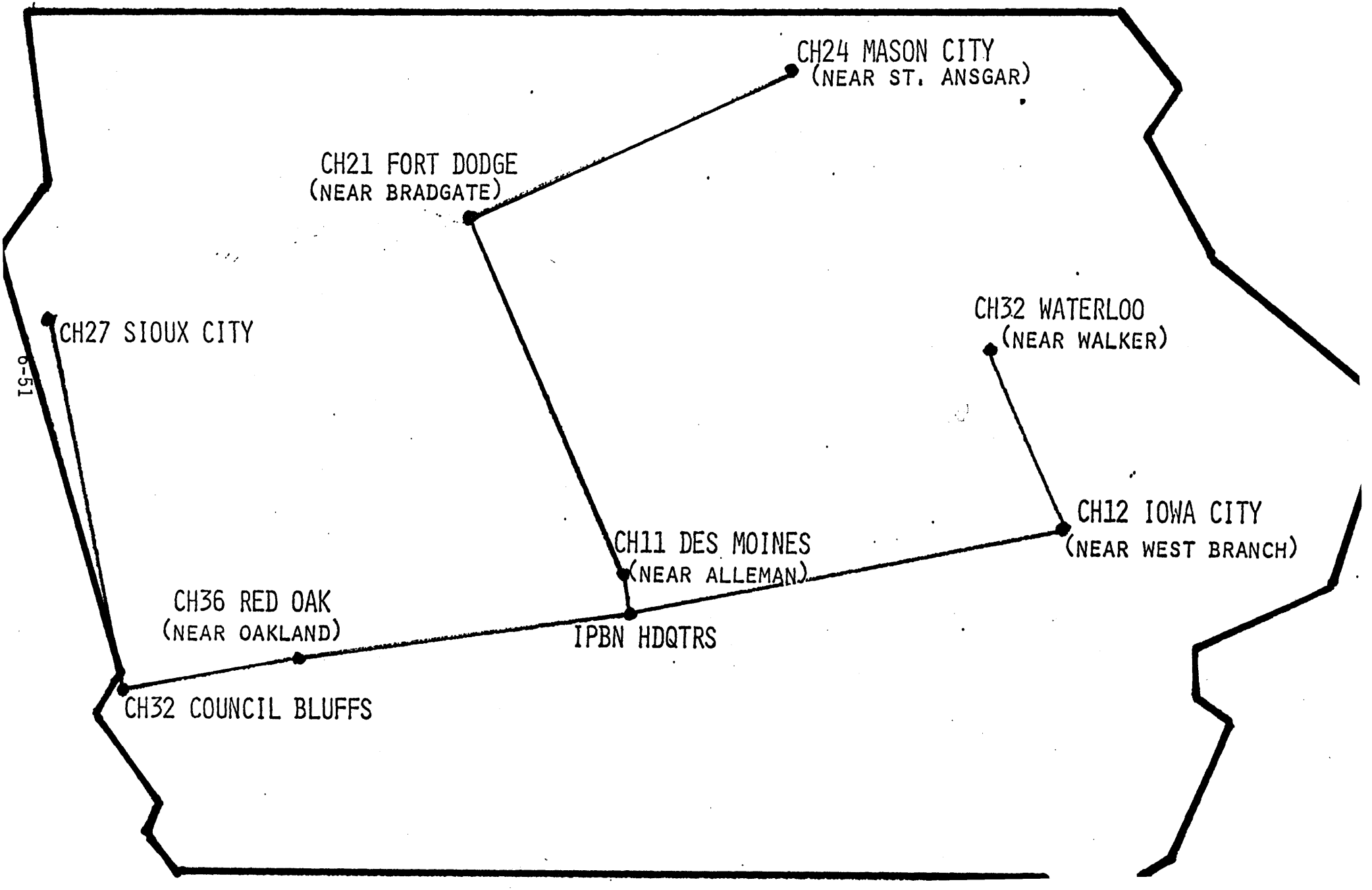
Year -	1	2	3	4	5	6	7	8	9	10
Replacement										
TV	$ 350,000	$ 380,000	$ 446,000	$ 659,000	$1,465,000	$700,000	$700,000	$700,000	$700,000	$700,000
Radio	101,000	101,000	101,000	101,000	102,000	60,000	60,000	65,000	70,000	75,000
Total Replacement	$ 451,000	$ 481,000	$ 547,000	$ 760,000	$1,567,000	$760,000	$760,000	$765,000	$770,000	$775,000
New										
TV	$1,505,450	$ 406,800	$2,208,000	$ 100,000	$ 70,000	$ 50,000	$ 50,000	$ 50,000	$ 25,000	$ 25,000
Radio	275,000	250,000	225,000	225,000	225,000	10,000	10,000	10,000	10,000	10,000
Total New	$1,780,450	$ 656,800	$2,433,000	$ 325,000	$ 295,000	$ 60,000	$ 60,000	$ 60,000	$ 35,000	$ 35,000
TOTAL	$2,231,450	$1,137,800	$2,980,000	$1,085,000	$1,862,000	$820,000	$820,000	$825,000	$805,000	$810,000

10-Year Total - $13,376,250

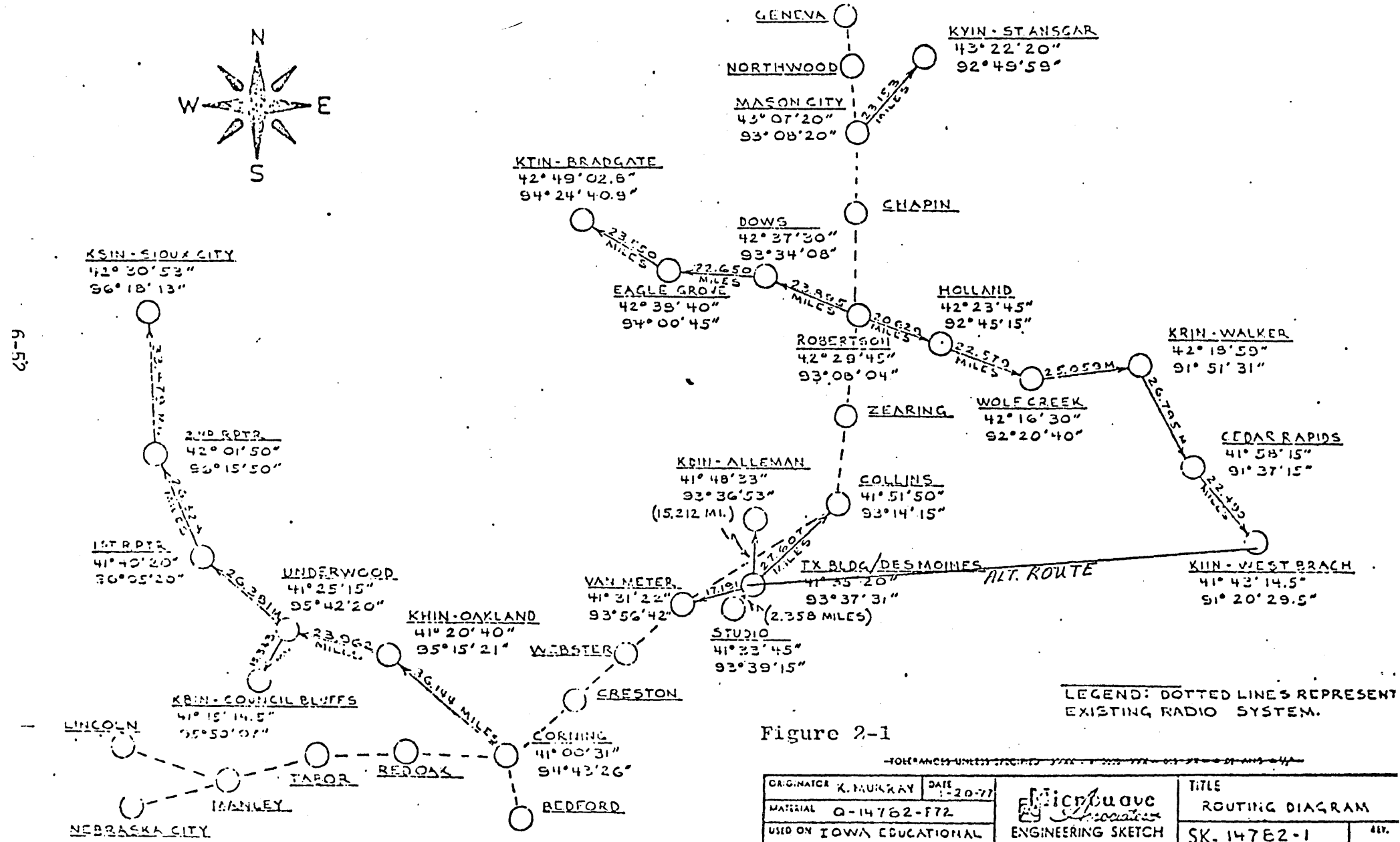
Exhibit #2

EXISTING INTERCONNECTS

TELEVISION



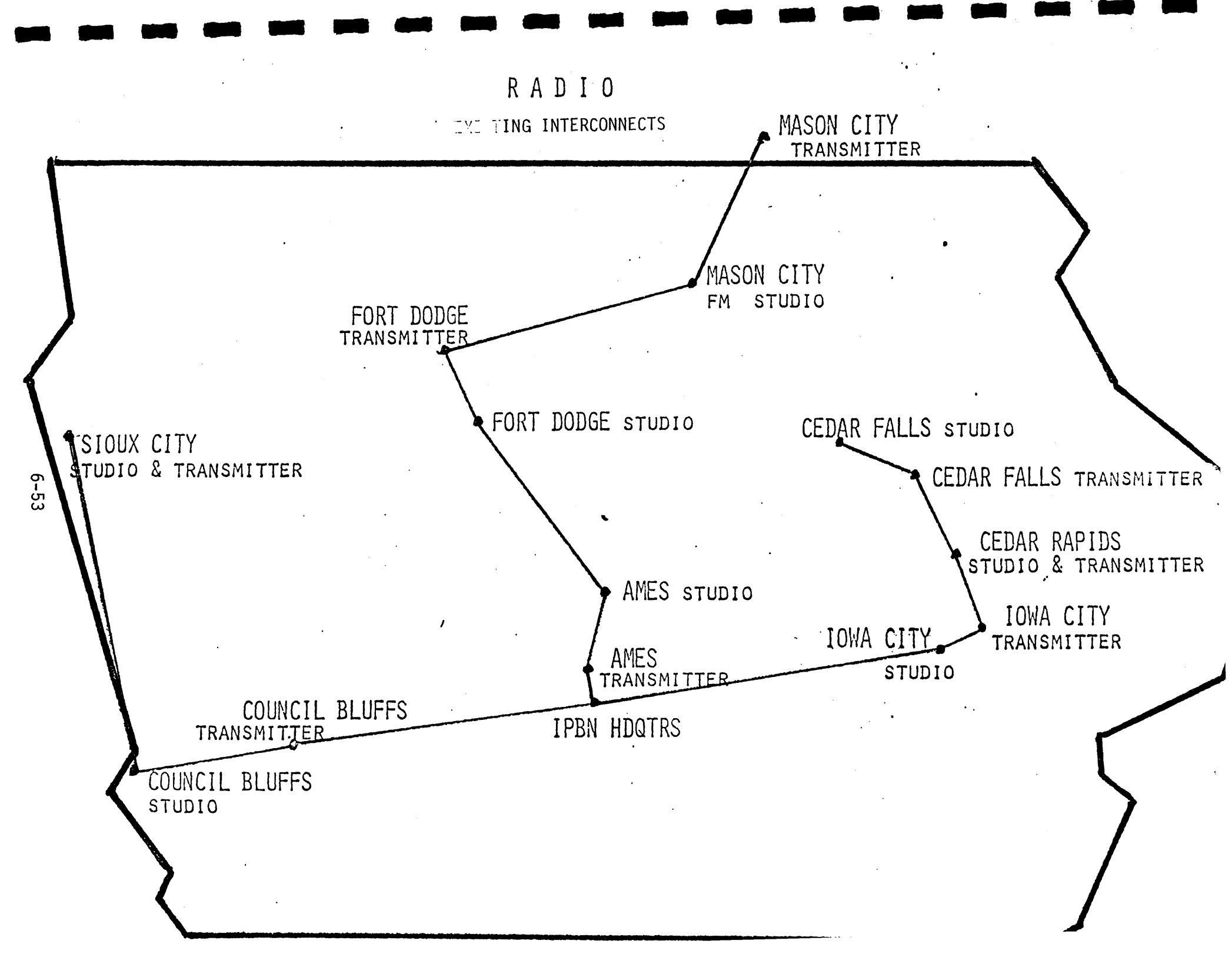
TELEVISION - PROPOSED INTECONNECT



LEGEND: DOTTED LINES REPRESENT EXISTING RADIO SYSTEM.

Figure 2-1

ORIGINATOR K. MURRAY	DATE 1-20-77	Electronic Systems ENGINEERING SKETCH	TITLE ROUTING DIAGRAM
MATERIAL Q-14762-F72			SK. 14762-1
USED ON IOWA EDUCATIONAL			REV.


RADIO
EXISTING INTERCONNECTS
MASON CITY
TRANSMITTER
MASON CITY
FM STUDIO
FORT DODGE
TRANSMITTER
FORT DODGE STUDIO
CEDAR FALLS STUDIO
SIOUX CITY
STUDIO & TRANSMITTER
CEDAR FALLS TRANSMITTER
CEDAR RAPIDS
STUDIO & TRANSMITTER
AMES STUDIO
IOWA CITY
TRANSMITTER
IOWA CITY
STUDIO
AMES
TRANSMITTER
COUNCIL BLUFFS
TRANSMITTER
IPBN HDQTRS
COUNCIL BLUFFS
STUDIO

DO NOT SCALE DRAWING	REV	DESCRIPTION	DATE	BY	CHK	APPD

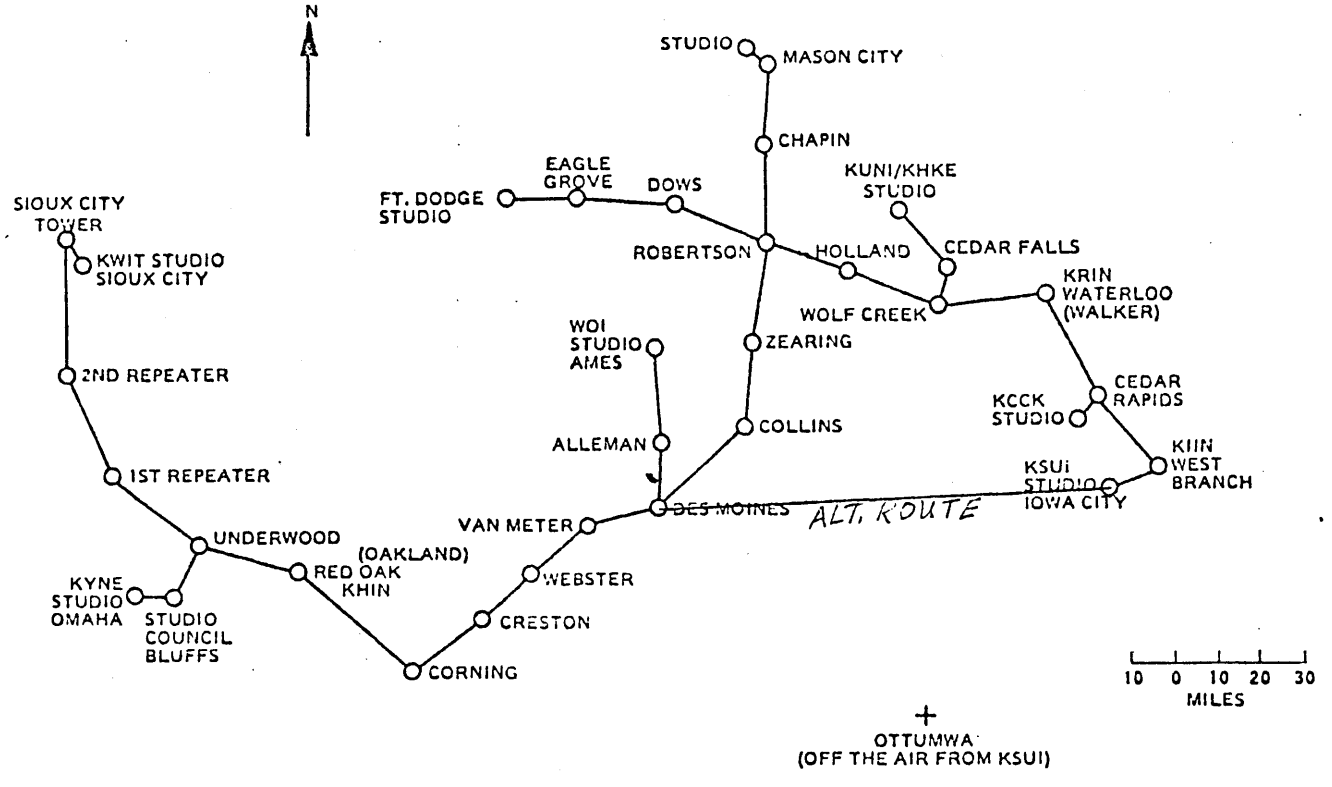


FIGURE 2-1

APPROVAL	BY	DATE
DRAWN		
CHECKED		
ENGRG		
PROJ ENGRG		
SHEET OF	SCALE:	

ATLANTIC RESEARCH CORPORATION
TELECOMMUNICATIONS DEPARTMENT
ALEXANDRIA, VIRGINIA 22314

PROPOSED IOWA EDUCATIONAL FM BROADCAST NETWORK

SIZE		REV
B	55-7608-1	A

TRAINING TASK FORCE

APPENDIX E

TRAINING TASK FORCE RECOMMENDATIONS

This document is the Training Task Force's recommendations to the Communications Advisory Council, to support development of an Iowa Telecommunications Plan. The Training Task Force is comprised of member representatives from; the Department of General Services; Department of Public Safety; Department of Social Services; Department of Transportation; Department of Public Instruction; Institute of Public Affairs; Merit Employment; Communications Division; and Comptrollers Data Processing. The Training Task Force is in the unique position of laying groundwork before the actual development of an Iowa Telecommunications Plan. The following recommendations are a frame work designed to allow free flowing communication training requests from Iowa governmental agencies.

SUMMARY OF INVENTORY

The first product of the training Task Force is a research survey of training resources now available and resources and other assets which support the functions of state governmental agencies. This document concerns itself with only communications training. It is divided into three sections, the first being Staff and Budget Information; the second, Facilities and Equipment; and the balance of the survey consists of four sets of identical questions one for each of the functional areas, Data, Voice, Land-Mobile, and Broadcast Communications.

That document is enclosed in annex A.

SUMMARY OF PREDICTED GROWTH - SUMMARY OF OBVIOUS NEEDS

At this time, it is very hard to predict telecommunications training growth within state government. However, it is obvious that communications training would grow tremendously if it were offered. According to the Resource and Programs Asset Survey, of the four functional areas, a total of 30 full time equivalent employees are used to provide communications training throughout the entire state of Iowa. The total budget used for communications training is approximately $165,000 per year. It is obvious from the resource and program assets survey that there is a distinct lack of communications training within state government. Also, almost every agency responding to the survey stated that they would use the various communications training services if they were made available to their department.

PROBLEM STATEMENTS

1. More agencies within state government need to become aware of the Communications Advisory Council, its Task Forces and the role they will play in the State Communications Network.

2. All state agencies are not participating in the formulation of the State Telecommunications Plan.

3. There is a lack of communications training modules.

4. There is a lack of knowledge of the modules which now exists and which will be developed in the future.

RECOMMENDATION OF SOLUTION AND CHANGES

The Training Task Force shall meet quarterly to act as an advisory and policy board, to insure that communications training programs are not duplicated and that agencies coordinate communications training to affect this standard. We further recommend the following be implemented immediately:

1. All recommendations or requests in the subject area of communications training initiated by the General Services Department, Division of Communications, other state agencies and other task forces shall be reviewed by the Training Task Force prior to passing the request or the recommendation to the Communications Advisory Council.

   No request or recommendation concerning communication training shall be passed to the Department of General Services, except that it be approved by the Training Task Force.

2. That the communications (DOC) be the agency responsible for maintaining the Communications Training Resource Inventory by the Communications Training Task Force.

3. That the Division of Communications develop standardized training modules in the following areas: Data Communications; Voice telephone Communications; Land-Mobile Communications; and Broadcast Communications.

4. That the training persons in the Division of Communications concentrate on the coordination of training rather than providing class room instruction.

5. That staff personnel will be provided to the Division of Communications to implement the recommendations in each of the four functional areas (Data Communications, Voice Telephone Communications, Land-Mobile Communication, and Broadcast Communications).

Since the Iowa Telecommunications Plan, at this point, is not completed, it is very difficult for the training task force to make recommendations for the next three to ten years. However, the Training Task Force is a functioning group which will address all communications training and request for training as well as supporting the Iowa Telecommunications Plan.

PROCUREMENT TASK FORCE

APPENDIX F

COMMUNICATIONS PROCUREMENT TASK FORCE

I. General

The Communications Procurement Task Force was established in recognition of the need to coordinate and plan procurement of identified statewide communications services and equipment and to review and implement recommendations made by the Sachs/Freeman and Public Administration Service Study.

Goals

The major goal is to create an environment of interagency cooperation by bringing together participating agencies, on a voluntary basis, into an effective planning and coordinating consortium for the development of efficient and cost effective procurement of communications services and equipment for Iowa state government.

The Communications Procurement Task Force in cooperation with the technical staff of the Division of Communications was created to support the state Communications Advisory Council in development of procurement plans and coordination of requirements for standard communications services.

Responsibilities

The responsibilities of the Communications Procurement Task Force are:

1. Recommend rules, policies and procedures for procurement of communications services and equipment.

2. Review proposed major communications procurements to ensure that they are in conformance with state statutes, plans and rules.

3. Recommend standard specifications in communications equipment to simplify the procurement process.

II. Existing Procurement Structure in Iowa State Government

There are three major purchasing operations which procure goods and services for Iowa state government. They are:

1. A centralized purchasing operation maintained by the Department of General Services for most state agencies.

2. A centralized purchasing operation maintained by the Board of Regents with coordination of the centralized purchasing sub-units in place at each of the five Board of Regents' institutions provided through the Board of Regents' staff.

3. A system maintained by the Iowa Department of Transportation.

In addition to the limited Code-mandated cooperation, there has been and will continue to be a great deal of voluntary coordination and communication on issues of common interest among the major procurement agencies in the state. A further example of how voluntary coordination works for Iowa is the involvement of all three procurement agencies in activities of the Communications Procurement Task Force.

III. Summary of Inventory

1. State agency staff with communication and/or procurement responsibility (see attached listing).

2. A listing of existing state communications contracts and/or standard specifications is currently being compiled.

IV. Summary of Predicted Growth

The Communications Procurement Task Force can only address predicted growth of communications, procurement services, needs and requirements in state government pending:

1. A definition of standard communications equipment and services, and

2. the communications needs of all user agencies being identified, submitted and coordinated into a single consolidated statewide plan for standard communications equipment or services.

V. Summary of Obvious Needs and Problems

Although the Communications Procurement Task Force will limit its comments in this report for the most part to the procurement process, the task force does note, in line with the problems in addressing predicted growth in communications, that:

1. There is a clear lack of definition as to what constitutes standard communications equipment and services which should be included in a state plan and which items or services should be made the responsibility of the individual agency.

2. There is a lack of a state telecommunications policy, as well as a lack of the development of a mechanism for arriving at such a policy.

3. There is a need to determine which telecommunications responsibilities should remain with individual agencies and which should be conducted centrally, as well as a need for a state telecommunications plan.

4. There is a need to establish a mechanism for the coordination and integration of agencies' standard telecommunications plans and the fitting of those plans into an overall state plan.

5. There is a need to determine the nature and degree of technical support services to be provided to state agencies.

VI. Recommendations of Solutions and Changes

If the above problems are addressed so that predicted growth of communications procurement in state government can be determined, the Communications Procurement Task Force would, with the approval of the Communications Advisory Council, undertake the following activities over the short range:

1. Define and recommend what specifically constitutes standard communications equipment and services.

2. Establish and recommend rules, policies, procedures and procurement regulations to meet the needs of all three major procurement agencies.

3. Develop and recommend procedures to assemble the initial statewide Iowa telecommunications plan which would identify the user agencies' needs, to be updated on an annual basis.

4. Establish and recommend the role that the Division of Communications and other responsible agencies will play in the review and the acquisition of agency procurement requests in compliance with the state plan.

5. Establish and recommend a policy to allow consideration and approval of requests for exceptions to the state plan, insofar as procurement is concerned.

6. Develop and recommend specifications and establish annual contracts through competitive acquisition to acquire standard communications equipment and services where a need is demonstrated in the state plan.

7. Draft and recommend a policy which requires two or more agencies, which have a common communications need, to use a single contract or share common systems to reduce costs to individual user agencies or to the state as a whole.

8. Develop and recommend policy for interagency coordination for providing technical assistance to requesting agencies in designing systems, developing specifications, contract administration and follow-up and training.

Three to Five Years

The Communications Procurement Task Force would suggest that long-range goals include:

1. Incorporate procurement procedures developed by the task force into a procedures manual for use of communications managers in individual agencies. Coordination for development of this manual should probably rest with the Division of Communications of the State Department of General Services.

2. To ensure that the state plan remains a living document and not a static compilation of data on which judgments will be made, the Communications Procurement Task Force strongly urges that the state plan be subject to periodic review and update. The responsibility for maintenance of the state plan should reside with the Division of Communications in the Department of General Services, subject to consultation with major agencies being coordinated and guided by that state plan.