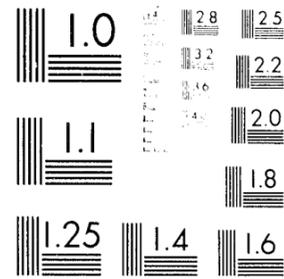


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SYSTECH REPORT NO. 3-1

SUMMARY

STATUS OF LAW ENFORCEMENT
COMMUNICATIONS SYSTEMS

SUBMITTED TO:

Mr. William J. Lynch
Communications/911 Coordinator

SYSTECH CORPORATION

SYSTECH REPORT NO. 3-1

SUMMARY

STATUS OF LAW ENFORCEMENT
COMMUNICATIONS SYSTEMS

SUBMITTED TO:

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Governor's Crime Commission
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I. GRANT SUMMARY

THE TOTAL LEAA AND TOTAL PROJECT DOLLARS SPENT IN NORTH CAROLINA FOR COMMUNICATIONS EQUIPMENT BY FISCAL YEAR IS SHOWN IN FIGURE I-1. THE LARGEST EXPENDITURES COME IN FY 1972 WHEN APPROXIMATELY 4.2 MILLION DOLLARS WERE USED TO UPGRADE AND IMPROVE LAW ENFORCEMENT RADIO COMMUNICATIONS SYSTEMS. AGAIN, AS THE PROGRAM PROCEEDED, THE DIFFERENCE BETWEEN TOTAL PROJECT COST AND LEAA GRANT SUPPORT DECREASED DUE TO REDUCED MATCHING RATIOS. THE STATE PROVIDED FIVE PERCENT (5%) OF THE MATCH FOR LOCAL SYSTEMS.

THE TOTAL COST FOR ALL COMMUNICATIONS SYSTEMS AND EQUIPMENT OVER THE TEN YEAR LIFE OF THE PROGRAM WAS \$16,241,000. OF THIS AMOUNT, THE LEAA PROGRAM PROVIDED APPROXIMATELY \$12,315,000 IN GRANT FUNDS.

FIGURE I-2 SHOWS A BREAKDOWN OF THE TOTAL LEAA AND TOTAL PROJECT DOLLARS SPENT IN EACH OF THE PLANNING REGIONS IN THE STATE OF NORTH CAROLINA. THIS PRESENTATION INCLUDES ALL PROJECTS OVER THE TEN YEAR PERIOD. THE SMALLEST TOTAL PROJECT COSTS WERE IN REGION K WITH AN EXPENDITURE OF APPROXIMATELY \$400,000. THE LARGEST EXPENDITURE WAS IN REGION G WITH A TOTAL PROJECT COST OF APPROXIMATELY 2.7 MILLION DOLLARS.

A PLOT OF ALL STATE SUPPORTED PROJECTS IS ALSO SHOWN IN FIGURE I-2. LEAA FUNDS OF APPROXIMATELY 1.8 MILLION DOLLARS WERE USED TO UPGRADE AND IMPROVE COMMUNICATIONS FACILITIES IN STATE AGENCIES OVER THE TEN YEAR PERIOD.

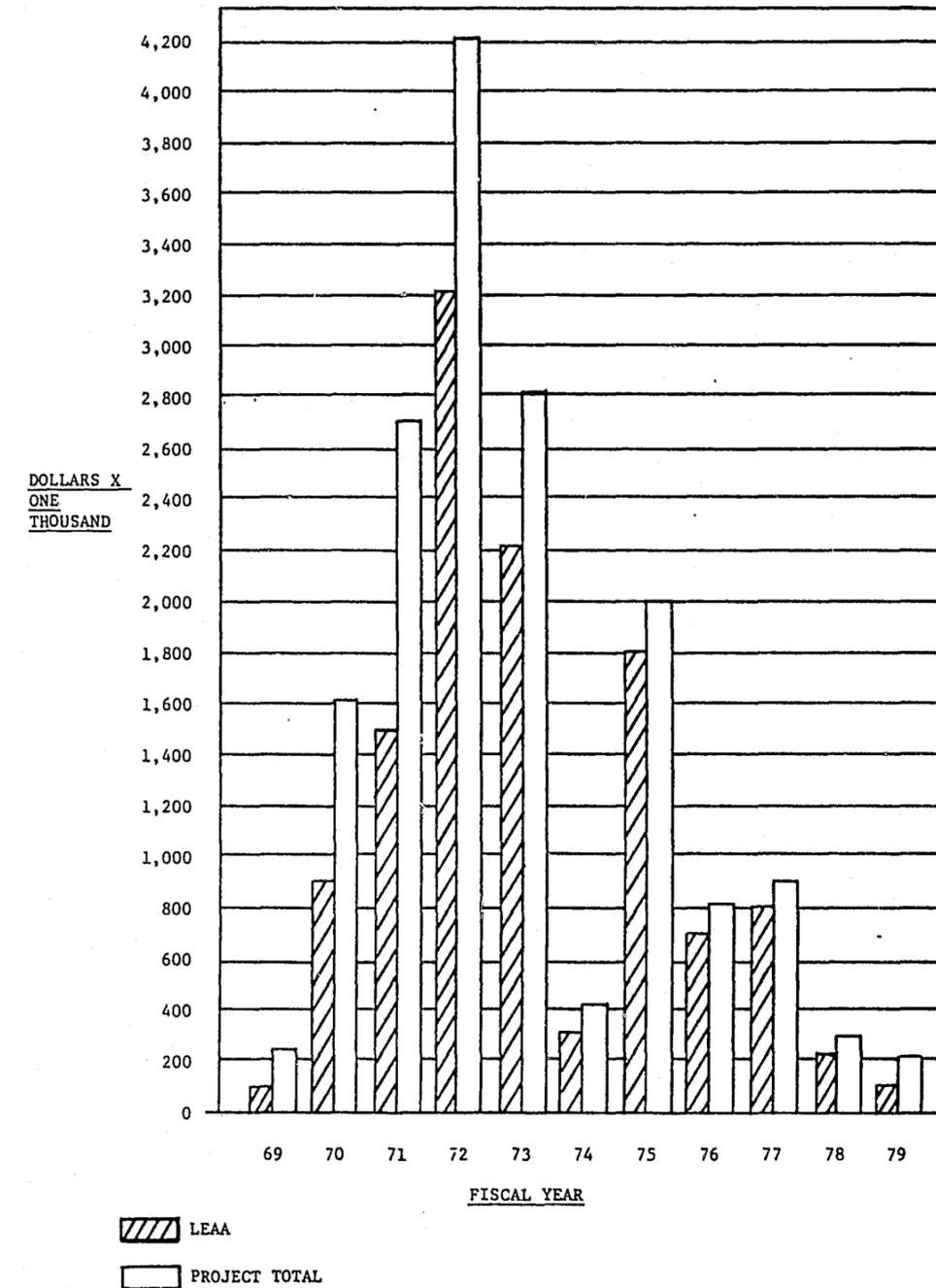
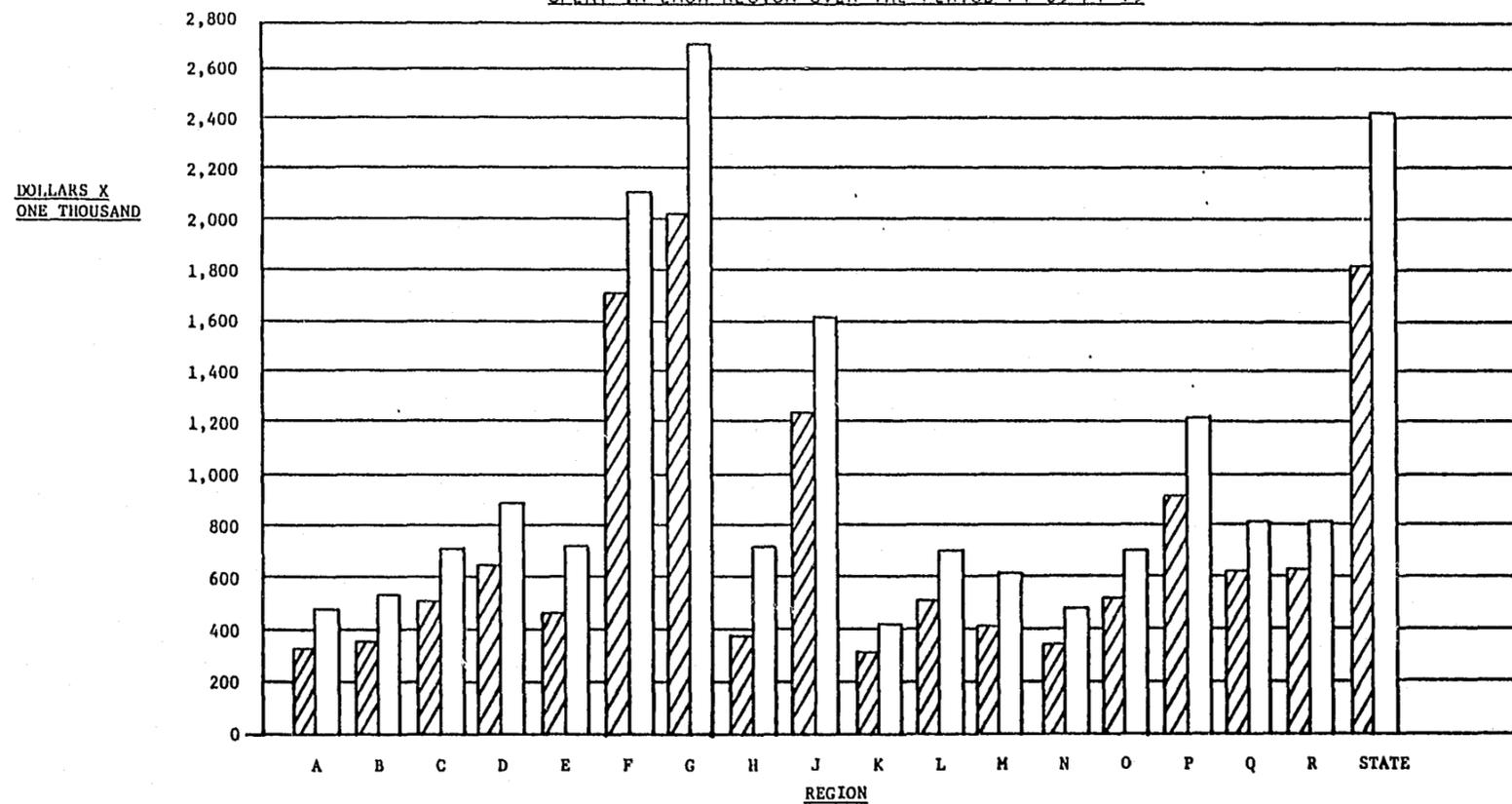


FIGURE I-1
TOTAL LEAA AND TOTAL PROJECT
DOLLARS SPENT IN NORTH CAROLINA
FOR COMMUNICATIONS EQUIPMENT
BY FISCAL YEAR

 LEAA
 TOTAL PROJECT

FIGURE 1-2
 TOTAL LEAA AND TOTAL PROJECT DOLLARS
 SPENT IN EACH REGION OVER THE PERIOD FY 69-FY 79



3

II. STATISTICAL

STATISTICAL DATA ON NUMBER OF VEHICLES AND QUANTITIES OF RADIO EQUIPMENT IN EACH REGION IS PRESENTED IN TABLE II-1. FOUR THOUSAND SEVENTEEN LAW ENFORCEMENT VEHICLES ARE EQUIPPED WITH MOBILE RADIOS. THE FACT THAT THERE ARE MORE VEHICLES THAN MOBILE RADIOS DOES NOT NECESSARILY IMPLY A LACK OF COMMUNICATIONS IN THE MOBILE UNIT SINCE MANY POLICE DEPARTMENTS USE HAND-HELD PORTABLE RADIOS ONLY. SOME DEPARTMENTS, INCLUDING SEVERAL SHERIFF'S DEPARTMENTS IN THE STATE, UTILIZE PORTABLE RADIO SYSTEMS WITH VEHICULAR CHARGERS AS NOTED BY THE FACT THAT SIX HUNDRED THIRTY TWO VEHICLES ARE EQUIPPED WITH CHARGERS.

FIGURE II-1 PRESENTS A MAP OF THE STATE SHOWING A SUMMARY OF LAW ENFORCEMENT CONTROL CONSOLE CAPABILITIES. EIGHTY FOUR (84) COUNTIES ARE PRESENTLY EQUIPPED WITH MULTI-CHANNEL COMMUNICATIONS CONSOLE CONTROL CAPABILITIES. SIXTEEN OF THE SMALLER COUNTIES IN THE STATE HAVE LAW ENFORCEMENT FACILITIES THAT CAN BE ADEQUATELY CONTROLLED WITH SMALLER REMOTE CONSOLE UNITS. A NUMBER OF THE LARGER COUNTIES SUCH AS MECKLENBURG, FORSYTH, GUILFORD, WAKE, ETC., HAVE MULTIPLE CONTROL CENTERS AND MULTIPLE CONSOLE INSTALLATIONS.

MULTI-CHANNEL LOGGING TAPE RECORDING HAS BECOME AN INCREASINGLY IMPORTANT CAPABILITY IN LAW ENFORCEMENT OPERATIONS, PARTICULARLY AS LOCAL PUBLIC SAFETY AGENCIES CONSIDER ADOPTION OF THE SINGLE EMERGENCY NUMBER (DIAL 911) CONCEPT. A PLOT SHOWING THE NUMBER OF LAW ENFORCEMENT RECORDERS IN USE IN NORTH CAROLINA AND THEIR CHANNEL CAPACITY IS GIVEN IN FIGURE II-2. MOST OF THE RECORDERS ARE EIGHT-CHANNEL UNITS. ALMOST ALL RECORDERS HAVE EXPANSION CAPABILITY TO TWENTY (20) CHANNELS. FIGURE II-3 SHOWS THE GEOGRAPHICAL DISTRIBUTION OF RECORDERS ACROSS THE STATE. THE DENSITY OF TAPE RECORDERS CAN BE CLOSELY CORRELATED WITH POPULATION DENSITY.

TABLE II-1
REGIONAL STATISTICAL DATA

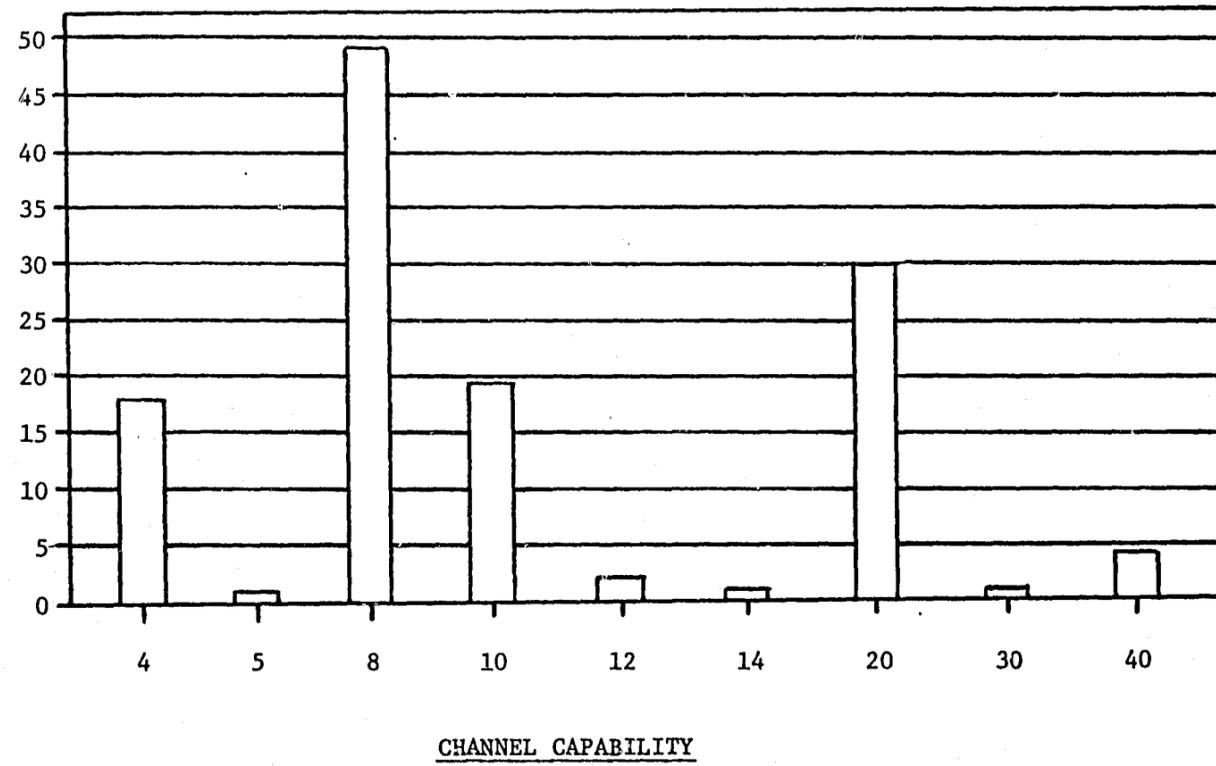
<u>REGION</u>	<u>NO. VEHICLES</u>	<u>MOBILE RADIOS</u>	<u>PORTABLE RADIOS</u>	<u>VEHICULAR CHARGERS</u>	<u>NO. BASE STATIONS</u>
A	104	82	91	1	24
B	235	69	204	115	37
C	141	136	171	1	23
D	100	96	163	3	32
E	245	221	181	19	21
F	802	702	1,255	44	69
G	703	535	589	71	87
H	143	140	86	3	25
I	394	187	479	34	33
J	608	451	517	159	56
K	106	101	79	11	21
L	253	223	235	9	34
M	340	209	229	64	22
N	136	135	113	4	27
O	203	174	193	32	27
P	325	286	325	42	52
Q	178	155	172	13	36
R	116	115	111	7	46
<u>STATE TOTALS</u>	5,132	4,017	5,193	632	672

FIGURE II-2
CAPABILITIES OF LAW ENFORCEMENT
DUAL TRANSPORT LOGGING RECORDERS

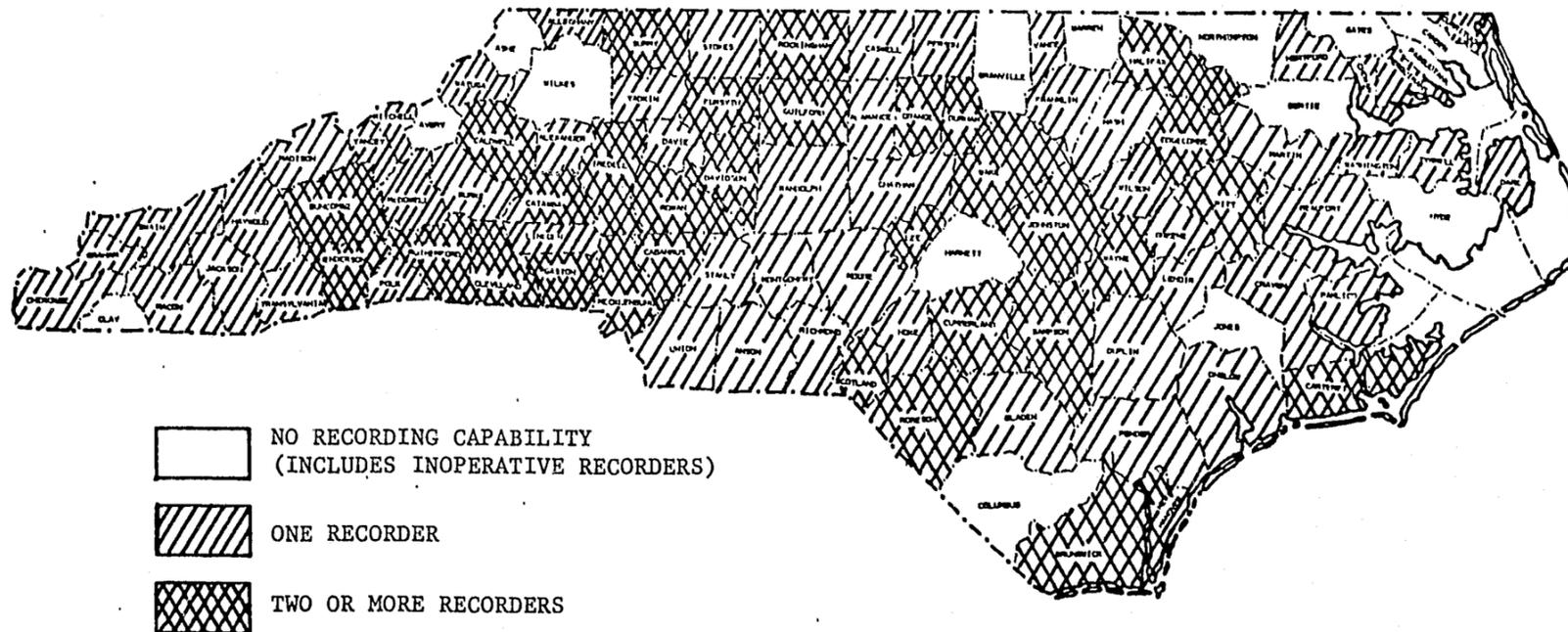
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NUMBER OF
RECORDERS



CHANNEL CAPABILITY



8

- NO RECORDING CAPABILITY
 (INCLUDES INOPERATIVE RECORDERS)
- ONE RECORDER
- TWO OR MORE RECORDERS

FIGURE II-3
STATUS OF DUAL TRANSPORT
LOGGING RECORDER CAPABILITY
IN NORTH CAROLINA

III. LAW ENFORCEMENT FREQUENCY UTILIZATION IN NORTH CAROLINA

THE ORIGINAL NORTH CAROLINA COMMUNICATIONS PLAN ESTABLISHED STATE COMMUNICATIONS STANDARDS AND CALLED FOR THE IMPLEMENTATION OF THREE BASIC COMMUNICATIONS CAPABILITIES WITHIN EACH LAW ENFORCEMENT AGENCY. BRIEFLY, THE CAPABILITIES WERE:

- A. RADIO COMMUNICATIONS BETWEEN THE FIXED ADMINISTRATIVE BASE AND THE MOBILE UNITS FOR A GIVEN AGENCY. THIS COMMAND AND CONTROL CAPABILITY WOULD INCLUDE ADEQUATE CONSOLE AND TAPE RECORDING EQUIPMENT.
- B. A MUTUAL AID CAPABILITY WHICH WOULD PERMIT COORDINATION BETWEEN AN AGENCY AND MOBILE UNITS FROM OUTSIDE THE AGENCY, OTHER TOWNS, OR COUNTIES. ALSO, ANY MOBILE UNIT COULD CALL ANOTHER COUNTY OR TOWN IF HELP WERE NEEDED.
- C. A NORTH CAROLINA INTER-CITY SYSTEM, WHICH PERMITS ANY LOCAL GOVERNMENT TO CALL ANY OTHER LOCAL GOVERNMENT OR STATE AGENCY WITHIN RADIO RANGE. THIS SYSTEM HAS NO MOBILE UNITS. IT PROVIDES THE DIRECT RADIO LINK BETWEEN LOCAL GOVERNMENTS AND THE STATE HIGHWAY PATROL OR STATE BUREAU OF INVESTIGATION.

ALMOST ALL OF THE IMPLEMENTATION PROJECTS PROCEEDED SMOOTHLY. HOWEVER, IN THE COURSE OF PROCURING SO MANY NEW RADIO SYSTEMS, AN OCCASIONAL PROBLEM WAS ENCOUNTERED RESULTING IN A FEW EXCEPTIONS TO THE OVERALL PLAN FOR FREQUENCY UTILIZATION IN THE STATE.

FIGURE III-1 SHOWS THE ORIGINAL PLAN FOR UTILIZING VHF HIGH BAND AND UHF FREQUENCIES IN THE STATE FOR LAW ENFORCEMENT COMMUNICATIONS. VHF WAS SELECTED FOR THE WESTERN NORTH CAROLINA COUNTIES BECAUSE OF ITS BETTER PROPAGATION CHARACTERISTICS IN RUGGED TERRAIN. THE INTERLACING VHF/UHF PATTERN ACROSS THE STATE WAS SELECTED SUCH THAT THE MAXIMUM USE COULD BE MADE OF THE RADIO FREQUENCIES AVAILABLE. FOR EXAMPLE, THE WIDTH OF THE CENTRAL PIEDMONT UHF AREA PROVIDES SUFFICIENT SEPARATION BETWEEN WESTERN VHF USERS AND EASTERN VHF USERS, SO THAT THE SAME FREQUENCIES CAN BE RE-USED. LIKEWISE, THE EASTERN VHF AREA PROVIDES SUCH A BUFFER BETWEEN CENTRAL UHF USERS AND FAR EASTERN UHF USERS. TABLE III-1 PROVIDES ADDITIONAL DETAIL ON THE USAGE OF FREQUENCIES BY REGION.

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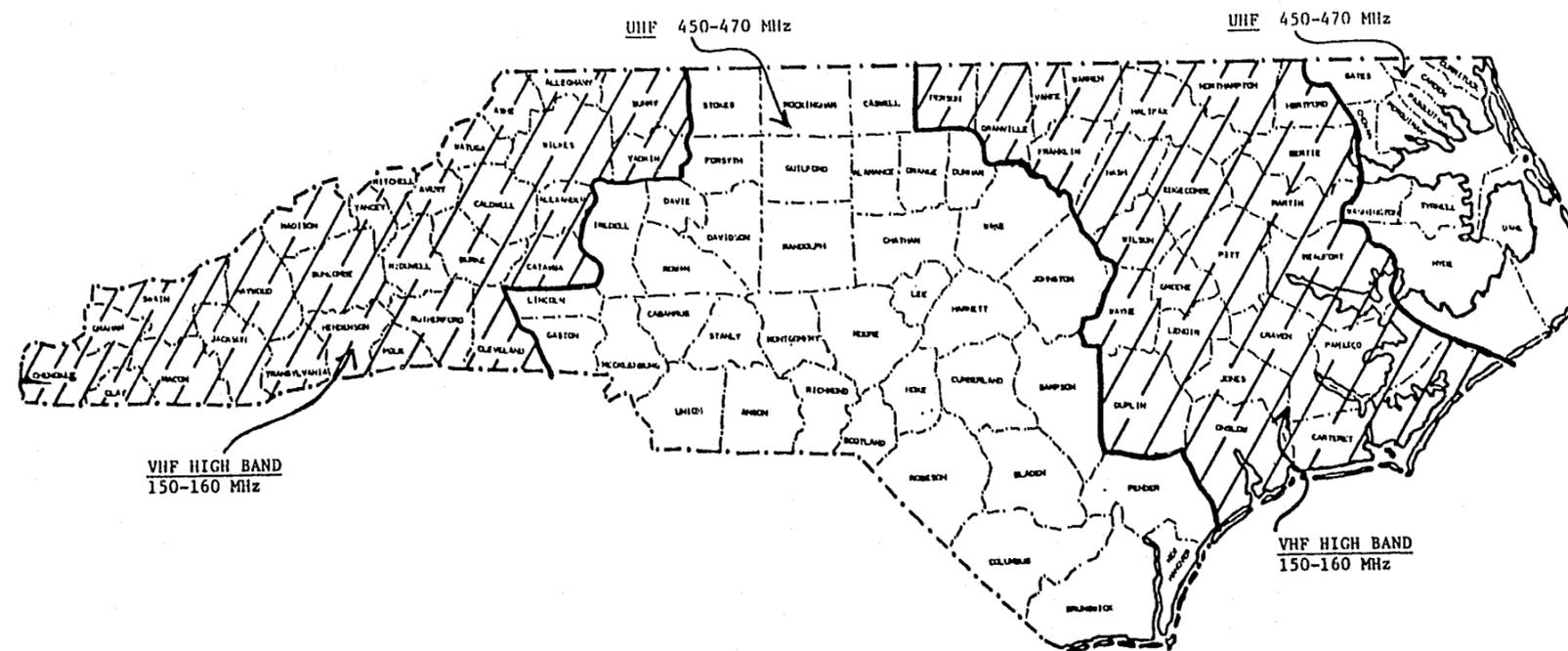


FIGURE III-1
BASE AND MOBILE FREQUENCY
PLAN FOR LOCAL OPERATIONS

TABLE III-1
FREQUENCY BAND UTILIZATION

<u>REGION</u>	<u>FREQUENCY BAND</u>	<u>FREQUENCY RANGE</u>	<u>SPECIFIC UHF CHANNEL GROUP</u>
A	VHF	150-160 MHz	NA
B	VHF	150-160 MHz ¹	NA
C	VHF	150-160 MHz	NA
D	VHF	150-160 MHz	NA
E	VHF	150-160 MHz	NA
F	UHF	450-465 MHz	453/458 MHz
G	UHF	450-465 MHz	453/458, 460/465 MHz
H	UHF	450-465 MHz	453/458 MHz
I	VHF/UHF	150-160/450-465 MHz	453/458, 460/465 MHz
J	UHF	450-465 MHz	453/458, 460/465 MHz
K	VHF	150-160 MHz	NA
L	VHF	150-160 MHz	NA
M	UHF	450-465 MHz	460/465 MHz
N	UHF	450-465 MHz	453/458 MHz
O	UHF	450-465 MHz	453/458 MHz
P	VHF	150-160 MHz	NA
Q	VHF	150-160 MHz	NA
R	UHF	450-465 MHz	460/465 MHz

¹ Except Region B Point-to-Point system, which operates in the UHF band, 451/456.375 MHz.

DUE TO THE FACT THAT SEVERAL REGIONAL SYSTEMS WERE DESIGNED AND IMPLEMENTED PRIOR TO THE COMPLETION OF THE STATE PLAN, SOME INCONSISTENCIES WITH THE OVERALL FREQUENCY PLAN ARE EVIDENT. ALSO, INSUFFICIENT UHF FREQUENCIES WERE AVAILABLE IN THE UHF POLICE SERVICE TO MEET THE NEEDS OF THE STATE. AS A RESULT, LOCAL GOVERNMENT UHF FREQUENCIES HAD TO BE USED. THESE PLUS OTHER DEVIATIONS FROM THE ORIGINAL PLAN ARE LISTED BELOW.

A. UHF FREQUENCY UTILIZATION

TWO DIFFERENT GROUPS OF UHF FREQUENCIES ARE UTILIZED IN THE UHF REGIONS DESIGNATED IN FIGURE III-1. THE FIRST GROUP, 460/465.XXX MHZ, COMES FROM THE POLICE SERVICE IN THE FCC RULES AND CONSISTS OF ABOUT TWENTY PAIRS OF FREQUENCIES. THE SECOND GROUP, 453/458.XXX MHZ, IS SHARED BY THE PUBLIC SAFETY RADIO SERVICES AND CONSISTS OF ABOUT FORTY PAIRS OF FREQUENCIES. FIGURE III-2 ILLUSTRATES HOW THE UHF FREQUENCIES WERE ALLOCATED THROUGHOUT THE STATE. SEE SUBSEQUENT PARAGRAPHS FOR SEVERAL EXCEPTIONS.

B. MUTUAL AID FREQUENCIES

REGIONS A, B, C, D, E, SURRY COUNTY, AND YADKIN COUNTY USE 154.874 MHZ AS A MUTUAL AID OR LOCAL AREA POLICE NETWORK (LAPN) FREQUENCY. THE LAPN IS SIMPLEX AND ALL COUNTIES IN THESE REGIONS USE THE SAME CTCSS¹ FREQUENCY.

REGION R, WAKE, JOHNSTON, LEE, HARNETT, CUMBERLAND, SAMPSON, FORSYTH, GUILFORD, AND DAVIDSON COUNTIES USE 460/465.375 MHZ FOR MUTUAL AID. ALL OTHER UHF COUNTIES USE 453/458.700 MHZ.

REGIONS K, L, O, AND P USE 155.220/970 MHZ FOR MUTUAL AID. SEE FIGURE III-3 FOR A DESCRIPTION OF MUTUAL AID USAGE. SEVERAL EXCEPTIONS ARE DESCRIBED IN SUBSEQUENT PARAGRAPHS.

C. NORTH CAROLINA INTER-CITY SYSTEM

THE NORTH CAROLINA INTER-CITY SYSTEM OPERATES ON 155.190 MHZ AND WAS INITIALLY IMPLEMENTED IN ALL OF THE STATE EXCEPT REGIONS A AND B. REGION A USES A POINT-TO-POINT SYSTEM CONSISTING OF A VHF MOBILE RELAY, AND REGION B USES THE SAME TYPE SYSTEM OPERATING IN THE UHF BAND. BOTH SYSTEMS EMPLOY A DIGITAL DIAL ADDRESSING SYSTEM.

¹ Continuous Tone Coded Squelch System (CTCSS).

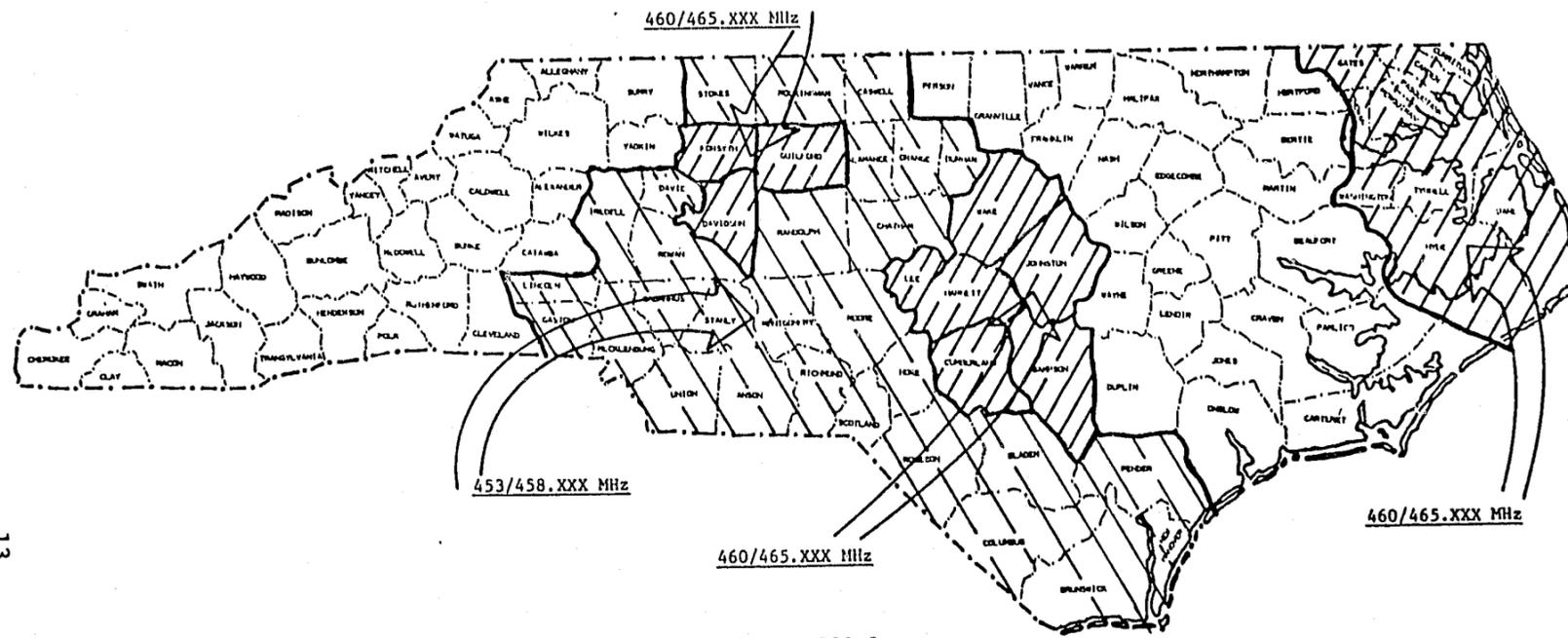


FIGURE III-2
ALLOCATION OF UHF
FREQUENCIES

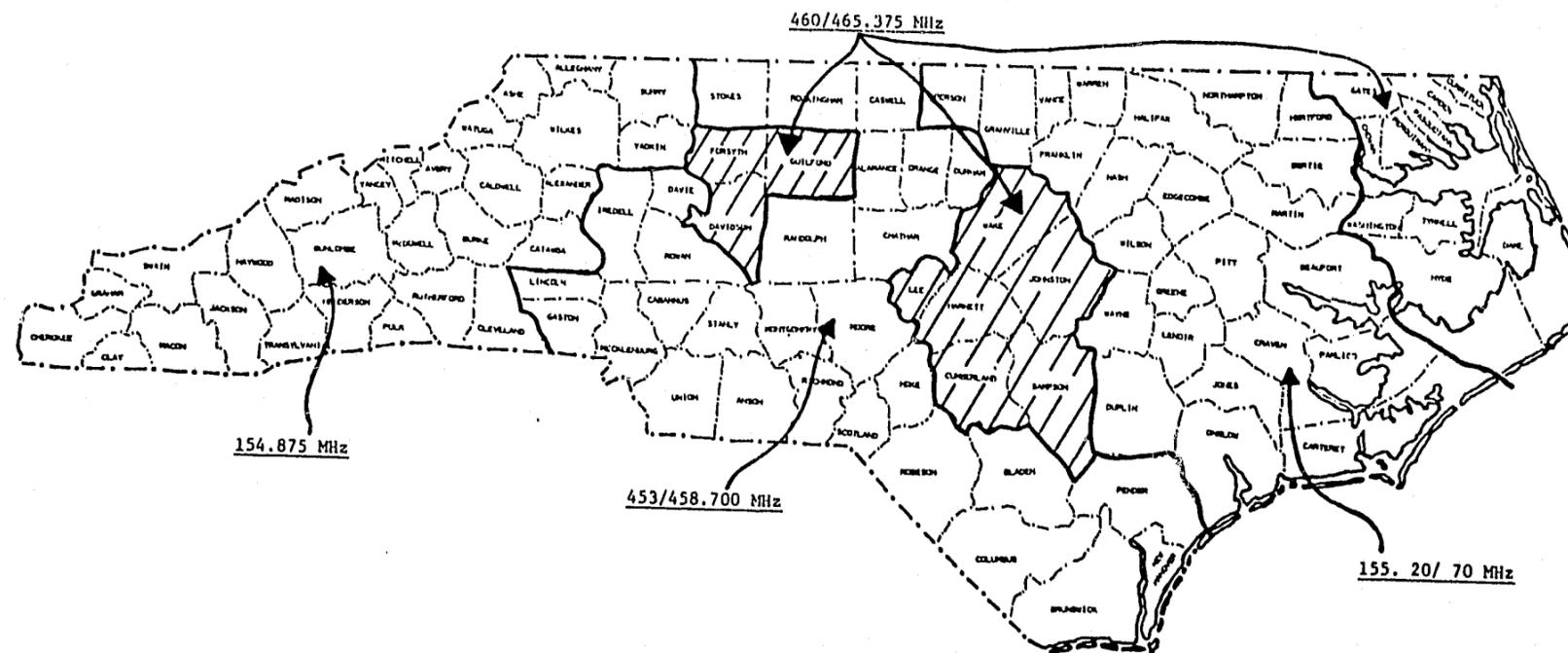


FIGURE III-3
EXISTING MUTUAL AID
FREQUENCIES

IT WAS ORIGINALLY PLANNED THAT THE TWO SYSTEMS IN REGIONS A AND B WOULD BE PATCHED TOGETHER SO THAT A USER IN ONE REGION COULD CALL A USER IN THE OTHER REGION AS WELL AS SUBSCRIBERS IN HIS OWN REGION. TECHNICAL DIFFICULTIES, HOWEVER, PREVENTED THIS PLAN FROM BEING IMPLEMENTED.

D. SURRY AND YADKIN COUNTIES

SURRY AND YADKIN COUNTIES OPERATE IN THE VHF BAND. THIS IS DUE TO THE FACT THAT THESE TWO COUNTIES WERE A PART OF REGION D WHEN THE COMMUNICATIONS SYSTEM WAS PLANNED AND IMPLEMENTED. THEY LATER BECAME A PART OF THE UHF REGION G, AND MORE RECENTLY WERE INTEGRATED INTO THE NEW REGION I. AT THE PRESENT TIME, ALL OF REGION I OPERATES IN THE UHF BAND EXCEPT SURRY AND YADKIN COUNTIES.

E. WAKE COUNTY

THE WAKE COUNTY SHERIFF'S DEPARTMENT OPERATES A BASE AND MOBILE SYSTEM IN THE VHF BAND. ALL OTHER USERS IN THE COUNTY OPERATE ON UHF. THE COUNTY DOES, HOWEVER, HAVE A CROSS-PATCHING SYSTEM FOR TYING THE VHF AND UHF MUTUAL AID SYSTEMS TOGETHER SO THAT COUNTY AND OTHER UNITS COULD IMPLEMENT MOBILE-TO-MOBILE COMMUNICATIONS.

F. ALAMANCE COUNTY

ALL USERS IN ALAMANCE COUNTY OPERATE ON VHF. THE COUNTY EMPLOYS CONTROL STATIONS TO COORDINATE INTO ADJACENT COUNTIES OPERATING IN THE UHF BAND.

G. SILER CITY

SILER CITY OPERATES ON THE VHF BAND WHILE CHATHAM COUNTY OPERATES IN THE UHF BAND.

ALL INCONSISTENCIES IN THE FREQUENCY UTILIZATION PLAN ARE SHOWN IN FIGURE III-4.

H. BASE/MOBILE FREQUENCY USAGE ACTUALLY IMPLEMENTED

FIGURE III-5 SUMMARIZES BASE/MOBILE FREQUENCIES USAGE AS ACTUALLY IMPLEMENTED. THE KEY TO SUCCESSFUL IMPLEMENTATION OF THE STATEWIDE POLICE RADIO PLAN, AS DEMONSTRATED BY THIS TEN-YEAR NORTH CAROLINA PROJECT, IS STRICT ADHERENCE TO AN APPROVED PLAN THAT INCLUDES FREQUENCY ALLOCATION, WITH EXCEPTIONS ALLOWED ONLY FOR TECHNICAL REASONS. HAD MANY OF THE REQUESTED

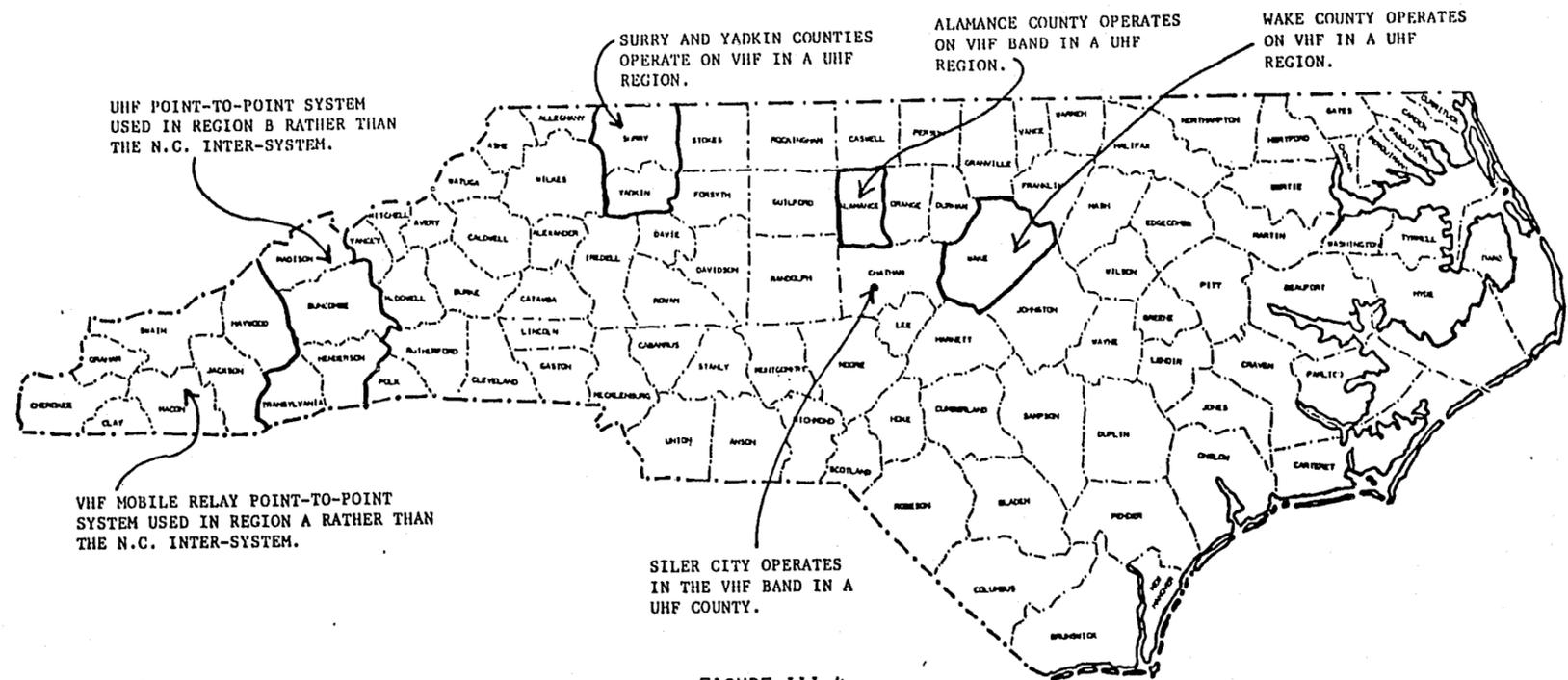
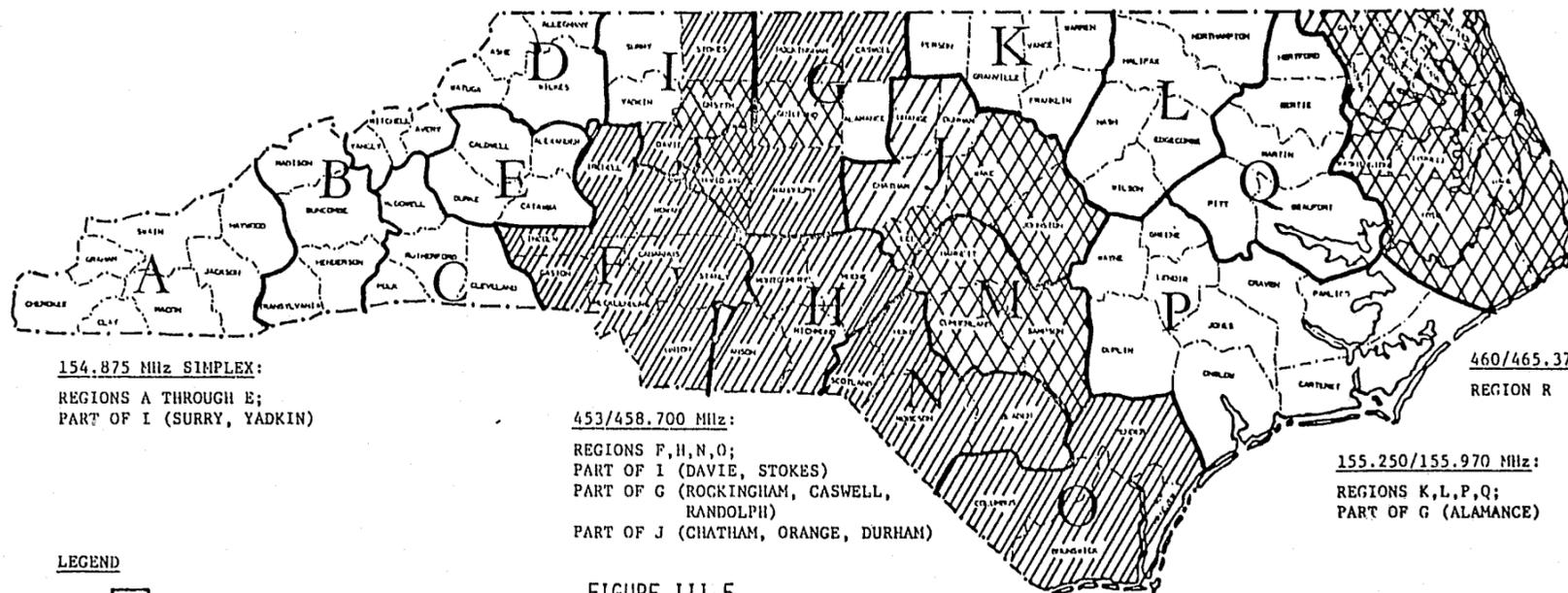


FIGURE III-4
INCONSISTENCIES IN THE
FREQUENCY UTILIZATION PLAN



154.875 MHz SIMPLEX:
 REGIONS A THROUGH E;
 PART OF I (SURRY, YADKIN)

453/458.700 MHz:
 REGIONS F, H, N, O;
 PART OF I (DAVIE, STOKES)
 PART OF G (ROCKINGHAM, CASWELL,
 RANDOLPH)
 PART OF J (CHATHAM, ORANGE, DURHAM)

460/465.375 MHz:
 REGION R

155.250/155.970 MHz:
 REGIONS K, L, P, Q;
 PART OF G (ALAMANCE)

LEGEND

- VHF HIGH BAND
- UHF - 453/458 MHz
- UHF - 460/465 MHz

FIGURE III-5
BASE/MOBILE FREQUENCY PLAN
AND MUTUAL AID
FREQUENCIES

460/465.375 MHz:
 REGION M;
 PART OF I (FORSYTH)
 PART OF G (GUILFORD, DAVIDSON)
 PART OF J (JOHNSTON, LEE, WAKE-
 EXCEPT WAKE SHERIFF VHF WITH
 CROSSPATCH TO UHF)

EXCEPTIONS BEEN ALLOWED, PARTICULARLY THOSE INVOLVING OBJEC-
TIONS TO FREQUENCY SHARING, THE LIMITED NUMBER OF AVAILABLE
RADIO FREQUENCIES WOULD HAVE PRECLUDED EQUIPPING MANY LAW
ENFORCEMENT AGENCIES WITH MODERN NEW RADIO SYSTEMS.

I. SUMMARY OF FREQUENCY UTILIZATION

A SUMMARY OF FREQUENCY USAGE IN THE STATE BY FREQUENCY
(OR FREQUENCY PAIR) IS PRESENTED IN TABLE III-2. THIS CHART
SHOWS THE FREQUENCY, USERS, AND CHANNEL LOADING. NOT ALL
LICENSEES ARE LISTED UNDER 'USERS'. FOR THE PURPOSES OF
BREVITY, ONLY THE COUNTY WAS LISTED WHEN LICENSES ARE HELD
BY THE COUNTY AND SMALL TOWNS WITHIN THE COUNTY.

TABLE III-2
SUMMARY OF FREQUENCY
UTILIZATION

FREQUENCY	USERS	CHANNEL LOADING	
		MOBILE	PORTABLE
153.920, 156.015	Graham P.D.	5	9
154.650, 155.310	Person County	23	17
154.710	City of Wilson	2	51
154.710, 158.850	Siler City	4	6
154.725	Atlantic Beach	4	10
154.725, 155.850	Haywood County	27	36
154.740, 155.520	Hertford County	23	29
154.770, 155.655	Warren County	8	10
154.785, 155.670	Wayne County	27	26
154.785, 155.910	Jackson County	15	11
	Macon County	15	10
	Swain County	5	8
154.800	Mt. Airy	6	11
154.800, 155.520	Jones County	6	3
	Pamlico County	6	6
154.815	Alleghany County	5	9
	Buncombe County	18	78
154.845	Ashe County	9	21
154.845, 159.030	Carteret County Sheriff	19	12
154.860	Transylvania County	22	14
154.860, 155.850	Rutherford County	34	41
154.875-base	Onslow County Sheriff and Small Towns	43	32
154.875, 156.030	Vance County	29	10
154.890-mobile only	Henderson County	10	18
	Burke County ABC	--	--
154.950-mobile only	Hendersonville	7	12
	Lenoir Sheriff and Kinston	23	38
154.965	Newport P.D.	3	3
154.995, 158.955	Carteret Co. Local Govt.	18	24
155.010	Wilkesboro	4	6
155.010/850	Martin County	20	24
155.010/970	McDowell County	22	18
155.070	Morehead City	9	16
155.070/625	Avery County	14	25
155.070, 156.150	Surry County	26	21
155.100	Madison County	6	8
155.115/910	Beaufort County	22	15
155.130, 156.090	Kinston P.D.	9	32
155.310	Hickory Surveillance	--	--
	Washington P.D.	5	10
155.370	Wallace P.D.	4	11
155.370, 154.755	Forest City	7	14
155.370/730	Mitchell County	9	19
	Yancey County	5	16
155.415	Catawba County Surveillance	--	--
155.415, 156.030	Pitt County-Small Towns	18	54
155.430	Asheville	6	74

TABLE III-2 CONTINUED

FREQUENCY	USERS	CHANNEL LOADING	
		MOBILE	PORTABLE
155.430, 154.845	Franklin County	18	22
155.430/655	Lenoir County Sheriff	19	11
155.520	Burke County	55	31
155.520/910	Wake County Sheriff	15	28
155.535	Transylvania County	22	14
	Caldwell County Surveillance	--	--
	Roanoke Rapids	15	10
155.535, 154.740	Yadkin County	22	14
155.550	Catawba County	70	75
155.550, 154.755	Wilson County	34	24
155.565	Caldwell County	59	36
155.565, 158.970	Onslow County Sheriff	36	26
155.580	Goldsboro #1	10	9
155.580, 154.725	Alamance County	18	14
155.580, 156.030	Polk County	13	15
155.595	Henderson County	10	18
155.595, 154.710	Nash County	38	32
155.610	Catawba County ABC	--	--
155.610, 154.650	City of Wilson	2	51
155.610, 154.830	Wilkes County	26	22
155.625, 154.740	Duplin County	33	34
155.625, 156.090	Halifax County	30	21
155.640, 156.150	Greene County	14	14
155.655, 156.090	Watauga County	20	39
155.670	Kings Mountain P.D.	12	22
155.670, 154.890	Bertie County	15	22
155.685, 154.650	New Bern	10	15
155.685, 154.950	Cleveland County	40	35
155.700, 154.650	Hickory P.D.	23	26
155.700, 154.860	Edgecombe County	28	21
155.730, 154.830	Jacksonville P.D.	20	28
155.790	Hendersonville	7	12
	North Wilkesboro	4	6
155.790, 154.830	Rocky Mount	47	48
155.790/010	State Government Security	5	9
155.805	Goldsboro #2	10	10
155.865/550	Cherokee County	11	15
	Clay County	3	3
	Graham County	5	8
155.880, 154.815	Northampton County	19	19
155.910	Alexander County	14	9
156.030-mobile only	Buncombe County	18	78
156.100-mobile only	Buncombe County	18	78
156.150-mobile only	Asheville	6	74
156.150, 155.070	Granville County	23	20
156.210	Shelby	18	42
	Elkin	4	7
156.210, 154.770	Craven County	22	29

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TABLE III-2 CONTINUED

FREQUENCY	USERS	CHANNEL LOADING	
		MOBILE	PORTABLE
158.730, 154.830	Burlington #2	17	31
158.730, 159.150	Greenville	25	12
158.790, 155.850	Burlington #1	16	32
158.850, 153.995	Pitt County Sheriff	27	6
158.940-mobile only	Madison County	6	8
159.090, 153.875	Tarboro	10	9
453.050	Wrightsville Beach	9	15
453/458.050	Rowan County	30	44
	Columbus County	50	39
	Chapel Hill Patrol	11	12
453.100	Albemarle	12	13
453/458.100	Lincoln County/Lincolnton	28	20
453/458.200	Statesville	12	33
	Lumberton	7	8
	Durham County Sheriff	24	9
453.225	Pinehurst	5	3
453/458.275	Lumberton	7	8
	Chapel Hill Detective	11	12
453/458.300	Charlotte #1	45	109
	Wilmington #2	9	31
	Durham City Dispatch	9	41
453/458.325	Stanly County	22	13
	Caswell County	10	2
453/458.350	Gastonia Patrol	12	63
	Richmond County	26	5
453/458.375	Cabarrus County Sheriff	25	55
	Robeson County Small Towns	20	26
453/458.400	Hoke County	10	18
	Scotland County	12	13
	Wilmington #1	8	31
453/458.425	Kannapolis	11	29
453/458.450	Mecklenburg County Rural P.D.	60	55
	Brunswick County	36	19
	Orange County ABC	--	--
453/458.475	Randolph County	42	20
453/458.500	Charlotte #2	45	109
	New Hanover County	32	22
	Durham Special Operations	10	41
453/458.525	Union County	24	28
	Asheboro	12	5
	Eden	15	14
453.550	Carolina Beach	6	9
453/458.550	Pender County	20	23
	Davie County	16	14
	Stokes County	22	8

SYSTECH CORPORATION

TABLE III-2 CONTINUED

FREQUENCY	USERS	CHANNEL LOADING	
		MOBILE	PORTABLE
453/458.575	Concord	11	50
	Carrboro	10	1
453/458.600	Gastonia Administration	12	63
	Robeson County	45	17
453/458.625	Anson County	27	21
	Reidsville	11	10
453/458.650	Iredell County	34	23
	Orange County Sheriff	13	40
453/458.675	Montgomery County	25	16
453.725	Southern Pines	6	6
453/458.725	Gaston County Rural Police	35	31
453/458.750	Mecklenburg County Sheriff	0	24
453/458.775	Salisbury P.D.	21	35
	Bladen County	25	23
453/458.800	Charlotte Administration	45	109
	Long Beach	4	4
	Chatham County	21	10
453/458.825	Gaston County Sheriff	12	12
	Hamlet	5	1
	Rockingham County	48	4
453/458.850	Mecklenburg County Rural P.D.	61	55
	Moore County	42	27
453/458.875	Gaston County	37	59
453.900	Laurinburg	9	0
453/458.900	Charlotte Detective, Youth, etc	45	109
	Durham Administration	9	41
453.925	Mooresville	7	0
453/458.925	Monroe	8	7
	Madison, Mayodan, Stoneville	8	13
453/458.950	Charlotte Identification	48	111
453.975	Rockingham P.D.	4	7
460/465.025	Cumberland County Zone 2	55	18
	Forsyth County #1	40	15
460/465.050	Greensboro Vice	38	30
	Johnston County Cities	16	41
460/465.075	Hyde County	5	7
	Pasquotank County	15	24
	Davidson County	35	22
	Cary P.D.	14	8
460/465.100	Clinton	10	14
	Greensboro Patrol	38	38
460/465.125	Tyrrell County	3	8
	Washington County	12	10
	Apex	5	1
	High Point #1	1	86
460/465.150	Raleigh Dispatch	48	36

SYSTECH CORPORATION

TABLE III-2 CONTINUED

FREQUENCY	USERS	CHANNEL LOADING	
		MOBILE	PORTABLE
460/465.175	Chowan County	7	6
	Gates County	2	2
	Perquimans County	7	11
	Gibsonville	3	4
	Lee County	28	20
460/465.200	Sampson County	27	20
	Camden County	5	3
	Winston-Salem/Greensboro	1	93
	Greensboro Administration	40	31
460/465.225	Forsyth County #2	40	14
	Raleigh Investigative	48	36
460/465.250	Dare County	35	16
	Raleigh Routine	49	36
460/465.275	Greensboro Information	38	30
	Johnston County Sheriff	18	4
460/465.300	Fayetteville District 1	7	51
	Winston-Salem Operations	1	93
460/465.325	Dunn	9	20
	Greensboro Investigation	38	30
460/465.350	High Point #2	0	87
	Raleigh Data	50	36
460/465.400	Fayetteville District 2	8	52
	Winston-Salem Investigation	1	93
460/465.425	Harnett County	37	38
	Lexington	10	20
460/465.450	Cumberland County Zone 1	56	17
	Currituck County	8	4
	Winston-Salem Information	1	93
460.475	Nags Head	8	14
460/465.475	Edenton	8	6
	Guilford County	79	49
	Thomasville	13	16
460/465.500	Raleigh-County and Small Towns	33	49
465.025-repeater control	Dare County	--	--

SYSTECH CORPORATION

IV. PROGRAM SUMMARY

IN 1971 AND PRIOR TO MAJOR FUNDING OF LAW ENFORCEMENT COMMUNICATIONS PROJECTS, THE CRIME CONTROL DIVISION PREPARED DOCUMENTATION ESTABLISHING CERTAIN STANDARDS, GOALS, AND OBJECTIVES FOR THE COMMUNICATIONS PROGRAM. UPON THIS BASIS, A SPECIFIC COMMUNICATIONS PLAN WAS PREPARED FOR EACH OF THE SEVENTEEN (17) PLANNING REGIONS. WITHIN EACH REGIONAL PLAN THE DETAILED EQUIPMENT AND SYSTEMS INTERFACE REQUIREMENTS FOR EACH COUNTY WERE IDENTIFIED.

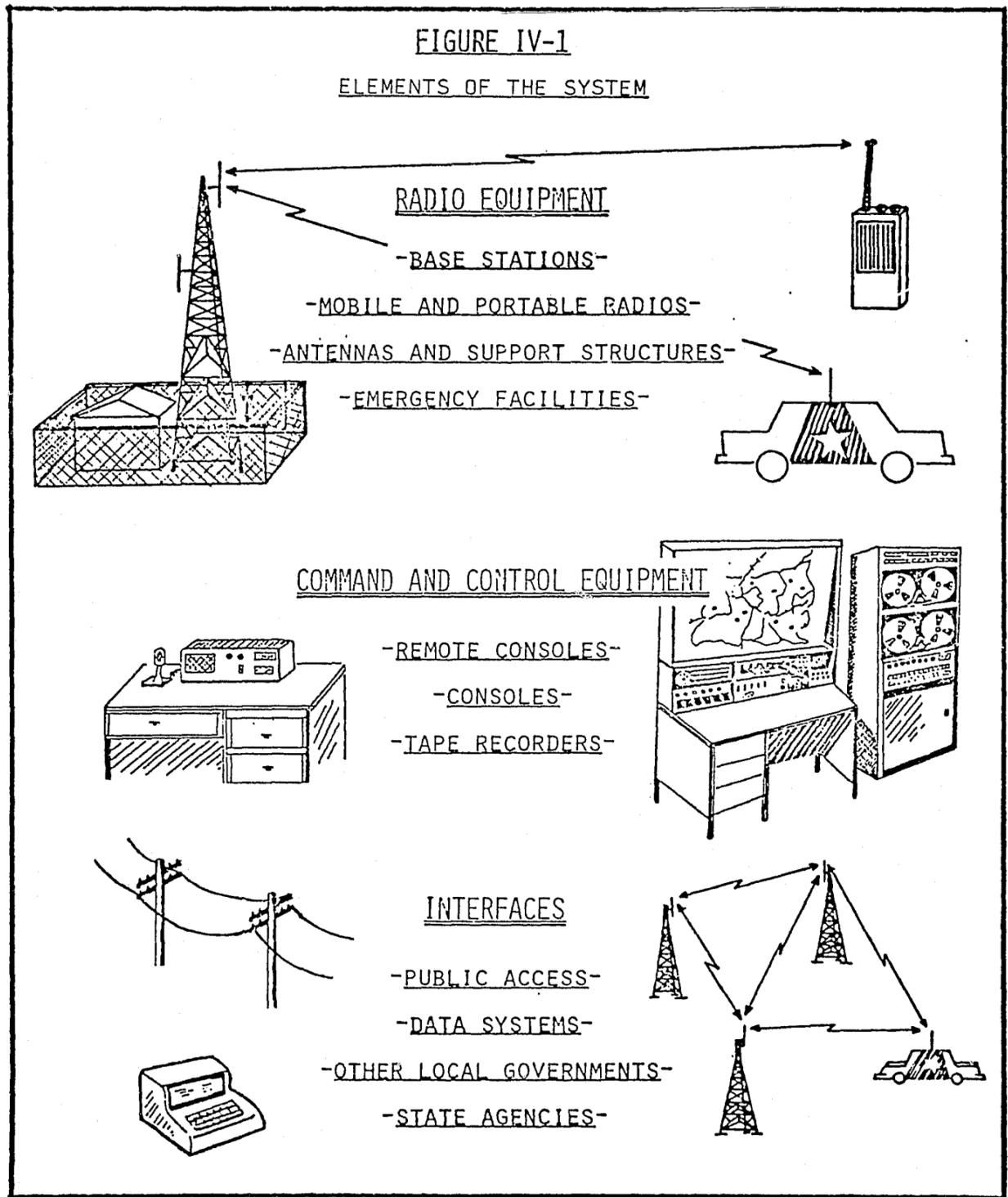
THE PLANS PROVIDED THE FOLLOWING MINIMUM FEATURES:

1. EACH LOCAL GOVERNMENT WAS TO BE PROVIDED WITH AN ADEQUATELY DESIGNED, NON-SATURATED RADIO SYSTEM FOR COMMUNICATIONS BETWEEN A LOCAL BASE STATION AND MOBILE UNITS.
2. EACH LOCAL GOVERNMENT WAS TO BE PROVIDED WITH A REGIONAL MUTUAL AID RADIO SYSTEM THAT WOULD PERMIT A MOBILE UNIT IN ONE COUNTY TO TALK TO A BASE OR MOBILE UNIT FROM ANOTHER COUNTY. GROUPS OF MOBILE UNITS FROM DIFFERENT COUNTIES WITHIN THE SAME REGION COULD TALK TO EACH OTHER AND TO A LOCAL BASE STATION.
3. EACH LOCAL GOVERNMENT WAS TO BE PROVIDED WITH A POINT-TO-POINT RADIO SYSTEM THAT WOULD PERMIT FIXED FACILITIES IN ONE AREA TO TALK TO FIXED FACILITIES IN ANOTHER AREA. THE SYSTEM ALSO WAS TO PROVIDE COMMUNICATIONS BETWEEN LOCAL GOVERNMENTS AND THE STATE AGENCIES OF THE NORTH CAROLINA STATE HIGHWAY PATROL AND THE NORTH CAROLINA STATE BUREAU OF INVESTIGATION.

THESE FEATURES WERE FURTHER EXPANDED AND DEFINED IN TERMS OF THE EQUIPMENT ELEMENTS SHOWN IN FIGURE IV-1. SECURITY WAS PROVIDED AT REMOTE BASE STATION SITES AND QUANTITIES OF EQUIPMENT WERE RELATED TO THE SIZE OF THE LOCAL POLICE DEPARTMENT AND NUMBER OF VEHICLES OPERATED BY THE DEPARTMENT. CONTROL AND RECORDING EQUIPMENT WAS PROVIDED THAT WERE ADEQUATE FOR THE SIZE OF THE DEPARTMENT. INTERFACE REQUIREMENTS WERE ADDRESSED DEPENDING ON SPECIFIC LOCAL NEEDS.

LOCAL GOVERNMENTS WERE PROVIDED WITH COPIES OF THE COMMUNICATIONS PLAN AND ENCOURAGED TO SUBMIT GRANT APPLICATIONS CONSISTENT WITH THE PLANS. THIS WAS DONE AND OVER THE MULTI-YEAR PROJECT PERIOD, THE STATE SYSTEM WAS IMPLEMENTED. SPECIFIC DETAILS ON EACH GRANT APPLICATION ARE CONTAINED IN THE FILES OF

THE CRIME CONTROL DIVISION. COPIES OF BID PROPOSALS FOR EACH SYSTEM ARE ALSO MAINTAINED IN THE ARCHIVES OF THE STATE OF NORTH CAROLINA.



V. GUIDELINES AND RECOMMENDATIONS

THE GOVERNOR'S CRIME COMMISSION IS NOT PRESENTLY FUNDING COMMUNICATIONS PROJECTS SINCE THE LEAA PROGRAM IS NO LONGER ACTIVE. THEREFORE, THERE ARE NO APPROPRIATE GUIDELINES OR RECOMMENDATIONS REGARDING CRIME CONTROL FUNDABLE ITEMS. IT IS RECOMMENDED THAT EACH LOCAL GOVERNMENT REVIEW THE SECTION OF THE UPDATE REPORT ENTITLED 'PROBLEMS' AND CONSIDER APPROPRIATE ACTION TO ELIMINATE ANY MAJOR DIFFICULTIES.

END