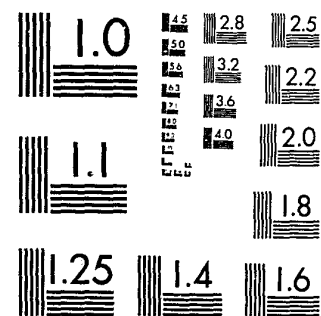


National Criminal Justice Reference Service



This microfiche was produced from documents received for inclusion in the NCJRS data base. Since NCJRS cannot exercise control over the physical condition of the documents submitted, the individual frame quality will vary. The resolution chart on this frame may be used to evaluate the document quality.



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

Microfilming procedures used to create this fiche comply with the standards set forth in 41CFR 101-11.504.

Points of view or opinions stated in this document are those of the author(s) and do not represent the official position or policies of the U. S. Department of Justice.

National Institute of Justice
United States Department of Justice
Washington, D. C. 20531

3/8/83

87014

U.S. Department of Justice
National Institute of Justice

This document has been reproduced exactly as received from the person or organization originating it. Points of view or opinions stated in this document are those of the authors and do not necessarily represent the official position or policies of the National Institute of Justice.

Permission to reproduce this copyrighted material has been granted by

PUBLIC DOMAIN/LEAA

to the National Criminal Justice Reference Service (NCJRS).

Further reproduction outside of the NCJRS system requires permission of the copyright owner.

79-51
M.F.I.

TECHNICAL ASSISTANCE REPORT

✓
CONSOLIDATED DISPATCH CENTER
24-HOUR OPERATION

Prepared for

OWEN COUNTY-OWENTON CITY
KENTUCKY



Performed by

The Associated Public-Safety Communications Officers, Inc.
New Smyrna Beach, Fl. 32069



Under a grant from

The Law Enforcement Assistance Administration

87014
Advisor: Van Logothetis

Task No: 7905101

NCJRS

Vol 6 1979

ACQUISITIONS



APCO's* Technical Assistance Program, Project 17, is currently funded by the LEAA.** Its purpose is to provide the advice and assistance of APCO's member resource to agencies needing help with telecommunications problems. The program does not provide long-term engineering or analysis such as would be provided by a private consultant, engineering firm or vendor, but rather permits technology transfer from an APCO member to someone needing advice, i.e., specific - intensive - short - term.

"Somewhere in APCO a member has already solved the problem."

* Associated Public-Safety Communications Officers

** Law Enforcement Assistance Administration

CONTENTS

SECTION	TITLE	PAGE
I	INTRODUCTION	1
II	PROBLEM FOCUS AND ANALYSIS	2
III	CONCLUSIONS	8
IV	RECOMMENDATIONS	9
V	APPENDICES	
1	Geography of Owen County	10
2	Chronology of Project activities	11
3	References	13

I

The recommendations of this report provide technical direction to Owen County in improving their public-safety communications capability.

Funding for developing this document was provided by the Law Enforcement Assistance Administration through APCO-PROJECT 17 described on the inside front cover. The writer, as an APCO-Project Advisor, provided technical assistance to Owen County by collecting applicable data and interviewing key individuals.

This technical assistance program is to supply technical direction to Owen County rather than perform an actual detailed communications system design. With this in mind, technical specifics which appear in the text must be considered as "directional design concepts for system development."

Significant freedom of action is available to the agents who will be responsible for system design, site finalization and computations of the required radio coverage for the specific service area, topography and propagation conditions, as well as potential mutual-interference calculations with neighboring communications systems.

II

Owen County Sheriff's Office has three basic problems which prevent him from delivering effective law enforcement services to the county's population. First, telephone answering and radio dispatching are performed from his office from 8 A.M. to 5 P.M. excluding holidays and weekends. After hours, the emergency telephone number rings at his house. Depending on the after-hours incident he either responds himself or he dispatches a deputy. As a result, there are instances where citizen access for emergencies is not available. Second, the present radio coverage is inadequate. There is an area in the northwest county border where communications with the dispatcher are nearly impossible. Third, there is insufficient number of radio units for handling large scale incidents.

The following questions will be addressed in the following pages:

- A • How can 24-hour per day, citizen access for emergencies, be achieved?
- B • How can the radio coverage be improved?
- C • What type of radio units should be provided, and to whom should they be assigned?

A

There are several telephone numbers published in the telephone directory for emergency public access. They are:

- City of Owenton Fire: 484-2131
- City of Owenton Police 484-2313
- City of Owenton Sheriff: 484-3363
- Owen County Fire: 484-2131
- Owen County Sheriff: 484-3363
- City of New Liberty Fire: 463-2618
- City of New Liberty Sheriff: 484-3363

Other emergency numbers which are not published in the emergency section of the telephone directory are:

- County-Wide Hospital: 484-3441
- County-Wide Ambulance: 484-5214

Since the number of incidents requiring emergency service for law enforcement, fire and ambulance are small, a single county-wide telephone number is feasible and Sheriff West has already made arrangements with the telephone company for providing a single county-wide number for public-safety emergencies.

Through federal assistance the county has recently constructed a new fire station in Owenton. The station has allocated space and facilities within the fire house for a communications dispatch room. Sheriff West feels that during working hours of regular work days telephone answering and radio dispatching can be done from his office at the courthouse. At all other times the dispatch room at the new fire house will assume telephone answering and dispatch operations.

Several alternatives are being considered by the sheriff in the selection/funding of personnel required for 24-hour telephone answering and radio dispatching. Aged volunteers and the handicapped are among the possible choices for manning the communications dispatch center. In our meeting with the sheriff and Tony Otte of North Kentucky Development District, the sheriff stated that he will assume responsibility for the staffing aspect of the communications dispatch center.

Communications equipment are required for the proposed 24-hour operation communications dispatch center. The types of equipment needed are shown on page 6.

B

The present radio coverage can be improved by converting the VHF simplex base station, presently operating at 155.730 MHz, to a mobile repeater by adding a properly matched frequency. The sheriff's office must apply through the APCO state frequency coordinator for the required additional frequency.

A second improvement in radio coverage will be gained by installing auxiliary receivers at strategic locations throughout the county. The calculations involved must be made by the agents who are going to design the radio system or the companies who are going to supply the radio equipment. As a minimum, one auxiliary receiver should be installed, with a highly directional antenna, at such location as to provide coverage on road #355 along Perry Park, Gratz and Monterey. Another auxiliary receiver should be located on or near the microwave tower at the Intersection of Roads #325 & #227 Southwest of New Liberty. A third site should be located at Richland Church on Route #227 South of Hesler.

The above sites should be connected to the comparator or voting selector at the TV Tower base location via microwave links at a frequency of 900 MHz or 2000 MHz.

The suggested configuration is shown on page 12.

Seven different types of radio units are needed for the proposed county-wide, multi-function radio system.

- Three (3) fixed auxiliary receivers with built-in charger/battery.
- Three (3) fixed microwave links each consisting of one microwave transmitter and one microwave receiver.
- One (1) fixed VHF repeater equipped with automatic change-over battery charger for 12 volt external car battery operation.
- Three (3) fixed VHF, 4-channel desk top radio remote units each equipped with automatic change-over battery charger for 12 volt external car battery operation.
- Several VHF, high power, 4-channel walkie-talkies and associated battery charger. Exact quantity to be determined by the county sheriff.
- Several VHF, 100-watt, 4-channel mobile sets. Exact quantity to be determined by the county sheriff.
- Several hand held VHF paging units each equipped with external antenna option and battery charger. Exact quantity to be determined by the county sheriff.

The desk top radio remotes for the courthouse communications dispatch center and the new firehouse main communications dispatch room should be equipped with a touch-tone encoder. The encoder will be used to selectively call individual pagers.

The fixed equipment in this list will be shared by all participating public safety agencies. The mobiles, walkie-talkies and pagers should be assigned by the sheriff to those individuals who play a permanent or temporary function in the county's public-safety operations.

The inter-county low band network should remain as is. One additional remote control unit should be installed at the new firehouse main dispatch center, connected via a telephone line to the existing low band base station which should remain at the courthouse.

The present VHF simplex base should remain at the sheriff's office as is. It will be used as a standby emergency base in the event the main repeater becomes inoperative.

The new repeater should be located and housed at the television tower location at the south outskirts of the City of Owenton. The VHF antenna should be located at the 150-foot level of the existing tower and 7/8" transmission line should be used. The microwave antennas should also be located on the same tower structure at sufficient height to provide adequate line-of-sight clearance auxiliary receivers/microwave transmitters.

The sheriff should solicit the cooperation of the owners of the existing tower/building so that he can share their tower for the antennas and their building for housing the radio equipment and sharing their emergency power source.

III

- The Sheriff of Owen County provides nearly all law enforcement services to the county. Considering that he is in favor of integration of all public safety communications functions to one radio system, centrally controlled and operating 24-hours per day, he must be equipped with the proper "fixed," "mobile," and "personal" radio equipment. His radio coverage also requires improvements.
- The County and Owenton City lack effective telephone answering and radio dispatching in handling public safety citizen complaints because there are no dispatch personnel available for 24-hour operation.
- The County and Owenton City have too many telephone numbers for citizens access in the event of emergencies.
- The County and Owenton City have inadequate radio coverage for their service areas.
- The County and Owenton City have insufficient radio dispatch equipment to provide reasonable services to their citizens.
- The County and Owenton City lack "mobile" and "personal" radio equipment in order to perform their public-safety functions in the safety of maintaining radio contact with their communications center and other units at all times.

IV

Owen County must take the following steps in order to improve their communications capability:

- Create 24-hour telephone answering and radio dispatching by hiring personnel, with county resources, and training same through, commonwealth resources, at Richmond, Kentucky.
- Institute a single telephone number for citizen access in their reporting public-safety emergencies.
- Acquire fixed radio equipment and an additional VHF radio frequency in order to improve radio coverage, increase radio system reliability and provide flexibility for potential future changes of dispatch physical location.
- Provide radio mobiles, pagers and walkie-talkies to those individuals who are providing public-safety services full-time, part-time or, on an as-needed basis.

Implementation of the recommendations will provide for effective public access through a 24-hour radio dispatch center and will improve the efficiency, reliability and safety of public-safety officers in the delivery of their services to the public.

Since integration of all county/city communication functions for law enforcement, fire and ambulance is proposed, the guidelines, goals and specific objectives of the statewide comprehensive law enforcement plan for telecommunications of the Commonwealth of Kentucky will be met.

V APPENDICES

Owen County in the Commonwealth of Kentucky is located in Northern part of the state with an area of 351 square miles and a population of 7,500 (1970) and 8,500 (1977). The largest city is Owenton with an estimated population of 1400 (1978).

The Sheriff's Department dispatches for the entire county. The City of Owenton Police Department Dispatches for the City of Owenton.

Owen County is one of the eight counties which comprise Kentucky's Northern Kentucky Area Development District.

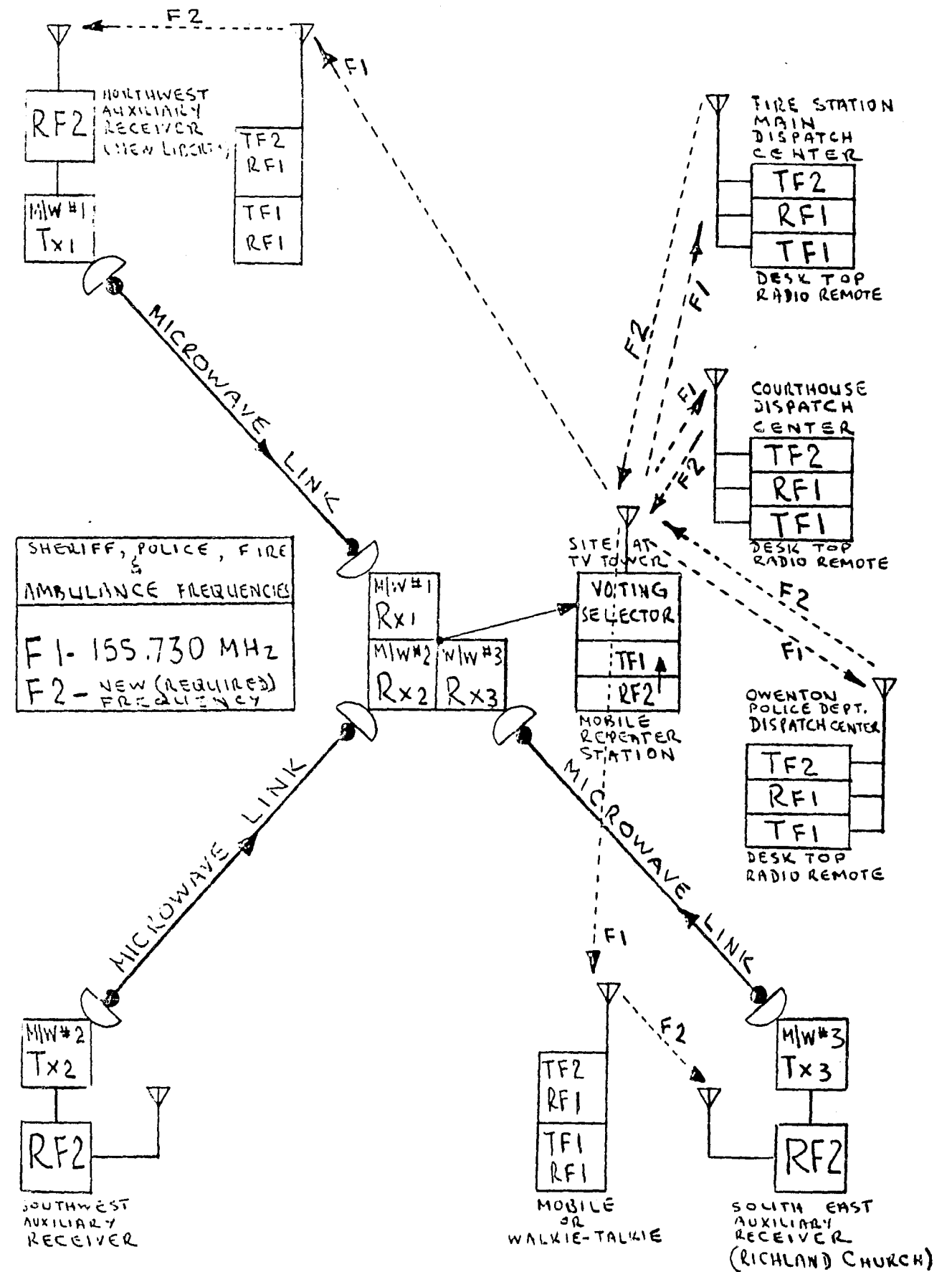
Maps of Owen County and Owenton City are shown in the back cover of this report.

1. Wednesday 25 July 1979 - Owenton

- A.M. traveled to and arrived at Owenton.
- P.M. met with Sheriff West and Deputy Gene Clifton. the discussion was focused on poor radio coverage, consolidated dispatching and 24-hour dispatch operation. Drove with Sheriff West around the area where poor radio coverage exists. The new fire station building and a potential auxiliary radio site were also visited.

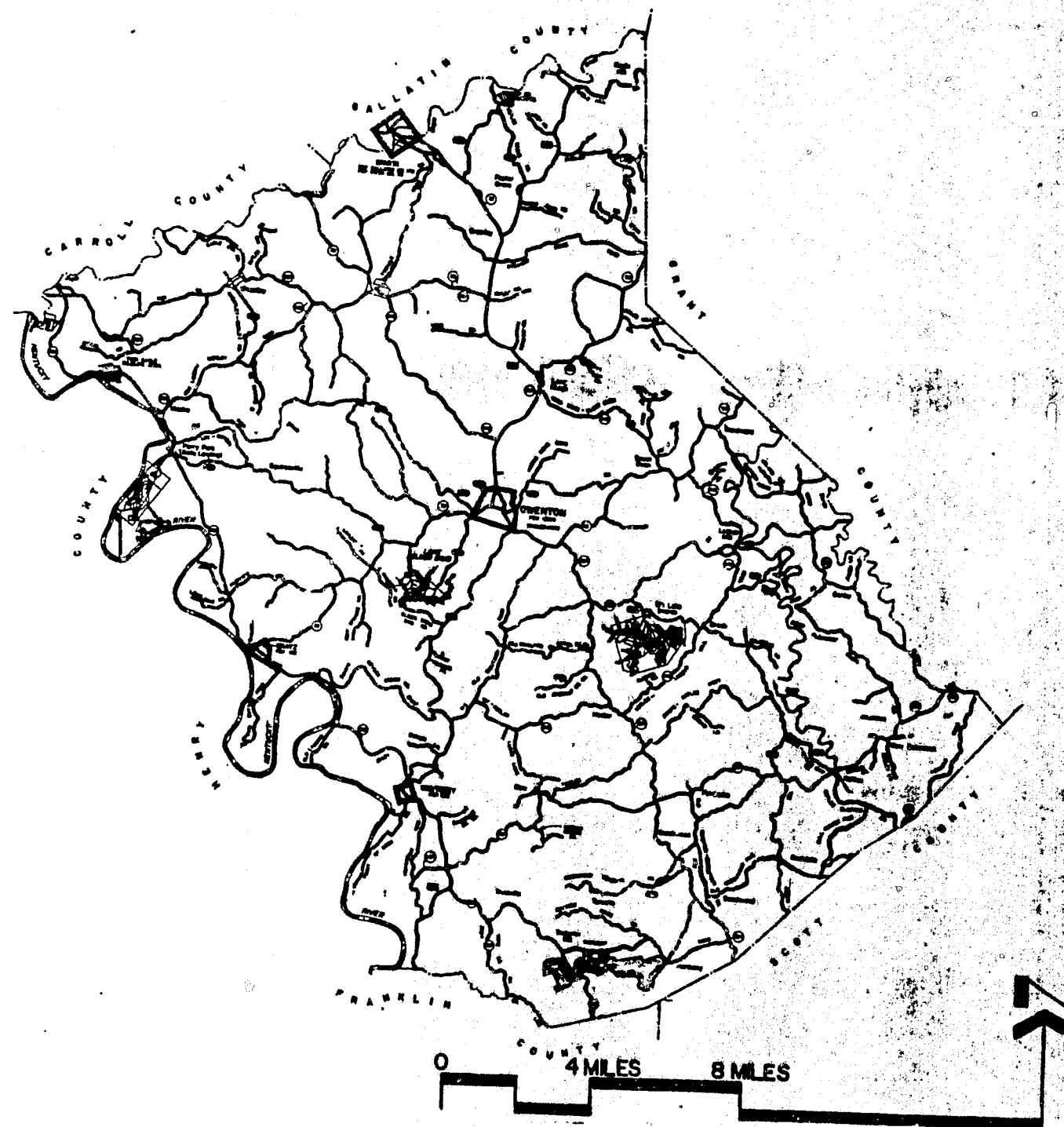
2. Thursday 26 July 1979 - Owenton

- A.M. met with Sheriff West, Deputy Gene Clifton and Tony Otte, Developmental Planner of Northern Kentucky Area Development District. We discussed the poor coverage, consolidated dispatching and 24-hour dispatch operation.
- P.M. the meeting continues as above. Left Owenton for Florida.

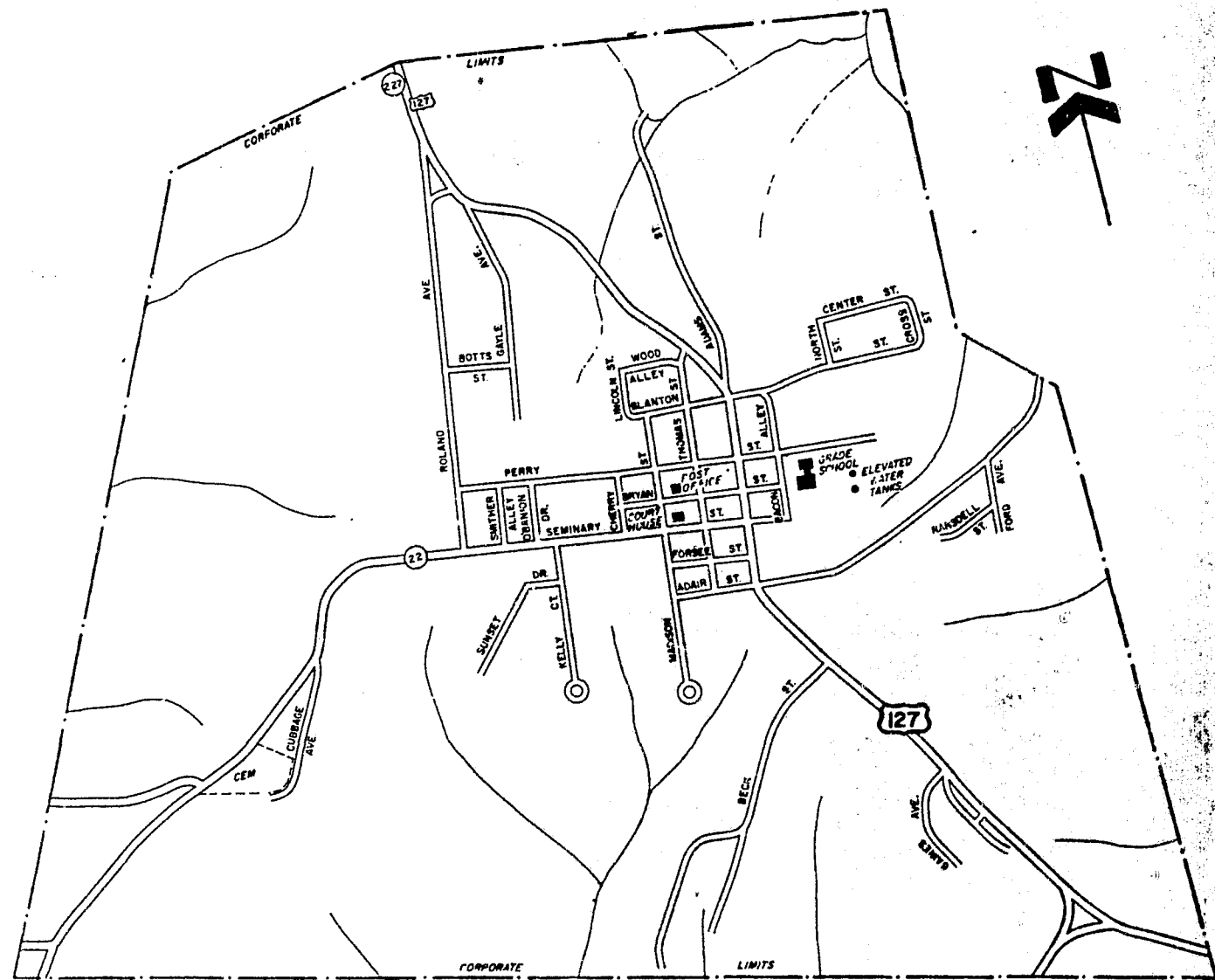


County-Wide Mobile Communications System Configuration
Law Enforcement and Fire

- KENTUCKY STATE COMPREHENSIVE LAW ENFORCEMENT PLAN - TELECOMMUNICATIONS, Kentucky Chapter of Associated Public Safety Communications Officers, Booz, Allen & Hamilton, Inc., Consulting Contractor, Kentucky Department of Justice, 1978.
- KENTUCKY'S POPULATION, University of Louisville, Urban Studies Center, Population Research Unit, 1978. (171 pages)
- POLICE TELECOMMUNICATION SYSTEMS, National Institute of Law Enforcement and Criminal Justice, Law Enforcement Assistance Administration, U. S. Department of Justice, Document #2700-0075 1971. (429 pages)
- MOBILE RADIO SYSTEMS, Rural Electrification Administration - U. S. Department Of Agriculture, REA Bulletin 66-8, 1978. (205 pages)
- REFERENCE DATA FOR RADIO ENGINEERS, Sixth Edition, Howard W. Sams & Company, Inc., 1977.



OWEN COUNTY



OWENTON

END