



Oakland County Wireless Integrated Network



Oakland County Wireless Integrated Network

User's Guide Reference

THESE POLICIES AND PROCEDURES ARE DESIGNED TO PROTECT THE HEALTH, SAFETY, AND WELFARE OF ALL OAKLAND COUNTY RESIDENTS. THE DISSEMINATION OF THIS DOCUMENT IS RESTRICTED TO PUBLIC SAFETY PERSONNEL ONLY.



Oakland County Wireless Integrated Network

CHAPTER 7

Reference

System Recovery

The Oakland County Wireless Integrated Network radio system has been designed to provide redundancy at multiple levels so that public safety voice communications will continue in the event of failures or interruptions in various components of the system.

7.1 Network Switching Center

The radio system has two redundant network switching centers (NSCs) located in County buildings in two different communities. Both buildings have uninterruptible power supplies (UPS) and emergency generators.

The two NSCs are connected by both fiber and back up connectivity, and communicate with each other continuously. In the event that one NSC should fail, the other "takes over" the system automatically. Both NSCs have extensive alarm notification systems so technicians are constantly notified of even the smallest detail of functionality of the system in real time. Failover from the primary NSC to the secondary is automatic and interrupts multi-site radio communications only briefly (typically less than two minutes). No radio functionality is lost when operating on the secondary NSC.

In the very unlikely event that both NSCs failed simultaneously, or all the redundant connectivity paths between the NSCs and the sites failed, the radio sites would remain operative for intra-site (local) communications. When a site is operating without connectivity to the network, it is referred to as an "isolated" site. If the network or both NSCs failed completely, each site would remain functional, but isolated. The radio users would see the antenna symbol on the mobile radio disappear and those using P801 portable radios would see the "U" symbol disappear. The display change on the P7200 portables has not been determined. The PSAP would see the words "trunk line down" at the supervisory console position.



Oakland County Wireless Integrated Network

7.2 Tower Sites

The system has been designed so that each tower site has at least two connectivity paths back to the NSC. These redundant paths are a combination of OAKNet fiber or T1, with ISDN back up. The CLEMIS networking team has done extensive testing to make certain that the ISDN back up works seamlessly if there is down time, due to either regular maintenance or a failure in the fiber or T1. Failover from the primary network to ISDN backup is automatic and interrupts multi-site radio communications only briefly (typically less than one minute). No radio functionality is lost when operating on the ISDN backup network.

In the unlikely event that both forms of connectivity should fail, the tower would remain functional, but “isolated” as described above. An isolated tower automatically returns to normal operation when the network becomes available. When operating on an isolated tower, radio users can only communicate with others on the same tower – multi-site communication capability is lost. Likewise, the local PSAP must communicate with these users via radios. As an alternative to operating off the network, the affected organization could opt to disable their local tower completely until repairs are made. In this case, their radios would attempt to roam to surrounding towers. This option restores full radio functionality, but offers degraded coverage.

In the event of a catastrophic network failure where all tower sites are isolated, all radios operating in their normal geographic area will attempt to return to their “home” site. This increases the probability that local communications will continue uninterrupted until network operation is restored.

The RF components at each site are also designed for redundancy. Those sites with single channels have a back up hot standby base station and a redundant antenna. If a failure is detected in the primary base station, the failure is immediately reported back to CLEMIS and the back up base station automatically takes over.

In the event of a power failure, all tower sites are supported by battery back up and the vast majority by generator back up power.

The system design is such that most geographic locations within Oakland County receive coverage from more than one tower site. Should the radio



transmit or receive capabilities of any tower site fail, it is likely that most areas in the geographic vicinity of that tower would still have mobile radio coverage and possibly out of door portable coverage. Indoor portable radio coverage would be impaired until the site is brought back on line. The user would detect an unusual number of out of system range tones when attempting to use portables.

Both the connectivity network and the RF components of the sites are alarmed and are monitored 24 hours a day, seven days a week by CLEMIS staff, so technicians will be dispatched to correct any problems and PSAPs in the affected area will be notified. Public safety responders may also be asked to make a visual inspection of the tower for any visible damage.

7.3 PSAPs

In the event of a power failure, all PSAP console equipment is equipped with UPS and is connected to the PSAPs generator for back up power. It is recommended that PSAPs also have access to mobile or portable radios as a back up.

The PSAPs are connected to the radio network with at least two redundant forms of connectivity, OAKNet fiber and T1. The T1 will automatically provide connectivity during routine maintenance of the fiber or during a fiber outage.

In the event that a PSAP is isolated from the network, the PSAP can continue to operate using radios. Using radios as a backup mechanism, the isolated PSAP remains in contact with radio users via local talk groups and with other PSAPs via the ALLDISP talk group.

Should a PSAP be evacuated for any reason, their OpenSky talk groups can be enabled at any other PSAP in the County for temporary coverage of the disabled facility.



Oakland County Wireless Integrated Network

FCC Rules & Regulations

The radio system is a shared resource. All users must utilize the system efficiently and effectively, recognizing that other public safety users may be waiting to use the same resources.

Users of the radio system shall comply with all applicable local, State, and Federal laws pertaining to public safety communications, including Part 90 of the Federal Communications Commission (FCC) Rules and Regulations (the most commonly used sections are paraphrased below, but are not all inclusive).

7.4 Priority (FCC 90.403(d))

Communications involving the imminent safety of life or property are to be afforded priority by all users

7.5 Transmission Time (FCC 90.403(c))

Users shall restrict all transmissions to the minimum practical transmission time and shall employ an efficient operating procedure designed to maximize the utilization of the frequencies. Unnecessary and superfluous transmissions are prohibited.

7.6 Permissible Communications (FCC 90.405 and 90.403)

- A. Users of the system may transmit only the following types of communication:
 - 1. Any communication related directly to the imminent safety of life or property
 - 2. Communications directly related and necessary to police, fire, EMS, and other public service activities
 - 3. Communications for testing purposes required for proper station and system maintenance; however, these tests must be kept to a minimum



Oakland County Wireless Integrated Network

- B. Users of the system are directly responsible for the proper operation and use of each radio and shall exercise such direction and control as is necessary to assure that the radios are used:
 - 1. Only for permissible purposes
 - 2. Only in a permissible manner
 - 3. Only by persons with authority to use and operate the equipment

7.7 Prohibited Communications (FCC 90.415 and 403(e))

- A. Users shall not:
 - 1. Cause harmful or nuisance interference (i.e., listen before transmitting on any shared talk group, avoid microphone "clicking" and other superfluous noises)
 - 2. Transmit program material of any kind, or that used in connection with broadcasting (i.e., do not retransmit any broadcast material from a commercial radio or television station, and do not transmit "program material" of any kind, such as policies, etc.)
 - 3. Use profanity, or any terminology or transmission that could be construed as demeaning to any person, or a violation of the Civil Rights Act

7.8 Violations

Violation of any State or Federal statutes, rules, or regulations by any radio system user shall be addressed first by the user's agency. If unresolved by the agency, the violation shall then be addressed by the Radio Oversight Committee. Any fines or penalties assessed by the FCC or any other governing body as a result of the violation will be the responsibility of the user's agency.



Oakland County Wireless Integrated Network

Glossary

Called Party First/ Receiver-from-Sender	Standardized method for establishing contact with another unit
CLEMIS	Court and Law Enforcement Management Information System
Direct "D"	Conventional channels NOT on repeaters used for direct user to user communication
Edge-Triggered	An immediate emergency signal transmission when a mobile or portable radio emergency button is pressed
EOC's	Emergency Operations Centers
Event Talk Group Request Form	A form used to reserve a talk group in advance of a special event
FCC	Federal Communications Commission
Fleet Map	Agencies' fleet maps define the number, characteristics, and arrangements of talk groups in profiles and personalities
Home Profile	The users most commonly used talk groups
ISDN	Integrated Services Digital Network A system of digital phone connections which allows voice and data to be transmitted simultaneously using end-to-end digital connectivity
ITAC	Conventional Nationwide Interoperability Channels
M/A-COM	Vendor chosen to design/provide the new radio 800 MHz trunked radio system
MPSCS	Michigan Public Safety Communications System; radio system used by MSP
NetWork First	A M/Com product that allows interoperability between disparate radio systems
NFPA	National Fire Protection Association
NPSPAC	National Public Safety Planning Advisory Committee
OAKNet Fiber	Fiber used to connect dispatch centers to tower sites
OakWIN	Oakland County Wireless Integrated Network
OK	Oakway
Open Sky	Name assigned to M/A Com's 800 MHz trunked radio system
Patching	Linking together any two talk groups requiring an immediate communication path, such as for a multi-jurisdictional pursuit, a crime that just occurred involving two or more agencies, or a fire mutual aid situation
Profile	Set of talk groups organized to meet the needs of the mobile and portable radio user
PSAP	Public Safety Answering Point – Dispatch Centers
Scanning	Listening to other talk groups within the user's selected profile
Simulselect	Dispatchers ability to broadcast on two or more talk groups simultaneously by selecting multiple talk groups
System Alias	An agency specific alpha-numeric identifier for each radio
T1 Line	A dedicated phone connection that can be configured to carry voice or data traffic
Talk Group	A group of radio users requiring two-way radio communication
TDMA	Time Division Multiple Access Allows four simultaneous conversations on one channel, providing for increase capacity

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Oakland County Wireless Integrated Network

Trunking	A method of sharing radio channels among multiple users in order to distribute the load evenly among the channels
UHF	Ultra High Frequency
UIC	Unified Incident Command
VoIP	Voice over Internet Protocol Allows system to send/receive voice and data
WMD	Weapons of Mass Destruction

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Oakland County Wireless Integrated Network

Forms

The forms that are available in this User's Guide are described in the following table.

FORM	PAGE
OCSO – Request for Event Talk Group	9
OCSO – Request for Communications Recording Tape	10



Oakland County Wireless Integrated Network

OAKLAND COUNTY SHERIFF'S OFFICE

Request for Event Talk Group

The Oakland County Sheriff's Dispatch Center will assign an event talk group to agencies requiring one. Requests are made by completing this form and faxing it to the Dispatch Center. An event talk group will be assigned, and confirmation will be faxed back to the requesting agency.

Name of Agency:	
Contact Name:	
Contact Phone Number:	FAX Number to Return Confirmation:
Date Needed:	Start Time: End Time:
Description of Event:	
TO BE COMPLETED BY OAKLAND COUNTY DISPATCH CENTER	
Event Channel Assigned:	
Assigned by:	
Date & Time Confirmation Faxed:	

**Fax completed form to
Oakland County Dispatch Center
248-452-2102**

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Oakland County Wireless Integrated Network

OAKLAND COUNTY SHERIFF'S OFFICE

Request For Communications Recording Tape

Requesting Agency:		Date of Request	
Requesting Officer		Direct Phone Number	
Reason for Request:			
Complaint Number:	Date of Incident:	Time:	
Radio Talk Group:			
Requesting copy of tape recording beginning at:		Ending at:	
Authorized by Immediate Supervisor:		Date:	

**Fax completed form to
Oakland County Dispatch Center
248-452-2102**

The requesting officer will be notified at the telephone number provided when the tape is completed. Pick up arrangements are to be made by the requesting officer.

FOR COMMUNICATIONS UNIT USE ONLY

Date received:	Copies reproduced by:
Date completed:	Date & time requesting officer was notified:

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Oakland County Wireless Integrated Network

Appendix

The following items can be found in this Appendix.

	ITEM	PAGE
15.1	List – Talk Groups	160
15.2	Map – Police Regional Talk Group Areas	163
15.3	Map – Fire Regional Talk Group Areas	164



Oakland County Wireless Integrated Network

TALK GROUP LIST	
TALK GROUP	DESCRIPTION
ALLDISP	Countywide Talk Group – used by mobile and portable users to contact another dispatch center for notification of an oncoming pursuit, for dispatchers to broadcast an all points bulletin, to contact the Sheriff's helicopters, and for dispatch centers to contact each other; ALLDISP shall be monitored by all dispatch centers on the radio system
63OAKH	Hospital Talk Group - used by EMS to communicate with all hospitals
WBRO	Hospital Talk Group - used by EMS to communicate with William Beaumont Hospital Royal Oak
WBTRY	Hospital Talk Group - used by EMS to communicate with William Beaumont Hospital Troy
CHMC	Hospital Talk Group - used by EMS to communicate with Crittenton Hospital
CW_EMS1 through CW_EMS4	Shared Countywide EMS Talk Group – may be used as operational or tactical
CW_FD1 through CW_FD4	Shared Countywide Fire Talk Group – may be used as operational or tactical
CW_POL1 through CW_POL4	Shared Countywide Police Talk Group – may be used as operational or tactical
CW_SUR1 through CW_SUR9	Shared Countywide Surveillance/Undercover Law Enforcement Talk Group
MABAS Talk Group	Shared Fire Talk Groups- for mutual aid
OAKWAY Talk Group	Shared Fire Talk Groups-for mutual aid OAKWAY agencies
EV_1 through EV_13	Event Talk Groups – may be used by all agencies for pre-planned events; assigned by Sheriff's dispatch.
FD_CMD1 through FD_CMD4, OK_CMD 1 and 2	These talk groups are used for communications between command officers from multiple departments operating at mutual aid incidents; these talk groups are intended to be in radios assigned to command officers only
FD_TRNG	Fire Profile and 6 training talkgroups for any Fire Department assigned by Sheriff's dispatch.
GENESYS	Hospital Talk Group - used by EMS to communicate with Genesys Regional Medical Center
HFWB	Hospital Talk Group - used by EMS to communicate with Henry Ford Hospital West Bloomfield
HM_OAKW Oakway Team; HM_OC1 HM_OC2	These talk groups are used for intra- and inter-team communications between the county hazardous materials teams.
HVSH	Hospital Talk Group - used by EMS to communicate with Huron Valley-Sinai Hospital
I CALL	MPSCS talk group for mutual aid; this is a conventional talk group used to hail MSP dispatch (For additional information, refer to ITAC profile)
ITAC1 through ITAC4	MPSCS channel for radio-to-radio communications; these are conventional channels that are on repeaters to facilitate interoperability for direct user-to-user communication (For additional information, refer to ITAC profile)
ITAC1D through ITAC4D	MPSCS channel for radio-to-radio communications; the "D" indicates DIRECT; these are conventional channels that are NOT on repeaters to facilitate interoperability for direct user-to-user communication (For additional information, refer to ITAC profile)

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Oakland County Wireless Integrated Network

NE_OPS1 through NE_OPS4	Shared Regional Police Talk Groups – for northeast region operational or tactical
NW_OPS1 through NW_OPS4	Shared Regional Police Talk Groups – for northwest region operational or tactical
OS_MAR	Oakland County Sheriff's Marine Unit Talk Group Requests for dive team are to be phoned to Sheriff's dispatch center
POH	Hospital Talk Group - used by EMS to communicate with Pontiac Osteopathic Hospital
PROVNOV	Hospital Talk Group - used by EMS to communicate with Providence Medical Center Novi
PROVSFD	Hospital Talk Group - used by EMS to communicate with Providence Hospital Southfield
PS_TAC1 through PS_TAC4	Shared Public Safety Agency Talk Groups – shared by Berkley, Beverly Hills, Huntington Woods, and Oak Park for operational or tactical use
SE_OPS1 through SE_OPS4	Shared Regional Police Talk Groups – for southeast region operational or tactical use
SJMO	Hospital Talk Group - used by EMS to communicate with St. Joseph Mercy Oakland
STJOHNO	Hospital Talk Group - used by EMS to communicate with St. John Oakland
SW_OPS1 through SW_OPS4	Shared Regional Police Talk Groups – for southwest region operational or tactical use
TER_OPN, TER_OPS	These talk groups are used for intra- and inter-team communications between the two county technical rescue teams.
TRN_N1 through TRN_N4	Shared Regional Talk Groups – used by all agencies for training in the north
TRN_S1 through TRN_S4	Shared Regional Talk Groups – used by all agencies for training in the south
XX_EMRG (XX=Agency ID)	Emergency Button Activation Talk Group on Police Radios – for additional information refer to the Emergency Button Activation Police/PSAP sections of the User's Guide
XXF_EMG (XX=Agency ID)	Emergency Button Activation Talk Group on Police Radios – for additional information refer to the Emergency Button Activation Fire/PSAP sections of the User's Guide
XX_INV (XX=Agency ID)	Local Police Talk Group – used by the agency's detective or investigative unit
XX_POL1 (XX=Agency ID)	Local Police Talk Group – this is the primary radio talk group for police units to talk to their dispatcher or to other radio users on this talk group
XX_POL2 (XX=Agency ID)	Local Police Talk Group – this is the secondary radio talk group for police units to use as an alternate radio talk group
XX_SWAT (XX=Agency ID)	Local Police Talk Group – used by the tactical response units
XX_SUR1 and XX_SUR2 (XX=Agency ID)	Local Police Talk Group – used by the surveillance/undercover units
XX_TAC1 and XX_TAC2 (XX=Agency ID)	Local Police Talk Group – used by the agency for operations or tactical events
63P911	63P911 is for any public safety unit use and will appear in all Oakland County OakWIN radios, PSAPs, the MSP dispatch, and selected other MPSCS radios in

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Oakland County Wireless Integrated Network

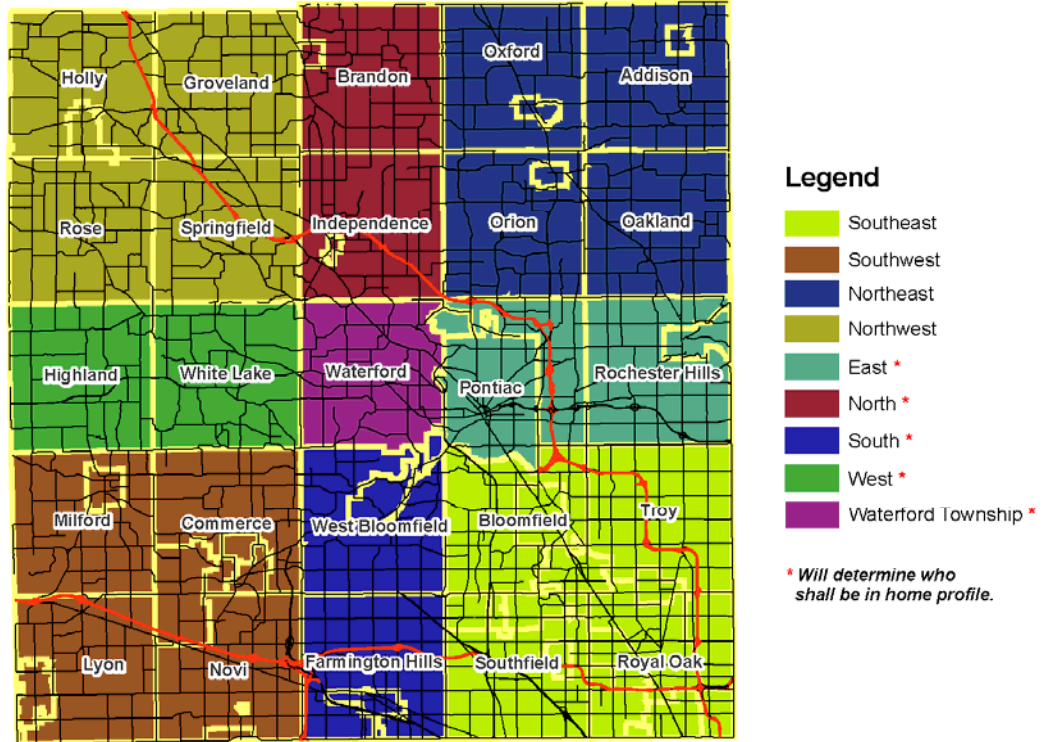
	agencies that border Oakland County
63MPSC1 through 63MPSC5	These talk groups are to be used when there is a need for interoperability with other MPSCS users; events such as mutual aid responses, Presidential/Dignitary protection, Dream Cruise, or other large events that need MSP interoperability would utilize these talk groups 63MPSC1, 63MPSC2, 63MPSC3, 63MPSC4, and 63MPSC5, will appear in all Oakland County OakWIN radios, PSAPs, and the MSP dispatch, but are not in individual radios

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Oakland County Wireless Integrated Network

Police Regional Talk Group Areas



City of Troy GIS - 09/21/2005

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