

TRUMBULL COUNTY COMMUNICATIONS PLAN

I. PURPOSE

The purpose of this annex is to outline communications procedures and capabilities to be employed in the event of a large-scale emergency in the county.

II. SITUATION AND ASSUMPTIONS

A. Situation

1. The Emergency Communications Center is located in the Trumbull County EOC. Sufficient communications **are** available to provide the communications necessary for most emergencies. In severe emergencies, augmentation may be required.

B. Assumptions

1. An Emergency Communications Center (ECC) is established within the EOC and will be activated when needed. The EOC is located in Warren, Ohio at 640 North River Road NW.
2. The following agencies/departments will deploy radio operators with radios to the EOC:
 - a. Sheriff
 - b. Affected Fire Department
 - c. Affected Police Department
 - d. Ambulances
 - e. County Engineer
 - f. Affected Street and Utilities Departments

III. CONCEPT OF OPERATIONS

A. Notification

1. The EMS Director will be notified by **911**, or other source, that a major emergency situation has occurred or is imminent.
2. The EMS Director will then notify the Chairperson of the Board of Commissioners, and the Chairman of the EMA Executive Committee, to apprise them of the situation.

3. At the time of the decision to activate the EOC is made, notification to all EOC representatives will be accomplished as follows:
 - a. Trumbull County **911** notifies:
 - (1) EMA Director
 - b. Emergency Management Director notifies:
 - (1) County Commissioners
 - (2) Office Administrator
 - (3) Trumbull County Communications Officer
 - (4) City Mayors/Managers, as necessary
 - (5) Village Mayors, as necessary
 - (6) Township Trustees
 - (7) County Board of Education
 - (8) County Sheriff
 - (9) Township and City Fire Chiefs, as necessary
 - (10) Trumbull Chapter, American Red Cross
 - (11) Radiological Officer, as necessary
 - (12) Ohio EMA, as necessary
 - (13) Salvation Army, as necessary
 - (14) Township and City Police Chiefs, as necessary
 - c. Communications Officer notifies:
 - (1) Trumbull County Amateur Radio, Emergency Communications Coordinator/RACES Officer
 - (2) Commander of Civil Air Patrol, as necessary
 - (3) Trumbull County EMA Public Information Officer
 - (4) East Ohio Gas Service Manager, as necessary

- (5) Sprint Telephone Company Service Manager, as necessary.
 - (6) Ameritech Telephone Company Service Manager, as necessary
 - (7) Ohio Edison Electric Company Line Supervisor, as necessary
 - (8) Ohio Edison Electric Company Service Supervisor, as necessary.
- d. County Commissioners Notify:
- (1) Clerk of County
- e. Clerk of County notifies:
- (1) County Engineer
 - (2) County Sanitary Engineer
 - (3) County Building Inspector
 - (4) County Building Maintenance Superintendent
 - (5) County Health Commissioner
 - (6) County Coroner
 - (7) Human Services Director
 - (8) County Prosecutor
- f. Village/City Managers/Mayors notify:
- (1) City Council Members
 - (2) City Public Works Directors
 - (3) City Utilities Directors
 - (4) City School Superintendents

B. Emergency Operation Center Activation

1. Upon arrival at the EOC, the Emergency Management Director and Office Administrator will prepare the ECC for activation.
2. The Communications Officer and other communications staff will report to the ECC upon notification of EOC activation. They will take actions to secure and make operable such communications equipment and supplies as are necessary to carry out their duties.

C. Emergency Communications Center

1. The ECC is a vital part of the EOC. Its purpose is to provide both primary and backup communications support for the EOC.
2. The ECC is capable of being operated continuously for the duration of the emergency. Maximum staffing will be maintained during periods of full activation of the EOC. Communications staff will work 12-hour shifts from 8:00 to 8:00.
3. Primary communications with EOC will be conducted by telephone whenever possible. If telephones are inoperable, information will be relayed by radio. Amateur radios will be utilized to provide back-up communications to disaster sites and shelters, lodging and feeding facilities. Cellular phones will also be used.
4. Radio operators for the various communications equipment will be supplied to the departments/agencies communicating on that equipment.

D. Alternate EOC

1. In the event the primary EOC is unavailable for activation, an alternate facility in an unaffected community will be utilized, along with the Mobile Command Post, as alternate EOC.

E. Phases of Emergency Management

1. Mitigation
 - a. Further development of an adequate communications system:
 - (1) Procurement of additional equipment
 - (2) Systems integration (netting)
 - (3) Communications operating training
 - (a) Formulation of plans for additional improvement to the communications systems.

- (b) Coordination of communication capabilities with surrounding counties and State EOC.
- (c) Development of a radio repair capability under emergency conditions.

2. Preparedness

- a. Development of plans and SOPs for ECC.
- b. Test and maintain communications equipment on a regularly scheduled basis.
- c. Arrange training programs for all communications staff including volunteers and repair personnel.
- d. Identify potential sources of additional equipment and supplies.

3. Response

- a. Activation of the ECC.
- b. Implementation of emergency communications procedures.
- c. Activate backup communications capabilities, as necessary
- d. Utilize EOC message forms for the recording of all incoming radio transmissions.
- e. Insure 24-hour communications capability for the duration of the emergency.

4. Recovery

- a. Maintenance of emergency communication systems for the duration of the emergency period.

IV. ORGANIZATION AND ASSIGNMENT

A. Organization

- 1. During large-scale emergencies, communications personnel will coordinate response efforts and assist other agencies/departments to the extent possible with the provision of communications capabilities.
- 2. The EOC Communications Officer is a volunteer EMA member.

B. Communications Staff Responsibilities

Amateur Radio operators and EMA Radio Operators, while operating their equipment in the ECC, will remain under direct control of their own emergency coordinator, but work under the Communications Officer.

Task Assignments:

1. Provide communications in an emergency.
2. Retain Message Log.
3. Handles messages in accordance with Standard Operating Procedures.

V. DIRECTION AND CONTROL

- A. The County EMA Communications Officer will relocate to the EOC upon its activation. From this location, he will provide direction and control over all communications activities within the county and coordinate with other EOC representatives.
- B. Field forces of each supporting agency with radio communications capabilities in the ECC will report activities and current status of onsite operation to the EOC and Amateur Operator Duty Roster.

VI. CONTINUITY OF GOVERNMENT

- A. The line of succession for the County Commissioners Officer is as follows:
 1. Assistant Communications Officer
 2. Chief Radio Operator

VII. ADMINISTRATION AND LOGISTICS

- A. In Emergency Situations, all Departments can communicate with one another through the **911** Dispatch Centers, by being patched together. Dispatch can receive messages on the following frequency:
Rx 154.250
- B. In an emergency situation, all Fire Departments situated Trumbull County can communicate with one another using four channels designated to the fire related service. The Channels are as follows:
 1. Channel A – Tx 159.4425 & Rx 151.4975
 2. Channel B – Tx 159.2925 & Rx 151.1675
 3. Channel C – Tx 156.150 & Rx 154.860
 4. Channel D – Tx 153.950 & 154.430

- C. In an emergency situation radio frequencies have been set aside for tactical response and operation. These channels are as follows:
1. Tactical 1 – Tx & Rx 154.295
 2. Tactical 2 – Tx & Rx 154.280
 3. Tactical 3 – Tx & Rx 154.265
 4. Tactical 4 – Tx & Rx 159.060
 5. Tactical 5 – Tx & Rx 158.955

FIRE DEPARTMENTS

The following Fire Departments are on Tx & Rx 33.780.

- | | |
|------------------------------|----------------|
| 1. Bazetta F. D. | St. 11 & 13 |
| 2. Bloomfield Twp. F.D. | St. 15 |
| 3. Braceville Twp. F.D. | St. 16 |
| 4. Bristol Twp. F.D. | St. 17 |
| 5. Burghill-Vernon Twp. F.D. | St. 19 |
| 6. Champion Twp. F.D. | St 21 |
| 7. Farmington Twp. F.D. | St. 22 |
| 8. Greene Twp. F.D. | St. 25 |
| 9. Gustavus Twp. F.D. | St. 26 |
| 10. Johnston Twp. F.D. | St. 29 |
| 11. Lordstown Twp. F.D. | St. 36 |
| 12. Mesopotamia Twp. F.D. | St. 39 |
| 13. Newton Falls F.D. | St. 43 |
| 14. Southington Twp. F.D. | St. 45 |
| 15. Warren Twp. F.D. | St. 47, 48, 49 |

The following Fire Departments are on Tx & Rx 154.250

1. Brookfield F.D. St 18
2. Fowler Twp. F.D. St. 23
3. Hartford Twp. F.D. St. 27
4. Kinsman Twp. F.D. St. 33
5. Orangeville F.D. St. 44
6. Vienna F.D. St. 46

The following Fire Departments are on Tx 158.880 & Rx 154.430

1. Girard F.D. St. 24

The following Fire Departments are on Tx 153.950 & Rx 154.430

1. Howland F.D. St. 30, 31, 32

The following Fire Departments are on Tx & Rx 154.430

1. Liberty F.D.....St. 34, 35
2. McDonald F.D.....St. 37

The following Fire Departments are on Tx 154.025 RX 159.225

1. Cortland FD St 12
2. Mecca FD St 38

The following Fire Departments operate on the following

1. Hubbard F.D. Tx & Rx 154.040 St. 28
2. Niles F.D. Tx 158.760 & Rx 154.190 St 7,8
3. Weathersfield F.D. Tx 153.845 & Rx 156.225 St. 40, 41, 42

POLICE DEPARTMENTS

The following Police Departments operate on Tx & Rx 155.130

1. Bazetta P.D.
2. Braceville P.D.
3. Champion P.D.
4. Johnston P.D.
5. Kinsman P.D.
6. West Farmington P.D.
7. Trumbull County Sheriff Dept.

The following Police Departments operate on Tx & Rx 151.145

1. Brookfield P.D.
2. Fowler P.D.
3. Hartford P.D.
4. Orangeville P.D.

The following Police Departments operate on Tx & Rx 155.865

1. Cortland P.D.

The following Police Departments operate on Tx & Rx 155.595

1. Girard P.D.

The following Police Departments operate on Tx & Rx 155.565

1. Howland P.D.
2. Vienna P.D.

The following Police Departments operate on Tx & Rx 154.740

1. Hubbard City P.D.
2. Hubbard Twp. P.D.
3. McDonald P.D.

The following Police Departments operate on Tx & Rx 155.670

1. Liberty P.D.

The following Police Departments operate on Tx & Rx 155.820

1. Lordstown P.D.
2. Warren Twp. P.D.

The following Police Departments operate on Tx & Rx 154.845

1. Newton Falls City P.D.
2. Newton Falls Twp. P.D.

The following Police Departments operate on Tx & Rx 153.665

1. Niles City P.D.

The following Police Departments operate on Tx & Rx 155.895

1. Weathersfield P.D.

The following Police Departments operate on Tx & Rx 155.37

1. Mosquito Lake State Park P.D.

The following Warren City Departments operate on 800 Mhz

1. Police Dept.
2. Fire Dept.
3. Streets Dept.
4. Sanitation Dept.
5. Water Dept.
6. Water Pollution Dept.

STREET AND ROAD DEPARTMENTS

The following Road Departments operate on Tx & Rx 156.105

1. Bazetta Twp.
2. Brookfield Twp.

The following Road Departments operate on Tx & Rx 159.120 and 155.715

1. Champion Twp.

The following Road Departments operate on Tx & Rx 151.100 and 156.060

1. Howland Twp.
2. McDonald Village

The following Newton Falls City Departments operate on Tx & Rx 156.120 and 154.740

1. Road Dept. (Newton Twp. Road Dept. uses 156.120)
2. Waste Water Dept.
3. Electrical Dept.
4. Water Dept.

The following Roads Departments operate on Tx & Rx 154.98

1. Niles City

The following Road Departments operate on Tx & Rx 151.025

1. Trumbull County Engineer

The following Road Departments operate on Tx & Rx 156.120

1. Warren Twp.

The following Road Departments operate on Tx & Rx 156.225

1. Weathersfield Twp.

Trumbull County **911**

PSAPs

1. Girard
2. Hubbard
3. Lordstown
4. Newton Falls
5. Niles
6. Warren

Notes

1. The Main Center has the ability to cross-patch frequencies upon request of Departments. The center also has the MARCS radio.
2. The Mobile Command Post can cover all frequencies. (Fire, Police, EMS) including all 800 Mhz frequency in Trumbull County
3. Mobile Command Post also has frequencies for the following counties:
 - a) Ashtabula
 - b) Geauga
 - c) Mahoning
 - d) Portage
4. Trumbull Co. HazMat Command Trailer, Suburban, and 11 portable radios have all frequencies for Trumbull County (Police, Fire, EMS, Road and weather) as well as for the following counties:
 - a) Ashtabula
 - b) Geauga
 - c) Mahoning
 - d) Portage

5. Trumbull Counties EMA car & radio room have same frequencies as HazMat.

Ambulance Service Frequencies

1. Action Ambulance Service Tx & Rx and 155.220
2. Med Star Ambulance Service Tx & Rx 155.205
3. Clemente Ambulance Service Tx & Rx 463.7000

These frequencies are also in the Mobile Command Post and connected to the Community EMS frequency: Tx & Rx 155.280

Hospital Frequencies

1. TMH, Forum Health Tx & Rx 151.400
2. St. Joseph's Hospital Tx & Rx 463.325
3. Hillside Hospital Tx & Rx 151.805
4. Northside Hospital Tx 467.175, Rx 462.175

VIII. PLAN DEVELOPMENT AND MAINTENANCE

A. All departments/organizations within the county providing emergency communications are responsible for reviewing this annex on an annual basis commencing one year from the approval date of this document, and submitting new/updated information to the Trumbull County EMA Director.

B. All departments/organizations within the county providing emergency communications are responsible for developing and maintaining communications SOPs, mutual-aid agreements, personnel rosters, including 24-hour emergency telephone numbers and communications equipment inventories.

IX. AUTHORITIES

A. Authorities

Federal Communications Commissions (FCC) Rules and Regulations

B. References

See Annex A (Direction & Control)

X. ADDENDUMS

Appendix 1 Nuclear Attack Procedures-Communication Malfunctions Due to
Electromagnetic Pulse (EMP)

NUCLEAR ATTACK PROCEDURES COMMUNICATION MALFUNCTIONS DUE TO ELECTROMAGNETIC PULSE (EMP)

I. PURPOSE

This Appendix covers procedures to mitigate the generation of EMP by a nuclear detonation, which causes malfunctions of instrumentation and other electronic equipment.

II. SITUATION AND ASSUMPTIONS

A. Situation

1. EMP poses a potential threat to radio and TV transmitters; public safety radio, (i.e., police, fire, public works, emergency amateur radio organizations, etc.); telephone systems; electric power; and Emergency Operations Center communications capability.
2. EMP is approximately 7 to 10 times faster than lightning. Electromagnetic waves associated with lightning are confined to lower frequencies. Thus, filtering out the EMP interference is more difficult than filtering out interference from lightning.

B. Assumptions

1. Many types of electrical/electronic equipment could be affected or even knocked out by the EMP from high altitude bursts.
2. Certainly, some automobile ignition systems could fail, as could some portions of telephone and radio communications, navigational aids, and electrical/electronic equipment.

III. CONCEPT OF OPERATIONS

A. General

Electromagnetic pulse protection is recommended for all radio communications facilities. Consideration should be given to the EMP protection and/or shielding of base stations, repeaters, antenna systems, emergency generators, power distribution, coaxial cables, remote control lines, transmitters and receivers, EMP protection philosophy is based on protection from three environmental areas of concern:

1. Ground current effects.
2. Magnetic field effects.
3. Electric field effects.

Electrical and electronic systems may be disrupted by EMP in two distinct ways:

1. Functional Damage: This requires replacement of a component or parts of a unit, perhaps a circuit board or a fuse.
2. Operational Upset: This is a temporary interruption or impairment of electronic equipment such as opening of circuit breakers or erasure of a portion of the memory of a computer.

B. Vulnerability of Broadcast Radio

EMP poses a potential threat to AM, FM, and TV broadcast transmitters. There are three areas of concern regarding EMP damage to radio station operation:

1. Pulse energies collected by large broadcast antennas;
 - a. Conducted pulses from power lines and other long external conductors; and
 - b. Directly induced transient currents in low voltage circuits.
 - c. Transistors are especially susceptible to low-level energy pulses induced in connected circuits. Vacuum-tube transmitters are much less vulnerable.
 - d. Local broadcast station operators should have access to the EMP protection publications. EMP protection also protects against lightning and surges of power on commercial lines.

C. Vulnerability of Public Safety Radio

Police, fire, public works, and other local government radio nets typically perform a crucial role in disaster operations. To these systems can be added emergency amateur radio organizations, such as RACES (Radio Amateur Civil Emergency Service). Many base stations cannot operate in the absence of commercial power. Unless these facilities are equipped with standby electric power and EMP protective devices, they are likely to go off the air in a nuclear emergency.

Mobile units in these systems have battery power supplies and relatively short antennas. They are most likely to remain operable, particularly older models, most of which have vacuum-tube circuits. Mobile-to-mobile communications will be important as an alternative in the event of loss of a base station.

D. Vulnerability of Telephone Systems

Some components of conventional telephone plants are very sensitive to the effects of EMP. Even the rugged and conservative design and construction used in telephone systems are not sufficient to have high confidence that telephone service will operate reliably immediately after exposure to EMP.

The telephone system is the one system that cannot be disconnected in the way a radio transmitter can. Therefore, it would be prudent to plan for maximum use of telephone service between temporarily immobilized field units and dispatchers so long as service continues, reserving the radio service until the main threat of EMP damage is past.

E. Vulnerability of Electric Power

Power lines exposed to EMP will have induced in them currents and associated surges in much the same way that antennas collect radio signals. For power systems, this means that a high-altitude detonation will induce surges on all the myriad of power conductors, control and communications cables, interconnecting the entire system.

Standby electric generators could reduce the effects of EMP pulses on the commercial power system providing it can be disconnected before the first detonation. Because this must be done manually, personnel should make provisions to react promptly to attack warning. No reliance should be placed on the presumed availability of electric power during and immediately following a nuclear attack. Restoration of service may require hours or days so provision for protected standby power is a must for facilities that must function soon after attack.

F. Vulnerability of Local Emergency Operations Center

The local EOC represents a key nerve center for emergency operations. As such, it must be in a position to communicate with others during and after a nuclear attack. Since EMP from high-altitude detonations can cripple communications anywhere in the country, every locality must concern itself with protection of its EOC against EMP effects.

It is easy to include EMP protection in both the budget and construction of the new EOC's, but it is both tedious and expensive to retrofit existing installations.

For the private individual or business, as well as for smaller EOCs, it is worthwhile to consider intuitively effective ideas. For example, a sensitive unit is much less vulnerable if the "power plug is pulled" and left a foot or so from the power source. Additional communication protection can be maintained by placing equipment in a shielded enclosure such as boxes, shielded racks, or by placing or wrapping/storing equipment in tin foil.

Operating procedures should provide for switching to emergency power at the maximum readiness condition or at attack warning rather than waiting until weapons detonate or power is lost.

The next step is to protect communication equipment against lead-in cables. Devices for this purpose, such as gas-gap shunting devices that react very rapidly, are now available commercially at low cost. At slightly higher costs, filters can be added to transient suppressors and will significantly increase the level of protection.

- G. The concept of operation for this contingency is summarized in Attachment 1 and 2 to this appendix.

IV. ORGANIZATION AND ASSIGNMENT OF RESPONSIBILITIES

- A. Organization

Not used. See Section IV.A. of the Communications Annex.

- B. Responsibilities

Not used. See Section IV.B. of the Communications Annex.

V. DIRECTION AND CONTROL

Not used. See Section V. of the Communications Annex.

VI. CONTINUITY OF GOVERNMENT

Not used. See Section VI. of the Communications Annex.

VII. PLAN DEVELOPMENT AND MAINTENANCE

Not used. See Section VII. of the Communications Annex.

VIII. AUTHORITIES AND REFERENCES

Not used. See Item IX. B. of the Basic Plan.

IX. ADDENDUMS

- A. Attachment 1 – Types of Suppressors

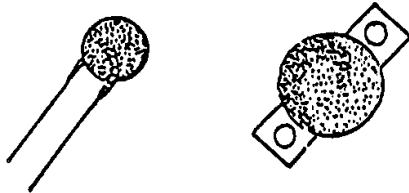
- B. Attachment 2 – Operational Anti-EMP Actions

TYPES OF SUPPRESSORS

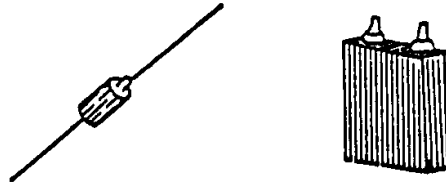
Attachment 1 to Appendix 1 (Nuclear Attack) to Annex B (Communications)

TYPES OF SUPPRESSORS

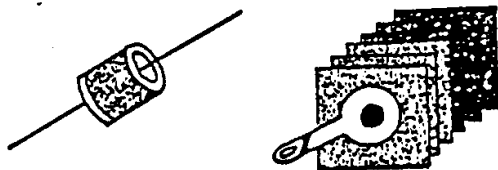
VARIISTORS



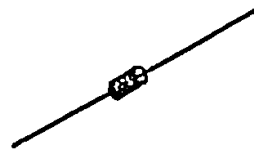
ZENER DIODES



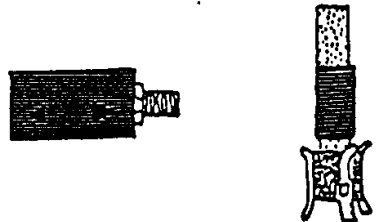
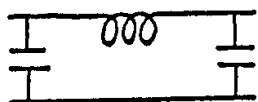
SPARK GAPS



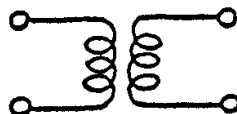
RECTIFYING DIODES



FILTERS



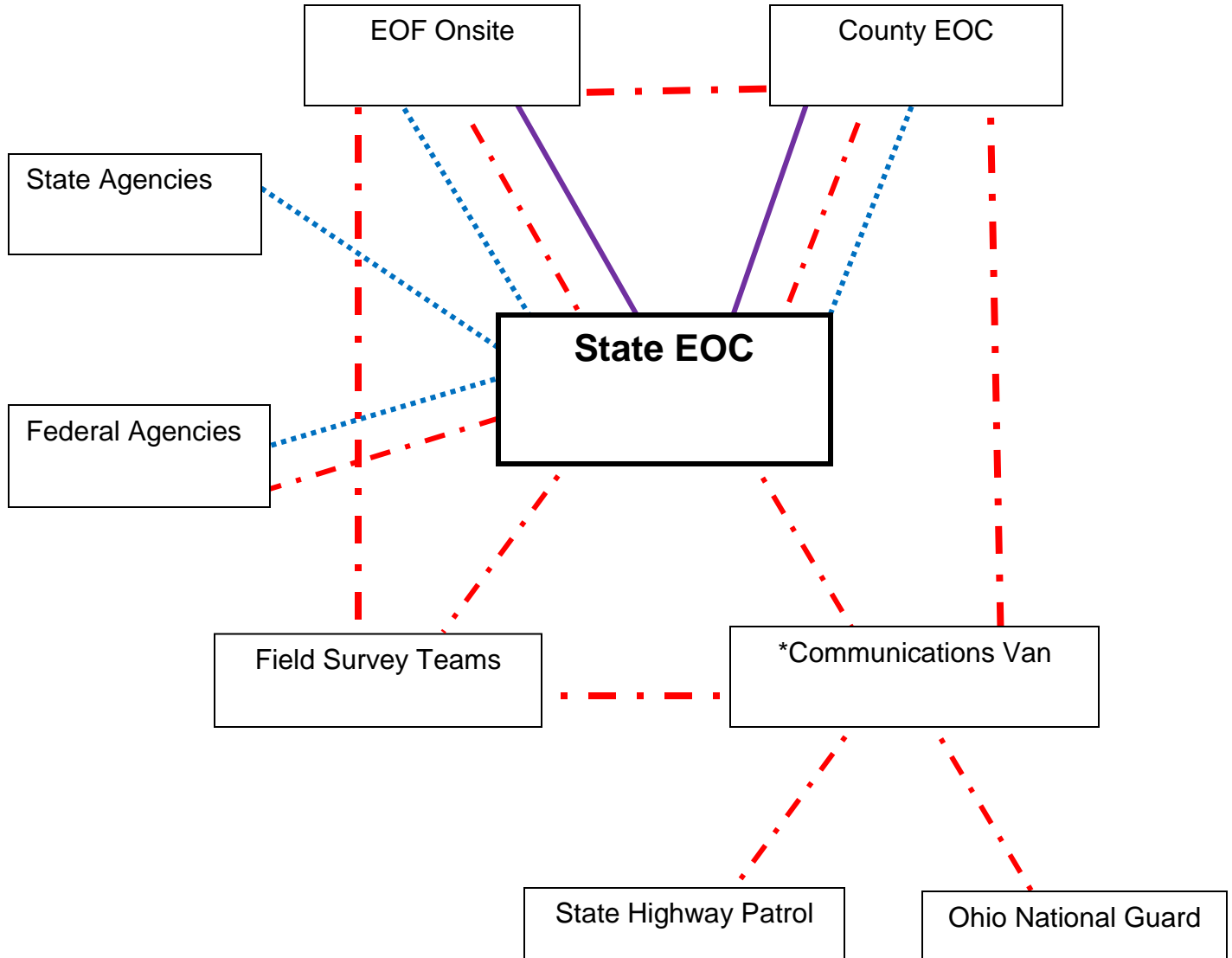
TRANSFORMERS




OPERATIONAL ANTI-EMP ACTIONS

1. Maintain an extra supply of spare parts and standby components so that any EMP damage can be rectified as quickly as possible.
2. Shift to emergency power at the earliest possible time.
3. Rely on telephone contact during the threat period, as long it remains operational.
4. If radio communication is essential during the threat period, use only one system at a time. Disconnect all other systems from antennas, cables, and power (do not use low-voltage switches but pull the plug), and store in protected enclosure.
5. Disconnect radio base stations from antennas and power lines when not in use.
6. Plan for mobile-to-mobile backup communications.

PRIMARY AND SECONDARY COMMUNICATION LINKS



Key

-  **Dedicated Telephone**
-  Telephone
-  Radio
-  Radio/Telephone Capability