

PUBLIC WORKS & ENGINEERING

PURPOSE

A. Purpose

The purpose of this annex is to outline the local organization, operational concepts, responsibilities, and procedures to accomplish coordinated public works and engineering activities during emergency situations

EXPLANATION OF TERMS

Acronyms

KDEM	Kansas Division of Emergency Management
KHP	Kansas Highway Patrol
EOC	Emergency Operations Center
EMC	Emergency Management Coordinator
FEMA	Federal Emergency Management Agency
IC	Incident Commander
ICP	Incident Command Post
ICS	Incident Command System
SOP	Standard Operating Procedures
KDHE	Kansas Department of Health & Environment
KDOT	Kansas Department of Transportation

B. Definitions

1. Debris Clearance. Clearing roads of debris by pushing debris to the roadside.
2. Debris Disposal. Placing mixed debris and or the residue of debris volume reduction operations into an approved landfill.
3. Debris Removal. Picking up debris and taking it to a temporary storage site for sorting and/or volume reduction or to a permanent disposal site. Debris removal also includes demolishing damaged structures and removing the remains of such structures.

C. Responsibility

Organization

1. The function of public works and engineering during emergency situations shall be carried out in the framework of our normal emergency organization described in the Executive Operations annex of the Basic Plan. Preplanning for emergency public works and engineering tasks shall be conducted to ensure that staff and procedures needed to manage resources in an emergency situation are in place.
2. The County Public Works Director shall serve as the Public Works Officer during emergencies. The Public Works Officer is assigned primary responsibility for planning, organizing, and carrying out, with the support of those departments and agencies described below, the public works and engineering tasks outlined in this annex during emergencies.
3. **Activities by Phases of Management:**

Mitigation

- a) Identify vulnerabilities of existing public buildings, roads, bridges, water systems, and sewer systems to known hazards and take steps to lessen vulnerabilities
- b) Reduce vulnerability of new public facilities to known hazards through proper design and site selection.
- c) Develop plans to protect facilities and equipment at risk from known hazards.
- d) Install emergency generators in key facilities and have portable generators available to meet unexpected needs.

Preparedness (Pre Emergency)

- a) Ensure government buildings, roads and bridges, and public works equipment are in good repair.
- b) Ensure there are an adequate number of personnel trained to operate heavy equipment and other specialized equipment.
- c) Stockpile materials needed to protect and repair structures, roads, bridges, and other infrastructure.
- d) Develop general priorities for clearing debris from roads.
- e) Maintain an adequate quantity of barricades and temporary fencing.
- f) Maintain current maps and plans of government facilities, roads, bridges, and utilities.
- g) Review plans, evaluate emergency staffing needs in light of potential requirements, and make tentative emergency task assignments

- h) Establish and train damage survey teams.
- i) Execute contingency contracts for emergency equipment and services with local contractors and execute agreements with individuals and businesses to borrow equipment.
- j) Develop procedures to support accomplish the tasks outlined in this annex.
- k) Ensure that government-owned vehicles and other equipment can be fueled during an electrical outage.

Response (During Emergency)

- a) If warning is available, take actions to protect government facilities and equipment.
- b) Survey areas affected by a hazard, assess damage, and determine the need and priority for expedient repair or protection to prevent further damage. Report damage assessments to the EOC.
- c) Upon request, provide heavy equipment support for SAR operations. See Annex Search and Rescue (SAR).
- d) Clear roads of debris.
- e) Inspect damaged buildings to determine if they are safe for occupancy.
- f) Remove debris from public property and manage proper disposal of all debris.
- g) Make repairs to damaged government facilities and equipment, as needed.
- h) Coordinate with the Energy & Utilities staff to arrange for emergency electrical service, if required to support emergency operations.
- i) Assist [the Water & Sewer Department/Utility Department] in making emergency repairs to government-owned utility systems, as necessary.
- j) Restrict access to hazardous areas, using barricades and temporary fencing, upon request.

Recovery (Post Emergency)

- a) Repair or contract for repairs to government-owned buildings, roads, bridges, and other infrastructure with available resources and capabilities.
- b) Support community clean up efforts, as necessary.
- c) Participate in compiling estimates of damage and of response and recovery costs.
- d) Participate in post-incident review of emergency operations and make necessary changes to improve emergency plans and procedures.

Readiness Levels**Readiness Level 1 - Normal Conditions**

See the mitigation and preparedness activities

Readiness Level 2 - Increased Readiness

1. Review plans and procedures.
2. Inform key public works and engineering personnel.
3. Monitor the situation.
4. Check equipment readiness and correct deficiencies.
5. Check emergency supply status and fill shortfalls.

Readiness Level 3 - High Readiness

6. Monitor the situation.
7. Alert personnel for possible emergency duty.
8. Increase short-term readiness of equipment if possible.
9. Review inter-local agreements and contracts for resource support and alert potential resource providers of possible emergency operations.
10. Identify personnel to staff the ICP and EOC.

Readiness Level 4 - Maximum Readiness.

11. Mobilize selected public works and engineering personnel.
12. Implement plans to protect government facilities and equipment.
13. Ensure equipment is loaded and fueled; consider precautionary deployment of resources.
14. Dispatch personnel to the ICP and EOC when activated.
15. Advise resource suppliers of situation.
16. Continue to monitor the situation.

D. Assignment of Responsibilities

1. The Director of Public Works shall direct public works and engineering activities during emergencies and shall be responsible for approving any request for state or federal resources.
2. The County Engineer will manage public works and engineering resources committed to an incident. If the EOC has not been activated, the County Emergency Manager may request additional resources from local departments and agencies and may request those local officials authorized to activate mutual aid agreements or emergency response contracts to do so to obtain additional resources.
3. When the EOC is activated, the Public Works Officer will manage the emergency public works and engineering function from the EOC or other location suitable for that purpose. The Emergency Manager shall direct resources committed to the incident site and coordinate through the Public Works Officer to obtain additional resources. The Public Works Officer shall manage resources not committed to the incident site and coordinate the provision of additional resources from external sources.
4. The Public Works Officer will respond to mission priorities established by the Emergency Manager or the County Administrator, direct the various departments and agencies with public works and engineering resources to accomplish specific tasks, and coordinate the efforts of those departments and agencies in order to achieve overall objectives.
5. The Public Works Officer will identify public and private sources from which needed resources can be obtained during an emergency and coordinate with the Resource Manager to originate emergency procurements or to obtain such resources by lease, rental, borrowing, donation, or other means.
6. In the aftermath of a major emergency or disaster which produces substantial debris that will take a lengthy period to remove, it may be necessary to establish a Debris Removal Task Force that continues in operation after the EOC is deactivated to manage debris removal and disposal.
7. Normal supervisors of public works and engineering personnel participating in emergency operations will exercise their usual supervisory responsibilities over such personnel. Organized crews from other jurisdictions responding pursuant to inter-local agreements will normally operate under the direct supervision of their own supervisors. Individual volunteers will work under the supervision of the individual heading the team or crew to which they are assigned.
8. The line of succession for the Public Works Officer is:
 - a. County Public Works Director (County Engineer)
 - b. Assistant County Engineer
 - c. Road and Bridge Supervisor
9. The County Public Works Director serves as the Public Works Officer during emergencies and will:

- a) Coordinate certain pre-emergency programs to reduce the vulnerability of local facilities and other infrastructure to known hazards.
- b) Manage the public works and engineering function during emergency situations.
- c) Oversee the repair and restoration of key facilities and systems and removal of debris in the aftermath of an emergency.
- d) Develop procedures for coordinating the efforts of the various local departments and agencies that perform the public works or engineering functions and arrange for appropriate emergency training for local personnel.
- e) Identify contractors who can provide heavy and specialized equipment support during emergencies and individuals and businesses that may be willing to lend equipment to local government during emergencies.
- f) Assist the Resource Manager in maintaining a current list of public works and engineering resources. See Resource Management annex.

The Public Works Department will:

- a) Carry out pre-disaster protective actions for impending hazards, including identifying possible facilities for debris storage and reduction.
- b) Conduct damage assessments in the aftermath of disaster.
- c) Repair damaged government facilities and/or protect such facilities from further damage.
- d) Provide heavy and specialized equipment support for SAR operations.
- e) Carry out debris clearance and removal.
- f) With the assistance of the Legal Officer, negotiate inter-local agreements for public works and engineering support.

The County Engineer will:

- a) Provide engineering services and advice to the Incident Commander and EOC staff.
- b) Assist in conducting damage assessments in the aftermath of an emergency in coordination with the Zoning Office. See Debris Removal and Damage Assessment annexes.
- c) Safeguard vital engineering records.

Road & Bridge Department will:

- a) Maintain reasonable stockpiles of emergency paving materials.

- b) Make emergency repairs to [county/city] roads, bridges, culverts, and drainage systems.
- c) Supervise debris clearance from the public right-of-way and support debris removal operations.
- d) Emplace barricades where needed for safety.
- e) Provide personnel and equipment to aid in SAR operations as needed.
- f) Provide heavy equipment support for protective actions taken prior to an emergency and for response and recovery operations.
- g) Assist in repairs to government-owned utilities and drainage systems.

The Landfill Department will:

- a) Collect and properly disposal of refuse.
- b) Support emergency public works and engineering operations with available resources.

Noxious Weed Department will:

- a) Assess damage to parks and recreation facilities and assist in assessing damage to other facilities.
- b) Provide personnel and light equipment support for public works and engineering operations.
- c) Upon request, establish and staff a facility to sort and catalog property removed from damaged government-owned facilities.

E. Critical Resources

Utilities Public/Private (Local Government Response to a Utility Outage)

1. It is essential for [County/City] officials to obtain an initial estimate of the likely duration of a major utility outage from the utility as soon as possible after it occurs so that timely response actions can be begun. Once that estimate is obtained, local officials should make a determination of the anticipated impact and determine the actions required to protect public health and safety and public and private property.
2. Extended utilities outages may require the [City/County] to take action to protect public health and safety and public and private property. Such actions may include:
 - a) **Emergency Power** (Electrical or Natural Gas Outage)
 - 1) Obtain emergency generators to power water pumping stations, water treatment facilities, sewage lift stations, sewage treatment facilities, fueling facilities, and other critical sites.

- 2) During period of cold weather, establish public shelters for residents who lack heat in their homes.
- 3) During periods of extreme heat, establish "cooling sites" for residents who do not have air conditioning in their homes
- 4) Request volunteer groups set up mass feeding facilities for those who do not have electrical or gas service and thus cannot prepare meals.
- 5) Coordinate with ice distributors to ensure ice is available locally to help citizens preserve food and medicines.
- 6) Arrange for fuel deliveries to keep emergency generators running at critical facilities.

b) **Water or Sewer Outage**

- 1) Curtail general water service to residents to retain water in tanks for firefighting and for controlled distribution to local residents in containers.
- 2) Arrange for supplies of emergency drinking water for the general public and for bulk water for those critical facilities that require it to continue operations.
- 3) If sewer service is disrupted, arrange for portable toilets and hand washing facilities to meet sanitary needs.

c) **Telecommunications Outage**

- 1) Request telecommunications providers implement priority service restoration plans.
- 2) Assist where needed in activating amateur radio support.
- 3) Request external assistance in obtaining additional radios and repeaters or cell phones through the County Administrator or Emergency Manager.

d) **Materials Handling**

- 1) Personnel and equipment will be designated for materials handling once ordered to do so. These personnel will normally come from the Public Works if at all possible.

e) **Sanitation**

- 1) Personnel and equipment will be made available during a disaster to support trash removal, temporary sewage system repairs etc. This support will generally come through the Emergency Manager in coordination with the Director of Public Works.

f) **Hazardous Materials**

- 1) **Personnel** – There are only a few personnel assigned to Public Works that are have received training in Hazardous Materials Awareness in accordance with 29 CFR 1910.120.
- 2) **Equipment** – There are equipment and personnel available in the Public Works department that could respond to a hazardous materials incident. These could be used in the event of an emergency if need be.

g) Inspection

- 1) **Infrastructure** – The safety inspection and damage assessment of county roads, bridges, culverts, waterways and water treatment plants in the County will be conducted by the County Engineer and the appropriate facility manager (City or County)
- 2) **Other Structures** – The safety inspection and damage assessment of public buildings owned by the County or a City is the responsibility of the County Engineer and or Zoning Officer and appropriate facility manager. Utilities will be inspected for safety and damage assessment, privately owned utility services will be inspected by the appropriate owner and will forward those inspection results to the County Engineer.

h) Damage Assessment

- 1) As the primary local government expertise in construction and maintenance of buildings and other infrastructure resides with public works and engineering departments and agencies, public works and engineering personnel are expected to play a primary role in leading the local teams that will make preliminary assessments of damage to public buildings, homes, businesses, roads, bridges, and other infrastructure.
- 2) Damage assessment procedures and the forms to be used in that process are discussed in the Recovery annex.
- 3) Public works and engineering personnel shall inspect damaged structures. The purpose of such inspections is to identify unsafe structures and post signs and, if necessary, take other actions to restrict entry to and occupancy of such structures.
- 4) Damaged buildings that pose an immediate threat to public health and safety should be demolished. KSA 12-1752 provides for expedited demolition of structures that pose a threat to public health during emergency situations.

F. Debris Clearance and Removal

See Appendix, Debris Management.

G. Temporary Repairs and Restoration

1. The public works and engineering staff is expected to make timely temporary repairs to government-owned buildings and other infrastructure that is essential for emergency response and recovery and take action to protect all government buildings and their contents from further damage until they can be repaired. To protect some equipment and records, it may be necessary to relocate them from damaged structures. Personnel should coordinate with building occupants to determine which areas and equipment have the highest priority for protection.

2. Hazardous situations may result in damage to computers which hold vital government records as well as to hard copy records, such as building plans, legal documents, tax records, and other documents. When computers or paper records are damaged, it is essential to obtain professional technical assistance to restore them as soon as possible.
3. It is generally infeasible to restore buildings that have suffered major damage during the emergency response. Major repairs will normally have to be postponed until recovery operations commence; such repairs will typically be contracted.

General

- a) Isolate damaged portions of utility systems so as to restore service quickly to those areas where systems are substantially undamaged.
- b) In cooperation with utilities, institute utility conservation measures.
- c) Disseminate emergency public information requesting conservation of utilities.
- d) Assist in relocating patients of medical facilities, residential schools, and similar institutions that cannot maintain the required level of service for their clients.
- e) Provide law enforcement personnel to control traffic at key intersections if traffic control devices are inoperative.
- f) Consider staging fire equipment in areas without electrical or water service.
- g) Consider increased security patrols in areas that have been evacuated due to lack of utility service.
 - 1) **Facilitating Utility Response** Coordinate with utilities to obtain utility emergency point of contact information and provide emergency contact information for key local officials and the EOC to utilities.
 - 2) Maintain information on the utilities serving the local area, including maps of service areas.
 - 3) Maintain the Utility Restoration Priorities for Critical Facilities. In coordination with the EMC, update utility restoration priorities for critical facilities in the aftermath of an emergency situation if required.
- h) Maintain information on existing emergency generators and potential generator requirements.
- i) During an emergency situation, coordinate regularly with utilities to determine utility status, customers and areas affected, and what response, repair, and restoration actions are being undertaken, and provide information to the Emergency Manager.
- j) Where it appears that utility outages will be long term and thus have a major impact on the local population, advise the Emergency Manager that action should be taken to obtain substitutes for missing services or relocate people who cannot be provided substitute services to other areas.
- k) After coordination with the Emergency Manager, respond to requests from utilities for assistance in facilitating their repair and reconstruction activities or coordinating their efforts with other emergency responders.

- l) Ensure current information on utility assets is provided for inclusion in Resource Management annex.
 - m) When requested by the Resource Management staff, request resource assistance from utilities during emergencies.
3. Local officials may facilitate utility response by:
- a) Identifying utility outage areas that have been reported to local government. Although many utility systems have equipment that reports system faults and customer service numbers for people to report problems, outage information reported to local government can also be helpful.
 - b) Asking citizens to minimize use of utilities that have been degraded by emergency situations.
 - c) Identifying local facilities for priority restoration of utilities.
 - d) Coordinating with the utility on priorities for clearing debris from roads which also provide access to damaged utility equipment.
 - e) Providing access and traffic control in utility repair areas where appropriate.
4. Large-scale Emergency Situations.

In large-scale emergency situations which produce catastrophic damage in a limited area (such as a tornado) or severe damage over a wide area (such as an ice storm), utilities are typically faced with a massive repair and rebuilding effort that cannot be completed in a reasonable time without external support. In such circumstances, utilities typically bring in equipment and crews from other utilities and from specialized contractors. In these situations, utilities may request assistance from the [County/City] in:

- a) Identifying lodging for repair crews – hotels, motels, school dormitories, camp cabins, and other facilities.
- d) Assist the Emergency Manager in Identifying restaurants to feed crews or caterers who can prepare crew meals or utilize other volunteer organization facilities.
- e) Identifying or providing a staging area or areas for utility equipment coming from other locations and providing security for such areas.
- f) Obtaining water for repair crews.
- g) Identifying operational sources of fuel in the local area.

H. Protecting Resources and Preserving Capabilities

1. In the event of a slowly developing emergency, it is possible that utilities may be able to mitigate some of the effects of a major emergency or disaster by protecting key facilities and equipment.

2. In the face of a threat of flooding, facilities such as sewage or water-treatment facilities or electrical substations may be protected by constructing dikes, sand-bagging, or using pumps to prevent water from entering the facility. In some cases, in an effort to preserve pumps, electrical control panels, and other vital equipment, it may also be prudent to remove that equipment from facilities to prevent damage due to rising water.
3. In the event of a hazardous materials spill in rivers or lakes used for water supplies, contamination of water distribution systems may be avoided by temporarily shutting down water intakes.
4. Loss of power could severely affect critical functions such as communications, water pumping, purification, and distribution; sewage disposal; traffic control; and operation of critical medical equipment. Critical facilities that require back-up electrical power should have appropriate generation equipment on site if possible. If this is not feasible, emergency generator requirements should be determined in advance to facilitate making timely arrangements for such equipment during an emergency situations. The Utility Coordinator will provide such forms to facility operators to complete and maintain a file of completed forms for both existing generators and potential generator requirements.

I. Utility Support for Emergency Response Operations

The assistance of utility providers may be needed to support other emergency response and recovery operations. Such assistance may include:

1. Rendering downed or damaged electric lines safe to facilitate debris removal from roadways.
2. Cutting off utilities to facilitate the emergency response to fires, explosions, building collapses, and other emergency situations.
3. Facilitating search and rescue operations by cutting off electrical power, gas, and water to areas to be searched.
4. Establishing temporary utility hookups to facilitate response activities.

J. Utility Support for Disaster Recovery Operations

Utilities play a primary role in the recovery process and must coordinate closely with local government to:

2. Render electrical lines and gas distribution lines safe before local officials authorize re-entry of property owners into affected areas to salvage belongings and repair damage to their homes and businesses.
2. Participate in inspections of affected structures to identify hazards created by damaged utilities and eliminate those hazards.
3. Determine the extent of damage to publicly owned utility infrastructure and equipment.

4. Restore utility systems to their pre-disaster condition.

K. Resource Support

1. A listing of local public works and engineering equipment is provided in the Resource Management annex.
2. Should our local resources prove to be inadequate during an emergency, requests will be made for assistance from other local jurisdictions, other agencies, and industry in accordance with existing mutual-aid agreements and contracts.
3. If the public works and engineering resources available locally, from other jurisdictions, and from businesses pursuant to contracts are insufficient to deal the emergency situation, assistance may be requested from the State.

L. Resource Readiness

1. During periods of increased readiness, work should be undertaken to keep operational equipment at full readiness (full on-board equipment and fuel) and restore equipment out-of-service due to minor problems to operating condition.
2. To the extent possible, shortages in stocks of emergency supplies should be filled during periods of increased readiness. It is desirable to have sufficient supplies to sustain emergency operations without assistance for at least two days.

M. Communications

The public works and engineering communications network is depicted in Appendix 1.

N. Protecting Resources and Preserving Capabilities

1. For slowly developing emergency situations, it may be possible to employ public works and engineering resources to protect government facilities and equipment and essential utilities and thus prevent or reduce damage. Protective actions may include sandbagging, building protective levees, ditching, installing protective window coverings, or removing vital equipment. Public works and engineering elements are expected to identify buildings and other infrastructure that would benefit from protection and, in coordination with the departments or agencies that occupy those facilities, carry out such protective actions.
2. If time permits, public works and engineering elements are also expected to take action in advance of an emergency situation to preserve response and recovery capabilities by protecting vital equipment and supplies, either in place or by temporarily evacuating it to safer locations. It is desirable that agreements with other jurisdictions to host local resources at risk be developed in advance of an emergency.

O. Search & Rescue (SAR) Support

1. Public works and engineering crews may be required to provide heavy equipment support for search and rescue operations, particularly support for search operations in collapsed buildings.

P. Key Facilities

1. A listing of key local facilities that have general priority for damage assessment, debris clearance, and repair is provided in Annex G, Law Enforcement. The EMC shall determine the specific priority for public works and engineering work on each of these facilities in the aftermath of an emergency.

Q. Damage Assessment and Reporting

1. In addition to reports that may be required by their parent organization, public works and engineering departments and agencies participating in emergency operations should provide appropriate situation reports to the IC, or if an incident command operation has not been established, to the EOC. The IC will forward periodic reports to the EOC. Pertinent information will be incorporated into the Initial Emergency Report and the periodic Situation Report that is prepared and disseminated to key officials, other affected jurisdictions, and state agencies during major emergency operations. The essential elements of information for the Initial Emergency Report and the Situation Report are outlined in the Direction and Control annex.

R. Records

1. Expenses incurred in carrying out emergency response and recovery operations for certain hazards may be recoverable from the responsible party or, in the event a Presidential disaster declaration is issued, partially reimbursed by the federal government. Hence, all public works and engineering elements will maintain records of labor, materials, and equipment used and goods and services contracted for during large-scale emergency operations.

S. Post Incident Review

1. For large-scale emergency operations, the County Emergency Manager shall organize and conduct a review of emergency operations in accordance with the guidance provided in the Executive Operations Basic Plan. The purpose of this review is to identify needed improvements in this annex, procedures, facilities, and equipment. Public works and engineering personnel who participated in the operations should participate in the review.

T. Inventory

1. It is the responsibility of the County Engineer to prepare and maintain a current inventory of personnel and equipment and also have available information concerning local contractors in the event of a disaster.
 - a) **Equipment** – A list of equipment is contained in the Damage Assessment Appendix of this annex.
 - b) **Personnel** – A list of personnel is available in the County Administration Office.

Evaluation and Corrective Action--In reviewing this annex the following deficiency was noted:

- 1. There are insufficient numbers of personnel in the Public Works Department trained at the Hazardous Materials Awareness Level for response to emergencies concerning Hazardous Materials.
- 2. In the future, training will be made available to personnel for this purpose through the KDEM.

ANNEX DEVELOPMENT & MAINTENANCE
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- A. The Emergency Manager is responsible for developing and maintaining this annex with the support from organizations.
- B. This annex will be reviewed annually and updated in accordance with the schedule outlined in Executive Operations annex of the Basic Plan.
- C. Departments and agencies tasked in this annex will develop SOPs that address assigned tasks.

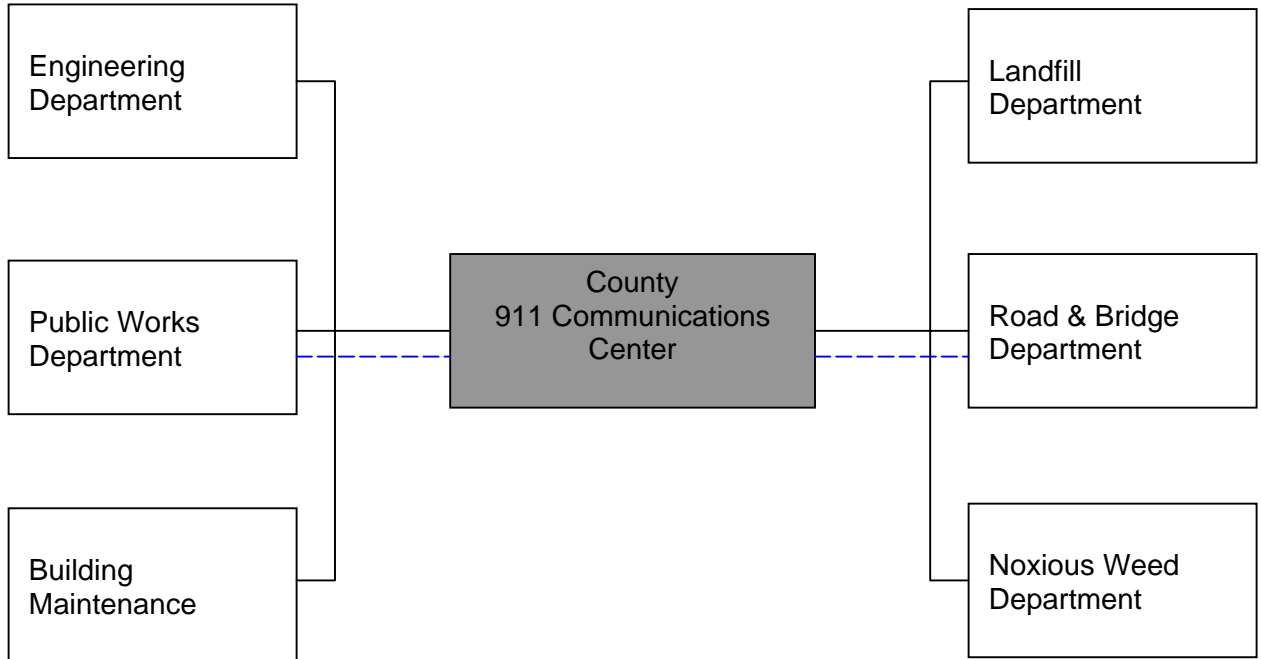
REFERENCES

- A. KDEM, Kansas Disaster Recovery Manual.
- B. FEMA, Debris Management Guide (FEMA-325).
- C. FEMA, Guide for All-Hazard Emergency Operations Planning (SLG-101).
- D. FEMA, Reducing Losses in High Risk Flood Hazard Areas: A Guidebook for Local Officials (FEMA-116).

APPENDICES:

Appendix 1Public Works & Engineering Communications Network
Appendix 2Debris Management

PUBLIC WORKS & ENGINEERING COMMUNICATIONS NETWORK



LEGEND:

- TELEPHONE
- - - RADIO

DEBRIS MANAGEMENT

1. Objectives

The objectives of debris management in the aftermath of an emergency are to:

- A. Reopen roads and provide access to facilities that provide essential government and population support services.
- B. Remove debris from public property.
- C. Assist citizens in removing debris from private property.
- D. Reduce the volume of debris going to disposal facilities to extend the life of those facilities and reduce costs.
- E. Ensure hazardous materials are segregated from other debris and properly disposed of.

2. Explanation of Terms

- A. Debris is the remains of things destroyed or damaged as a result of natural or technological disasters. Disaster debris may include yard waste, building materials, household items, personal property, hazardous household products, batteries, automobiles, boats, hazardous chemicals, spoiled food, dead animals, and other materials. Some types of debris pose a threat to health, safety, and the environment.
- B. **Categorization of Debris.** There are a variety of schemes for categorizing debris. In this appendix, the following categorization is used:
 - 1) **Burnable Materials**, which include:
 - a) **Burnable Natural Debris** – generally trees, shrubs, and vegetation
 - b) **Burnable Construction and Demolition (C&D) Debris** – wooden structural members and other wood products such as roof decking, siding, doors
 - 2) **Non Burnable Debris** – plastic, glass, metal, sheet rock, roofing shingles, carpet, tires, treated lumber, bricks, concrete, soil, and similar items. Household garbage is a type of non-burnable debris.
 - 3) **Hazardous Debris** – industrial and household chemicals, paint, materials containing asbestos, batteries, petroleum products, agricultural chemicals, dead animals, and similar products.

3. Situation & Assumptions

A. Situation

- 1) The type and quantity of debris generated by an emergency situation is a function of the type of event, the location of impact, and the magnitude, intensity, and duration.
- 2) The quantity and type of debris generated, its location, and the size of the area over which it is spread affect the choice of methods to remove and dispose of it, the costs incurred in doing so, and the time it will take to accomplish the task.

4. Assumptions

- A. An emergency situation requiring debris removal may occur at any time.
 - 1) Local government may have insufficient resources to remove the debris created by a major emergency or disaster and accomplish other recovery tasks.
 - 2) If local debris removal capabilities are insufficient, the chief elected official may issue a local disaster declaration and request the State assist in debris removal. If the local emergency situation is of such magnitude that the Governor requests a Presidential Disaster Declaration and such a declaration is approved, federal resources could become available.
 - 3) For major emergencies or disasters, private contractors will be needed to collect, reduce the volume of, and dispose of debris
 - 4) Citizens will assist in removing debris from the immediate area of their homes and businesses, but will generally need government assistance in hauling it away for disposal.
 - 5) Citizens are often willing to help their neighbors in removing debris; proper public information can encourage such cooperative action, speeding up the process and reducing costs.

5. Concept of Operations

- A. Phased Approach. Debris management shall be conducted in phases, including:

1) Phase 1 - Emergency Roadway Clearance

- a) Following a disaster, the top priority is to clear major roads and routes providing access to key population support facilities such as hospitals, to allow for the movement of emergency vehicles, resumption of critical services, damage assessment. Emergency roadway clearance also facilitates the deployment of external response elements and delivery of emergency equipment and supplies. In initial roadway debris clearance, debris is normally pushed to the side of the road and no attempt is made to remove or dispose of it.
- b) Local government is responsible for clearing city streets and county roads and their rights of way. The Kansas Department of Transportation is responsible for clearing state and federal highways and the rights of way for such highways and disposing of the debris that results from the clearing process.
- c) In this phase, crews equipped with chain saws will generally be needed to cut up down trees and heavy equipment will be needed to move the remains. If possible, heavy equipment used for moving debris should be equipped with protective cabs and all personnel should wear protective equipment. Fire hydrants, driveway cutouts, and utility valves should be left unobstructed.

- d) As electrical systems are often damaged by the same hazards that create substantial debris, public works and engineering crews may need to coordinate their efforts to remove debris with utility crews.

2) Phase 2 – Debris Removal and Disposal

a) Debris Removal from Public Property.

- (1) In the aftermath of a disaster, debris may have to be removed from a variety of public property, including:
 - (a) Roads and rights of way.
 - (b) Government buildings, grounds, and parking lots.
 - (c) Parks and recreation facilities.
 - (d) Storm drainage systems and reservoirs.
- (2) If the emergency situation resulted in a Presidential Disaster Declaration, expenses of debris removal from public property may be partially reimbursed by the federal government if the debris must be removed to:
 - (a) Eliminate immediate threats to life, public health and safety.
 - (b) Eliminate immediate threats of significant damage to improved public or private property.
 - (c) Ensure economic recovery of the affected community.

As large-scale debris removal and disposal operations can be extremely costly, it is vital to determine if federal assistance will be provided and the rules that apply to such assistance before commencing debris removal operations. See the DEM *Disaster Recovery Manual* (DEM-62) for further information.

- (3) State law provides that state resources may not be used to clear or remove debris from local public property unless the local government presents to the State an unconditional authorization for removal.

b) Debris Removal from Private Property.

- (1) Debris removal from private property, including demolishing condemned structures, is generally the responsibility of the property owner, and the cost may be wholly or partly covered by insurance. If there has been a Presidential Disaster Declaration and debris on private property is so widespread that public health, safety, or the economic recovery is threatened, local government may be partially reimbursed for the cost of debris removal from private property. Local government normally has responsibility for picking up and disposing of debris from private property placed at the curb and bears the cost of that effort.
- (2) When the Governor has issued a disaster declaration for an emergency situation KSA 48-925, provides that state resources may be used to remove debris from private property. As a general rule, the property owner must authorize removal of debris, grant unrestricted access, and indemnify the

state against any claim resulting from the removal. As the Executive Order of the Governor Relating to Emergency Management provides that county judges and mayors who have issued a local disaster declaration may exercise the emergency powers of the Governor on an appropriate local scale, local governments may remove debris from private property subject to the same conditions cited above. Attachment 1 to this appendix provides a sample Debris Removal Access Agreement that should be used to meet statutory requirements.

B. Preparation for Debris Removal

Considerable time and labor can be saved in the debris removal process by sorting debris from public property and encouraging the public to sort debris from private property before it is picked up. A proactive public outreach program should advise the public of the actions they can take to facilitate pickup, including:

- 1) Sorting debris into categories – burnable natural debris, burnable construction and demolition debris, non-burnable debris, and potentially hazardous debris.
- 2) Placing sorted debris piles at curbside.
- 3) Keeping debris out off the road and away from fire hydrants and utility valves.
- 4) Disposing of household garbage in normal refuse containers.

C. Estimating the Amount of Debris

In determining the means to be used to remove and dispose of debris, it is essential that local officials have a reasonable estimate of the amount of debris that must be removed and eventually disposed of. Attachment 3 to this appendix provides a methodology that may be used to estimate the amount of debris that must be removed.

D. Determining Debris Removal Strategy

- 1) After an estimate of the amount of debris that needs to be removed is made, options for removing the debris should be evaluated in terms of their cost and timeliness.
- 2) The general strategies for debris removal and processing are:
 - a) Removal and processing of debris by local government
 - (1) Advantages:
 - Direct government control
 - (2) Disadvantages:
 - Normally requires diversion of significant government resources from regular functions and makes them unavailable for other recovery tasks
 - Speed of debris removal may be constrained by the government equipment and personnel available
 - Local government may lack specialized equipment and skills needed to carry out all aspects of debris removal.

- b) Removal and processing of debris by contractors.
- (1) Advantages:
 - Speed of debris removal may be increased by contracting for additional resources
 - If local contractors are used, may provide local economic benefit
 - (2) Disadvantages:
 - Requires detailed contracts
 - Requires extensive oversight and inspection
- c) Removal and processing of debris by a combination of local government and contractors.
- 3) If contractors will be used, the disaster area should be divided into geographic sectors for control purposes and bids solicited based on the estimated quantity of debris in each sector. In defining sectors, it is desirable to group properties of like type, construction, and with similar vegetation together. This will also facilitate estimating the quantity of debris that needs to be removed.
- 4) Debris may be removed by one time collection of all debris at each property or using multiple passes to collect different types of material that have been pre-sorted by the property owner.

E. Establishing Temporary Debris Storage and Reduction (TDSR) Facilities.

- 1) The effective disposal of large quantities of disaster debris requires that suitable temporary storage and volume reduction facilities be established. Such facilities hold debris until it can be sorted, reduced in volume, and dispatched to an appropriate disposal facility. Sorting and volume reduction can significantly reduce the costs of disposing of debris and prevent potentially serious environmental problems.
- 2) **Sorting.** TDSR facilities sort debris and send it to the most appropriate facility for treatment or disposal. Sorting is needed to separate burnable from non-burnable materials and segregate hazardous products for disposal at authorized facilities and identify debris that can be burned, chipped or ground, recycled, or simply disposed of at a landfill without treatment.
- 3) The volume of debris can be greatly reduced by a variety of methods, including:
- a) **Incineration.** This method includes open burning, use of air curtain pit incineration (trench burners), or use of portable air curtain incinerators. Incineration of burnable debris typically reduces its volume by 95 percent.
 - b) **Chipping and grinding.** Chipping and grinding is appropriate for clean, woody debris and typically reduces its volume by 75 percent. However, chipping and grinding normally costs as much as incineration and unless the resulting mulch can be disposed of without cost or at a profit, local government may incur additional costs to have the residual material hauled to a landfill.

- c) **Recycling.** Recycling debris may present an opportunity to reduce the overall cost of disposal. Metals, lumber, and soil are the most likely candidates for recycling. Before local government attempts to operate a recycling operation, it is essential to determine if there is, in fact, a market for the materials sorted out in the recycling process; otherwise the output may simply have to be hauled to a landfill. Specialized contractors may be willing to undertake recycling, particularly if for large amounts of debris that are well sorted.

4) **Site Selection**

- a) Among the criteria that are pertinent in selecting TDSR facilities are:
 - (1) Preferably government-owned.
 - (2) Large enough to accommodate a storage area, a sorting area, and volume reduction operations area(s).
 - (3) Reasonable proximity to disaster areas and debris disposal sites.
 - (4) Good road access.
 - (5) Not in a residential area or in the vicinity of schools, churches, or other facilities with concentrations of population.
 - (6) Not in an environmentally sensitive area, such as wetlands or a water well field.
- b) Local landfills and possible local sites for TDSR facilities are described in Attachment 2 to this appendix. The selection of specific sites to be used for TDSR facilities will normally be made by a team of local, state, and, where appropriate, federal personnel, who are familiar with the local area and the specific environmental regulations governing such facilities.

F. **Public Information and Instructions**

- 1) In the aftermath of an emergency situation, the Public Information staff should provide the public detailed information on debris removal and disposal plans and procedures. Providing appropriate instructions to the public concerning debris removal can significantly reduce the time and costs involved. Public information on debris removal must start as soon as possible after the disaster – before people start moving and stacking large amounts of debris.
- 2) **Public instructions should encourage citizens to:**
 - a) Assist their neighbors, particularly the elderly or infirm, in removing debris.
 - b) Move debris to curbside for pickup
 - c) Separate debris into the categories determined by local officials.
 - d) Keep debris piles away from fire hydrant and utility valves.
- 3) **Public information should keep citizens advised of:**
 - a) Debris pickup schedules and the system of pickup, if various types of debris will be picked up on different days.
 - b) Self help disposal guidelines for citizens and business that wish to haul their own debris to a debris storage area or landfill.

- 4) The normal methods of public information dissemination through the media should be used to provide information to the public. If loss of electric power has occurred, extra effort must be made to reach those without power using door hangers, flyers, signs, and, if necessary, door-to-door outreach.

G. Regulatory Issues and Technical Assistance

- 1) The Kansas Department of Health & Environment regulates the disposal of waste, including hazardous waste. KDHE also issues emergency permits for debris incineration. Hence, the advice and assistance of KDHE should be obtained in developing and implementing plans for debris disposal.
- 2) The Kansas Department of Health and Environment is the state agency responsible for ensuring food safety. The assistance of KDHE should be sought when there are questions regarding the safety of foodstuffs in damaged retail stores, warehouses, and processing facilities. KDHE has the authority to condemn unsafe foodstuffs so that they can be disposed of.
- 3) The Kansas Animal Health Department can provide advice and assistance regarding the disposition of dead animals and can help identify stray live animals so they can be returned to their owners.

5. Organization

A. Phase 1 - Emergency Roadway Clearance

During Phase 1, our normal emergency organization as outlined in the Executive Operations the Basic Plan and this annex should coordinate debris clearance operations. Debris clearance will normally be managed from the EOC. However, if debris is localized, an incident command operation may be established at the incident site to manage debris clearance.

B. Phase 2 - Debris Removal and Disposal

- 1) For small-scale debris removal and disposal operations, our normal emergency organization as outlined in the Basic Plan and this annex may coordinate debris removal and disposal.
- 2) For major emergencies or disasters that result in large volumes of debris, debris removal and disposal may have to continue for an extended period. For these situations, a Debris Management Task Force, consisting of personnel from those departments and agencies have the required expertise, shall be formed to manage debris removal and disposal operations. The Task Force should be comprised of personnel to perform the following functions:
 - a) **Operations:** Plan debris removal and processing, manage the use of government resources, and monitor the use of contract resources committed to the task.
 - b) **Contracting & Procurement:** Develop contracts for services and/or equipment, obtain bids, and award contracts.

- c) Legal: Contract review, manage authorizations for debris removal, prepare legal documents for building condemnation and land acquisition.
- d) Administration: Provide supply, administrative, and accounting support.
- e) Engineering: Damage assessment, develop scopes of work and specifications for contracts, and prepare cost estimates.
- f) Public Information: Provide information and instructions relating to debris removal to the public.

It may be desirable to organize the Debris Management Task Force as an ICS operation under an Incident Commander.

- 3) If government will use its own resources to remove debris, then primary role of the operations staff is to plan and supervise debris removal. If contractors will be removing debris, then the primary role of the operations staff will normally be to monitor contractor work and ensure that contract provisions are being complied with.

7. Task Assignments

A. Phase 1 - Emergency Roadway Clearance

Task assignments shall be as stated in this annex.

B. Debris Removal and Disposal Phase

Task assignments shall be determined by the Debris Management Task Force leader. General tasks of the various components of the Task Force are described in the Chapter 3 of the *FEMA Debris Management Guide* (FEMA-325).

Attachment 1

Debris Removal Access Agreement

I/We _____, the owner(s) of the property
commonly identified as _____,
(street address)
_____, State of Kansas
(city/town) _____ (county)

do hereby grant and give freely and without coercion, the right of access and entry to said property to the County of Pottawatomie, its agencies, contractors, and subcontractors thereof, for the purpose of removing and cleaning any or all storm-generated debris of whatever nature from the above described property.

It is fully understood that this agreement is not an obligation to perform debris clearance. The undersigned agrees and warrants to hold harmless the County of Pottawatomie, State of Kansas, its agencies, contractors, and subcontractors, for damage of any type, whatsoever, either to the above described property or persons situated thereon and hereby release, discharge, and waiver any action, either legal or equitable that might arise out of any activities on the above described property. The property owner(s) will mark any storm damaged sewer lines, water lines, and other utility lines located on the described property.

I/We (have _____, have not _____)(will _____, will not _____) received any compensation for debris removal from any other source including Small Business Administration (SBA), National Resource Conservation Service (NRCS), private insurance, individual and family grant program or any other public assistance program. I will report for this property any insurance settlements to me or my family for debris removal that has been performed at government expense. For the considerations and purposes set forth herein, I set my hand this _____ day of _____ 20____.

Owner

Owner

Telephone No. Address

Witness

Attachment 2

Landfills & Potential Temporary Debris Storage and Reduction (TDSR) Sites

1. Landfills

a. Name:

- 1) Address: Wheaton Road
- 2) Operated by: County
- 3) Estimated capacity remaining (cubic yards):
- 4) Estimated daily processing capacity:
- 5) Normal operating schedule: 0800-1630
- 6) Restrictions:
- 7) Fees:
- 8) Other Factors:

b. Name:

- 1) Address:
- 2) Operated by:
- 3) Estimated capacity remaining (cubic yards):
- 4) Estimated daily processing capacity:
- 5) Normal operating schedule:
- 6) Restrictions:
- 7) Fees:
- 8) Other Factors:

2. Possible TDSR Facilities

a. Name:

- 1) Address:
- 2) Owner:
- 3) Site size (acres):
- 4) Fenced?
- 5) Road access:
- 6) Neighbors:
- 7) Environmental concerns:

b. Name:

- 1) Address:
- 2) Owner:
- 3) Site size (acres):
- 4) Fenced?
- 5) Road access:
- 6) Neighbors:
- 7) Environmental concerns: