Multi-jurisdictional
Disaster Debris Management Plan
Douglas County, Kansas

Revised 2016

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I. Introduction

Purpose

The Multi-jurisdictional Disaster Debris Management Plan provides policies and guidance for the removal and disposition of debris in response to a natural or manmade debris-generating event. It provides the framework to unify the efforts of Utilities, Public Works, City and Township agencies and departments, local governments, non-governmental and voluntary organizations, and regional and federal partners involved in emergency debris cleanup operations. When properly implemented, the result will be a coordinated and comprehensive effort to reduce debris-related impacts of an emergency or disaster.

This plan identifies agencies involved in debris operations and describes the responsibilities associated with debris operations to ensure a coordinated response which achieves removal, storage, and final disposition of debris deposited along or immediately adjacent to public rights-of-way within the jurisdictional boundaries of Douglas County, Kansas. These coordinated actions will help mitigate against the potential threat to the lives, health, safety, and welfare of the impacted citizens, expedite recovery efforts, and address the threat of further damage to improved public or private property.

Scope

This Debris Management Plan will serve as a support annex to the Douglas County Local Emergency Operations Plan (EOP). It provides organizational structure, guidance, and standardized guidelines for field operations in the clearance, removal, and disposal of debris caused by a major debris-generating event. These Standard Operating Guidelines (SOGs) provide organizational structure, guidance, and standardized guidelines for field operations in the clearance, removal, and disposal of debris caused by a major debris-generating event. This SOG shall apply to all responding departments and agencies.

This SOG should assist responding staff in implementing and coordinating public and private sector debris removal and disposal operations to maximize cleanup efficiencies. Expeditious debris removal and disposal actions will mitigate the threat to the health, safety, and welfare of Douglas County residents.

Enforcement

Any county or city employee, private sector contractor, or member of the public deviating from the provisions of this guideline may be required, at the discretion of the Debris Manager, to submit in writing, within five (5) calendar days, an explanation for such deviation. The written explanation will be forwarded to the Debris Manager for final resolution if required. Be advised if a city chooses not to participate in this plan, it may not receive Federal assistance if and only if Federal Assistance is granted to the County.

Priorities

The focus of this plan is to:

- Provide access by clearing debris from roadways as quickly as possible with the resources available.
- Provide emergency road repairs to support immediate health and safety needs.

- Properly dispose of debris in the most economical and efficient method possible while complying with all policies and ordinances established by local jurisdictions.

Debris removal priorities are situation-dependent. Immediate debris removal priorities are often determined by the Incident Commander, but often include:

1. Removal of debris in order to gain access for emergency services, and
2. Removal of debris that poses a significant threat to public health and safety. This may include the threat of damage to public structures, bridges, and roadways.

II. Situation and Assumptions

The Robert T. Stafford Disaster Relief and Emergency Assistance Act (P.L. 93-28), as amended, authorizes the FEMA Public Assistance Program to award Federal funding to State and local governments, Federally recognized tribes, and eligible private non-profit organizations in order to assist them in their disaster response and recovery activities.

FEMA characterizes work eligible for Public Assistance grants as either emergency or permanent work. Debris management activities are grouped into Category A (Debris Removal) and Category B (Emergency Protective Measures). Debris management activities in these categories must meet all of the following:

- Be required as a result of the disaster event;
- Be located within a designated disaster area;
- Be the legal responsibility of the local government entity;
- Be in the public interest, which is defined as work necessary to meet the following:
    - Eliminate immediate threats to life, public health and safety;
    - Eliminate immediate threats of significant damage to improved public or private property;
    - Ensure economic recovery of the affected community to the benefit of the community-at-large; or
    - Mitigate the risk of life and property by removing substantially damaged structures and associate appurtenances as needed to convert property acquired through a FEMA hazard mitigation program to use compatible with open space, recreation, or wetlands management practices
- Be of a reasonable cost, which is defined as a cost, which in its nature does not exceed that which would be incurred by a prudent person under the circumstance prevailing at the time the decision was made to incur the cost.

For debris removal work, per FEMA's 2007 Public Assistance Debris Management Pilot Program, straight-time labor and overtime costs (including benefits) are eligible for permanent employees, reassigned employees, and seasonal employees (used during the season of anticipated employment).

Types of Disaster Events

Debris forecasting predicts the amount and type of debris prior to a disaster, whereas debris estimating quantifies the amount of debris after the disaster. By forecasting the type and quantity of debris, the planning section can better define the scope of work for the debris management operation prior to the event.

The following are general descriptions of natural and manmade disasters and the associated debris caused by each:

Tornadoes – Damage from tornadoes is caused by high-velocity rotating winds. The severity of the damage depends on the velocity of the tornado funnel and the length of time the funnel is on the ground; however, damage is generally confined to a narrow path, which can be up to one-half mile wide and from 100 yards to several miles long. Tornado debris consists primarily of vegetative debris, construction materials from damaged or destroyed structures, and personal property. Tornados are a medium probability, high vulnerability hazard in Douglas County.

Rainstorms, snow/ice storms, or reservoir failure can cause severe flooding. - Damage to structures from flooding is caused either by precipitation inundation or high-velocity water flow. Flood debris may consist of sediment, wreckage, personal property, and sometimes-hazardous materials deposited on public and private property. Additionally, heavy rains and floods may produce landslides, which create debris consisting of soil, gravel, rock, and sometimes construction material. However, flash flooding is a High probability, High vulnerability event.

Winter Storms – Debris from ice storms or snowstorms consists of significant amounts of vegetative debris and overhead utility service components. Winter storms are a medium probability, medium vulnerability event in Douglas County.

Earthquakes – Seismic forces along fault lines generate shock waves that cause ground shaking and surface ruptures. Douglas County lies to the east of the Nemaha fault line that runs north-northeast through Oklahoma, Central Kansas, and Nebraska. Because of the location, Douglas County would only receive minor physical effects from an earthquake. This type of damage consists of property damage, structural building materials, concrete, and asphalt. This type of event is a low probability, medium vulnerability event in Douglas County.

Acts of Terrorism – Terrorism includes the unlawful use of force and violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives. Since terrorism is regarded as a criminal act, it involves coordination with law enforcement authorities, the coroner's office, and health officials before debris is handled or disposed.

Debris generated as a result of an act of terrorism is highly variable in both quantity and type, depending upon the specific means utilized by the terrorists. An act of terrorism could generate little to no debris at all, or could result in large quantities of multiple types of debris, potentially requiring highly specialized personnel, procedures, and equipment for its removal and disposal.

Disaster Debris Streams

Typically, disasters generate a mix of different types of debris. The following figure summarized the typical types of debris for each type of disaster.

		Typical Debris Streams								
		Vegetative	Construction & Demolition (C&D)	Personal Property/ Household Items	Hazardous Waste	Household Hazardous Waste (HHW)	White Goods	Soil, Mud, and Sand	Vehicles	Putrescent
Types of Disasters	Tornadoes	X	X	X	X	X	X	X	X	X
	Floods	X	X	X	X	X	X	X	X	X
	Earthquakes		X	X		X	X	X		X
	Winter Storms	X				X				X
	Acts of Terrorism	X	X	X	X	X	X	X	X	X

Forecasted Debris Types

Vegetative Debris – Consists of whole trees, tree stumps, tree branches, tree trunks, and other leafy material. The number of collection passes for vegetative debris is generally limited. Because of the large volume, vegetative debris should be reduced by mulching, grinding, or burning. Collections are typically based on the size of the vegetative material or by unit.

Hazardous Trees – Type of vegetative debris that is caused by the disaster, is an immediate threat to lives, public health, safety, or improved property, has a diameter breast height of six inches or greater and one or more of the following criteria are met:

- It has more than 50% of the crown damaged or destroyed;
- It has a split trunk or broken branches that expose the heartwood;
- It has fallen or been uprooted within a public-use area, and/or
- It is leaning at an angle greater than 30 degrees.

Trees determined to be hazardous and that have less than 50% of the root-ball exposed will be cut flush at the ground level. This cut portion will then be

included with regular vegetative debris. Grinding of the resulting stump after the tree has been cut flush at the ground is not eligible debris management work.

Straightening and bracing are allowable emergency protective measures if they eliminate an immediate threat to lives, public health, safety, or improved property and are less costly than removal and disposal of the hazardous tree.

Hazardous Limb (Hangers) – Type of vegetative debris that is eligible for removal if the limbs are:

- Located on improved property;
- Greater than two inches in diameter at the point of breakage; and
- Still hanging in a tree and threatening a public-use area (e.g. trails, sidewalks, paths, etc.)

Only the minimum amount of work necessary is eligible for hazardous limb removal. Pruning, maintenance trimming, and landscaping are not eligible. If the canopy of a tree located on public property extends over a public right-of-way, removal of hazardous limbs on the tree that extend over are eligible.

Hazardous Tree Stumps – Type of vegetative debris eligible for debris removal as a unit cost if all the following criteria are meet:

- It has 50% or more of the root-ball exposed;
- It is greater than 24" in diameter, measured 24" above the ground;
- It is on improved public property or a public right-of-way, and
- It poses an immediate threat to life, and public health and safety.

Construction and Demolition (C & D) Debris -- Consists of damaged components of buildings and structures such as lumber and wood, gypsum wallboard, glass, metal, roofing material, tile, carpeting and floor coverings, window coverings, pipe, concrete, fully cured asphalt, equipment, furnishings, and fixtures.

Certain types of construction and demolition debris are reusable or recyclable. To conserve landfill space, it is prudent to separate materials for reuse, recycling, or directed final disposition. Because some construction and demolition debris may be hazardous (ex: asbestos coated materials), environmental regulations and ordinances must be included during all operations. Full documentation of these materials including debris origin, any processing (reduction or recycling), and the final disposition must be noted.

Typically, removal of construction by-products generated by repairs or rebuilding is covered by insurance policies and therefore is not part of the debris management process.

Hazardous Waste – A type of debris with properties that make it potentially harmful to human health or the environment. Generally, this type of material exhibits at least one of the following characteristics: ignitability, corrosively, reactivity, or toxicity. Debris management activities are allowed for measures that address widespread hazardous materials contamination.

Household Hazardous Waste (HHW) – A type of debris composed of hazardous products and materials that are used and disposed of by residential, rather than commercial or industrial consumers. HHW includes some paints, stains, varnishes, solvents, pesticides, and other products or materials containing volatile chemicals that catch fire, react, or explode under certain circumstances, or that are corrosive or toxic.

White Goods – A type of debris defined as discarded household appliances such as refrigerators, freezers, air conditioners, heat pumps, ovens, ranges, washing machines, clothes dryers, and water heaters. Many white goods contain ozone-depleting refrigerants, mercury, or compressor oils, which are prohibited by the Clean Air Act to be released into the atmosphere. Certified technicians must extract these refrigerants before disposing or recycling the white goods.

Electronic Waste (E-Waste) – A type of debris composed of electronics that contain hazardous materials such as cathode ray tubes. Examples include computer monitors and televisions.

Soil and Mud – Floods often deposit soil and mud on improved public property and public rights-of-way. Facilities commonly impacted by this type of debris may include streets, sidewalks, storm and sanitary sewers, water treatment facilities, drainage basins, and swimming pools. This type of debris on improved property or public rights-of-way can be included in the debris management process; however, removal from streams and unimproved property cannot be included. Regularly scheduled maintenance reports for improved public property and public rights-of-way will be kept that indicate pre-disaster soil, mud, and sand levels.

Vehicles – A type of debris that includes vehicles that have been moved from private property onto improved public property and public rights-of-way. To remove this type of debris, the follow characteristics must be met:

- The vehicle or vessel presents a hazard or immediate threat that blocks ingress/egress in a public-use area;
- The vehicle is abandoned (e.g., the vehicle is not on the owner's property and the ownership is undetermined;
- Douglas County follows local ordinances and State law by securing ownership, and
- Douglas County verified chain of custody, transport, and disposal of the vehicle.

Putrescent Materials – Type of debris that will decompose or rot, such as animal carcasses and other fleshy organic matter. The USDA's National Resources Conservation Service (NRCS) has developed specific disposal guidelines for animal carcasses.

Infectious Waste – Type of debris capable of causing infections in humans, including contaminated animal waste, human blood and blood products, isolation waste, pathological waste, and discarded sharps (needles, scalpels, or broken medical instruments).

Chemical, Biological, Radiological and Nuclear-Contaminated Debris – Type of debris that has biological, chemical, radiological, or nuclear contamination. This type of debris usually would happen as a result of a Weapon of Mass Destruction (WMD) event. Eligibility for this type of debris removal will be made by FEMA based on applicable Federal statutes, regulations, policies, and other guidance documents.

Garbage (Household Waste) – Type of debris that is waste generated during non-disaster situations and regularly picked up through normal municipal waste collection methods. Common examples of garbage include food, packaging, plastics, and papers. This type of debris is not eligible for debris management activities.

Forecast Methods

After the disaster parameters and geographic extent are established, specific debris volumes can be quantified by using historical information available through Douglas County Emergency Management or the National Weather Service or by using forecasting models. If historical data is not available or insufficient, quantitative and qualitative forecasting models can be used to supplement the debris volume quantification.

Qualitative Forecasting

Qualitative forecasting will consist of "windshield tours" and "pass through" of the impacted portions of the unincorporated sections of Douglas County. The cities may use this same method with assistance from the DPM. These actions will note the location, vegetative cover, and estimated percentage of area impacted. These estimates will be the basis of the overall debris forecast.

Quantitative Forecasting

The information gathered as part of the qualitative forecasting will be reported to Douglas County's Geographic Information System (GIS) which will establish the number of habitable structures in the review area as well as land-use of the noted properties. Based on this information, the following estimations can be applied.

Buildings – Several basic techniques have been established to forecast destroyed building debris quantities. These techniques can be used to forecast debris quantities prior to an event or estimate quantities after an event.

Residential Buildings – A formula for estimating the debris quantities from a demolished single-family home and associated debris is as follows:

L x W x S x 0.20 x VCM = ____ cubic yards of debris (cy)

- L = Length of the building in feet
- W = Width of the building in feet
- S = Height of building in stories
- VCM = Vegetative Cover Multiplier Always use medium in our County 1.3 as a variable

The VCM is a measure of the amount of debris within a subdivision or neighborhood. The descriptions and multipliers are described as:

- Light (1.1 multiplier) includes new home developments where more ground is visible than trees. These areas will have a sparse canopy cover.
- Medium (1.3 multiplier) generally has a uniform pattern of open space and tree canopy cover. This is the most common description for vegetative cover. Use in The State of Kansas
- Heavy (1.5 multiplier) is found in mature neighborhoods and woodlots where the ground or houses cannot be seen due to the tree canopy cover.

The table below can be used to forecast debris quantities for totally destroyed single-family, single-story homes in the applicable vegetative cover category.

Typical House Size	Vegetative Cover Multiplier (cy)			
	None	Light (1.1)	Medium (1.3)	Heavy (1.5)
1000 ft^2	220	220	260	300
1200 ft^2	240	264	312	360
1400 ft^2	280	308	364	420
1600 ft^2	320	352	416	480
1800 ft^2	360	396	468	540
2000 ft^2	400	440	520	600
2200 ft^2	440	484	572	660
2400 ft^2	480	528	624	720
2600 ft^2	520	572	676	780

The amount of personal property within an average flooded single-family home has been found to be:

- 25-40 cy for homes without a basement
- 45-50 cy for homes with a basement

Mobile homes have less utilized space due to their construction and use. The walls are narrower, and the units contain more storage space. Therefore, the typical mobile home generates more debris by volume than a single-family home. Historically, the volume of debris from mobile homes can be found to be:

- 290 cy of debris for a single-wide mobile home
- 415 cy of debris for a double-wide mobile home

Outbuildings – All other buildings volumes may be calculated by using the following formulas:

(L x W x H x .33)/27 = cubic yards of debris

- L = Length of the building in feet
- W = Width of the building in feet
- H = Height of the building in feet
- 0.33 is a constant to account for the "air space" in the building
- "27" is the conversion factor from cubic feet to cubic yards

Vegetation – This type of debris is the most difficult to estimate due to the random sizes and shapes of trees and shrubbery. The following serves as a guide for forecasting and estimating vegetative debris:

- Each home is estimated to have an associated 3.65 cubic yards of this type of debris
- Treat debris piles as cubes, not a cone (when estimating)
- 15 trees, 8 inches in diameter = 40 cy (average)
- One acre of debris, 3.33 yards high = 16,117 cy

The following factors will be used to convert woody debris from cubic yards to tons:

- Softwoods: 6 cubic yards = 1 ton
- Hardwoods: 4 cubic yards = 1 ton
- Mixed Debris: 4 cubic yards = 1 ton
- Construction & Demolition: 2 cubic yards = 1 ton

Several truckloads may need to be tested to confirm these factors during actually debris management activities.

III. Staff Roles and Responsibilities

Per the Douglas County Emergency Operations Plan, the Douglas County Public Works Department is responsible for coordinating debris removal and disposal in the unincorporated areas of the county. For the incorporated areas, the cities are responsible for this coordination, with the county providing secondary support if needed and available. Debris removal operations for state and federal highways within Douglas County will be the responsibility of Kansas Department of Transportation. In emergency situations, where limited local resources may require centralized coordination and prioritization, the Public Works Group (ESF 3) in the county Emergency Operations Center (EOC) will assume this responsibility.

The size and composition of a staff organized to manage debris clearance, removal, and disposal issues depends on the magnitude of the disaster and number of available response personnel. Successful debris operations require collaborative efforts between departments within Douglas County and with specific external agencies that have regulatory authority over debris operations. Prospective staff members will receive general training and practice interface with other agencies responsible for debris management operations.

Immediately following a disaster event, a disaster debris management team will be established to facilitate successful coordination. Team members may consist of personnel from multiple Douglas County jurisdictions and departments including Public Works, Emergency Management, GIS, Zoning & Codes, Legal, Clerks Office, or other departments

as applicable. Because each member of the team is responsible for implementing portions of this debris management plan in accordance with the planning goals and objectives and in compliance with Federal, State, and local laws, a Debris Project Manager will be designated to serve as the primary coordinator for all operations.

The Debris Project Manager (DPM) – This position will serve as the primary decision-maker and Incident Commander for all debris operations and has the following responsibilities:

- Will be knowledgeable of all Douglas County or local jurisdiction processes, procedures, personnel, resources, and limitations;
- Overall responsibility for the operations, planning, logistics, financial, and administrative components of the debris management operations;
- Assign tasks to team members and support personnel to track the completion of tasks to ensure the quick and safe implementation of the debris removal process;
- Will be in constant contact with the Douglas County Emergency Operations Center (EOC) regarding operational progress and planning needs; and
- Responsible for activation and deactivation of debris management operations.

Operations – This function is responsible for the supervision of force account and contract resources and overall project implementation. This section is responsible for implementing the entire debris removal operation and will perform the following tasks:

- Position equipment and resources for the response and recovery debris removal operation;
- Develop staff schedules and strategies to ensure efficient and effective response;
- Provide communication, facilities, services, equipment, and materials to support the response and recovery activities;
- Monitor and direct Douglas County personnel and contract labor;
- Distribute response and recovery resources;
- Operate and manage the collection, debris management site, and disposal strategies;
- Create a demolition strategy for publicly owned structures (if necessary); and
- Report progress for distribution to the debris management planning staff.

Planning – This section supports all other debris management sections in a technical and planning role. This section also provides debris quantity assumptions, economic analysis, and feasible solutions for debris operations. The following tasks will be performed:

- Forecast debris volume based on disaster type;
- Develop an estimating strategy for post-disaster debris quantities;
- Strategize and map debris haul routes;
- Select debris management sites and design the site layout;
- Determine reduction and recycling means and methods (if possible);
- Identify and coordinate environmental issues with solid waste authorities;
- Assess available landfill space and determine if additional space is needed;
- Develop the debris collection strategy;
- Write contract scopes of work, conditions, and specifications;
- Coordinate with other local and State jurisdictions for road clearance and operations;

- Establish a process for building damage assessment and condemnation (including public and private properties); and
- Request and/or issue permits.

Finance & Administration – This function typically includes finance, personnel, and legal issues. This section must establish a records management system in order to collect and keep all the documentation that may be required for Public Assistance grants.

Administration – This sub-function primarily documents all debris management activities, including, but not limited to the following:

- Personnel policies;
- Labor and equipment timesheets and summaries;
- Safety procedures;
- Contract procurement procedures;
- Contracts;
- Billing and invoices (including debris hauler load tickets);
- Environmental permits;
- Rights of Entry and Hold Harmless agreements for private property debris removal and demolition (when applicable); and
- Debris salvage and recycling value information.

Contracting and Procurement – This sub-function maintains contracts in draft form ready for advertisement or have pre-qualified contractors in place prior to the event. This individual will follow all applicable Douglas County procurement policies in effect at the time of the disaster. Organizational elements for this section include, but are not limited to the following tasks:

- Develop contract requirements;
- Establish contractor qualifications;
- Distribute instructions to bidders;
- Advertise bids;
- Establish a pre-disaster list of pre-qualified contractors;
- Manage the contract scope of work; and
- Establish a post-disaster contractor procedure (if necessary).

Legal – This sub-function leads the review process for all legal matters in the debris management planning process. The following tasks will also be performed by the legal unit:

- Review all contracts;
- Review and/or establish a land acquisition process for temporary debris management sites;
- Review all insurance policies;
- Ensure environmental and historic preservation compliance before, during, and after operations;
- Ensure that site restoration and closure requirements are fulfilled;
- Review and/or establish a building condemnation processes if deemed necessary;

- Review and/or establish a legal process for private property demolition and debris removal; and
- Review right-of-entry and hold harmless agreements.

Public Information – This section will distribute information and educate citizens about debris management operations. This function will report directly to the Debris Project Manager. Various types of information distribution will be used to distribute messages including, but not limited to the following:

- Debris pickup schedules;
- Disposal methods and ongoing actions to comply with Federal, State, and local environmental regulations;
- Disposal procedures for self-help and independent contractors;
- Restrictions and penalties for creating illegal dumps;
- Curbside debris segregation instructions; (Attached)
- Public drop-off locations for all debris types; and/or
- Process for answering the public's questions concerning debris removal.

Operational Safety Officer

The DPM will also assign personnel to monitor and report on the safety of all debris management operations. The responsibilities of this position include the following:

- Communicating timely information to the DPM and EOC regarding the safety status of the debris clearing, removal, and disposal operations;
- Coordinate with the DPM to assure the appropriate Responder Safety Training is provided;
- Ensure Douglas County Personnel follow all Kansas Department of Labor rules and regulations;
- Monitor contractor compliance with OSHA rules and regulations;
- Report and address any accidents or injuries that occur during operations;
- Coordinate with the DPM to assure that a site-specific Safety and Health Plan is created; and
- Provide media relations information regarding safety concerns with the DPM and acting public information officer.

Appendix G provides a detailed list of safety regulations and hazards that will impact debris management operations.

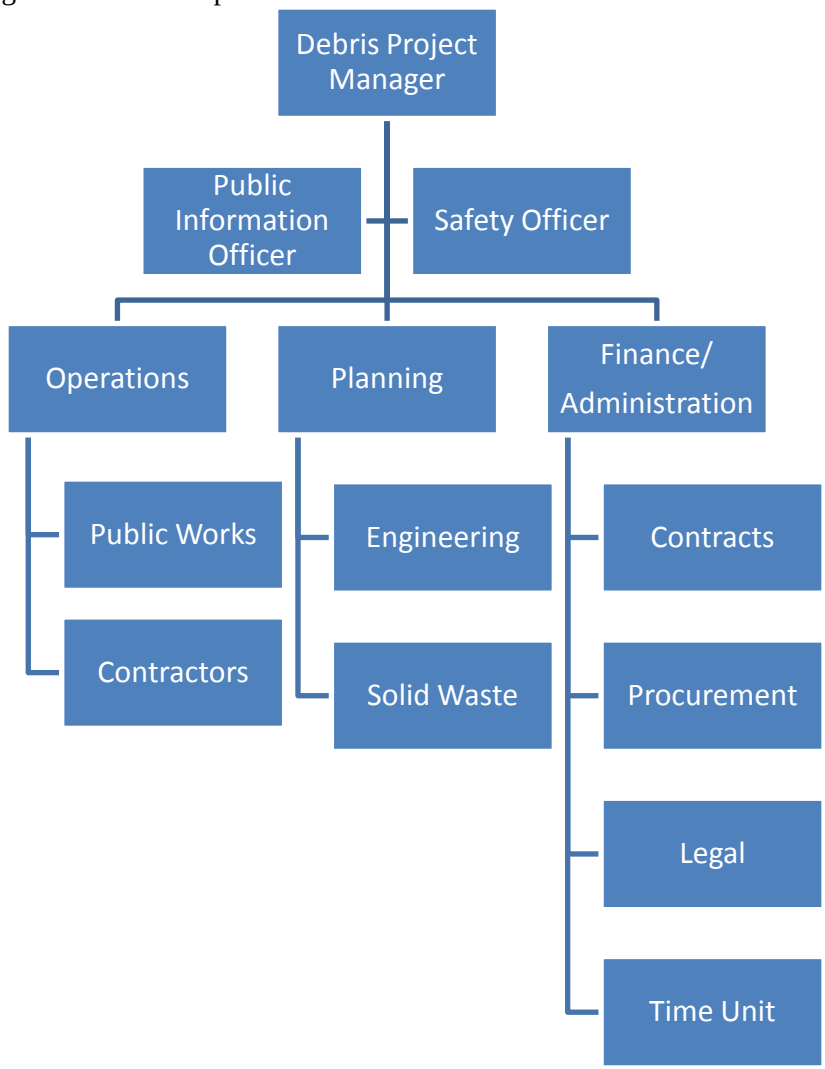
Support Staff

Support staff will be assigned as needed to functional and sub functional areas to ensure efficient and effective response. Assignments and supervision will follow the Incident Command System.

Staff Organizational Chart

The following staff organizational chart is an example only. Each jurisdiction, and each incident, will present its own staffing needs. The idea of any organizational structure during disaster response or recovery is that it be scalable to meet the needs of the community. This

chart, therefore, is only meant to be a suggestion of possible roles that may need to be filled during disaster debris operations.



Additional personnel can be assigned as needed and available to relieve these positions and/or to expand operations to meet growing debris management needs.

Training Schedule

Each jurisdiction represented will be responsible for training personnel on this debris management plan in accordance with pre-established internal policies, along with cooperation between partnering agencies within Douglas County.

Estimating Staff, Procedures, and Assignments

During debris removal events, local jurisdiction personnel will be the first workers utilized as directed by the DPM. Crew assignments will be based upon event needs and will be diverted from routine public works operations as necessary and where needed. Outside contractors may be utilized to assist the local workforce as needed.

IV. Debris Collection

The affected jurisdiction's Public Works Department is responsible for coordinating debris collection in keeping with ESF-3 of the Douglas County Emergency Operations Plan. This ESF will be activated at the discretion of Douglas County Emergency Management. During periods of emergency, ESFs may or may not be activated depending on the resources needed to adequately manage the event. During disaster operations, the primary agencies will work directly with the Operations Chief located at the Emergency Operations Center for information management and reporting of ESF activities. To promote continuity of operations and planning, a representative for ESF-3 will be present in the Emergency Operations Center. The ESF representative will also act as a liaison between the EOC and the state and adjacent county public works officials.

Damage Assessment Teams

The affected jurisdiction is responsible for coordinating impact assessment for all public structures, equipment, and debris clearance requirements immediately following a large-scale disaster. Impact assessments by Damage Assessment Teams (DAT) help prioritize impacted areas and resource needs. The teams will be composed of personnel from the affected jurisdiction.

DAT personnel identify debris impacts on critical roads and make initial estimates of debris quantities as part of their duties. Based on information provided by the DAT, the Debris Manager will set priorities and issue urgent assignments to clear debris from at least one lane on all evacuation routes and identified primary and secondary roads. This will expedite the movement of emergency service vehicles such as fire, police, and medical responders.

DAT personnel will conduct initial zone-by-zone windshield surveys to identify the type of debris and to estimate amounts of debris on the roadways and on private and public property. The results of these windshield surveys will be provided to the Debris Manager.

Response Operations

Douglas County and local jurisdictions will use its own labor force and equipment to remove debris during this phase. In circumstances when the existing labor force is not sufficient, or when specialized services are required, Douglas County and local jurisdictions, may supplement its work efforts by activating local or regional mutual aid agreements or by awarding short-term debris removal contracts for specific work.

Priorities

Response operations will primarily focus on the emergency access routes and main arterials within Douglas County. Based on the incident, planning staff members will identify which roads and streets are essential to emergency operations so local resources can be optimally managed and directed. The Emergency Snow Routes would be a good starting point within the cities with such designated routes.

Prior to and immediately following the event, extricating people and providing access to health care facilities are the top priorities; therefore, the major arterial

road routes are given priority for the emergency services staff such as police, fire, and ambulance services.

Overall priority to roadways will be determined by the event; however, specific considerations are as follows:

- Fire, police, and ambulance service routes to affected areas
- Access routes to trauma centers, hospitals, critical care units, and jails
- Major arterial routes
- Roads and streets to the debris management center and emergency operations center
- Supply routes to emergency supply distribution centers
- Roads and streets to government facilities
- Communication towers and systems access
- Utility access routes
- Routes to shelters

Eligible Debris

Eligible debris removal work must meet the following criteria:

- The debris was generated by a major disaster event;
- The debris is located within a designated disaster area;
- Federal assistance may be available with Debris removal on Federal aided Roadways if the Emergency Relief Program is activated through the Federal Highway Administration
- The debris is located on Douglas County or local jurisdiction's improved property or rights-of-way.
- The debris removal is the legal responsibility of Douglas County or included jurisdictions.

Ineligible Debris

The following are not eligible for debris removal work:

- Any debris on private property, without express approval from FEMA.
- Any debris removed from Douglas County's unimproved property or undeveloped land;
- Any debris removed from a facility that is not eligible for funding under the Public Assistance Program (ex: private owned cemeteries and golf courses); and
- Any debris removed from Federal lands or facilities that are under the direct authority of Federal agency or department.

Recovery Operations

These activities begin after the emergency access routes are cleared and the residents return to their homes and begin to bring debris to the public rights-of-way.

The implementation of disaster debris collection immediately after the disaster event assures the public that recovery efforts are in progress and that the community will return to normal quickly. The two main methods of debris collection are curbside collection and collection centers.

Curbside Collection – Debris is placed at the curb or public rights-of-way by the residents and collected by standard methods.

Mixed Debris Collection

This method allows all debris types to be collected in one specified area, usually along the public rights-of-way or in front of individual residences. This method is convenient for the public, but does not facilitate effective recycling and reduction efforts as debris will need to be handled multiple times. *Therefore, this method should will likely not be used within Douglas County*.

Source-Segregated Debris Collection

This method requires residents to sort the debris by material type and place it at the curb in separate piles. Trucks designated for a particular debris type collect the assigned debris and deliver it to a temporary staging area, or debris management site, reduction, recycling, or disposal facility. This method requires more trucks to collect the different types of debris; however the increased equipment cost is offset by the avoiding labor cost and time to separate the debris by hand (as per mixed debris collection). This method offers the potential of high salvage value and efficient recycling/reduction processing.

Collection Centers

This type of collection method directs residents to transport their debris to a common location in the county where roll-off bins or dumpsters are located. Associated costs are generally low since the public essentially accomplished the material collection and separate themselves; however, site monitoring is required to ensure debris cross-contamination does not occur. Although potentially effective, collection centers near debris management sites may inadvertently create a safety risk to debris management workers and the community-at-large. Therefore, collection centers will be established after initial curbside collection is completed to ensure the removal of remaining debris within the community and ensure the safety of the general public.

Collecting Hazardous Waste and White Goods

The three most common types of debris that will need special handling are hazardous waste, white goods, and electronic waste.

Household Hazardous Waste (HHW)

HHW mixed with other debris types will contaminate the entire load, which necessitates special disposal methods such as storage in a particular area of the debris management site. This type of debris is mitigated through the City of Lawrence/Douglas County's Household Hazardous Waste Facility. Local jurisdictions will coordinate a drop off and

segregation of these materials at a temporary debris management site until final disposition can be arranged.

White Goods

White goods include all appliances and household machines that contain refrigerants and other fluids that are regulated by the Kansas Department of Health and Environment and can only be reclaimed by certified technicians and disposed of at a permitted facility. To avoid accidental release of these hazardous fluids, the collection of white goods will be accomplished by manually placing the appliance on trucks or by using lifting equipment that will not damage the elements that contain the hazardous fluids.

Electronic Waste (E-waste)

E-waste consists of any broken or damaged piece of electronic equipment. Categories include communications equipment, computer equipment, television and video equipment, electronic tools, lighting, medical equipment, etc. These materials will be collected by resident drop off at a temporary debris management site until final disposition can be arranged.

Hazardous Stump Removal

A hazardous tree or stump may be collected individually, while downed or fallen debris is collected from right-of-ways or at a designated collection center. Tree and stump collection prices are typically based on the size of the tree or stump and charged by unit. Determining whether to remove a hazardous stump is difficult. FEMA has established criteria to assist in making these eligibility determinations, using objective information that can be collected in the field. A stump may be considered hazardous if the following criteria are met:

- 50% or more of the root-ball is exposed (less than 50% will be flush cut)
- Greater than 24" in diameter (as measured 24" above the ground)
- On improved property
- Poses immediate threat to life, public health, and safety.

FEMA's Hazardous Stump Worksheet and Stump Conversion Table are included in Appendix A and B, respectively.

Putrescent Waste Removal

Putrescent materials such as dead animals will not be shipped to temporary landfill operations. The Kansas Department of Health and Environment will be contacted to determine the most effective method of disposal. If on-site burial is considered Douglas County Planning and Zoning, Kansas Department of Health and Environment, Kansas Department of Agriculture, and Kansas Wildlife and Parks would need to be notified of such actions.

Recycling of Debris

Recycling reduces debris volume before it is hauled to a landfill. Recycling should be considered early in the debris removal and disposal operation because it may present an

opportunity to reduce the overall cost of the operation. Precautions should be taken to minimize potential environmental impact of the recycling operation.

Tornadoes may present opportunities for large-scale recycling operations. Some communities have structured contracts where the vendor can achieve an economic return their initiative to segregate and recycle debris as it arrives at the staging and reduction sites. Such contracts must be properly written and closely monitored.

Specialized contractors may be available to bid on disposal of debris by recycling, if it is well sorted. Contracts and monitoring procedures should be developed to ensure that the recyclers comply with local, tribal, State and Federal environmental regulations.

The following materials are suitable for recycling:

- **Metals:** Tornadoes and wind storms may cause extensive damage to mobile homes, sun porches, barns and out buildings. Most of the metals are non-ferrous and suitable for recycling. Trailer frames and other ferrous metals are also suitable for recycling. Metals can be separated using an electromagnet. Separated metals have market value.

- **Soil:** Cleanup operations using large pieces of equipment pick up large amounts of soil. The soil can be transported to the staging and reduction sites where it is combined with other organic materials that will decompose over time. Large amounts of soil can be recovered if the material is put through some type of screen or shaker system. This procedure can produce significant amounts of soil that may have beneficial reuse options in the agricultural community. This soil could also be used at local landfills for cover. Monitoring and testing of the soil may be necessary to ensure that it is not contaminated with chemicals. In areas where there is a large use of chemical agricultural fertilizer, the recovered soil may be too contaminated for use on residential or existing agricultural land.

- **Wood:** Woody debris can be either ground or chipped into mulch, which may have beneficial reuse options.

- **Construction Material:** Concrete block and other building materials can be ground and used for other purposes if there is a ready market. Construction materials and wood can also be shred to reduce volume. This construction material may be usable as fill or landfill cover.

- **Household Hazardous Waste:** Some household hazardous waste can be separated for reuse or recycling. The City of Lawrence Solid Waste Division can assist Douglas County jurisdictions with identifying opportunities.

- **Vehicles:** Motor vehicles (trucks, cars, motor homes, tractors) debris as a result of a disaster may be hauled to a staging area utilizing Douglas County's Wrecker on Call Rotation Plan. Vehicles that become abandoned at the site may be processed for recycling or determined if operational or salvageable.

- **Electronic Waste:** Electronic waste has recyclable components and may be segregated at a debris site.

V. Debris Management Sites

Depending on the type of disaster debris and scale of the event, Douglas County has identified three potential options for debris removal:

1. For tree debris only, a primary disposal site will be identified within a reasonable distance to the affected jurisdiction. Tree debris will be transported and piled by debris management team personnel or contractors and burned in accordance with the jurisdiction's burn permit. This option assumes the debris is not from a plant health emergency.
2. For construction and demolition debris, Hamm's landfill will accept debris according to their procedures for emergencies. Hamm's landfill is located at 16984 Third Street, Lawrence, Kansas.
3. For household hazardous waste, the City of Lawrence Solid Waste Manager will assist the jurisdiction's Debris Manager with options for managing household hazardous waste.

In those situations where the amount of debris is wide spread throughout the County and Temporary Debris Management Sites (DMS) are necessary, such sites will be opened. The DMS location would temporarily store, reduce, segregate, and/or process debris before it is hauled to its final disposition. The County will prioritize site locations based on safety, resources, and practicality of location. The priority in terms of general types of locations will be as follows: public paved property, public unpaved property, private paved property, and private unpaved property. A map of potential temporary DMS is included in Appendix O.

The temporary DMS site review ensured the following:

- Does not exist in an environmentally or historically sensitive area such as critical animal and plant habitats, sole source aquifers, freshwater well fields, historic districts, or archeological sites.
- Does not exist in Superfund site or area within a 100-year floodplain.

Environmental Requirements

A baseline environmental collection study will also be conducted prior to a DMS establishment. This baseline data is essential in assuring that the land is returned to its original condition following the end of all debris management operations. The following methods may be used to document new or updated baseline data:

- *Videotape and/or Photograph the Site* – Thoroughly videotape and/or photograph (ground or aerial) each site before beginning any activities.

- *Document Physical Features* – Note existing structures, fences, culverts, irrigation systems, and landscaping that can help evaluate possible damage claims made later.

- *Investigation of the Historical Significance* – Research the past use and ownership of the property to document any issues regarding the existence of historic structures or archeological sites.

- *Sample Soil and Water* – Soil and groundwater samples will be collected prior to use of the site. Planned HHW, ash, and fuel storage areas will also be sampled prior to site setup.

As operations proceed additional data will be collected throughout the operation for closeout and quality assurance reasons. The data can be compared to the previously established information in order to determine any remediation that may be necessary. The following tools can be utilized:

- Sketch Site Operation Layout – DMS operations may grow, shrink, or shift on the site. It is important to track reduction, hazardous waste collection, fuel, and equipment storage in order to sample soil and water for contaminants.

- Document Quality Assurance Issues – Document operations that will have a bearing on site closeout, such as petroleum spills at fueling sites, hydraulic fluid spills at equipment breakdowns, installation of water wells for stock pile cooling or dust control, discovery of HHW, and commercial, agricultural, or industrial hazardous and toxic waste storage and disposal.

- Restoration of Site – Final restoration of the landscape must be acceptable to the landowner, but within reasonable expectations. Therefore, the restoration of the landscape will be planned for as early as possible during debris management operations.

Douglas County's objective with regards to the potential environmental impact at all sites is to ensure that safety precautions are taken to organize the site in such a way as to provide a safe and organized use of the location throughout the event, and that measures are taken to reduce the chance of ground, air, and water contamination after all the materials have been collected. This objective may be accomplished in a variety of ways and will be the responsibility of the Douglas County Health Department with assistance from other agencies.

Permits

Environmental permits and land-use variances may be required to establish a temporary DMS. Several agencies may be involved in issuing permits and granting land-use approvals. The need for these permits may be satisfied by changes established in a declared disaster in Douglas County; however, a listing of permits that may be necessary include the following:

- Waste processing and recycling operations permit
- Temporary land-use permits
- Land-use variances
- Traffic circulation strategies
- Air quality permits
- Water quality permits
- HHW permits
- Fire department burn permits

Agencies involved in issuing permits and granting land-use approvals includes, but is not limited to, the following:

- Douglas County Health Department
- Lawrence/Douglas County Planning Department
- Douglas County Zoning & Codes Deparment
- Kansas Department of Health and Environment (www.kdheks.gov)
    - Bureau of Waste Management (www.kdheks.gov/waste)
- Kansas Department of Agriculture (http://agriculture.ks.gov/)

Site Design and Preparation

The topography and soil/substrate conditions will be evaluated to determine the best site layout. When planning site preparation, the designer will consider ways to make site closure and restoration easier. For example, if the soil is very thin, the topsoil can be scraped to bedrock and stockpiled in perimeter berms. Upon site closeout, the uncontaminated soil can be re-spread to preserve the integrity of the tillable soils.

Operational Boundaries

These boundaries or areas clearly define the difference in use areas at the DMS. Earthen berms, temporary barriers, or any other physical restriction may be used to aid in traffic circulation and the minimization of amazing debris at the DMS. Common operational areas include the following:

- Reduction
- Recycling
- Tipping areas (unloading) Tipping fees will be waived for County residents and Mutual Aid Assistance.
- Loading areas for processed debris to go to its final destination
- Drop-off centers for the general public (this may include vegetative, recycling, or construction and demolition debris)
- HHW storage
- Monitoring tower locations at both the ingress and egress points
- Equipment, fuel, and water storage

The reduction, recycling, tipping, and loading areas need ample room for large equipment operations. Depending on the scale of the operations, each debris stream may and should have its own tipping area and will be designed accordingly.

General public drop-off areas for recycling, reduction, and construction and demolition debris may be included within the DMS, but will be carefully designed for passenger vehicle traffic and public safety. The HHW storage will be close to the public drop-off center yet restricted so that qualified personnel may process the waste appropriately.

Monitoring towers will be located at ingress and egress points and will be constructed of durable structural materials. The structures will be designed to withstand active and static loads. A stepladder is not an acceptable monitoring tool.

Equipment and fuel, if necessary, will have a designated storage area and signs posted appropriately. The fuel storage areas need to be designed to contain spills. Every effort will be made to have water readily available at all times. Water storage areas will be strategically positioned throughout the site and identified appropriately. Water Storage may come as a

tender truck from a fire department or the local entity overseeing the DMS. Appendix C contains a sample DMS layout with operational boundaries.

Traffic Patterns

The traffic circulation needs to be well defined throughout the entire site. Although traffic signs and barricades aid in directing traffic, flag directors and law enforcement personnel may need to be on site to direct traffic.

Site Management

The management of the DMS will be under the control of local jurisdiction personnel in incorporated areas or Douglas County Public Works in unincorporated parts of the county to ensure operational efficiency and to meet strategic goals.

Site Manager

This position is responsible for supervising the overall day-to-day operations, maintaining daily logs, preparing site progress reports, and enforcing safety and permitting requirements during site operations. Furthermore, the site manager has oversight for monitoring the activities of the debris removal contractors and onsite debris processing contractors to ensure they comply with the terms of their contracts. The site manager is also responsible for site security and traffic control. These functions can be delegated to assigned personnel if appropriate and available.

Debris Monitors

Operational monitors will be placed at ingress and egress points in order to quantify debris loads, issue load tickets, inspect and validate truck capacities, check loads for hazardous waste, and perform quality control checks.

Safety Personnel

Safety personnel are responsible for traffic control and ensuring that site operations are in compliance with Federal and State occupational safety regulations.

Safety

Equipment Safety

Equipment operators will be given specific work procedures, practices, and requirements of the work site, including the recognition, prevention, and control of general safety and health hazards prior to using the equipment. Guidelines for the specific pieces of equipment will follow manufacturer's instructions for safe operation. All safety equipment installed on debris management equipment must be operational and must be used as directed at all times. No safety features will be disabled or removed during use of any debris management equipment. All equipment will be inspected daily prior to operational use to ensure the equipment is safe to operate.

Personal Protective Equipment

All PPE must be checked before each use for serviceability. Personal Protective Equipment that may be necessary includes, but is not limited to the following:

- Eye protection with side shields
- Cut resistant leather work gloves or chemical protective gloves
- Respiratory protection as needed
- Protective footwear
- Hard hat or prescribed head protection equipment
- Personal fall arrest system including harnesses, lanyards, lifelines, connectors, anchorages, as required
- High visibility safety apparel
- Hearing protection
- Leg protection for chainsaw use
- Other incident specific PPE will be requested through the EOC based on guidelines from KDHE and other regulatory agencies.

Barricades should be in place to prohibit the intrusion of foot traffic in a cleanup area where equipment is in use. Cold and Heat Stress related clothing as well as protective shelter from these environments should also be provided. Proper lifting techniques should be used in all situations, including working in pairs.

Safety Regulations

Douglas County and local jurisdiction personnel are subject to the rules and regulations of the Kansas Department of Labor, while contracted personnel are subject to OSHA regulations. However, since these regulations are often tied together, the following list of regulations will be considered before, during, and after all debris management activities.

- 29 CFR 1910.1200 (HazCom)
- 29 CFR 1910.120 (Hazwoper)
- 29 CFR 1910.134 (Respiratory Protection)
- 29 CFR1910.146 (Confined Spaces)
- 29 CFR 1910.1030 (Bloodborne Pathogens)
- 29 CFR 1926.20-35 (General Construction)
- 29 CFR 1910.23 (Fall Protection)
- 29 CFR 1915.159 (Fall Arrest Equipment)
- 29 CFR 1910.132 (Personal Protective Equipment)
- 29 CFR 1910.137 (Electrical Safety)
- 29 CFR 1910.332 (Electrical Safety)
- 29 CFR 1910.147 (Lockout/Tagout)
- All other local, state, and federal regulations.

Health Concerns

Exposure to potentially hazardous conditions may require immunization and/or monitoring from public health experts. Specific considerations include tetanus, hepatitis A, or other vaccines, as recommended by the Douglas County Health Department.

Site Security

The Douglas County Sheriff's Office or local jurisdiction police offices will be responsible for coordinating site security for debris management sites in unincorporated portions of Douglas County. Site security for debris sites falling within local jurisdiction boundaries will be coordinated by each jurisdiction's local law enforcement entities. Options for security include, but are not limited to: a 24-hour law enforcement presence in the form of a static post; security during working hours only, followed by periodic routine checks during non-working hours; or on an as-needed basis only. The affected jurisdiction will provide a liaison to coordinate with the Site Manager over any security related issues.

Monitoring Debris Removal

The purpose of monitoring debris removal is to (1) verify that the work completed by the contractor is within the scope of work of the contract and (2) documentation is provided to ensure operations have meet all local, State, and Federal laws, regulations, and guidelines.

Debris Monitoring Duties

Debris monitors will minimally perform the following roles:

- Measure and certify truck capacities (recertify on a regular basis);
- Complete and physically control load tickets (in monitoring towers and the field);
- Validate hazardous trees, including hangers, leaners, and stumps (use appropriate documentation forms);
- Ensure that trucks are accurately credited for their loads;
- Ensure that trucks are not artificially loaded to maximize reimbursement (i.e., debris is wetted, debris is not compacted, etc.)
- Ensure that hazardous waste is not mixed with loads
- Ensure that all debris is removed from trucks at the DMS
- Report to project manager:
    - Mobilization and use of improper equipment
    - Contractor personnel safety standards are not followed
    - General public safety standards are not followed
    - Completion schedules are not on target
    - Debris removal work does not comply with all local, State, and Federal ordinances and regulations
- Ensure that only debris specified in the scope of work is collected and identify work as potentially eligible or ineligible;
- Monitor site development and restoration of DMS;
- Ensure daily loads meet permit requirements; and
- Ensure that work stops immediately in an area where human remains or potential archeological deposits are discovered.
- Ensure the route to the DMS is free of debris that may have fallen off trucks while hauling to the site. Might need a clean up crew that just follows the route on an hourly basis picking up fallen debris.

Debris Monitoring Methods

Additional documentation requirements depend on how the debris is collected and processed. The following methods and systems may be used to monitor and document the work completed by Douglas County resources and/or by contractors.

Debris Monitoring Reports – This type of report is important for time-and-materials contracts that may be used during the response phase of the operations. Monitoring documentation for time-and-materials contracts includes:

- Actual labor hours worked
- Actual equipment hours operated
- Type and specification of equipment used

Truck Certification Form – This type of report allows the monitor to identify the truck itself and its hauling capacity in a standardized manner. The standard list of requirements includes:

- Size of hauling bed in cubic yards
- License plate number
- Truck identification number assigned by the owner
- Short physical description of the truck

Recertification of the hauling trucks on a random and periodic basis will be implemented for contract compliance and reimbursement considerations. Appendix P contains a sample truck certification form.

Load Ticket System – The term "load ticket" refers to the primary debris-tracking document. A load ticket system tracks the debris from the original collection point to the DMS or landfill. By positioning debris monitors at each point of the operations (collection, DMS, and/or final disposition), the eligible scope of work can be properly documented.
Each monitor keeps a copy of the load ticket and the driver/contractor keeps two copies for billing purposes. Appendix M includes a copy of the load ticket that may be used by Douglas County personnel during debris management personnel.

Each load ticket will be printed as a five-part form with the following jurisdictional origin numbering system:

JURISDICTION	NUMBERING CODE
Douglas County	DC
Lawrence	LW
Eudora	EU
Baldwin City	BC
Lecompton	LC
Clinton Township	CT
Eudora Township	ET
Grant Township	GT
Kanawaka Township	KT

Lecompton Township	LT
Marion Township	MT
Palmyra Township	PT
Wakarusa Township	WT
Willow Springs Township	WST
University of Kansas	KU

Part 1 (White) Load Site Monitor (turned in daily to the DMC)
Part 2 (Green) Disposal Site Monitor (turned in daily to the DMC)
Part 3 (Canary) Driver or Contractor's on-site representative (Contractor Copy)
Part 4 (Pink) Driver or Contractor's on-site representative (Contactor Copy)
Part 5 (Gold) Driver or Contractor's on-site representative (Driver/Subcontractor Copy)

Monitoring Tips

Contractors must always be monitored closely to ensure compliance with the scope of work. Annex M includes monitoring tips that address common types of contractor abuse.

Methods of Material Reduction

There are three main types of reduction methods to consider and use during debris management operations; incineration, chipping/grinding, and recycling. The type(s) used will be based operational goals, site availability, and personnel availability.

Incineration – Burning vegetative debris is a very common reduction method because it has up to a 95% reduction rate. The incineration process requires a minimum of three steps, to include:

- Unloading the debris
- Moving the debris into an incinerator
- Removing the ash from the incinerator to final disposition, which may be an appropriately constructed area at the DMS or a landfill

There are several incineration methods available for volume reduction.

Uncontrolled Open-Air Incineration – This method reduces debris with no control over how much or how quickly it is allowed to burn. The use of this type of reduction will be limited to early in the disaster due to its lack of environmental control.

Controlled Open-Air Incineration – This method reduces vegetative debris by burning debris within a contained fixed area. This reduction can be used freely because it presents little environmental damage and is cost-effective.

Air Curtain Pit Incineration – This method effectively expedites the volume reduction process while substantially reducing the environmental concerns caused by open-air incineration. Specifically, this type of reduction uses a pit constructed by digging below grade or building above grade and using a blower unit. The burning chamber is usually no more than 8 feet wide and 9-14 feet deep.

Portable Air Curtain Incinerators – This method uses the same concept as air curtain pit incineration, except this method utilizes pre-manufactured pits rather than onsite constructed earthen pits. These types of incinerators are the most efficient because they have been pre-engineering to precise dimensions to complement the blower system.

Setbacks and buffer zones need to be established within and around the reduction sites not only for the public safety, but also for the safety of debris operations. A setback of at least 100 feet will be maintained between the debris piles and the incineration area. More over a buffer zone will be established between the incineration area and the nearest building to create room for emergency vehicles to maneuver, ideally of at least 1,000 feet. All burning operations are subject to environmental regulations set forth in K.A.R. 28-19-647(d.-e.).

Chipping/Grinding – This method calls for the vegetative debris to be chipped or grinded. This method reduces volume by 75%. Because of the remaining volume, the benefit of this reduction method is increased by identifying alternate use of residual material such as recycled wood chips used for agricultural purposes or as fuel for industrial heating. Plastics will be eliminated completely from debris prior to performing this method.

Recycling – This method captures pre-identified types of debris materials for recycling and/or reuse. Currently, Douglas County has the capability to recycle metals such as aluminum, tin, and various other scrap metals. Community recycling centers are currently available in Douglas County for residential-type recycling, e-waste, and household hazardous waste. Douglas County does not have a construction and demolition debris recycling program.

Site Closure

When the site operations are complete, the property must be restored to its original condition before returning the site to the property owner. This restoration includes the removal of all traces of operations and possible remediation of any contamination that may have taken place during the operations. The site, whether owned or leased by the jurisdiction, must be brought as close as possible back to its previous environmental state,

The final environmental site evaluation is an extension of the environmental monitoring program. Similar testing as completed in the baseline study will be conducted to confirm that the site has been returned to its pre-activity state. Test samples will be taken at the same locations as those of the initial assessment and monitoring program. Based on the results of the testing, additional remediation may be required.

All operational documentation will be collected and organized and then submitted to Douglas County Emergency Management for review. If needed, these documents will be incorporated into disaster reimbursement request per pre-determined processes established by county policy.

VI. Contracted Services

It may be necessary to contract for debris removal services if the magnitude of the disaster is beyond the capabilities of local jurisdictions, Douglas County, mutual aid agreements, and volunteer labor. Douglas County jurisdictions will follow the Board of County's Commissioners Resolution or City's Ordinance for all emergency procurement rules, regulations, limitations, and exceptions.

Type of Contract

If additional contracted labor is needed during debris management operations, additional contracts may need to be instituted. The following list of contract types may be instituted per Douglas County procurement policies.

Lump Sum – Work within a prescribed boundary with a clearly defined scope (including finite timeframe) and a total price. There are two common uses of the lump sum contract which are as follows:

Area Method – This technique defines the geographical boundary in which the debris is to be collected. By providing geographical boundaries, the quantity of debris may be forecasted ore estimated based on topography and land use.

Pass Method – This technique describes the number of times debris will be collected from the curbside within a specified geographical boundary. Limiting the number of passes for an area keeps the scope of work known.

The advantage of a lump sum contract is that the total price for the specified work is known at the time the bids are opened. Appendix E summarizes the lump sum structure, provisions, advantages, disadvantages, monitoring, and documentation.

Unit Price – Work done on an item-by-item basis with cost determined per unit. The quantities of work to be completed are estimated by Douglas County and included in the bid solicitation process. The estimated quantity of work described in the bid solicitation can be adjusted to reflect a more accurate quantity when debris operations are under way and the true extend of the disaster is realized. Appendix D summarizes the unit price structure, provisions, advantages, disadvantages, monitoring, and documentation.

Time and Materials – Contractor bills the local jurisdiction for labor, equipment, materials, and overhead. This type of contract is used when the scope of work necessary to achieve an outcome is unknown. Moreover, this type of contract establishes hourly rates for labor and equipment that will be used to perform specific tasks. Solicitation for a time and materials contract will include

descriptions of the types of work items that would be required for debris removal, debris processing, and recycling.

The contracting jurisdiction will establish the maximum number of hours this type of contract can work or set a ceiling of no more than 70 hours of actual work. The contracting jurisdiction will carefully monitor these contracts by requiring contractors to provide daily work reports and other control measure as deemed necessary.

This type of contract is typically only used for initial emergency work or when there are complex life-saving activities dependent on the removal of debris. Appendix F summarizes the time and materials structure, provisions, advantages, disadvantages, monitoring, and documentation.

General Contract Provisions

To protect the interests of Douglas County or the contracting jurisdiction, specific items will be included in the contract to minimize the potential conflicts with the contractor. These items include the following:

- *Basis of payment* – Basis of payment is usually based on the volume and/or weight of the contractor's loads

- *Duration of the contract* – To ensure that debris removal is conducted expeditiously, the contract will include specific timelines for work to be completed

- *Performance measures* – The jurisdiction will implement progress payments for services as specific performance tasks have been meet and documented.

- *Agreement to restore collateral damage* – A contract provision will include a requirement that the contractor is to restore and/or repair (at the contractor's cost) all damaged infrastructure back to pre-existing conditions if the damage was caused by their activities

- *Termination for convenience* -- This clause allows Douglas County the ability to terminate the contract if the contractor does not deliver services in the manner delineated in the contract.

- *Conflict resolution process* – This contract provision will include alternatives for mediation should an issue prove difficult to solve.

Contract Scope of Work

Will reference one of the following:

- Eligible Work
- Work eligible under FEMA Public Assistance regulations, policies, and guidance
- Work performed on public property and/or public rights-of-way

Units of work must be viewed uniformly to prevent work on one piece of debris on multiple occasions (ex: removing a leaning portion and the cutting the stump to the ground cannot be two separate unit costs).

Contract Limitations & Misconceptions

- Avoid "piggyback contracts" with neighboring jurisdictions
- Use caution with shared contracts
- Cost plus percentage of cost contracts will not be used
- Avoid contracts with any phrase that implies, insinuates, or otherwise uses phrases that indicate FEMA pre-approval

Emergency Contracting & Procurement Procedures

Douglas County

- Emergency Repairs and/or Purchases. The County Administrator and/or Assistant County Administrator shall have the authority to authorize emergency repairs and/or purchases in an amount up to $20,000 without the solicitation of bids/proposals. The county Administrator shall also be responsible for notifying the Board of County Commissioners at the next regularly scheduled County Commission meeting that such an emergency purchase was made.
- Declared Emergency Situations. The County Administrator or his/her designee may make or authorize others to make emergency purchases without monetary limit when there exists a threat to public health, welfare, or safety under declared emergency conditions. Prior to the authorization, approval must be received from the Chairman of the Board of County Commissioners; in the event of the absence of the Chari, the approval shall be received from the Vice Chair or the Member. Where possible, such competition as is practical under the circumstances shall be attempted.

Eudora

- In the manner provided in this article, and in accordance with the rules and regulations established hereunder: (a) All contracts for construction and repairs and all purchases for and contracts for supplies, materials, equipment, and contractual services shall be based on sealed competitive bids, except that sealed competitive bids need not be obtained: …(2) When, in judgment of the Department Head, an emergency requires immediate delivery of supplies, materials, or equipment, or immediate performance of services; or…
- The entire Emergency Contracting/Procurement Procedures for Eudora can be found in their 2008 Mitigation Plan.

Lawrence

- Emergency Purchases means purchasing of the supplies, services, or construction where the urgency of need does not permit the delay in utilizing formal competitive selection methods. The City Manager or a designee may

make or authorize others to make emergency purchases when there exists a threat to public health, welfare, or safety under emergency conditions provided that such emergency purchases shall be made with such competition as is practical under the circumstances.

Pre-Qualified Contractors

Jurisdictions within Douglas County worked together to develop a list of potential contractors and vendors in the event of a disaster. A copy of the spreadsheet is found in Appendix Q. Each city or county public works department has developed its own list of pre-qualified contractors. The lists were obtained using the respective jurisdiction's procurement policies and by the previous contract work with the particular company. The lists are maintained by the respective public works departments.

VII. Private Property Demolition and Debris Removal

As stated elsewhere in this plan, it is the intention of Douglas County to collect debris located and/or placed in curbside rights-of-way and county staff, contractors or other representatives will not enter onto private property to collect such debris. In the event that damage is not abated and/or debris is not removed and such conditions are deemed to constitute a dangerous, health, or nuisance condition, necessary authority will be provided by the Douglas County Board of Commissioners.

If deemed appropriate due to the scope of the disaster and/or debris generated by such a disaster, the County Board of Commissioners along with City Officials may take additional formal executive action to authorize collection of debris on private property provided such authorization ensures that the applicable property owner(s) execute a waiver or release of liability developed by Douglas County in coordination with FEMA or other applicable State & Federal agencies.

Prior to any removal of debris from the private property, the following documentation will be sent to FEMA's Federal Coordinating Officer (FCO):

- Documentation confirming the existence of an immediate threat on public property (44 CFR 206.224(a));
    - Immediate threat to life, public health, and/or safety
    - Immediate threat to improved property determination
    - Removal will expedite economic recovery of the jurisdiction
- Documentation of the legal authority to enter that property (44 CFR 206.223(a)(3);
- Documentation that a legally authorized official has ordered the exercise of public authority to enter private property to perform debris removal (44 CFR 206.223(a)(3); and
- Indemnification for the Federal government and its employees, agents, and contractors from any claims arising from the removal of debris (44 CFR 206.9).

The FCO will approve or disapprove in writing the jurisdiction's request. If approval is granted, debris removal can begin with the pre-determined scope of work; however the following documents will be created during debris management operations:

- *Right-of-Entry* – This document must be signed by the property owner and will include a hold harmless agreement and indemnification applicable to the project's scope of work.

- *Physical Documentation* – Photos will be taken to show the condition of the property prior to the beginning of the work. Pictures will document the address and scope-of-work on the private property.

- *Private Property Debris Removal (PPDR) Assessment* – A property specific assessment will be created to establish the scope of eligible work. The PPDR can be a map or other documentation system that serves as a guide indicating the location of the eligible items of work that present an immediate threat relative to the improved property or rights-of-way.

- *Documentation of Environmental and Historic Review* – Documents environmental and historical preservation compliance as established in 44 CFR Parts 9 and 10 as well as any relevant Kansas or Douglas County resolution, Statute, or ordinance.

Additional documentation may be required by the FCO on a case-by-case basis to demonstrate the proposed work is in compliance with all Federal, State, and local laws and regulations.

VIII. Public Information Plan

Distribution Strategy

Public information related to debris management will be submitted to the public in as many ways as possible. Although there will be an operational public information officer designated by the Debris Project Manager, this position will work in cooperation with the Douglas County Public Information Officer to facilitate the distribution of public information. The following communication vehicles will be considered when performing this function:

- Media – This includes local television, radio, newspapers, Social Media, or community newsletters that reach the impacted area(s).
- Internet Sites – Information will be posted to the affected jurisdiction's webpage where applicable.
- Douglas County Notification System – Information can be sent directly to residents who have signed up for emergency alert notifications through the local notification system.
- Public forums – This includes interactive meetings at a local government building(s).
- Direct Delivery Products – This includes door hangers, direct mail, fact sheets, flyers within bills, billboards, etc.

Using these various communication methods will ensure the distribution of information even if power, utilities, and other infrastructure have been damaged during the disaster. Providing this information to the workers in the field is also a critical way to distribute vital information.

Through the listed mechanisms, the public will be encouraged to do the following:

- Separate debris materials – burnable materials, non-burnable materials, household hazardous waste (HHW), and recyclable materials;
- Place separated materials at local curbside;
- Keep debris materials from fire hydrants;
- Report illegal debris material dump sites; and
- Review all debris removal routes and schedules

Each jurisdiction will be responsible for printing all materials needed for debris management activities. If operational demands exceed the capabilities of the local jurisdiction, contractors or mutual aid may be required to supplement the printing of the necessary items.

IX. Plan Maintenance

As a support annex to the Douglas County Emergency Operations Plan, this Plan will be reviewed on an annual basis for necessary changes or additions to continue to meet operational and legal requirements.

X. Acronyms

DAT	Damage Assessment Team
DMS	Debris Management Site
DPM	Debris Project Manager
FCO	Federal Coordinating Officer
FEMA	Federal Emergency Management Agency
GIS	Geographic Information System
HHW	Household Hazardous Waste
KDEM	Kansas Department of Emergency Management
KDHE	Kansas Department of Health and Environment
NRCS	National Resources Conservation Service
PPE	Personal Protective Equipment
TDMS	Temporary Debris Management Site
USACE	United States Army Corp of Engineers
USDA	United States Department of Agriculture
VCM	Vegetative Cover Multiplier
WMD	Weapon of Mass Destruction

XI. Definitions

Disaster-generated debris: Any material, including trees, branches, personal property and building material on public or private property that is directly deposited by the disaster.

Improved property: Any structure, facility, or equipment that was built, constructed, or manufactured. Examples include houses, sheds, car ports, pools, and gazebos. Land used for agricultural purposes is not improved property.

Legal responsibility: A statute, formally adopted State or local code, or ordinance that gives local government officials responsibility to enter private property to remove debris or to perform work to remove an immediate threat.

Private property: Land and structures, to include contents within the structures, built on land that is owned by non-governmental entities.

Private road: Any non-public road for which a subdivision of the State is not legally responsible to maintain. Private roads include roads owned and maintained by homeowners associations, including gated communities, and roads for which no entity has claimed responsibility. Local police, fire, and emergency medical entities may use these roads to provide services to the community.

XII. Appendices

Appendix A: Hazardous Stump Worksheet
Appendix B: Stump Conversion Table
Appendix C: Sample DMS with Operational Boundaries
Appendix D: Unit Price Contract Summary Matrix
Appendix E: Lump Sum Contract Summary Matrix
Appendix F: Time and Materials Contract Summary Matrix
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Appendix I: Monitoring Staff Assignments
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Appendix N: Douglas County Permanent Debris Sites
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Hazardous Stump Worksheet

Applicant: _____ Date: _____

Applicant Representative: _____ Signature: _____

FEMA Representative (if available) _____ Signature: _____

State Representative (if available):_____ Signature: _____

	Physical Location (i.e., Street address, road, cross streets, etc.)	Description of Facility (ROW, Park, City Hall, etc.)	Hazard		GPS (decimal degrees, 00.000000)		Tree Size (Diameter)	Eligible		Fill For Debris Stumps	Comments (See attached sketch, photo, etc.)
			Yes	No	Latitude (N)	Longitude (W)		Yes	No	CY	
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											

APPENDIX B: Stump Conversation Table

Stump Conversion Table

Diameter to Volume Capacity

The quantification of the cubic yards of debris for each size of stump in the following table was derived from FEMA field studies conducted throughout the State of Florida during the debris removal operations following Hurricanes Charley, Frances, Ivan and Jeanne. The following formula is used to derive cubic yards:

$$\frac{[(\text{Stump Diameter}^2 \times 0.7854) \times \text{Stump Length}] + [(\text{Root Ball Diameter}^2 \times 0.7854) \times \text{Root Ball Height}]}{46656}$$

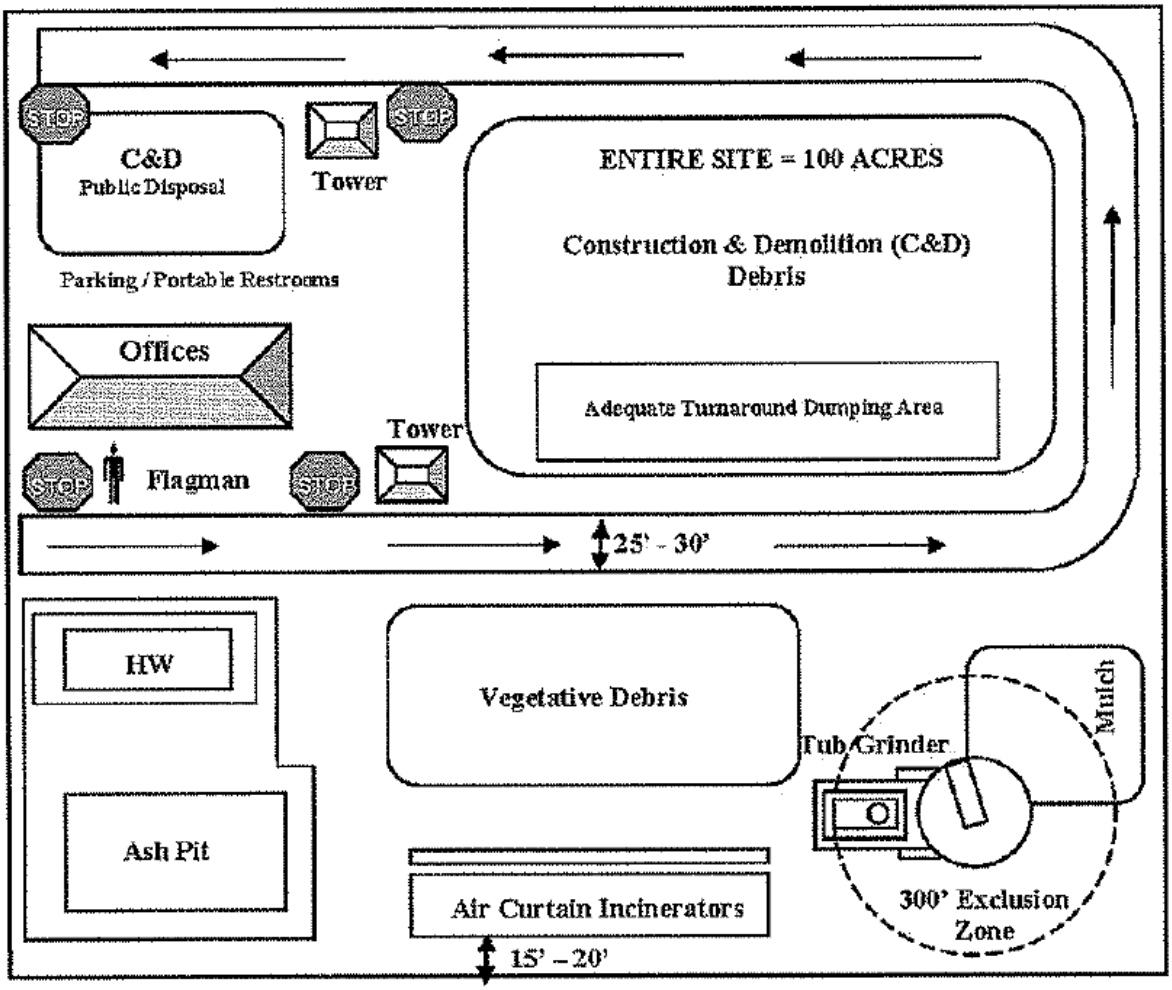
0.7854 is one-fourth Pi and is a constant.
46656 is used to convert cubic inches to cubic yards and is a constant

The formula used to calculate the cubic yardage used the following factors, based upon findings in the field:

- Stump diameter measured two feet up from ground
- Stump diameter to root ball diameter ratio of 1:3.6
- Root ball height of 31"

Stump Diameter (Inches)	Debris Volume (Cubic Yards)	Stump Diameter (Inches)	Debris Volume (Cubic Yards)
6	0.3	46	15.2
7	0.4	47	15.8
8	0.5	48	16.5
9	0.6	49	17.2
10	0.7	50	17.9
11	0.9	51	18.6
12	1	52	19.4
13	1.2	53	20.1
14	1.4	54	20.9
15	1.6	55	21.7
16	1.8	56	22.5
17	2.1	57	23.3
18	2.3	58	24.1
19	2.6	59	24.9
20	2.9	60	25.8
21	3.2	61	26.7
22	3.5	62	27.6
23	3.8	63	28.4
24	4.1	64	29.4
25	4.5	65	30.3
26	4.8	66	31.2
27	5.2	67	32.2
28	5.6	68	33.1
29	6	69	34.1
30	6.5	70	35.1
31	6.9	71	36.1
32	7.3	72	37.2
33	7.8	73	38.2
34	8.3	74	39.2
35	8.8	75	40.3
36	9.3	76	41.4
37	9.8	77	42.5
38	10.3	78	43.6
39	10.9	79	44.7
40	11.5	80	45.9
41	12	81	47
42	12.6	82	48.2
43	13.3	83	49.4
44	13.9	84	50.6
45	14.5		

APPENDIX C: Sample DMS Layout with Operational Boundaries



APPENDIX D: Unit Price Contract Summary Matrix

Unit Price Contract Summary Matrix						
Type of Contract	**Structure and Use**	**Required Provisions**	**Advantages**	**Disadvantages**	**Monitoring**	**Documentation**
UNIT PRICE	Uses units of measure (cubic yards, tons, each) and prices to develop line item costs and total contract costs	Specific documentation requirements, based on quantifiable units, such as load tickets, and payment	Scope of work may be adjusted easily at a known cost	Possibility of contractor fraud if operations are not closely monitored	Labor intensive	Load ticket system
	Used when scope of work is difficult to quantify. The bid proposals are based on applicant-estimated quantities and units of work		Accurate account of actual quantities when work is complete	Trucks require measurement and loads accurately documented		Monitors at collection points and where the debris is unloaded (DMS or final disposition)
			Simplicity of contract encourages competition	Segregated curbside collection may complicate the scope of work		
			Low risk for contractors			

APPENDIX E: Lump Sum Contract Summary Matrix

Lump Sum Contract Summary Matrix

Type of Contract		Structure and Use	Required Provisions	Advantages	Disadvantages	Monitoring	Documentation
LUMP SUM	All Lump Sum	Establishes a fixed contract based on the applicant scope of work specified in the bid solicitation Used when the scope of work is clearly defined by the applicant, including quantity, type, and location of debris	Specific process for a change order request, exact quantity of debris, and types of debris. Provision to cover if the collection or unloading location changes after the contract is awarded	Cost is established at the bid opening Easy to determine when the work is complete	Scope of work must be very specific to avoid change orders Often difficult to quantify debris and identify the types of debris requiring collection	Minimum	Amount of debris collected, reduced/ recycled, and disposed will be required to establish reasonable price
	Collection - Area Method	Used when a well defined area can be provided for bidding purposes	Specific process for a change order request, exact quantity of debris, and types of debris. Provision to cover if the collection or unloading location changes after the contract is awarded		Scope of work has to be accurately quantified to minimize change orders Estimating the amount of debris to be brought to the rights-of-way difficult to determine High probability of change orders if estimates are based on speculation	Minimum	Amount of debris collected, reduced/ recycled, and disposed will be required to establish reasonable price
	Collection - Pass Method	Defines how many times a curbside collection will be completed on a particular street or through a well defined area	Specific process for a change order request, exact quantity of debris, and types of debris. Provision to cover if the collection or unloading location changes after the contract is awarded	Possibility of fewer change orders since the scope of work is better defined Average management duties	Up-to-date street information and plans to be included in the scope of work Requires cooperation of the public to place only eligible debris at the curb and participate in segregating materials Intense public information campaign	Minimum	Amount of debris collected, reduced/ recycled, and disposed will be required to establish reasonable price

APPENDIX F: Time and Materials Contract Summary Matrix

Time-and-Materials Contract Summary Matrix						
Type of Contract	**Structure and Use**	**Required Provisions**	**Advantages**	**Disadvantages**	**Monitoring**	**Documentation**
TIME-AND-MATERIALS	Paid on an hourly rate for labor, materials, and equipment	Capped by the period of performance and/or monetary ceiling	Good for response activities	Requires close contractor oversight and direction as to work to be performed	Labor Intensive	Intense
	A known quantity of work is not established prior to the contractor beginning work	Price for equipment applies only when the equipment is in use	Extremely flexible; not limited by a specific scope of work	Requires documentation of actual hours worked by equipment and operators		Actual labor and equipment must be accounted for during entire performance period
		Hourly rate for equipment includes fuel, maintenance, and repair	Range of uses; appropriate clearance of major access routes or roads to critical facilities	Reasonable hourly rates may be difficult to establish if not competitively bid		
		Bids should include all overhead costs		Equipment specifications may have to be generalized in order to encourage competition		
		Specific hours the contractor is to perform work (to ensure monitoring staff is present to document activity)		Requires full-time trained monitors to document work completed and verify hours worked		
		No guarantee of a minimum number of hours				
		If multiple contracts are awarded, the period of performance should run concurrently rather than consecutively				

APPENDIX G: Operational Safety Awareness & Regulations

Potential Hazards

Douglas County responders along with contracted workers may face the following potential hazards while performing debris management operations:

• Unstable work surfaces	• Roadside work
• Structural integrity	• Driving
• Flying debris (eye injuries)	• Breathing dust
• Heavy equipment	• Falling Ice & Debris
• Electrical	• Carbon monoxide
• Excessive noise	• Smoke inhalation
• Falls from heights	• Potential chemical exposures
• Molds	• Bites and stings
• Blood-borne diseases	• Water and food sanitation
• Personal sanitation and Hygiene	• Traumatic stress
• Confined spaces	

Safety Regulations

Douglas County personnel are subject to the rules and regulations of the Kansas Department of Labor, while contracted personnel are subject to OSHA regulations. However, since these regulations are often tied together, the following list of regulations will be considered before, during, and after all debris management activities.

- 29 CFR 1910.1200 (HazCom)
- 29 CFR 1910.120 (Hazwoper)
- 29 CFR 1910.134 (Respiratory Protection)
- 29 CFR 1910.146 (Confined Spaces)
- 29 CFR 1910.1030 (Bloodborne Pathogens)
- 29 CFR 1926.20-35 (General Construction),
- 29 CFR 1910.23 (Fall Protection),
- 29 CFR 1915.159 (Fall Arrest Equipment)
- 29 CFR 1910.132 (Personal Protective Equipment),
- 29 CFR 1910.137 & 29 CFR 1910.332 (Electrical safety),
- 29 CFR 1910.147 (Lockout/Tagout), and
- All other local, State, or Federal safety regulations.

Health Concerns

Exposure to potentially hazardous conditions may require immunization and/or monitoring from public health experts. Specific considerations include tetanus, hepatitis A, or other vaccines as recommended by the Douglas County Public Health Department.

APPENDIX H: Debris Removal and Disposal Monitoring Plan Example

GENERAL

All jurisdictions within Douglas County have entered into a contract with _____ for the purpose of:

Removing vegetative debris from rights-of-way and temporary debris staging sites and hauling the vegetative debris to a temporary debris storage and reduction site.

Setting up and operating one debris volume reduction site located at _____

Hauling chips/mulch from the debris volume reduction site to _____ Landfill or a location of the Debris Manager's choosing.

The Debris Manager will be responsible for monitoring the Contractor's debris removal and disposal activities using municipal and _____ personnel to prepare Debris Load Tickets and contract oversight.

PURPOSE

The purpose of this plan is to outline the monitoring responsibilities of the municipality's Debris Contract Oversight Team personnel. This plan is subject to revision based on changing conditions.

MONITORING OPERATIONS

The Contractor will be responsible for removing all eligible vegetative debris from the affected jurisdiction's street rights-of-way and hauling limbs, branches, and yard wastes to designated sites at _____.

Tree trunks greater than two feet in diameter and root balls will be hauled directly to the designated sites at _____.

Monitoring activities will be controlled by the Debris Manager from the Debris Management Center. Phone number for the Debris Manager is (ADD PHONE NUMBER). Day-to-day operations and contracting problems/questions should be directed to the Debris Manager.

The Debris Contract Oversight Team Monitor's workday is expected to be from 7 a.m. – 7 p.m., with one hour for lunch or maximum of 12 hours/day, seven days per week.

Monitors will be responsible for initiating Debris Load Tickets at Contractor debris loading sites and estimating and recording the quantity of debris, in cubic yards, of Contractor vehicles entering the TDSRS on Debris Load Tickets.

APPENDIX I: Monitoring Staff Assignments

Monitoring assignments and personnel names should be recorded in the following table.

Monitory Site	Municipality	Monitory Contractor

APPENDIX J: Debris Loading Site Monitoring Checklist

Date: _____

Arrival Time: _____ Departure Time: _____ Weather Conditions:_____

Loading Site Location: _____

(Street address or nearest intersection)

GPS Location: N_____; W_____

Loading Site Monitor's Name: _____

(Print Name)

Roving Monitor's Name: _____

(Print Name)

_____

(Signature)

Loading Site

1. Is the Site Monitor filling out the Load Ticket properly? Yes ___ No ___ If NO, explain actions taken:

_____
_____

2. Is the Contractor loading eligible debris from the designated right-of-way (approximately 15 feet from curb)? Yes ___ No ____ If NO explain actions taken:

_____
_____

3. Is the Contractor loading trucks to capacity? Yes ____ No ____

If NO explain actions taken:

_____
_____

4. Identify Contractor's truck numbers observed while on site:

_____

5. Were photographs taken at the loading site? Yes ____ No ____

If YES, list photo log number: _____ _____ _____

General Notes and Comments: (Include observations within the general area as to overall cleanup activities)

_____
_____
_____
_____(Use reverse side if necessary)

APPENDIX K: Debris Monitoring Tips

Debris monitoring is a critical piece of the overall operation. By avoiding the following fraudulent acts, operational compliance is maintained.

Inaccurate Truck Capacities – Trucks will be measured before operations and load capacities will be documented by truck number. Periodically, trucks will be pulled from operations and reassessed.

Trucks Not Fully Loaded – Do not accept the contention that loads are higher in the middle and if level would fill the truck.

Trucks Lightly Loaded – Trucks arrive loaded with treetops with extensive voids in the load. Trucks need to be loaded to their full capacity with front end loaders or other similar equipment.

Trucks Overloaded – Trucks cannot receive credit for more than the measured capacity of the truck or trailer bed even if material is above the sideboards.

Changing Truck Numbers – Trucks are listed by an assigned vehicle number and capacity. There have been occasions where truck or trailer numbers with a smaller carrying capacity have been changed to one with a larger capacity. Periodically re-measuring the trucks will identify this issue.

Reduced Truck Capacity or Increased Truck Weight – There have been occasions where trucks have had heavy steel grating welded two to three feet above the bed after being measure, thus reducing the capacity or inflating the weight of the load. Periodically re-measuring the trucks will identify this issue.

Wet Debris When Paid by Weight – Excessive water added to debris will increase the weight of the load. When the contractual unit cost is based on weight, this increases the cost to Douglas County. This can be detected during monitoring if there is excessive water dripping from the truck bed.

Multiple Counting of the Same Load – Trucks have been reported driving through the disposal site without unloading, then re-entering with the same load. This can be detected by observing the time of departure and the time of arrival recorded on the driver's load ticket.

Picking up Ineligible Debris – Monitors will have a good understanding of eligible debris and any time limits imposed on picking up specific types of debris.

APPENDIX L: Debris Disposal Site Monitoring Checklist

Date: _____

Arrival Time: _____ Departure Time: _____ Weather Conditions:_____

Disposal Site Location: _____

(Street address or nearest intersection)

GPS Location: N_____; W_____

Disposal Site Monitor's Name: _____

(Print Name)

Roving Monitor's Name: _____

(Print Name)

_____

(Signature)

Disposal Site

1. Is the Disposal Monitor filling out the Load Ticket properly? Yes ___ No ___ If NO, explain actions taken:

_____
_____

2. Is the Disposal Monitor attaching a copy of the Weight Ticket to the Load Ticket?

Yes ___ No ____ If NO explain actions taken:

_____
_____

3. Are the Contractor's trucks loaded to capacity? Yes ____ No ____

If NO explain actions taken:

_____
_____

4. Identify Contractor's truck numbers observed while on site:

_____

5. Were photographs taken at the loading site? Yes ____ No ____

If YES, list photo log number: _____ _____ _____

General Notes and Comments: (Include observations within the general area as to overall cleanup activities)

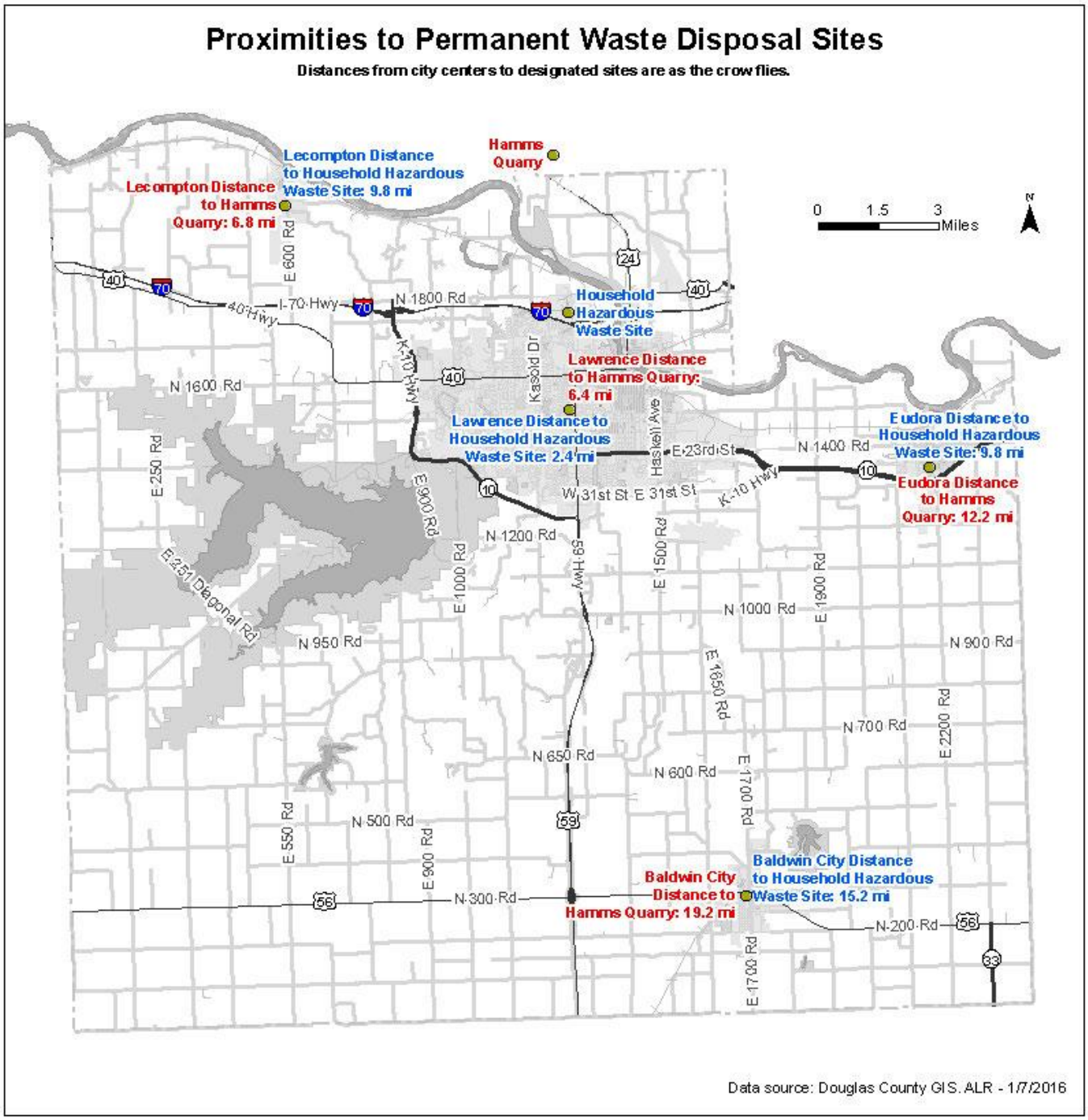
_____
_____
_____
_____(Use reverse side if necessary)

Appendix M: Sample Douglas County (KS) Debris Load Ticket

DEBRIS LOAD TICKET	
Task Order Number:	
Name of Affected Jurisdiction:	
Ticket Number:	
Contractor's Name:	
Driver's Name:	
Truck/Trailer Number:	
Measured Bed Capacity in Cubic Yards:	
Departure Date:	Departure Time:
Pickup Site Location (must be street address or nearest intersection): DOT System Road:	
Public Access Road:	
Federal Highway:	
Other:	
Type of Debris:	
	Burnable or Grindable (Clean Wood Debris)
	Non-Burnable (Treated Lumber, Metals, C&D)
	Mixed (Burnable and Non-Burnable)
	Other (Define)
Loading Site Monitor: Signature:	
Debris Management Site Location:	
Arrival Time:	
Estimated Volume of Debris in Truck/Trailer: Cubic Yards	
Debris Management Site Monitor: Signature:	
Remarks	

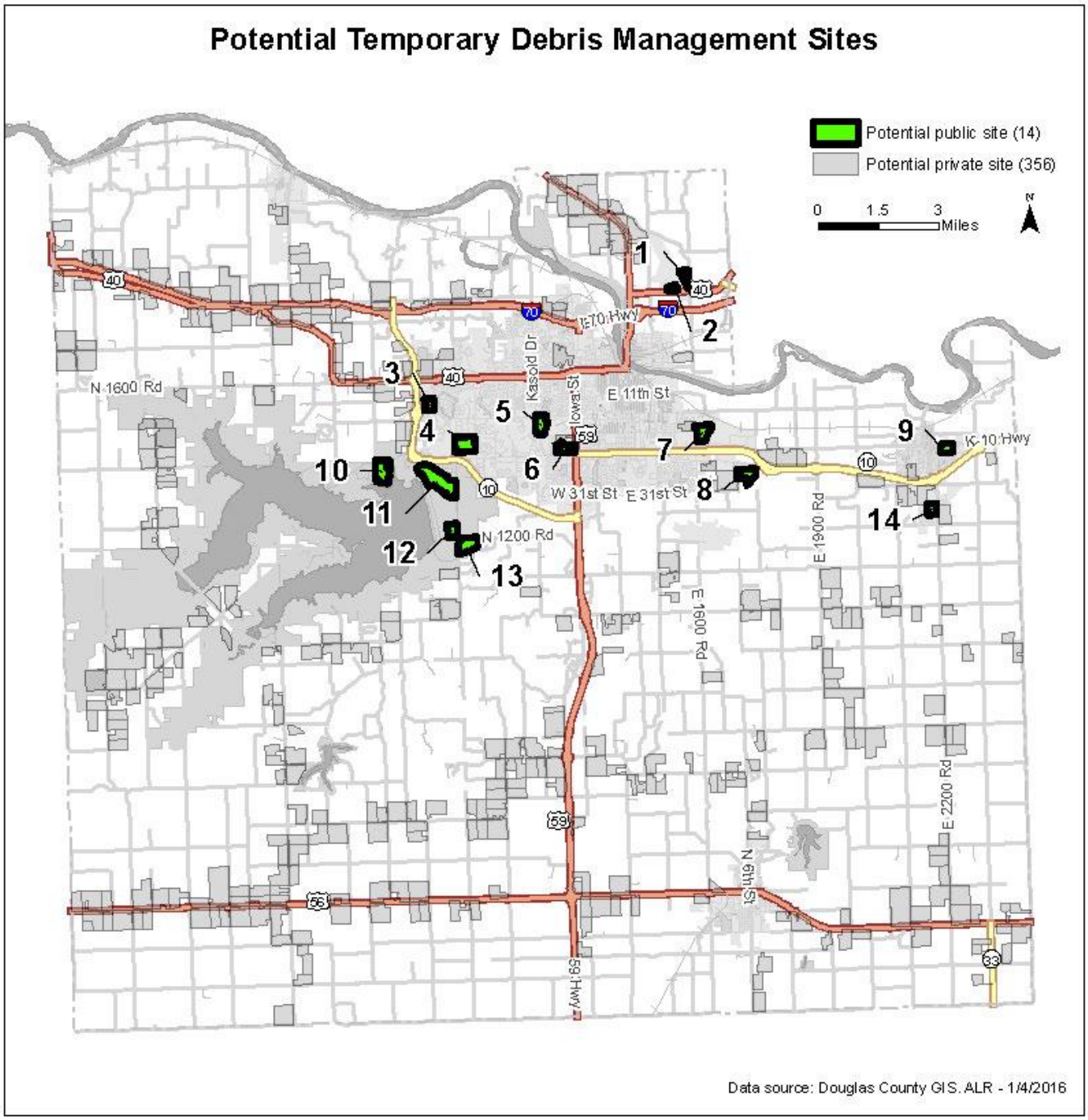
APPENDIX N: Douglas County Permanent Debris Sites

Douglas County has identified two permanent sites that may be used for the storage, reduction, and overall management of disaster-related debris. The sites are listed on the following map and include distances from major jurisdictions in the county.



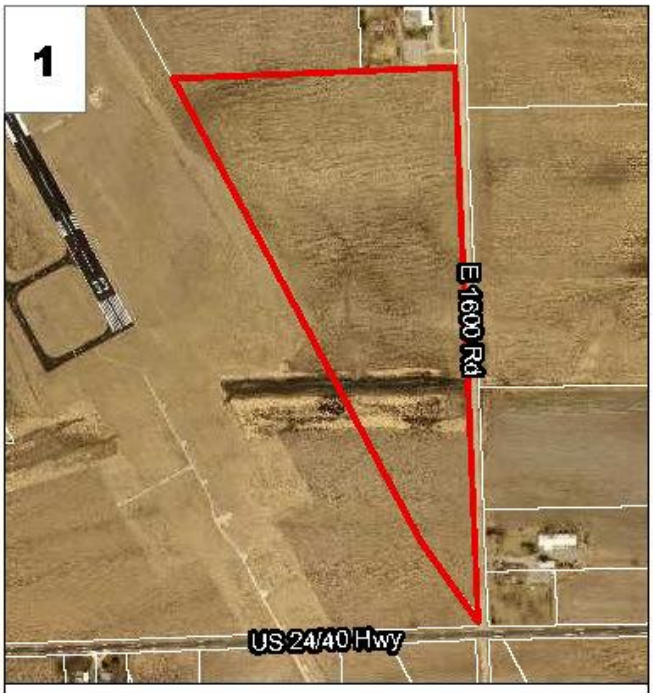
APPENDIX O: Potential Temporary Debris Management Sites (TDMS)

Douglas County has identified numerous sites that may be used for the temporary storage, reduction, and overall management of disaster-related debris until final disposition is made at a permanent landfill. The sites are listed on the following map.

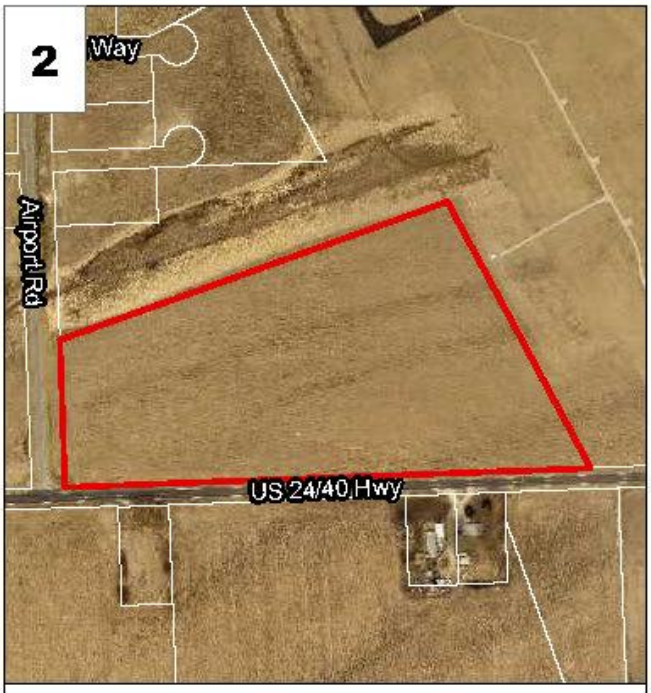


Potential Temporary Debris Management Sites on Public Land

See section V of this report for the criteria used when selecting potential debris collection sites. Data source: Douglas County GIS. 1/4/2016 - ALR



PIN: all of 074-17-0-00-00-008.00-0
Address: none
Owner: KU Endowment Assn
Acreage: 40.84



PIN: part of 074-17-0-00-00-004.00-0
Address: 1930 Airport Rd
Owner: City of Lawrence
Acreage: 20.04

PIN: 3 parcels combined
Address: 1101 George Williams Way
Owner: USD 497 & Sec of Trans
Acreage: 44.27

PIN: part of 112-04-0-30-01-001.00-0
Address: 2001 Wakarusa Dr
Owner: City of Lawrence
Acreage: 117.28

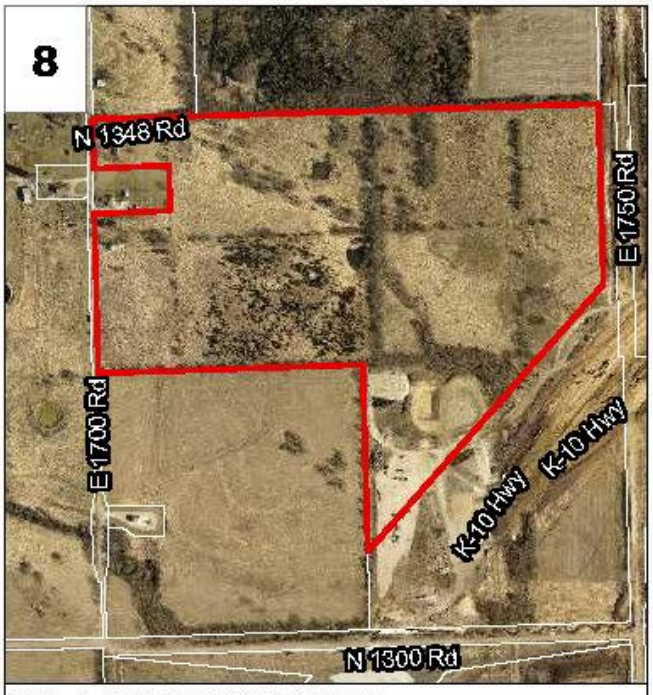
Potential Temporary Debris Management Sites on Public Land

See section V of this report for the criteria used when selecting potential debris collection sites. Data source: Douglas County GIS. 1/4/2016 - ALR

PIN: part of 111-02-0-20-01-001.06-0
Address: 3100 Blk Bob Billings Pkwy
Owner: KU Endowment Assn
Acreage: 79.06

PIN: part of 111-02-0-40-01-003.00-0
Address: 2029 Becker Rd
Owner: KU Endowment Assn
Acreage: 63.08

PIN: all of 102-04-0-00-02-002.00-0
Address: 2400 Venturepark Dr
Owner: City of Lawrence
Acreage: 78.65



PIN: all of 102-10-0-00-00-014.00-0
Address: 1703 N 1348 Rd
Owner: USD 497
Acreage: 77.14

Potential Temporary Debris Management Sites on Public Land

See section V of this report for the criteria used when selecting potential debris collection sites. Data source: Douglas County GIS. 1/4/2016 - ALR

9

PIN: part of 092-09-0-20-03-001.00-0
Address: 801 E 10th St
Owner: USD 491
Acreage: 45.49

10

PIN: part of 113-07-0-00-00-001.00-0
Address: 1329 E 800 Rd
Owner: United States of America
Acreage: 122.33

11

PIN: 3 parcels combined
Address: none
Owner: United States of America
Acreage: 254.31

12

PIN: part of 114-17-0-00-00-001.02-0
Address: 1248 E 902 Rd
Owner: United States of America
Acreage: 53.69

Potential Temporary Debris Management Sites on Public Land

See section V of this report for the criteria used when selecting potential debris collection sites. Data source: Douglas County GIS. 1/4/2016 - ALR

13

PIN: all of 115-21-0-00-00-003.00-0
Address: none
Owner: United States of America
Acreage: 102.54
Note: Much of this property is in the 500-year floodplain

14

PIN: all of 094-17-0-00-00-009.02-0
Address: 2635 Church St
Owner: USD 491
Acreage: 44.1

APPENDIX P: Truck Certification Form

DUMP TRUCK

Measurements

Truck Measurements — Length (L) = ____ Width (W) ft = ____ Height (H) ft = ____

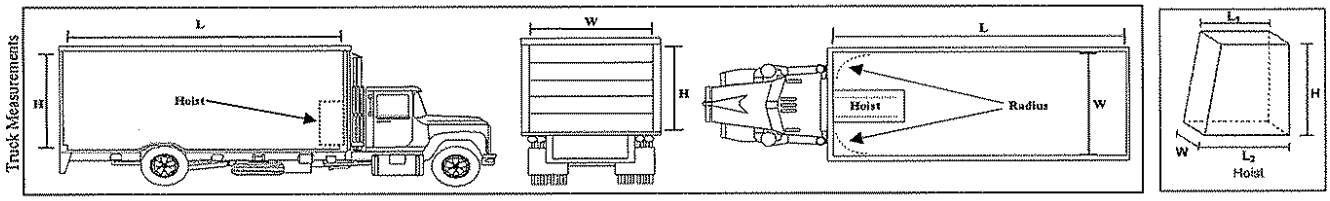
Hoist Measurement — $Length_1$ (L_1) ft = ____ $Length_2$ (L_2) ft = ____ $Width_H$ (W_H) ft = ____ $Height_H$ (H_H) ft = ____

Radius — Radius ft = ____ Height (H) = ____

Calculations

Bed Volume (Basic)	(LxWxH)/27 =	+	cyd
Hoist Volume	((L1+L2/2) x W_H x H_H)/27 =	-	cyd
Radius Volume	(3.14xR^2xH)/27 =	-	cyd
	Total =		cyd

Cubic Yards



EXTRA TRAILER

Measurements

Truck Measurements (Basic) — Length (L) = ____ Width (W) ft = ____ Height (H) ft = ____

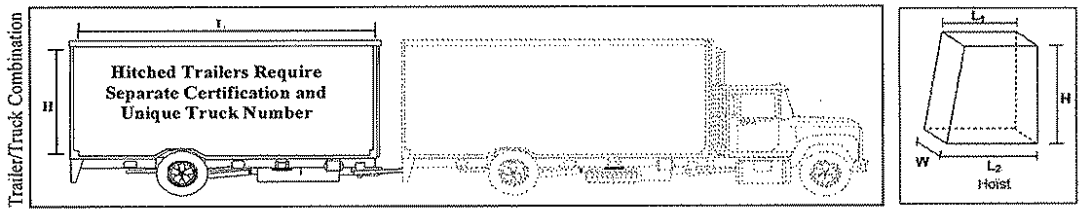
Hoist Measurement — $Length_1$ (L_1) ft = ____ $Length_2$ (L_2) ft = ____ $Width_H$ (W_H) ft = ____ $Height_H$ (H_H) ft = ____

Radius — Radius ft = ____ Height (H) = ____

Calculations

Bed Volume (Basic)	(LxWxH)/27 =	+	cyd
Hoist Volume	((L_1+L_2/2) x W_H x H_H) =	-	cyd
Radius Volume	(3.14xR^2xH)/27 =	-	cyd
	Total =		cyd

Cubic Yards



ROUND BOTTOM TRUCK

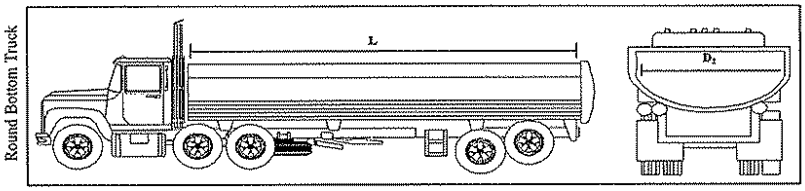
Measurements

Truck Measurements — Length (L) ft = ____ Diameter (D) ft = ____

Calculations

Approx. Volume (3.14 x (D/2)^2 x L) /27 = ____ cyd (round bottom portion only)

Cubic Yards



APPENDIX Q: List of Pre-Qualified Contractors & Vendors

Pre-Qualified Contractors & Vendors established with the following considerations:

Previous contracts with city/county.

Successful completion of previous work.

Insurance per purchasing requirements.

Meets similar criteria in counties immediately adjacent to Douglas County.
Additional Contractor information can be found on the Kansas Department of Transportation website.

Type	Source - Contact	Address	City	State	Zip	Contact Info
Electrical	Patchen Electric & Industrial Supply	602 E. 9th St.	Lawrence	KS	66044	785-843-4522
Farm Equipment	Heritage Farm Equipment	1110 E. 23rd. St.	Lawrence	KS	66046	785-843-8444
Farm Equipment	Heritage Farm Equipment	915 Industrial Park Rd.	Baldwin City	KS	66006	785-594-6486
Farm Equipment	McConnell Machinery Co., Inc	1111 E. 23rd St.	Lawrence	KS	66046	785-843-2676
Farm Equipment	Shuck Implement Co.	1924 E. 1450 Rd.	Lawrence	KS	66044	785-843-8093
Farm Supplies	Midland Farm Store	1401 N. 1941 Rd.	Lawrence	KS	66044	785-841-8544
Farm Supplies	Orscheln Farm & Home	1541 E. 23rd St.	Lawrence	KS	66044	785-842-4728
Farm Supplies	Tractor Supply TSC	2420 Fairfield St.	Lawrence	KS	66064	785-331-2395
Food & Housing	American Red Cross	2518 Ridge Ct.	Lawrence	KS		785-843-3550
Food & Housing	Salvation Army	946 New Hampshire	Lawrence	KS		785-843-4188
General	A-1 Portable Toilet Rental	1500 NW Polk	Topeka	KS	66608	785-842-2988
General	Anderson Rentals	1312 W. 6th St.	Lawrence	KS	66044	785-843-2044
General	Century Homes Co. Inc	640 N. 9th St.	Lawrence	KS	66044	785-841-3120
General	Home Depot	1910 W. 31st	Lawrence	KS	66046	785-749-2074
General	United Rentals	930 E. 30th St.	Lawrence	KS		785-838-4110
General	Sunflower Rental	3301 W. 6th St.	Lawrence	KS	66049	785-832-8767
Heavy Equipment	Ace Backhoe Service, Inc	964 E. 1587 Rd.	Lawrence	KS	66046	785-842-8149
Heavy Equipment	Berry Tractor		Topeka	KS		785-266-9509
Heavy Equipment	Bonbrake Construction	2130 N. 1100th Road	Eudora	KS	66025	785-542-2018
Heavy Equipment	Bowen Ditching Service	537 Mechanic St.	Lawrence	KS	66044	785-842-3421
Heavy Equipment	Boyd Enterprises, *excavating*	1069 N. 1800 Road	Lawrence	KS	66049	785-423-0680

Heavy Equipment	Callaghan Backhoe Service	514 Birch	Ottawas	KS	66067	785-242-3142
Heavy Equipment	City of Lawrence Public Works	6 E. 6th St.	Lawrence	KS	66044	785-832-3124
Heavy Equpment	Douglas County Public Works	3755 E. 25th St.	Lawrence	KS	66046	785-832-5293
Heavy Equipment	Chad Bowen Excavating	994 N 1750	Lawrence	KS	66049	785-842-0720
Heavy Equipment	Conley Backhoe Service	PO Box 250	Linwood	KS	66052	785-838-4646
Heavy Equipment	DB Excavating	1301 E 2000 Rd.	Eudora	KS	66025	785-542-2640
Heavy Equipment	Doug Bell Equipment for Hire	2038 Barker Avenue	Lawrence	KS	66046	785-843-6801
Heavy Equipment	Flory Backhoe Inc	1405 Osborne Rd	Pamona	KS	66076	785-566-8458
Heavy Equipment	Hare Inc. Heavy equipment ops.		Topeka	KS		785-246-1155
Heavy Equipment	Hurd Excavating	4120 Labette Rd.	Perry	KS		785-633-6578
Heavy Equipment	K M Construction	26931 Spring Valley Rd.	Louisburg	KS	66053	913-837-3161
Heavy Equipment	L J Backhoe Service	414 E. 7th St.	Wellsville	KS	66092	785-883-4132
Heavy Equipment	Lacey's Backhoe Service	32017 S. Stanley Rd.	Melvern	KS	66510	785-746-5249
Heavy Equipment	Markley Ditching, LLC.	1154 N. 800 Rd.	Baldwin City	KS	66006	785-842-5524
Heavy Equipment	Murphy Tractor - Scott Williams		Topeka	KS		785-233-0556
Heavy Equipment	Prime Construction, Inc.	1555 N. 400 Rd.	Baldwin City	KS	66006	785-925-1168
Heavy Equipment	Road Builders - Randy Frank					913-371-3822
Heavy Equipment	RD Johnson Excavating Co.	1705 N. 1399 Rd.	Lawrence	KS	66046	785-842-9100
Heavy Equipment	RDR Excavating Inc	2222 NW Huxman Rd.	Topeka	KS	66618	785-582-4645
Heavy Equipment	Rockhold Grading, LLC	68 Stevens Rd.	Eudora	KS	66025	785-542-3285
Heavy Equipment	Schmidt Contracting Inc.	628 Maine St.	Lawrence	KS	66044	785-331-3600
Heavy Equipment	Sellers - Rich Cox	15325 S. Keeler St.	Olathe	KS	66062	785-862-0031
Heavy Equipment	Sundowner Backhoe	901 Orange St.	Baldwin City	KS	66006	785-594-3483
Heavy Equipment	Breason Excavating & Trucking	601 Whitfield St.	Lecompton	Ks	66050	785-887-1085
Heavy Equipment	Breason Excavating & Trucking		Perry	Ks		785-423-2872
Heavy Equipment	VanKeppel	1801 N. (th St.	Kansas City	Ks	66101	913-281-4800
Heavy Equipment	Victor L. Phillips - Steve Korth	1305 SW 42nd St.	Topeka	KS	66609	785-267-4345
Heavy Equipment	Vinland Enterprises Inc.	502 Ames St.	Baldwin City	KS		785-883-2040
Heavy Equipment	White Star Machinery & Supply	121 NE Gordon St.	Topeka	KS	66608	785-232-7731

Heavy Equipment	Wray Backhoe Services	4750 Georgia Terrace	Ottawas	KS	66067	785-229-5894
Industrial Hardware	IBT - Industrial Solutions	516 E. 8th St.	Lawrence	KS	66044	785-841-5771
Truck Washing	Mobil Truck Washing					785-748-0887
Parts	Advanced Auto Parts	2535 Iowa St.	Lawrence	KS	66046	785-749-2941
Parts	Carquest	1830 W. 6th St.	Lawrence	KS	66044	785-841-1830
Parts	NAPA	939 Iowa St.	Lawrence	KS	66044	785-843-9365
Parts	O'reilly	906 North 2nd St.	Lawrence	KS	66044	785-832-0408
Parts	Truck Parts & Equipment-Gene Scheer	4812 SW Topeka Blvd.	Topeka	KS	66609	785-862-1540
Plumbing	A-1 Plumbing, Heating & Cooling	7440 SW Morrill Rd.	Topeka	KS	66619	785-862-9200
Plumbing	A-1 Plumbing, Heating & Cooling		Lawrence	KS	66044	785-841-9200
Plumbing	Aqueous Plumbing	1408 High St.	Baldwin	KS	66006	785-594-6693
Cargo Equipment	American Riggers - Jim Knehans					913-371-1357
Repair	Auto Electric	1827 Haskell Ave.	Lawrence	KS	66044	785-843-4844
Repair	Don's Diesel	1950 N. 7th St.	Lawrence	KS	66044	785-842-0065
Repair	Hey Machinery	1602 High St.	Baldwin City	KS	66006	785-594-3441
Repair	McConnell Machinery Co., Inc	1111 E. 23rd St.	Lawrence	KS	66046	785-843-2676
Small Engine Repair	Fleetwood Mower & Rental	710 W. 6th St.	Lawrence	KS	66044	785-841-3112
Tires & Tire Repair	Cross Midwest Tire	2128 NE Meriden Road	Topeka	KS	66608	785-235-9246
Tires & Tire Repair	D & D Tire	1000 Vermont St.	Lawrence	KS	66044	785-843-0191
Tires & Tire Repair	K's Tire Service	2720 Oregon St	Lawrence	KS	66046	785-843-3222
Transportation	Affordable Limousine	952 N. 3rd St.	Lawrence	KS		785-841-0463
Transportation	Midwest Transportation	1200 E. 25th St.	Lawrence	KS		785-423-1807
Transportation	General Public Transportation	2001 Haskell Ave.	Lawrence	KS		785-843-5576
Transportation	Laidlaw Transit	1548 E. 23rd St.	Lawrence	KS	66046	785-841-3594
Transportation	Lawrence Transit	933 New Hampshire	Lawrence	KS	66046	785-864-4644
Transportation	Midwest Transportation Corp.		Lawrence	KS		785-838-4500
Transportation	Texas Star Logistics	1023 Church	Eudora	KS	66025	785-542-1898
Tree Trimming	Arbor Masters Tree & Landscape, Inc	8250 Cole Parkway	Shawnee Mission	KS	66227	913-441-8888
Tree Trimming	Custom Tree Care		Topeka	KS	66610	785-478-9805

Tree Trimming	Green Touch Lawn & Tree Care	135 Earhart Circle	Lawrence	KS	66044	785-841-3055

Appendix R: Sample Debris Notification Sheet

Your area has been involved in a disaster event
Please avoid placing debris over Fire Hydrants and Gas Meters and in the street.
To assist in the debris clean up please separate the following at the curbside.

To Expedite Clean up efforts please separate debris as follows in individual piles:

- Trees and Vegetation
- White goods (washing machine, refrigerators)
- Clean construction debris (2x4's and such, plywood)
- Metals
- Household hazardous chemicals (Paints, bug killers, cleaning products)
- Personnel Property
- We thank you for your cooperation through these trying times; any questions please call your local contact at

Appendix S: Right of Entry

RIGHT OF ENTRY AGREEMENT

I/We _____, the owner(s) of the property

commonly identified as _____
(street)

_____ _____, State of _____

(city/town) (county)

do hereby grant and give freely and without coercion, the right of access and entry to said property in the County/City of_____, its agencies, contractors, and subcontractors thereof, for the purpose of

removing and clearing any or all storm-generated debris of whatever nature from the above described property.

It is fully understood that this permit is not an obligation to perform debris clearance. The undersigned agrees and warrants to hold harmless the City/County of _____, State of _____, its agencies, contractors, and subcontracts, for damage of any type, whatsoever, either to the above described property or persons situated thereon and hereby release, discharge, and waive 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 in the described property.

I/We (have _____, have not _____) (will _____, will not _____) receive any compensation for debris removal from any other source including Small Business Administration (SBA), National Resource Conservation Service (ANRCS), 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 _____, _____.

_____
Owner

_____
Owner

_____
Witness

_____
Telephone No. and Address

Appendix T: Debris Site Selection Worksheet

Disaster Debris Management Site Selection Worksheet

Site Name _____
Site Address _____
Estimated Size in Acres _____
Estimated Volume of Debris Able to Hold (cubic yards)_____
(Note: Assume up to 16,000 cubic yards/acre and only 40 percent of site available for debris storage.)
Primary Local Government Point of Contact:
Name _____Phone _____Email _____
Secondary Local Government Point of Contact:
Name _____Phone _____Email _____

Preferred Disaster Debris Management Site Criteria

☐ The site is owned or controlled by municipal or state government.
☐ The site has easy access, including being near the area of debris generation, easy to enter and exit, and near transportation arteries.

☐ The site is ready to use as a debris management site without extensive site modifications.
☐ The debris storage and handling areas would be at least 100 feet from property lines.

☐ To the maximum extent possible, the site location minimizes potential environmental and public health impacts, including considering setbacks from public water supplies, surface water bodies, and residential dwellings and avoiding areas such as flood plans, drinking water Zone IIs, and Areas of Critical Environmental Concern.

If any of these criteria are not met, please explain why not and how any concerns regarding that criterion would be addressed: _____
_____
_____

Anticipated Site Activities
(Note: intended for use only in declared disaster, NOT for routine operation.)

☐ A site plan and layout has been prepared that considers the management and operating practices recommended in this guidance

What types of disaster debris do you expect to manage at this site? (e.g., vegetative waste, C&D debris, hazardous household products, etc) _____
_____

What debris processing or other handling activities do you expect to conduct at this site? (e.g., sorting and transfer for recycling, chipping vegetative waste, transfer of trash for disposal, etc.)_____
_____

Please summarize any other benefits or concerns with using this site as a debris management site.

Appendix U: Sample Project Tracking Form

Debris Management Project/Crew Tracking Form
(Sample)

Date: _____

Start Time: _____

End Time: _____

Crew Staff: _____
_____
_____
_____

Equipment Utilized: _____
_____
_____
_____

Work Location(s): _____
_____
_____

Summary of Work Completed: _____
_____
_____
_____
_____
_____
_____

Approximate Amount of Debris Removed (if applicable): _____
_____