Exhibit A –Scope of Work

This statement of work describes and defines the services which are required for the execution of natural disaster-related emergency debris removal monitoring for the City of Ocala, Florida (City).

Consultant Responsibilities

Consultant responsibilities include, but are not limited to, monitoring and documenting the following:

- Field operations
- Debris pickup
- Debris hauling and removing
- Debris staging and reduction by grinding
- Temporary debris storage site management
- Debris management
- Final disposal to an approved facility in full compliance with regulatory agency requirements, consistent with Federal Emergency Management Agency (FEMA) requirements for debris management, removal and disposal.

The Consultant shall have experience in the Federal Emergency Management Public Assistance (FEMA-PA) Program, the Federal Highway Administration Emergency Relief (FHWA-ER) Program, and other applicable federal, state, and/or local programs to assist the City and its emergency response/recovery efforts. The consultant will be responsible for tracking all contract costs, adhering to the "not to exceed" limit as determined by the City, and preparing the project worksheets for all disaster categories. Proper notification must be given to the City as costs approach the "not to exceed" limit. Proper documentation by the consultant as required by FEMA, FHWA and all applicable federal, state and local agencies is required for all debris removal monitoring operations to ensure reimbursement to the City from the appropriate agency.

Consultant is responsible for ensuring the work performed under their control is progressing in a manner satisfying the expectations as noted in the FDOT Emergency Management Program 956-030-001, 23 CFR 668, and the current edition of the FHWA Emergency Relief Manual, including the supplements prepared by the FHWA Florida Division and the FEMA PA Program.

Roads and other City facilities will be identified by the City and direction will be given to the consultant and debris removal contractor for clearing these roads and facilities. Debris removal and monitoring activities shall be in accordance with the Public Works Emergency Preparedness Manual. The City reserves the right to add or remove road segments at the direction of the City

Debris Manager. The City, at its sole discretion, may elect to perform work with in-house forces or other contract forces.

Activation

The work will begin upon written authorization by the City. Consultant shall provide a 24/7 contact number and shall be activated (project manager on-site) within twenty-four (24) hours of receipt of Notice to Proceed. Failure to meet this requirement will result in immediate termination of contract.

No guarantee of minimum or maximum amounts of work is made by the City under this contract. No adjustment to bid prices will be considered due to increases or decreases in estimated quantities. The City will not provide price adjustments for cost increases or decreases in the price of fuel. The consultant shall have the ability to handle multiple, simultaneous large-scale disaster events.

In cases of discrepancy between this scope and regulatory agency guidelines, the regulatory agency's guidelines will take precedence.

Experience Requirement

1. Bidder must possess five (5) years' experience in providing debris monitoring services.

Bonds

- **Bid Bond:** Bid security equal to five percent (5%) of the total bid amount must accompany each bid. Bid bond will be uploaded in the section of this listing labeled "Bid Bond." The original document will be maintained by the Bidder unless requested to produce by the City.
- **Performance and Payment Bond:** The successful awarded Contractor must submit a Performance and Payment bond in the amount of $500,000 upon contract activation.

Insurance Requirements

1. **Commercial General Liability:** with limits of $1,000,000 per occurrence/$2,000,000 aggregate.
2. **Commercial Automotive Liability:** a combined limit of not less than $1,000,000.
3. **Workers' Compensation and Employer's Liability:** per Florida statutory requirements.

Pricing/Award

Pricing is provided as hourly rates and must be fully loaded (including all taxes, benefits, mileage, per diem, handling charges, equipment, overhead and profits, etc.). Best value will be determined by the Grand Total of Exhibit – Loaded Hourly Rates. The City, at its sole discretion, may award one or more contract(s). If more than one award is made, the highest ranked firm will be awarded a primary contract, and the next highest ranked firm will be awarded a secondary contract.

Contract Term

Term: The resulting contract will be for an initial term of three (3) years.

Renewals: Two (2) optional, 1-year renewal term.

Termination for Convenience

City may, at any time and for any reason, terminate consultant's services and work at City's convenience. Upon receipt of such notice, consultant shall, unless the notice directs otherwise, immediately discontinue the work and placing of orders for materials, facilities and supplies in connection with the performance of the agreement. Upon such termination, consultant shall be entitled to payment only as follows: (1) the actual cost of the work completed in conformity with the agreement; plus, (2) such other costs actually incurred by consultant as permitted by the contract and approved by City.

Definitions and Acronyms

A. City Debris Manager: A City staff member who functions as the City point of contact and is responsible for providing overall supervision of debris clearance, removal, and disposal operations.

B. Construction and Demolition (C&D) Debris*: Damaged components of buildings and structures such as lumber and wood, gypsum wallboard, glass, metal, roofing material, tile, carpeting and floor coverings, window coverings, plastic pipe, concrete, fully cured asphalt, heating ventilation and air conditioning (HVAC) systems and their components, light fixtures, small consumer appliances, equipment, furnishings, and fixtures that are a result of a disaster event.
   *Note – This definition of C&D is for disaster recovery purposes and is not the same definition commonly as found in Chapter 62-701, Florida Administrative Code.

C. Data Manager: Manager of data collected from monitoring operations and employed by the consultant.

D. Debris: Debris is scattered items and materials broken, destroyed, or displaced which is generated by an event and is located within a designated area.

E. Debris Collection Monitor: Employee of the consultant who observes the debris removal contractor removing debris from assigned areas.

F. Debris Management Plan: The plan establishes policies, procedures, and guidelines for recovery from debris generating disaster events.

G. Debris Removal Contractor: A person or entity, including employees, partners, principals, agents, and assignees that are under contract with the City to remove storm deposited debris according to federal and state guidelines.

H. Disposal Site Monitor: The consultant's employee(s) assigned to the debris disposal site to manage disposal operations and monitor debris removal contractor's performance. The duties include, but are not limited, ensuring the debris is eligible, to quantify and accurately document debris loads consistent with FEMA and FHWA guidelines.

I. Drop-Off Site: A site established for residents of the City of Ocala to drop off debris.

J. Electronic Waste (E-Waste): Loosely discarded, damaged, obsolete, or broken electrical or electronic devices including, but not limited to, computers, computer monitors, televisions, and microwaves.

K. Eligible Debris: As determined by FEMA Section #325 Debris Management Guide and other applicable regulations – Debris resulting from a Presidentially declared disaster whose removal, as determined by the City Manager or designee, is in the public interest because it is necessary to (1) eliminate immediate threats to life, public health and safety; (2) eliminate immediate threats of significant damage to improved public or private property; or (3) ensure economic recovery.

L. Emergency Operations Center (EOC): A central command and control facility responsible for carrying out the principles of emergency preparedness and emergency management, disaster management functions at a strategic level in an emergency situation.

M. Exit Site Monitor: Employee(s) of the consultant who observe outbound trucks at Debris Management Site.

N. Federal Aid Eligible Roads: Roads that are paved, gravel or dirt, and are eligible for repair or replacement.

O. Federal Emergency Management Agency (FEMA): FEMA is a funding source to the City for activities during an event declared a disaster by the President of the United States. FEMA eligible debris removal is second and subsequent passes on FHWA eligible roads and other roadways not on the federal aid system.

P. Federal Highway Administration (FHWA**)**: FHWA, through the Emergency Relief program is a federal funding source for work on Federal-Aid roadways and facilities. FHWA has designated

federal aid roadways also known as "on-system" roadways that are eligible for Emergency Relief funding.

Q. Field Operations Manager: Employee of the consultant who oversees debris removal contractor(s) and general field operations including monitors and data managers.

R. Global Positioning System (GPS): Global navigation satellite system that provides location and time information in all weather conditions, anywhere on or near the earth, where there is an unobstructed line of sight to four or more GPS satellites.

S. Hand Held Units (HHU): Devices used to write data to, and read data from, removable storage media. The HHU are used in electronic debris monitoring.

T. Hazardous Stump: Uprooted tree or stump (i.e. 50% or more of the root ball is exposed), greater than twenty-four inches (24") above the ground on a public right-of-way, improved public property or improved property owned by certain private nonprofit organizations, and the exposed root ball poses an immediate threat to life, public health and safety.

U. Hazardous Waste: Materials and products from institutional, commercial, recreational, industrial, and agricultural sources that contain certain chemicals with one or more of the following characteristics, as defined by the U.S. Environmental Protection Agency: 1) toxic; 2) flammable; 3) corrosive; and/or 4) reactive, in accordance with Environmental Protection Agency (EPA) Section for toxic, flammable, corrosive reaction Resource Conservation and Recovery Act (RCRA) Subtitle C 40 CFR Part 260.

V. Household Hazardous Waste: Used or leftover contents of consumer products that contain chemicals with one or more of the following characteristics, as defined by the U.S. Environmental Protection Agency: 1) toxic; 2) flammable; 3) corrosive; and/or 4) reactive. Examples of Household Hazardous Waste include small quantities of normal household cleaning and maintenance products, latex and oil-based paint, cleaning solvents, gasoline, oils, swimming pool chemicals, pesticides, and propane gas cylinders in accordance with Environmental Protection Agency (EPA) Section for toxic, flammable, corrosive reaction Resource Conservation and Recovery Act (RCRA) Subtitle C 40 CFR Part 260.

W. Mixed Debris: A mixture of various types of debris including, but not limited to, C&D debris, white goods, e-waste, household hazardous waste, metals, abandoned vehicles, tires, etc.

X. Notice to Proceed: This is a written notice issued to the consultant by the City fixing the date on which operations outlined will commence.

Y. Project Manager: A consultant who functions as the point of contact for the City responsible for the overall project management and coordination of the debris monitoring services required to oversee the debris removal operations.

Z. System: The word "System" is used in reference to the electronic portion of electronic debris monitoring.

AA. System Database: A system database is a compilation of all information gathered or reconciled and meets requirements set forth by this Scope of Services.

BB. Temporary Debris Management Sites: A Florida Department of Environmental Protection authorized site where debris is stored, reduced, grinded, or sorted. Debris resides at the site for a relatively short period of time prior to final disposal during the debris management process. May also be referred to a Debris Management Site (DMS) or Temporary Debris Staging and Reduction Site (TDSR).

CC. Ticket Manager: Consultant responsible for overseeing the electronic ticket processing.

DD. Vegetative Debris: Clean, woody debris and other organic materials that can be chipped and mulched.

EE. White Goods: Appliances, including, but not limited to refrigerators, freezers, stoves, washers, dryers, and HVAC units.

Personnel Qualifications

- **Data Manager:** A Data Manager must have at least two (2) years' experience working with a relational database management system. The Data Manager will work under the supervision of the Project Manager.
- **Debris Collection Monitors, Exit Site Monitors, and Disposal or Tower Monitors** must have a High School Diploma or GED, and be adequately trained on Debris Operations.
- **Field Operations Manager:** A Field Operations Manager must have a minimum of two (2) years' experience in disaster debris management
- **Project Manager:** A Project Manager must have a minimum of five (5) years' experience in disaster debris management. The Project Manager must also be a permanent staff employee of the consultant.

Services to be Provided by the Consultant

1. **Daily Reports**

   The Consultant shall ensure that daily reports are provided to the City Debris Manager or designee and other key City personnel within a minimum number of hours requested by the Debris Manager.

2. **Key Responsibilities**

   It is the responsibility of the Consultant to assist the City in performing:

   A. Contract Administration;
   B. Damage assessment:
   C. Environmental Permitting of temporary debris management sites;
   D. Truck Certification;

E. Debris Removal Monitoring;
F. Quality Assurance and Quality Control of all documentation pertaining to debris removal monitoring;
G. Assist the City in responding to public inquiries;
H. Be available to address questions from the City, FEMA and FHWA both during and after services have been performed.
I. Provide assistance as requested, especially after the services have been performed to complete FEMA reimbursement project worksheets (PW).

3. **Safety Provisions**

Consultant shall provide all monitors (or ensure monitors are in possession of) appropriate personal protective equipment, to include but not limited to eye protection, hearing protection, safety work shoes, safety vests, hard hats, gloves and wet and cold weather clothing, to comply with all federal (including, but not limited to Occupational Safety and Health Administration [OSHA] guidelines), state and local requirements.

4. **Annual Pre-Storm Coordination Meetings**

This task will consist of any or all three separate meetings conducted in May or June of each year the contract is in force. The meetings are described below:

A. Meeting 1 - Conduct a formal half-day meeting with all debris haulers prior to each hurricane season. Topics of discussion will include debris removal scheduling and planning, defining specific work zones and uploading to the Consultant's computerized database and software, debris monitoring, staging area location and use, citizen drop off sites, mobilization schedules, equipment requirements, damage reporting and repair, invoicing and other topics as requested by the City.
B. Meeting 2 - Present training materials and conduct formal half day training and coordination meeting with City staff responsible for project management, staging area tower monitors, debris monitors or other positions as required by the City.
C. Meeting 3 - If required, Consultant will meet with the City to coordinate debris management and discuss reimbursement issues.

5. **Debris Monitoring Operations**

The Consultant shall coordinate with the City to schedule debris removal monitoring and debris removal contractor operations. The Consultant shall within twenty-four (24) hours of notification, provide an adequate number of qualified personnel to monitor debris removal sites and reduction/disposal sites along with associated roving monitors. The Consultant will be required to increase or reduce its staffing from this point depending on severity

of debris generating event. The Consultant shall provide the following:

Project Manager shall be onsite within twenty-four (24) hours of notification and responsible for the overall project management and coordination of the debris monitoring services required to oversee the debris removal operations. The Project Manager shall be the point of contact to the City. The Project Manager shall assign Field Operations Manager(s) to oversee the debris removal contractor(s), monitors, and a Data Manager to provide supervision of the data entry operations and documentation process. Project Manager duties include but are not limited to the following:

A. Ensure a sufficient number of trained debris monitors are available to monitor the "first push" (cut & toss) operations.
B. Ensure a sufficient number of trained debris monitors are available to monitor all "first pass" and subsequent passes of debris removal and hauling activities.
C. Provide tower/disposal site monitors to observe and record all debris loads entering the temporary debris management sites.
D. Provide tower/disposal site monitors to observe and record all debris loads exiting the temporary debris management sites for final disposal.
E. Provide data entry and document processing personnel, if applicable.
F. Conduct safety meetings with field staff, as necessary.
G. Respond to and document issues regarding complaints, damages, accidents or incidents involving the Consultant or Contractor personnel and ensure that they are fully documented and reported.
H. Coordinate daily briefings with the City and the debris removal contractor(s), daily status reports of work progress and staffing.
I. Review and verify documentation of environmental authorizations and/or permits for temporary debris management sites and final disposal.
J. Review and reconcile debris removal contractor invoices submitted to the City.
K. Preparation of interim operations, status reports and final report, as directed by the City.

6. **Field Monitoring**

The Consultant shall provide trained staff in sufficient numbers to adequately monitor all operations supervised by Field Operations Managers. Duties of monitors shall include, but are not limited to, the following:

A. Truck certification and documentation of all vehicles used in the debris removal activities.
B. Quality assurance/quality control (QA/QC) of truck certification measurements throughout life of project.
C. Provide monitoring services and documentation of all eligible debris removal activities

from Federal Aid eligible roadways – First Push (Cut & Toss) and First Pass.

D. Provide monitoring services and documentation of all eligible debris removal activities on non-Federal Aid eligible roadways, as directed by the City.
E. Provide monitoring services and documentation of all eligible debris removal activities from second and subsequent passes on all roadways, as directed by the City.
F. Ensure that ineligible debris is not collected by the debris removal contractor, unless directed in writing by the City.
G. Disposal Site/Tower Monitors will observe and record the truck quantity estimates of inbound and outbound debris.
H. Exit Site Monitors will observe that all outbound trucks are fully discharged of their load prior to exit of the temporary debris management site.
I. Monitors will ensure that accurate, legible, and complete documentation is provided through load tickets, truck certifications, and/or other logs and reports, as required.
J. Maintain photo documentation of the debris removal trucks and activities, specifically of the hazardous stumps, hangers, leaners, or tree removal and/or other special or unusual occurrences in the field.
K. Immediately document and report activities to the City which may require remediation, such as: fuel spills, hazardous materials collection locations, and other similar environmental concerns.
L. Immediately document and report to the City damages which occur on public or private property as a result of the debris removal operations.
M. Immediately document and report to the City any violations of Department of Environmental Protection's (DEP) debris site conditions.
N. If DEP debris site conditions are violated, the Consultant shall oversee tasks sufficient to satisfy the DEP.
O. Monitors must be capable of spending shifts in an outside environment and be able to climb a staircase ladder, ten (10) feet or higher.
P. Monitors shall make multiple, random visits to all loading sites and disposal sites on a daily basis.

7. **Data Management and Documentation**

The Consultant shall ensure all necessary documentation is provided as follows:

A. Ensure all eligible debris removal operations activities are documented and tracked specific to the FHWA-ER program, the FEMA PA program or other applicable Federal, state or local agencies.
B. Documentation of the number of crews and types of equipment utilized, actual hours of operation, and locations of work performed during the time and materials phase of

operations.

C. Completion of truck certifications, equipment certifications, and establishment of a QA/QC program throughout the life of the project.

D. Load tickets documenting the eligible debris removal and/or disposal activities by the applicable program FHWA – ER or FEMA PA, and/or other federal, state or local programs as outlined in and in accordance with the Debris Management Plan.

E. Documentation of eligible hazardous stump removal, hangers, leaners, or tree removal which includes photos, GPS coordinates, street or milepost identifier, and/or other information as available and applicable.

F. Environmental authorizations and/or permits, as applicable.

G. Daily electronic spreadsheet summaries of cubic yards/tons collected by Federal program. The daily summary shall be communicated to the City's Emergency Coordination Officer (ECO) or designee on a daily basis.

H. Production in electronic format (scanned) and paper copies of all documentation for submittal to Federal and/or State agencies.

I. Provide certified weigh master if necessary.

J. Assist the City in creating field maps using GIS, as well as track and present contractor progress in GIS.

K. Organize, maintain, and provide the City electronic copies of documentation in a satisfactory manner. All documentation and information related to the project shall be surrendered to the City upon completion of the project.

L. Paper copies of all electronic or hand written load tickets shall be provided daily to both the City and the Debris Removal Contractor at the daily meeting.

8. **Electronic Debris Monitoring**

The Consultant may exercise the option to utilize electronic debris monitoring and if chosen, the Consultant must comply with requirements set forth in Paragraphs 3.4.6.1 - 3.4.6.3 below:

Equipment Requirements

A. Data Storage Media – Debris management data will be stored and transferred on encryption protected removable data storage media. All data media will be provided by the Consultant. Data must include a unique user ID which identifies the user's role, limits the user's ability to collect or validate information, etc. and employs an anti-tampering mechanism. Consultant shall provide media to each person performing a debris mission role that results in data collection, i.e., drivers, ticket managers, etc.

B. Handheld Units (HHU) - The Consultant will provide weather proof and shock

resistant handheld units (HHU) for recording debris management data in the field. These HHU devices will be capable of writing data to, and reading data from, the removable data storage media. HHUs shall have the capability to determine locations by GPS and the capability to write GPS coordinates to the removable media. The HHUs will perform two functions: (1) Recording of initial load data information, and (2) verification of vehicle certification, and recording of debris type and quantity and (3) All field units will be operated by standalone power sources which will allow the units to perform uninterrupted for a shift.

1) HHUs capable of recording truck certification data onto driver removable media are used at the truck certification area. Truck certification records will include truck measurements, Truck ID, Driver ID and a digital photograph of the truck and trailers.
2) HHUs capable of recording user ID information, including a unique user ID, digital photograph and any additional user information required for system operation.
3) GPS- HHU units shall have integrated GPS capability. GPS readings (accuracy within 3 meters of the HHU) shall automatically be recorded without any additional manual effort each time the HHU unit records and retrieves information related to the debris mission. External GPS units shall have reliable connectivity to the HHU and be rugged and durable.

C. Durable Printer – The Consultant shall provide a durable printer to print load tickets at the request of the City. Once the tower manager completes the load data entries the information shall be transmitted to the printer. The printer will print a minimum 2 copies of the ticket. Two copies shall be given to the driver (one copy for the driver and the other for the prime contractor. The HHU should have program flexibility to alter the number of printed tickets. The printed ticket paper and print shall be of a quality that the print is not affected by harsh weather conditions and does not fade over time, nor smear or deteriorate due to moisture or UV rays. All field units will be operated by stand-alone power sources which will allow the units to perform uninterrupted for a minimum of a shift.

D. Server(s) – The Consultant shall provide computer servers for the storage and maintenance of records. The data contained in the Consultant's database shall be placed on the Internet for controlled use, and be password protected by the Consultant. Upon completion of the work, the Consultant shall surrender the records to the City who shall maintain the official database and records on its government furnished secure server. Access to the City server is limited to "Official Use Only".

The City server is provided and maintained by the City.

E. Back-up equipment – In the event of equipment malfunction, loss or damage, the Consultant shall assure a sufficient supply of replacement equipment and personnel are available such that production is not affected. The back-up equipment shall be readily available on-site for rapid distribution.

F. GIS – GIS mapping shall be provided by the Consultant from the most current source(s) available. This information shall be used as a base map to visually illustrate work zones, ticket and tower personnel locations and activities, work progress, historically and/or environmentally sensitive areas, geospatial data and other mission informational needs from the data gathered by the HHUs.

G. Internet Accessible database – The Consultant will establish a web based database which is updated daily if not real-time. The data shall be accessible, by permission only, to sub-contractors, local and state officials and others on a "need to know" basis. Database access will be role-based and no direct access to the data tables shall be allowed, unless approved by the City.

General Statement of Electronic Debris Monitoring System Parameters:

A. The system must utilize an encryption protected removable data storage device. The data storage device will store data collected in the field, such as fields from traditional debris paper load tickets as well as truck certification information. The device must be capable of depicting images and other identifying data.

B. The system must have a database capable of storing all data collected in the field. The Consultant shall provide the City a copy of the database with a matching structure at the completion of the work unless otherwise specified.

C. The system must include the capability to share database records with contractors, sub-contractors, the City, and others via the internet. Data contained in the system must be password protected, implement role-based access controls and must have viewing, printing and editing capabilities. Each contractor, subcontractor and customer must have permissions that allow only them to review and print information specific to their need. The system shall also have the capability to generate reports on all aspects of the debris mission.

D. The Consultant uses the HHU to initiate the load data by entering the debris type into the HHU. The driver's media card will either be swiped or inserted into the HHU and the HHU will write the debris type, pick-up GPS location), address of pick-up if applicable, time, date, truck certification and driver information, and the ticket manager's unique ID Code onto the removable media. Once the data is written to the media, the Ticket Manager will return the media to the driver. By

this action, the Consultant verifies the debris meets FEMA and FHWA eligibility requirements.

E. HHUs are used at the debris verification area of disposal site(s) by tower manager. The vehicle driver presents the removable media, which was previously initiated by the field monitor, to the tower manager personnel located in the disposal site tower(s). The tower manager verifies the debris classification is appropriate (vegetative, C&D, mixed, etc. and manually revises, if needed), verifies vehicle(s) and driver information is correct, estimates and enters the load quantity into the HHU. The HHU will automatically extract the information recorded earlier on the smart card and add the information to the tower manager's HHU including the date, time debris arrives, site ID, GPS readings, load quantity and tower manager unique ID Code.

F. All information regarding each debris load will be stored in the HHUs internal memory or on a separate, encryption protected removable media device. The debris load information will be uploaded to the City and Consultant databases. Once this information is recorded, the tower manager HHU will clear the removable media's debris data for the driver to re-use.

G. The media will retain a running total of the quantity and type of debris hauled by a particular vehicle. All debris load information within the tower manager HHU will be retained until upload to the database has been accomplished and confirmed by authorized personnel. Direct access to data on the HHU will be restricted to personnel specifically authorized to do so by the City.

Functional Specifications and System Architecture

A. Ticket/Tower Managers – Personnel Registration, Administration and Management: The system shall have the capability to manage user roles. The majority of the system users will be either ticket or tower managers. At a minimum, the system must have the following capabilities:

1) A means to create encryption protected electronic media with unique User ID, digital photograph, user roles;
2) Other identifying data;
3) Electronic registration of ticket/tower monitor;
4) Link designated ticket/tower personnel roles to a specific mission;
5) The ability to edit ticket/tower personnel roles i.e., create, update and delete;
6) Store ticket/tower personnel contact information relative to the mission;
7) Track and manage ticket/tower personnel role and status;
8) Assign and track equipment assigned to the user;

9) Reject invalid ticket/tower personnel credentials;
10) Reject invalid certification credentials;

B. Truck Certification: The system shall have the capability to record truck and trailer certification data. Truck certification is used to register authorized debris hauling vehicles and equipment. At a minimum, the following must be included:
   1) A means of electronically registering authorized debris Consultant vehicles and equipment;
   2) Link electronic registration to digital images identify mission and respective City;
   3) Generate unique ID's for contractor vehicles and equipment;
   4) Utilize uniform measurements e.g. feet and inches;
   5) Capture vehicle volume;
   6) Utilize industry standard equations for all volume calculations;
   7) Capture drivers and certification team member unique identification number;
   8) A means to create encryption protected electronic driver removable media with unique Truck ID, digital photograph, truck and/or trailer measurements, vehicle volume, and other identifying data;
   9) Must depict image and other identifying data;
   10) Must contain counter area for total cubic yards hauled;
   11) Must employ anti-tampering mechanism;
   12) Capability to recertify vehicles;
   13) Recertified vehicles must be recorded in an audit table;
   14) Certification data must be associated to authorized system user;
   15) Reject media which are not associated with current event and applicant;
   16) Capture vehicle audit records;
   17) Create a printed certification record;
   18) Administrative reporting capabilities.

C. Right-of-Way (ROW) Debris Management: ROW transactional data must be captured, stored, validated, audited, reported and transmitted to mission managers, haulers and applicants. At a minimum, the application must exhibit the following characteristics:
   1) Allow creation of point of origin load data on encryption protected driver media when position is known and credentials have been authenticated;
   2) Capture date and time and other relevant point of origin data;
   3) Validate media is present in system and configured to receive data;
   4) Designate debris type;
   5) Designate debris location as Federal Aid or Non- Federal Aid;
   6) Designate first pass and subsequent passes;

7) Write point of origin load data using encrypted storage algorithms;
8) Associate ticket/tower personnel credentials with point of origin load data;
9) Acknowledge successful card write via display status message;
10) Provide user configurable time option for GPS audit;
11) Detect current location using GPS and store data to secure memory location;
12) Provide capability to add digital image if debris is other than vegetative or C&D.

D. Debris Disposal Site Management: Completed ROW, and Per-unit point of origin transactions must be received at the approved disposal site. Transactions are not considered complete until they are processed thru the receiving applications. At a minimum, the system must provide the capability to:

1) Accept site configuration data at the beginning of each work day.
2) Dynamically configure receiving application based on site configuration data.
3) Display certification data and photo from driver smart card so that ticket/tower personnel can perform a field audit of truck/trailer to assure data matches certification and placard number.
4) Accept loads where:
    a) Mission and applicant are valid;
    b) Media authentication data is valid and unaltered;
    c) Media contains valid load data.
    d) Designate debris type;
    e) Record debris volume (based on unit of measure);
    f) Receive volume or per unit loads;
    g) Identify original load data;
    h) Identify duplicate load data;
    i) Configure number of hard copies;
    j) Create load data record in internal storage;
    k) Create backup copy of internal storage;
    l) Prepare driver media for next load;
    m) Increment driver smart card based on total CY counter value;
    n) Continuously calculate and present real-time disposal site statistics;
    o) Re-print load ticket data;
    p) Interface with durable outdoor printer;
    q) Preserve in its original state, then transmit daily transaction data;
    r) Associate ticket/tower personnel credentials with each received load.

E. Field Administrative Functions: The system must have the capability to perform administrative duties in the field. Requirements include the capability to edit user

roles, verify vehicle audit information, display real-time collection volumes, and review ticket/tower personnel GPS audit logs. At a minimum, the system must provide the capability to:

1) Change ticket/tower personnel identification badge roles and responsibilities;
2) Review media total CY counter value;
3) Audit vehicle certification data;
4) Validate/Invalidate smart cards;
5) Reinitiate security sequence for ticket/tower personnel or media;
6) In tabular format, display the results of ticket/tower GPS audit files by limiting access to the internet data or by the Department secure server.

F. Data Consolidation and Analysis/Reports Generation: Transactional data must be summarized, validated, presented and audited to provide an overall status of mission performance. The system must facilitate billing, error reporting, performance tracking and graphical data preparation. At a minimum the Data Consolidation/Data Storage and Data Analysis/Reports tools must provide the capability to:

1) Accept transactional data sets from multiple debris location systems;
2) Recognize multiple mission/applicant configurations;
3) Grant access to authorized authenticated users or processes;
4) Contain a master record of:
    a) Roles and responsibilities;
    b) Ticket/tower personnel credentials and other data;
    c) Certification credentials and other data;
    d) Mission data;
    e) Applicant data;
    f) Geospatial data;
        - Street centerlines
        - City outlines
        - Population and demographic
        - Elevation
        - Wetlands delineation
        - Historic and Environmentally Sensitive areas
        - Debris work zones
        - Parcel data
        - Land use
        - FEMA flood zones
    g) Graphically depict:

- Load locations by contractor
- Load locations by subcontractor
- Load locations by driver
- Load locations by ticket/tower personnel
- Load locations by date range
- Load locations by zone
- Load locations by municipality
- Load locations by applicant
- Load locations by mission
- Load locations by debris type
- Load locations by disposal site
- Load locations by federal, state and private roads
- Load locations by land use
- Load locations by disposal site

8) Thematic mapping techniques to distinguish different data by color and/or symbol
9) Identify data attributes for a single point of data
10) Select one or many points of data
11) Calculate operational efficiency statistics such as:
    - Trip turnaround time
    - Trip distance to disposal site (straight line projection sorted by 0 -15 miles, 16– 30 miles, 31 – 60 miles and greater than 61 miles)
    - Average container fill percentage
    - Average tower manager load call
    - Load call trend data e.g., by tower managers, contractor, sub-contractor, driver, etc.
12) Dynamically configure user interface in response to point data selection to limit user authorities
13) Multiple data selections generate tabular data reports
14) Filter mechanisms to highlight geospatial data
15) Control data access using role based security
16) User interface and access to underlying system data must dynamically configured at run time through the presentation of appropriate user credentials
17) Manage data ownership
18) Provide access based on security role model
19) Identify and distribute "owned" transactional datasets to limit internet access to the website data to view only your data

20) Prevent distributed data from being reprocessed for billing purposes
21) Identify billing data sets based on parameters such as:
    - Time/Date
    - Contractor/Subcontractor
    - Debris type
    - Debris disposal method (haul-in, reduction, open burn, incineration, haul out, leave in place, etc.)
    - Haul distance
22) Route billing data sets via defined and customizable workflow rules
23) Approved billing data sets
24) Communicate general event status e.g.:
    - Total CY hauled (by debris type);
    - Total CY by disposal site;
    - Total CY by contractor/subcontractor;
    - Total CY by work zone/sector;
    - Total CY by municipality;
    - Total CY by Federal, state and private roads;
    - Total CY by certified vehicle;
    - Number of vehicles utilized;
    - Number of ticket/tower personnel resources assigned;
25) Manage user roles, responsibilities and passwords
26) Prevent modification to original data by unauthorized or unauthenticated users
27) Insert audit records into audit tables for all insertions, modifications, and deletions to original data.

G. Field Architecture: The field based system must be characterized by the following general statements of direction with respect to construction, operability, supportability and security. At a minimum, the system must:
1) Require user authentication credentials;
2) Display current version at application start-up;
3) Synchronize with Greenwich Mean Time (GMT) for all date/time fields;
4) System must utilize location specific configuration data to initiate a warm start sequence for global positioning system;
5) System must remain in a ready state by default;
6) Acknowledge successful card write via display status message;
7) Create identification structures which utilize encryption technologies;
8) Employ anti-tamper and anti-tearing methods and technologies;

9) Where applicable, utilize 3 DES data encryption technologies to protect data;
10) Perform validation and checksum (a running production total of cubic yards or appropriate payment capacity) stored on each debris vehicle's removable media).

H. Back-office Architecture: At a minimum, the back-office applications must be characterized by the following general statements of direction with respect to construction, operability, supportability and security.
1) Utilize relational database technology;
2) Employ geospatial analysis tools for data visualization;
3) Enable audit ability for:
   - Data insertion;
   - Data modification;
   - Data deletion;
4) Prevent field and row level data deletion;
5) All access to data must be controlled;
6) Store certification and other identification data using encrypted relational technology;
7) Reside in a secure internet environment;
8) Preserve base transactional data in its original state prior to processing or consolidation with other data.
5) Initial Startup Procedure For Debris Removal – Debris missions are critical to emergency response and the Consultant should be adequately prepared to respond.

I. Reporting: The City requires the Consultant to provide daily status reports, unless otherwise specified, of the debris removal operations, preparation of interim reports (as directed by the City), as well as a final report of the debris removal operations.
1) The daily status report shall include at a minimum: the daily cubic yards/tons collected by material and by program (FHWA-ER First Pass, First Pass on non-Federal Aid roadways, second and subsequent passes on all roadways), cumulative totals in cubic yards/tons by debris type, number of debris removal crews and equipment operating, number of debris monitors in field, cubic yards/ton by debris type hauled to final disposal and location of final disposal, and total cubic yard/tons hauled to recycling or salvage facilities.
2) An interim status report may be required at the discretion of the City. A final report covering the history of the operations, the locations temporary debris sites used, remediation and site closure activities, including any environmental reports or authorizations generated; and the locations of final disposal sites and permits, recycling facilities and salvage facilities used during operations. The report may

include identification of weakness in the operations and recommendations for future debris activities.

J. Permits:
   1) Assist the City with any permit applications and coordination with environmental agencies.
   2) Assist the City with any pre or post sampling of soil or groundwater.
   3) Monitor compliance by the contractors to any permit requirements.

K. Meetings and Communication:
   1) Conduct daily meetings with the City and the Debris Removal Contractor.
   2) Conduct field meetings, as needed.

L. Invoicing:
   1) Ensure all contract quantities for both the contractors and monitors are documented and recorded according to current Federal requirements, including but not limited to FHWA-ER actual costs incurred (cradle to grave) for work conducted on First Push and First Pass Federal Aid roadways, including time at disposal sites estimating loads on incoming and outgoing debris loads.
   2) For Non-Federal Aid eligible roadways FEMA PA program actual costs incurred (cradle to grave) for work conducted on non-Federal Aid eligible roadways First Push, First Pass, and second and subsequent passes. Monitor's invoices must delineate between hours spent on FHWA vs. FEMA reimbursed tasks.
      a. Maintain a database of all contract quantities and perform contractor invoice verification for the City.
      b. All invoices shall be submitted in an acceptable format to the City in an electronic and hard copy format with daily reports as supporting documentation. The invoices must be submitted in accordance with the Consultant Invoice Transmittal System (CITS) procedures and other federal, state and local rules, regulations and laws.
      c. Invoices shall be submitted on a monthly basis to the City.

d. Final invoice will be submitted to the City not later than the 30th day following final acceptance of the individual task of as requested by the City.