



Distribution Management Plan Guide

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Introduction to Distribution Management Plans

Purpose

Emergency Management Preparedness Grant (EMPG) requirements were updated in 2019 to require that recipients' Emergency Operations Plans include a Distribution Management Plan. This guide provides information on the intent of the new requirement, how to develop a Distribution Management Plan, key components of Distribution Management Plans, how to review and update a Distribution Management Plan, and how the Federal Emergency Management Agency (FEMA) reviews and evaluates Distribution Management Plans.

Background

Large-scale disasters often disrupt normal supply chains, triggering the need for temporary relief supply chains that address critical emergency supplies such as food, water, and fuel. This temporary distribution management system is managed by state, local, tribal, and territorial (SLTT) agencies or voluntary, faith-based, or community-based organizations. Lessons learned during the unprecedented 2017 and 2018 hurricane seasons illustrated the complexity of planning for and establishing temporary distribution management systems that can rapidly source, track, transport, stage, and distribute critical emergency supplies to disaster survivors.

Emergency managers look at supply chains through two lenses:

- The private sector normal supply chains that exist before an event
- The relief supply chains that must be established until private sector supply chains recover.

In the context of emergency management, distribution management means effective and efficient distribution of critical resources to disaster survivors in the community, replicating and augmenting a supply chain during a response. This includes:

- End-to-end commodity and resource management
- Warehouse and transportation operations to effectively and efficiently distribute supplies to staging areas and distribution points
- Provision of equipment and services to support incident requirements
- A mechanism for supplies and commodities to be provided to survivors.

Intent

Distribution Management Plans enable SLTT partners to strengthen capabilities before a disaster, which enhances the effectiveness of resource distribution to survivors after a disaster. Having distribution procedures ready minimizes the time to put commodities in the hands of survivors.

Submission and Evaluation

An EMPG recipient must submit its Distribution Management Plan to the FEMA Regional Grants Office each year during the grant's period of performance. The Regional Grants Office coordinates with the FEMA Regional Logistics Branch to provide technical assistance and review the Distribution Management Plan. FEMA Regions use a standardized list of evaluation criteria when reviewing Distribution Management Plans (see Appendix A).

Developing a Distribution Management Plan

Overview

A Distribution Management Plan establishes strategies, functional plans, and tactical guidance for SLTT logistical response operations. These plans cover staging sites and operations, logistical support including services and personnel, information management, transportation of resources to point of need, commodity points of distribution (C-PODs), inventory management, resource sourcing, and demobilization. Thus, a Distribution Management Plan includes sections with information on the following seven components:

1. Requirement Defining
2. Resource Ordering
3. Distribution Methods
4. Inventory Management
5. Transportation
6. Staging
7. Demobilization.

Approach to Distribution Management

When developing these seven sections:

- **Focus on the SLTT Distribution Management Plan.** SLTT-led distribution management provides clear direction and expected outcomes. Emergency management is locally executed and state managed; it is federally supported when requested and appropriate.
- **Collaborate with the whole community.** Partnership with SLTT partners, private sector, the Emergency Management Assistance Compact (EMAC), and nonprofits can bridge gaps until normal supply chain systems are restored. Improved communication among all responsible parties mitigates the risk of artificial demand and ensures that the jurisdictions place teams and critical commodities in areas that support survivors and communities. Involving the whole community will most effectively re-establish the normal supply chains, reducing the need for relief supply chains.
- **Explore and develop innovative solutions to get resources into the hands of survivors.** For example:
 - Consider implementing new ways to mobilize C-PODs, identify ingress and egress routes, and leverage traffic patterns.
 - Develop innovative messaging to inform the public of resource locations.

- Identify isolated populations and develop creative solutions to deliver supplies.

Technical Assistance Resources

Several resources and tools already exist to help develop a Distribution Management Plan. These include the Supply Chain Resilience Guide and the Logistics Capability Assistance Tool 2 (LCAT2). Additionally, specific functional guides cover staging operations, transportation management, C-POD operations, inventory management, and tracking and acquisition. Appendix B provides a complete list of available resources and technical assistance.

Supply Chain Resilience

Supply chain resilience is key to disaster response. Successful SLTT distribution management planning depends on a clear understanding of pre-event private sector supply chain norms and flows. If emergency managers understand fundamental network behaviors, they can help avoid unintentional suppression and create intentional enhancement of supply chain resilience.

[FEMA's Supply Chain Resilience Guide](#) provides emergency managers and planners at every level with a basic introduction to supply chains. Understanding a jurisdiction's supply chains can have a great impact on emergency plans and planning, and the Supply Chain Resilience Guide helps emergency managers think through the challenges and opportunities presented by supply chain resilience and provides specific suggestions on research, outreach, and action.

Supply Chain: The socio-technical network that identifies, targets, and fulfills demand. *It is the process of deciding what, when, and how much should move to where.*

Source: FEMA Supply Chain Resilience Guide

The first priority of emergency management is to “do no harm” to surviving capability. Emergency management can actively facilitate maximum possible flow of preexisting sources of supply in private sector systems, such as public water systems, commercial water/beverage bottlers, food, pharmaceutical, and medical goods distributors, fuel providers, and others. To do this effectively requires a level of network understanding and a set of relationships that must be cultivated prior to the disaster.

Ideally, key private and public stakeholders will conceive, test, and refine strategic concepts and operational preparedness through workshops and table-top exercises. When possible, identify and implement mitigation measures in advance of disasters. In this way, practical problem solving reinforces private-public and private-private relationships.

SLTT emergency managers use the FEMA Supply Chain Resilience Guide to map, analyze, conduct outreach, take appropriate actions, and assess and refine private sector supply chain resilience activities. Distribution Management Plans should not detract from or impede recovery of surviving private sector capability. The relief supply chain efforts and supporting distribution plan should focus on filling the gaps in the private sector supply chains. Appendix C provides an example of the relief supply chain.

Supply Chain Resilience is Key to Disaster Response

The FEMA 2018–2022 Strategic Plan states, “The most effective way to deliver the needed supplies to a disaster-impacted area is by re-establishing pre-disaster supply chains. Building resilience within, and providing for the rapid restoration of, supply chain systems is key to responding to any catastrophic incident.” (p. 25)

Logistics Capability Assistance Tool 2 (LCAT2)

The [LCAT2](#) is a transferrable tool for use by SLTT governments that encourages collaboration from multiple stakeholders to assess core logistics functions, identify strengths and relative weaknesses, and focus efforts for continued improvement within disaster response logistics.

The LCAT2 enables an unbiased assessment of the SLTT logistics capabilities, by:

- Evaluating current SLTT disaster logistics readiness
- Identifying areas for targeted improvement
- Developing a roadmap to mitigate weaknesses and further enhance strengths.

For more information on the LCAT2, contact your FEMA Regional Logistics Branch Chief.

Components of a Distribution Management Plan

Overview

This section provides more detail on the seven components of a Distribution Management Plan: 1) Requirement Defining; 2) Resource Ordering; 3) Distribution Methods; 4) Inventory Management; 5) Transportation; 6) Staging; and 7) Demobilization.

1. Requirement Defining

What and how much is needed? Where and when is it needed? Who will be receiving or using it? Some of these requirements can be identified prior to an event based on the jurisdiction's hazard analysis, previous events and operations, demographic profiles, and modeling. Planning models and matrices help determine the resources necessary to assist affected populations.

Resource requirements may exceed a jurisdiction's capability to manage resource distribution. A best practice is to order the amount of resources that align with a jurisdiction's ability to store and distribute them, because sending too many resources into a disaster area can hamper the response. While generic planning factors may be used initially, jurisdictions should refine the requirement based on anticipated demand for meals, water, mass care supplies, transportation of the resources, and an understanding of private sector capacity and capabilities.

To ensure response efforts do not impede rapid recovery, engaging with the private sector helps governments understand the established baseline (blue sky) norms, pre-disaster supply chain flow, and how disasters impede this flow.

Research Pre-existing Data

Conducting research before developing a Distribution Management Plan is vital to determine a jurisdiction's potential resource requirements. A critical first step in developing a robust distribution plan is to conduct an unbiased assessment of the SLTT logistics capabilities.

The following sources and tools, although not required, provide mechanisms to research and collect pre-existing data:

- **LCAT2:** [LCAT2](#) helps SLTT organizations conduct self-assessments to determine their readiness to respond to disasters. The survey-style tool provides a detailed assessment of core logistics functions, helps jurisdictions identify specific strengths and weaknesses, and constructs a systematic roadmap for SLTTs to improve current logistics processes and procedures.
- **Deliberative Plans and Historical Data:** Models or scientific data for planning factors may already be used by your jurisdiction; these agreed-upon factors provide realistic information for resource requirements. Reviewing previous distribution and burn rates, after action reports, and lessons learned reports may provide insight to developing resource requirements.

- **Threat and Hazard Identification and Risk Assessment (THIRA):** The THIRA helps communities understand their risks and determine the level of capability that they need to address those risks. The outputs of this process lay the foundation for determining a community's capability gaps as part of the Stakeholder Preparedness Review. [Comprehensive Preparedness Guide \(CPG\) 201](#) provides guidance for conducting a THIRA and Stakeholder Preparedness Review.
- **Hazard Identification and Risk Assessment (HIRA):** A HIRA provides the factual basis for activities proposed in the strategy portion of a hazard mitigation plan. An effective risk assessment informs proposed actions by focusing attention and resources on the greatest risks. The four basic components of a risk assessment are 1) hazard identification, 2) profiling of hazard events, 3) inventory of assets, and 4) estimation of potential human and economic losses based on the exposure and vulnerability of people, buildings, and infrastructure. For more detailed guidance on the process to complete a multi-hazard risk assessment, work with your [State Hazard Mitigation Officer](#) or see [FEMA's State Mitigation Plan Review Guide](#), [Tribal Mitigation Plan Review Guide](#), [Local Mitigation Plan Review Guide](#), or [Local Mitigation Planning Handbook](#).
- **Regional Resiliency Assessment Program (RRAP):** Managed by the Department of Homeland Security (DHS), the [RRAP](#) is a voluntary, non-regulated interagency assessment of critical infrastructure resiliency in a designated geographic region. Each year DHS, with input and guidance from Federal and state partners, selects several projects for the RRAP that focus on specific infrastructure sectors within defined geographic areas and address all-hazard threats that could result in regionally and/or nationally significant consequences.

Conduct Incident-Specific Analysis

Based on demographics and impacted population, the initial distribution network should effectively support and distribute resources to survivors in the jurisdiction. An overall 72- or 96-hour requirement drives the scale and scope of the SLTT staging areas, transportation requirements, and C-PODs. Jurisdictions develop initial distribution network requirements by using the pre-existing data and various tools to conduct incident-specific analysis. Some tools include the private sector/Business Emergency Operation Centers (BEOCs), modeling tools, and geo-enabled tools (e.g., geographic information system [GIS]).

Generic Planning Factors

If deliberative plans are not available, generic FEMA planning factors of two meals and three liters of water per person of the impacted population each day can be used. Customize the planning factors based on impact population (e.g., 10, 20, or 75 percent) relative to the characteristics/intensity of the incident (e.g., hurricane, earthquake, flood).

Considerations for Refining the Requirement

Additional considerations that make sense for the community should be used to adjust the planning factors used in developing requirements. Each jurisdiction needs to look at their historical data, if any exists. For example, population zones and storm strengths can alter the positioning requirement up or down from the generic planning considerations.

In addition to the considerations listed below, other types of resources that may be distributed include propane, gas stoves, flashlights, blankets, and bug spray.

- **Meals:** Incorporate community preferences (e.g., cultural, dietary, age) within reason and practicality into the type of meals stocked and ordered. For example, if your community has a large population that culturally eats a specific food, then the plan should include reasonable storage and procurement capabilities for that specific food.
- **Water:** As units of measure (e.g., gallons, liters) vary, develop consistent language in planning, ordering, and reporting processes to reduce confusion among stakeholders. Suggest using liters as the standard unit of measure, as that is FEMA's standard. When determining how much bottled water to distribute, consider other available sources of potable water and identify efforts (e.g., installation of generators at water plants) that could be taken to back up local water systems.
- **Mass Care Supplies:** These are unique to each incident. Some commonly used supplies include shelter items (e.g., cots, blankets), among others (e.g., camp stove, lanterns, flashlights).
- **Support/Transportation:** The geography of the jurisdiction may drive diverse transportation strategies and requirements (e.g. ground, air, sea).
- **Capability and Capacity of Distribution Network:** Identify what is possible for the jurisdiction during planning and understand the limitations of the disaster supply chain nodes. The amount of resources ordered should not exceed the distribution network's capacity (e.g., the maximum storage and throughput capabilities of the on-ground staging areas and C-PODs).
- **Private Sector Capability versus Requirement:** Revise planning factors based on understanding the status of private sector supply chains, time to restoration, and how this will impact the duration of the requirement for critical emergency supplies. Monitor the private sector's ability to reestablish its supply chain, which may reduce the response requirements for emergency commodities and resources. Leverage the private sector to assist with the response (e.g., transportation, supplies, food, water).

2. Resource Ordering

Sourcing resources relies on establishing organic capabilities and capacity to provide commodities and equipment to disaster survivors based on the pre-identified jurisdictional requirements. Establishing multiple sourcing mechanisms mitigates supply chain risk. Thus, building existing internal capability and stocks is paramount to effective distribution management; for example, through developing standing, spot, or contingency contracts for resources, vendor-managed inventory (VMI), logistics services, and warehousing and coordinating with nonprofit and other government partners (e.g., Voluntary Organizations Active in Disaster [VOADs], the EMAC).

The following sources of supply are listed in a suggested order of consideration that supports the optimal framework (where emergency management is locally executed, state managed, and federally supported).

Existing Internal Capability and Stocks

A standing inventory of critical emergency supplies can be drawn upon in response to an incident; this is a logical first source for meeting immediate needs of a time-sensitive nature. This standing inventory may include items such as medical supplies or commodities (e.g., meals and water). Leverage the capacity of other stakeholders that can bolster the SLTT jurisdiction's ability to support logistical requirements (e.g., schools, universities, meals on wheels).

Vendor-Managed Inventory (VMI)

VMI is a family of business models in which the buyer of a product provides certain information to a supplier of that product (vendor), and the supplier takes full responsibility for maintaining an agreed-upon inventory of the material.

On occasion, vendors may hold a portion of inventory in their own warehouses to more effectively rotate stock, though they may charge associated holding costs, regardless of the rate of consumption. The unit costs of this method may be higher than maintaining inventory in warehouses, but the opportunity costs of procurement after disasters occur may favor VMI.

Partnership

Partnerships require an understanding of steady-state operations and available capabilities. For example, consider identifying SLTT institutions that order and buy meals and water on a regular basis, such as schools and universities, correctional facilities, and other community facilities.

Contracting

The optimal time to prepare contracting is before an incident occurs. This includes assessing capabilities during steady state and anticipating potential resource requirements to determine contracting needs. Know the key vendors, suppliers, and manufacturers that can provide the needed capability. Contracts can address needs for the following resources and capabilities:

- Life-sustaining commodities (e.g., water, meals, cots, blankets, tarps)
- Critical emergency supplies (e.g., generators, fuel, sand bags, pumps)
- Transportation (e.g., air, sea, ground, multimodal)
- Third-party logistics (e.g., warehouse management, inventory tracking).

Some additional considerations when preparing contracts include the following:

- **Legislation:** Consider whether applicable laws and regulations governing procurement may permit or hinder standing contracts with private vendors for commodities and/or logistics services, early commodity acquisition, and warehousing. Contingency contracts established prior to an incident may accelerate response time. Also, spot contracts may be required in a

relatively short period of time to source immediate needs. Pre-scripting a statement of work for anticipated requirements can help jurisdictions move quickly to establish a new contract.

- **Existing Contracts:** Inventory existing jurisdictional contracting vehicles and business capability in advance of an incident. Ensure logistics personnel understand the established supply chains and vehicles. Adding capacity to an existing contract can accelerate ordering.
- **Staffing:** In most cases, existing purchasing capability and authorized offices for purchasing and contracting will be leveraged. During disaster response, staff must be flexible and have a sense of urgency, allowing jurisdictions to scale operations with an adequate number of trained personnel. Consider which personnel have the requisite contracting skills, which agencies staff may be drawn from, or what agencies may need to be assigned this role. As with other aspects of emergency management, it is important to practice actions planned and validate staff capability.
- **Vendor Deconfliction:** Cross-walking suppliers with neighboring counties, SLTT agencies, and Federal partners ensures that you have different vendors and suppliers. Confirm that vendors committed to multiple entities have the capacity to service all commitments simultaneously.
- **Redundancy:** Establishing relationships and vehicles with multiple vendors is useful as a contingency. Multiple options eliminate the dangers of single-point failure, making the supply chain more resilient.
- **Purchase Cards:** Each jurisdiction establishes unique requirements on who can use government purchase cards, for what purpose, and any thresholds on spending. Understanding these limitations and knowing these parameters in advance ensures purchase cards are clear for end users.
- **Exercises:** SLTT governments should hold periodic exercise or training sessions with their contractors. Contractors may need to be available 24/7 before and during disasters. Exercises help clarify the requirements and the urgency of disaster responses, equipping contractors to be readily available when every hour is critical.

States are able to use existing Federal contract schedules during an emergency, such as the [General Services Administration's \(GSA\) Disaster Purchasing Program](#). Other national programs are available through the Department of Agriculture (USDA), the Department of Health and Human Services (HHS), and other Federal agencies. [Note: this is separate from Direct Federal Assistance that becomes available during a declared disaster with a cost share where applicable.]

When considering these tools, be cognizant of speed and cost. They cannot replace effective market research or existing capability.

Voluntary Organizations Active in a Disaster (VOADs)

Establishing a relationship with national and state VOAD members to harness effective and targeted operations can help deliver critical emergency supplies to disaster survivors. A state VOAD representative needs a seat in the state Emergency Operations Center to coordinate with the liaison officer. For more information on national and state VOAD contacts, visit the [national VOAD website](#).

Faith-based and Community Organizations

Faith-based and community organizations offer a wide variety of human and material resources that can prove invaluable during and after a disaster has occurred. These organizations can be points of distribution for emergency commodities and supplies, provide staging area and reception sites for emergency services, and/or support mobile feeding and transportation services. Many faith-based and community organizations are connected to the national and state VOADs and engage in disaster activities in preparedness and during operations. For more information on engaging these organizations, see the [Engaging Faith-based and Community Organizations Planning Considerations for Emergency Managers Guide](#).

Interstate Request Process

Through the EMAC, states can support each other with resources, commodities, teams, or services. EMAC enables assistance during governor-declared states of emergency or disaster through a responsive, straightforward system that allows states to send personnel, equipment, and commodities to assist with response and recovery efforts in other states. Determine what resources and capabilities (e.g., equipment, transportation, lodging, warehouse) exist in the state and are needed to deploy staff.

Donations

Donations can be of national or international origination. International donations can come to an SLTT jurisdiction via two different routes and are handled differently.

- For international donations provided directly to the SLTT partners, collaboration with the Department of State, Customs and Border Protection, and appropriate regulatory agencies is necessary.
- FEMA may accept international donations in support of survivors and will work directly with SLTT partners to facilitate rapid acceptance and distribution as necessary. Direct donations to FEMA will be managed by FEMA Logistics to the maximum benefit of the SLTT partners.

SLTT partners should consider their donation strategy for disaster operations, especially for unsolicited donations. Coordinate with communications or media teams on messaging, specifically on the donation requirements, pickup/drop-off logistics, private sector donations, storage/warehouse/equipment needed, solicited/unsolicited donation practices, and direct deployment. The Department of State can ensure this information is disseminated globally, minimizing negative impacts to the logistics supply chain.

FEMA can provide technical assistance for donations, such as layout of warehouse management plan or leasing of warehouse or equipment.

Federal Request Process

When a state exhausts its resources, it turns to FEMA for assistance. A state may make an official request for direct Federal assistance once a presidential emergency or disaster declaration has been issued for that state. This request must be submitted to FEMA on an official document known as the [Resource Request Form \(RRF\)](#).

A state may request technical assistance at any time regardless of declaration status. Aligning state processes with FEMA processes for Federal resource requests streamlines resource delivery into the hands of survivors.

3. Distribution Methods

Methods of distribution describe how commodities are provided directly to the impacted communities. The planned distribution includes robust yet scalable methods to accommodate any level of disaster and support the characteristics of the affected communities. Two common methods include:

- Direct distribution is when supplies are initially moved to a central location for staff to collect and redistribute through “door-to-door” residential delivery.
- Establishing commodity C-PODs provides an initial point(s) where survivors can obtain emergency relief supplies. C-PODs can be in open areas or existing community infrastructure (e.g., schools, athletic facilities, community centers) or mass care facilities (e.g., shelters, food banks, cooling/warming stations, feeding kitchens).

The following sections discuss each of these methods in greater detail.

Direct Distribution

Supplies can be delivered directly to a survivor’s residence through direct distribution. Supplies may be initially delivered to a central location for personnel to provide “door-to-door” residential delivery. First consider the populations that need to be served (e.g., highly dispersed populations or populations with no means to travel that may live in nursing homes, hospitals, remote homes). Then identify ways to reach these populations, including equipment, types of delivery vehicles, and cross-docking needs. Implementing these mechanisms may require identifying and partnering with the following existing community organizations or activities:

- **Health and Welfare Checks:** Leverage these checks to enable employees to deliver supplies.
- **National Guard:** Enable military members to delivery supplies when conducting house-to-house visits.
- **Mass Care:** Leverage multiple delivery mechanisms:
 - Contract for food resources (e.g., grocery boxes)
 - Coordinate delivery of resources at their facilities (e.g., shelters, food banks, cooling/warming stations, feeding kitchens, and responders [e.g., search and rescue teams, state police, EMTs])
 - Collaborate with Meals on Wheels, Food Banks, and School Districts.
- **Marinas and Private Airports:** Understand their steady state capabilities and coordinate requirements for use of special vehicles (e.g., high-water, rotary wing, boats, trains, all-terrain) for distributing resources to isolated communities.

- **Mobile Delivery:** Use their vehicles to drive into an affected area and provide commodities at different drop locations or where the need is identified. This type of distribution is common in rural areas and where roads are damaged.

Commodity Points of Distribution (C-PODs)

A C-POD establishes an initial point(s) where the public can obtain life-sustaining emergency relief supplies. These facilities must serve the population until no longer needed; this may be indicated when power is restored, traditional facilities reopen (e.g., retail establishments), fixed and mobile feeding sites and routes are established, and/or relief social service programs are in place.

The following subsections discuss considerations for establishing C-PODs.

Training

FEMA offers comprehensive C-POD training to help develop actionable plans for emergency distribution and understanding associated challenges. The [IS-26: Guide to Points of Distribution Course](#), including an explanatory DVD, C-POD guide, and online exam, is available on the [Emergency Management Institute \(EMI\) website](#).

Minimum Requirements

Regardless of the methods used, the Distribution Management Plan should be feasible—within the capabilities, limitations, restraints of the community being served—and include the following information:

- The site location(s)
- Individuals or groups responsible for managing the C-PODs (e.g., National Guard, SLTT employees, volunteers, schools); this may include the Adopt-a-POD model
- Equipment resourcing methods
- Operations (e.g., hours of operation, reporting, safety, accountability, basis of issue, security, commodities to be disbursed)
- Demobilization plan (more information in Section 7. Demobilization.)
- Accountability and management of empty trailers
- C-POD wraparound support contracts (e.g., portable toilets, light tower maintenance and fueling, security, solid waste removal).

Operations

Within the C-POD operations section of the Distribution Management Plan, consider alternate methods (e.g., Adopt-a-POD, pop-up PODs, churches, VOADs, businesses) and their impact on the disbursement of commodities (e.g., burn rate). Address how response logistics leverage pop-up PODs and VOAD kitchen operations. Every food bank system has a feeding distribution plan that should be capitalized on. Develop a good working relationship with these groups to quickly expand a distribution network in a disaster environment.

Urban Operations

C-POD operations differ in an urban environment, which might include cross docking, foot traffic, and public transportation aspects. Find the existing infrastructure of community hubs that are easily accessible, especially by foot, to establish C-PODs. Pedestrian PODs (P-PODs) may include athletic facilities or fields for distribution points. Explore potential partnerships with grocery delivery services. Consider access to the C-POD and that public transportation nodes (e.g., metro, bus stop, and traffic circles) can be possible distribution locations. More C-PODs are usually needed if the public transit system is not fully operational.

Transition Plan

The Distribution Management Plan should include considerations for transitioning from emergency shelf-stable meals to feeding kitchens (hot rations) to demobilization. As a general rule, this transition should take place within ten days of response, if not sooner.

4. Inventory Management

Inventory management addresses the quantity of commodities and equipment that an organization physically has on hand. Managing the acquisition, use, distribution, storage, and disposal of commodities and equipment is vital to identifying available resources, controlling costs, and improving the efficiency and readiness of an organization. Ineffective inventory management may result in a shortage or surplus of resources.

Effective inventory management starts with a plan that incorporates proper assessment of needs, regular accounting of resources, standard, consistent, and understandable policies and procedures, and industry best practices. Inventory management properly prioritizes matching requirements with available resources and the order of execution.

Resource Tracking

Resource tracking is critical to inventory management. It is a standardized, integrated process conducted throughout the life cycle of an incident to provide a clear picture of where resources are located and help staff prepare to receive them. It should include procedures to track resources continuously from mobilization through demobilization and display real-time information in a centralized database, allowing total visibility of assets.

Forecasting Demand Based on Consumption Rate

Resource tracking provides information and usage data that enables a jurisdiction to forecast demand and cross-level remaining assets, working with FEMA to ensure inbound commodities reflect need.

5. Transportation

This function enables the relief supply chain, through coordinated transportation nodes and modes, to effectively deliver goods and services in an expeditious and efficient manner. Capacity, capability, speed, cost, resiliency, reliability, and robustness of transportation all contribute to a supply chain's ability to respond to demand or changes in demand while meeting mission requirements. Jurisdictions should describe transportation architecture (e.g., key routes

and nodes) and inbound and outbound flows. Inbound flows may include commodities, equipment, and teams; outbound flows may include retrogrades and redeployments.

Many aspects of transportation influence success or failure during a response. Assessing SLTT capability and requirements is necessary to evaluate organic capability and identify where potential shortfalls exist. Capability can be difficult to identify and goes beyond an emergency management agency's current equipment or contracting capacity. True capability lies within the transportation solutions and operations SLTT agencies are already engaged in, even if they are separate from obvious emergency management connections.

Government institutions and contracts may already exist to move resources and people for routine daily operations, such as moving commodities for population and business operations. It may be possible to leverage that capability for emergency transportation, as a separate or additional source for capacity. Additionally, government agency agreements and contract line item numbers (CLINs) could be added to provide for emergency response support, even vendors fulfilling requirements that are seemingly unrelated to emergency response.

Assess what internal capabilities exist and what other non-emergency capacity can be leveraged (e.g., SLTT agencies, private sector, nonprofit organization) by cataloguing current transportation capabilities. Then determine how robust and resilient the capability is, what redundancy is available and can be developed, lead and cycle times with variance, and scalability and limits.

Modes of Transportation

Given priorities established by the operations and SLTT leadership, determine a plan for tasking, managing, and prioritizing transportation requirements from all modes: ground, air, water, and rail. All will have unique transit, lead, and cycle times along with a degree of reliability of those times. Multiple methods are often combined as intermodal movements.

Ground

Transporting resources by truck is an often-used capability. Tractor trailers are the most common method for quickly moving substantial quantities of resources in the Continental United States (CONUS). Ground transportation also includes specialty vehicles, such as high-water, off-road, box trucks, and lift gates. Combined with other transportation methods, ground capabilities provide operational control and redundancy in case of failure or obstacles but may require other support such as dispatching. Ground transportation capability may exist internally and/or require contracting through pre-existing or spot contracts.

Air

Transportation by air can be sourced from the National Guard, the private sector, or Federal capabilities. Determine a plan for how operations should occur, accounting for perceived capability and actual capacity. Transport by air is often the most expensive, and while quickest from point A to B, prioritization and backlog of requested items may make other types of transportation more feasible and timelier. Also consider wraparound support services and agreements for operations and services.

Water

Transportation by water (e.g., barge or boat) is typical for movement for outside the Continental United States (OCONUS). As last-mile transportation, boats can be used at the local level to move resources.

Rail

Transportation by rail may provide a sustained supply of commodities. Establish the capacity and capability of current private sector rail operations.

Strategic Considerations

Match distribution requirements with transportation capacity, including tracking of orders throughout the supply chain lifecycle. This includes not only the commodity or resource, but the vehicle utilized (e.g., trailer, container, vessel, aircraft).

Address OCONUS considerations and challenges as part of the Distribution Management Plan. Stress the importance of lead, transit, and cycle times and variability of those times. Both time and variability will be more extensive than most CONUS operations.

Other methods and sources can augment known or predictable requirements; developing a consistent plan to execute those solutions is important. This can be achieved through a checklist with options, an order of addressing options, and decision-making criteria.

Movement of Resources

Determine a plan for moving commodities and resources between staging areas, warehouses, and C-PODs. Explore transportation as an overall lifecycle of the event (i.e., round trip) or as segmented requirements (i.e., each leg of the route).

Determine available options (e.g., contracts, National Guard, spot contracts, EMAC) to acquire additional support to move resources and whether funding methods are in place and the cost and feasibility of executing them. Determine possible courses of action for meeting shortfalls and an order of execution that is scalable to cover unforeseen circumstances.

Tracking Material and Equipment

Determine the best way to track operations and measure performance, including triggers to indicate when tactical corrections are needed. The measurement system should be repeatable, understood by all actors, and lead to achieving mission goals.

Identify how transportation providers will enter disaster areas, especially evacuated areas and areas with limited and strained infrastructure. These items are often tracked:

- Methods of control
- Identification and validation
- Procedures
- Routes

- Entry during contraflow.

Empty Trailer Management

Planning and executing the return of equipment aids the response by reducing total units required, reallocating resources more effectively, and preventing field operations from outgrowing their required footprint. Tracking returning trailers needs to be a part of the SLTT jurisdiction's transportation management plan. A recovery system for empty trailers is simple to teach, socialize, and integrate into existing procedures and methodology with partners. It leverages current common industry practices, including nomenclatures that identify the trailer number, tag number, state, and trailer/corporate flag.

Empty trailers and equipment that are not appropriately utilized incur significant costs, including detention costs, opportunity costs of idle equipment, lost capacity, excessive field management issues, and additional costs for unused power.

Shuttle Fleet

Staging and distribution may utilize a shuttle fleet. At the Federal level, this consists of multiple trucks (e.g., bobtail tractors with drivers) to transport commodities and freight to the Federal staging area.

The typical zone of operation is an area with an "X"-mile radius. In general, a shuttle fleet can transport commodities and equipment to any point operationally necessary for the mission within a functional limit based on geography, contract limits, or time, but a 250-mile radius is a good starting point for planning purposes. Each jurisdiction should consider its geographic area, along with fleet capability, to establish its own practical limit. This includes transporting to state or local staging areas, C-PODs, other sites, and volunteer groups. Some jurisdictions manage effective cross-dock operations where larger shipments and pallets are reconfigured into smaller "box trucks" or custom loads.

For staging and warehousing, proper command, control, and coordination of logistics resources with requirements is needed. For example, shuttle fleet management should be close to the command center while ensuring drivers and dispatch maintain a safe distance from the flow of traffic. A company representative on site ensures communication flow, including mission status and timely updates on the shuttle fleet and dispatch status. A best practice is for staging-site staff to maintain a log of all drivers, including time and attendance, and any other supporting actions, such as authorized emergency repairs and other logistics support.

Suggested aspects of a shuttle fleet include:

- Prestablished operating procedures for staging area operations and integrating movement control
- Identified and qualified sources and vendors
- Clear statement of work (SOW) with responsibilities and appropriate flexibility (with oversight) to meet objectives

- Immediately available shuttle leadership (but not so engaged that that operation interferes with decision making, command and control, or ability for oversight)
- Separate mustering of drivers, away from command and control and government operations.

6. Staging

A staging area is a designated temporary site established in the community to receive and distribute emergency relief supplies (e.g., water, food, cots, blankets, tarps, generators) following an incident. A staging area consolidates commodities and resources to a location suitable for supporting disaster response, enabling:

- Accountability of all government resources
- Proximity placement for fast and efficient service to the survivor
- Better coordinated planning and management of the response effort.

Staging area sites should be predetermined and assessed for equipment, staff, contracts, and other support needs. Sites may also be used to support and stage disaster relief personnel/equipment (e.g., search and rescue teams, damage assessment teams, security teams) for employment into affected areas.

The state staging area is the focal point in the supply chain for resources to be delivered from multiple sources to survivors in a community:

- Federal resources move from FEMA incident support bases (ISBs) or Federal staging areas.
- States move inventory from state distribution centers or from state partners.
- Private sector resources originate from commercial contracts or donations.
- Resources move from state staging areas to county staging areas or commodity points of distribution.

Figure 1 illustrates the role of the staging area in moving resources.

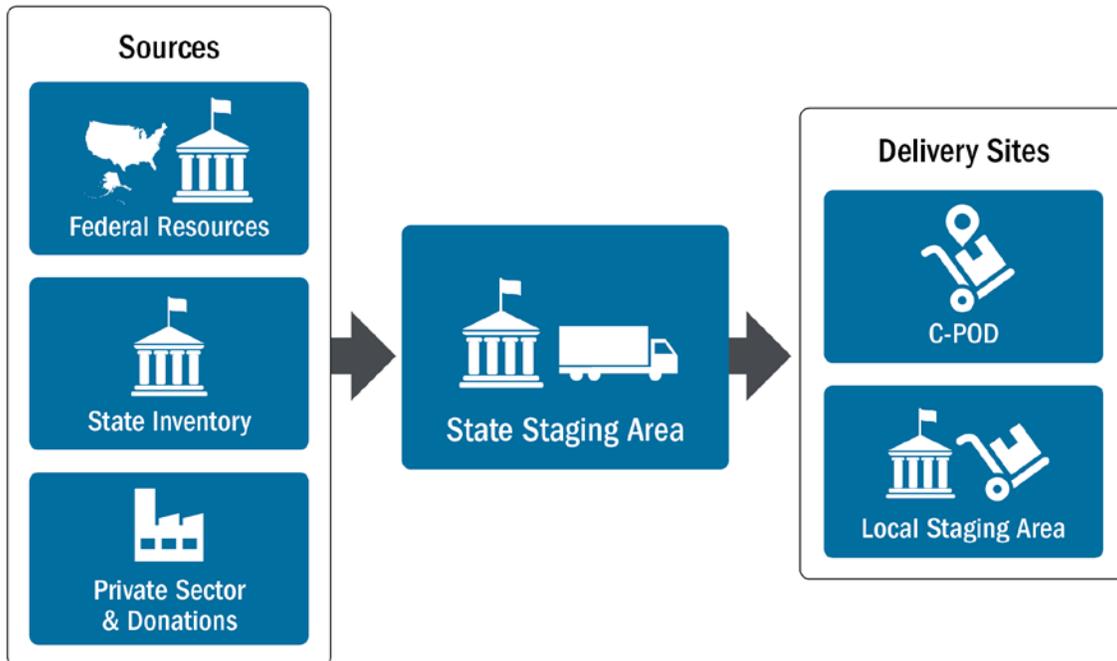


Figure 1: Movement of Resources to Staging Areas and then to Sites to Distribute Supplies Directly to Survivors

Models

Hub-and-Spoke Model

In most cases an SLTT jurisdiction operates a central fixed location to dispatch commodities to the locally operated C-PODs, like the traditional hub-and-spoke model. A good site is near a major highway or interstate for access to ground transportation, ideally co-located with an operational airport, and near the impacted area (e.g., within an hour) without impeding response efforts.

Fixed Site

Operational requirements may in some cases necessitate the SLTT jurisdiction operating a fixed location such as a warehouse to receive, store, and cross-dock resources. A third-party logistics provider or state-run warehouse may be needed for temperature control or for inventory management during unloading from trailers.

Cross-Docking

Cross-docking optimizes the delivery size of shipments (see Figure 2). Commodities may arrive in shipments that require reconfiguration. In some cases, optimizing resources in smaller delivery quantities, the layout of the receiving C-PODs, or transportation constraints dictate a smaller conveyance for distribution.

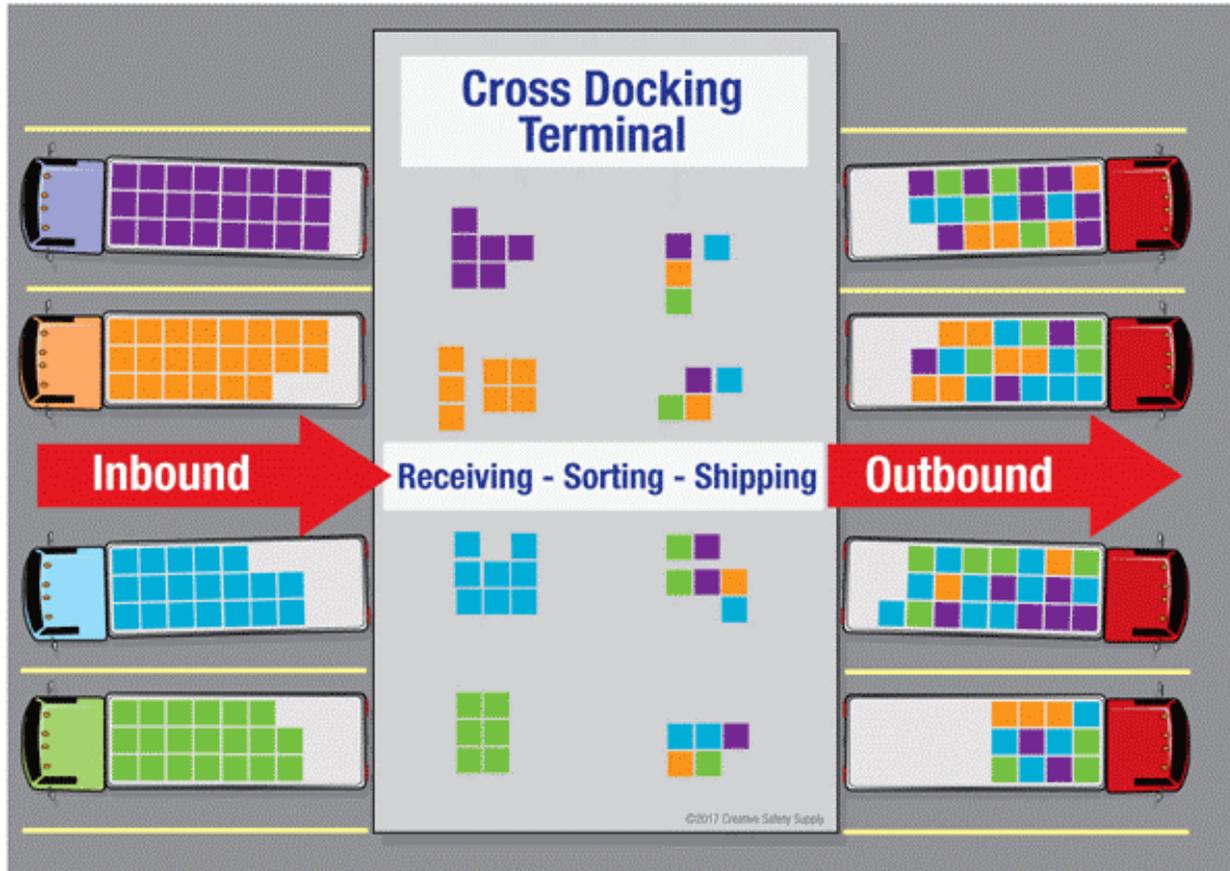


Figure 2: A Cross-Docking Terminal Receives and Sorts Incoming Shipments for Delivery

Types of Staging Areas

Staging areas come in many shapes and sizes, normally limited by the geography rather than the mission. However, a staging area must be the right size for the anticipated mission.

Establishing a Staging Site

When establishing a staging site, select and assess a location that is convenient for operation and security. Developing and using a checklist for selecting sites provides operational consistency.

Requirements

The following minimum requirements for establishing a Federal staging base or ISB can help SLTT partners develop minimum requirements for their staging sites:

- Five acres for parking and staging commodities
- Another five acres to support generators, support operations, and mission and support personnel
- Communications support and viability
- Access to fuel and other support services

- Ability to segregate commodities, resources, and staff for the operation and from other activities and entities
- Ability to establish a traffic pattern that supports the mission and minimizes impact on the installation and immediate area
- Hours of operations (activation timeline).

Equipment and Supplies

A staging area may require equipment such as a trailer, safety kits, two-way radio, forklifts, pallet jacks, rope, truck seals, tape, strapping, banding machine, stretch wraps, pallet puller, fire extinguisher, chain sling, chain hooks, chain, wheel chocks, reflective safety vest, rainwear apparel, gloves, ear plugs/hearing protection, portable light sets, shelf-stable meals and bottled water for staff, portable toilets, generator, surveyor's tape, duct tape, road cones and barriers, dumpster, satellite phone, and flashlight with batteries.

In addition to identifying equipment, determine a daily maintenance schedule, a breakdown protocol, and refueling procedures.

C-POD Operations

Resources are moved from staging areas to C-PODs. C-PODs are generally open to the public during daylight hours, especially in no power/no lighting situations, to encourage public safety. Resupply is conducted when the C-POD is closed.

Personnel/Staffing

Establishing the number of staff required is one of the more difficult parts of determining support requirements. Positions include C-POD manager, support team leader, loading team leader, traffic controller, pallet jack operator, fork lift operator, loader, and site security officer. Shuttle fleet drivers may either be assigned to or pass through the site.

The C-POD Manager manages the staff, including breaks, meal breaks, and whether food is provided; determines traffic flow and check-in procedures, site services, security, and stocking requirements; and manages reports and maintains records. Specific suggestions on these aspects can be found in the C-POD training (mentioned in Appendix B).

7. Demobilization

Demobilization is when resources are retrieved, rehabilitated, replenished, disposed of, and retrograded. The Distribution Management Plan should address how the jurisdiction conducts property reconciliation and an organized shutdown of the response.

Triggers and Indicators

Indicators that a distribution system can be shut down include restoration of the power grid, reopening of retail stores, operable point-of-sale systems, restoration of traditional transportation systems (e.g., seaport, airport, or rail stations), diminishing population in shelters, and decreased demand for resources at C-PODs.

Property Reconciliation

Property reconciliation starts with an established property accounting system. The C-POD Manager and the SLTT distribution manager should assign a property officer(s) to track the influx and changes of property. Once the SLTT jurisdiction is satisfied that all assets assigned to or purchased for response operations have been accounted for, an orderly disposition can be accomplished.

Suggested Steps to Ensure Accurate Property Reconciliation

1. C-POD/SLTT manager(s) assigns a property officer at the beginning of the event.
2. Property officer monitors receipt of all commodities and accountable property received.
3. Property officer inputs all property data into the jurisdiction's approved inventory tracking system.
4. Property officer amends the inventory system with the release of commodities and receipt of additional quantities.
5. Property officer updates inventory daily.
6. C-POD/SLTT manager instructs property officer to initiate property reconciliation.
7. Property officer returns/retrogrades commodities back to the source and returns accountable property to warehouses
8. Property officer forwards final report to C-POD/SLTT manager, to be forwarded to the jurisdiction's procurement office to verify commodities purchased.

Right-Sizing the Mission

Evaluate C-PODs throughout the operation, and as power is restored, adjust the quantity, location and size of C-PODs in consideration of closing, consolidating or right-sizing the staging areas. Screen assets to determine whether they will be needed elsewhere in theater and transfer those items to the appropriate location in accordance with local policy. Return the remaining items to their place of origin or other appropriate locations.

Organizational Shutdown

Once the physical assets of the facility are planned for and/or disposed of and all other documentation such as records and reports have been completed, the remaining staff can begin to stand down or transition into operations at an alternative C-POD location. Do not release personnel to other assignments until all tasks in the demobilization plan have been accomplished. An essential part of the organizational shutdown retrofitting and rehabilitating the facility used during the operation to the satisfaction of the property owner.

Reimbursement

Processes and procedures exist to reimburse resource providers in a timely manner. Tracking helps establish and maintain the ability to obtain reimbursement, which is critical to reestablishing and maintaining the readiness of resources for future events. A jurisdiction's Distribution Management Plan should include the roles and responsibilities around maintaining detailed records, which are important for accountability, particularly if an audit is conducted.

Final Records and Reporting

Final reports (e.g., on distributed and returned supplies, number of survivors served, and staff activity) provide a comprehensive view of operations at the distribution site.

Clean and Replenish Kits

Cleaning, inventorying, and replacing equipment, supplies, and C-POD kits ensures everything is in good working order for the next use.

Appendix A. Evaluation Sheet

The FEMA Regional Logistics Branch uses the evaluation sheet on the following page to determine a baseline assessment of a Distribution Management Plan. It includes 13 questions to evaluate the inclusion of key components. The “Comments” column identifies areas or actions for improvement. Based on the results of the evaluation, the Plan is placed in one of three Tiers:

- Tier 1: Approved and complete
- Tier 2: Approved with comments, action plan required
- Tier 3: Received, technical assistance and action plan required

After the initial assessment, an EMPG recipient is expected to make continued progress in subsequent years, working with the FEMA Regional Logistics Branch as necessary.

**Distribution Management Plan Evaluation Sheet
Baseline Assessment – Year 1**

Region : I II III IV V VI VII VIII IX X

State/Territory: Reviewed by:

Date Received: Date Reviewed:

No.	Question	Rating		Comment
		Yes	No	
1	Did the EMPG recipient submit a Distribution Management Plan?			
2	Does the plan address all seven components— Requirement Defining; Resource Ordering; Distribution Methods; Inventory Management; Transportation; Staging; and Demobilization?			
3	Is the focus on SLTT distribution capacity with the Federal Government in a supporting role?			
4	Does the plan indicate how to integrate private sector, nonprofit, and local and Federal partners?			
5	Does the plan identify innovative solutions?			
6	Does the Requirements Defining section refine the requirement based on anticipated demand for meals, water, mass care supplies, and transportation of resources and include private sector capabilities?			
7	Does the Resource Ordering section include multiple sourcing mechanisms?			
8	Does the Distribution Methods section include robust and scalable methods to accommodate any level of disaster?			
9	Does the Inventory Management section describe how the state will acquire, use, distribute, store, and dispose of commodities and equipment?			
10	Does the Transportation section describe the transportation architecture (e.g., key routes and nodes) and inbound and outbound flows?			
11	Does the Staging section predetermine and assess sites for equipment, staff, contracts, and other support needs?			
12	Does the Demobilization section describe how the recipient will conduct a property reconciliation and organized shutdown?			
13	Is the plan implementable for the EMPG recipient?			

Score (total number of yes) of 13

- Baseline Evaluation:**
- Tier 1: Approved and complete**
 - Tier 2: Approved with comments, action plan required**
 - Tier 3: Received, technical assistance and action plan required**

This evaluation sheet provides a baseline assessment of a EMPG Recipient’s Distribution Management Plan. A recipient should make continued progress from this baseline assessment in subsequent years, working with the FEMA Regional Logistics Branch as necessary. Comments are areas or actions for improvement.

Appendix B. Technical Assistance and Resources

Technical assistance is available for developing a Distribution Management Plan. FEMA Regional Logistics staff and/or FEMA Integration Teams (FITs), where applicable, will work with EMPG recipients to provide technical assistance, including the resources below, to develop and maintain a Distribution Management Plan. SLTT partners should contact their respective FEMA Regional Logistics Branch to learn more about these programs and tools:

- **Comprehensive Preparedness Guide 101 (CPG 101), Developing and Maintaining Emergency Operations Plans:** CPG 101 provides guidance on how to incorporate logistics into Emergency Operations Plans. CPG 101 is available on the [FEMA website](#).
- **FEMA Technical Assistance:** FEMA provides specialized expertise to SLTT partners to improve emergency management capabilities.
 - FEMA’s National Integration Center provides planning technical assistance, to include **supply chain collaborative technical assistance** that helps local emergency managers explore and understand supply chains and support private-public collaboration for catastrophic events. Email FEMA-TARequest@fema.dhs.gov for more information.
 - FEMA’s Regional Logistics Branches provides technical assistance to improve emergency management capabilities in terms of **logistics**. This technical assistance includes in-person workshops and opportunities for peer-to-peer learning on emerging, cross-cutting, or complex topics. Contact your Regional Logistics Branch for more information.
- **Interagency Logistics Training:** The L854: Basic Interagency Logistics Course familiarizes participants with interagency logistics concepts of planning and response. It provides an overview of interagency logistics partner disaster response organizations, discusses parameters for logistics support coordination, and creates a whole community forum to exchange best logistics practices. More information on the course is available via the course catalog on [EMI’s website](#).
- **LCAT2:** [LCAT2](#) helps SLTT partners conduct self-assessments to determine their readiness to respond to disasters. The survey-style tool provides a detailed assessment of core logistics functions; helps jurisdictions identify specific strengths and weaknesses; and constructs a systematic roadmap for SLTT partners to improve on current logistics processes and procedures.
- **Points of Distribution (PODs) Training:** FEMA’s comprehensive POD training helps SLTT partners develop actionable plans for emergency distribution and understand associated challenges. The [IS-26: Guide to Points of Distribution Course](#), including an explanatory DVD, POD guide, and online exam, is available on the [Emergency Management Institute \(EMI\) website](#).

- **Regional Resiliency Assessment Program (RRAP):** Managed by DHS, the [RRAP](#) is a voluntary, non-regulated interagency assessment of critical infrastructure resiliency in a designated geographic region. Each year DHS, with input and guidance from Federal and state partners, selects several projects for RRAP that focus on specific infrastructure sectors within defined geographic areas and address all-hazard threats that could result in regionally and/or nationally significant consequences.
- **Special Directed Studies or Analyses:** FEMA will consider special case studies or analyses, such as the National Academy of Sciences 2017 Supply Chain Resilience Study and the [Supply Chain Resilience Guide](#), particularly in advance of major disaster plans updates, that can contribute to Distribution Management Plan updates or development.

Appendix C. FEMA Relief Supply Chain Maps

FEMA mapped the FEMA Relief Supply Chains for CONUS and OCONUS (Figures 3 and 4).

Emergency managers look at supply chain through two lenses: normal private sector logistics before an event and the relief supply chain that governments and the VOADs help operate.

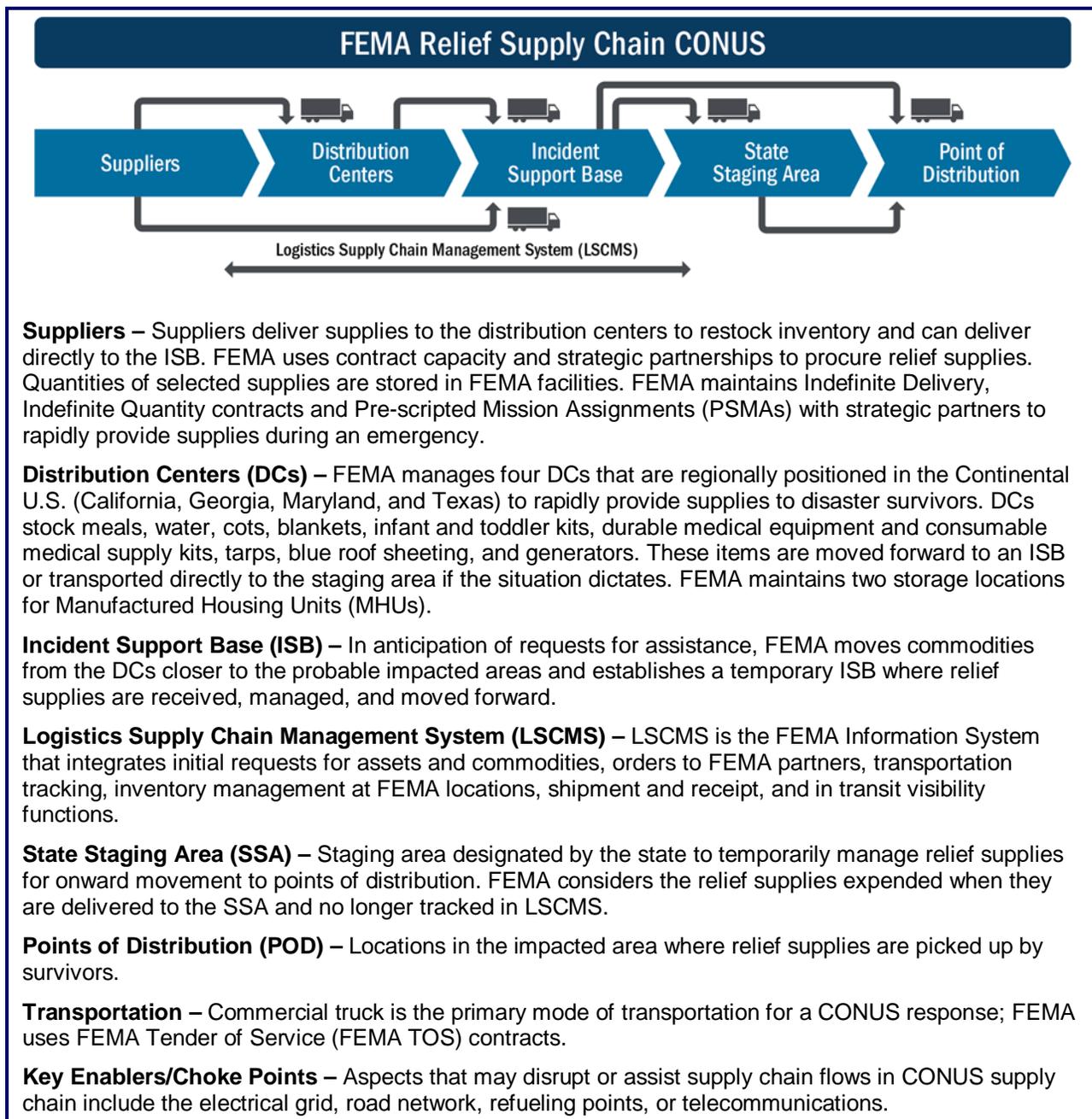


Figure 3: FEMA Relief Supply Chain – CONUS

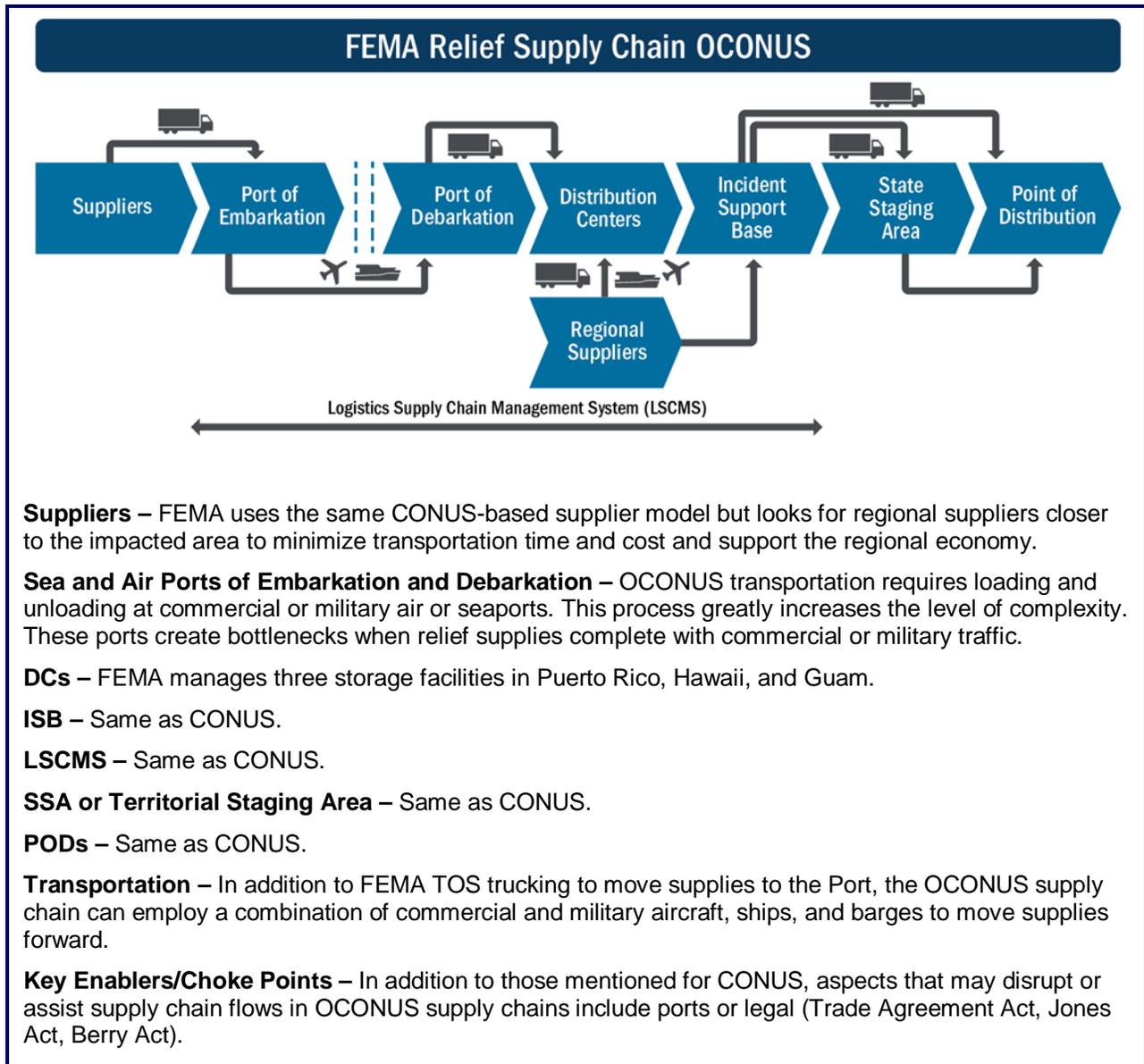


Figure 4: FEMA Relief Supply Chain – OCONUS

Appendix D. Acronym List

CONUS	Continental United States
CPG	Comprehensive Preparedness Guide
C-POD	Commodity Point of Distribution
EMAC	Emergency Management Assistance Compact
EMI	Emergency Management Institute
EMPG	Emergency Management Performance Grant
GIS	Geographic Information System
GSA	General Services Administration
ISB	Incident Support Base
LCAT2	Logistics Capability Assistance Tool 2
LSCMS	Logistics Supply Chain Management System
OCONUS	Outside the Continental United States
P-POD	Pedestrian Point of Distribution
POD	Point of Distribution
RRAP	Regional Resiliency Assessment Program
RRF	Resource Request Form
SLTT	State, Local, Tribal, and Territorial
SSA	State Staging Area
TOS	Tender of Service
VMI	Vendor-Managed Inventory
VOAD	Voluntary Organizations Active in A Disaster