

ANNEX B

**Transportation**

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Army transportation operates as a partner in the defense transportation system to deploy, sustain, and redeploy forces in all military operations. Transportation provides vital support to the Army and joint forces across the strategic, operational, and tactical levels of war. It is a seamless system that unites the levels of war with synchronized movement control, terminal operations, and mode operations. Army transportation incorporates military, commercial, and supporting nation capabilities. It involves the total Army--active and reserve components. More detailed information on Army transportation is in FM 55-1.

In a force-projection Army, rapid deployment of forces is a critical element of warfighting. The right quantity and types of military and commercial transportation, coupled with C3, are essential to provide forces and support resources where and when required. Transportation assets include motor, rail, air, and water modes and units; terminal units, activities, and infrastructure; and movement control units, activities, and systems.

**STRATEGIC MOVEMENTS**

Strategic movements are movements from one geographic area of operations to another. They encompass all activities involving movement from origin to the port of debarkation. This movement is called deployment when referring to relocation of units and their sustainment equipment and supplies. During the initial stages of a deployment, the primary emphasis is on deploying high priority units by air and establishing sea lines of communication (SLOC). Planners at all levels participate in strategic movement planning.

Military units, commercial activities, and installations perform transportation functions at the strategic level. Installations and movement control units use automated systems to plan, program, and allocate resources, synchronize transportation activities, and provide in-transit visibility of movements. Mode

operating units and commercial activities provide motor, rail, air, and water transportation. Terminal units and commercial activities provide terminal operations at highway, air, water, and rail terminals to handle cargo and personnel.

At the strategic level, the United States Transportation Command (USTRANSCOM) is the senior movement control, mode operations, and terminal operations command. Synchronizing all three activities provides USTRANSCOM, in conjunction with supporting and supported commanders, control of strategic movements.

USTRANSCOM controls movements within CONUS through the Military Traffic Management Command (MTMC) and Air Mobility Command (AMC).

## FM 100-10

MTMC, as the Army component of USTRANSCOM, plans and routes CONUS commercial movements through CONUS water terminals. It issues port call messages to deploying units which direct this movement. MTMC coordinates with the servicing installation transportation office (active and reserve components) or US Property and Fiscal Office (National Guard).

AMC, the Air Force component, plans and routes air movements from aerial ports of embarkation (APOEd) to aerial ports of debarkation (APODs). AMC uses military and Civil Reserve Air Fleet aircraft. It establishes the air lines of communication (ALOC). The ALOC is a sustaining strategic transportation system for the air movement of supplies, equipment, and follow-on unit deployments by air.

The Military Sealift Command (MSC), the Navy component of USTRANSCOM, provides strategic sealift. The majority of forces deploy equipment via roll-on/roll-off ships. In conjunction with MTMC, MSC establishes the SLOC. The SLOC provides the means to move the majority of supplies required for long-term sustainment of the force. MSC also operates ships that the Army uses for prepositioned afloat force modules and sustainment supplies.

USTRANSCOM schedules strategic deployment on the basis of the supported commander's priorities.

The time-phased force deployment list (TPFDL) is the commander's expression of his priorities. Both MTMC and AMC generate port call messages based on the TPFDL. These messages specify when units and equipment must beat a POE. Port call messages set in motion the movement from the installation or depot. The Army service component commands (ASCCs), both in CONUS and overseas, ensure units and equipment arrive at the POE as directed.

In CONUS, installation transportation offices (ITOs) in conjunction with movement officers at each echelon coordinate movement to the port of embarkation. The defense movement coordinator in each state movement control center plans and routes CONUS surface movements in accordance with port calls issued by MTMC. Outside CONUS, the ASCC has movement control units that perform similar functions as the ITO. Deployable movement control units and personnel organic to Army units at operational and tactical levels of war also play an active role in preparing their forces for deployment. However, their focus is on their own early deployment to develop the operational and tactical level theater transportation capability.

Strategic transportation also includes redeployment and movements from ports of debarkation to home station. In CONUS it may include transportation associated with demobilization. FMs 100-17 and 55-65 have additional information on strategic deployment.

## OPERATIONAL AND TACTICAL TRANSPORTATION

The variety and complexity of military operations require the Army to establish a transportation system that is expandable and tailorable. The objective is to select and tailor required transportation capabilities at the operational and tactical levels to achieve total integration of the system. These capabilities include movement control, terminal operations, and mode operations.

At the theater strategic and operational levels, sufficient force structure deploys early to open ports; establish inland LOCs; and provide C3 for movements. This

same force structure is required to redeploy the force when operations conclude. Ports, terminals, and inland LOCs are critical nodes in the distribution system. At the theater strategic and operational levels, transportation supports the reception of units, personnel, supplies, and equipment at PODS and provides for their movement as far forward as required.

Theater transportation requirements largely depend on METT-T. Logistics preparation of the theater prior to deployment is essential in determining requirements. Additionally, the Army supports other services

and nations when directed by the CINC or joint force commander. Establishing communications linkage to other than Army forces is a challenge; however, transportation planners must integrate all requirements and support considerations into movement plans and programs.

At the tactical level, transportation weights the battle through the same functions as found at the operational level. However, the force structure and focus are directed to forward support. Such support is often achieved through multifunctional organizations.

### MOVEMENT CONTROL

Movement control is the linchpin of the transportation system. Movement control units and staffs plan, route, schedule, control, coordinate, and provide in-transit visibility of personnel, units, equipment, and supplies moving over lines of communication. They are the using unit's point of contact for transportation support. They commit (task) allocated transportation modes and terminals to provide support in an integrated movement program according to command priorities. They remain responsive to changes in METT-T which require adjustments to the plan.

Effective movement control requires access to communication and information systems to determine what to move, when, where, and how. It also provides visibility of what is moving, how it is moving, and how well it is moving. Source data automation and automated identification technology are essential aspects of control. So is integration with other management information systems.

Transportation staff planners and movement managers at each echelon perform movement control activities. They coordinate routinely with operations planners and other CSS personnel since movement control is tied directly to maneuver and distribution. It also relies on support from military police in their battlefield circulation control role. All these staffs work together to plan movements. Otherwise, congestion on lines of communication and at

terminals hinders maneuver and other movements and degrades combat effectiveness.

In addition to synchronizing movements with other Army elements, movement control personnel coordinate movements with other services and countries when operating as part of a joint or multinational force. A CINC may delegate transportation responsibilities to a service component, or he may allow component commanders to plan for and perform their own movement control. Frequently, he creates a joint movement center (JMC) and joint transportation board with elements from each service component to plan operations and monitor overall theater transportation performance. JP 4-01.3 covers specific responsibilities of a JMC. Similarly, a multinational force commander may form a multinational movement control agency.

At the operational level, the senior movement control organization looks forward to activities within the area of operations, as well as rearward to the sustaining base. This requires communications that connect both systems and decision makers at the strategic and operational levels to facilitate reception and onward movement. This information exchange is crucial to the supported commander for operations planning.

As discussed in Chapter 2, movement control personnel coordinate with materiel managers for efficient distribution of materiel. They develop movement plans which take into account all movement requirements, the transportation system capabilities, and the commander's priorities. Movement control elements use these factors when tasking transportation units to meet movement requirements. FM 55-10 has more information on movement control.

### TERMINAL OPERATIONS

A terminal is any facility, regardless of size, at which cargo or personnel are loaded, unloaded, or handled in transit. Transportation and other CSS units establish terminals at origins and destinations. Transportation units also establish in-transit terminals along lines of communication. Terminal operators transfer cargo only when necessary. The preferred delivery

method is movement from origin to destination on one mode when possible.

Ocean water terminals include major port facilities, unimproved port facilities, and bare-beach facilities:

- Major port facilities are improved networks of cargo-handling facilities specifically designed for transfer of ocean-going freight, vessel-discharge operations, and port clearance. They normally have roll-on/roll-off service and container-handling capability.

- Unimproved port facilities are not as fully developed as major ports. They may require support from terminal units and shallow-draft lighterage to discharge vessels.

- Lack of fixed terminal facilities at bare-beach locations requires that lighterage deliver cargo across the beach.

Planners must be aware of the latest status of ports. Ports may be degraded by enemy action such as sinking vessels or damaging cranes or piers. Such activities can quickly turn a major port into the equivalent of an unimproved port.

Army transportation units establish inland terminals wherever required throughout the theater to transship, load, and unload cargo. They operate motor transport terminals and trailer transfer points at both ends of and at intermediate points along line-haul routes. These terminals link local-haul and line-haul service and assist in changing the carrier or transportation mode where required. Army units and host nation assets operate terminals at both ends of and at intermediate points along rail lines. Army cargo transfer units may also operate intermediate transfer points on inland waterway systems.

Army cargo transfer units clear Army cargo and personnel from air terminals served by the Air Mobility Command or from theater airlift aircraft. They may also provide such assistance at forward landing fields that are not regularly scheduled stops for theater airlift aircraft.

## MODE OPERATIONS

Army transportation units perform motor, rail, air, and water movement functions. While a given situation may

not require all of these functions, the Army must maintain the capability to deploy and provide them.

### Motor

Tactical vehicles are the backbone of the support structure. They are mobile, flexible, and reliable. The motor transportation unit and equipment mix for an operation depends on METT-T. Planning factors include the planned flow of personnel and materiel and the availability and quality of the road networks. Motor transport provides the connecting links between the PODs and the receiving units. The right tactical trucks, in the right place, at the right time, are essential to the success of any military operation. Trucks are characterized as light, medium, and heavy:

- The light tactical vehicle (under 2.5 tons) fleet consists of the high mobility multipurpose wheeled vehicle (HMMWV), commercial utility cargo vehicle (CUCV), and small unit support vehicle (SUSV) family of vehicles.

- The medium tactical vehicle (2.5 to 5 tons) fleet consists of the cargo trucks and tractor trailers.

- The heavy tactical vehicle (over 5 tons) fleet consists of the heavy expanded mobility tactical truck (HEMTT), heavy equipment transporter system (HETS), line-haul transporters, and the palletized load system.

Light vehicles serve as battlefield transporters for unit commanders and communications and weapons systems. Medium vehicles are the *workhorses* of the battlefield, serving as primary movers of unit equipment and personnel. Heavy vehicles perform a variety of functions which significantly influence the outcome of battles as the key ammunition, weapons system, and petroleum transporters. Medium and heavy tactical vehicles are most commonly organized in motor transport units for common-user support.

Common-user motor transport assets are centrally controlled at each echelon to respond to the commander's priorities and weight the CSS effort. At division level, the DISCOM provides motor transport support under control of the movement control officer. At corps and above, motor transport units provide

support on an area basis and respond to taskings of the movement control teams in the area. Host nation or multinational force support elements may augment the Army capability. FM 55-30 has detailed information on motor transport units and operations.

### **Rail**

Rail is potentially the most efficient method of hauling large tonnages of materiel by ground transportation. However, the Army normally depends on the host nation to provide this mode of transportation. The Army has limited railway construction and repair and railway-operating capability. These Army assets augment host nation support or provide those capabilities in theaters where host nation support is not available or is not capable or reliable. Rail operations are limited to existing rail networks. Information on rail transport units and operations is in FM 55-20.

### **Air**

Air is the most flexible transportation mode. While wide-ranging CSS needs within a theater require US Air Force (USAF) and Army airlift assets to support forces, commanders normally employ Army aviation in a combat support role. However, the ALOC becomes increasingly important as the intensity, depth, and duration of operations increase. Airlift relieves forces from total dependence on ground lines of communication which can become congested or interdicted. It also allows rapid support to the force with minimum regard to terrain peculiarities. It makes possible rapid resupply of critical items overextended distances directly to or near forward units. Therefore, commanders should allocate Army aviation assets for transportation use when required.

Air Force and Army airlift assets provide airlift within a theater of operations. Army cargo and utility helicopters provide support at the operational and tactical levels through movement control channels in response to mission requirements and the commander's priorities. Likewise, the USAF provides theater airlift support to all services within a theater through a

process of allocating sorties on a routine basis or providing immediate support to operational requirements.

While airland is the preferred method of delivery, airdrop is a field service which can provide flexibility to the transportation system by extending ALOCs. Annex F fully discusses this field service, which planners include in the development of transportation plans.

### **Water**

Army watercraft are an essential component of theater transportation. They provide efficient transportation to relieve other lines of communication. They may augment capabilities of other modes when integrated with appropriate terminal operations. Army watercraft move materiel and equipment along inland waterways, along theater coastlines, and within water terminals. Their primary role is to support cargo discharge and onward movement from the sea port of debarkation (SPOD) to inland terminals or to retrograde from inland terminals.

Army watercraft have a role in joint operations along with Navy and Marine Corps vessels, or in conjunction with host nation support assets. They perform docking and undocking services for ocean-going transport vessels. Terminal commanders may also employ watercraft in utility missions. These may include patrolling, ship-to-shore transport of personnel, harbormaster duties, and command and control functions.

Watercraft are integral to port-opening capabilities, whether employed at fixed terminals or for bare beach operations such as logistics-over-the-shore (LOTS). They must deploy into the theater prior to the arrival of the first ocean transport vessel.

The watercraft fleet consists of logistics support vessels (LSV), amphibians, medium and heavy landing craft, and a wide variety of specialized vessels, cause ways, barges, and equipment. Army watercraft are assigned to watercraft companies and detachments, which operate in transportation terminal battalions. FM 55-50 has details on Army watercraft units and operations.