

## Chapter 5

# Mode Operations

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### INTRODUCTION

5-1. The modes of transport bring to life the Army transportation system. They are the arteries that feed terminals, delivering the deploying force and distributing supplies into and within the AO. The modes give structure to the transportation system, defining the air and surface LOC required to conduct and support a military operation.

## SECTION I - Modes of Transport

### INTRODUCTION

5-2. There are two transport modes (air and surface) available for the conduct of military operations. The air mode consists of fixed-wing and rotary-wing aircraft. The surface mode includes sea, highway, rail, and pipeline.

5-3. The transport modes used depends on the existing geography and developmental infrastructure available in the AO. The type of military operation and the political nature of the US involvement may also influence mode selection. For example, in a peacekeeping operation, the political arrangements may limit the modes to a designated highway capability.

5-4. Commanders should equip the force with as many mode varieties as possible. A redundancy of modes enhances the flexibility of the transportation system, making it more responsive to changing situations. The parallel use of inland waterway and water transport assets, for example, may allow operations to continue if one MSR is denied due to local conditions.

### AIR MODE OF TRANSPORT

5-5. The air mode consists of a variety of assets. These assets include Air Force strategic and theater airlift, as well as commercial fixed-wing assets. The capability also includes Army organic rotary-wing and operational support fixed-wing airlift.

5-6. The Air Force uses its military assets, under the command of AMC, at all levels of war. Commercial air assets are, for the most part, limited to operating at the strategic level of war. Army rotary-wing and operational support airlift work at the operational and tactical levels of war.

5-7. Commercial, US Air Force, and Army operational support airlift assets require an improved base support infrastructure. Army rotary-wing aircraft can operate with a less improved base support structure. Helicopters do not require a paved runway to take-off or land during the conduct of operations.

## **SURFACE MODES OF TRANSPORT**

5-8. Surface modes of transport consists of the following categories:

- Sea.
- Highway.
- Rail.
- Pipeline.

## **SEA MODE OF TRANSPORT**

5-9. The sea mode of transport consists of Navy and Army sealift assets. The Navy assets consist of the active and ROS fleet and those assets acquired from the RRF. The MSC ROS includes assets such as fast sealift ships and prepositioned afloat ships. The RRF includes assets such as RO/RO, container, and bulk POL ships. Commercial shipping organizations may provide assets at the request of USTRANSCOM. These assets work primarily in the strategic level of war transportation system.

5-10. The Army's contribution to the sea mode of transport consists of a variety intracoastal and inland waterways and landing craft. The Army also has amphibians, barges, tugs, and logistics support vessels. The Army uses these assets to work terminals and lighterage operations. The Army uses logistic support vessels to support landings and for intracoastal shipping operations. Army assets work primarily at the operational and tactical levels of war. The ASCC should consider the availability of HNS or contracted assets to supplement the Army capability.

5-11. The use of the sea mode of transport requires the availability or establishment of water terminals. Obtaining viable water terminals may require their early capture. Engineering resources may also enhance existing HN facilities. Army sea transport assets may join Navy and Marine Corps assets to support amphibious assaults and JLOTS operations.

## **HIGHWAY MODE OF TRANSPORT**

5-12. The highway mode of transport consists of a variety of Army truck transportation units that includes commercial assets. In most joint operations, the Army provides the entire highway common-user mode of transport capability. The Army uses this capability to move equipment, supplies, and personnel to POEs where they link with strategic airlift or sealift. The Army also uses highway assets to clear PODs and to distribute the shipments to their destination.

5-13. Commanders should consider the requirements for specialized highway transport capabilities such as water and fuel (POL) tankers, HETS, and PLS. All highway assets support the redeployment of the force.

#### **RAIL MODE OF TRANSPORT**

5-14. The Army's capability to operate railways resides within the RCs. However, this capability does not include the equipment needed to mount a railway operation. For this reason, the Army's ability to use rail transport depends largely on the existing capability in the AO.

5-15. Rail is primarily a strategic and operational level of war asset. At the strategic level within CONUS, MTMC arranges for rail movements of cargo and personnel to POE. In OCONUS, the ASCC is responsible for doing the same when deploying an Army force in support of a military operation. At the operational level of war, rail provides onward movement of the force and its sustainment. The Army can use HNS or contracted resources within the AO. The establishment of rail operations requires engineer support to maintain the right-of-ways and terminals.

#### **PIPELINE MODE OF TRANSPORT**

5-16. Pipelines allow for the movement of large quantities of bulk petroleum and water. The Army has the capability to lay and operate pipelines. However, commanders should exploit the capabilities existing in the AO. Like rail movements, pipelines require engineering efforts to construct and maintain the pipeline, its pumping stations, and terminals. Quartermaster Corps units operate pipelines primarily at the strategic and operational levels of war.

#### **MODE OF TRANSPORT SELECTION CRITERIA**

5-17. Selecting the mode of transport for a particular mission, regardless of the level of war, requires the consideration of certain criteria. The criteria are priority of the requirement, RDD, type of cargo, special restrictions, economy and efficiency, available resources, and security.

#### **PRIORITY OF THE REQUIREMENT**

5-18. The priority of the shipment comes from the user and matches the commander's concept of the operation. It is the first and most important consideration. Whenever doubt surfaces regarding the priority of a shipment, authorities in the transportation request process system should ask for validation of the shipment.

#### **REQUIRED DELIVERY DATE**

5-19. The RDD should match the priority given to the shipment. The RDD will allow movement control organizations to select the best mode of transportation. The mode operator then selects the assets to deliver the cargo on schedule, considering all the other requirements.

**TYPE OF CARGO**

5-20. The commodity or type of cargo may dictate which mode to use. Size, weight, packaging, quantity, value, and compatibility are all factors that influence the mode of transport.

**SPECIAL RESTRICTIONS**

5-21. Special restrictions play an important role not only in the selection of the mode, but in the routing of the movement as well. In coordination with movement control personnel, mode operators must be fully aware of restrictions that may exist along all LOC. These restrictions may dictate the use of a specific mode.

**ECONOMY AND EFFICIENCY**

5-22. The process of transporting the force and its sustainment is an expensive undertaking. The use of this criteria is important to assure judicious resource utilization. Warning of priority shipments is one method used to assure the sound application of this criteria. With warning, mode operators and the movement control personnel can schedule equipment to match priorities while using the most economical mode of transport.

**AVAILABLE RESOURCES**

5-23. Mode operators and movement control personnel should maintain a record of used and unused assets. This data is then used as a basis to acquire additional assets.

**MODE OF TRANSPORT CAPABILITIES AND LIMITATIONS**

5-24. The mode of transport selection criteria must be balanced with the mode capabilities and limitations in order to reach sound decisions. Table 5-1, pages 5-5 through 5-7, describes each mode showing its most effective use, together with capabilities and limitations.

**INTERMODAL OPERATIONS**

5-25. Intermodal capability is the ability of modes to transfer shipments from one to another with minimum handling requirements. It involves more than the mode of transport; it also includes the container, packaging, or other preparations used to deliver the cargo.

5-26. The positioning of the right MHE at the right location to handle the cargo is very important in intermodal operations. Also crucial is the preparation of cargo ahead of time to guarantee acceptability by the succeeding mode. For example, having the capability to transfer equipment rapidly from sea to air near an SPOE is a function of preparing the equipment to meet Air Force and US Navy loading requirements prior to making the shipment.

**Table 5-1. Mode of Transport Capabilities and Limitations**

<b>ORDER OF ECONOMY</b>	<b>MOST EFFECTIVE USE</b>	<b>CAPABILITIES</b>	<b>LIMITATIONS</b>
Pipeline	Primary mode for bulk liquids and solids suspended in liquid.	All weather conditions, few terrain restrictions, most economical and reliable mode for bulk liquids, relatively few personnel required for operation and maintenance.	Flexibility limited by immobile facilities, vulnerable to sabotage and enemy action, large construction tonnages required.
Sea	Primary over-ocean mode. Inland surface mode for moving large quantities of cargo.	All weather conditions, any commodity, most economical overall long-distance carrier, particularly useful for relieving other modes to more suitable employment.	Relatively slow, flexibility limited by adequacy of waterways, facilities, and channels, vulnerable to enemy action and difficult to restore. Also, inland waterways subject to flooding and freezing.
Rail	Primary inland mode for sustained flow of large quantities of traffic over long distances.	All weather conditions, any commodity, most economical continuous line-haul operations, greatest sustained ton-mile capability, variety of specialized equipment and services.	Flexibility limited by fixed routes, rail-line clearances restrict outside movements, capability limited by availability of tractive power, rail-line highly vulnerable to enemy action.

**Table 5-1. Mode of Transport Capabilities and Limitations (continued)**

ORDER OF ECONOMY	MOST EFFECTIVE USE	CAPABILITIES	LIMITATIONS
Highway	Supplementary mode for making possible an integrated transportation system. Effective in scheduled line-haul operations by the trailer relay system, primary mode for distribution operations and logistical support operations in combat zone.	Most flexible mode over trafficable terrain, practically all weather conditions (terrain factor important), increased flexibility of other modes, can transport nearly any commodity with a variety of specialized equipment for both on- and off-road movement.	Over the road operations affected by route interferences and obstacles created by weather, terrain, or enemy action sustained line-haul operations over long distances uneconomical in terms of ton-mile output versus expenditure of manpower and equipment.
Army Air (Rotary-Wing)	The most costly Army mode for the movement of supplies. Becomes the primary mode of transport when all others are ineffective because of limitations or physical restrictions. Used to move only those high-priority items and critically needed supplies, such as class V, III, I, IX, or as selected by mode managers.	All terrain. Effective over short distances less than 40 km for external loads. Helicopter can use unimproved pickup zone and landing zone during external lift operations. CAPABLE OF LIFTING NEARLY ANY LOAD THAT CAN BE SAFELY RIGGED and that is WITHIN THE WEIGHT limitations of the helicopter. CH-47 helicopters are capable of using Air Force	Operational capabilities limited by weather. Restricted flights in snow conditions and thunderstorms. Freezing levels above surface may limit capabilities. Aircraft capabilities limited by cargo load weight, cargo hook limits, or cargo door sizes. Aircraft availability may be affected by flying hour program or

**Table 5-1. Mode of Transport Capabilities and Limitations (continued)**

ORDER OF ECONOMY	MOST EFFECTIVE USE	CAPABILITIES	LIMITATIONS
		463L pallets and standard NATO warehouse pallets, when they are equipped with the helicopter internal cargo handling system.	crew rest requirements. Internal cargo loading may require MHE.
Army-Fixed-Wing Army Air Force	Complementary mode for expediting movement of mission essential traffic, primary or major supplementary mode when terrain reduces effectiveness of surface modes, scheduled operation is most economical method of employment and produced greatest sustained ton-mile capability.	Greatest potential speed of delivery, most flexible with respect to terrain obstacles, economically more favorably (when these factors are combined with substantial lift capability and air transport over long distances). Capabilities are: heavy drop, container delivery system, low altitude parachute extraction system, airland, adverse weather aerial delivery system, aerial bulk fuel delivery system.	Requires the availability of airfields. For other limitations see the preceding Army air limitations.

5-27. To optimize the transportation system capacity, the Army uses intermodal systems for contingency and peacetime movements of general cargo, unit equipment, and ammunition. The most common system is the container. It can transfer from highway to rail or sea without disturbing its contents. The Army standard container is the 20-foot, ISO container. However, many commercial containers are also used in the process of supporting a military operation. The most commonly available military useful ISO containers are 20 and 40 feet in length. The main concern when handling containers is the positioning of adequate MHE at the in-transit terminals and an unstuffing capability at the destination terminal. Transportation operators should acquire the required MHE from commercial or HN sources when the organic capability is insufficient to provide adequate resources for all terminals.

5-28. Containers employed in intermodal systems should be returned to the transportation system as soon as feasible. The rapid return of containers will ensure the system is not degraded.

5-29. Another Army intermodal capability is the PLS. PLS enhanced flatracks move, to the maximum extent possible, ammunition basic loads from home stations/depots to SPOEs. PLS enhanced flatracks can also move surge ammunition into the theater when sufficient PLS trucks are available to handle their forward movement.

5-30. Transportation planners and operators should give prime consideration to the intermodality aspects of the deployment of the force. Prepositioning of containers and flatracks at the installation level will optimize the time available for preparation. The distribution plan also provides an answer to how far forward the containers are to go. Ideally, the 40-foot ISO standard containers should go as far as there is a capability to handle them in the AO. PLS flatracks can go as far forward as individual firing batteries.

## **SECTION II - Mode of Transport Operations at the Strategic Level of War**

### **INTRODUCTION**

5-31. Mode of transport operations at the strategic level of war primarily comes under the control of USTRANSCOM. The exception is theater based assets used by supporting CINCs located OCONUS. They exercise this responsibility when deploying a force to a POE in support of another CINC.

5-32. USTRANSCOM oversees the mode operations using its TCCs in coordination with the supported CINC. FORSCOM executes Army mode operations when the deployment originates in CONUS. The ASCC subordinate to the supporting CINC, executes the Army mode operations when the deploying force is OCONUS.

## **AIR MODE OPERATIONS, PLANNING AND EXECUTION CONSIDERATIONS**

5-33. USTRANSCOM uses its strategic airlift assets to support operations through the range of military operations. These assets consist of the C-5, C-141, C-17, KC-10, and KC-135 aircraft in peacetime. Additional strategic airlift is available during contingencies through use of the CRAF. USTRANSCOM may operate channel traffic into areas of operation and manage the traffic much like a commercial airline. USTRANSCOM routinely uses its assets and supplements this capability with commercially contracted aircraft.

5-34. During the execution of a military contingency, USTRANSCOM, through AMC, provides strategic airlift to the supported and supporting CINCs. Strategic airlift normally moves personnel and high priority cargo. The personnel movements are timed so they arrive at their destination sequenced to match the arrival of their equipment. This assures rapid POD clearance as personnel link with their equipment. USTRANSCOM, through AMC, controls the airlift while en route to their destinations.

5-35. Regional combatant commanders usually have, within the AFSCC, an organic fixed-wing capability. This capability consists of C-130 aircraft. The ASCC, by entering the theater airlift request system, may use these assets in a strategic role to transport deploying Army units to POE. Joint Pub 4-01.1 contains more detailed information on the use of Air Force airlift.

5-36. The moving unit or shipper is responsible for preparing the cargo for shipment. This preparation may include airland or airdrop operations. In this regard, the ASCC should make full use of Army organic rigging capability and the A/DACG or other organization designed to assist the deploying unit. The ASCC should coordinate closely with Air Force TALCE.

## **SURFACE MODE OPERATIONS, PLANNING AND EXECUTION CONSIDERATIONS**

5-37. Need lead in when this FM is updated.

### **SEA**

5-38. USTRANSCOM, through MSC, uses organic, activated, or contracted sealift capability. These assets may include fast sealift ships, prepositioned afloat ships, RO/RO, container, or LO/LO ships. USTRANSCOM provides the sealift to support peacetime and crisis oriented military operations. Sealift carries more cargo than any other mode. The supported CINC coordinates the selection of destination water terminals with USTRANSCOM. If the tactical situation changes while the equipment is en route, the CINC may direct the sealift asset be diverted to another water terminal.

5-39. During peacetime operations, movement control organizations offer cargo for sealift shipment through MTMC to MSC. MTMC and MSC coordinate movement from origin to POD. MTMC routinely calls forward and loads the cargo aboard vessels. The priorities and RDDs of the supported command are honored during this process.

5-40. During the execution of a military contingency, USTRANSCOM provides sealift support based on the TPFDL. Sealift may consist of MSC organic or contracted vessels and the prepositioned afloat capability. Fuel and ammunition are moved using dedicated vessels much in the same way as it is done in peacetime, except with more intensity.

5-41. Sealift is also available at the strategic level of war to move unit equipment and sustainment using inland waterways. Barges usually execute this task. Movement by barges is slow and best suited to bulk cargo. USTRANSCOM and supporting CINCs will consider the use of commercial barge carriers to move a military shipment to an SPOE only when time permits. Commercial barge carriers may also be used when other modes are not available.

5-42. The ASCC responsibility, when using sealift, is to prepare the cargo for shipment and provide a PSA, if required. The ASCC should use the DSBs to assist in this process. Close coordination between movement control and installation transportation officers and MTMC is vital. Coordination with the ASCC to obtain the commander's intent prior to loading, assures the proper use of the MSC provided sealift assets. Joint Pub 4-01.2 contains a detailed description of the sealift acquisition process and the type of assets expected to be available to execute a military contingency. See FM 55-65 for preparation of equipment for movement.

## **HIGHWAY**

5-43. USTRANSCOM, through its Army component MTMC, arranges for the use of strategic highway mode assets within CONUS. Supporting CINCs and subordinate ASCC in OCONUS locations have this responsibility when deploying a force from their AO in support of another CINC.

5-44. Within CONUS, MTMC arranges for highway assets required to supplement the capability of the deploying unit. MTMC acquires these assets from the commercial sector using existing tenders of service. They consist of trucks, tractors, trailers, container chassis, and low-bed semitrailers. MTMC also arranges for highway assets to move cargo that requires special handling, such as ammunition. Movement by highway to the APOEs and SPOEs normally occurs when the distance from origin to destination does not exceed a one day drive. If the movement exceeds a one day drive, the equipment moves by rail. MTMC and all supported organizations follow the procedures contained in AR 55-355 through the range of military operations.

5-45. In OCONUS, the ASCC, complying with the priorities of the CINC, uses the organic transportation highway units to move personnel and cargo to the POEs. These units are transportation truck companies containing line-haul and local-haul assets. The ASCC supplements its organic highway capability using HN or contracted support. The ASCC also arranges for highway assets required to handle special shipments such as ammunition and petroleum. The ASCC establishes a time-distance criteria for the use of highway assets within the AO. The ASCC tailors the criteria to the size of the AO, the nature of the operation, and the terrain.

5-46. Because of its door-to-door capability, the highway mode is the most flexible available. It is the best asset to finish an operation because it can link major and intermediate terminals to their final destinations.

## **RAIL**

5-47. USTRANSCOM, through its Army component MTMC, provides rail services within CONUS. Supporting CINCs and subordinate ASCC in OCONUS locations have this responsibility when deploying a force in support of another CINC.

5-48. Within CONUS, USTRANSCOM obtains most of the rail capability from the commercial sector. USTRANSCOM also provides railcars maintained as a part of the DFRIF. These cars, known as "DODX", are the responsibility of MTMC and contain track vehicle bearing capabilities to include tie-down devices. USTRANSCOM arranges for rail movements by spotting railcars at designated installations. This spotting is done in coordination with the ASCC and the ITOs or depot transportation officers.

5-49. Rail is the preferred mode to move track vehicles to APOEs or SPOEs. It is also the most advantageous mode to use for sustained flow of large quantities of traffic over long distances. The ASCC responsibility during rail deployments includes the preparation and loading of the equipment in the sequence required by the priorities established by the supported CINC. The ASCC is also responsible for assuring that Army installations maintain their organic track, loading ramps, and other staging facilities required to support their deployment mission.

5-50. The ASCC also assures the conduct of training for deploying unit personnel. The training includes all the skills needed to load and secure the equipment safely. The ASCC should seek the advice and help from the DSBs to train unit personnel to execute an actual loading operation.

5-51. The commercial rail industry normally requires up to seven days to position large numbers of military useful railcars at installations. To overcome this time lag, the industry in coordination with MTMC, arranges to position or "Spot" military-owned and military-managed strategic railcars near the most likely expected use sites. The deploying unit loads spotted railcars. Required tie-down devices, other than those on board some DFRIF railcars, are provided by the installation supporting the deployment.

5-52. Once loaded, trains are formed and the shipment called forward to match the arrival of the strategic lift asset at the APOE or SPOE. USTRANSCOM and its Army component MTMC, follow the procedures contained in AR 55-355 when arranging rail movements through the range of military operations.

5-53. In OCONUS, the ASCC usually arranges for the use of rail assets through HNS or contract based on the CINCs priorities. The ASCC provides for and tailors its rail planning and execution considerations to local operating conditions.

#### **PIPELINES**

5-54. Pipelines at the strategic level of war are the responsibility of DLA. This agency, through the DFSC, its subordinate fuel strategic operator, provides all fuel to the AO. Joint Pub 4-02, contains information concerning the strategic petroleum support operations.

### **SECTION III - Mode of Transport Operations at the Operational Level of War**

#### **INTRODUCTION**

5-55. Responsibilities for Army mode transport operations at the operational level of war rests with the ASCC. Depending on the size of the force deployed, the ASCC may have a TRANSCOM, a composite group, a COSCOM, and/or a DISCOM operating the modes.

5-56. The ASCC considers augmenting Corps and division mode of transport capabilities when these organizations execute transportation functions at the operational level of war. The augmentation is tailored to the special requirements of the military operation.

5-57. At this level of war, the Army usually operates the Army air, water, highways, rail, and pipelines to support the military operation. As directed by the CINC, the Army may operate these modes in support of other Services or allied nations. Conversely, at this level of war, the Army is a user in a theater airlift system managed by the AFSCC.

#### **AIR MODE OPERATIONS, PLANNING AND EXECUTION CONSIDERATIONS**

5-58. Need lead in when this FM is updated.

## **AIR FORCE THEATER AIRLIFT SYSTEM**

5-59. The ASCC, with its assigned senior transportation commander, coordinates the use of Air Force airlift allocated to the total force. This airlift support consists primarily of C-130 aircraft. The ASCC enters the theater airlift system and follows the request procedures established by the CINC. To facilitate the coordination process, the Air Force assigns a TALO who usually collocates with the appropriate TAMCA, Corps MCC, the DTO, or the element within the task force as designated by the ASCC or tactical commander. Joint Pub 4-01.1 contains detailed information on the conduct of these operations at the operational level of war. FM 55-10 describes Army use of theater airlift.

## **ARMY AIRLIFT**

5-60. Army rotary-wing aircraft at the operational level of war consists primarily of CH-47 helicopters. The ASCC usually retains operational control of these assets. However, some capability is apportioned to appropriate MCCs. The MCCs use this capability to support logistics missions.

5-61. Another capability available at this level of war is the Army operational support airlift assets. The ASCC integrates the use of these assets in moving high priority cargo throughout the AO.

## **SURFACE MODES OF OPERATION, PLANNING AND EXECUTION CONSIDERATIONS**

5-62. Need lead in when this FM is updated.

## **SEA**

5-63. The ASCC, through the senior transportation organization, is responsible for providing operational level of war sealift assets. The nature of the operation and its geographical confines, help the ASCC define the type of assets to use.

5-64. Within the Army force structure, the available assets are landing craft, amphibians, tugs, barges, and logistic support vessels. The ASCC also considers the availability of HNS or contract assets to supplement the Army organic capability. The ASCC uses the assets to mount lighterage operations within a water terminal or through an inland waterways LOC. The ASCC also uses these assets to support intracoastal movements and to establish a LOTS operation.

5-65. When analyzing and assessing the distribution system for an AO, the ASCC determines the requirements for Army sealift type units. Army sealift assets operate mostly in support of water terminal operations. However, they can also execute inland waterway and intracoastal operations. When operating as a carrier of cargo through inland waterways or along a coast, the vessels may cross into areas considered to be the responsibility of the tactical commanders. The ASCC coordinates with the tactical commander to prevent interference with tactical operations and to provide for security. In these instances the responsibility for operating the inland waterways mode capability, to include the terminals, remains with the operational level commander.

5-66. Chapter 3 of FM 55-50 contains the Army planning considerations to use for LOTS operations. Joint Pub 4-06 addresses the joint considerations. Chapter 4 of FM 55-50 contains the considerations to use to establish inland waterways operations. Appendix C contains a summary of Army watercraft organizations showing their capabilities.

## **HIGHWAY**

5-67. The ASCC, through the senior transportation organization, provides the motor transport assets needed to support the operation. These assets range from company to battalion sized units and include a line-haul and often a local-haul capability. The ASCC also considers the availability of contracted or HN specialized truck assets.

5-68. At this level of war, line-haul operations occur between common-user terminals. Local-haul truck assets provide final distribution of supplies and equipment to using organizations. Line-haul truck organizations are located throughout the AO at sites best suited to support the common-user terminals. Local haul assets normally provide assistance to elements of the force located behind the tactical AO.

5-69. The ASCC also considers the requirements for providing specialized truck assets such as HETs, POL, and water tankers. HETs will normally be controlled centrally except when they are in DS of a unit for a specific mission. The POL and water tankers are usually employed on a habitual support basis. The tankers support the supply organizations responsible for providing POL and water within the AO.

5-70. FM 55-30 contains considerations for the establishment of motor transport operations in an AO. Appendix C contains a summary of the capabilities of motor transport units available in the Army force structure.

## RAIL

5-71. When available in an AO, the ASCC plans to use this capability. The ASCC may conduct a cost benefit analysis to determine if the use of the rail will provide flexibility by freeing the other modes of transport. The Army force structure for rail operations supplements existing HN rail systems.

5-72. Rail operations may extend into what could be the tactical AOR. In these cases, the responsibility for operating the rail, including the terminals, remains with the operational level ASCC. Transportation staff officers and operators should consider the following factors when planning for the use of a rail operation within the AO.

- The availability of an existing capability.
- The manpower resources available, such as Army force structure, contracted resources, and HNS.
- The state of repair of the rights of way.
- The engineering capability to effect repairs.
- The vulnerability of the rail line.

## PIPELINES

5-73. The ASCC may require the establishment of pipelines within the AO. Pipelines usually carry the fuel required to support the force. The ASCC establishes, maintains, and operates the pipelines and terminals. The pipeline operating units execute their mission under guidance received from the JFC JPO. FM 10-1 and FM 10-67 contain considerations to establish pipelines in an AO

# SECTION IV - Modes of Transport Operations at the Tactical Level of War

## INTRODUCTION

5-74. The modes of transport at the tactical level of war deliver personnel, equipment, and supplies to their final destination. Two modes of transport accomplish this task. These modes are Army air and motor transport (highway). The organizations with these assets are organic to the COSCOM, the Corps aviation brigade, the division aviation brigade, and the DISCOM.

5-75. Aircraft assets include cargo and utility helicopters. Motor transport assets include line-haul and local-haul trucks, and the PLS. Air sorties flown by the Air Force theater airlift organization in the AO may also deliver supplies into units operating at this level of war. Air Force airlift may airland or airdrop to deliver the supplies.

5-76. Although generally restricted to the two modes described above, other modes such as rail, pipelines, and inland waterways may operate at this level. When these modes operate within the tactical level of war, they generally do so under the command and control of the operational level of war transportation elements involved in the military operation.

## **CORPS MODE OPERATIONS**

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### **AIR MODE**

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#### **Air Force Airlift**

5-79. The tactical commander obtains airlift support from the Air Force using the airlift request system established in the AO. The airlift is usually in the form of C-130 aircraft. Within the Corps, three elements participate in this system. They are the Corps G3 and the G4 (who use the CTO) and the MCC. An Air Force liaison officer supports them. Joint Pub 4-01.1 contains a detailed description of the airlift request process.

5-80. The main concern of the tactical commander is the proper use of this asset. It is usually used to deliver high-priority cargo and personnel, sometimes into areas inaccessible by other modes. Planning and coordination are crucial to the employment of these aircraft. Planning involves, but is not limited to, identifying Air Force requirements regarding tie-downs and loading policies and procedures. Coordination with Air Force personnel, ATMCTs, and TALOs is essential prior to the use of the aircraft.

#### **Army Airlift**

5-81. The Corps aviation brigade provides Army air assets. These assets are medium and utility helicopters. Helicopters move high-priority cargo and personnel into areas not accessible by any other mode of transport.

5-82. The Corps G3 provides the missions and the priority of support for their use. The G3 coordinates with the Corps G4 to provide for logistics requirements. The G3 allocates air frames to the COSCOM where the MCC enters them in the movement program.

5-83. For special deliveries, such as sling operations, the MCC coordinates the efforts between the aviation brigade elements providing the support and the receiving unit. This coordination includes methods for the return of the slings to the aviation units.

### **SURFACE MODES**

5-84. Need lead in when this FM is updated.

## Highway

5-85. Within the Corps, transportation companies may be attached to a transportation battalion or to a Corps support battalion. They are the primary operators of the motor transport capability. These battalions operate under the command and control of the CSG, but respond to the tasking of the MCC. The battalions are organized with light-medium truck companies, medium truck companies, and HET companies. Contracted assets or HN acquired resources are also integrated into the battalions. The truck operations focus on the continuous flow of loaded trucks or semi-trailers from GSUs to DSUs or forward areas. The trucks must be returned expeditiously, loaded with retrograde cargo if possible. Transportation operators consider PLS capability and container handling requirements.

## Habitual Support Relationships

5-86. Through use of habitual support relationships, motor transport units perform in DS of commodity oriented supply companies such as ammunition, petroleum, or general supply companies. This allows the drivers to become familiar with the commodities they carry and the locations of the supported elements. It also allows the establishment of hub-and-spoke operations. This relationship parallels the medium truck companies operating in DS of the petroleum supply elements. This concept allows continuous and responsive support, freeing the commander to use logistics to weigh the battle. The concept also allows transportation planners to focus on major Corps redeployments, major changes on distribution patterns, and exception requirements. The execution of this concept may require the reassignment of motor transport elements from one CSG to another in the AO.

## Maneuver Unit Relocation

5-87. At times the commander's concept of the operation may require unit relocation within the operational area. The relocation requires placing the necessary motor transport assets in DS of a maneuver commander. HET companies are used to provide relocation support to heavy maneuver units. In these instances, the maneuver commander determines the sequence and priority of the moves.

## Task Force Support

5-88. A task force may be formed by the operational level of war commander to execute a special mission. In these cases, motor transport assets are detached to support the task force. The motor transport elements in DS of the task force maintain contact with the MCC to assure the maintenance of a LOC for the duration of the support operation.

**Other Surface Modes**

5-89. When other surface modes, such as inland waterways and rail, operate in and out of an AO controlled by a tactical level of war commander, the mode operators coordinate the flow of these assets through the AO. The coordination process must include the Corps G3 and other maneuver and fire support units to assure no interference with ongoing military operations. FMs 54-30, 55-30, and 63-3 contain additional information on the use of surface modes of transport in an AO.

**DIVISION MODE OPERATIONS**

5-90. Need lead in when this FM is updated.

**AIR MODE**

5-91. Need lead in when this FM is updated.

**Air Force Airlift**

5-92. A division obtains Air Force airlift support by entering the airlift request system. Within the division, the three key elements involved in this system are the Division G3, Division G4, and the DTO. An Air Force liaison officer collocates with the DTO. Like in the Corps, two processes obtain airlift support. These are the planned request and immediate airlift request processes. Planned requests pass routinely between the requesting unit and the DTO with the assistance of the Air Force liaison officer. Immediate requests require coordination with the G3 and G4 to assure the validation of the requirement. The method of delivery is coordinated with the receiving unit by the MCC. Joint Pub 4-01.1 contains a detailed description of the airlift request process.

**Army Airlift**

5-93. The division aviation brigade provides Army airlift within the division. The air assets of this brigade are light rotary-wing aircraft. However, the air assault division is equipped with medium rotary-wing aircraft. The brigade responds to commitments and missions received from the G3. The DTO can obtain medium rotary-wing airlift support by contacting the Corps MCC.

**SURFACE MODES**

5-94. Need lead in when this FM is updated.

**Highway**

5-95. Within the division, the common-user motor transport company in the MSB of the DISCOM provides support. The organization of this company varies depending on the type division. For example, HETs are organic to this company in a heavy division. The main requirements on this mode of transport are as follows:

- Distributing class I, II, III (packaged), IV, and VII and topographic maps.
- Evacuating tanks and similar pieces of equipment to maintenance collection points (heavy division).

- Transporting division reserve supplies for which the unit is responsible.
- Providing transportation support to displace divisional units that are less than 100 percent mobile.
- Supplementing transportation capabilities of other divisional elements.

The motor transport capability to move ammunition is usually organic to the maneuver and fire support battalions in the division. The division motor transport company supplements this capability when required. The company receives its tasking from the DISCOM MCO.

#### **Other Modes**

5-96. Practically every available mode of transport operates in the area controlled by the tactical level of war commander. Examples are Air Force lift airdropping equipment forward and medium lift helicopters from a Corps slinging cargo to forward maneuver or fire support elements. These modes, unless operating in DS of the division, will operate under the operational control of their command and control elements. They function at the operational level of war or at the higher tactical level. The DTO is responsible for coordinating the movement of these modes when they are functioning at the division tactical level of war. FM 55-2 describes mode operations within a division area.