APPENDIX I

AUTOMATED MOBILITY SYSTEMS

The use of automated systems to support mobility operations for force projection is essential to maintaining data management and inputs into and interfaces between automated systems. The following systems are used to support mobility operations.

A. AUTOMATED MANIFEST SYSTEM, TACTICAL (AMS-TAC)

The Army and Marine Corps share in responsibility for the development of this system. The AMS-TAC is designed to combine a user-friendly software package and a state-of-the-art hardware system into an efficient, cost-effective, and compact shipping manifest and database management system. AMS-TAC utilizes the following hardware components: a personal computer, an Optical Memory Card (OMC) reader/writer, an OMC, bar code readers, a battery backup uninterrupted power supply, radio frequency (RF) tags, and printers.

In performing freight receipt functions, it transfers shipping manifest information from an OMC or RF tag (Joint Defense Total Asset Visibility [JDTAV] format) into a local database for receipt confirmation and reconciliation, automates receipt of freight and small packages by allowing users to scan bar-coded Military Shipping Labels (MSLs), maintains an automated log of all incoming shipments, produces Management Reports listing detailed receipt information or summary data (including calculations of processing time), and reads both multipack and container-level OMC using an OMC reader/writer.

For freight dispatch, it permits automated dispatch of freight using bar code readers, generates tally sheets and gate passes for dispatched freight, and writes an automated manifest on an OMC for dispatched freight using an OMC reader/writer.

For supply receipt, AMS transfers shipping manifest information from an OMC or RF tag into a local database for receipt confirmation and reconciliation, automates receipt processing by allowing users to scan bar coded DD Form 1348-1A, <u>Issue Release/Receipt Documents</u>, <u>Figure I-1</u>, and produces Management Reports listing detailed receipt information.

For supply issue, it generates automated packing lists and gate passes for issues/returns, writes an automated manifest on an OMC for issues/returns and generates bar-coded (linear and two-dimensional) MSLs and DD Form 1348-1A.

B. COMPUTERIZED MOVEMENT PLANNING AND STATUS SYSTEM (COMPASS)

The COMPASS is an Army Command and Control support system that uses evolving computer technology with multiple system interfaces that facilitate collection and maintenance of Unit Movement Data (UMD) to support planning, strategic mobility analysis, movement execution, and command and control (C2) for mobilization and deployment purposes. The Army uses the COMPASS to satisfy Combatant Commander, Army and Joint Staff UMD information requirements for deliberate and crisis action planning, strategic mobility analysis, and mobilization and deployment movement execution. The COMPASS processed UMD is utilized within the Joint Operations Planning and Execution System (JOPES). The current COMPASS uses direct interfaces with the Army Global Command and Control System (AGCCS); the Army Status of Operational Readiness and Training System; AGCCS Mobilization Planning; and the AGCCS Mobilization, Operations, Deployment, Employment System as its primary source of unit movement data to satisfy command information needs for deployment.

C. CARGO MOVEMENT OPERATIONS SYSTEM (CMOS)

CMOS is a combat support system that streamlines contingency and sustainment cargo and passenger movement processes. CMOS imports shipment requirements for Military Standard Requisitioning and Issue Procedures (MILSTRIP), non-MILSTRIP, personnel and deployment planning systems. It supports shipment planning through interfaces with Global Decision Support System (GDSS), Global Freight Management (GFM), Integrated Booking System (IBS), and commercial carrier systems and load planning through an interface with the Integrated Computerized Deployment System (ICODES). CMOS produces labels, Radio Frequency Identification (RFID) tags, and hazardous material and commercial/military movement documentation, providing in-transit visibility (ITV) data to down line stations and Integrated Data Environment (IDE)/Global Transportation Network (GTN) Convergence (IGC).

D. DELIBERATE CRISIS ACTION PLANNING AND EXECUTION SEGMENT (DCAPES)

DCAPES is an application of the Global Command and Control System (GCCS) that resides on a GCCS workstation and operates in a classified, shared data environment on the SECRET Internet Protocol Router Network. Integrating Operations, Logistics, Manpower, and Personnel C2 systems, DCAPES is used by the United States Air Force (USAF) to achieve the Chairman, Joint Chiefs of Staff goal to develop a Time-Phased Force and Deployment Data (TPFDD) within 72 hours. DCAPES links USAF planners with Joint War planners through GCCS JOPES. The purpose of DCAPES is to enable timely, employment-driven, USAF participation in the JOPES process supporting all levels of command, across the operational continuum using integrated tools, shared infrastructure, and common data consistent with the Joint and USAF Integrated C2 vision. The objective of DCAPES is to provide data and data manipulation capability to USAF planners and commanders to:

- 1. Perform rapid Operations Plan (OPLAN) development
- 2. Conduct feasibility and capability analyses
- 3. Support deployment, redeployment, sustainment, mobilization, and reconstitution.

The DCAPES provides near real-time integrated C2, planning, and execution monitoring information to Air Force functional users in operations, logistics, manpower, and personnel, providing a single integrated planning environment. With DCAPES, Air Force planners can rapidly and accurately identify and source personnel, equipment, and sustainment capabilities to meet the combatant commander's operations plan requirements. Additionally, the DCAPES enables senior Air Force decision-makers to rapidly adjust operations plans to accommodate ever-changing scenarios. The evolution of DCAPES is swiftly replacing old, stovepiped, domain-centric systems by producing a single, fully integrated, replicated database.

E. DIRECT VENDOR DELIVERY ELECTRONIC DATA INTERCHANGE (DVD EDI)

Through a series of initiatives, Defense Logistics Agency (DLA) and the Military Surface Deployment and Distribution Command (SDDC) are working with direct vendor delivery candidates to establish a standard set of data elements that will allow vendors to provide detailed shipping status via electronic data interchange. This data exchange will provide information on the content of sustainment cargo moving outside the Defense Transportation System (DTS). Vendors will pass data to DoD automated information systems providing the initial source data required for force tracking and ITV reporting. As these DVD sustainment supplies move to the theater of operation via vendor or commercial carrier modes of transport, the commercial carrier ITV system will provide ITV data to DLA and SDDC Automated Information Systems (AISs).

F. FINANCIAL AND AIR CLEARANCE TRANSPORTATION (FACTS) SYSTEM

The primary objective of FACTS is to support the clearance of DoD air-eligible cargo and transportation management. FACTS provides an integrated process for performing Continental United States (CONUS) and Outside Continental United States (OCONUS) airlift clearance and transportation management for all modes of transportation moving through the Defense Transportation System (DTS). FACTS is a key communications link, assisting the shipper and warfighter with total asset visibility by providing shipment status in near real-time. The unique functionality within FACTS, coupled with embedded Service specific business rules, provides efficient resource utilization and transportation fiscal discipline within the DTS. The four major functional areas for the core activities supporting the warfighter include:

AIR CLEARANCE FUNCTIONALITY: FACTS allows Service Air Clearance Authorities (ACAs) to manage all air cargo moving through the DTS. IAW the Defense Transportation Regulation (DTR), FACTS allows users/shippers to enter CONUS and OCONUS Advance Transportation Control and Movement Documents (ATCMD) on-line or via secure batch interfaces.

FACTS edits shipment data and routing, validates the Transportation Account Code (TAC), calculates movement costs, applies Service-unique air eligibility and TAC business rules, and automatically assigns an air clearance status on all ATCMDs submitted for air movement.

FACTS generates email messages to inform the Air Clearance Authorities (ACAs), Consignors and Consignees when cargo is diverted to surface or challenged for air movement. FACTS also generates/sends an EDI 315B (Air Clearance Status) to the applicable shipper system for all shipments (ATCMDs) that are offered for air.

TRANSPORTATION MANAGEMENT FUNCTIONALITY: FACTS maintains shipment information (e.g., TCMDs, Commercial Bills of Lading (BOLs) and Receipt, Lift and Manifest transactions) for the current plus the past nine (9) years and provides transportation managers the capability to query data, review system-generated reports, and create Service-unique reports.

MOBILE UNIT ROUTING FUNCTIONALITY: Mobile units have unique requirements for receiving cargo during deployments. Cargo must be directed to the proper port to meet the deployed unit before the unit moves to its next location. The Navy developed the Cargo Routing Information File (CRIF), resident in FACTS and maintained by the NAVSUP WSS Navy Fleet Locator, to provide shipping activities with the proper routing for deployed mobile units.

COMMERCIAL BOL SHIPMENT FUNCTIONALITY: FACTS receives and captures commercial BOLs (both express package and freight) from various external trading partners (i.e., CMOS, DSS and GFM). FACTS allows Navy TOs and customers to create commercial BOLs in FACTS. FACTS validates the cargo routing, allows user to select a best value transportation provider based on real-time rates from carriers, and transmits BOL transportation data to the Automated Export System (AES)/US Customs and Border Protection (CBP), TPPS-T/US Bank, GFM and TGIS/DTTS when satellite tracking is required.

G. GLOBAL AIR TRANSPORTATION EXECUTION SYSTEM (GATES)

GATES automates support for receipt, movement, and billing of cargo and passengers. GATES provides the DoD, Air Mobility Command, 618th Air Operations Center, and approved air transportation functions with an automated management system to process and track cargo and passenger information needed to plan and execute airlift operations, manage resources, provide logistical support information, and provide message routing and delivery service for aircraft movement data. GATES is not structured to support enterprise level ITV tracking, ad-hoc reporting, or timed data mining requirements. GATES access for the purpose of tracking movement of air modal passengers and cargo will not be granted. GATES data is available to DoD users, supported

CCMDs, Components, Services, Joint Staff, Agencies, and other Federal organizations through Integrated Data Environment/Global Transportation Network Convergence (IGC). IGC is the DoD automated program providing supply chain, distribution, and logistics information fusion through common integrated data application services.

H. GLOBAL COMBAT SUPPORT SYSTEM (GCSS)

GCSS is a DoD-level initiative to ensure interoperability across Combat Support (CS) AIS functions, as well as between CS and C2 AIS functions. It is neither an acquisition program nor a standard information system, but a strategy for enhancing CS effectiveness within and between the Services. GCSS requires each Service to implement common technical standards for their AIS in accordance with the Defense Information Infrastructure Common Operating Environment. This includes the use of standard data elements to improve interoperability and understanding when sharing information among the Services during joint operations. Each Service is in the process of upgrading to these new technical standards.

The Defense Information Systems Agency (DISA)-fielded GCSS provides commanders with webbased access to selected Service and Agency authoritative/preferred logistics and transportation databases. This avoids the need to lift and support a considerable information technology (IT) infrastructure in the area of operations. The GCSS provides end-to-end visibility of retail and unit level CS capability up through the National Strategic Level, facilitating information interoperability across and between CS and C2. GCSS for the Combatant Command (CCMD)/Joint Task Force (JTF) Commander is fielded as a Global Command and Control System – Joint (GCCS-J) mission application, providing decision makers with fused CS data and C2 information on the same workstation. In conjunction with other Global Information Grid elements including Global Command and Control System – Joint (GCCS-J), Defense Information System Network, Defense Message System, Defense Enterprise Computing Center Detachments, and the CCMD, Services, and Agencies information architecture, GCSS (CCMD/JTF) will provide the IT capabilities required to move and sustain joint forces throughout the spectrum of military operations. GCSS (CCMD/JTF) provides enhanced CS situational awareness to the joint warfighter by integrating CS information into the C2 environment, and facilitating communications between the forward deployed elements and the sustaining bases, ultimately resulting in faster, more efficient decision making by the joint warfighter. GCSS (CCMD/JTF) significantly increases access to information stored in disparate databases via a simple sign on, web Portal application, using a SIPRNET PKI certificate. The administration, data mediation, and enterprise management features provide the springboard for delivery of capabilities to meet the vision of the future Net-Centric environment.

I. GLOBAL COMMAND AND CONTROL SYSTEM (GCCS)

GCCS is the key Command, Control, Communications, Computers and Intelligence (C4I) system. It is a system of interconnected computers that provides an integrated C4I capability to the entire joint community. It provides up to SECRET-level information from a variety of applications that have migrated, or are in the process of migrating from other systems. GCCS is used by the Joint Planning and Execution Community to document movement requirements, transportation closure, and other significant force projection events. GCCS is flexible enough for combat operations or humanitarian assistance missions. GCCS integrates deliberate and crisis action planning, force deployment and employment, fire support, air operations and planning, intelligence, and force status. It is designed to allow the expansion of planning and execution capabilities as new systems are designed. GCCS is based on a common operating environment allowing greater software flexibility, reliability, and interoperability with other automated systems. GCCS receives logistics information from JTAV, GCSS, and IGC. It provides a single integrated C4I application environment on which JOPES resides; supports the planner and warfighter and provides the combatant commander a complete picture of the battlefield and the ability to order, respond and coordinate C2 information (i.e. to plan, manage and execute contingencies); and integrates deliberate and crisis action planning, force deployment and employment, and force status.

J. INTEGRATED DATA ENVIRONMENT/GLOBAL TRANSPORTATION NETWORK CONVERGENCE (IGC)

IGC is an automated program providing supply chain, distribution, and logistics information fusion through common integrated data application services, enabling the development of cohesive business solutions both by and for the supported CCMDs, Components, Services, Joint Staff, Agencies, and other Federal organizations. IGC creates an environment where logistics and distribution data and information from both USTRANSCOM and DLA are accessible from a single place, leveraging work already being done by DLA's IDE and USTRANSCOM's GTN programs. IGC enhances the capability to interoperate, unifies IT development across the domain, and eliminates legacy/redundant data stores and interfaces. The USTRANSCOM Operations and Plans Directorate (TCJ3) declared IGC the in-transit visibility (ITV) system of record.

K. INTEGRATED COMPUTERIZED DEPLOYMENT SYSTEM (ICODES)

ICODES is the single DoD system to complete load plans for sealift, airlift and rail. It became mandatory for use and is the only acceptable automated system for completing air load plans as of 1 May 2013. ICODES is an AIS designed to support multi-modal load planning requirements in support of the DoD requirement for a Single Load Planning Capability. Responsibility for this function is shared among the SDDC, the U.S. Army Forces Command Active and Reserve components, U.S. Air Force, U.S. Space Force, U.S. Navy and U.S. Marine Corps. ICODES is a joint decision-support system developed to assist users with the staging and load-planning requirements for multiple military and commercial modes of transportation. The combined functionality of ship, air, rail, and the other services, provided by ICODES, gives commanders, planners, and operators at all levels a single platform capable of producing and evaluating load plans and alternative actions for units of any size, using varied modes of transportation, in support of peacetime or wartime operations. The reporting and networking functions support the mission to provide Commanders with strict accountability of these cargoes during the loading, transshipment, and discharge operations at ports and terminals.

Defense Transportation Regulation – Part III Mobility

L. SEA SERVICE DEPLOYMENT MODULE (SSDM)

SSDM is the enhanced and modernized Enterprise Service Oriented Architecture (SOA) replacement for the United States Marine Corps (USMC) MAGTF (Marine Air-Ground Task Force) Deployment Support System Version 2 (MDSSII) that was fielded in the fourth quarter of 2017 to provide the sea services a unit move capability. The application provides the capability to build and maintain a Unit Deployment List database containing personnel and equipment information in support of United States Navy, Marine Corps, and Coast Guard providing deployment and redeployment unit movement planning and execution functions. The software provides the capability to plan, coordinate, manage and execute the sourcing and tracking of assets during various phases of movement. The software enables the sea services an ability to transmit and produce movement requests, movement documentation, and In-Transit Visibility required by the USTRANSCOM Defense Transportation Regulations (DTR) to accomplish unit movement actions. SSDM operates under the ICODES program to leverage the ICODES SOA platform and the ICODES suite of Transportation services.

M. INTEGRATED BOOKING SYSTEM (IBS)

IBS is the SDDC execution system of the DTS for movement of military cargo by surface overseas. IBS manages and conducts these responsibilities by providing a single, worldwide, automated booking system to support the peacetime and wartime movement of unit and sustainment cargo in an efficient and timely manner. IBS automates manual interfaces with other SDDC systems and DoD agencies. IBS allows shippers to automatically book requirements instead of manually processing them through SDDC booking offices. Automatic booking of requirements reduces the level of manual intervention required. TC AIMS II interfaces with IBS for movements originating from the CONUS. Unit Deployment Equipment Lists can be pushed to IBS to create the deployment export traffic release request in IBS. IBS has been extended to provide support to users worldwide.

N. JOINT FORCE REQUIREMENTS GENERATOR II (JFRG II)

The Marine Corps is the lead service. JFRG II is a GCCS segmented software application designed to provide the DOD with a Joint Services, state-of-the-art, integrated, and deployable AIS that will support strategic force movements. JFRG II provides assistance in the notional planning process and allows the assignment of actual units to fill notional slots, and generates TPFDD for use in executing joint OPLANs. JFRG II is a TPFDD manipulating and editing application designed to facilitate deployment planning and execution while in garrison or forward deployed. It sources, analyzes, and refines TPFDDs and is capable of remote, low bandwidth operation or client/server operations via GCCS. It imports and exports JOPES executable TPFDDs and provides an interface between unclassified unit deployment planning systems and classified JOPES. JFRG II has been designated as the interim interface for all data movements between JOPES and TC-AIMS II.

O. JOINT OPERATION PLANNING AND EXECUTION SYSTEM (JOPES)

JOPES standardizes the joint planning system used to execute complex multi-service exercises, campaigns, and operations. It is a combination of joint policies, procedures, personnel, training, and a reporting structure supported by automated data processing systems, reporting systems, and GCCS. JOPES is a GCCS application. JOPES furnishes joint commanders and war planners, at all levels, with standardized policy procedures and formats to execute a variety of required tasks. It assists planners in development of OPLANs, contingency plan, functional plans, campaign plans, and operations orders. JOPES is used for TPFDD management and development. It defines requirements and gains visibility of the movement of forces into the combatant commanders' area of responsibility. This system assists planners with the development of detailed deployment requirements, logistics estimates, transportation requirements, and assessment of the OPLAN for transportation feasibility. JOPES also tracks, plans, prioritizes, and monitors deployment status and requirements.

JOPES provides the foundation for conventional C2 by national and CCMD-level CDRs and their staffs. It is designed to satisfy their information needs in the conduct of joint planning and operations. JOPES includes joint operation planning policies, procedures, and reporting structures supported by communications and automated data processing systems. JOPES is used to monitor, plan, and execute mobilization, deployment, employment, sustainment, and redeployment activities associated with joint operations.

P. RADIO FREQUENCY IDENTIFICATION (RFID)

RFID is a family of technologies that enables hands-off automatic identification and data capture (AIDC) for such activities as personnel identification, facility and computer access, inventory control, location visibility, and processing of materiel transactions for cargo flowing through the DTS. For transportation purposes, RFID technology provides users with a means to remotely identify, categorize, and locate materiel automatically within relatively short distances. Data may be digitally stored on RFID transponder devices, such as tags or labels. Remote interrogators (located a few inches to 300 feet from the transponder device) electronically retrieve the data via electromagnetic energy (magnetic or radio frequency signals) and send the data to the AISs. Although the family of technologies is quite broad (e.g., Near Field Communication [NFC], wideband, active RFID [aRFID], and passive RFID [pRFID]), the DoD mainly employs aRFID and pRFID data storage and retrieval systems.

- 1. Active RFID systems are omni-directional; require relatively inexpensive (typically \$20 to \$50 per device) high-capacity transponder devices that contain a signal transmitter; are reusable; and are adaptable at the warehouse pallet, container, or 463L pallet or at the conveyance level (designated by DoD as RFID Layer 2, 3, 4, or 5, respectively). The tags may also be attached to equipment items (e.g., trucks, tanks, and trailers). Active devices are available in two general types: data-rich and license plate. Data-Rich aRFID tags are effective portable databases and may store the shipment content-level and some transportation details on a chip in the tag. For the DoD, this data is also sent to and stored on the Army's RF-ITV System. This type of aRFID tag can also be equipped with sensor capabilities (for areas such as intrusion detection, temperature, humidity, and shock). The second general type of device, the License Plate aRFID tag, does not have data storage in the tag and uses the aRFID tag identification (ID) number to link with the shipment and transportation data stored on the RF-ITV System. Both tags facilitate the rapid transfer of data to AISs with read ranges up to 300 feet standoff distance.
- 2. Passive RFID systems may be directional or omni-directional and use relatively inexpensive (typically 20 cents to \$5 per device), no or low power, and limited data capacity transponder devices. The pRFID tag has no transmitter—it only reflects a signal created from whatever power the tag receives from an interrogator. While these tags have nominally short read ranges (between 6 inches and 20 feet), some uses of the technology allow read ranges in excess of 100 feet. In most cases, the tags do not store shipment data but are used to link the pRFID tag ID number to commodity or shipment data resident in an AIS. Passive devices, which in some configurations may be reusable, are adaptable for use at the item, case, or warehouse pallet level (designated by the DoD as RFID Layer 0, 1, or 2).

Q. RADIO FREQUENCY IN-TRANSIT VISIBILITY (RF-ITV) SYSTEM

The RF-ITV infrastructure is a network, located at select locations worldwide, of an RFID read and write stations and associated computers, servers, software, and communications capabilities used for tracking shipments and assets of aRFID and satellite-based tagged shipments in the U.S. military supply chain. The aRFID sites are typically found at supply and transportation nodes (such as depots, terminals, ports, supply support activities, and base supply agencies, and even some manufacturing facilities). An RFID site consists generally of a tag interrogator (reader) and/or a tag write station, a central processing unit (computer), software, and communications connectivity to transmit created or collected RFID data to the RF-ITV System. The RF-ITV Tracking Portal may be accessed through the Secret Internet Protocol Router Network (SIPRNet) or the Nonsecure Internet Protocol Router Network (NIPRNet). In addition, the RF-ITV System receives data from multiple Global Positioning System (GPS)-enabled satellite tracking transponders. The RF-ITV System has a Continuity of Operations (COOP) site to provide continuous tag data and tracking visibility in case of a system failure.

Mobile aRFID stations, also known as Portable Deployment Kits (PDKs), PDK Lite (a newer lighter version), Pallet Tag Interrogation Support Kits (PTISKs), and Early Entry Deployment Support Kits (EEDSKs), provide aRFID visibility capabilities at remote locations or at locations where the capability is temporarily needed. There are currently over 1,800 aRFID fixed and portable read and write sites in the worldwide infrastructure located in over 40 countries, including multiple coalition partner sites. The National Server is responsible for providing data to multiple other systems, including IGC and GCSS – Joint. As the shipment transits one of the nodes that has an RFID interrogator established for data collection, each tag is interrogated and the collected tag data is transmitted to the National Server. Users requiring knowledge of a specific shipment can query the system using the RFID tag ID, the document number, the TCN, or a pre-established query that is capable of determining the last reported ITV event or location for the shipment. The interrogator can be collocated with an AIS or as a standalone with a communications capability.

R. SATELLITE TRACKING SYSTEMS

- Defense Transportation Tracking System (DTTS). The mission of DTTS is to ensure the safe and secure movement of all DOD sensitive conventional arms, ammunition and explosives and other sensitive material using satellite technology and 24-hour staff oversight, and to support DOD ITV and Total Asset Visibility (TAV) initiatives. DTTS monitors all sensitive shipments including non-ordnance related classified, pilferable, hazardous, and high-value cargo moving from consignor to consignee. Monitoring is accomplished by using periodic satellite positioning and other coded/text messages. DTTS also identifies and coordinates responses to in transit accidents/incidents. DTTS provides ITV and expedites movements within the CONUS for all military Services, and other DoD and government agencies and programs. The ITV data is also provided to IGC.
- 2. Defense Transportation Reporting and Control System (DTRACS). DTRACS is the satellite tracking system similar to DTTS but currently used in the U.S. European Command theater of operations. U.S. Forces Korea uses a similar satellite tracking system called OmniTRACS. The system has five components—a subscriber unit, a satellite, an earth station, a network control center, and logistics managers. A subscriber unit is installed on the transportation platform being tracked. The subscriber unit can be queried by satellite giving the transponder location as determined by triangulation or GPS. The satellite passes the information to the earth station, which the DTRACS server is connected. The control center stores information in the DTRACS server. Logistics managers access the server to receive information from subscriber units and send information to the subscriber unit. DTRACS monitors the transportation platform, not the associated cargo. For ITV reporting to work with DTRACS, the subscriber operator must

currently key in essential data fields relating to the equipment being moved. Without this operator entry, ITV of moving equipment is not currently possible.

- 3. Movement Tracking System (MTS). MTS is a satellite tracking system that is installed on all common user logistic transport vehicles and selected CS tactical wheeled vehicles and Army watercraft. MTS supports force projection through the full spectrum of military operations. The system's integration with TC-AIMS II and GCSS-Army provides commanders and distribution managers an unprecedented movement tracking, control, and management capability. It provides real-time information on the location and status of distribution platforms using cabin consolemounted hardware and satellite technology. MTS incorporates various technologies including GPS, automatic identification technology, vehicle diagnostics, and non-line of sight communication and mapping. It provides flexibility and control over distribution operations to include the ability to re-route supplies to higher priority needs, avoid identified hazards, and inform operators of unit location changes. MTS is used primarily to enhance distribution operations are established in Distribution Management Centers, movement control elements, distribution terminals, and mode operator headquarter locations. MTS provides the distribution system the capability to:
 - a. Track the location of vehicles and communicate with vehicle operators (United States and Host Nation).
 - b. Provide real-time ITV of movements within a theater.
 - c. Redirect movements based on changes to battlefield requirements.

S. INTELLIGENT ROAD AND RAIL INFORMATION SYSTEM (IRRIS)

IRRIS has been developed to enable rapid deployment of personnel, equipment and supplies and to improve the global deployability of forces. IRRIS is a Web-based system that uses information technology to enable military users to obtain detailed, timely, and relevant information about road conditions, construction, incidents, and weather that might interfere with the movement of personnel and cargo from origin to ports through a user-friendly browser interface on the Internet. It leverages the advances in information technology, geographic information systems, and location-based services to provide decision makers with critical, timely, and relevant information necessary for efficient and rapid deployment of personnel and equipment between origins and strategic ports. It provides planners with a real-time tool for efficient and effective routing of people and cargo and enables access to this information anytime, anywhere, and on any device.

IRRIS technology integrates transportation logistics, real-time tracking, and infrastructure data into a single, secure application accessible through the Internet. With real-time and relevant information about road conditions, construction, incidents, and weather from more than 150 worldwide data sets, IRRIS technology enables the SDDC Transportation Engineering Agency (TEA) to visualize assets and perform spatial queries and analysis, such as plume modeling, to depict the effects of hazardous materials and/or explosives on any geographic area. IRRIS allows decision makers at operation centers worldwide to visualize assets and to perform analysis and location-based queries. The core mapping and information aggregation functions provide a platform for real-time vehicle and cargo monitoring.

It accesses multiple military databases at once, including strategic seaports, military installations, the National Bridge Inventory, the National Railway Network, and the National Highway Planning Network. IRRIS tracks items like road characteristics, bridge locations, video logs of primary routes, feature attribute data, and aerial photo and satellite imagery. The system also provides real-time travel information about traffic congestion, weather, road closures, and construction detours.

It uses the latest Web, geographic information systems, intelligent transportation systems, locationbased services, wireless technologies, and global positioning systems to provide support for effective logistics, emergency response, and management. The flexibility of IRRIS also allows SDDCTEA to proactively address issues related to tracking shipments and other assets.

T. TRANSPORTATION COORDINATOR'S-AUTOMATED INFORMATION FOR MOVEMENTS SYSTEM (TC-AIMS II)

- 1. TC-AIMS II supports all unit deployment, redeployment, retrograde, and sustainment operations. TC-AIMS II is operational in all theaters and provides support to all Army active-duty, Reserve, and National Guard units. TC-AIMS II produces linear bar codes, two-dimensional bar codes, and military shipping labels; registers and reads RF tags; and reads controlled access cards.
- 2. TC-AIMS II provides the capability to automate unit movement planning and execution procedures in both garrison and deployed environments. It provides an automated information management capability to managers involved with the movement control and allocation of transportation assets in a theater of operations. TC-AIMS II exports data to C2 systems at various command levels.
- 3. TC-AIMS II capabilities.
 - a. TC-AIMS II includes automated support to assist unit commanders with creating, managing, and updating unit equipment, personnel, and deployment information. It facilitates the planning and execution of organic movements, incorporating the mechanism for identifying assets and requirements for force deployment/redeployment on deliberate and crisis action planning. TC-AIMS II provides tools to support continuous the data process management, planning, and execution of deployments. Movement planning starts with the establishment of unit move requirements and ends with the arrival of required assets at a destination point. In addition, the unit move function supports rail, air, and ship loading.
 - b. The Convoy Planning and Highway Regulation (CPHR) Module supports managing the overall process of creating convoys and managing their movement to destination. CPHR provides an automated capability to create, schedule, and manage convoy movements through the State Defense Movement Coordinators (DMC) for approval.
 - c. The Theater Operations (TOPS) Module of TC-AIMS II provides movement control organizations the capability to plan, coordinate, and transport all cargo and passengers entering and exiting the Theater. It also supports visibility of command-interest cargo throughout the theater. Movement control elements will have the capability to coordinate and provide transportation services to customers. Automated functions include documenting transportation movement requests, tasking mode operators, and reporting container and cargo movements. Mode operators have the automated capability to receive commitments, task specific assets, and maintain fleet asset status data.
 - d. TC-AIMS II allows Theater Address Managers to maintain information about units, movement control support relationships, unit receiving and shipping capabilities, and unit location data.
 - e. TC-AIMS II provides automated capabilities to create, schedule, and manage convoy movements.

U. LOGISTICS TOOL SUITE (LTS)

The Logistics Tools Suite (LTS) is a collection of applications comprising three major components: processing, tools, and communications. This system is used DoD-wide to package, label, select transportation modes and carriers, track, bill, and comply with all DoD-directed financial audit requirements. Every asset that is transported to the warfighter via Transportation Account Code (TAC), DD1149, and/or Miscellaneous Obligation Reimbursement Document (MORD), is facilitated via the LTS. The LTS interfaces with DLA transaction services for supply, transportation, cataloging data and financial data. The LTS also directs data interfaces to validate transportation funding, to feed the Global Air Transportation Execution System (GATES) with Advanced Transportation Control & Movement Document (ATCMD) data, and to feed the Cargo Movement Operations System (CMOS) with DD Form 1149 data. User functions range from releasing shipments. downloading packaging instructions, validating transportation funding, selecting commercial carriers, building transportation budgets, and managing budget execution, researching shipments, creating and publishing new DODAACs, and managing reusable containers. LTS has also developed an Air Clearance functionality that streamlines TAC assignment and auditability, provides consistent application of funding rules across all transportation modes and air clearance access for non-".mil" users with CAC.

V. CONSOLIDATED AIR MOBILITY PLANNING SYSTEM (CAMPS)

Consolidated Air Mobility Planning System (CAMPS) web portal serves as the single sign on (SSO) point for web applications that run under the CAMPS framework.

CAMPS Web applications include:

- 1. Contingency Exercise Planner (CEP) mission planning applications used by AMC planners,
- 2. Special Assignment Airlift Mission / SAAM Request System (SRS), utilized by DoD entities to register SAAM requirements and helps coordinate cost factors for AMC to contract an aircraft to support the airlift request.
- 3. Air Refueling Management System (ARMS) provides a vehicle for tanker and receiver units to coordinate and schedule their long-range air refueling (AR) missions.

W. AIRLIFT INTEGRATED INTERFACE (A2I)

Airlift Integrated Interface (A2I) supports the push-pull Integrated Computerized Deployment System (ICODES) interface, allowing for streamlined submission of Special Assignment Airlift Mission options, ICODES aircraft load plans, and hazardous diplomatic clearance documentation. A2I provides timely feedback, removes execution roadblocks, improves tracking, and reduces level effort by enabling a real time coordinated workflow and discussion tool for the DoD.

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