

Fleet Management of Tactical Wheeled Vehicles (TWVs)

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The Army's TWV fleet is a critical asset, executing a wide range of combat and noncombat missions. Some of these diverse missions include line-haul transiting Abrams main battle tanks; transporting and delivering cargo, fuel, engineering, and combat equipment and shelters; providing reconnaissance; serving as mobile launch platforms for Tube-launched, Optically-tracked, Wire-guided missiles; and operating as an expeditionary assault force transported by rotary-wing aircraft. The current fleet has been produced over the last 4 decades and includes the most modern armor-ready vehicles and legacy vehicles in need of modernization or replacement.

The Army and USMC JLTV program is currently executing the Technology Development (TD) phase. In October 2008, TD contracts were awarded to Lockheed Martin (whose JLTV TD vehicle is shown), BAE Systems, and General Tactical Vehicles (a joint venture between General Dynamic Land Systems and AM General). (Photo courtesy of Lockheed Martin.)



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To successfully complete such a wide range of military operations, TWVs must be technically capable. These capabilities include being able to add and remove armor, travel cross country, mount and dismount weapons, dispense fuel, handle and unload basic cargo loads and International Organization for Standardization-compliant containers, automatically increase and decrease tire pressures based on terrain, and transport 70 tons of cargo at high speed. However, such varied capabilities cannot be engineered in a single vehicle. Three families of vehicles fulfill these missions:

- Light Tactical Vehicle (LTV) Fleet: high-mobility multipurpose wheeled vehicles (HMMWVs) and the planned next generation LTV, the Joint LTV (JLTV).
- Medium Tactical Vehicle (MTV) Fleet: Family of MTVs (FMTV) and legacy M35, M800, and M939 series.
- Heavy Tactical Vehicle (HTV) Fleet: Heavy Expanded Mobility Tactical Truck (HEMTT), Palletized Loading System (PLS), Heavy Equipment Transport (HET), and Line Haul.

Mine Resistant Ambush Protected (MRAP) vehicles and MRAP-All Terrain Vehicles (M-ATVs) were built specifically for *Operations Enduring and Iraqi Freedom*. MRAPs and M-ATVs will start to fill some armor-ready HMMWV requirements. Mission roles will consist of general purpose mobility, close combat weapons carrier, and convoy protection platform. Current LTV, MTV, and HTV fleets are at a world-wide density of 260,000 vehicles.

Army Strategy and Challenges

The Army has a flexible and adaptable strategy. It allows for mitigating the risk of uncertainty caused by an evolving threat, for change to our force structure to meet our missions, and for changes impacting the Army budget. Army strategic guidance provides a basic framework through the following operating principles:

- Taking maximum advantage of and maintaining existing platforms through recapitalization (recap), product improvement modernization, and reset.
- Planning the integration of MRAPs into the fleet mix.
- Emphasizing a mixed-fleet approach that spans the “iron triangle” of protection, payload, and performance.
- Moving to an “armor-ready” fleet that has scalable protection (the ability to remove and replace armor).

Challenges will include the need for a consolidated database of key fleet planning data. Currently, work is ongoing with the Army’s staff agencies to use standard Army databases and develop calculation models to standardize a set of management tools to better assess the fleet and review courses of actions in making key decisions to procure, recap, or divest vehicles.

Current and Future Outlook of the TWV Fleet

The light, medium, and heavy fleets each have unique challenges because of their specific missions, requirements, and age. The LTV fleet has largely met force requirement quantities, meaning HMMWV production

will decrease. The Army and U.S. Marine Corps’ (USMC’s) JLTV, with increased payload, protection, and performance capabilities, is intended to replace a portion of the aging/obsolete HMMWV fleet. The fleet management strategy for the LTV fleet then is to ramp down HMMWV production of current armor-capable variants, recap select utility and armor variants, and divest obsolete variants. The JLTV will gradually ramp up in production and replace aging and/or limited capability HMMWVs; the Army’s LTV fleet will include a combination of HMMWVs and JLTVs for the extended future.

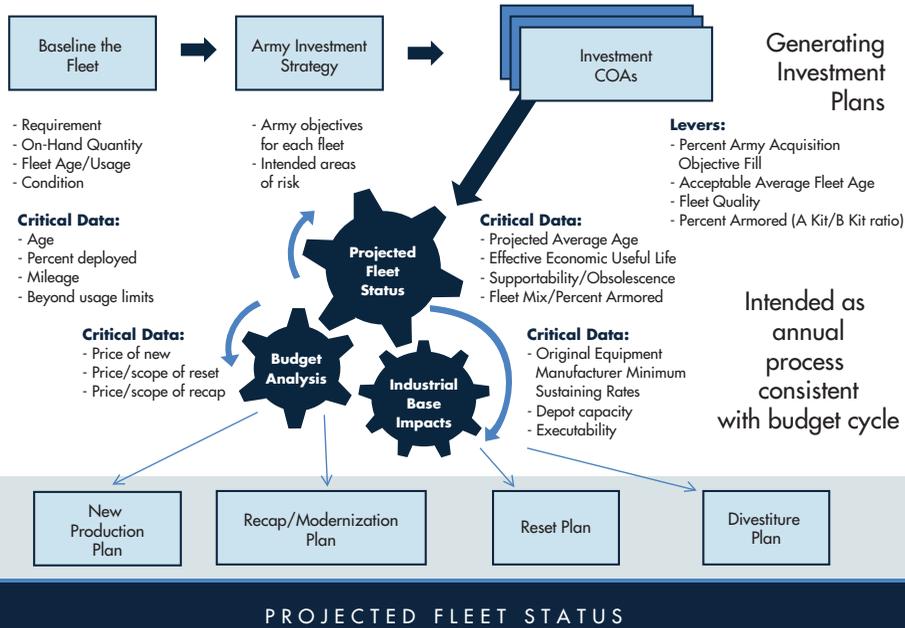
The current MTV fleet meets force requirement quantities, but includes significant quantities of outdated legacy vehicles, which need to be replaced with increased capability FMTVs. The fleet management strategy for the MTV fleet is to replace obsolete legacy vehicles with FMTV and cascade retrograded M939s. Current production FMTVs also include the ability to be armored.

The HTV fleet is also a combination of modern armor-ready and outdated legacy vehicles. The fleet management strategy for the HTV fleet includes new procurement of armor-ready variants to fill shortages for HEMTT and PLS; recap of legacy models of HEMTT and PLS to modernize armor-ready configurations; and procurement of HET and Line Haul to replace these aging and obsolete fleets.

Developing a Fleet Management Strategy

The overall objective of the TWV fleet management is to provide the right vehicle, in the right place, at the right time, and at the right price. The tools or methods to manage the fleets include optimized combinations of new procurement, recap, reset, and divestiture. The monetary resources to manage the fleets are prioritized to address the most pressing needs, such as filling shortages, replacing obsolete vehicles,

FLEET MANAGEMENT PROCESS



modernizing (e.g., armor integration), refurbishing (modernizing and reducing the effects of aging and use), resetting (component repair and replacement of war-exhausted assets), and divestiture of obsolete systems.

The fleet management process (see Figure) includes developing a fleet strategy and resulting fleet plans. The fleet strategy sets broad objectives and guidelines while fleet plans assess critical data and analyses operating within the boundaries of the strategy to define an execution plan to manage the fleet.

Two key aspects in developing the fleet plans include a fleet baseline to define the current condition of the fleet and develop courses of action (COAs), taking into account critical data elements that impact investment decisions. The resulting fleet plan sets appropriate levels of new procurement, recap, reset, and divestiture. Baselining a fleet takes many factors into account, including on-hand quantity in comparison to force structure requirements, fleet age, usage, condition, mileage, and numbers deployed.

This baseline information is assessed to determine if new procurement is required to either fill shortages or replace obsolete vehicles. It is also used to determine whether recap is required to insert technical improvements, such as armor, independent suspension, or improved safety features, or whether reset is required to replace components or subsystems because of over stress and/or extreme usage. Lastly, considering age, condition, and/or capability, fleet baseline information is used to determine when to divest obsolete vehicles from the inventory.

An effective fleet plan will manage and control the quantity, capability, and age of the fleet over time. The fleet plan includes yearly recommended levels of new procurement, recap, reset, and divestiture, which help to inform the Army Weapon System Review and Program Objective Memorandum builds. In any given year, it may not be affordable to execute all recommendations. However, by adjusting the fleet attributes or levers, investment COAs can be tailored to an optimum fleet mix, weighing in priorities and level of risk over time.

Army requirements and the fleet's condition will continue to be assessed using sound fleet management principles. The fleet management process will maintain a modernized fleet and enable investment decisions to provide the Soldier with the right vehicle, in the right place, at the right time, and at the right price.

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