Session III:
Managing to the Army Tactical Wheeled Vehicle Strategy

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Agenda

• Roles & Responsibilities
• Strategic Environment
• Tactical Wheeled Vehicle Strategy
• Joint Light Tactical Vehicle
• Expedited Modernization Initiative Procedure (EMIP)
• Summary
• Questions
Role of the Chief of Transportation

Venues:
- Army Driver Standardization Office
- TWV Board of Directors
- TRADOC Capabilities Manager - Transportation
Equip Our Joint Warfighters with the World’s Best Capability… Today and Tomorrow… Using the DoD’s Best Acquisition Workforce


As the responsible management official, the PEO will provide overall direction and guidance for the development, acquisition, testing, product improvement and fielding while ensuring total ownership cost reduction. The PEO will establish processes that facilitate communication, cooperation, information exchange, and collective decision-making between and among organizations.
In today’s constantly evolving irregular, non-linear, asymmetric warfare environment, military vehicle operators are tasked to carry out challenging missions while coping with unpredictable enemy attacks, unfamiliar locations, difficult terrain and adverse weather conditions. The feedback loop in the form of lessons learned and new tactics, techniques and procedures must rapidly translate to updated doctrine and training techniques and procedures.
Operational

- Support the Warfighter in harm’s way
- Persistent conflict
- Hybrid threats requiring hybrid solutions
- Advanced/improvised technologies targeted against tactical vehicles
- Homeland Security
- Responsive to Natural Disaster, Regional Conflict
- Time = Seconds/Minutes/Hours NOT Days/Months/Years

Budget

- Pressure to cut defense & other spending
- Top-line base budget expected to have modest, but steady growth
- “Do more without more”

Army Modernization

- BCT-centric
- Buy fewer, more often
- Incremental fielding of capability thru ARFORGRN
- Fleet/portfolio management
- Ability to Keep Step with Technology Advances
- Designing for future growth
  - Capability, Survivability, Network Communication, etc.

Acquisition Reform

- Increased competition throughout acquisition process
- Reduced tolerance for cost/schedule risk
- Revised Milestone certification requirements
- Dr. Carter’s efficiency initiatives
88M MOS (Wheeled Vehicle Operator) is a specialized driver who undergoes rigorous driver training of thorough/grounded hands-on experience with Heavy Wheeled Vehicles. This training includes line haul tractor trailer, Load Handling Systems, proper cargo tied-down procedures, cargo compatibilities, and container handling operations. These tactical vehicles are the specialized cargo hauling capabilities that our tactical forces rely upon to transport sustainment from port to foxhole that includes heavy outsized combat vehicles, sensitive items, ammunition and bulk fuel. Not to mention an understanding of the physical and dynamic aspects of truck operations. In addition, 88Ms receive follow-on training on their assigned vehicle and complete hazardous materials courses. Across our Army formations other MOS’s might receive some drivers training on 5 Ton and below in order to meet standards set forth in AR 600-55. In the civilian sector, Dept of Transportation requires specialized training for the three classes of operator license to transport a variety of cargo aboard large heavy combination tractor and trailers throughout the Continental US.
Motor Transport Operator (88M)

88M provides a specialized transportation expertise that, over the life-cycle of a career, maintains the linkage between tactical logistics and operational/strategic logistics ensuring that the Brigade Combat Team remains the priority of support.

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**88M10 AIT Training**
- Motor Trans Operator Training- 252 hrs
- Driving Principles
- FMTV/LMTV
- M915 Tractor Trailer
- PLS/LHS/CHU
- Driver Simulation Exercises
- Live Driving Experience (multiple vehicles)
- Live Driving Experience (convoy ops)

**88M30 Advanced Ldr Training**
- Convoy Commander Training- 61 hrs
  - Convoy Principles
  - Convoy Security
  - CREWS Systems
  - Convoy Communications
  - Convoy Battle Drills
  - Convoy Commander Simulation Exercises

**88M40 Senior Ldr Training**
- Multi-model Training- 170 hrs
  - Sustainment Principles
  - Commodity Management
  - Distribution Operations
  - Modal/Nodal Operations
  - Inter/Intra-Theater Sustainment
  - Deployment Simulation Exercises

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Live, Interactive individual and Collective Simulations

Operator Driving Simulator:
- Simulator is configured to train up to four students per POD
- Simulates the form, fit and feel of six different military vehicle platforms
- Provides a 180 degree virtual training world environment for on and off road conditions
- Used to reinforce hands on operation by replicating difficult traffic conditions as well as emergency reaction maneuvers

Reconfigurable Vehicle Tactical Trainer (RVTT):
- Provides commanders with the capability to conduct tactical training in realistic combat environment scenarios
- Has the capability to conduct training on a wide variety of military vehicle platforms with accurate simulated weapons
- Simulator is fully interactive with the entire family of Close Combat Tactical Trainers

HMMWV Egress Assistance Trainer (HEAT):
- Used to teach military vehicle operators to stay alert and avoid vehicle roll over's
- Trains and reinforces reactionary procedures to properly react and safely unlock vehicle restraints as well as exit roll over vehicle from a variety of positions
- Simulator trains Soldiers to overcome natural fear and panic associated with vehicle rollovers
- Training is a mandatory requirement, and has increased rollover survival since requirement was implemented
New Program of Record (POR)
Common Driver Trainer (CDT) Products

Simulators enhance operator’s training in a virtual environment, while providing realistic operational experiences (rain, snow, dust, fog, wind) within a safe and controlled environment. CDT is the current POR used to train Soldiers to operate the STRYKER and MRAP platforms. Once approved for TC, this new enhanced capability will simulate training on the standard TWV fleet as well as MRAP and future truck systems. The major components of the CDT include the Student Training Station (STS), the Instructor/Operator Station (IOS) and an After Action Review (AAR) station. The STS is comprised of a six-degree-of-freedom (6DOF) motion platform (below), video display unit (VDU) and driver compartment (the vehicle cab). The DOF motion platform provides realistic motion cues to Soldiers in executing training scenarios. The platform supports the use of interchangeable vehicle cabs, which can save training time and money. SIMs simulates a geo-typical terrain database that supports multiple driving environments such as urban, to rural, to extreme off-road conditions including international and desert operations. By using these new and innovative systems, Operators can learn and master beginning to advance on/off road operation as well as dangerous and hazardous conditions without risk to themselves, other Soldiers or the actual vehicle. We will replace our older Operator Driver Simulator (ODS) systems with the new enhanced CDT’s during the FY 12-14 resource years. We anticipate an improved balance between Virtual and Hands-On training as well as a substantial cost savings.
Senior Leader Intent

◆ Long term
  ● Execute the Tactical Wheeled Vehicle Strategy, through Fleet Management Process that is linked to the Strategic Planning Guidance, rooted in the anticipated operational environments the Army is likely to face and supports the various COCOM OPLANS.
  ● Integrate operational/tactical, acquisition, programmatic, sustainment and equipping/structure strategies.
  ● The Tactical fleet must be looked at within brigades/units and across brigades and units as we equip consistent with Army Force Generation Model (ARFORGEN)

◆ Near term
  ● Determine immediate requirement to sustain and modernize the current tactical wheeled vehicle fleet and develop acquisition and programmatic strategies to support the requirements
  ● Ensure we have the tools to manage the tactical truck fleet through an effective blend of new procurement, recapitalization, reset/sustainment consistent with a program’s life cycle.

◆ Execute FY11 funding and set the stage for POM 13-17 development, based on TWV Strategy

◆ Leverage the power of the Materiel Enterprise to execute a Fleet Management Strategy, based on TWV Strategy guidance

◆ Migrate this process (Strategy and Execution) to other commodities
TWV Strategy – 2025 Fleet Objectives

◆ Fleet Operations
  ● TWVs equipped to forces across all mission requirements
  ● Forces trained to ensure the safe and successful employment of their vehicles

◆ Fleet Size and Mix
  ● Swiftly modernize critical LTV combat platforms to mitigate capability gaps remaining in the LTV fleet that are not addressed with the HMMWVs and MRAP FoV
  ● Progressively modernize all TWV fleets to improve fleet capability to include reliability and operational readiness and reduce fleet age and operating costs.
  ● MRAP FoV integrated into the Army force structure

◆ Protection
  ● JLTV/MRAP levels of protection provided to deploying forces
  ● Armor-capable vehicles ≥ 50% of the TWV fleet
  ● B-Kit armor objective ≥ 30% of the TWV fleet

◆ Industry Strength/Technology Advancements
  ● Promote a healthy industrial base, including government depots, through competition
  ● Flexible adaptation of TWV platforms
  ● Reduced total ownership costs per vehicle
  ● 10-15% improvement in Fuel Economy

Cost to Implement Previous Strategy:
Estimated (thru FY25): $4.4B/Year ($2.5B available)
The “Nutshell” of Managing to the Army TWV Strategy

**Fleets**
LT/MED/HVY

**Requirements**
Modernization
Safety
Divestiture

**TWV BOD**
- Quarterly Meeting
- TWV acquisition community meets via VTC
- Co-Chaired by COT and PEO-CS&CSS
- Manages the implementation of the TWV Strategy

**Activities:**
- HMMWV
- MRAP
- JLTV

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JLTV Modernization Features

JLTV to provide scalable C4I and adaptable levels of protected mobility to Fire Teams and Combat Support teams.

◆ Adaptable:
  ● Varying levels of protection in response to mission threat
  ● Expeditionary vehicle family
  ● Over full range of operations/conditions

◆ Network-Ready / Interoperable:
  ● Space, weight, power claims for C4I systems

◆ Resilient:
  ● Designed to enter harms way & return forces safely
  ● Adapts light fleet to the IED / Counter Insurgency paradigm
  ● Retains Major Combat Operations capability

◆ Increases maneuver capacity:
  ● Provides protected mobility on the modern battlefield

◆ Protected Mobility:
  ● Exceeds current TWV payload & tactical mobility
  ● Increase protection (especially EFP & IED) through scalable armor
  ● Returns payload currently traded for armor

◆ Increased commonality:
  ● JLTV to be designed for commonality beyond major components, to include repair parts, tools, training, system design, maintenance procedures and sources of supply
What Happened Entering JLTV Technology Development Phase?

\begin{itemize}
  \item Defense Acquisition Board (DAB) 5 Dec 07 – DAE Program Direction:
    \begin{itemize}
      \item DAE Concerns:
        \begin{itemize}
          \item Firm Requirements
          \item Maturity of technology to meet Requirements
        \end{itemize}
      \item DAE Guiding principles – Programs will not enter EMD unless:
        \begin{itemize}
          \item Demonstrated high probability of delivering on time and within budget
          \item Programs are fully funded
          \item Competitive prototyping & testing demonstrating achievable levels of the requirements
          \item Analysis of options to sustain a competitive environment in tech development, EMD and production phases
          \item Maximize commonality of high cost components across vehicle variants
          \item An EMD phase that includes entrance & exit criteria with demonstrated technology, manufacturing and integration readiness
          \item Work with Joint Staff to define appropriate levels of protection from IED and EFP threats and incorporate lessons learned from OIF/OEF
        \end{itemize}
    \end{itemize}
  \item JLTV Technology Development (TD) Phase (2009-2011):
    \begin{itemize}
      \item 7 vehicle prototypes from 3 competing builders are tested and compared w/ JLTV CDD.
      \item Evaluate vehicle designs, update requirements in order to reduce risk in vehicle’s ability to meet Program’s KPPs.
      \item Accumulated TD Phase knowledge is incrementally incorporated at Knowledge Points and used to confirm CDD requirements or adjust (method approved at Feb 09 AMCB)
      \item Impact to War-fighter: Ability to adjust capability trade-space based on prototype results before committing to a JLTV Program of Record.
    \end{itemize}
\end{itemize}
**Requirement Management & Analysis Plan (RMAP)**

- **RMAP Purpose:** Describe the top level Capability Developer & Materiel Developer activities to update the JLTV CDD based on TD Phase outcomes as well as other analyses.

- **Key Tenets:**
  - Knowledge-Based, Incremental CDD Refinement
  - Req IPT monitors for non-compliance: industry prototype performance, test results & other analyses.
  - Embedded Issue Teams to Identify Non-compliance
  - Reduce requirements uncertainty & risk
  - Continued use of analysis & test results to underpin every activity and decision
  - Defined best-practice processes for requirements management and analysis

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Null Hypothesis: Existing CDD is correct. Observing & conducting analysis for potential reasons to reject.

The JLTV combat development team is using a deliberate approach, underpinned by analysis, to refine the draft CDD & ensure relevant, achievable, affordable requirements prior to establishing a program of record at MS B.
Incremental Adjustments To Draft CDD

Knowledge Points (KPs) are event driven

- KP1 – Start of Work Meetings
- KP2 – Production Design Review
- KP3 – Critical Design Review
- KP4 – Test Readiness Review
- KP6 – Final Stages of TD Phase
- KP7 – Prototype Ballistic Testing
- KP8 – Final AOA Results

KPs Respond to DAE Concerns:
- Firm Requirements
- Mature Technology

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Knowledge Points (1-5)

Summary: 65 KP1 Comments, 12 at KP2, 114 at KP3, 215 at KP4, 64 at KP5.

Take Away: KP5 closes out 2 of 3 TSC; Ownership Cost to be closed at KP6. KP5 implemented study results for: Fuel Efficiency; Material Availability; Diagnostics; Annex consolidation, Para 5 (Program Summary) rewrite, and elimination of higher risk variants. Opened analyses on: companion trailers and run-flats.

- CDD TBD (deferrals) established between KP1-KP4 (54 total) were each adjudicated prior to KP5:
  - No TBD established at KP5

- Comments related to the classified annex not identified here. (Primarily testability & incapacitation related)
Function Provided:

Provide Superior Light Tactical Mobility

Tier 1
- **Mobility KPP**
  - CDD 6.1.1
  - (Varies by MRV: % X-C No Go / RCI of 25)
- **Fuel Efficiency**
  - CDD 6.2.3
  - (KSA) (60 ton-mpg/10 payload ton & 1.6 gal/hr idle)

Tier 2
- **Speed on Grade**
  - CDD 6.3.5
  - (45mph 5%grd)
- **Forward Speed**
  - CDD 6.3.3
  - (75 mph/ 70 mph)
- **Cross Country Speed**
  - CDD 6.3.1
  - (17/18mph)
- **Maneuverability**
  - CDD 6.3.2
  - (Similar to HMMWV)
- **Operational Range**
  - CDD 6.3.4
  - (400miles/300 miles)
- **Trafficability**
  - CDD 6.3.6
  - (Varies by MRV: % X-C No Go)

Tier 3
- **Braking**
  - CDD 6.4.1.2
  - (FMVSS)
  - (0-30mph ~9sec)
- **Acceleration**
  - CDD 6.4.1.1
  - (0-30mph ~9sec)
- **Turning Radius**
  - CDD 6.4.1.1
  - (25ft)
- **Ascend/Descend Slopes**
  - CDD 6.4.1.7
  - (60% slopes)
- ** Traverse Slopes Laterally**
  - CDD 6.4.1.8
  - (40% slopes)
- **Mobility w/ Modular Armor**
  - CDD 6.4.1.9
  - (Mobility with armor attached)
- **Vertical Step**
  - CDD 6.4.1.9
  - (18in)
- **Fording**
  - CDD 6.4.1.10
  - (30in / 60in with kit)

Tier 4
- **Lateral Stability**
  - CDD 6.4.1.3
  - (0.5g)
- **NATO Lane Change**
  - CDD 6.4.1.3
  - (45mph)
- **Peak Vertical Acceleration**
  - CDD 6.4.1.4
  - (2.5g at various speeds)
- **Front/Underbody Protection**
  - CDD 6.4.1.6
  - (ruggedized body)
- **Ride Quality**
  - CDD 6.4.1.5
  - (6watts abs power at various speeds)

Legend:
- No Requirement Change
- Requirement Changed
- Requirement Added
- Requirement Combined
- No Requirement Change
- Requirement Moved to PD

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JLTV Life-Cycle Acquisition Approach

Tech Development Phase
- Full and open competition for 3 Cost Type contracts
- Prototypes from each Payload Category (including Trailers)
- Designs for the entire FoV
- Developmental Test, limited Operational Test, Limited Live Fire & RAM miles

Engineering, Manufacturing & Development Phase (Notional)
- Full and open competition for EMD
  - Competitive source selection and selection of two offerors.
  - Selection approach will evaluate written proposal, ballistic hull(s) and coupons.
  - Integration of mature technologies of Technology Readiness Level (TRL) 6 or greater.
  - Contract type to be determined
- Vehicles will be designed with an open architecture to integrate future technologies
- Projected duration from MS-B to MS-C is 48 months
- Acquire a competitive TDP
- Focused incentives (Reliability Growth, Maintenance Man-hour Reduction, Fuel Efficiency, Life Cycle O&S Reduction, Accelerated Deliveries)

Production Phase (Notional)
- Restricted competition (EMD Contractors only), down select to one contractor
- Fixed Priced type contract for LRIP and FRP with intent to compete as often as practical based on business case
EMIP is a form of *market research* – not source selection – not a product.
Summary

- We Are Living In Demanding Times; After Years Of Ramping Up Production To Unprecedented Rates, We Have Entered The Perfect Storm... Budget Decline, Recovering Economy, Persistent Conflict . . .
- Ensure Efficient Use of Limited Resources
- We Need to Use Facts/Data and Discipline in Making Decisions
- Continue to Pursue Industry/Organic Base Partnerships that Leverage Core Competencies
- Leverage Innovation and Good Business Practices in Government, Industry, and Academia
- Continue to RESET/RECAP the Current Fleet while Developing Future Vehicles
- Maintain Competitive Environment

We now have a high quality Tactical Wheeled Vehicle Strategy; we plan to manage, execute and be measured in accordance with its direction.
SCOE / TCM-Trans

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