

# Session III:

## Managing to the Army Tactical Wheeled Vehicle Strategy



**BG Edward F Dorman III**  
**Chief of Transportation**

**MR. KEVIN M. FAHEY**  
*Program Executive Officer*  
*Combat Support & Combat Service Support*





# Agenda

- Roles & Responsibilities
- Strategic Environment
- Tactical Wheeled Vehicle Strategy
- Joint Light Tactical Vehicle
- Expedited Modernization Initiative Procedure (EMIP)
- Summary
- Questions



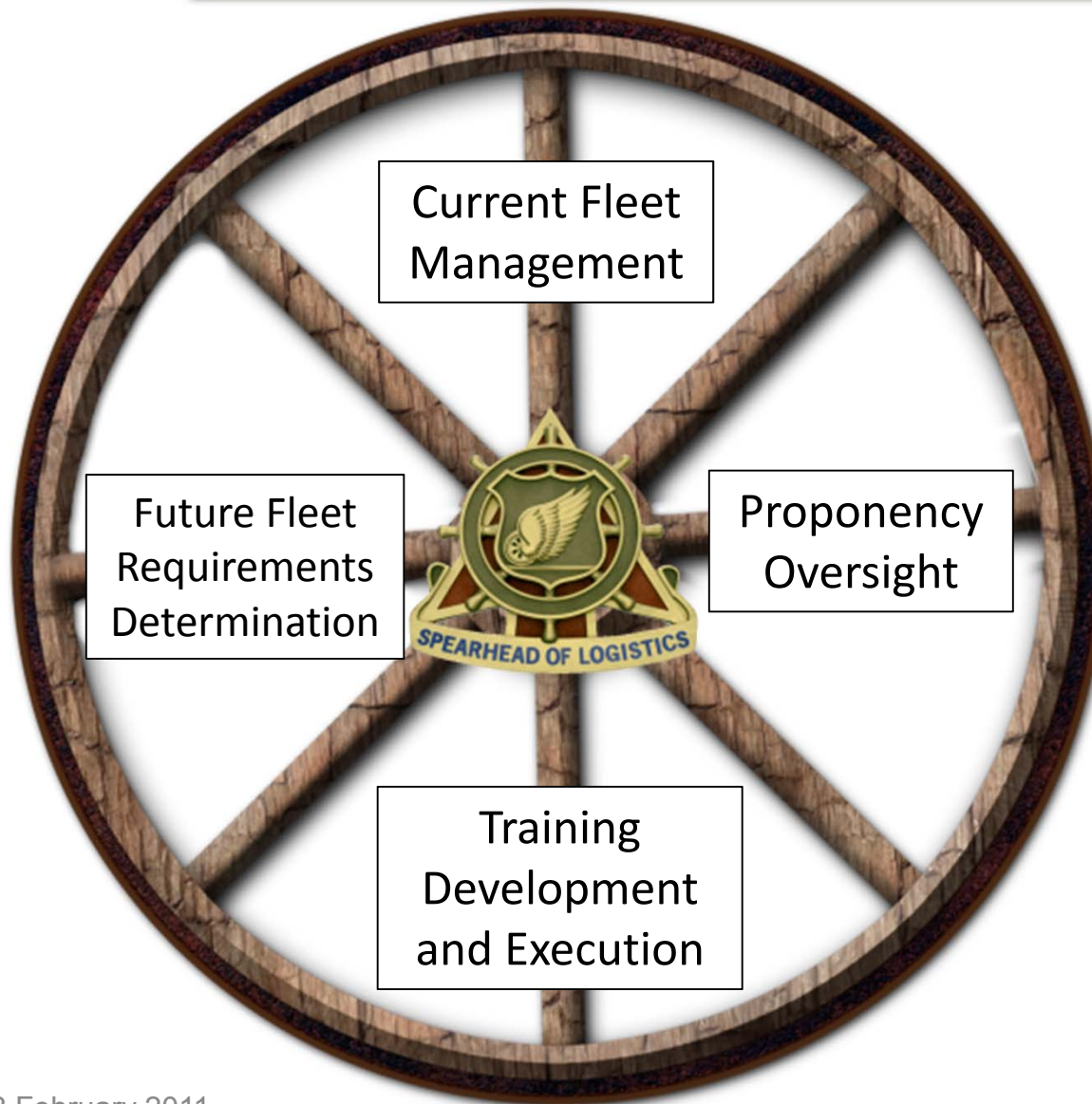
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# Role of the Chief of Transportation



## Venues:

- Army Driver Standardization Office
- TWV Board of Directors
- TRADOC Capabilities Manager - Transportation





# PEO Responsibilities/Mission & Vision



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.



**MISSION**  
*Conducts Life Cycle Management for the Army's Combat Support and Combat Service Support (CS&CSS) Portfolio; Supports the ARFORGEN Model by Developing, Fielding, Sustaining, Resetting and Integrating New Technologies Using a System of Systems Approach to Support the Joint Warfighter.*

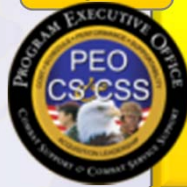
**VISION**  
*Equip Our Joint Warfighters with the World's Best Capability... Today and Tomorrow... Using the DoD's Best Acquisition Workforce*

ARFORGEN: ARMy FORce GENeration



# PEO CS&CSS Organization

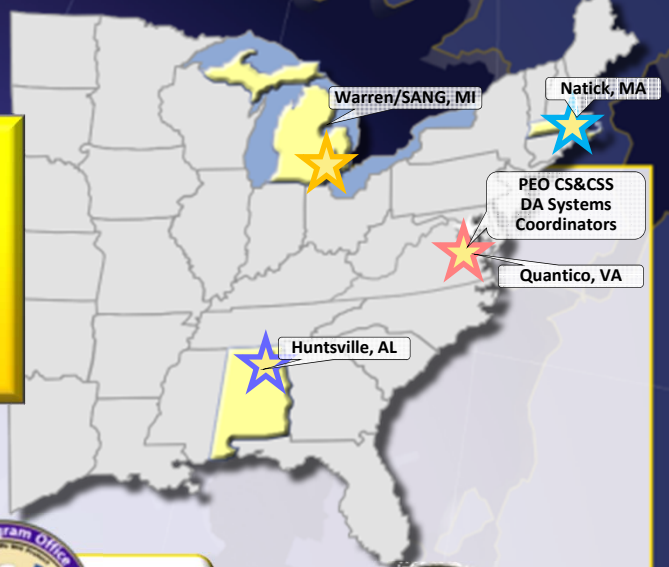
350+ Programs



**Program Executive Officer**  
*Mr. Kevin Fahey*

**Deputy PEO**  
*Mr. Thomas Bagwell, Jr.*

**Chief of Staff / Executive Officer**  
*Ms. Linda Reichlmayr*



**Project Manager Force Projection**  
*COL Eric Fletcher*  
DPM: *Mr. Steve Roberts*

**Product Manager Bridging**  
*Mr. David Marck*

**Product Manager Combat Engineer/Material Handling Equipment**  
*LTC Nelson Glenn Kerley, Jr.*

**Product Manager Force Sustainment Systems**  
*LTC Daryl Harger*

**Product Manager Petroleum & Water Systems**  
*LTC Dariel Mayfield*

**Product Director Army Watercraft Systems**  
*Ms. Shannon Tighe*



**Project Manager Joint Combat Support Systems**  
PM: *COL John Myers*  
DPM: *Mr. Dennis Mazurek*

**Product Manager(s) Joint Light Tactical Vehicles**  
*Mr. Mark McCoy (USA)*  
*LtCol Casey Travers (USMC)*

**Product Manager Sets, Kits, Outfits & Tools**  
*LTC Eric Rannow*

**Product Director Test, Measurement, & Diagnostic Equipment**  
*Mr. George Mitchell*

**Product Director Horizontal Technology Integration**  
*Mr. Fred Williams*



**Project Manager Mine Resistant Ambush Protected Vehicles**  
PM: *Mr. Carl Owens*  
DPM: *COL Jeffrey Carr*

**Product Manager MRAP - All Terrain Vehicle**  
*LTC Coll Haddon*

**Product Manager Joint Logistics**  
*LTC John Conway*

**Product Manager MRAP Vehicle Systems**  
*LTC Andrew Oderkirk*

**Product Manager Assured Mobility Systems**  
*Mr. Kenneth Wojcik*



**Project Manager Tactical Vehicles**  
PM: *COL David Bassett*  
DPM: *Mr. Tony Shaw*

**Product Manager Light Tactical Vehicles**  
*Mr. Dennis Haag*

**Product Manager Medium Tactical Vehicles**  
*LTC Shane Fullmer*

**Product Manager Heavy Tactical Vehicles**  
*LTC Paul Shuler*

**Product Manager Armored Security Vehicles**  
*LTC A. Mark Morano*





# Chief of Transportation



## The Environment

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.

**+Fiscal Environment** {  
Modernizing the Fleet  
Fiscal Constraints  
JCIDS Documentation



# Strategic Environment

## ◆ 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

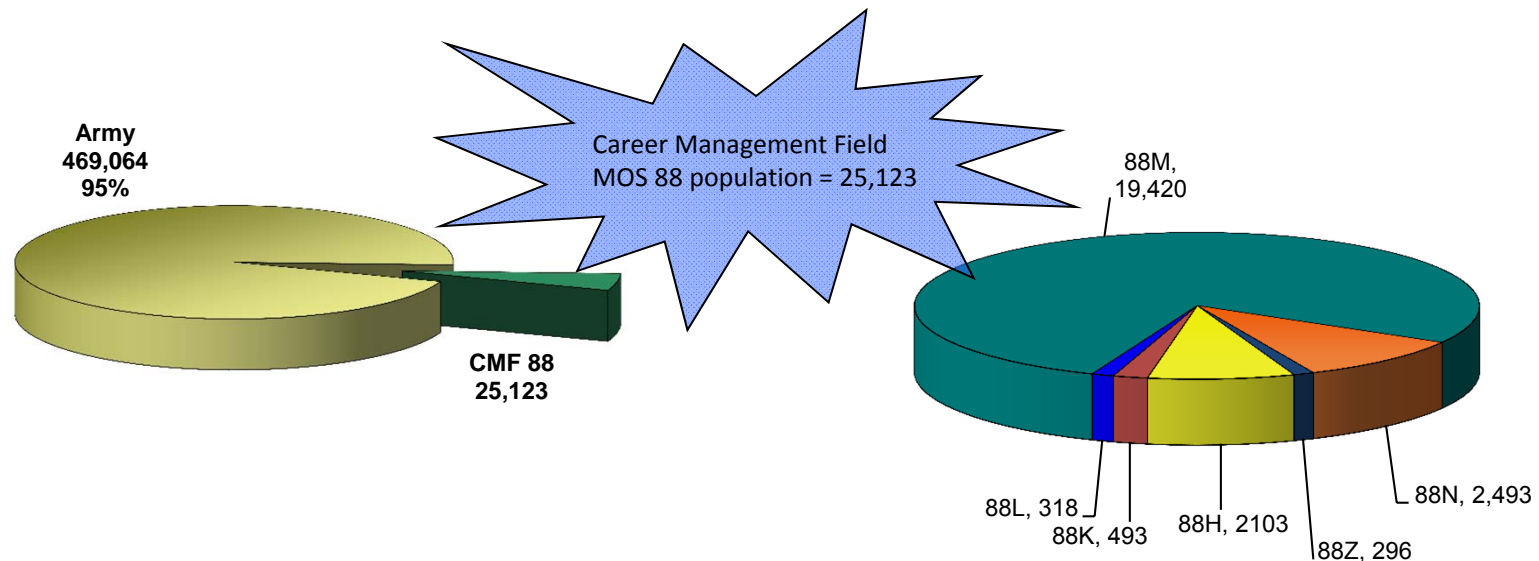




# Motor Transport Operator (88M)



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 .*

## 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

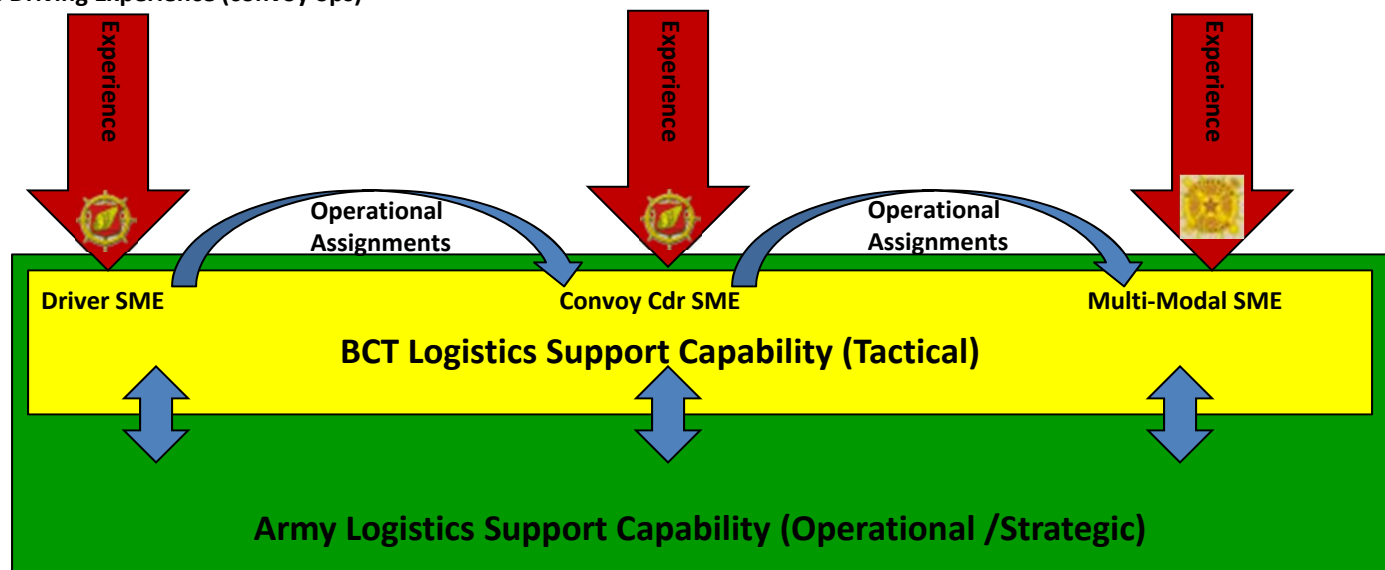
Convoy Commander Training- 61 hrs

- 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







# Current Driver (88M) Simulators



## □ 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.



**CDT Mine Resistant Ambush  
Protected (MRAP) Variant (CDT/MV)**



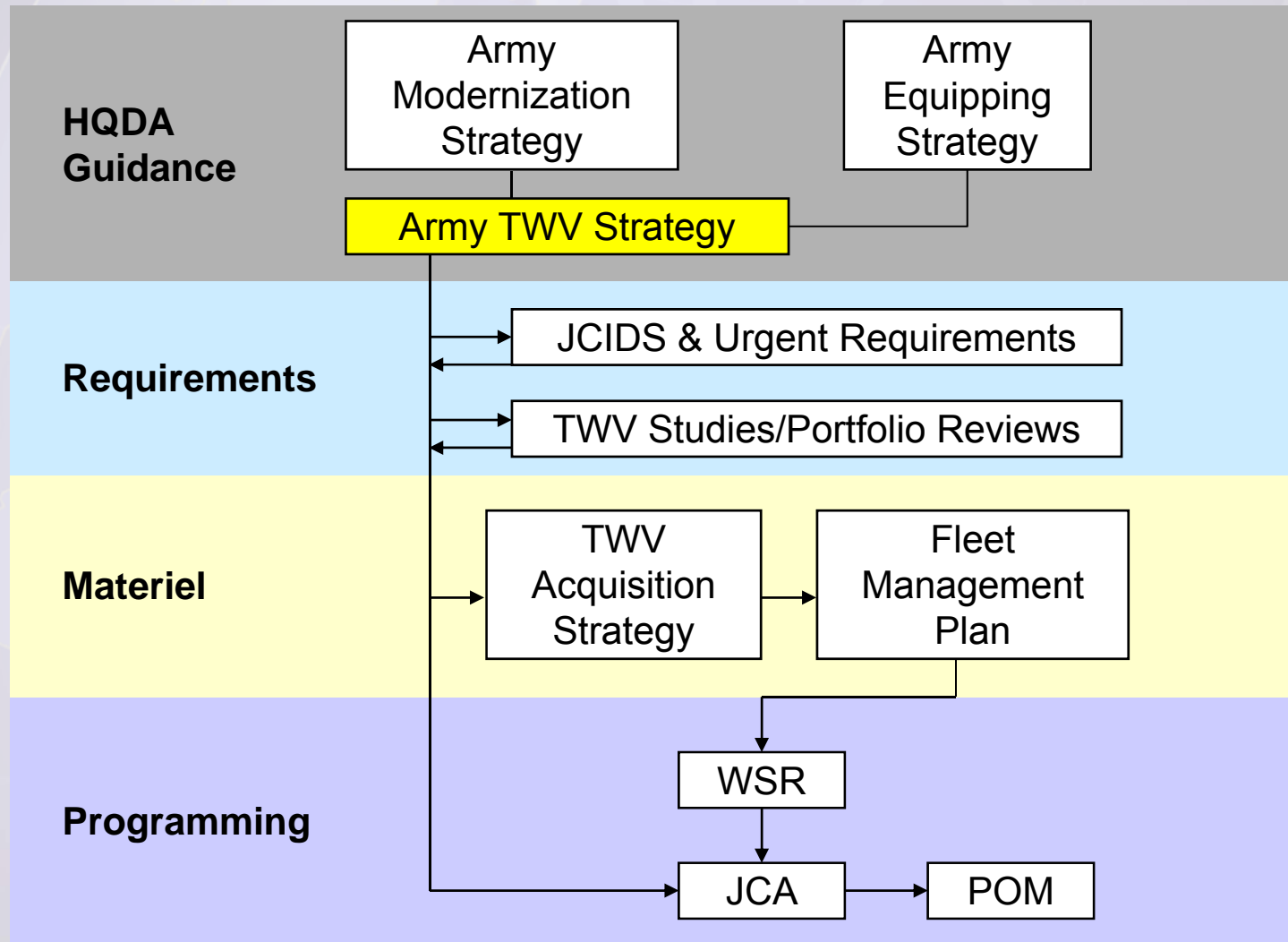
**Interchangeable Vehicle Cabs**



**CDT 6-DOF Motion Base  
Student Training Station**



# TWV Strategic Roadmap







# 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

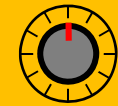
- Swiftly modernize critical LTV combat platforms to mitigate capability gaps remaining in the LTV fleet that are not addressed with the HMMWVs and MRAP FoV
- Progressively modernize all TWV fleets to improve fleet capability to include reliability and operational readiness and reduce fleet age and operating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

## ◆ Protection

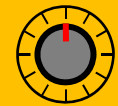
- JLTV/MRAP levels of protection provided to deploying forces
- Armor-capable vehicles  $\geq$  50% of the TWV fleet
- B-Kit armor objective  $\geq$  30% of the TWV fleet

## ◆ Industry Strength/Technology Advancements

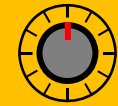
- Promote a healthy industrial base, including government depots, through competition
- Flexible adaptation of TWV platforms
- Reduced total ownership costs per vehicle
- 10-15% improvement in Fuel Economy



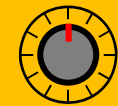
FLEET SIZE



LTV MODERNIZATION



ARMOR CAPABILITY



FLEET AGE

**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







# 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

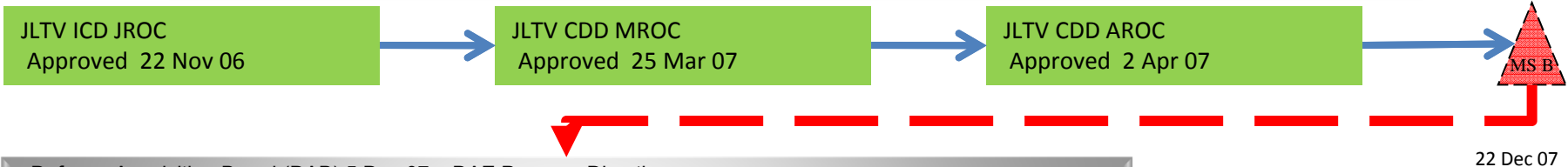
## ◆ **Increased commonality:**

- JLTV to be designed for commonality beyond major components, to include repair parts, tools, training, system design, maintenance procedures and sources of supply

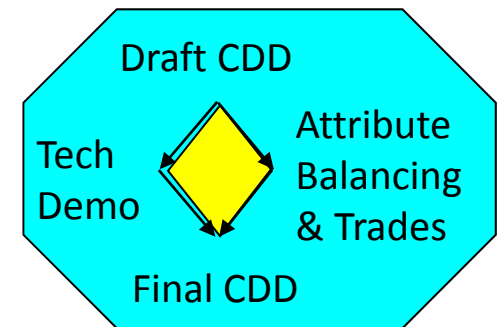




# What Happened Entering JLTV Technology Development Phase?



- Defense Acquisition Board (DAB) 5 Dec 07 – DAE Program Direction:
  - DAE Concerns:
    - ❖ Firm Requirements
    - ❖ Maturity of technology to meet Requirements
  - DAE Guiding principles – Programs will not enter EMD unless:
    - ❖ Demonstrated high probability of delivering on time and within budget
    - ❖ Programs are fully funded
    - ❖ Competitive prototyping & testing demonstrating achievable levels of the requirements
    - ❖ Analysis of options to sustain a competitive environment in tech development, EMD and production phases
    - ❖ Maximize commonality of high cost components across vehicle variants
    - ❖ An EMD phase that includes entrance & exit criteria with demonstrated technology, manufacturing and integration readiness
    - ❖ Work with Joint Staff to define appropriate levels of protection from IED and EFP threats and incorporate lessons learned from OIF/OEF



- JLTV Technology Development (TD) Phase (2009-2011):
  - 7 vehicle prototypes from 3 competing builders are tested and compared w/ JLTV CDD.
  - Evaluate vehicle designs, update requirements in order to reduce risk in vehicle's ability to meet Program's KPPs.
  - Accumulated TD Phase knowledge is incrementally incorporated at Knowledge Points and used to confirm CDD requirements or adjust (*method approved at Feb 09 AMCB*)
  - Impact to War-fighter: Ability to adjust capability trade-space based on prototype results before committing to a JLTV Program of Record.

- End-state:
- JLTV CDD sets the program KPPs, Cost and Schedule at MS B



# 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



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

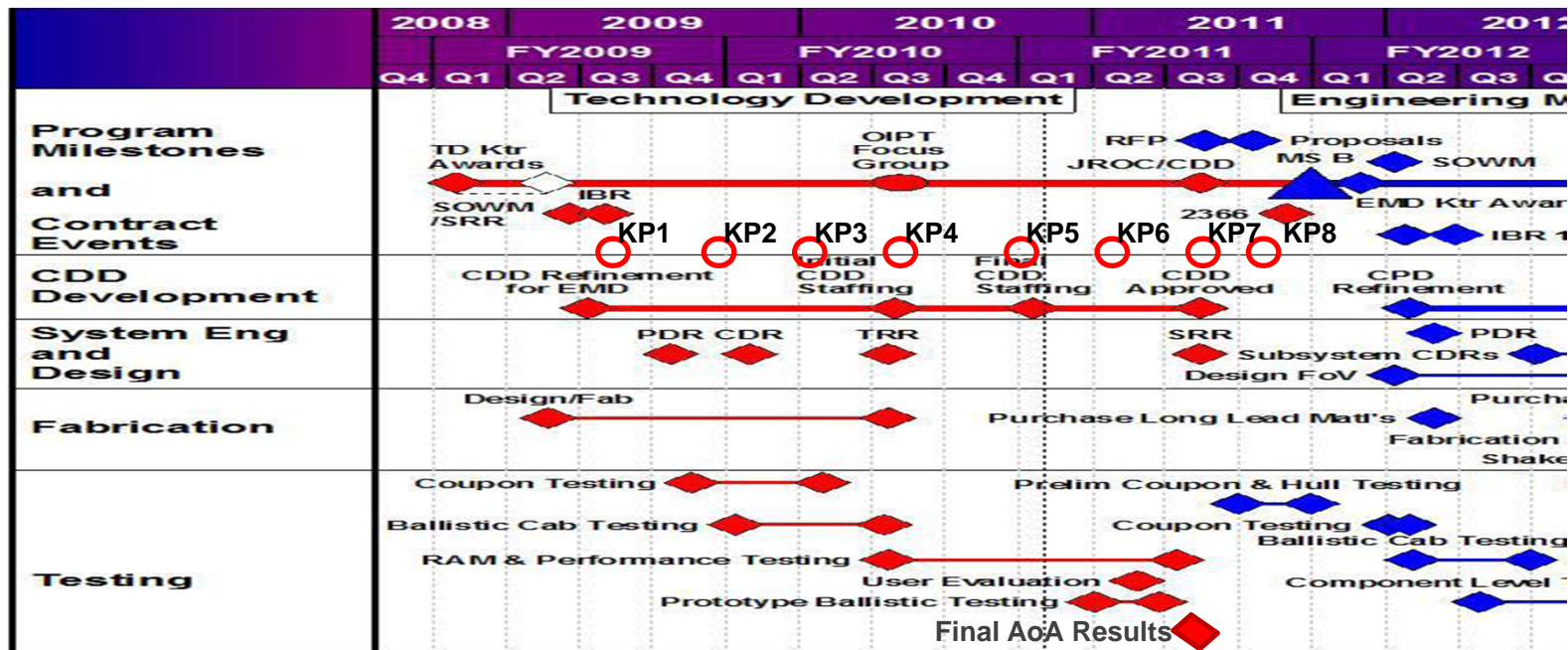


Knowledge Points (KPs) are event driven

- ❑ 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

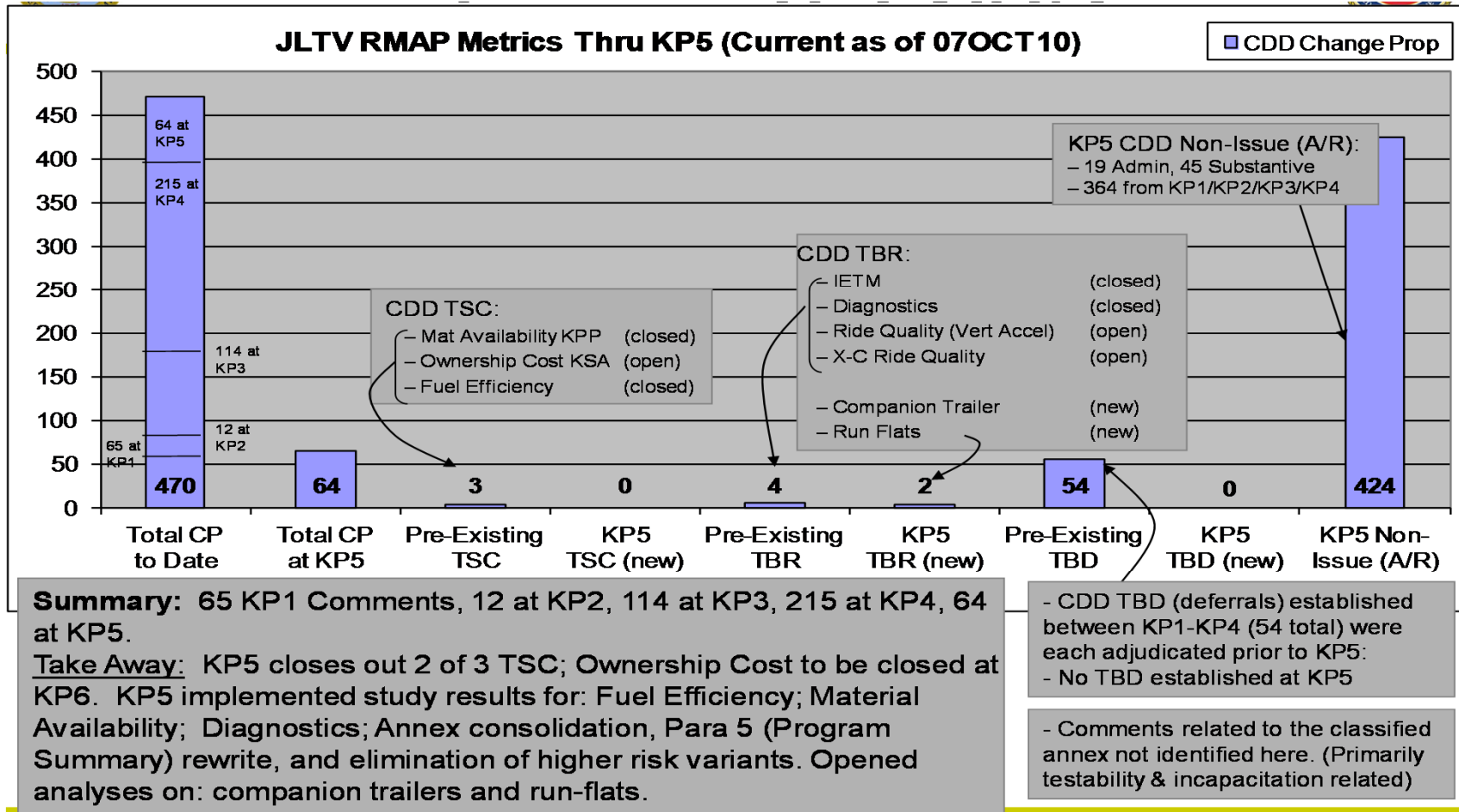
**KPs Respond to**  
**DAE Concerns:**

- Firm Requirements
- Mature Technology





# Knowledge Points (1-5)



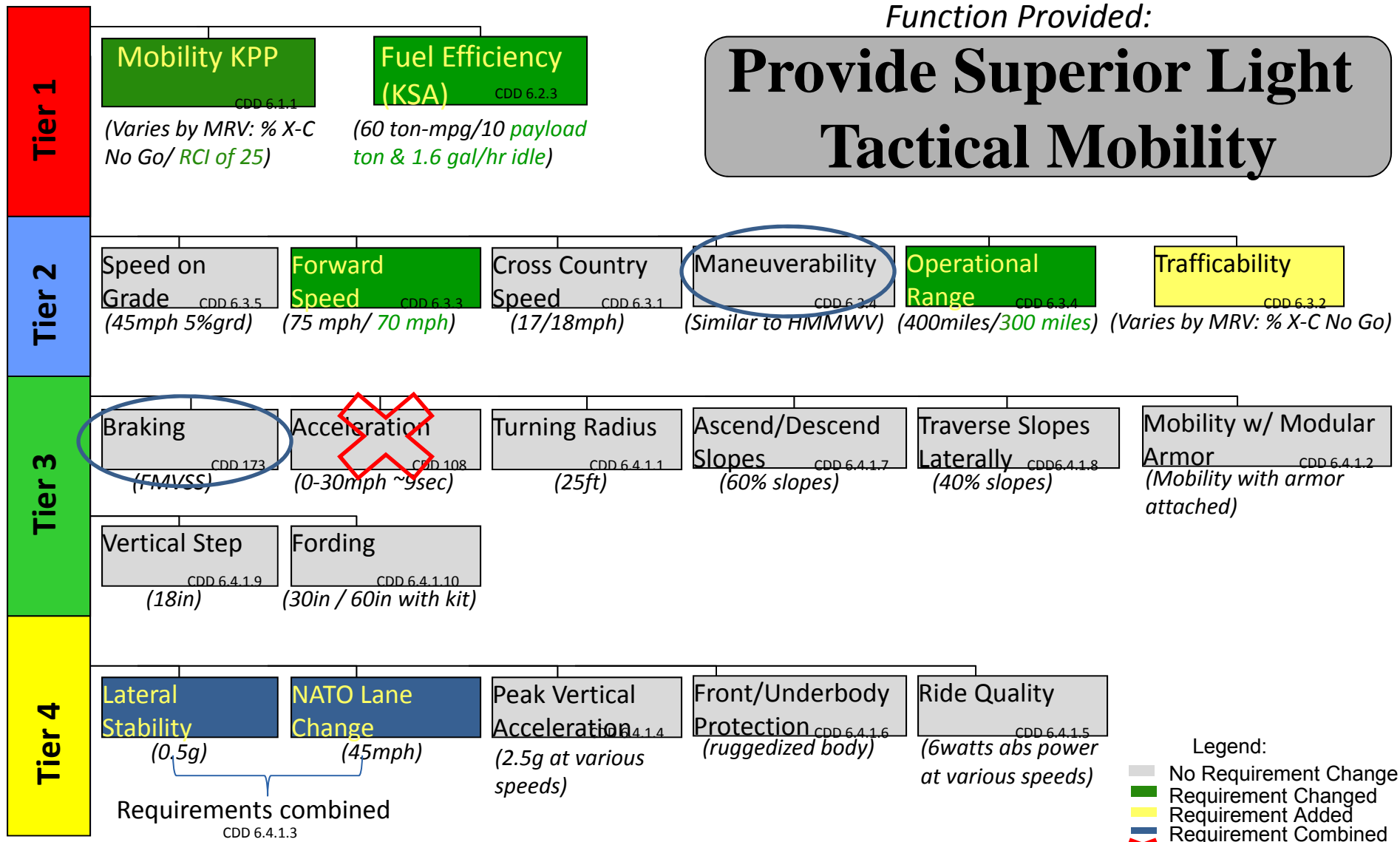
JLTV Requirements IPT, 15-16Dec10

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# RMAP Management



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





# 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



# Expedited Modernization Initiative Procedure (EMIP) Program Description

## ◆ EMIP

- Is a PEO CS&CSS process of conducting periodic technology demonstrations that educate government representatives in advanced technologies at the component or subsystem (not end item) level.
- Is an opportunity for vendors to identify to the government industry's investments in advanced component and subsystem technologies for potential insertion into and improvement of joint ground systems.
- Is being broadened beyond PEO CS&CSS to include other PEO portfolios.

## ◆ Emphasis

- Relatively mature technology -- a component/subsystem able to be demonstrated in a relevant environment.
- New technologies that are potential improvement to existing military equipment.

## ◆ [Http://peocscs.tacom.army.mil/EMIP/home.html](http://peocscs.tacom.army.mil/EMIP/home.html)

- Download EMIP starter package (technology application idea (TAI) and demonstration plan).
- Submit TAI, demonstration plan, and photo of technology to [trucktech@conus.army.mil](mailto:trucktech@conus.army.mil).

## ◆ Next EMIP demonstration

- April 2011 at Selfridge ANGB, MI.
- Early submission is encouraged.

- **TAIs submitted through October 2010: 655**
- **Technologies demonstrated: 317**

BL

**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.***



# QUESTIONS?



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**PEO-CS&CSS**

<http://peocscs.tacom.army.mil/>