



NDIA 2008
Tactical Wheeled Vehicle (TWV)
Conference

**Session III – Meeting the Challenges
of Today and Tomorrow**



United States Army Transportation Center and School

**BG(P) James E. Chambers
Commanding General USATC&S
Chief of Transportation
5 February 2008**

Spearhead of Logistics!



Light Tactical Vehicle Strategy



Total HMMWV
AAO: 152,528
OH: 133,353
GTA: 19,175

HMMWV

FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
13,068	13,679	6,525	4,555	3,383	858	1,358	1,329

IOC Joint Light Tactical Vehicle (JLTV)				
FY15	FY16	FY18	FY18	FY19
?	?	?	?	?
INC I			INC II	



FTTS ACTD demonstrators

JLTV
ACAT 1D
Program



USMC CTV demonstrator

Army Acquisition Objective - AAO
 On Hand - OH
 Grow The Army - GTA
 Initial Operational Capability-IOC
 Increment I/II-IOC/II



Medium Tactical Vehicle Strategy



ACAT 1C Program

**AAO: 83,185
OH: 33,271
GTA: 49,914
LSAC: 2,035**

FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
17164	15367	5707	3557	4035	3114	2376	2418



MTTCS



MTTS

Continuous Capability Improvements

Army Acquisition Objective - AAO
On Hand - OH
Grow The Army - GTA
Low Signature Armored Cab - LSAC
MTTCS - Multipurpose Troop Transport Carrier System
MTTS - Medium Troop Transport System



Heavy Tactical Vehicle Strategy



M915A3



M915
AAO: 6,043
OH: 6,355
GTA: 8,738

Continuous
Capability
Improvements

Production
based on FY08/09
supplemental funding

	FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
	1980	1132	184	188	77	86	38	39

Identifying Next
Generation Line Haul
Capability in process



M915A5

Engineering
Upgrades



Heavy Tactical Vehicle Strategy



HEMTT A2



HEMTT
 AAO: 29,724
 OH: 13,405
 GTA: 29,724

HEMTT A4



FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
882	1265	574	109	72	48	55	55

Production based on FY08/09 supplemental funding



HETS
 AAO: 1,974
 OH: 2,288
 GTA: 1,977

FY08	FY09	FY10	FY11	FY12	FY13	FY14	FY15
0	807	246	7	7	0	0	0

Army Acquisition Objective - AAO
 On Hand - OH
 Grow The Army - GTA



Tactical Wheeled Vehicle Training



HMMWV Egress Assistance Trainer

55 TOTAL
37 FIELDIED
34 CONUS
3 USAREUR

29 TOTAL
IN THEATER

72 TOTAL
52 FLW
20 FT BLISS



Motion-based Driver Trainer

Simulators Save Lives



Virtual Combat Convoy Trainer (VCTT) •2 FLW 7

FY08-13 POM
21 Sys FY08
Fielding FY09

- 2 USARPAC
- 1 USAREUR
- 1 FT HOOD
- 1 ARCENT



Reconfigurable Vehicle Tactical trainer



Expedited Modernization Initiative Process



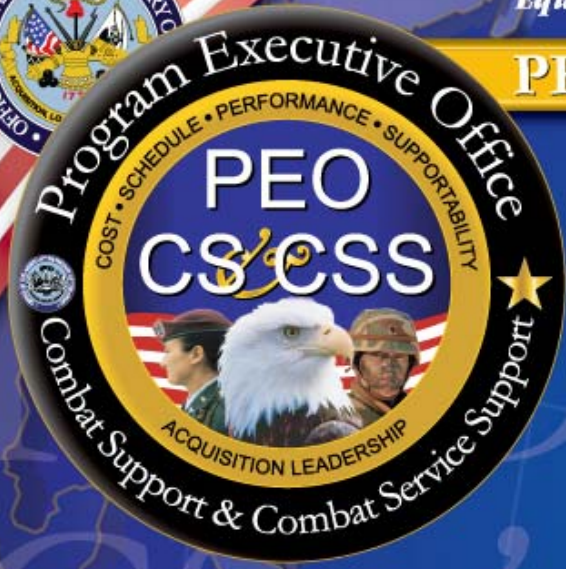
<http://contracting.tacom.army.mil/ssn/emip.htm>



MARKET RESEARCH – NOT SOURCE SELECTION

EMIP: 14-18 Apr 08 (3rd Port, Fort Eustis, VA)

Equipping our Joint Warfighters with the World's Best Capability, Today and Tomorrow



PEO CS & CSS *Program Executive Office*

for
Combat Support & Combat Service Support

NDIA 2008
Tactical Wheeled Vehicle (TWV) Conference

JOHN R. BARTLEY
Brigadier General, USA
Program Executive Officer,
Combat Support & Combat Service Support





Agenda

PEO CS&CSS

- ◆ **Our Goal**
- ◆ **Our Focus**
- ◆ **Our Challenges**
- ◆ **Our Approach**
- ◆ **Our Need**
- ◆ **Our Strategy for Future Acquisitions**

*Equipping our Joint Warfighters with the
World's Best Capability, Today and Tomorrow*



Our Goal

PEO CS&CSS



- ◆ **Design, Develop, Field, and Sustain – at a Reasonable Cost**
- ◆ **We Provide the Platform and Total System Integration – Everything Else is Developed by Others**

Overcoming the Challenges of Today's Rapidly Changing Requirements Requires Strong Partnership Between Government and Industry

Equipping our Joint Warfighters with the World's Best Capability, Today and Tomorrow



Our Focus

PEO CS&CSS

PEO CS&CSS

Is to be Prepared for...

◆ Changes in Threat

- Small Arms
- Mines
- IEDs/EFPs

◆ Changes in Technology

- Ability to Keep Step with Technology Advances
- The Army is serious about designing with Future Growth in Mind - Headroom - Improve Capability, Survivability, Network Communication and Reduce Burden on Soldier and Operating Costs

◆ Changes in Mission

- Type of Conflict
- Type of Unit
- Homeland Defense



THREAT



TECHNOLOGY



MISSION





Our Challenges

PEO CS&CSS



◆ Joint Environment

- Army
- USMC
- Navy
- USAF

◆ Processes

- Requirements
- Funding
- Provisioning

◆ Mixed Tactical Vehicle Fleet

- Old
- Used
- New

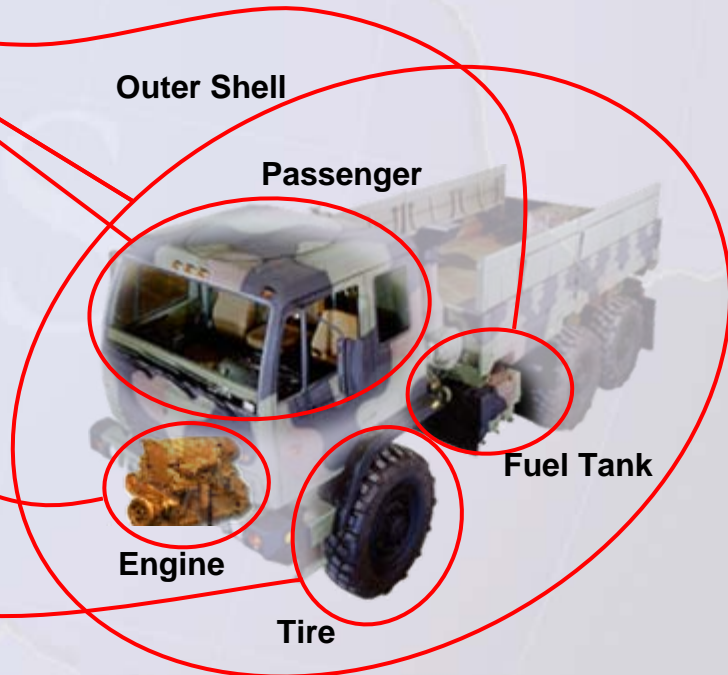
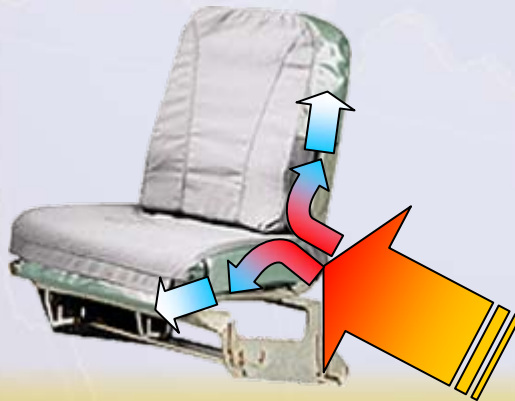
Ensure Consistency with Army's Tactical Wheeled Vehicle Modernization Strategy

Equipping our Joint Warfighters with the World's Best Capability, Today and Tomorrow

Current Experiences Drive a Need for Refined Capability:

◆ Survivability

- Fire Suppression:
 - Passenger
 - Engine
 - Fuel Tank
 - Tire
 - Outer Shell
- Energy Dissipation





Our Approach

PEO CS&CSS

◆ Scalable C4I

◆ Adaptable Levels of Protection

- Crew
- Vehicle
- Payload/Cargo

◆ Commonality/Family

- System Design
- Repair Parts/Sources of Supply
- Tools
- Maintenance Procedures
- Training
- SWaP – Do More with Less



◆ Ideally with No Impact on:

- Payload
- Performance
- Protection

Balance Improvements and Design Changes Across the three P's

Equipping our Joint Warfighters with the World's Best Capability, Today and Tomorrow



- ◆ **It's All About Effective Integration**
- ◆ **Design From the Beginning to Accommodate Change in Threat, Mission & Technology**
- ◆ **Change Quickly**
- ◆ **SWaP is a Finite Resource, Considered in the Beginning with Growth in Mind**

Stand on Each Other's Shoulders to Reach Higher and Achieve More Together To Meet the Challenges of Today's Rapidly Changing Requirements



PM Tactical Vehicles ~ *The Army Truck Team!*



MISSION

The lifecycle management of light, medium and heavy tactical vehicles enabling the Modular, Joint and Expeditionary Ground Force

OTHER SIGNIFICANT PROCUREMENT EFFORTS

- Safety Enhancements
- Add-on-Armor/GPK

= \$1.5B

Project Manager

COL Scott R. Kidd

Deputy PM Acquisition: Tony Shaw

Deputy PM Logistics: Cesare Gaglio

PRODUCT MANAGERS

- Light Tactical Vehicles
 - ◆ **LTC Samuel Homsy**
- Medium Tactical Vehicles
 - ◆ **LTC Alfred Grein**
- Armored Security Vehicle * *Newly Established*
 - ◆ **LTC Moorhouse**
- Heavy Tactical Vehicles
 - ◆ **LTC Allen Johnson**

DIVISION CHIEFS

- Business Management
 - ◆ **Mike Scharra**
- Acquisition Logistics
 - ◆ **Ray McMillen**
- Engineering
 - ◆ **Joe Keusch**
- PAT&E
 - ◆ **Larry McNamara**



Kidd's Screen Saver ~ FY08



AoA Surge



HEMTT AoA



LSAC Production

Production



M1117 ASV



LSAC



Objective – Gunner Protection Kit (O-GPK)

**Berry Amendment
Specialty Metals**



M1151/52

GWOT Support

Modularity/ Grow the Army



Frag Kit 5/GPK



TPE Refurb



Gunner Restraint Harness



HMMWV



HTV



FMTV

Full spectrum support to the War Fight & Modularity



3 CSL PMs ~ Approximately 220K Systems Fielded, over 150K Systems supported



Light Tactical Vehicles

- 29 variants
- 161K systems fielded
- @ 65-80 HMMWVs / Day

96% OR

- ◆ HMMWV Family of Vehicles
- ◆ UAH Safety Enhancements
- ◆ HEAT Trainer (UFR)



Family of Medium Tactical Vehicles

- 17 variants
- 33K systems fielded
- @ 800 / Month

ACAT I

- ◆ High-Mobility Artillery Rocket System (HIMARS)
- ◆ M935/M809 Series 5 Ton Trucks



92.2% OR



Heavy Tactical Vehicles

- 33 variants
- Over 29K systems fielded
- @ 700 / Month

91% OR

- ◆ Heavy Expanded Mobility Tactical Truck (HEMTT)
- ◆ Palletized Load System (PLS)
- ◆ M915 Family of Vehicles
- ◆ Heavy Expanded Mobility Trailer (HEMAT)
- ◆ Heavy Equipment Transport Systems (HETS)
- ◆ Container Handling Unit (CHU)



Armored Security Vehicle

- 2 variants
- Approx 800 systems fielded
- @ 48 / Month (post Katrina)

- ◆ M1200 Armored Knight



90% OR

The Army's Largest Major Item Producer

Big Business, Lots going on daily!



TWV Current Fleet Status – OIF



	# IN OIF	AVG AGE	EUL* Yrs	Annual Peacetime Mileage	Annual OIF/OEF Mileage
Up-Armored HMMWVs (M1114, M1151/52, M1165)	25,378	2.8	15	1,651	10,502
Non-Armored HMMWVs	1,135	14.4	15	2,035	3,755
AoA HMMWVs (AoA Kits being removed in RECAP)	1,135				
FMTV 2.5 Ton LMTV	4,200	7.2	20	1,930	1,628
FMTV 5 Ton MTV				1,502	1,963
M809, 5 Ton Series Truck, Manual Transmission	37	32.2	20	900	N/A
M939, 5 Ton Series Truck	987	18.7	20	1,387	959
M35, 2.5 Ton Series Truck	121	34.4	20	989	N/A
HEMTT	1,567	17.3	20	1,700	3,306
Palletized Load System (PLS)	975	10.5	20	1,617	1,760
HETS (M1070)	566	10.3	20	1,184	12,039
M915, Line Haul Tractor (M915 FOV)	1,086	12.4	20	3,794	20,211



* Largest Delta from Peacetime to Wartime OPTEMPO

BL: A Legendary fleet doing well despite duty cycle, in an extremely hostile environment

How can you help reduce O&S now and in the future?



GWOT Support:



- Executing Objective Gunner Protection Kit w/ MNF-I Mods (To date, 10,460 kits Installed in AOR) on TWVs, demand continues to grow!
- Completed Frag Kit (FK) 5 for UAH Systems, enhancing Soldier protection against IED events and other threats (To date, 14,545 Installed in AOR). Developing Frag Kit 6 for limited application.
- Safety Enhancements Program “Build-out”, integrated most into current UAH production baseline. Over 90K “eaches” delivered to the AOR.
- Other Key efforts underway:
 - ◆ ECM – Mission Module deconfliction
 - ◆ 400 amp alternator upgrade kit
 - ◆ Casualty Evacuation (CASEVAC) kit integration, External Fuel Tank Protection
 - ◆ ASV Frag Kit, Turret Bolt upgrades
 - ◆ Intensive management of tires, AC parts, M1151 & ASV Spares, other ‘consumables’ that result from a period of protracted war
 - ◆ TWV Surge for MTV/HTV Armored Systems
 - ◆ New load range E tire for LTV Fleet



M984 HEMTT WRECKER – “Getting it Done”!



ASV: Significant Events for FY08



- Maintaining $\geq 90\%$ OR
- Continuing production @ 48/Month
- Performing RESET Pilot program (RRAD)
- Conducting CONUS Training
 - ◆ Camp Shelby (mobilization site)
 - ◆ Fort Dix (mobilization site)
 - ◆ Fort Leonard Wood (Crewman's Course – Mar 08)
- Applying Retrofits in theater
 - ◆ Frag Kit 1
 - ◆ Frag Kit 2
 - ◆ Turret Bolt
 - ◆ Firing Switch
 - ◆ Parking Brake Interlock



From the Balkans to Baghdad, ASV is a Force Multiplier.



OIF/OEF: “The Long War”



“The Long War” = Opportunities for you to help us... in the areas of:

- Space Management
 - ◆ Space management both under the hood and in crew compartment an issue. Smaller footprints for components, accessories and modules are desirable.
- More Demand on existing Power Distribution Infrastructure (not readily able to accept higher output demand).
 - ◆ Wiring, circuit breakers, switches sized for lower output legacy alternators, we’re going to 400!
 - ◆ Replacement wiring harnesses need to be able to achieve desired higher demand
- Thermal Management in hostile environment
 - ◆ Heat reduction in crew compartment and in automotive components continues to be a challenge
- Operation & Support Cost Reduction opportunities
 - ◆ Frame and Suspension components longevity an issue
 - ◆ Filters/Oils/Brakes
 - ◆ Ballistic glass, armor components

Did I say we’re a \$10B Business?



From the Operations Sergeant Major, 1-221st Cavalry Squadron

Discipline. Professionalism. Competence in the Field.

Colonel Kidd,

We want to thank you for all the support you've given us. We cannot even begin to explain the positive impact every person in your organization has had on the war fighters here. In the past months, we have traveled approximately 4 million miles in harm's way. The Armor upgrades you and your group provide for us combined with LTC Caires' and SFC Mortons' work on distribution make it safer to conduct combat operations.

We brought 120 soldiers with us from 1-221 Cavalry from the Great State of Nevada. Every one of these Soldiers is a volunteer. We all came directly from a 2 year deployment at the National Training Center directly to the Iraq Theater of Operations. When you spend three years with soldiers you worry every time they go into harms way. Your Armor program helps to mitigate so many of the risks we face on a daily basis.

SGT Orozco's gunner (the Soldier you met at Navistar) is SPC P. He is a 22 year old college student from Nevada and he volunteered for this deployment after NTC. He was on a mission as a gunner in Iraq with one of your new turrets. His turret took a direct hit from an EFP and he walked away with zero injuries. Yes, I said zero! That has not been the fact with Soldiers with the previous turrets.

SPC P just came in my office and dropped off a Harley shirt for me from Ireland. He just returned from R and R leave. He said that this leave had significant meaning because he knows that had it not been for that turret he would not be with us today.

On behalf of the United States Cavalry, the 11th ACR, 1st Squadron 221st Cavalry, myself and most of all SPC P, we thank you for all your hard work. Please let you staff know how much we appreciate them.

Keep up the great work! It is appreciated.

Robert S Brown
SGM, USA



SPC P is home now!

Questions?



Joint Combat Support Systems



MISSION

Develop and Acquire Joint Combat Support Systems for Expeditionary Forces

VISION

Support the Joint Warfighter across the spectrum of conflict

Project Manager

COL John S. Myers

Deputy PM Acquisition: Mr. Dennis Mazurek

Deputy PM Technology: Mr. Joel Wagner

PRODUCT MANAGERS

- ◆ Sets, Kits and Outfits
 - LTC Brian Tachias
- ◆ Joint Light Tactical Vehicle
 - LTC Wolfgang Petermann
 - LtCol Ruben Garza (USMC)

PRODUCT DIRECTORS

- ◆ Test, Measurement & Diagnostics Equipment
 - Mr. Steve Lingar

PRODUCT OFFICE

- ◆ Horizontal Technology Insertion
 - Mr. Jim Loughridge

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.



Product Director – Test, Measurement and Diagnostic Equipment (PD TMDE)



<http://pmtmde.redstone.army.mil/>



Maintenance Support Device (MSD)



Calibration Sets (CALSETS)



General Purpose Electronic Test Equipment (GPETE)



Portable Radar Test Set



Wireless Diagnostic Sensors (WDS)



Product Manager - Sets, Kits, Outfits and Tools (PM SKOT)



<http://pmskot.army.mil>

Tool Kit
Carpenter,
Squad Box
(CTK-S)



Shop Equipment Contact
Maintenance
(SECM)



Standard
Automotive
Tool Set (SATS)



Carpenters,
Tool Kits (CTK)

General
Mechanics
Tool Kit
(GMTK)



Forward
Repair System (FRS)



Horizontal Technology Insertion (HTI)



<http://contracting.tacom.army.mil/ssn/emip.htm>

Expedited Modernization Initiative Procedure (EMIP) Component Technology Demonstrations



MARKET RESEARCH – NOT SOURCE SELECTION



Expedited Modernization Initiative Procedure (EMIP) - What is It?

◆ What is EMIP?

- Multi-phased, continuous process designed to improve Current / Future Tactical Wheeled Vehicle Fleet
- Identify & leverage Industry's investment in advanced technologies
- Provide both the Government & Contractors a single point of contact

◆ Qualification

- Technology Readiness Level (TRL) 7: actual system completed/qualified thru test & demonstration (no R&D)
- Available for production within 6 months
- Technologies new to Army (not already demonstrated in its current configuration)

◆ Submit Technology Application Ideas (TAIs) and Demo Plan in MS Word format to PM TWV mailbox

- TruckTech@conus.army.mil

<http://contracting.tacom.army.mil/ssn/emip.htm>



- Market Education not Source Selection



Key Participants

User

- ◆ Represents the Soldier
- ◆ Training and Doctrine Command (TRADOC)
- ◆ TRADOC Capability Manager-Transportation (TCM-T)
- ◆ Located in Ft. Monroe, VA (Ft. Eustis, VA)

Research & Development

- ◆ Does automotive R&D work for the Army
- ◆ TARDEC (Tank-automotive Research, Development & Engineering Center)
- ◆ Interfaces with other DoD Labs and Industry
- ◆ Focus is mainly R&D
- ◆ Located in Warren, MI

Other Organizations

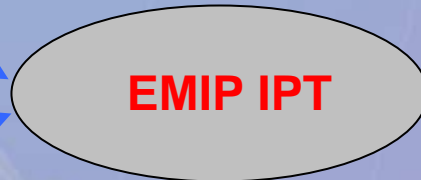
- HQDA
- Trainers
- Testers
- Other PMs
- Other agencies

PEO CS&CSS / PMs

- ◆ Acquisition office responsible for about 80% of the Army's equipment
- ◆ Three O-6 (COL) Level Project Managers
- ◆ PM Tactical Vehicles (PM TV)
 - PM LTV (O-5/LTC level)
 - PM MTV (O-5/LTC level)
 - PM HTV(O-5/LTC level)
- ◆ PM Joint Combat Support Systems (PM JCSS) Located in Warren, MI
- ◆ PM Force Projection (PM FP) Located in Warren, MI

Logisticians

- ◆ Tank-automotive and Armaments Command (TACOM) Life Cycle Management Command (LCMC)
- ◆ Sustainer for Army's equipment
- ◆ Located in Warren, MI



BL

- Diverse viewpoints represented through IPT process



Next EMIP: 14-18 Apr 08 (Fort Eustis, VA)

◆ Demonstration Capabilities

- Four Separate Sets of Demonstrations per Day (Mon-Fri)
- Vehicle Interior & Tire FireSuppressions
- Vehicle Systems (static & dynamic (Ride))
- Communications
- Live Fire
- Watercraft, Rail Car, Helicopter

◆ EMIP IPT Approved Demonstrations

- Live Tire Fire Suppression Demonstrations (2 Hand Held & 2 Systems)
- Manual Impact Wrenching technology (no air or power used)
- High volume-low pressure water/air alternating pulse cleaning system for Internal Combustion Engine (ICE) cooling system cavities.
- High efficiency over-pressurized compressor to deliver cooler, pressurized, oxygen-rich air to engine turbo charger. Potential for increased fuel efficiency.

◆ General Attendance (Invited)

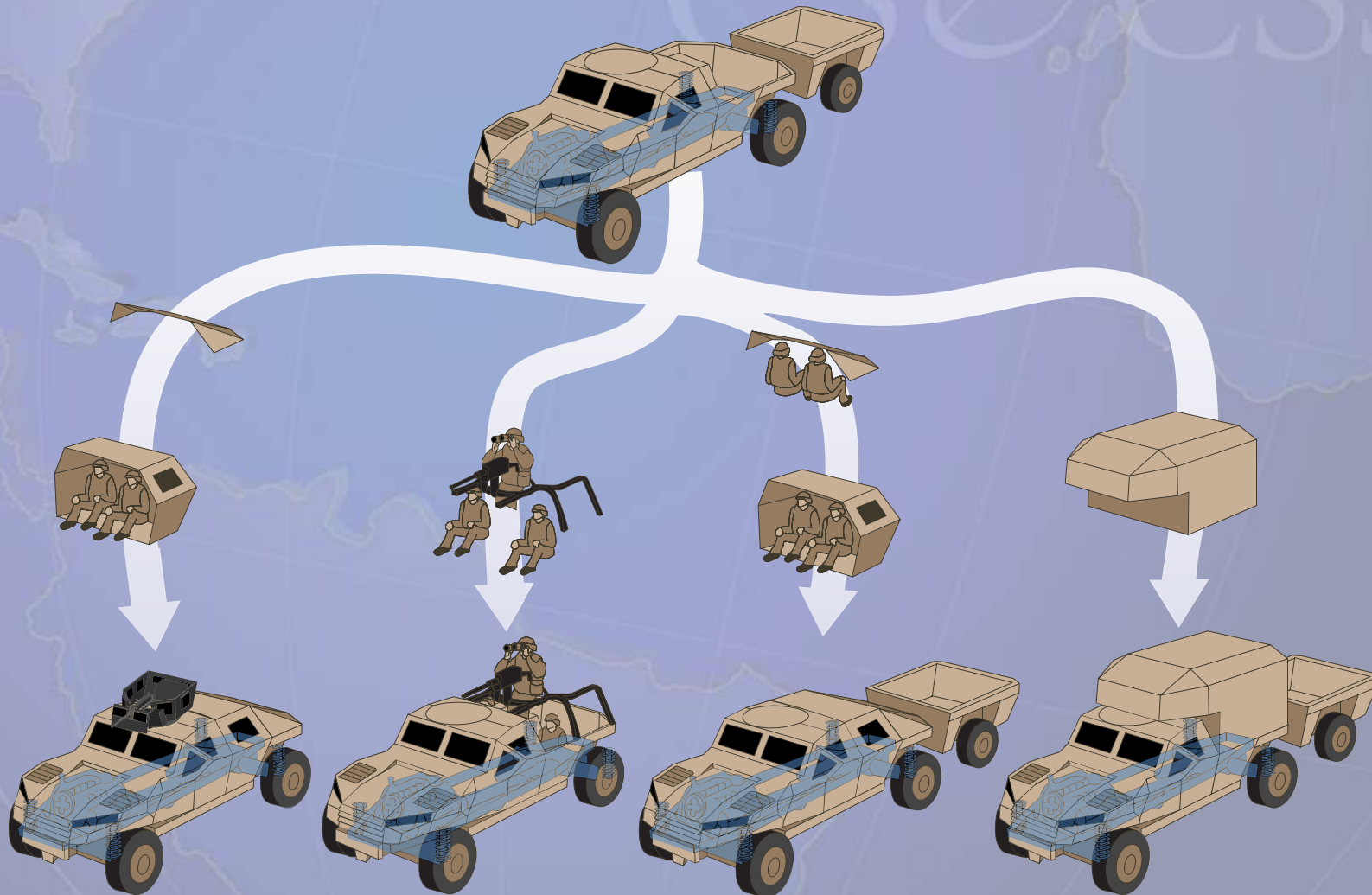
- Military (All Services)
- VIP's (Civilian, Military, Congress)
 - Civilian Leaders (SES's)
 - PEO's and PM's
 - Representatives & Senators (HAC & SAC)



PM Joint Light Tactical Vehicles (PM JLTV)



<http://contracting.tacom.army.mil/majorsys/jltv/jltv.htm>





The Balanced Solution – JLTV Family of Vehicles and Trailers



PAYLOAD CATEGORY A

Battlespace Awareness Mission Area

Payload: 3,500
Performance: Exceed HMMWV
Transport: 1x EAT* CH/MH 47/ CH53
2x IAT** C130

Sub-Configurations

General Purpose Mobility
(JLTV-A-GP) (4 Seat) - Army/USMC

ONR & TARDEC Concept Examples



* EAT: External Air Transport
** IAT: Internal Air Transport
*** USMC & Army JLTV-B-ICs may be the same vehicle

PAYLOAD CATEGORY B

Force Application Mission Area

Payload: 4000 / 4500 lbs
Performance: Exceed HMMWV
Transport: 1x EAT* CH 47/53
1x IAT** C130

Sub-Configurations

Infantry Carrier, Fire Team - USMC***
Infantry Carrier, Fire Team - Army***
(JLTV-B-IC) (6 Seat)

Reconnaissance, Scout (6 Seat) - Army

Reconnaissance, Knight (6 Seat) - Army

Command & Control On The Move
(JLTV-B-C2OTM) (4 Seat) - Army/USMC

Heavy Guns Carrier (MP, Patrol, Escort)
(4 Seat+ Gunner) - Army/USMC

Close Combat Weapons Carrier (4 Seat)
Army/USMC

Utility (2 Seat) - USMC

Ambulance (3 Seat+2 Litter)
Army/USMC

ONR CTV Demonstrator Vehicle



ONR & TARDEC Concept Examples



PAYLOAD CATEGORY C

Focused Logistics Mission Area

Payload: 5,100 lbs
Performance: Exceed HMMWV
Transport: 1x EAT* CH 47/53
1x IAT** C130

Sub-Configurations

Shelter Carrier / Utility / Prime Mover
(JLTV-C-UTL) (2 Seat) - Army/USMC

Ambulance (3 Seat+4 Litter)
Army/USMC

Army FTTS Demonstrator Vehicles



ONR & TARDEC Concept Examples



Trailers for each payload category to have similar payload and mobility as prime movers.





DAE JLTV Acquisition Review – 10 Sep 07 Direction



◆ DAE Concerns:

- Firm requirements
- Maturity of technology to meet the requirements
- Funding adequacy

◆ DAE Guiding principles - programs will not enter SDD unless:

- Demonstrated high probability of delivering systems on time and within budget
- Programs are fully funded
- Additional guidance:
 - Competitive prototyping and testing demonstrating achievable levels of the requirements
 - Analysis of options to sustain a competitive environment in tech development, SDD and production phases
 - Maximized commonality of high cost components across the vehicle variants
 - An SDD phase that includes entrance and exit criteria with demonstrated technology and manufacturing and integration readiness
 - Work with Joint Staff to define appropriate levels of protection from threats and incorporate lessons learned from OIF/OEF

JLTV Directed to a MS A review as soon as practical



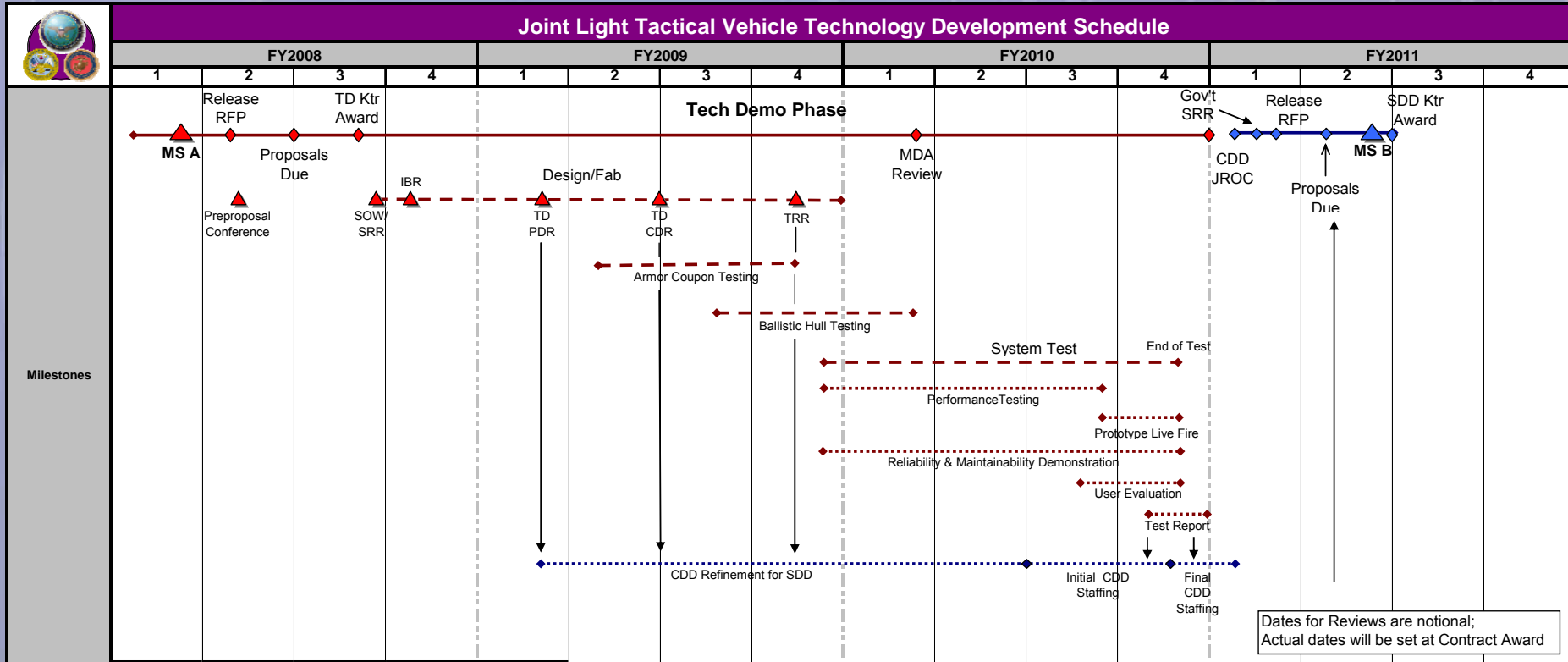
Outcomes from JLTV DAB - 5 Dec 07



- ◆ **Approval to enter Acquisition Process at MS A**
- ◆ **Approval to release RFP for Technology Development (TD)**
 - Multiple Contract Awards
 - Full and Open Competition
- ◆ **Approval of TD Exit Criteria**
- ◆ **Army designated as Lead Service**
- ◆ **Designation of JLTV as Pre-MDAP**
- ◆ **Program documents to be approved within 90 days**
- ◆ **Services directed to fund SDD Phase**



TD Schedule





ONR (NATC) – Combat Tactical Vehicle (CTV) Technology Demonstrator (TD)



Survivability & Force Protection

- 6 Marine/Soldier cab
- **Monocoque Aluminum-based V-Shaped Lower Hull with Integrated Armor/Structure**
- **Modular Armor Kit**
- **Blast-Mitigating Seats**
- Air Conditioning w/ Modular NBC
- Automatic Fire Suppression
- Accepts Multiple Weapons Stations

Network Centricity

- **Integrated communications suite**

Sustainability

- Limited on-board diagnostics
- 10Kw on the Move & 30Kw Stationary Integrated, exportable AC power

Transportability

- 96" w x 220" l Operational Ht = ~ 86 inches & **Reducible Ht = 76.4 inches**
- CH53/CH47 EAT & C130 Transportable
- **MPS & Amphibious shipping**
- **Demonstrator curb weight = 15,600 lbs**

Mobility

- 322 Hp Detroit Diesel 926
- 6-Speed Twin Disc Transmission with Integral Transfer Case
- **SLA Independent w/ 3-Position Ride Height Adjustment & 24" Wheel Travel**
- Central Tire Inflation Systems (CTIS)
- Anti-Lock Braking System (ABS) w/ Integrated Stability Control

Payload

- **6000 lb payload with integral armor**

Operational Range

- 400 miles





CTVTD LUE Overall Summary

- ◆ **Marines: 22 Oct – 02 Nov (497 Miles)**
 - 7 Infantry / Combat Engineer / MT Operator & Maintenance
 - 2 MT Operator / MT Maintenance
- ◆ **Army: 05 – 16 Nov (595 Miles)**
 - 6 Infantry / Tank Crew
 - 1 Maintenance Chief
- ◆ **Air Force/Navy: 26 – 30 Nov (248 Miles)**
 - 4 Airman-Air Security Personnel
 - 3 Seabees-Equip Operator / Maintainer
- ◆ **CTVTD operated at 21,850 lbs plus 6-Man Crew**
 - Primary Road ~ 75 miles
 - Secondary Road ~ 245 miles
 - Trails ~ 480 miles
 - Cross-country ~ 540 miles
 - CTVTD average off road speed
 - 10 to 15 mph faster than HMMWV
- ◆ **M1114 w/o payload & 2-man crew**
 - Power steering pump failure at ~300 miles
 - Frame failure at ~340 miles
- ◆ **Replacement M998 w/o payload & 3-man crew**
 - Failed rear lower control arms at ~1250 miles





LUE Participants' Comments

POSITIVES

- ◆ Size, Power, & Mobility
- ◆ Ability to accomplish range of missions
- ◆ Inherent Protection
- ◆ Quickly adapted to vehicle features & capabilities (relative to HMMWV)
 - **More Systems**
 - CTIS, Adjustable Ride Height, ABS, Axle Locks
 - **Driver Interface to Electronic Controls**
 - Gages & Switches
- ◆ Saloon Doors for Flank Protection During Dismount
- ◆ Fore & Aft Adjustable Front Seats

CONCERNS

- ◆ Interior Stowage Volume
- ◆ C4I Suite Placement
- ◆ Visibility & Situational Awareness
 - **Blind Spots at Driver & Commander Positions**
 - **Rearward Visibility & Situational Awareness**
 - **Immediate Front & Close-in Side Visibility**
- ◆ Vehicle Height - Combat Dismounts & Mounts

RECOMMENDATIONS

- ◆ Need to Address Internal Stowage
 - **Provide Space & Means to Secure Equipment**
 - **Want certain items accessible from inside**
 - E.g., ammo, water, chow, mission equipment
 - **Comfortable w/ Outside Stowage**
- ◆ Turret Ring Location
 - **Room for Gunner's Feet**
 - **360 Deg Freedom of Movement**
- ◆ Do not need smaller rear side door
- ◆ Means to quickly lower vehicle from Combat Height for Combat Dismounts
- ◆ Wrap around instrument panel to provide more room btwn Driver & Cmdr/A-driver
- ◆ Potential for Opening Windows
 - **In Event of Non Functional HVAC**



Combat Tactical Vehicle Demonstrator



Payload, Performance, Protection



Summary

- ◆ EMIP info at <http://contracting.tacom.army.mil/ssn/emip.htm>
- ◆ JLTV Program Updates at <http://contracting.tacom.army.mil/majorsys/jltv/jltv.htm>