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2010 TACTICAL WHEELED VEHICLES CONFERENCE

Monterey, CA

7 - 9 February 2010

Agenda

Monday, February 8, 2010

KEYNOTE SPEAKER

- Lieutenant General James H. Pillsbury, USA Deputy Commanding General, U.S. Army Materiel Command

SESSION I

- U.S. Army Training and Doctrine Command (TRADOC) "TWV Strategy Update" Lieutenant General Michael A. Vane, USA Director, Army Capabilities Integration Center (ARCIC) (video)
- Office of the Deputy Chief of Staff, G-8 "TWV Funding Challenges", Lieutenant General Robert P. Lennox (video), USA Deputy Chief of Staff and COL Mark Barbosa , G-8
- Commanding General, US Army Reserve Command "TWV and Reserve Component Challenges", Lieutenant General Jack C. Stultz, USA Chief, Army Reserve
- Office of the Deputy Chief of Staff, G-3/5/7 "State of TWV from the G-3/5/7 Perspective" LTG (R) Joseph Yakovac, Educator and Consultant

SESSION II

- TWV Life Cycle Management in an Era of Persistent Conflict, Lieutenant General Claude V. "Chris" Christianson, USA (Ret.) Director, The Center for Joint and Strategic Logistics National Defense University, Washington DC
  1. Navy Corporate Business Course, NPS, Monterey, CA
  2. Joint Logistics & Lifelong Learning
  3. TWV's in a Sea of 'Change'.
- Office of the Deputy Chief of Staff, G-4, U.S. Army Logistics "TWV and Logistics Challenges", • Major General Robert M. Radin, USA Assistant Deputy Chief of Staff, G-4
- Warfighter / Combined Arms Support Command, Major General James E. Chambers, USA Commanding General, CASCOM
- PEO, USMC Land Systems, Mr. William E. Taylor Program Executive Officer (PEO)
- U.S. Army TACOM Life Cycle Management Command, Mr. Michael D. Viggato Deputy to Commanding General, TACOM
- U.S. Army Contracting Command, Mr. Harry P. Hallock Executive Director, TACOM Contracting Center
- Tank-Automotive Research, Development and Engineering Center (TARDEC), Mr. Thomas Mathes, Executive Director, Product Development Business Group

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Tuesday, February 9, 2010

SESSION III
TODAY'S STRATEGIES AND UPCOMING CHALLENGES:

- Mr. Kevin M. Fahey (SES), Program Executive Officer, Combat Support & Combat Service Support
- BG Brian R. Layer, USA, Commanding General, Chief of Transportation, Commandant, U.S. Army Transportation School
  1. Army Strong wmv file
  2. Leader Development Strategy for a 21st Century Army wmv file
  3. NASCAR vs MRAP wmv file
  4. Virtual Combat Convoy Trainer IED Simulation wmv file

- Major General Roger A. Nadeau, USA, Commanding General U.S. Army Test and Evaluation Command

PROJECT/PROGRAM MANAGER OVERVIEWS: MRAP, JCSS AND TACTICAL VEHICLES:

Mine Resistant Ambush Protected (MRAP) Vehicle Program

- Mr. Paul D. Mann, Joint Program Manager, Mine Resistant Ambush Vehicle (MRAP) Program, Marine Corps Systems Command

Joint Light Tactical Vehicle (JLTV) Program

- COL John “Steve” Myers, USA, Project Manager, Joint Combat Support Systems
    1. I’m A Soldier wmv file

PM OVERVIEWS: MRAP, JCSS AND TACTICAL WHEEL VEHICLES

Program Tactical Vehicles (TV)

- COL David Bassett, USA, Project Manager, Tactical Vehicles

P.M. TV PRESENTATIONS

- LTV: Mr. Dennis N. Haag; Product Manager, Light Tactical Vehicles
- MTV: LTC Shane Fullmer, USA, Product Manager, Medium Tactical Vehicles
- HTV: LTC(P) L. Allen Johnson, USA; Product Manager, Heavy Tactical Vehicles

2010 Tactical Wheeled Vehicles Conference Tentative Agenda*
February 7 - 9, 2010
Monterey Conference Center
Monterey, CA
*(*subject to change - 1/22/10)*

SUNDAY, FEBRUARY 7, 2010

8:00 a.m. - 1:00 p.m.	12th Annual NDIA TWV Golf Tournament Player check-in & Continental Breakfast Black Horse Golf Course, Seaside, California (Golf Tournament Chair: Chuck Prikopa, BAE Systems)
8:30 a.m.	shotgun start
2:00 p.m. - 7:00 p.m.	Registration Check-in The DeAnza Ballroom Foyer The Portola Plaza Hotel at Monterey Bay
3:00 p.m. - 7:00 p.m.	Annual Tactical Wheeled Vehicle Networking/Awards Reception The DeAnza Ballroom I and II

MONDAY, FEBRUARY 8, 2010

7:00 a.m. – 8:00 a.m.	Continental Breakfast Serra Ballroom The Monterey Conference Center
7:00 a.m. – 5:00 p.m.	Registration Check-in Continues Serra Ballroom The Monterey Conference Center
8:00 a.m. – 8:10 a.m.	Conference Overview & Welcome "TWV Strategy During Challenging Times" Serra Ballroom The Monterey Conference Center

- Mr. Bruce Harrison
  Vice President, BAE Systems and
  Chairman, Tactical Wheeled Vehicles Division
  NDIA

2010 TAC WHEEL CONFERENCE BADGES ARE TO BE WORN AT ALL TIMES DURING EVENT.

MONDAY, FEBRUARY 8, 2010 (continued)

8:10 a.m. – 8:15 a.m.

NDIA Welcome
Serra Ballroom
The Monterey Conference Center

- Lieutenant General Lawrence P. Farrell, Jr., USAF (Ret.)
  President & CEO
  NDIA

8:15 a.m. – 8:45 a.m.

Keynote Speaker

- Lieutenant General James H. Pillsbury, USA
  Deputy Commanding General,
  U.S. Army Materiel Command

Session I:
Chairman: Mr. Eddie Garcia, Director
Oshkosh Defense, Oshkosh Corporation
Serra Ballroom
The Monterey Conference Center

8:45 a.m. – 9:15 a.m.

U.S. Army Training and Doctrine Command (TRADOC)
"TWV Strategy Update"

- Lieutenant General Michael A. Vane, USA
  Director, Army Capabilities Integration Center (ARCIC)

9:15 a.m. – 9:45 a.m.

Office of the Deputy Chief of Staff, G-8
"TWV Funding Challenges"

- Lieutenant General Robert P. Lennox, USA
  Deputy Chief of Staff, G-8

9:45 a.m. – 10:30 a.m.

Coffee Break
Serra Ballroom Foyer

10:30 a.m. - 11:00 a.m.

Commanding General, US Army Reserve Command
"TWV and Reserve Component Challenges"

- Lieutenant General Jack C. Stultz, USA
  Chief, Army Reserve

MONDAY, FEBRUARY 8, 2010 (continued)

11:00 a.m. – 11:30 a.m.	Office of the Deputy Chief of Staff, G-3/5/7 "State of TWV from the G-3/5/7 Perspective" • Major General Rhett A. Hernandez, USA Assistant Deputy Chief of Staff, G-3/5/7
11:30 a.m. - 1:00 p.m.	Lunch The DeAnza Ballroom I & II The Portola Plaza Hotel at Monterey Bay

Session II
Chairman: Mr. Pat MacArevey
Vice President, Government Business, Navistar Defense
Serra Ballroom
The Monterey Conference Center

1:00 p.m. -1:30 p.m.	TWV Life Cycle Management in an Era of Persistent Conflict • Lieutenant General Claude V. "Chris" Christianson, USA (Ret.) Director, The Center for Joint and Strategic Logistics National Defense University, Washington DC
1:30 p.m. - 2:00 p.m.	Office of the Deputy Chief of Staff, G-4 U.S. Army Logistics "TWV and Logistics Challenges" • Major General Robert M. Radin, USA Assistant Deputy Chief of Staff, G-4
2:00 p.m. - 2:30 p.m.	Warfighter / Combined Arms Support Command • Major General James E. Chambers, USA Commanding General, CASCOM
2:30 p.m. - 3:00 p.m.	PEO, USMC Land Systems • Mr. William E. Taylor Program Executive Officer (PEO)
3:00 p.m. – 3:30 p.m.	Coffee Break

MONDAY, FEBRUARY 8, 2010 (continued)

3:30 p.m. - 4:00 p.m.	U.S. Army TACOM Life Cycle Management Command • Mr. Michael D. Viggato Deputy to Commanding General, TACOM
4:00 p.m. - 4:30 p.m.	U.S. Army Contracting Command • Mr. Harry P. Hallock Executive Director, TACOM Contracting Center
4:30 p.m. - 5:00 p.m.	Tank-Automotive Research, Development and Engineering Center (TARDEC) • Dr. Grace Bochenek Director, TARDEC
5:00 p.m. - 6:30 p.m.	Annual Conference Reception The DeAnza Ballroom I and II The Portola Plaza Hotel at Monterey Bay

EVENING ON OWN - ENJOY MONTEREY!

TUESDAY, FEBRUARY 9, 2010

7:00 a.m. - 8:00 a.m.	Continental Breakfast Serra Ballroom Foyer The Monterey Conference Center
7:00 a.m. - 12:00 noon	Registration Check-in continues Serra Ballroom Foyer The Monterey Conference Center

TUESDAY, FEBRUARY 9, 2010 (continued)

Session III

Chairman: Mr. Tom Bagwell (SES)
Deputy Program Executive Officer,
Combat Support & Combat Service Support (DPEO CS&CSS),
U.S. Army

Serra Ballroom
The Monterey Conference Center

8:00 a.m. – 9:00 a.m. Today's Strategies and Upcoming Challenges

(8:00 – 8:20) - Mr. Kevin M. Fahey (SES)
Program Executive Officer, Combat Support & Combat Service Support

(8:20 – 8:40) - BG Brian R. Layer, USA
Commanding General, Chief of Transportation, Commandant,
U.S. Army Transportation School

(8:40 - 9:00) - Major General Roger A. Nadeau, USA
Commanding General
U.S. Army Test and Evaluation Command

9:00 a.m. – 10:10 a.m. Project/Program Manager Overviews: MRAP, JCSS and Tactical Vehicles

(9:00 – 9:30) Mine Resistant Ambush Protected (MRAP) Vehicle Program

- Mr. Paul D. Mann
  Joint Program Manager, Mine Resistant Ambush Vehicle (MRAP) Program,
  Marine Corps Systems Command

- COL Kevin Peterson, USA
  Project Manager, Mine Resistant Ambush Vehicle (MRAP) Program,
  Program Executive Office, Combat Support & Combat Service Support

(9:30 –9:50) Joint Light Tactical Vehicle (JLTV) Program

- COL John "Steve" Myers, USA
  Project Manager, Joint Combat Support Systems

TUESDAY, FEBRUARY 9, 2010 (continued)

9:00 a.m. – 10:10 a.m.	PM Overviews: MRAP, JCSS and Tactical Wheel Vehicles
(9:50 –10:10)	Program Tactical Vehicles (TV) ▪ COL David Bassett, USA Project Manager, Tactical Vehicles
10:10 a.m. –10:20 a.m.	Mr. Bruce Harrison Conference Close-out
10:20 a.m. – 10:50 a.m.	Coffee Break Serra Ballroom Foyer (Serra Ballroom will be reconfigured into two rooms)
10:50 a.m. – 12:40 p.m.	P.M. Breakout Sessions - will follow on from Overview – P.M. TV presentations *Attendees can remain in same ballroom as briefers will rotate*

Breakout Sessions:	Group 1 – Serra (A)	Group 2 – Serra (B)	Group 3 - Steinbeck Ballroom
10:50 -11:20	**LTV**: Mr. Dennis N. Haag; Product Manager, Light Tactical Vehicles	**MTV**: LTC Shane Fullmer, USA; Product Manager, Medium Tactical Vehicles	**HTV**: LTC(P) L. Allen Johnson, USA; Product Manager, Heavy Tactical Vehicles
11:20 – 11:30	BREAK		
11:30-12:00	**MTV**: LTC Shane Fullmer, USA; Product Manager, Medium Tactical Vehicles	**HTV**: LTC(P) L. Allen Johnson, USA; Product Manager, Heavy Tactical Vehicles	**LTV**: Mr. Dennis N. Haag; Product Manager, Light Tactical Vehicles
12:00 – 12:10	BREAK		
12:10-12:40	**HTV**: LTC(P) L. Allen Johnson, USA; Product Manager, Heavy Tactical Vehicles	**LTV**: Mr. Dennis N. Haag; Product Manager, Light Tactical Vehicles	**MTV**: LTC Shane Fullmer, USA; Product Manager, Medium Tactical Vehicles

12:40 P.M. 2010 TACTICAL WHEELED VEHICLES CONFERENCE ADJOURNS

2010 TAC WHEEL CONFERENCE BADGES ARE TO BE WORN AT ALL TIMES DURING EVENT.

NDIA Tactical Wheeled Vehicles (TWV) Conference

8 February 2010

COL Mark Barbosa, **G-8**

Purpose/Agenda

Purpose: To provide an overview of the Army's TWV fleet and discuss how it supports Army senior leader's vision

*Our goal is to build a **versatile mix** of **tailorable** and **networked** organizations, operating on a **rotational cycle**, to provide a **sustained flow** of trained and ready forces for current commitments and to hedge against **unexpected contingencies**, at a tempo that is predictable and sustainable for our All-Volunteer Force*

Agenda:

- **Strategic Orientation**
- **New Army Equipping Strategy**
- **Evolving TWV Investment Strategy**
- **TWV Fleet Overview**
- **Evolving TWV Capability Requirements**

Period of Continuous Change

- Shifting Operational Landscape
- Restructuring materiel modernization strategies
- Fielding "incremental" vs. "big bang" solutions

- Transitioning to support the establishment of the Materiel Enterprise
- Diminishing resources and simultaneous increases in requirements
- Facing difficult choices in a fiscally constrained environment

New Army Equipping Strategy

- An **affordable** strategy

- Ensures Soldiers have the **right equipment** to meet **mission requirements**:
  - *whether in combat*
  - *training for combat*
  - *operating as part of generating force*
  - *conducting Homeland Defense and Defense Support to Civil Authorities missions*

Old Strategy	New Strategy
• Tiered readiness	• Cyclic readiness
• Equip 100% units, 100% of the time	• Equip to mission and ARFORGEN Phase
• Minimal recognition for Reset	• Recognizes necessity for Reset
• Homeland Defense requirements not recognized	• Homeland Defense capabilities recognized/resourced
• Equipment normally remained in one unit	• Equipment in constant motion
• Equip to unit design	• Equip to unit mission
• Requirements approved, then resourcing considered	• Requirements life cycle costs considered upfront

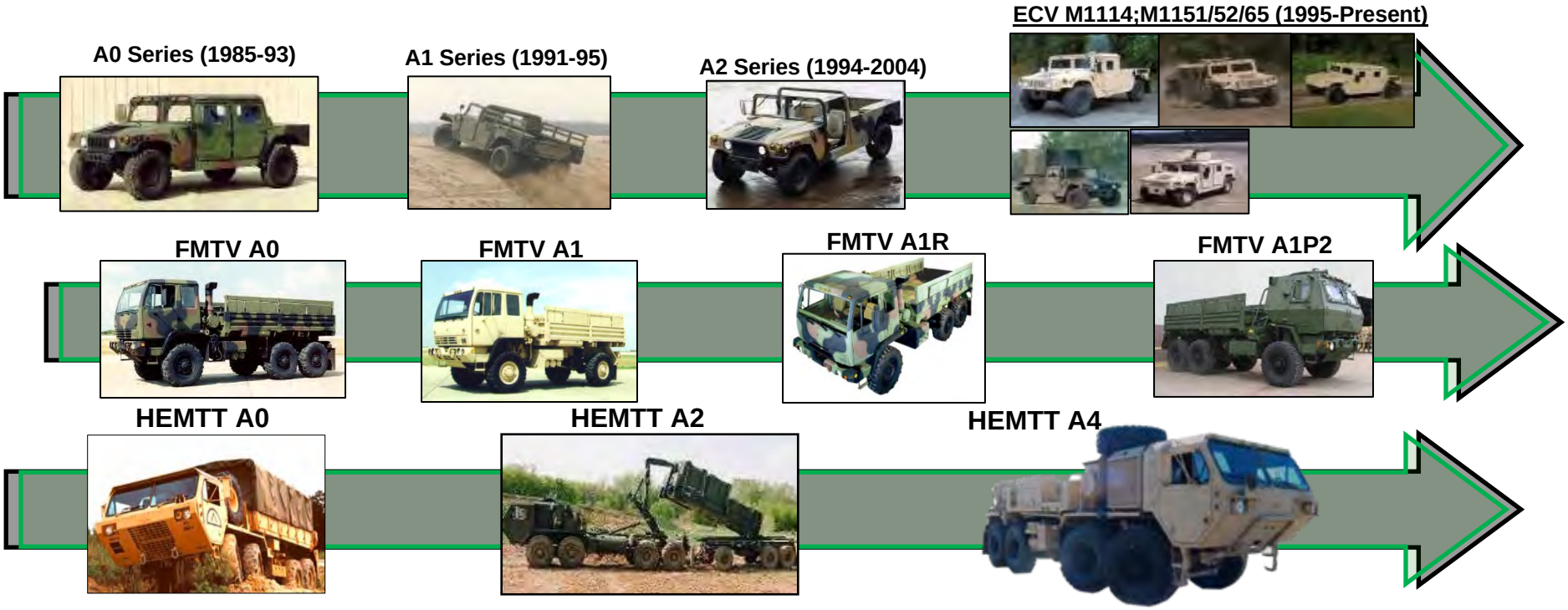
Evolving TWV Investment Strategy

Army TWV Fleet = Over 267,350 vehicles

- **Adapting** based on operational demand, cognizant of fiscal realities
- Planning to **integrate** 12,291 MRAP + 3,391 M-ATV into the force
- Emphasizing a **mixed fleet** that spans protection, payload, and performance
- Accelerating our plans to **stop** HMMWV procurement for Army only needs
- **Equipping to mission** per ARFORGEN cycle
- **Modernizing** while we fight
- Planning to **restore** Army Prepositioned Stocks
- **Recapitalizing** and **divesting** selected variants
- Planning to **integrate** Joint Light Tactical Vehicle when ready
- **Scrutinizing** new and existing TWV requirements

Tactical vehicles must be protected, mobile, and networked

TWV Capabilities Restored



Capabilities common to all.

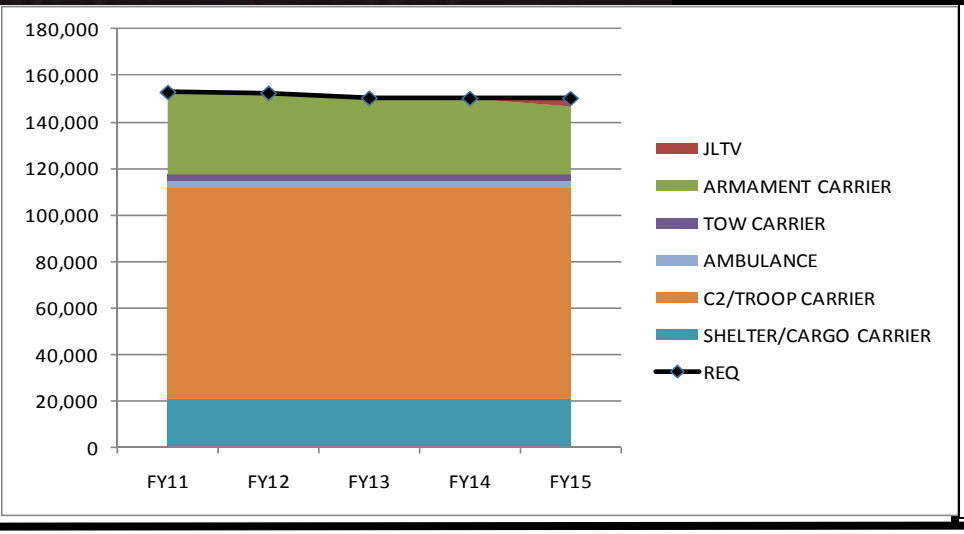
- **Significant survivability improvements**
- **Higher horsepower engine**
- **Electronic Transmission**
- Higher efficiency power train
- **Integrated AC**
- Improved hot weather performance
- B-Kit Armor
- Optimized Maintenance Ratio
- Collision Warning System

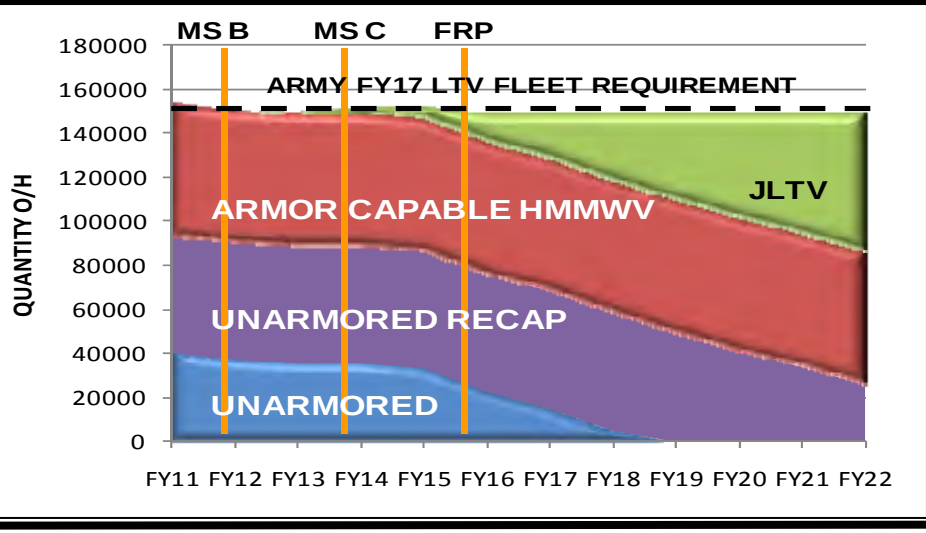
- **Improved Power Generation**
- Improved Wheels and Tires
- **Improved Seat Belts**
- **Fire Suppression**
- **Improved Suspension**
- **Blast Seats**
- Anti-lock Breaks / Traction Control
- Air/Hydraulic Brake System
- Increased Axle Load

Restored Performance drivers have been Force Protection, Increased Armor, and Soldier Safety.

Tactical Light Truck Family

(MTOE and TDA)





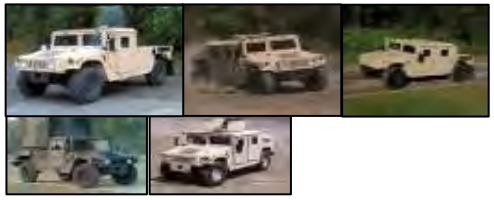
- **Stopping HMMWV procurement for "Army-only" needs – sustaining current HMMWV requirements through RECAP**
- **Exercising option for over 2,000 HMMWVs by 1 Mar 10 (e.g., final buy for "Army needs", acquisition objective met)**
- **Funding not requested in FY11 for Army-only HMMWV procurement**
- **Seeking approval to use a portion of the FY10 HMMWV Procurement funding for other Army priorities**
- **Reviewing options to sustain 160K on-hand HMMWV fleet by shifting acquisition strategy to RECAP and/or Reset**
- **Replacing over 3,000 Light Tactical Wheel Vehicle requirements with the MRAP/M-ATV**
- **Supporting development of the Joint Light Tactical Vehicle**

A0 Series (1985-93)

A1 Series (1991-95)

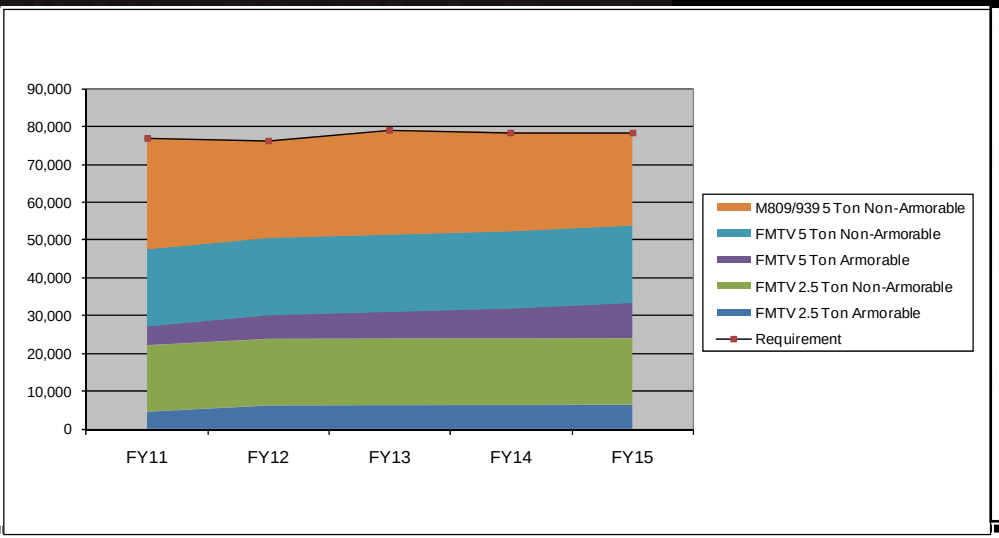
A2 Series (1994-2004)

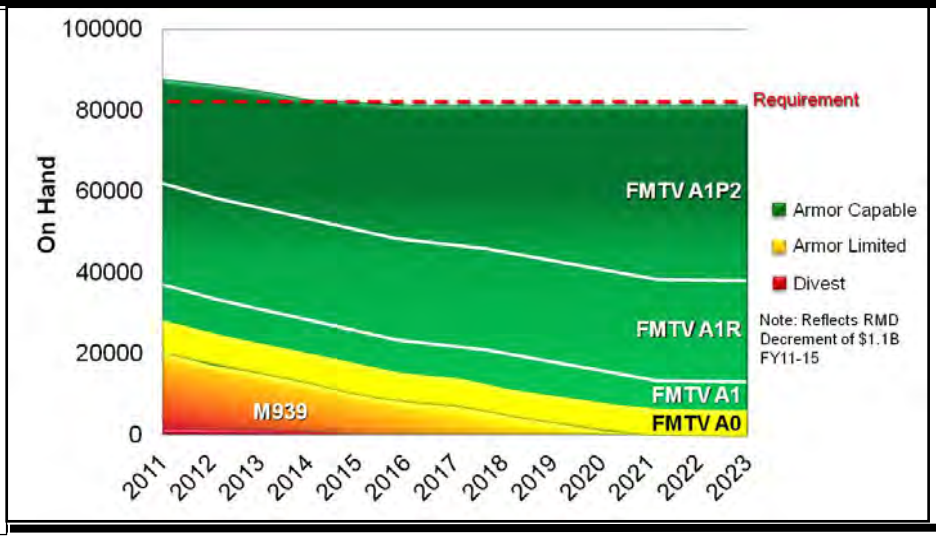
ECV M1114;M1151/52/65 (1995-Present)



NOTE: MOD 4 = Approved Armor Capable LTV (i.e., accepts Frag Kits)

Tactical Medium Truck Family





- **Majority of requirements are "modern," and 69 percent of Medium Trucks on hand would be classified as modern**
- **Current investment has resulted in healthy fleet that is well distributed relative to requirements**
- **Aging fleet – 30 percent of fleet is being filled by M35, M809, and M939 series trucks whose average age exceeds 20 years**
- **Moving Army to a fleet with scalable protection (e.g., FMTV investment strategy procures armor capable vehicles to support Long Term Protection Strategy objective to provide scalable protection by using the A cab/B-kit concept, to replace older models, and to fill current Modified Table Of Organization & Equipment (MTOE) shortages**
- **Divesting M35 series trucks by end of FY11 and M809 series trucks by end of FY15**
- **Planning to maintain capability to sustain M939 series trucks through FY22**

M939 

FMTV A0 

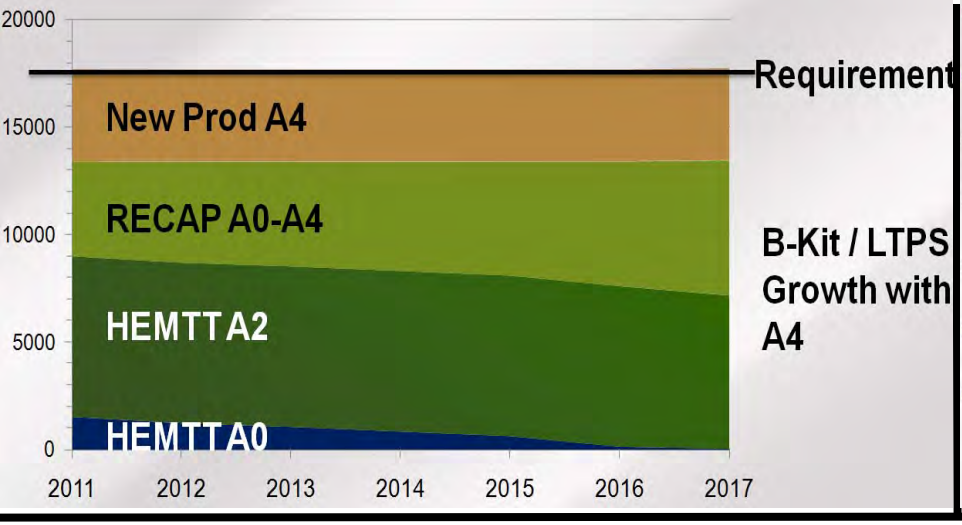
FMTV A1 

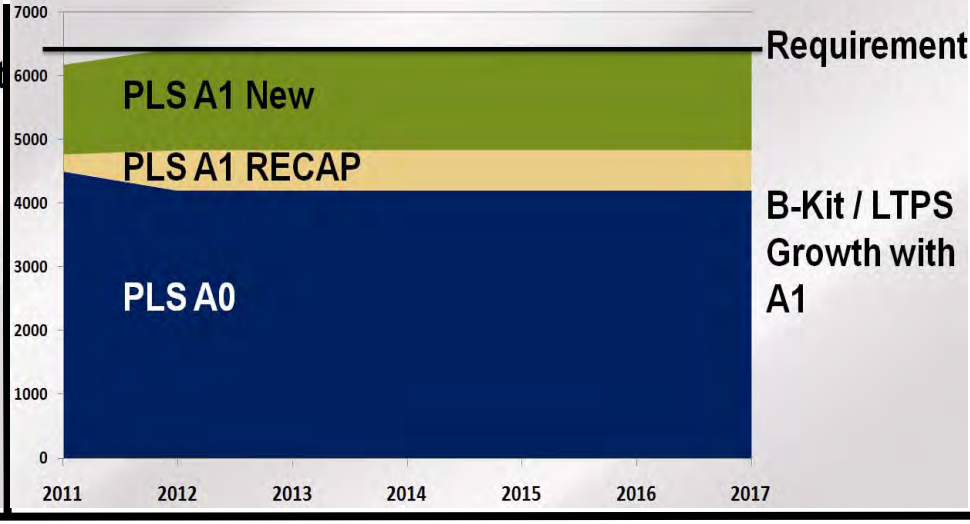
FMTV A1R 

FMTV A1P2 

NOTE: MOD 3 = early FMTVs; MOD 4 = Armor Capable FMTVs

Tactical Heavy Truck Family

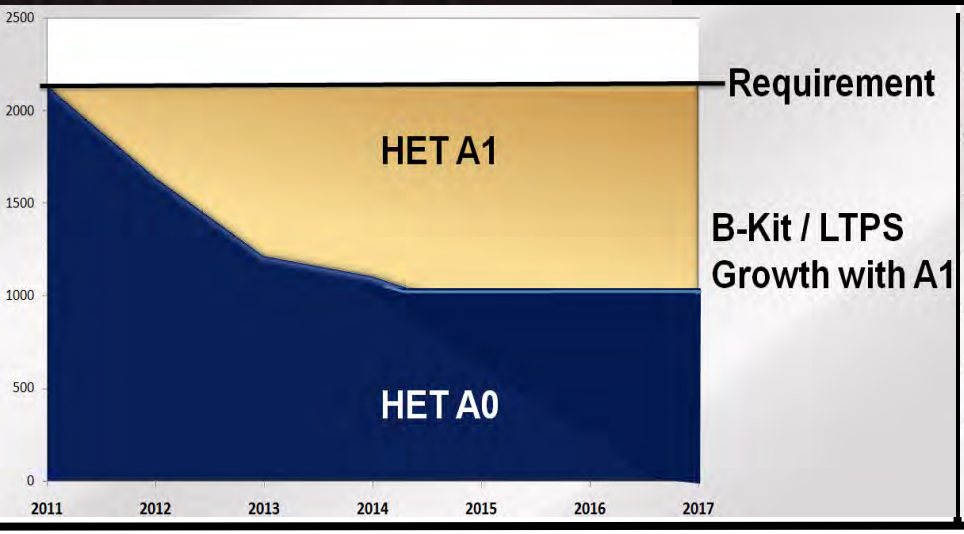


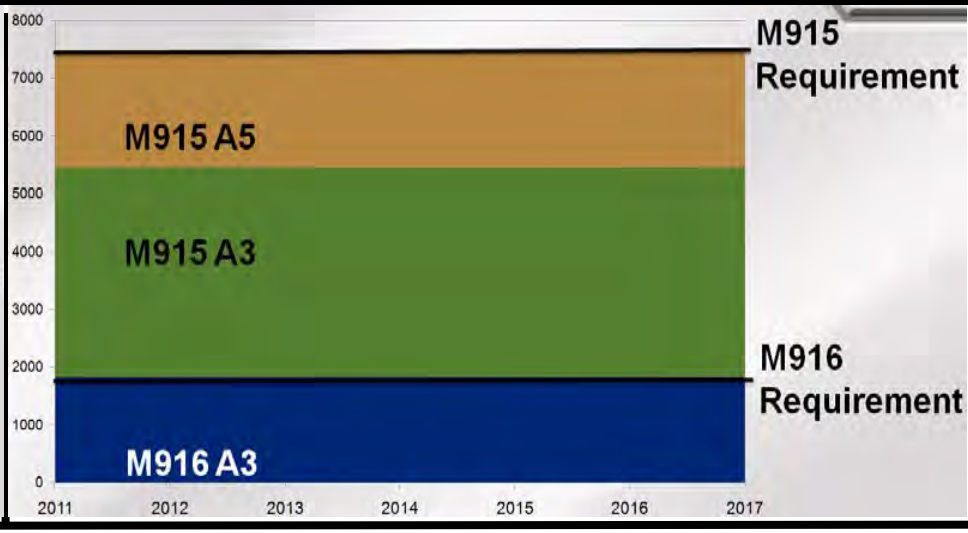


- **Majority of requirements are "modern," and 98 percent of Heavy Tactical Vehicles on hand are modern**
- **Equipment well distributed across COMPOs 1-3. COMPO 6 (APS) low due to decision to source operational needs**
- **Divesting oldest M915/M916 HEMTT variants NLT FY11 – replacing with M983 Light Equipment Transporter**
- **Investing in HEMTT RECAP and new procurement of HEMTT Load Handling System and Light Equipment Transporter**
- **Modernizing Heavy fleet primarily thru RECAP, Reset, and Product Improvement**

HEMTT A4

Tactical Heavy Truck Family





- **Speed of modernization/divestiture depends on how fast we want to achieve our LTPS and replace older model trucks – LTPS target is 47% approved "armor available".**
- **Current HTV armor on hand is ~22% (LTAS "B" Kits and AoA sets)**
- **HEMTT A0/A2, PLS A0, HET A0 8V92 engine obsolescence FY18**

M916

Evolving TWV Capability Requirements

- Provide Soldiers **protected mobility**
- Provide increased **off-road mobility**
- Increase **platform capacity** to accept evolving technologies
- Obtain better **Command and Control on-the-move** capability
- Use **incremental approach** to vehicle development

A culture of innovation is needed to address continuously evolving warfighter capability gaps

Navy Corporate Business Course
NPS, Monterey, CA

Notes 10 February 2010

1. PURPOSE - To address the students and discuss innovation and transformational leadership. Address Title: ***Transformational Leadership and Innovation; can't have one without the other.***

2. ATTENDEES – A total of 34 students made up of Navy officers (CDR – CAPT) and civilian professionals (GS-15 – YA-3). Length of careers spans ~16 years to more than 25 years.

3. OUTLINE

INTRODUCTION.

- Before we start…I understand you may be gagging at the idea of having to sit here and listen to someone ramble on about logistics for 90 minutes, so let try to ease your minds a bit.
    - The more I look, the less I see logistics and the more I see philosophies…
        - There is a universality or portability of ideas that transcends a specific function…I now believe that is one of the most critical attributes of effective executive leadership
    - I look at my logistics experience now more as a model of how to approach challenges…and as a bellwether…like Haiti.
- My background…
    - No Masters….No early promotions…Not a good student…
    - Small Ag town…IE degree
    - Today: remarkable opportunity…For years I've felt that "Something just wasn't quite right"
- Today is very special for me…thank VADM Quast for this opportunity
- I encourage you to actively participate today. . . Share your thoughts & ideas, and challenge things you have issues with . . . interrupt…question…disagree…
- I'd like to talk with you today about . . .
    - Moving toward a 21st Century logistics capability, and why it's so hard
        - Here we are talking about this on the eve of the second decade of the 21st Century – but it's not too late!
    - As part of this discussion, we'll talk about leadership and why you're so important to our future . . .
    - **BLUF**: We need you – our defense logistics enterprise needs you. We need your Courage – Patience – Competence, to:
        - Build an ***interdependent*** defense logistics environment that will be a central component of our national security in the years ahead.

- If done right, it won't look like anything we have ever seen before—and there is no one else but you out there to do it . . .

TRANSFORMATION. Before talking specifically about logistics, I'd like to spend a couple of minutes to talk about transformation and transformational leadership in general.

- Transformation: in recent years . . . much more publicity, priority & effort behind transformation . . . I am not sure the resources have accompanied all this support.
  - We (our militaries and our nations) have continually been changing
    - There isn't much at the operational level that's the same as when I started
    - So, why over the past several years do we have this kind of emphasis?

- I would offer that this exceptional emphasis is directly related to
  - how to profoundly the operating environment has changed
  - the duration of our current effort
  - the scope of the team involved in today's operations
  - the pervasive information available to families, businesses & governments
  - and how our senior leaders see the future evolving in the years ahead

- What is a leader's role in this process?
  - You've heard about much of this during your time here – don't intend to revisit all you've heard
  - Emphasize that what is important is that enabling transformation/change is really a state of mind.
    - The driving desire to find a better way – unbridled curiosity
    - A way/approach to understanding problems – What are we trying to ***fix***? And I use the term 'fix' with some trepidation here. I'm not sure that we can really fix many of the challenges we'll face. In many cases it may be more of global trade offs and/or risk management that you'll be asked to deliver.

21ST CENTURY LOGISTICS. I've structured my remarks around 5 elements – I offer this only as a framework or a way of thinking about change – a way to gauge progress (or lack of progress). As I mentioned, even though I'll talk about this through the logistics lens, this kind of model can be applied to almost any functional area.

- **Elements of logistics.** Even though I call these 'elements of logistics' they should be viewed as a framework around which we can approach a challenge. The 5 elements I think about are:

  - Vision
  - Processes
  - Organizations
  - Systems
  - People

- The fact of the matter is that today's young men and women – people at the *tip of the spear* already get it – YOU guys get it! When they hear leadership talk about change and joint, they just don't understand why this is such a big deal – they've worked successfully under extreme pressure with members of other services, nations and non-governmental agencies to deliver quality support. But it is not with today's younger men and women that our challenge lies . . .
    - Our challenge lies with an ***industrial age culture*** that has given us sets of rules and procedures that simply are not useful to us in contemporary and future environments.
        - ***MIKE LYDEN AND THE FISCs CHANGING TO FLEET SUPPORT ORGANIZATIONS?***
        - ***ICAF NAME CHANGE?***
    - Strategic ***decision cycles*** that take too much time and are too cumbersome
        - ***JOINT STAFF AND CHANGING DOCTRINAL PUBLICATIONS?***
    - Procurement policies and processes that cannot effectively respond to the changing requirements of the operating environment;
    - ***Processes*** that are relatively inflexible and
    - ***Organizations*** that have been insulated by design from other key elements in the logistics enterprise.

1. VISION: With that short comment about transformation, let's begin with an obvious but challenging component—as George Bush Sr put it, "that vision thing"

- For any innovation, change or transformation to take root, it must be driven by a clear, *compelling vision* to tie together the many disparate elements of any change.
    - It's important to remember that ***change is not an end state***, it's a continuous journey. Therefore, a vision must be under constant review and update.
    - Fundamental to any vision is a clear description of a ***future state***. From a military perspective, and there seems to be a strong consensus about this, the future will be characterized by:
        - Persistent conflict
            - State & non-State actors
                - Who will be our adversaries?
            - Some debate over what constitutes "conflict"
                - Russian cyber attacks in Estonia
                - Activities in Zimbabwe, etc.
                - Are we ready for all of these? And for the ones we can't imagine? ***ASK THE SOUTHCOM CDR…***
        - Globally dispersed operations (Afghanistan is the perfect storm for logistics)
            - Globally connected
            - Tenuous LOCs
            - Tactical threats - global implications
                - Decisions you will make could have strategic impacts
        - Complexity
            - Pace of change
            - Multi-national, inter-agency, NGO, commercial at tactical level

        - ***DOCTRINE, JFCOM, CJCS, MATTIS, CCJO, EXPERIMENTATION…***
    - Simultaneous operations across the spectrum of activities – move back and forth with ease . . .
        - Engagement
        - Security
        - Combat
        - Reconstruction
    - A flat (or more likely reduced) resource stream
        - Fewer new equipment buys
        - Aging equipment – higher sustainment costs
        - Insertion of emerging technologies on these aging platforms – integration/sustainment
    - Last, but clearly not least, is uncertainty

- But, even though there is some consensus about the character of the future, there is ***no consensus on the way forward,*** and that's where you come in to the game.
    - In my opinion, you need to *speak up and* ***be part of the discussion***. Nobody knows what the right answer is because there is NOT a right answer.
        - Even though there may not be a RIGHT answer, there are better and worse answers and you have to be able to assess.
        - It is the discussion itself that makes us smarter and stronger, just as the process of planning is more important than the plans we actually write that in most cases either are never used or as the saying goes *"do not survive the first shot in combat."*
    - PARADOX: We say that nobody can predict the future, but many things we are apparently certain of…

2. <u>PROCESSES</u>: I'm talking about those processes out there that are absolutely essential to delivering logistics support to the warfighter. Now, as part of my 'Truth in Lending' promise, I am about to talk about the supply chain. I know most of you don't really care about that, but it is a $200B enterprise…and, the philosophy behind these remarks do apply to every other function that supports the joint force. In discussing this I'm going to refer to the ***defense support chain.***

- Our Greatest Challenge – this support chain looks different depending upon where you stand/sit – ***fundamentally, we don't understand it!*** I can't over-emphasize how profound this is, because if we don't all see the same thing, we won't be able to solve our problems.
    - Capital Area Food Bank example
        - Unusual supply chain, with well intentioned people all trying to do the right thing, but
        - Still aren't getting food to everyone who needs it . . .
    - Our leaders don't agree on
        - where 'it' starts and ends
        - the deliverables 'it' should produce

        - the performance metrics/measure of effectiveness 'it' should meet
        - Key terms (lexicon) are not understood or universally accepted

- **Way forward** –
    - We must find a ***common framework*** through which we can view the defense support chain. There are reference models out there we should use, but I'm not here this morning to talk to you about them. I am here to tell you that absent a model, we'll never make it better – we'll just work harder to deliver that support. What a reference model will do is:
        - Describes processes with shared outcomes
        - Offer a common language/syntax
        - Enable flexible design options
    - Always view the defense support chain from an ***enterprise perspective***
        - Purpose of the support chain is to link national capabilities/resources to changing operational requirements
        - The process knows no organizational or command boundaries – the process serves the enterprise
            - Turf battles, 'My Lane', etc.

3. <u>ORGANIZATIONS</u>. What I'm talking about here is to better understand logistics organizational designs and relationships, and using that knowledge to help change from a what is primarily hierarchal/industrial/fixed designs using overly bureaucratic processes, to flatter, collaborative, agile organizational designs that respond with effectiveness to changing requirements.

- Can a military organization be flat, collaborative agile and learning?
- Can we afford not to be?
- Out in the AOR you have been all of those things—I am not sure I would agree it's so in the Pentagon

- Design: for a changing environment (adaptive vs. industrial)
    - Rapidly reconfigure to meet changes
        - Sensor grid (you can't watch everything) is a key element in adaptive organizations
    - Don't lose the organizational 'core'
        - why the organization exists!
    - All are part of a larger enterprise
        - how they 'fit' must be clear

- Relationships. Whether we can accurately describe them or not, our organizations are global partners. However, they are not driven by common interests, and they are not enabled with open communications within and across organizational boundaries. Improving this condition requires conscious effort in both design and management.
    - Three partnerships that need attention
        - Partnerships B/T government organizations
            - Responsibilities & accountabilities
            - Roles in our support chain & life cycle systems approach

        - Partnerships B/T government & industry
            - Integral member of the team
            - Common outcomes (life cycle availability at value)
            - New PBLs – not adversarial – hiding data—frequently reassessed
                - ✓ This talk is not about PBLs, but I would happily field a question on them
        - Partnerships B/T industry competitors
            - Common goals
            - 'All or nothing' approaches to BD. How can the USG incentivize "shared earnings?"

- **Way Forward**
    - ***Network organizations*** across the environment to provide visibility (situational awareness) using sensor data to build information (situational awareness) that leads to better decisions.
    - Make logistics **an *integral part of operational planning/execution*** to shorten decision cycles and make logistics decisions better.
        - This is not just a "seat at the table in the Ops Center
    - Focus on ***unity of effort*** as the desired outcome in all we do!
        - Unity of effort is the foremost logistics imperative, but it certainly applies to all that we do…

4. <u>SYSTEMS</u>. Systems must be part of an architectural hierarchy serving logisticians—I know this sounds like it is about computers but it is not—it is about logic.

- Process architecture - How do the processes work?
    - Who plays what role in executing the processes?
    - What are their relationships?
    - What do the processes deliver, and to whom?
- Data architecture
    - Who needs what data to make decisions?
    - Where is that data generated?
    - How will we move the data?
- Systems architecture – this is about computers and applications . . .
    - What applications will we use to meet the data requirements above?

- **Way Forward**
    - *Enterprise solutions* (not an enterprise system)
    - *Generate data once*, share with all who need
    - Value systems/applications on how they *impact the enterprise*
        - Watch for sub-optimization; depot inventory optimization, e.g.
        - Part of the larger whole.
    - Remember – the purpose of applications is to *enable better decisions*; to help people do their jobs better. Applications should not exist separate from a decision-making process.

5. <u>PEOPLE</u>: Our greatest impediment to affecting meaningful, long-term logistics transformation may well be our cultures –

- Our cultures are reflected in our people
    - Behavior
    - How/what they think
    - What they say

      Therefore: any meaningful change should start with people…

        - ***How do they learn?***
        - ***What do they need to know?***
        - ***What attribute do we want them to manifest?***
        - ***What kind of leaders do we need?***

- The answer (or a big part of it) to our cultural challenges is education – and a deep ***commitment to life-long learning***
    - How do people learn?
        - Training….
        - Education…
        - Experience…
        - Coaching…
        - Mentoring…
        - Reflection…

- Fundamental to learning is the challenge of knowing ***what kind of logisticians we want***? What skills, knowledge & attributes do we need/want? When, and to what degree are these KSAs needed?
    - My perspective:
        - Comfortable with uncertainty, Ability to influence, negotiator/mediator…
        - Have a broad, global perspective; Courage, patience, curiosity…
        - Able to make decisions with minimal information, Quick learner…

- Last, let me talk a little about the leadership element of people. Many of our leaders today are too narrowly focused and their horizon is too short—they're too close to the map board. The same may be true for some of you. Why would I say that?
    - Graded on execution – the tasks at hand
        - Made worse by 8+ years of operations
        - Leading organizations into the close target zone
    - Impact??
        - Not alert to change
        - Like a horse running a race with blinders
        - Can miss the small signals that lead to significant change
            - ✓ Butterfly's wings in China – Hurricane in the Atlantic (Chaos-Complexity Theory)

- ✓ Not sure I buy into the theory, but I do know that a blogger in Iraq or a thumb drive in an Afghan market can both have global impact!
- ✓ We live in a globally interconnected world
- Many times these signals of change come from the edge . . . leaders aren't there
- Inhibits curiosity
  - ✓ May be one of the most important attributes of a successful leader in tomorrow's environment

- **Way Forward**
  - Develop a ***learning continuum*** that gives us the best chance of developing the kinds of logisticians we need
    - We want to help shape those kinds of logisticians…that's why the CJSL was established
    - This is an effort that lasts over a professional lifetime—I am still a work in progress although I am told there does not appear to be much hope for me ☺
  - Ensure we provide incentives to ***drive the right behaviors*** across the logistics enterprise
    - Overall enterprise performance vice individual/segment/activity excellence
  - *Mentorship and coaching* are key components of this lifetime of learning culture
    - If you are junior, seek out the counsel of senior leaders you admire—it is not sucking up (of course, it could be sucking up if all a person does is curry favor from a superior). This is a key tenet of the book, "Leading Up" by Michael Usee.
    - You in turn must do the same for those behind and below you… and the more senior you are the more important this is. The flag officer who does not devote at least 10 percent of his time to this endeavor is, in my view, doing a disservice to our Nation

CLOSING. In summary I've tried to frame our logistics enterprise in the context of five elements—and as I mentioned, this approach can be applied to lots of other areas as well logistics.

- Vision – the description of a compelling end state that will drive change
- Processes – a common, shared understanding of those processes that deliver support to the customers
- Organizations – knowing those elements that provide the control over the delivery of support
- Systems – establishing the applications we need to help us make good decisions
- People – the Holy Grail of change – developing people like you who will lead us into the future.

To be effective, transformation must embrace changes to all five of these elements.

- Change should be harmonious—but it never is.

- As leaders, our job is to make it better and to keep those we charge with "making it happen" focus on the vision we jointly created and hopefully share.
- The vision is what unites the other four

The sheer size and complexity of our world makes this an incredibly challenging undertaking. BUT—can we afford not to take it on? People at the tip of the spear like you are changing everyday—it is imperative that as you progress to higher levels of responsibility to enable the changes we need to enhance success.

- Opportunities exist
- Progress is being made

At the end of the day, we need an enterprise that works in harmony toward common outcomes, shares a common language and system of metrics, and provides visibility over all information needed to make good decisions across that enterprise. That can only happen with people like you, and organizations that share values that make this a wonderful profession and a great way of life.

I have temporarily given up my RV and sacrificed leaving DC for Monterey because of you (not much of a sacrifice); VADM Quast has given up his dream of the pro tennis circuit for you; you all are responsible not just to lead, but to do the same for the generations that follow you.

It has been an honor to be with you, thank you for your commitment to our Nation, and my very best wishes as you continue in service to our Country.

Joint Logistics & Lifelong Learning

JOE - Attributes

- **Global dispersion** - Demands a globally-distributed concept of support
  - ✓ Rapid & Precise ***response is the metric***
  - ✓ LOCs will be tenuous; Commercial reliance; a ***lucrative target***
- **Complex** -
  - ✓ Joint, Interagency, Multinational, NGOs all play; ***complicated politically and operationally***
  - ✓ 100s of contractors with a support battalion; multiple supply chains; ***complicated tactically***
- **Uncertain** – Only real 'known' is that it will be volatile and messy
- **Costly** –
  - ✓ ***We're big & expensive***; **$170B - $270B…**
  - ✓ Must become more efficient
- **Law** – Title X gives Services responsibility to train, equip, sustain, but . . .
  - ✓ Gives COCOM the ***directive authority for logistics (DAFL)***

CCJO - Implications

- **Organizations and leaders must approach each challenge as unique** –
  - ✓ *Context vs. Template*
- **Organizations and processes must be able to support across four activities** –
  - ✓ *Simultaneously sustain engagement, security, combat & reconstruction operations*
- **Leaders, organizations and processes must be able to adapt to the situations as they present themselves** –
  - ✓ *Continuous assessment of the environment*

Joint Logistics – "Solution…"

Network the Enterprise

- Data Philosophy and Architecture
- Process Clarity and Transparency

Visibility

Optimize the Enterprise

- Global Processes and Accountability
- Supply Chain Synergy – Common outcomes

Unity of Effort

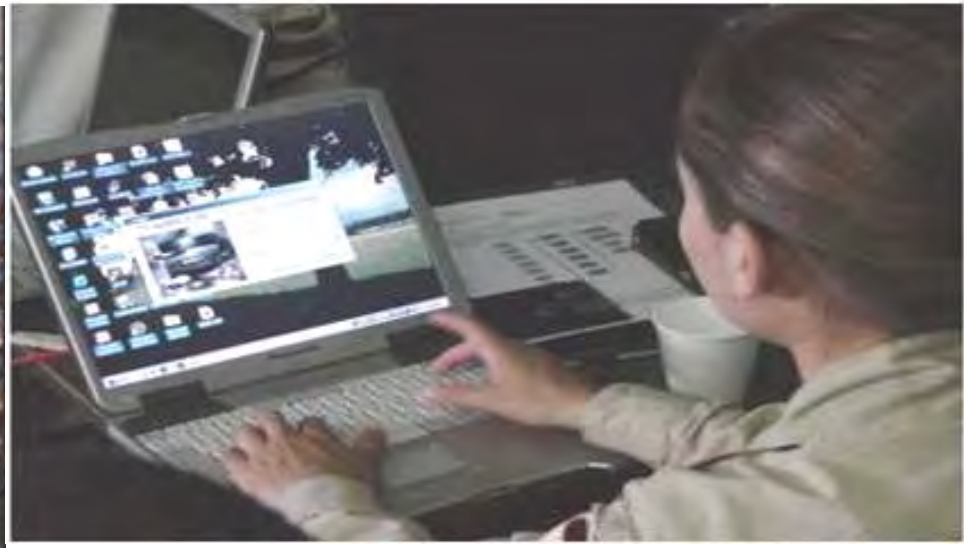
Position, Deliver & Sustain operations

- Global Risk and Global Response
- Global Control

Rapid, Precise Response

Opening salvo in a discussion that will continue…you have to participate!

Joint Logistics - Imperatives



✓ ***Unity of effort***
- Process definition
- Roles and responsibilities
- Process transparency
- Common output metrics

✓ ***JLE-wide visibility***
- Enterprise data architecture
- Authoritative source data
- 24/7 access to network

✓ ***Rapid & Precise Response***
- Velocity, Reliability, Visibility
- Efficiency
- Performance tracking
- Process analysis

Joint Logistics - Definition

What is it?

The deliberate or improvised sharing of Service logistics resources . . .
to support joint force operational requirements, enhance synergy, and reduce redundancies and costs.

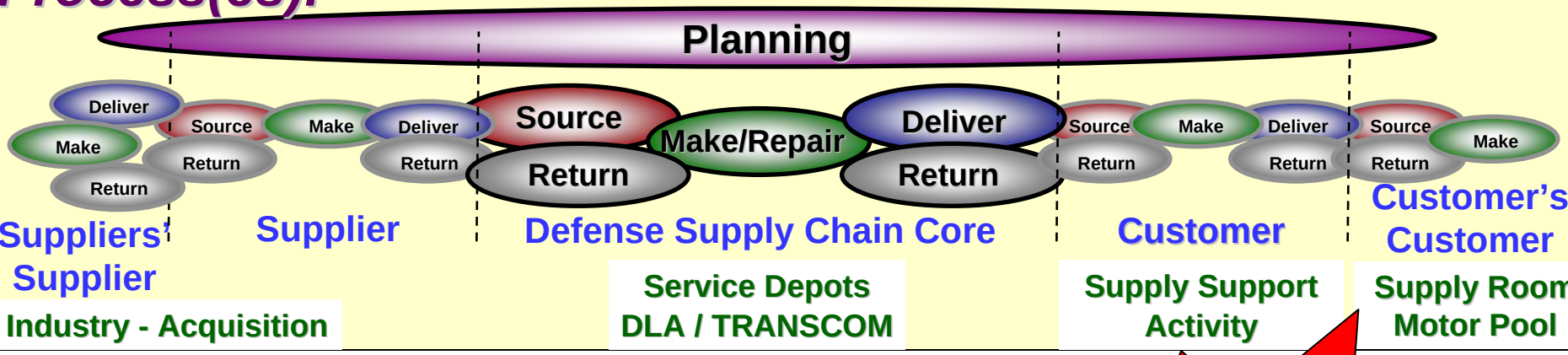
Why do we need it?

Because (especially during initial expeditionary operations) the Services, by themselves, seldom have sufficient capability to independently support the JFC.

The Defense Supply Chain

Purpose: *To effectively meet the constantly changing needs of the joint force."*

Process(es):

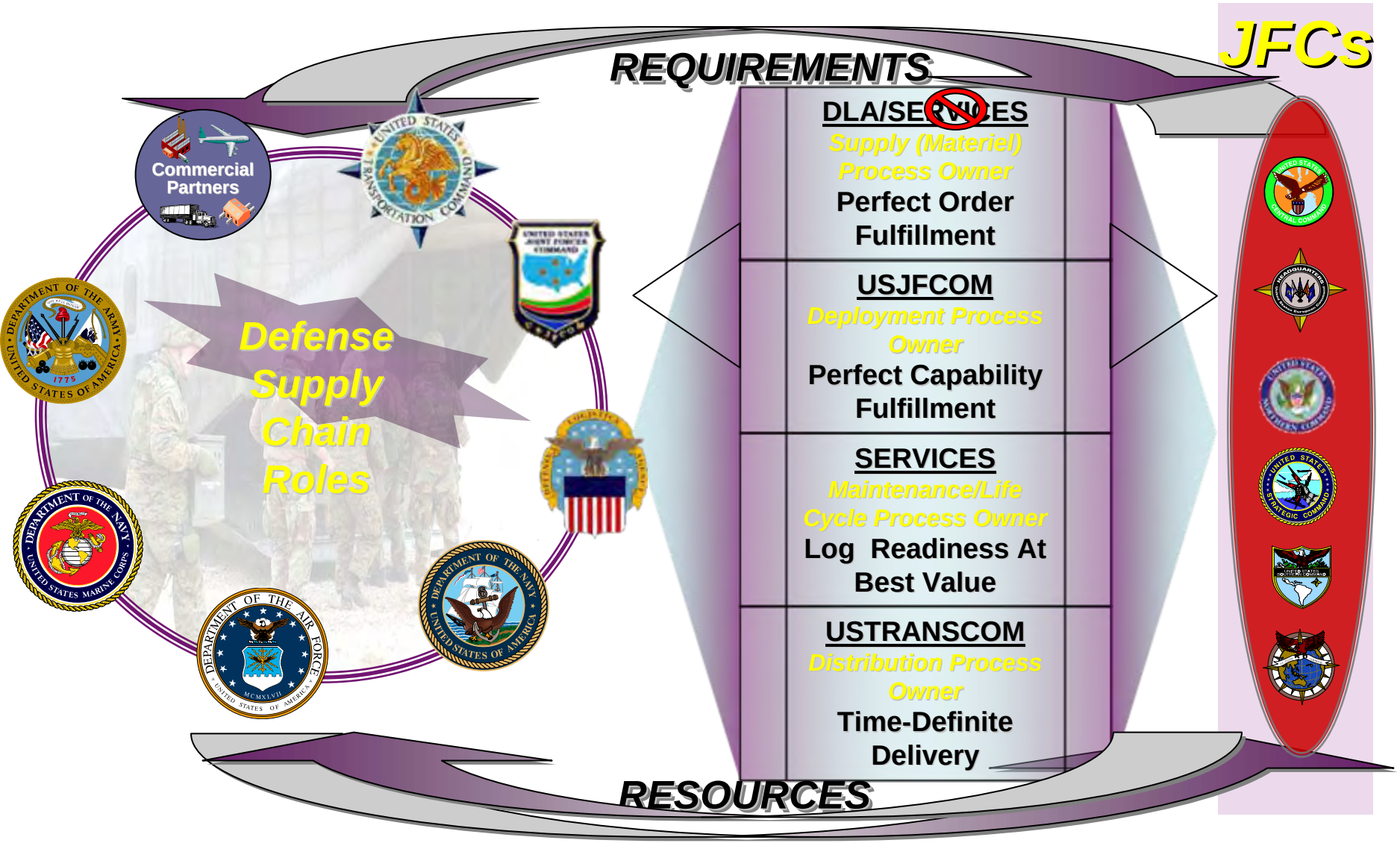


Outcome?

- Perfect Order Fulfillment
- Best Value

IPG 1
5 days, 95% of the time

Who's Who - Defense Supply Chain



Defense Supply Chain Outcomes

Performance:

Speed

- ✓ *The Core of Responsiveness*
- ✓ *Not all as fast as possible*
- ✓ *Define "quick enough" - urgency*

Reliability

- ✓ *Customer Confidence*
- ✓ *Estimate Delivery Dates*
- ✓ *Be on time – 95%?*

Efficiency

- ✓ *Drives the logistics footprint*
- ✓ *Inefficiency = more resources to compensate*
- ✓ *Strategic metric = Cost per unit of output*

- ***Develop a supply chain PROCESS architecture***
  - ✓ *Understand relationships, processes, and interfaces*
  - ✓ *Develop a common lexicon*
  - ✓ *Measure success at the same point*
- ***Develop a supply chain DATA architecture***
  - ✓ *Enable data to permeate the enterprise*
  - ✓ *Enable transparency*
  - ✓ *Single data entry, multiple use*
- ***Develop a supply chain SYSTEMS architecture***
  - ✓ *Turn data into information*
  - ✓ *Enable more effective decision making*
  - ✓ *Reduce systems redundancy*

Our People - Our Future . . .

Attributes:

- Logistics expert . . .
  - ✓ *Grounded in the "core" of Service logistics*
- OK with uncertainty . . .
  - ✓ *Understands that change is the only certainty*
- Has a mature global perspective . . .
  - ✓ *Keen insight into E2E processes & the long view*
- Can make decisions with minimal info . . .
  - ✓ *Distinguish between "must know" and "nice to know"*

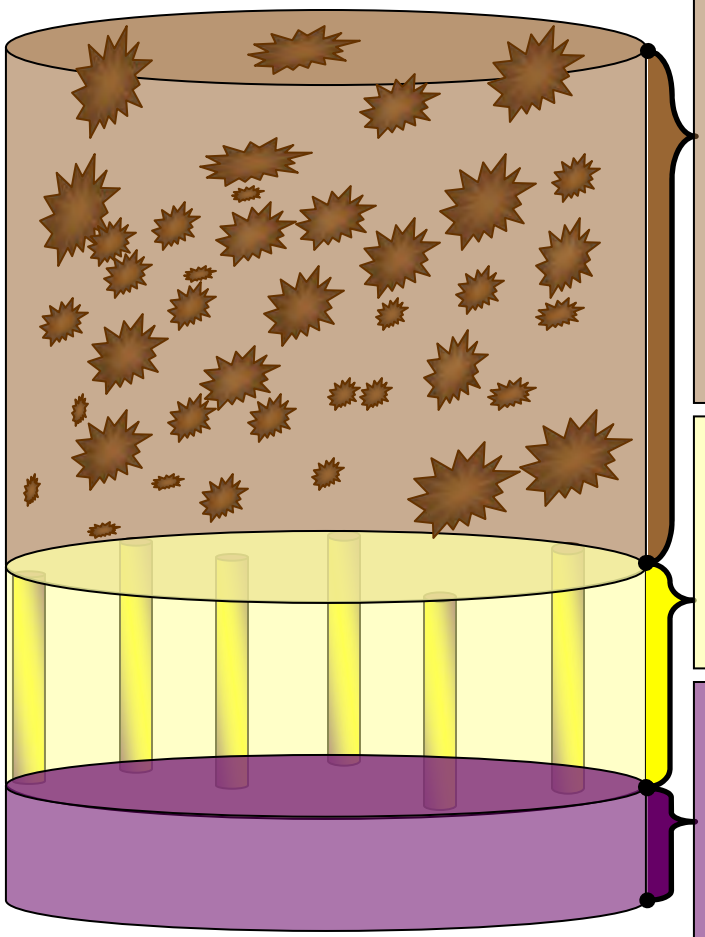
Development:

- Service & Joint Individual Training...
  - ✓ *Learning to do*
- Joint Professional Logistics Education...
  - ✓ *Learning to think*
- Joint Experience...
  - ✓ *Learning to be*
- Mentoring, Coaching…
  - ✓ *Building the bench*
- Reflection…
  - ✓ *Learning from within*

Logistics Body of Knowledge

TENETS

- **Contains** the knowledge needed for logistics success
- **Owned** by the logistics community
- **Useful**: relevant
- **Usable**: accessible
- **Comprehensive**: complete
- **Dynamic:** changing



Virtual Coach
- Research
- Current policies, doctrine, lessons
- History
- Initiatives / best practices

Tailored Learning
- On line access
- Specialty courses
- Web casts

Core Requirements
- All practitioners embrace
- Part of formal training & educational continuum
- Logisticians & Non-logisticians

Knowledge Mgmt:
- ***When does 'on line' knowledge become core?***
- ***When does core become obsolete?***
- ***Who is responsible to 'control'***

You Have to Make a Difference . . .

- ✓ **Create a *Passion* for Change**
  - ***Lead through active participation…***
- ✓ **Span Boundaries**
  - ***Cross organizational and cultural aisles***
- ✓ **Build Relationships**
  - ***Matrix people and organizations***
- ✓ **Share your vision**
  - ***Focus on the future***

Joint Logistics and World Hunger…

- **Optimize the Defense Supply Chain**
  - *Achieve Unity of Effort among the players*
  - *Agree on common metrics focused on the warfighter*
  - *Provide the customer an EDD and meet it*
- **Deliver Enterprise-wide Visibility**
  - *Provide access to real-time, shared information*
  - *Enable Joint Logisticians to plan, execute, and control*
  - *Improve decision making*
- **Establish a Life-Cycle approach to systems readiness**
  - *Link acquisition to sustainment*
  - *Manage our systems as fleets – "cradle to grave"*
  - *Establish life-cycle sustainment metrics in development*


Let's give him
Enough and On Time

BACKUP SLIDES

Delivering JLE-Wide Visibility…

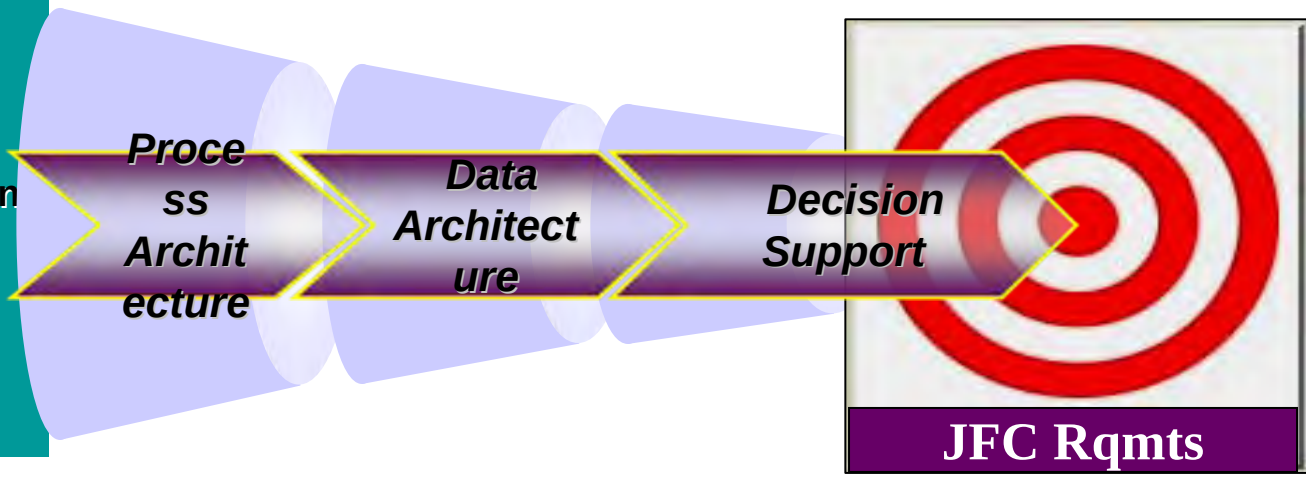
What is it? ***Access to logistics requirements, resources & processes . . . Authoritative, 24/7 access . . .***

Why do we Need it? ***To provide the knowledge needed to make effective decisions***

What is the Effect? ***Sustained* Logistics Readiness**

How to Deliver?

Joint Log Capabilities:
- Supply Opns
- Maintenance Opns
- Deployment & Distribution
- Health Service Support
- Logistics Services
- Operational Engineering
- Operational Contracting



Visibility - Effective Decisions…

What we want . . .

- Real-time, dynamic access to **authoritative data**
- Tools that are
  - **intuitive** & easy to use;
  - require virtually zero training;
  - and support the way joint logisticians do their work
- Tools that can be easily **tailored by users** via map-based displays & user-defined views
- A world-class application that integrates **logistics planning and execution**

How to get there . . .

- ***Not a new IT system***… But, a joint application that leverages existing and emerging Service and Agency data sources
- Include functional users in the development process (rather than wait until OT&E) to define requirements and assess progress
- Deliver an agile development process that yields quality products every couple of months ***"Spiral Development"***

Life Cycle Systems Philosophy…

PURPOSE

To deliver an accepted level of readiness at the best possible value to the Services

GUIDING PRINCIPLES

***<u>Link Acquisition and Sustainment</u>* . . .**

- Make developmental decisions based on total life-cycle costs
- Charter PMs to become "Fleet Managers" focused on delivering life-cycle readiness at best value to the Department
  - *Measure outcome at the tip of the spear – "objective capabilities"*
  - *Measure readiness as a "cost per unit of availability"*
- Adhere to key performance outcomes focused on sustainment
  - *Reliability, Availability, Maintainability*
  - *Total fully burdened costs*

Life Cycle Systems Readiness…
resetting the force

Today's Issues:

- There is no assurance that resources (time, funding, & capacity) are integrated in a way that will enable effective Service reset in support of Joint Force "end state" requirements
- There is no assurance that base depot reset requirements are recognized across DOD

Discussion Points:

- Resetting is essential to future Joint Force Readiness
  - Resetting is a continuous requirement for life-cycle systems readiness
  - The depot capcity/funding needed to deliver a given level of readiness at a certain level of OPTEMPO is undetermined
- Depot-level maintenance is essential to resetting operations
  - All depot maintenance is not conducted in Depots
  - Depot operations are being primarily funded out of supplemental dollars
- A consistent baseline resource stream, driven by reliable requirements forecasting is required to deliver effective depot operations
  - "Surge" requirements above the baseline should be driven by OPTEMPO above programmed levels

End State: ***Time, capacity and funding balanced and integrated to sustain joint force readiness.***

TWVs in a Sea of 'Change'

Tactical Wheeled Vehicle Conference

LTG C.V. Christianson, USA (Ret)
Director
Center for Joint and Strategic Logistics
8 Feb 2010

The Challenge…

"The Defense Department does not have a unified tactical wheeled vehicle strategy that considers timing, affordability and sustainability."

GAO Study, September 2009

Over 300,000 vehicles

What Has 'Changed?'

Pre-9/11… *a time of order, albeit constrained resources:*

- Trucks were 'just' transportation
- Relatively homogenous mix
- Not a lot of CLS

Today… *a chaotic/uncertain time, with almost unlimited resources:*

- Trucks as combat systems
- Mixed fleets, overlapping capabilities
- Diverse support concepts with multiple supply chains

Searching for 'Order' …

- Is today's 'mess' the new 'order'…?
- How do we find 'order' in chaos…?
- How can we deliver affordable life cycle readiness…?

Some Strategic 'Ideas' …

- Life Cycle Systems Philosophy…
- Fleet Management Concept
- "Post Industrial" Industrial Policy

Strategy…

Life Cycle Systems Philosophy

- ✓ Tie operational outcomes to total life cycle costs
  - Operational requirement (*availability*) = outcome
  - Total costs optimized against that outcome
- ✓ Clearly define the components of total life cycle costs
  - Personnel, time, parts, training, energy use, infrastructure…inclusive of all
  - Establish ‘weight’ based on what is important
- ✓ Reset an integral part of life cycle management

Strategy…

Fleet Management

- ✓ Base all decisions on value to the total fleet…
  - Use life cycle cost model - business case analyses
  - Merge acquisition and sustainment processes - true integration
  - Optimize use of acquisition and sustainment resources
- ✓ Design systems for life cycle availability
  - Common engine strategy…?
  - Shorter development cycles

Strategy…

21st Century 'Post-Industrial' Policy

- ✓ "Integrate" the commercial support network
  - share same outcome
  - share same situational understanding
  - share reward & risk
- ✓ Develop long-term commitments to availability and costs
- ✓ Build true partnerships in life cycle availability


Let's give him
Enough and On Time

U.S. Army Contracting Command

U.S.ARMY

Contracting Support to the Warfighter

Mission & Vision Statement

Mission

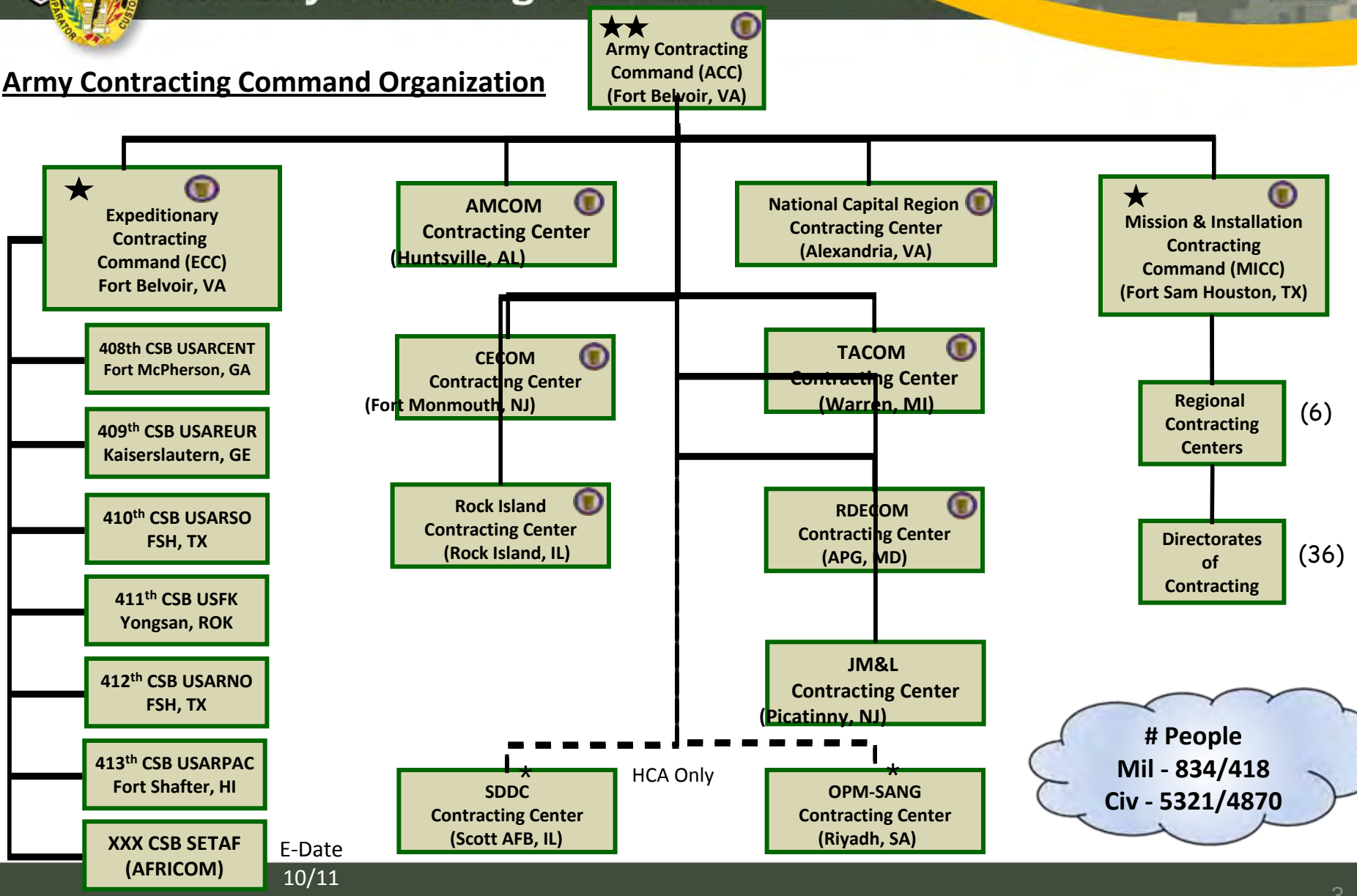
Provide global contracting support to warfighters through the full spectrum of military operations.

Vision

A professional workforce providing quality contracting solutions in support of our warfighters.

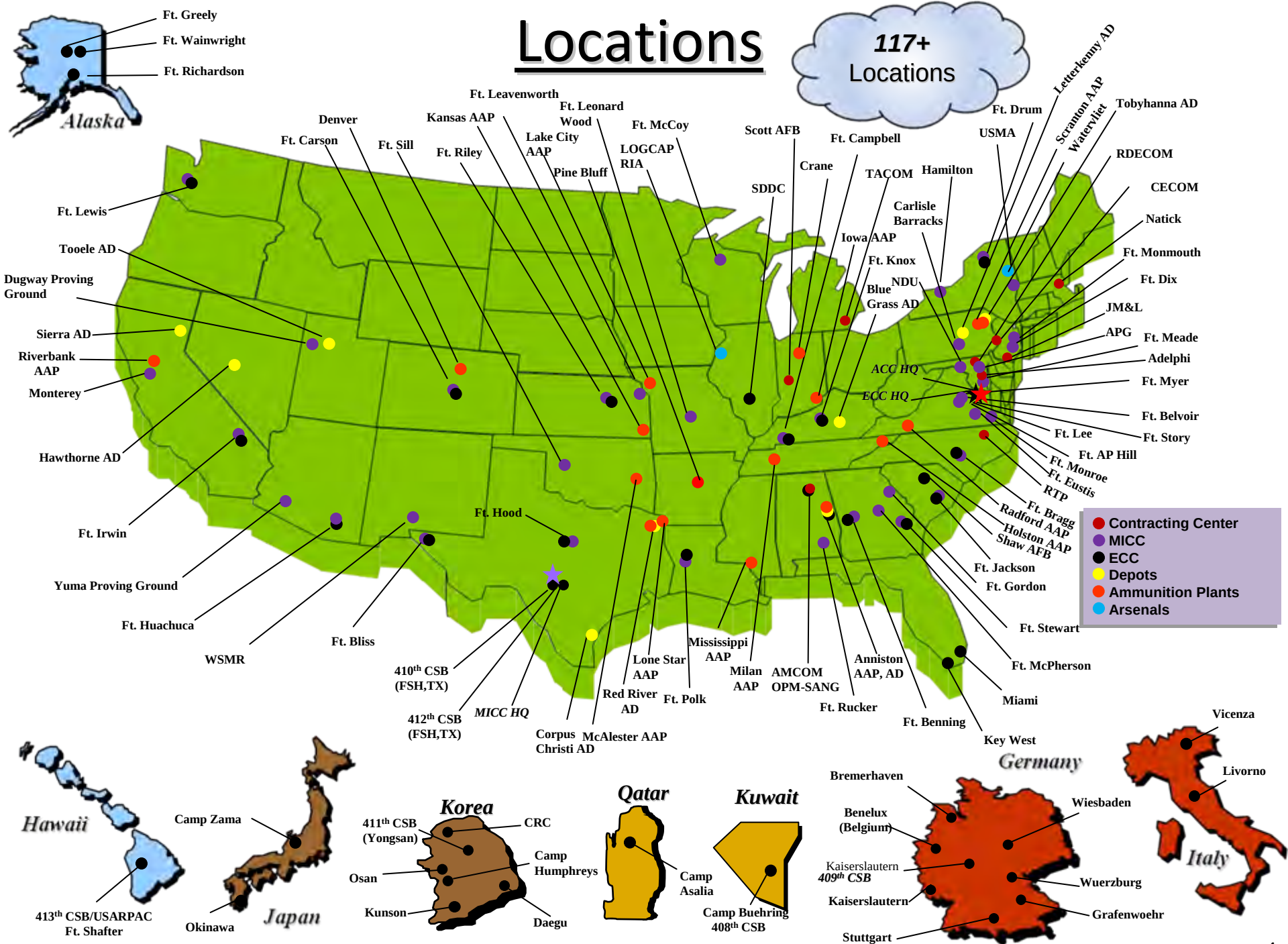
U.S. Army Contracting Command

Army Contracting Command Organization



Locations

117+ Locations

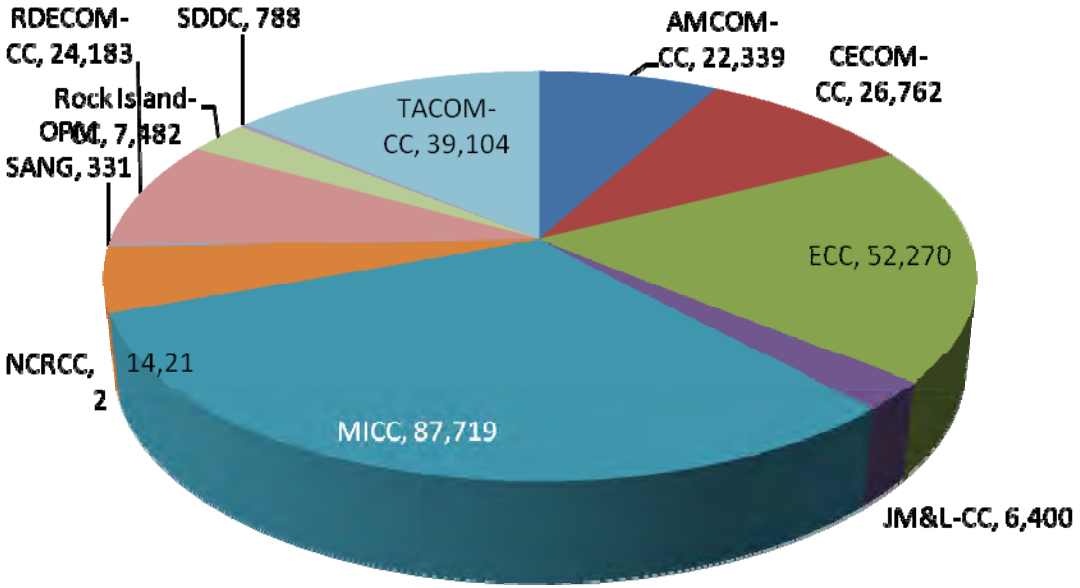


How much the ACC Obligates

Dollars ($B)

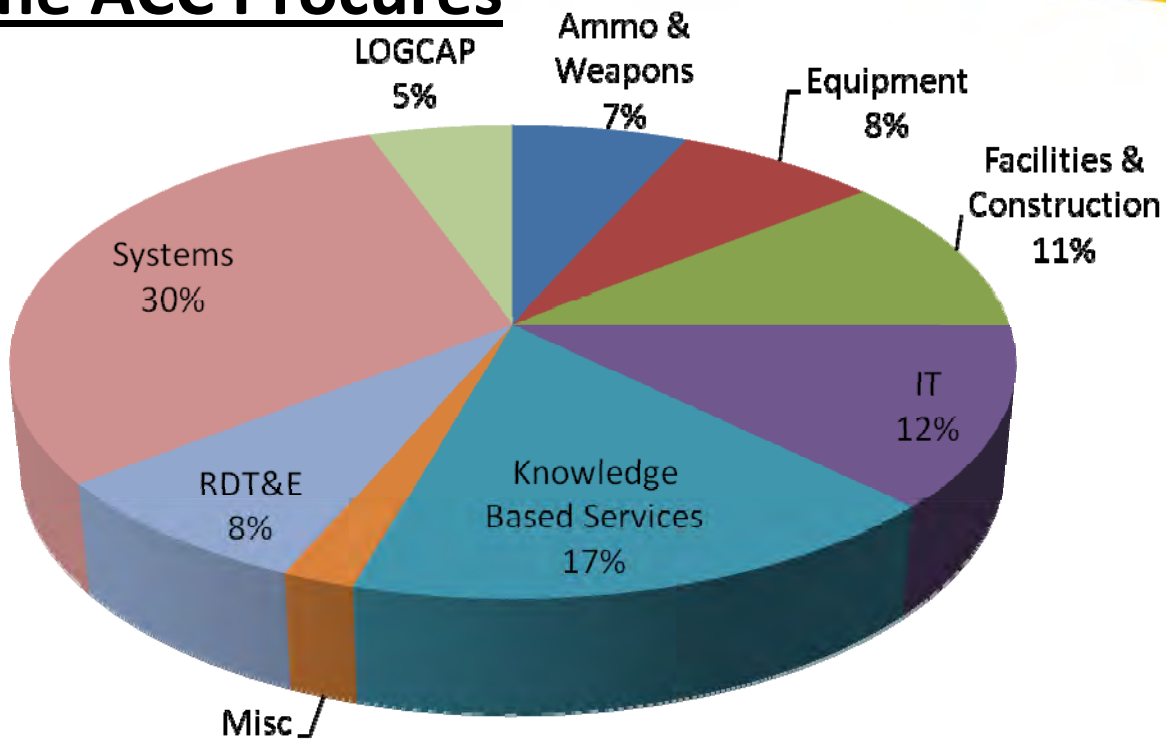
	Dollars
AMCOM-CC	$19.0
CECOM-CC	$15.0
ECC	$2.8
JM&L-CC	$2.7
MICC	$8.3
NCRCC	$4.4
PM SANG	$0.5
RDECOM-CC	$6.2
Rock Island-CC	$11.8
SDDC	$0.1
TACOM-CC	$25.4

Actions



FY09 281,590 Actions $96.2B

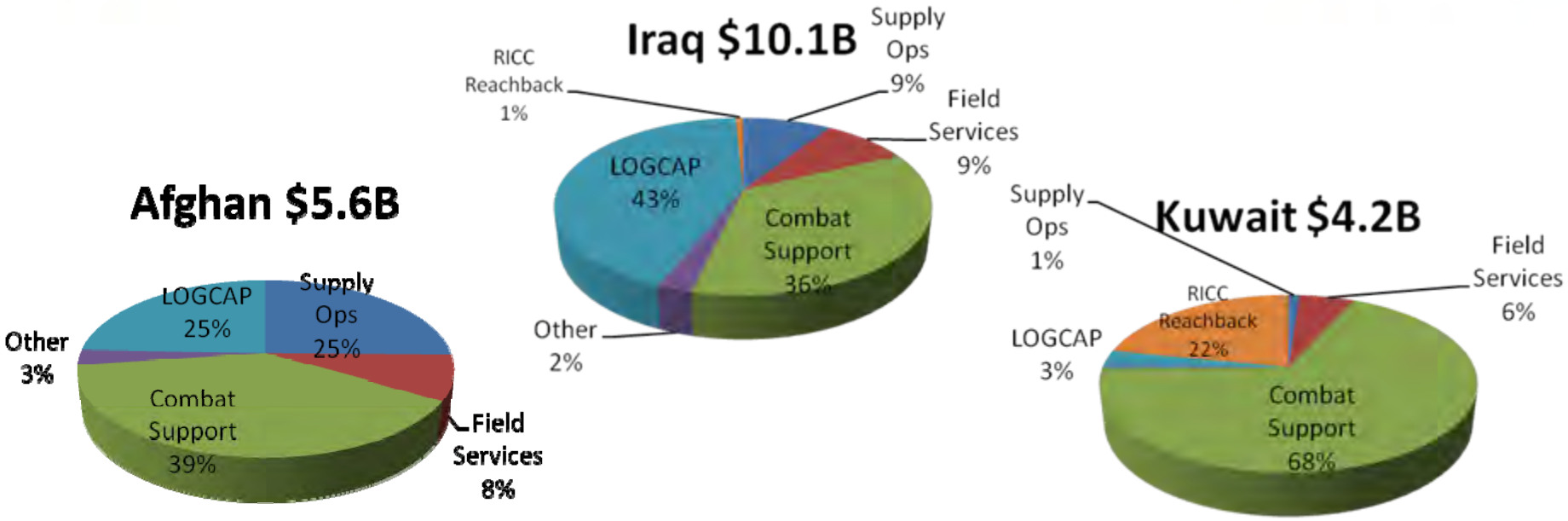
What the ACC Procures



Major Customers

- PEOs/PMs
- ASCCs
- IMCOM
- NETCOM
- AMC
- USAR
- ATEC
- TRADOC
- FORSCOM
- DA Staff

ACC Support to OIF/OEF



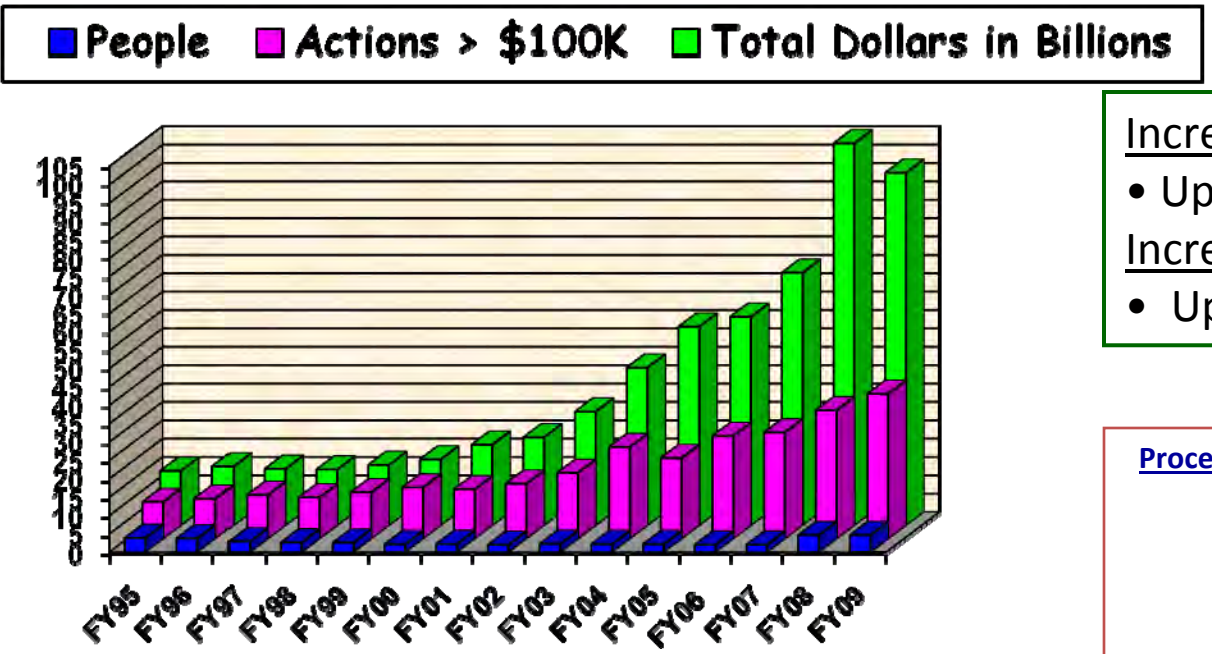
20.1% of Total ACC Dollars in Direct Support to OIF/OEF

- $20.4B total OIF/OEF
- 1880 total OIF/OEF actions

EXAMPLES:

- Rock Island Arsenal Contracting Center – LOGCAP ($5.9B/year)
- TACOM Contracting Center – Afghanistan Security Assistance Program, $1.7B
  - 27,000 vehicles & 104,000 weapons delivered

ACC Trends & Impacts



Former AMC Command Contracting → | New ACC →

Increased Dollars
- Up 645% since '95

Increased Actions
- Up 393% since '95

Process Efficiencies Used to the Max!

- **Partnering**
- **Credit Cards**
- **E-Commerce/Paperless Contracting**
- **ALPHA Contracting**
- **Alternative Disputes Resolution**
- **Use of Ordering Officers**
- **Long Term IDIQ Contracts**
- **Best Value**

ACC Strategic Priorities

- Grow and develop a professional civilian and military workforce
- Maintain superior customer focus
- Standardize, improve and assure quality business processes and policies across the organization
- Obtain and maintain needed resources
- Enhance Working Environment/Quality of Life

Recent Contracting Guidance

- Focus on transparency
- Increase competition/reduce the use of sole source contracts
- Improve competitive environment for the life of multiple award contracts/shorten the length of IDIQ contracts
- Reduce risk of cost growth/overcharging
- Office of Management and Budget (OMB) Guidance to improve Government Acquisition, 29 July 2009 (implements President's Direction)

Improving Government Acquisition

- Office of Management and Budget (OMB) Goals
  - 7 percent contract savings by end of 2011
  - 10 percent reduction in prices paid on sole source or cost type contracts in 2010
- Processes
  - Reduce use of Time and Material, Labor Hour, Cost Reimbursement and Non Competitive/“1 Bid” Contracts
  - Negotiate harder for reduced prices
  - Reduce wasteful spending
  - Improve requirement definition
  - Improve market analysis
  - Improve contract management and oversight
  - Use strategic buying techniques to get better prices

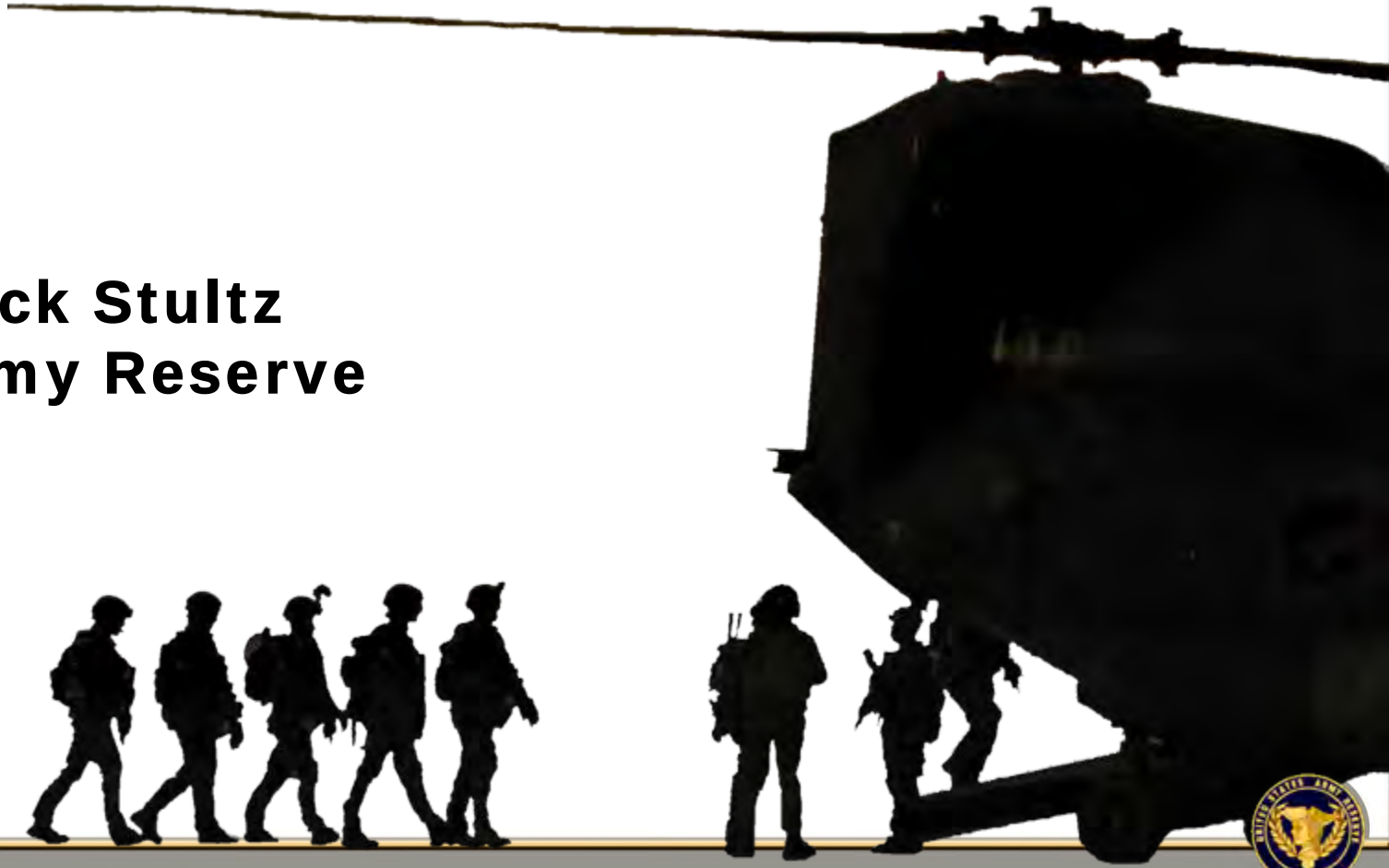
Improving Use of Contractor Performance Information

- As of 1 July 2009 must use the on-line Past Performance Information Retrieval System
  - ➢ Interim and final evaluations must be fed into the system
  - ➢ This is already required for Army activities
  - Termination for Default and defective pricing info must be noted if applicable
- The Office of Management and Budget (OMB) will track compliance and publicize who is not submitting required information

Questions

Equipping the Operational Army Reserve

LTG Jack Stultz
Chief, Army Reserve



COL Leighton /G4-SRD/ 703-601-3456

World-Wide Equipping Challenges

"Research & Development Requirements"

Light Mobile Route Security Vehicle (LMRSV)

Urban Assault Vehicle (UAV)

Green Assault Vehicle (GAV)

Operational Army Reserve

Equipping Sources

Resource Constraint

1225.6 Pay-backs

Volatile

Operational

Ambiguous

Theater Provided Equipment

OEF

Quadrennial Defense Review

Homeland Defense

OIF

Humanitarian Assistance

Uncertain

Environment

Complex

Emerging Requirements

Operational Army Reserve

Equipping Challenges

Sustainment

Fleet Age

DEPOT Maintenance

RECAP

RESET

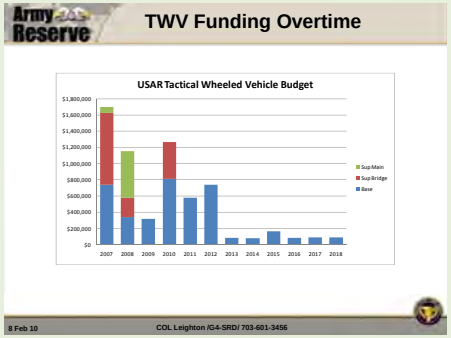
Procurement

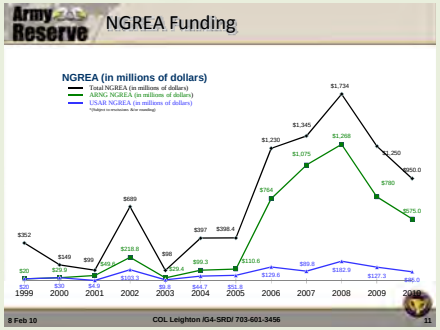
Base Budget

OCO

NGREA

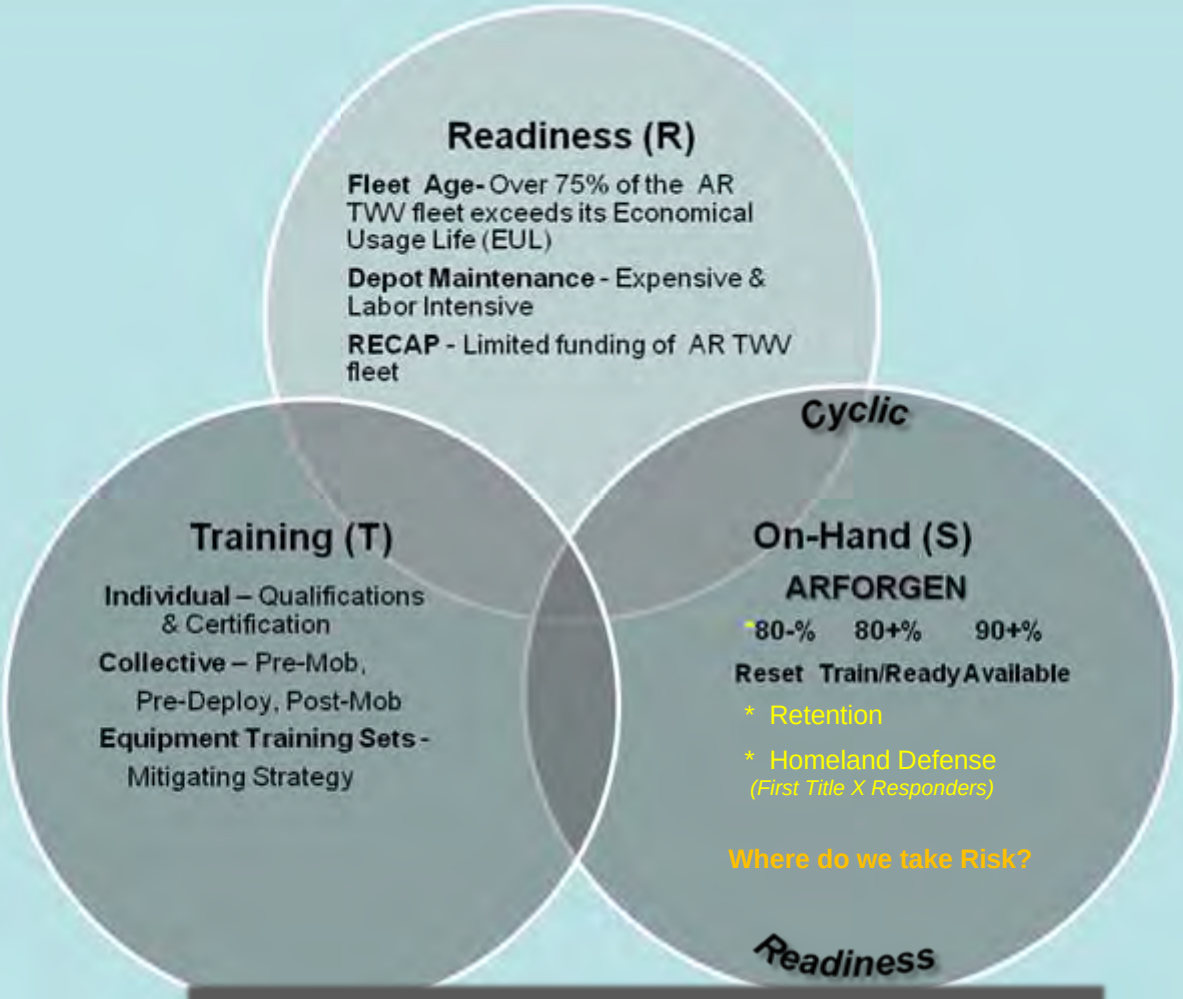
READINESS





Operational Army Reserve

Equipping Effects on Readiness



Army Reserve Mission. Provide trained units and qualified persons available for active duty in the armed forces, in time of war or national emergency, and at such other times as the national security may require.

Right Balance of Sustainment and New Procurement "…ensures Soldiers have the right amount and type of modernized equipment to meet their mission requirements – whether in combat, training for combat, operating as part of the generating force, or conducting Homeland Defense and Defense Support to Civilian Agencies missions." ***(LTG Speakes, Army Equipping Strategy, 29 Sep 09)***

Procurement + Sustainment = Ready Trained & Equipped Operational Reserve

Questions

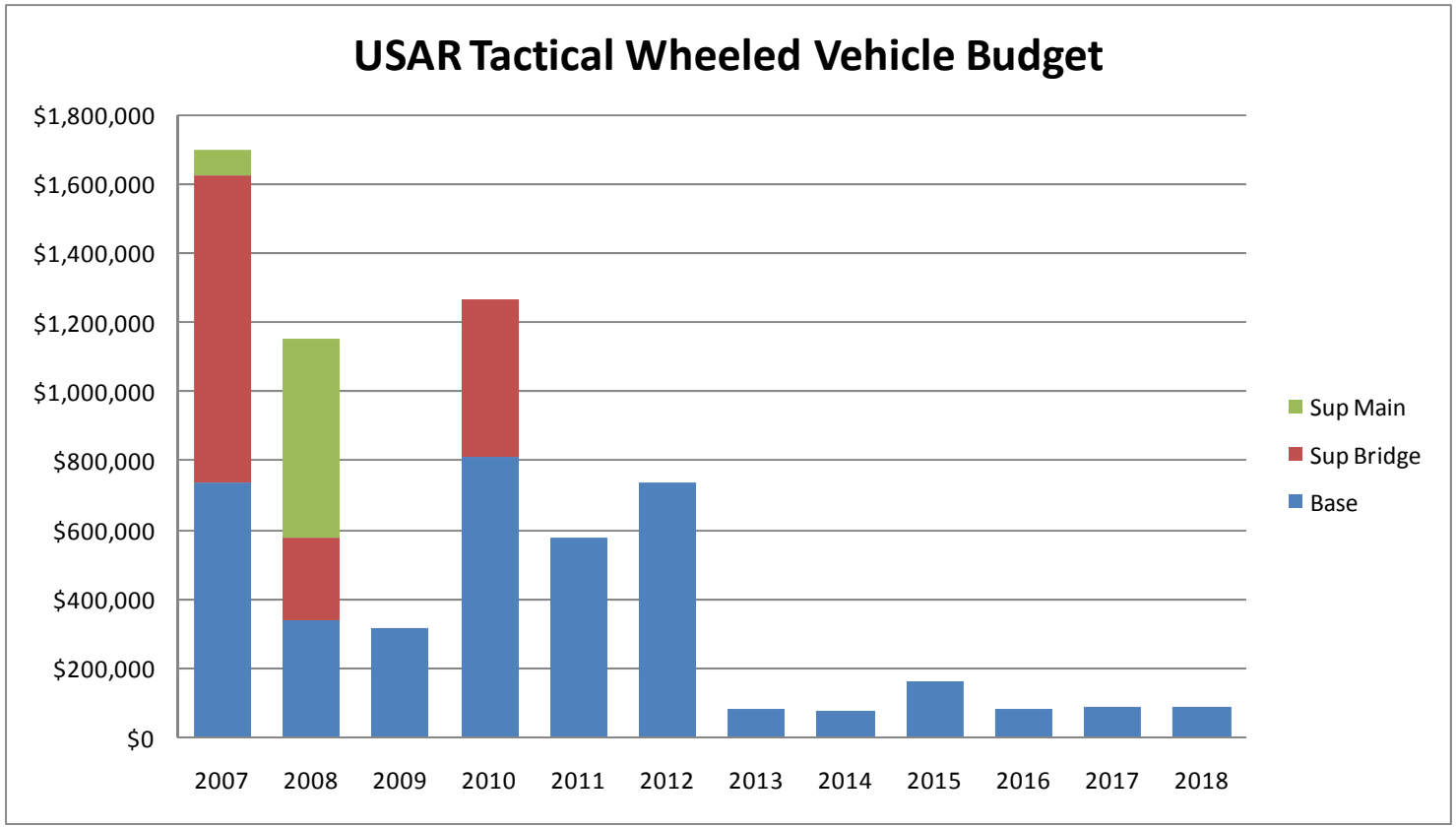
Back-Ups

TWV Analysis

- Current estimates are that a single year of use of equipment in theater can equal five to ten times the normal peacetime usage.
- Most of our TWV fleet has an economically useful service life of from 15-20 years.
- A portion of this equipment (estimate 20%) has seen service in the Gulf War in 1990-92.
- Even our non-deployed TWV fleet has seen more extensive use in unit training during preparation for mobilization, unit training and validation at mob sites, conduct of training support to other components and “Pop Up’ training course addressing MOS reclassifications and transfers.
- The result is that a majority of TWV fleet will have rapidly expended a majority or all of its planned service life.

COL Leighton /G4-SRD/ 703-601-3456

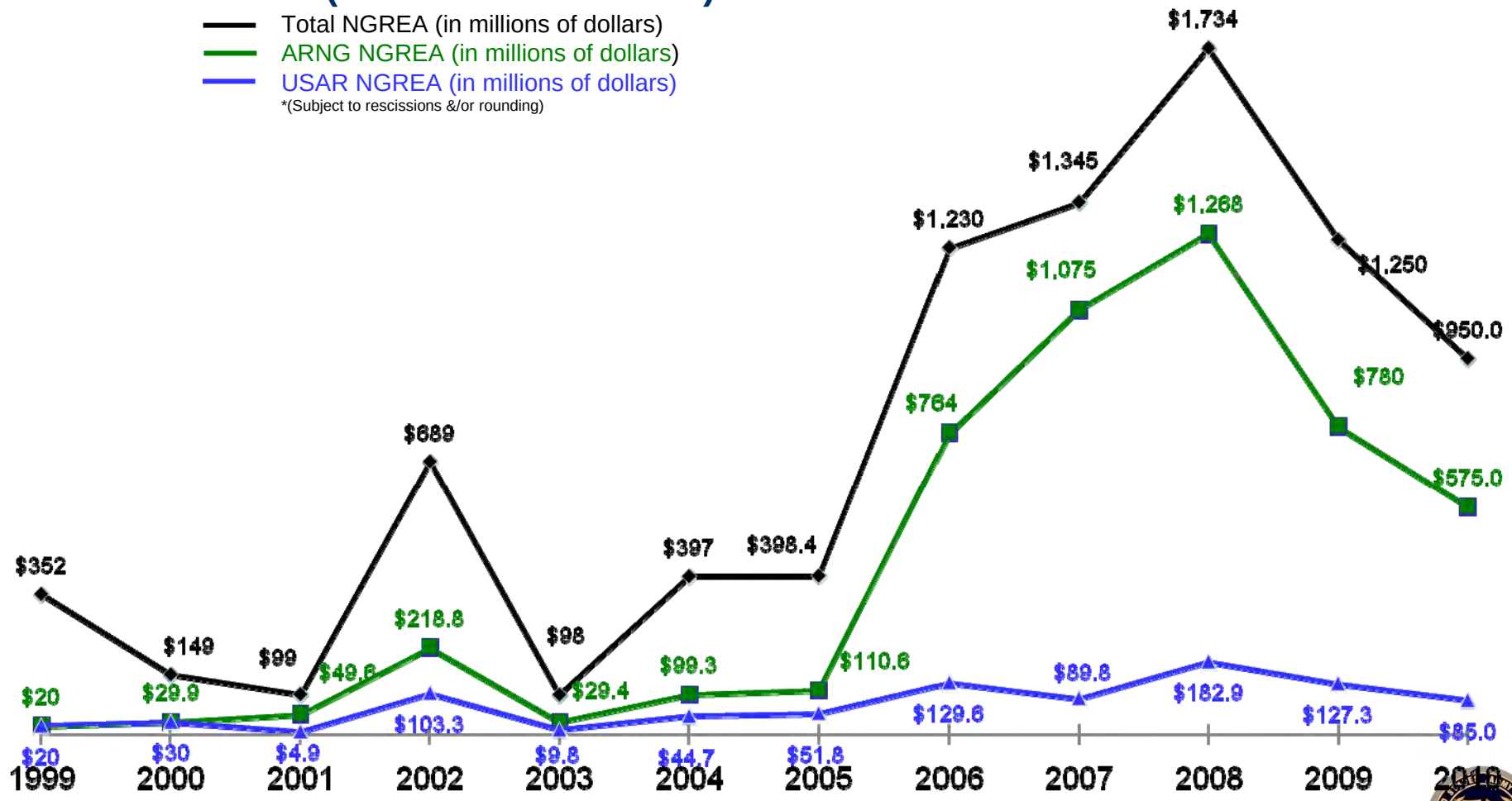
TWV Funding Overtime



COL Leighton /G4-SRD/ 703-601-3456

NGREA Funding

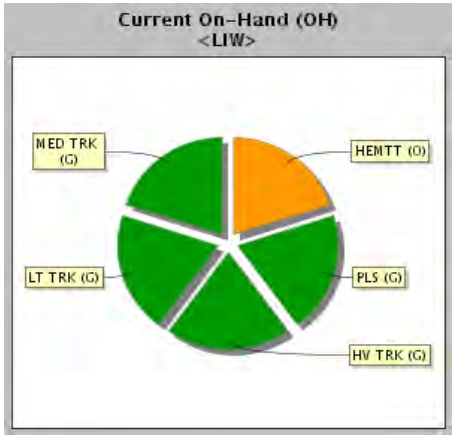
NGREA (in millions of dollars)

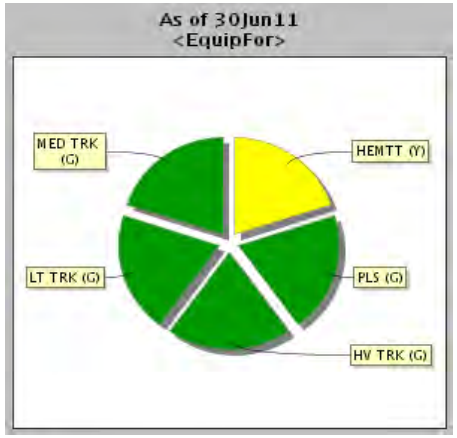


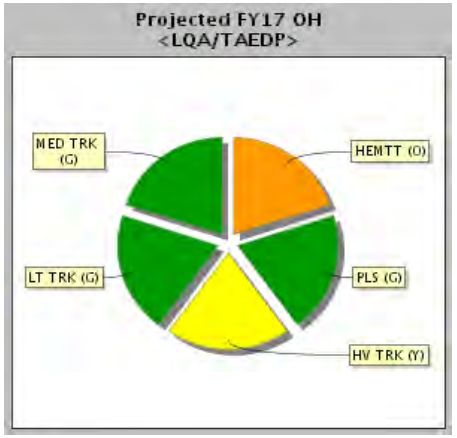
Army Strategic Equipping Common Operational Picture

COMPO 3

[MTOE & TDA - With Subs - Without EQ4 SSO Auth & OH - ALL LINS]







TRUCKS

Dataset: DEC09 TAEDP

Legend

Green is >= 90%
Yellow is < 90% >= 80%
Orange is < 80% >= 65%
Red is < 65%
* Critical LIN

LIN Family	Current % OH	30Jun11 % OH	FY17 % OH
HV EXPANDED MOBILITY TAC TRK (HEMTT)	69%	85%	67%
PLS	100%	100%	95%
TACTICAL HEAVY TRUCK (HV TRK)	99%	99%	83%
TACTICAL LIGHT TRUCK (LT TRK)	95%	92%	99%
TACTICAL MEDIUM TRUCK (MED TRK)	98%	98%	99%

As Of Dates

On-Hand: 13-Dec-2009
Required: 30-Nov-2009
EquipFor: 10-Nov-2009
LQA: 10-Nov-2009

Base as of 1/8/10
Supplemental as of 1/11/10

- LIN Family = Specific groups of LINs
- Current On - Hand = LIW on-hand with substitutions
- Projected on-hand based on EQUIPFOR distribution
- Color codes based on SACS File Req. vs OH inventory
- On-hand inventory above requirements are not counted

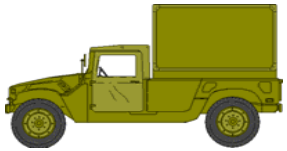
Attention: Until completion of Quadrennial Defense Review (QDR) 2010, all force structure, projected on-hand, and financial data beyond FY 2010 are pre-decisional and subject to change based on QDR decisions.

Acronyms:

PLS=Palletized Loading System

LTV Fleet

1 of 3



LIN	Req FY10	Current OH	Req FY15
T07543 (M1037)	2	111	267
T07679 (M1097)	758	7,551	765
T37588 (M1152A1)	332	978	6,613
T61630 (M1113)	1,072	370	356
	2,164	**9,010**	**8,001**

LIN	Req FY10	Current OH	Req FY15
T56383 (M998A1)	896	1,117	908
T61494 (M1038)	12,678	244	12,190
T61562 (M1038A1)	114	1	111
T11588 (M1152)	0	6	0
T11722 (M998P1)	0	1	0
T11790 (M1165)	0	16	0
T38772 (M1165A1)	0	179	0
T38873 (M998)	0	4,702	0
	13,688	**6,266**	**13,209**

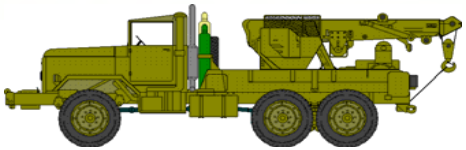
LTV Fleet

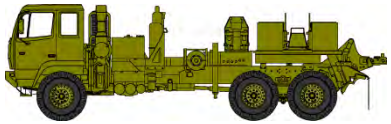
2 of 2

LIN	Req FY10	Current OH	Req FY15
T05096 (M966)	2	278	0
T34704(M1151)	44	439	1,267
T92242 (M1025)	2,150	1,412	2,300
T92310 (M1026)	78	255	0
T92446 (M1114)	1,944	38	1,143
T37338 (M1026P1)	0	2	0
T91490 (M1025P1)	0	3	0
T91490 (M1025A2P1)	0	1	0
	4,218	**4,218**	**4,710**

MTV Fleet

1 of 3





LIN	Req FY10	Current OH	Req FY15
T94671 (M1089A1P2)	0	0	8
T94709 (M1089)	261	107	219
X63299 (M936)	43	205	38
	304	**412**	**265**

LIN	Req FY10	Current OH	Req FY15
T41995 (M1081)	0	9	23
T42063 (M1081)	21	5	0
T42131 (M1078A)	12	9	0
T59448 (M1078A1P2)	25	16	3
T60081 (M1078)	3,166	1740	3,269
T60149 (M1078)	513	366	586
X40009 (M35A1)	37	548	234
X40077 (Trk Cargo)	0	42	6
X40146 M35A2)	17	208	43
T67748 (M1078A1P1)	0	1	1
X40214 (Trk Cargo)	01	10	0
	3,782	**2,963**	**4,164**

MTV Fleet

2 of 3

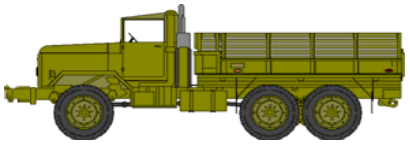
LIN	Req FY10	Current OH	Req FY15
T93484 (VAN 2 1/2T M1079)	196	64	238
X62340 (TRK VAN M109)	0	167	26
X62477 (VAN M109A3 WW)	0	4	0
	196	**235**	**264**

LIN	Req FY10	Current OH	Req FY15
T61239	1,371	331	1,248
T61307	26	38	67
T88983	0	0	2
X59326	16	1,855	49
X59463	2	252	0
	1,415	**2,476**	**1,366**

LIN	Req FY10	Current OH	Req FY15
T41271	267	71	278
T67136	0	0	12
X62237	51	138	66
	318	**209**	**356**

MTV Fleet

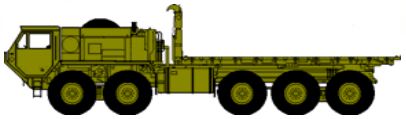
3 of 3



LIN	Req FY10	Current OH	Req FY15
T41036	0	0	25
T41104	0	1	2
T41135	380	66	712
T41203	8	47	15
T41447	0	4	12
T41515	0	29	14
D68413 (M923A2P1)	0	1	0
T61704	34	5	187
T61908	2,711	686	3,409
X40420	0	0	0
X40283	0	14	0
X40794	52	2,661	442
X40831	0	1	12
X40931	12	501	13
X41105	0	26	2
X41242	0		0
	3,197	**4,068**	**4,845**

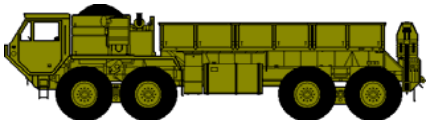
HTV Fleet

1 of 2



LIN	Req FY10	Current OH	Req FY17
T40999	1,131	1,045	1,823
T41067	0	84	0
	1,021	1,129	1,823

LIN	Req FY10	Current OH	Req FY17
T59415	22	9	142
T60946	0	2	1,007
	22	**11**	**1,149**



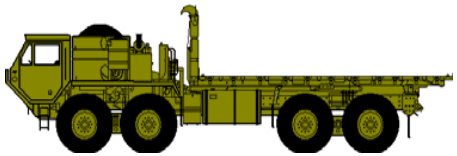
LIN	Req FY10	Current OH	Req FY17
T39518	63	8	0
T39586	104	72	132
T39654	12	4	0
T59278	20	51	68
	199	**135**	**200**

LIN	Req FY10	Current OH	Req FY17
T58161	42	75	51
T87243	205	133	227
	247	**208**	**278**

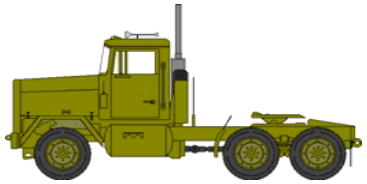
HTV Fleet

2 of 2

LIN	Req FY10	Current OH	Req FY17
T58161	42	75	51
T87243	205	133	227
	247	**208**	**278**



LIN	Req FY10	Current OH	Req FY17
T96496	461	53	1302



LIN	Req FY10	Current OH	Req FY17
T61103 (M915)	2,406	1,853	2,477

Army Materiel Command

NDIA
2010 Tactical Wheeled Vehicles Conference

LTG James Pillsbury

Version 09 as of Feb 3, 2010

Thank You for Supporting Us

- You've responded well by –
  - ✓ Producing quality vehicles and parts expeditiously
  - ✓ Partnering in our Depots
  - ✓ Working with us at many home stations and some overseas sites
- We couldn't do it without you…
- Look forward to continue working with you

The Current Environment

(and just over the horizon)…

- Now – well funded but…
- Future funding expected to be reduced
- Greater pressure to do more with less
- Emphasis on innovation (products/process)
- Great value in leveraging our combined strengths

Beyond FCS . . .

- Future Combat Systems is gone… Now Brigade Combat Team Modernization
- Original MRAPs less effective in Afghanistan… Limited roads, more cross country
- We're buying M-ATV for use in Afghanistan… Going forward are JLTV and GCV
- What's next? Army needs a vehicle that combines several discrete attributes

Desirable Features . . .

- BLAST PROTECTION (IED and EFP) - - A + B Kits
- FUEL EFFICIENT - fuel has a major impact on logistics
- MANEUVERABLE - (especially over rugged, terrain with trail-like roads)
- TRANSPORTABLE - smaller footprint
- SUSTAINABLE - cost + ease of maintenance
- RELIABLE
- AFFORDABLE - no gold plating
- COMMONALITY OF PARTS
- MEET JOINT NEEDS

Why Fuel Efficient?...

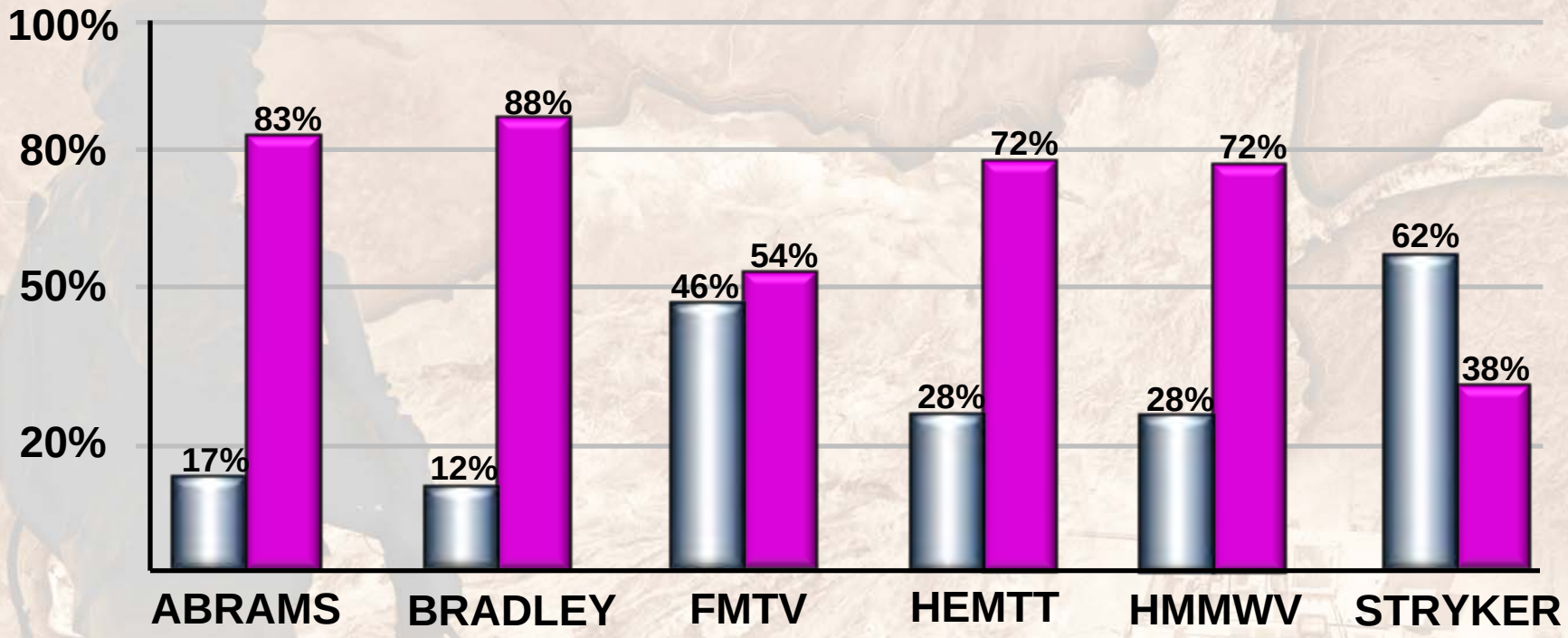
$400 a Gallon

Why Fuel Efficient?...

Why Fuel Efficient?...

Why Fuel Efficient?...

Acquisition / Sustainment Costs of Ground Vehicle Programs



Sustainability – CBM

Benefits…

- **Increase operational availability**
- **More efficient maintenance**
  - ✓ **Enables mechanics to work on what needs fixing and not waste time on stuff that doesn't**
- **Cost savings**
  - ✓ **Maintenance – Reduced labor hours**
  - ✓ **Parts – Reduces parts required including changing out those that are not failing**
- **Reduces inventory along with cost**
- **Improves vehicle readiness**
- **Facilitates tracking and improves visibility/knowledge of vehicle and fleet status**

Call to Action

- Not here to offer all solutions…
- Important to keep asking the right questions!
- Looking forward…
  - ✓Expand what we're doing together
    e.g. Partnerships
  - ✓Be open to finding <u>new</u> <u>ways</u> to support our Soldiers

Questions?

Thoughts on Various Topics and TWV from a Last Minute, but … Exceptional, Stand In

LTG (R) Joe Yakovac
Educator and Consultant

BIG THOUGHTS

- 3.8 Trillion → significant deficits → 725B Medicare / Medicaid → 708B DEFENSE

DEFENSE SPENDING MAY HAVE PEAKED AND WILL STABILIZE AT CURRENT LEVEL

- A volunteer Army manned, trained, and equipped to defeat “hybrid” threats is “much” more expensive than the pre-2003 force and where you accept risk in capabilities is a difficult decision.

THOUGHTS ON TWVs

- A proven essential capability that has captured more market share:
  - Route clearing
  - Mobility/survivability for “light” fighters
  - You can probably think of others!!
- Platforms (light thru heavy) that have proven to be very adaptable to integrating NEW capabilities without “unacceptable” degradation in overall performance
- Because of “2nd thought” and budget pressures will have a FUTURE of remanufacturing/upgrades, depot overhaul, and 10/20 RESET with no new starts
- OK, what about MRAP AND JLTV? Good question!

Final BIG THOUGHT

If you are a Leader in Defense (government or contractor) and you have not thought through the impact of the Acquisition Reform Legislation and its implementation by DOD on the DEFENSE BUSINESS, you are derelict in your duties!

WHY??

Major Changes to Acquisition Policy and Procedure

1. Analysis of Alternatives Study Guidance
2. Acquisition Strategies to Ensure Competition
3. Competition and Considerations for the Operation and Sustainment (O & S) of Major Weapon Systems
4. Competitive Prototyping
5. Cost Estimation
6. Developmental Test and Evaluation (DT&E)
7. Systems Engineering
8. Performance Assessments and Root Cause Analysis (PARCA)
9. Assessment of MDAP Technologies
10. Preliminary Design Reviews (PDR)
11. Certification IAW 10 USC 2366a and 2366b
12. Critical Cost Growth
13. Revised MDAP Definition

I REST MY CASE ! !

BACK - UP

DOD Programs

Gross Cost ($mil) (Base+OCO)		FY09	FY10	FY11	FY12	FY13	FY14	FY15
HMMWV	Procurement (USA)	$1,511.00	$1,344.00	$ -	$202.60	$ -	$ -	$27.70
	Units (#)	9202	8120					
	Recap (USA)	$510.00	$2.90	$989.10	$ -	$ -	$ -	$62.30
	Units (#)	8594	46	9270				336
	RDTE (USA)	$ -	$ -	$2.00	$ -	$ -	$ -	$ -
	Procurement (USN)	$77.80	$79.30	$123.50	$32.10	$34.00	$35.00	$34.70
	Units (#)	278	255	435	128	136	140	139
	Procurement (USMC)	$131.00	$37.60	$17.80	$0.70	$2.50	$21.80	$48.10
	Units (#)	591	213	94		3	118	236
	Procurement (USAF)	$16.30	$63.00	$68.40	$33.90	$28.90	$26.80	$29.40
MTVR	Procurement (USMC)	$30.80	$141.80	$92.30	$11.80	$1.70	$137.30	$137.40
JLTV	RDTE (USA)	$20.50	$32.00	$52.90	$66.80	$51.50	$52.50	$53.30
	RDTE (USMC)	$38.70	$57.70	$31.80	$130.30	$73.90	$31.90	$35.60
	Procurement (USA)	$ -	$ -	$ -	$ -	$153.00	$478.10	$858.40
	Procurement (USMC)	$ -	$ -	$ -	$ -	$33.80	$516.80	$713.80
FMTV	Procurement (USA)	$631.50	$1,359.60	$1,434.50	$408.40	$396.90	$486.20	$381.20
	Units (#)	1877	4349	4651	1118	812	1229	916
	RDTE (USA)	$2.20	$5.70	$3.70	$5.70	$5.80	$5.90	$6.00
FHTV	Procurement (USA)	$1,975.00	$1,414.20	$738.40	$705.00	$73.70	$68.10	$160.80
	Units (#)	30137	20645	12227	7792	2401	2032	2309
	RDTE (USA)	$ -	$5.70	$2.10	$ -	$ -	$ -	$ -
MRAP	Procurement	$1,961.00						
	MRAP Fund		$7,996.00	$3,415.00	TBA	TBA	TBA	TBA
	Sustainment			*$2,300.00*				
	Retrofit upgrade/overhaul			*$1,000.00*				
	Testing			*$100.00*				

Adapting our TWV Strategy

LTG Michael A. Vane

Deputy Commanding General, Futures, and
Director, Army Capabilities Integration Center
US Army Training and Doctrine Command

8 Feb 2010

There is always a need to do it better, and smarter….

Renault AG
Taxi de la Marne

September 1914

The first automotive transport of troops…

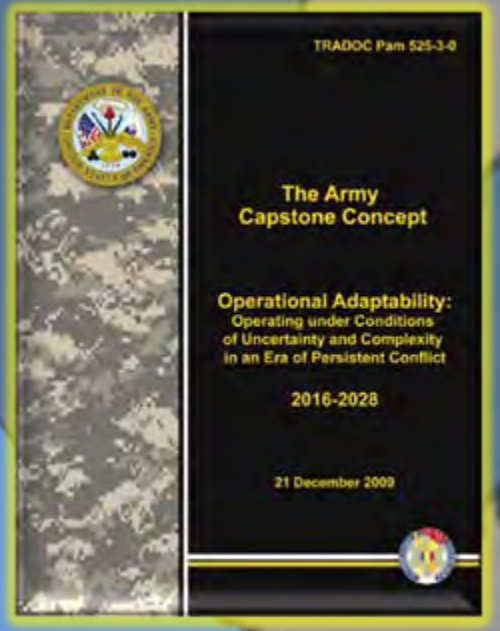
The Operational Environment…

Specific Threats

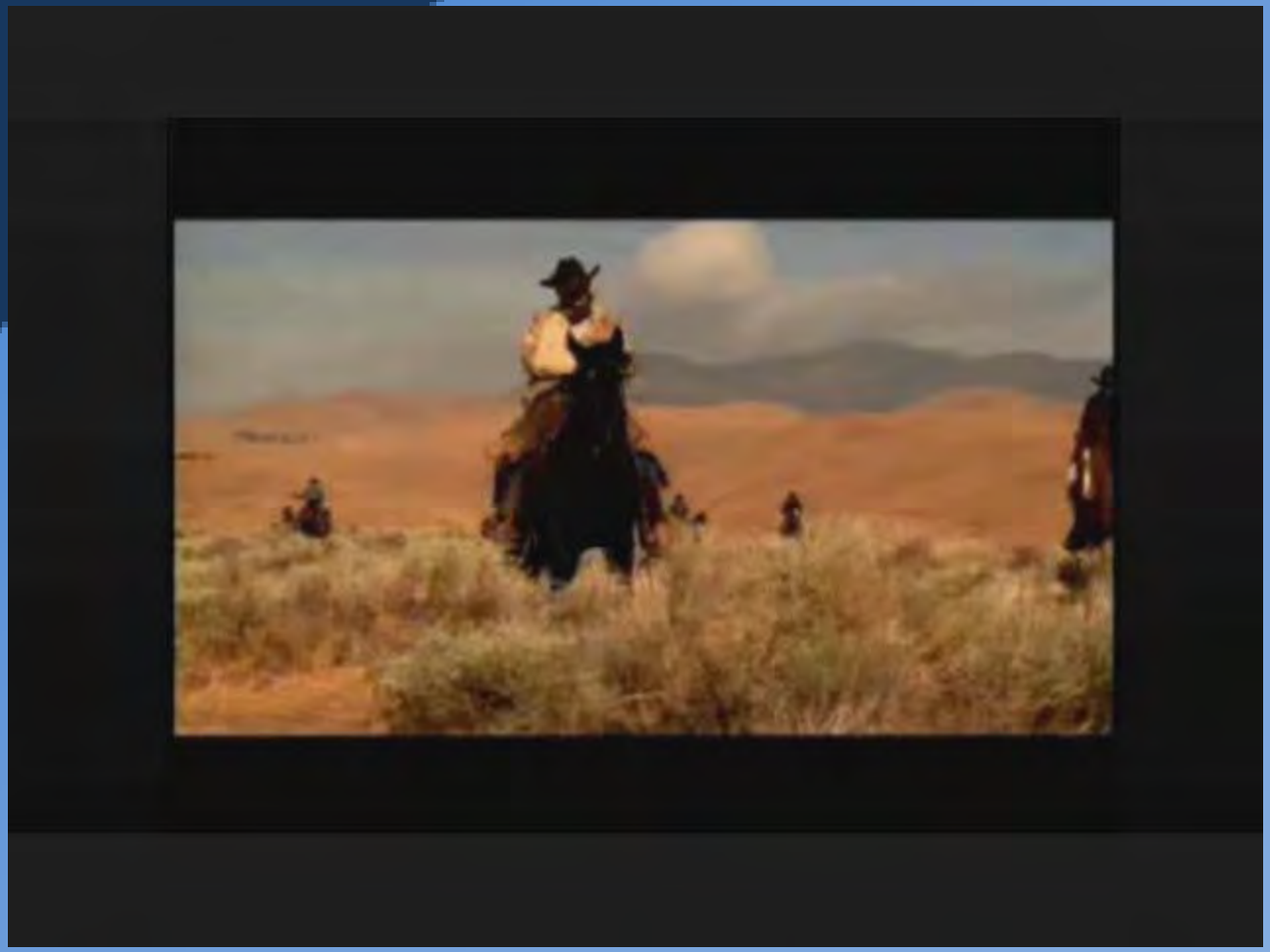
Evolving Threats

“we must emphasize the integration of technology into capable formations commanded by innovative leaders who are comfortable operating under conditions of ambiguity and uncertainty.

To maximize the potential of technological developments, we must conscientiously *evolve and adapt* capabilities based on changes in threat capabilities and the operational environment”



GEN Martin Dempsey, CG TRADOC



Tactical Wheeled Vehicle Strategy

Operational Environment

Available Technology

Available Resources

$

POM 12-17

FY10	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18

1 2 3 4

Decision Point

Reset
Recap
New Buy
Quantity

The Challenge…

Performance

Weight

Mobility

Transportability

Cost / Benefit

Payload

Protection

Tactical Wheeled Vehicle vs. Combat Vehicle Characterization

Must be defined by Mission Role; NOT by type of vehicle

Traditional Combat Platforms ⟷ *Traditional Tactical Wheeled Vehicles*

The Sweet Spot…?

GCV?

Stability Operations, Security Assistance, Consequence Management…

Effective and Efficient use of manpower, other resources…

The New York Times

Gates Says U.S. Army's Size Will Grow by 22,000

WASHINGTON — Defense Secretary Robert M. Gates on Monday announced a temporary increase in the size of the Army of up to 22,000 troops to meet what he called the "persistent pace" of operations in Iraq and Afghanistan.

The increase, to occur over the next three years, will raise the size of the Army to 569,000 active-duty soldiers. An expansion to 547,000 soldiers, announced by Mr. Gates in 2007, was completed in May.

CYRUS COMING SOON

Currently there are about 130,000 American troops in Iraq and about 60,000 expected in Afghanistan by the end of the year. Although there is a scheduled reduction of close to 80,000 troops in Iraq, most will not start to come home until after March 2010.

"The Army faces a period where its ability to continue to deploy combat units at acceptable fill rates is at risk," Mr. Gates said, meaning that he was concerned that Army units sent to Iraq and Afghanistan in the future might not have enough soldiers. He spoke at a Pentagon news conference with Adm. Mike Mullen, the chairman of the Joint Chiefs of Staff.

Mr. Gates did not say what the increase would cost over all, but indicated he would ask Congress for money to pay for it in 2011 and 2012. He estimated the cost in the fiscal year that ends in October at "less than a hundred million dollars" and in fiscal 2010 at $1 billion. He said he would absorb the costs in 2009 and 2010 into the existing Pentagon budget.

Fully Burdened Cost of Fuel…

Fully Burdened Cost of Trucks…

A Business Case for Change

Today…

15,363 Soldiers
2340 Tankers
Gen – $9.8 M/day
Avn - $8.4 M/day

… a twenty percent improvement in fuel efficiency…

Possible…

- Increase 3072 combat troops
- Less Exposure Hours
- $3.6 M/day Fuel Savings - $1.3 B/year

"…robotics offer the potential to deploy appropriate combinations of manned and unmanned systems to perform an increasing range of tasks"

(Army Capstone Concept)

Guiding Principles …

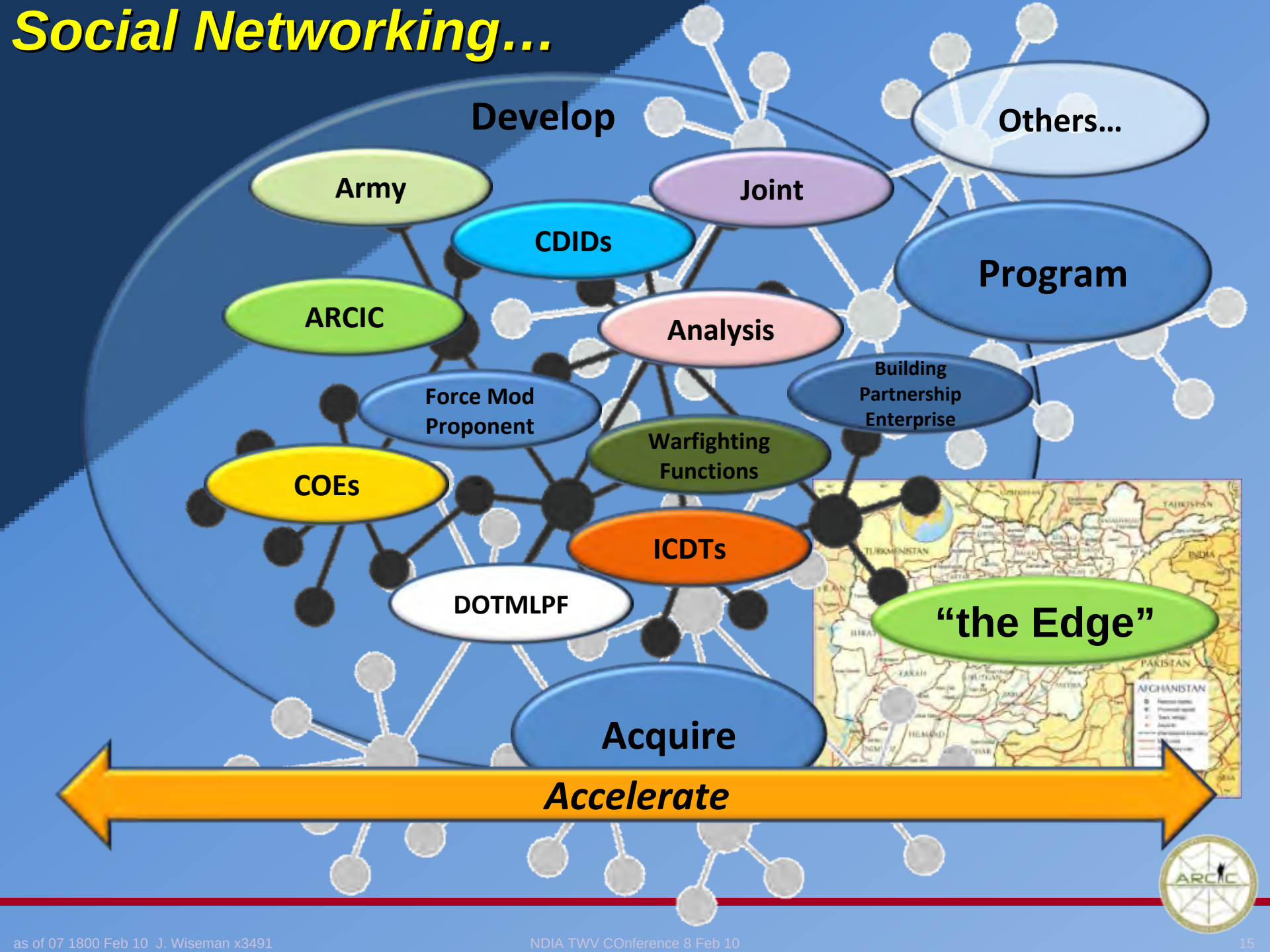
- Robotics ***enable*** ***the humans***
- Humans should ***not*** ***have to accommodate***
- Early user and technology developer collaboration
- Use "system of system" to measure effectiveness
- ***Get more from force structure ; Cost / Benefit***

Connecting Soldiers …

Phase I

Phase II

Social Networking…



Better ways to do business?…

Learn, adapt, learn, adapt…

Buy fewer, more often…

Adapting our TWV Strategy

LTG Michael A. Vane

Deputy Commanding General, Futures, and
Director, Army Capabilities Integration Center
US Army Training and Doctrine Command

8 Feb 2010

NDIA Tactical Wheeled Vehicles (TWV) Conference

8 February 2010

COL Mark Barbosa, **G-8**

Purpose/Agenda

Purpose: To provide an overview of the Army's TWV fleet and discuss how it supports Army senior leader's vision

*Our goal is to build a **versatile mix** of **tailorable** and **networked** organizations, operating on a **rotational cycle**, to provide a **sustained flow** of trained and ready forces for current commitments and to hedge against **unexpected contingencies**, at a tempo that is predictable and sustainable for our All-Volunteer Force*

Agenda:

- **Strategic Orientation**
- **New Army Equipping Strategy**
- **Evolving TWV Investment Strategy**
- **TWV Fleet Overview**
- **Evolving TWV Capability Requirements**

Period of Continuous Change

- Shifting Operational Landscape
- Restructuring materiel modernization strategies
- Fielding "incremental" vs. "big bang" solutions

- Transitioning to support the establishment of the Materiel Enterprise
- Diminishing resources and simultaneous increases in requirements
- Facing difficult choices in a fiscally constrained environment

New Army Equipping Strategy

- An **affordable** strategy

- Ensures Soldiers have the **right equipment** to meet **mission requirements**:
  - *whether in combat*
  - *training for combat*
  - *operating as part of generating force*
  - *conducting Homeland Defense and Defense Support to Civil Authorities missions*

Old Strategy	New Strategy
• Tiered readiness	• Cyclic readiness
• Equip 100% units, 100% of the time	• Equip to mission and ARFORGEN Phase
• Minimal recognition for Reset	• Recognizes necessity for Reset
• Homeland Defense requirements not recognized	• Homeland Defense capabilities recognized/resourced
• Equipment normally remained in one unit	• Equipment in constant motion
• Equip to unit design	• Equip to unit mission
• Requirements approved, then resourcing considered	• Requirements life cycle costs considered upfront

Evolving TWV Investment Strategy

Army TWV Fleet = Over 267,350 vehicles

- **Adapting** based on operational demand, cognizant of fiscal realities
- Planning to **integrate** 12,291 MRAP + 3,391 M-ATV into the force
- Emphasizing a **mixed fleet** that spans protection, payload, and performance
- Accelerating our plans to **stop** HMMWV procurement for Army only needs
- **Equipping to mission** per ARFORGEN cycle
- **Modernizing** while we fight
- Planning to **restore** Army Prepositioned Stocks
- **Recapitalizing** and **divesting** selected variants
- Planning to **integrate** Joint Light Tactical Vehicle when ready
- **Scrutinizing** new and existing TWV requirements

Tactical vehicles must be protected, mobile, and networked

Selected TWV System Status

- Approaching procurement objectives on many models of TWVs
- Not all are optimum in terms of performance and Soldier protection

CATEGORY	FY09 TOTAL Army Equipment On Hand	FY11 TOTAL Army Equipment On Hand	Get Well Date
HMMWV	84%	102%	
HEMTT Truck Tractor	80%	79%	2012
HEMTT Tanker	77%	98%	
Medium DUMP TRUCKS	73%	119%	
HEMTT Wrecker	81%	83%	2012
HEMTT Cargo	64%	104%	
Medium Wreckers	101%	130%	
FMTV Cargo	82%	106%	

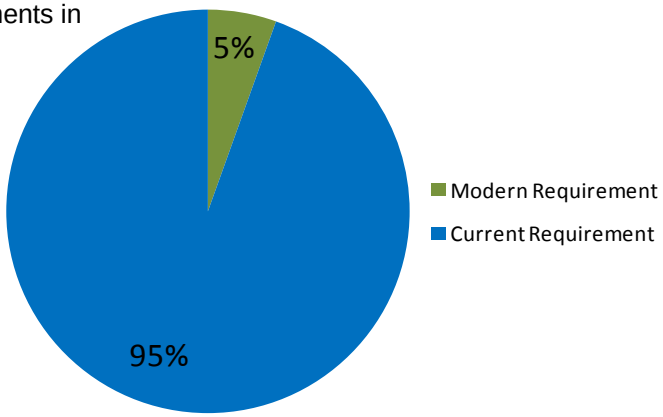
How do we bridge the gap with innovative modernization and recapitalization programs?

Tactical Light Truck Family

(MTOE and TDA)

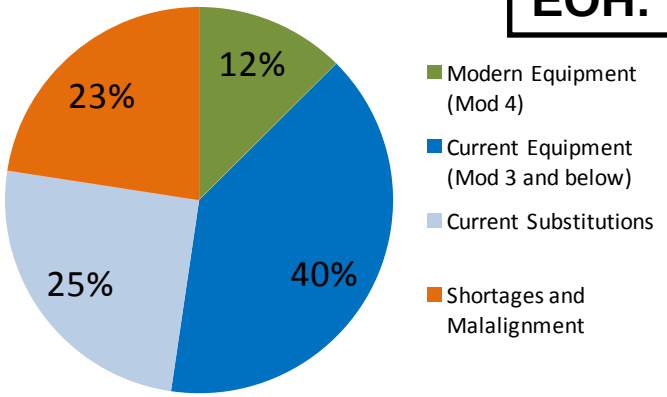
Modern: Today's MOD Level 4 requirements in effect in 2017

FY10



Total Army Requirements

EOH: 77%



*Total Army Equipment on Hand**

**Excludes: TPE*

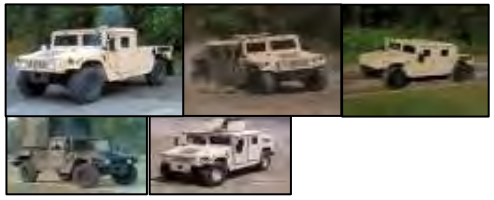
- **Stopping HMMWV procurement for "Army-only" needs – sustaining current HMMWV requirements through RECAP**
- **Exercising option for over 2,000 HMMWVs by 1 Mar 10 (e.g., final buy for "Army needs", acquisition objective met)**
- **Funding not requested in FY11 for Army-only HMMWV procurement**
- **Seeking approval to use a portion of the FY10 HMMWV Procurement funding for other Army priorities**
- **Reviewing options to sustain 160K on-hand HMMWV fleet by shifting acquisition strategy to RECAP and/or Reset**
- **Replacing over 3,000 Light Tactical Wheel Vehicle requirements with the MRAP/M-ATV**
- **Supporting development of the Joint Light Tactical Vehicle**

A0 Series (1985-93)

A1 Series (1991-95)

A2 Series (1994-2004)

ECV M1114;M1151/52/65 (1995-Present)



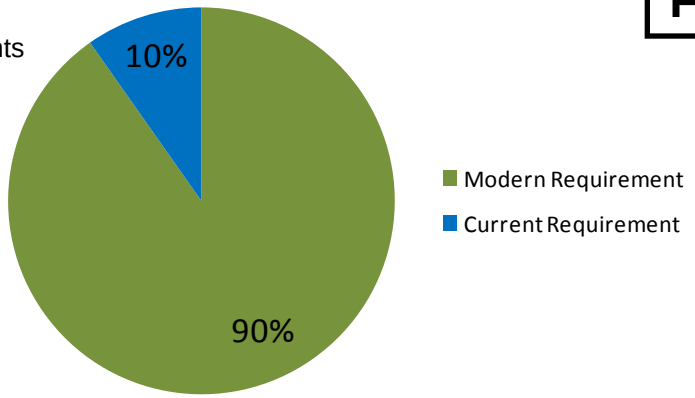
NOTE: MOD 4 = Approved Armor Capable LTV (i.e., accepts Frag Kits)

Tactical Medium Truck Family

(MTOE and TDA)

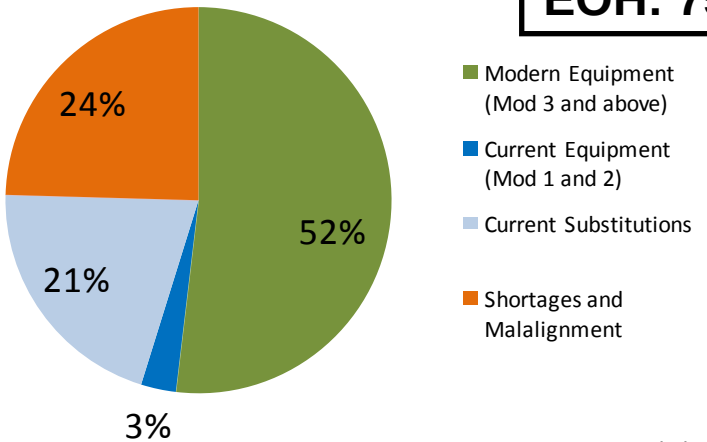
FY10

Modern: Today's MOD Level 3 and above requirements in effect in 2017



Total Army Requirements

EOH: 75%



*Total Army Equipment on Hand**

**Excludes: TPE*

- **Majority of requirements are "modern," and 69 percent of Medium Trucks on hand would be classified as modern**
- **Current investment has resulted in healthy fleet that is well distributed relative to requirements**
- **Aging fleet – 30 percent of fleet is being filled by M35, M809, and M939 series trucks whose average age exceeds 20 years**
- **Moving Army to a fleet with scalable protection (e.g., FMTV investment strategy procures armor capable vehicles to support Long Term Protection Strategy objective to provide scalable protection by using the A cab/B-kit concept, to replace older models, and to fill current Modified Table Of Organization & Equipment (MTOE) shortages**
- **Divesting M35 series trucks by end of FY11 and M809 series trucks by end of FY15**
- **Planning to maintain capability to sustain M939 series trucks through FY22**

M939 

FMTV A0 

FMTV A1 

FMTV A1R 

FMTV A1P2 

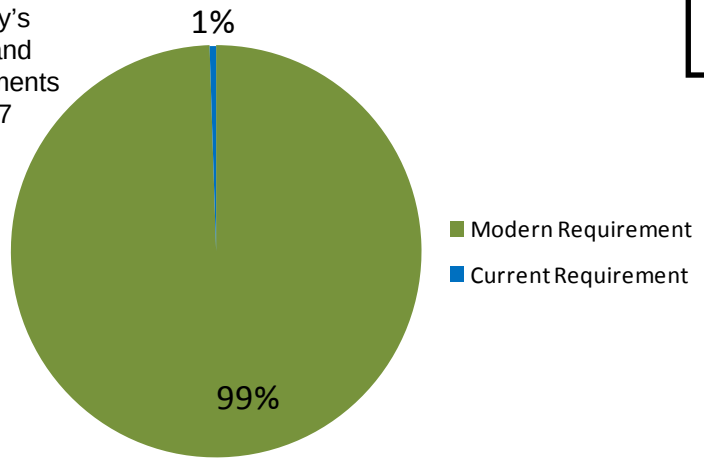
NOTE: MOD 3 = early FMTVs; MOD 4 = Armor Capable FMTVs

Tactical Heavy Truck Family

(MTOE and TDA)

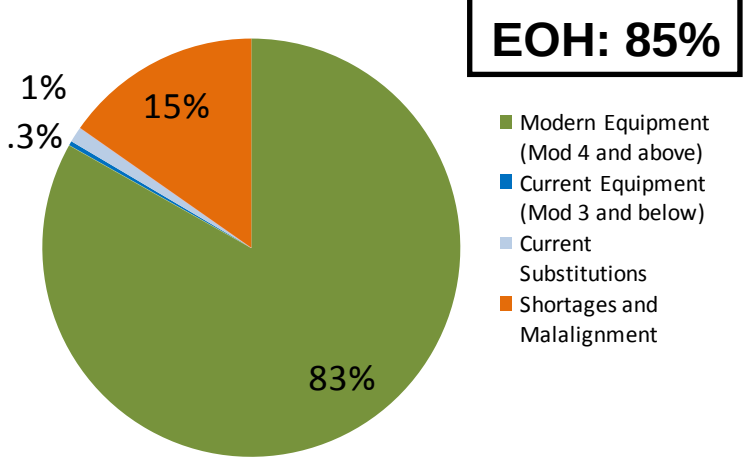
Modern: Today's MOD Level 4 and above requirements in effect in 2017

FY10



Total Army Requirements

EOH: 85%



*Total Army Equipment on Hand**

**Excludes: TPE*

- **Majority of requirements are "modern," and 98 percent of Heavy Tactical Vehicles on hand are modern**
- **Equipment well distributed across COMPOs 1-3. COMPO 6 (APS) low due to decision to source operational needs**
- **Divesting oldest M915/M916 HEMTT variants NLT FY11 – replacing with M983 Light Equipment Transporter**
- **Investing in HEMTT RECAP and new procurement of HEMTT Load Handling System and Light Equipment Transporter**
- **Modernizing Heavy fleet primarily thru RECAP, Reset, and Product Improvement**

M916

M1070 HET

HEMTT A4

NOTE: MOD 4 = Approved Armor Capable

Evolving TWV Capability Requirements

- Provide Soldiers **protected mobility**
- Provide increased **off-road mobility**
- Increase **platform capacity** to accept evolving technologies
- Obtain better **Command and Control on-the-move** capability
- Use **incremental approach** to vehicle development

A culture of innovation is needed to address continuously evolving warfighter capability gaps







TWV and Logistics Challenges

Monterey, CA

February 8, 2010

★ ★

MG Robert Radin
Assistant Deputy Chief of Staff, G-4
Headquarters, Department of the Army

AMERICA'S ARMY: THE STRENGTH OF THE NATION

What's On My Mind Today

OEF Buildup

- We are working the Plans, Policies, and Programs and issuing it to the field, supporting the current war fight as it migrates from Iraq to Afghanistan

OIF Responsible Drawdown

- Iraq Drawdown requires Plans, Policies, Programs that are simple, straightforward, easily understood, and defensible

OIF Responsible Reset

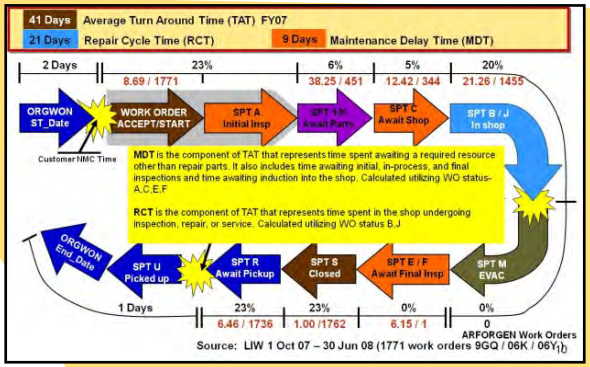
- Our biggest challenge will be to get resources so logisticians in the field can execute the policies

Haiti Relief Operations

- Fully engaged with sustainment planning and coordination in support of Operation Unified Response

In the Plans, Policies, Programs we create, it is important we take into account second and third order effects, so that we're not having to rethink the path forward.

Our Start Point…I Tend To Focus On *Process*



Organized/Process Oriented

Conceptual/Creative

Analytical/Strategic

Expressive/Interpersonal

Reducing Complex Issues into Fundamental Terms

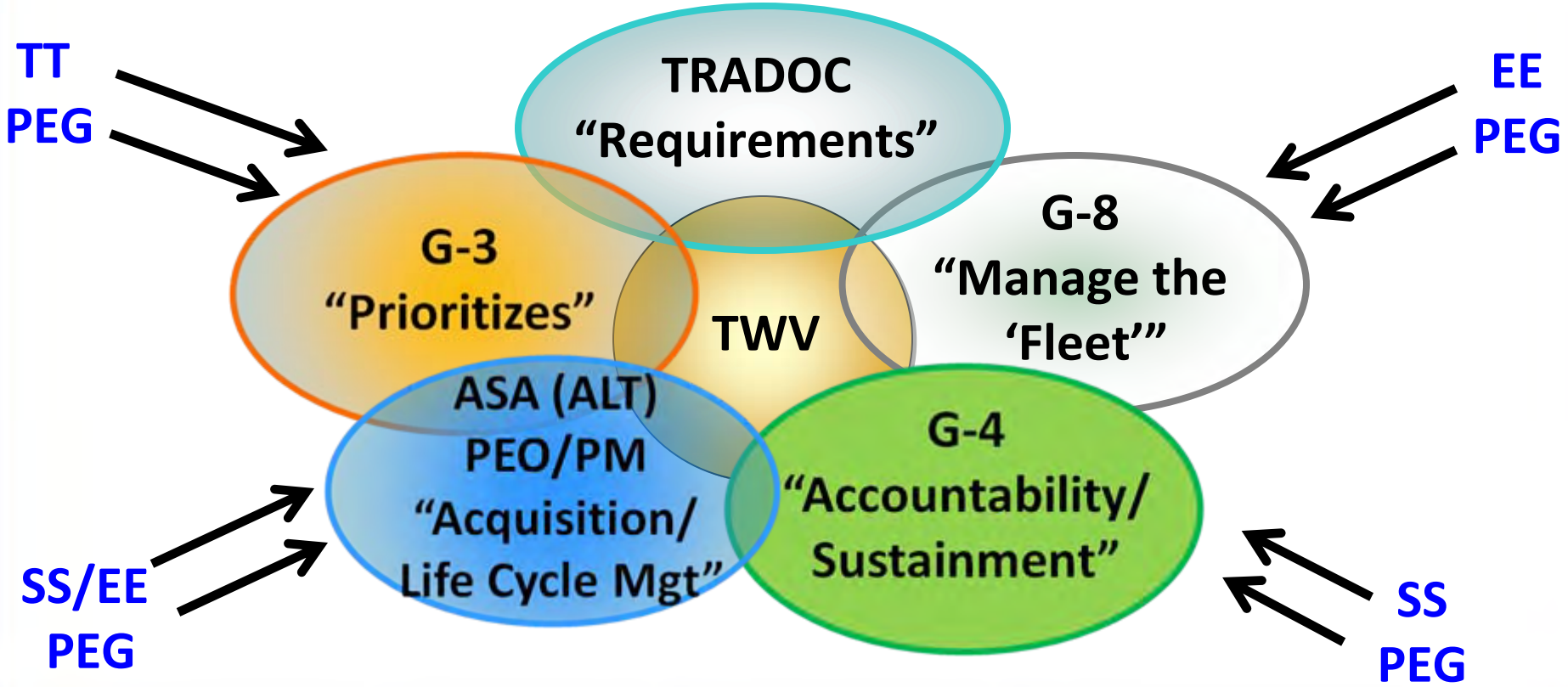
TWV Strategy

- Building TOEs to document our requirements
  - Potential reduction of ~17,000 TWVs across all fleets from TO&E
    - Worked in Summer 2009 for BCTs & Modular BDEs
    - TRADOC- All COMPOS
  - Potential reduction of ~10,900 LTVs
    - Working in Summer 2010 for the Rest of the Force
- Fleet management process to balance reset/recap/new production of Light, Medium, & Heavy fleets
- Prioritize funding for the modernization of the oldest TWVs ahead of new procurement when feasible
- Procure increments of capability in ARFORGEN-sized packages

TWV Balance

Re-balance Trucks Across COMPOs – Decision Filters

Paragraph Level of detail → Maintain Mobility and Effectiveness → Is Correct Vehicle Assigned? → Is Quantity Correct? → Evaluate Trailer Utilization → Are BOIPs Valid? → Potential Modernization Initiatives (MFS)



SS PEG Co-Chaired by ASA (ALT) & G-4
EE PEG Co-Chaired by ASA (ALT) & G-8

G-4 Influence to Weapons Systems Review

- Co-Chair
- Co-Chair
- Co-Chair
- Co-Chair
- Participant

USAR | G8-PAE | DASA-CE | G1 | PM | LCMC | SAAL-RI | ARNG | II PEG

G8/FDR | DAMO CIR/G3

The WSR is a cross-PEG venue to review new and emerging requirements and strategies; provides PEGs information to influence the POM process
NOT the mission of the WSR to validate requirements

ACSIM | HQ AMC

ASA (M&RA) | ASA (FMC) | TT PEG G-3 | EE PEG/ G8 FD | SS PEG/ G4 | ASA(ALT) SYS Dir | ASA (I&E) | CIO/ G6

ACOM/PEO/PM Inputs
$'s and #'s
Weapon System Reviews

SS PEG Processes: (e.g., OP29 Depot Reviews, SSTS Reviews, Integration of SDT Requirements, SDO Requirements, etc.)

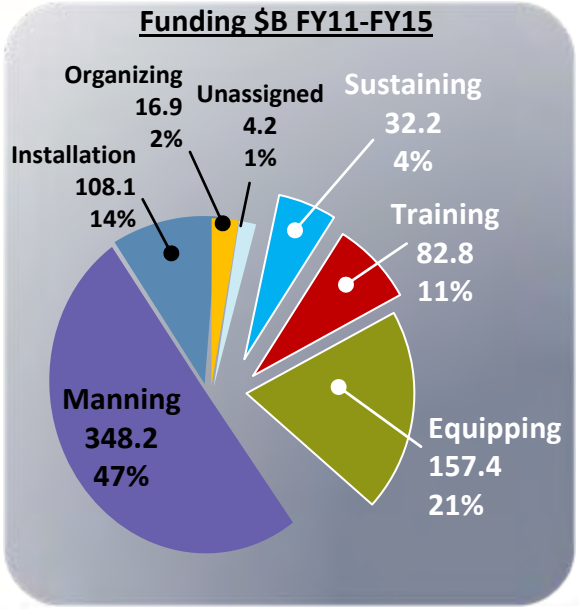
EE PEG Processes: (e.g., Integration of New Procurement Requirement, Upgrade Requirements, RD&TE, STS, Software Development, Facilitization Into BOS Reviews

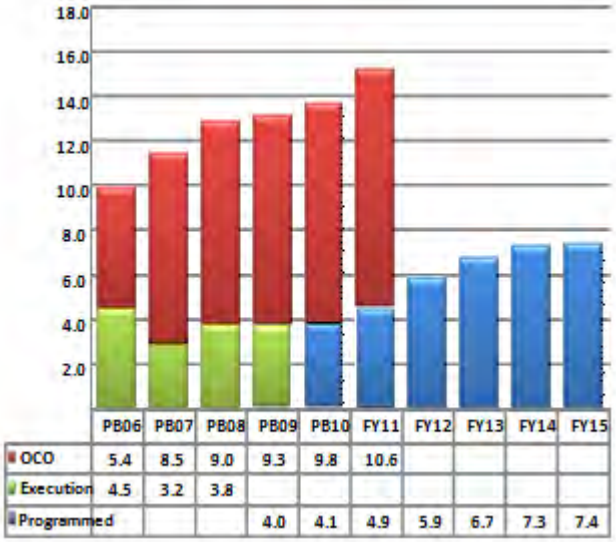
TT PEG Processes: e.g., Training Resource Model input, Non-System TADSS requirements, Home Station Training, CLS requirements etc.

POM/PBR Requirements by PEG

All PEGs and PPBE integrators are invited to participate in reviews

Program Evaluation Groups (PEGs)

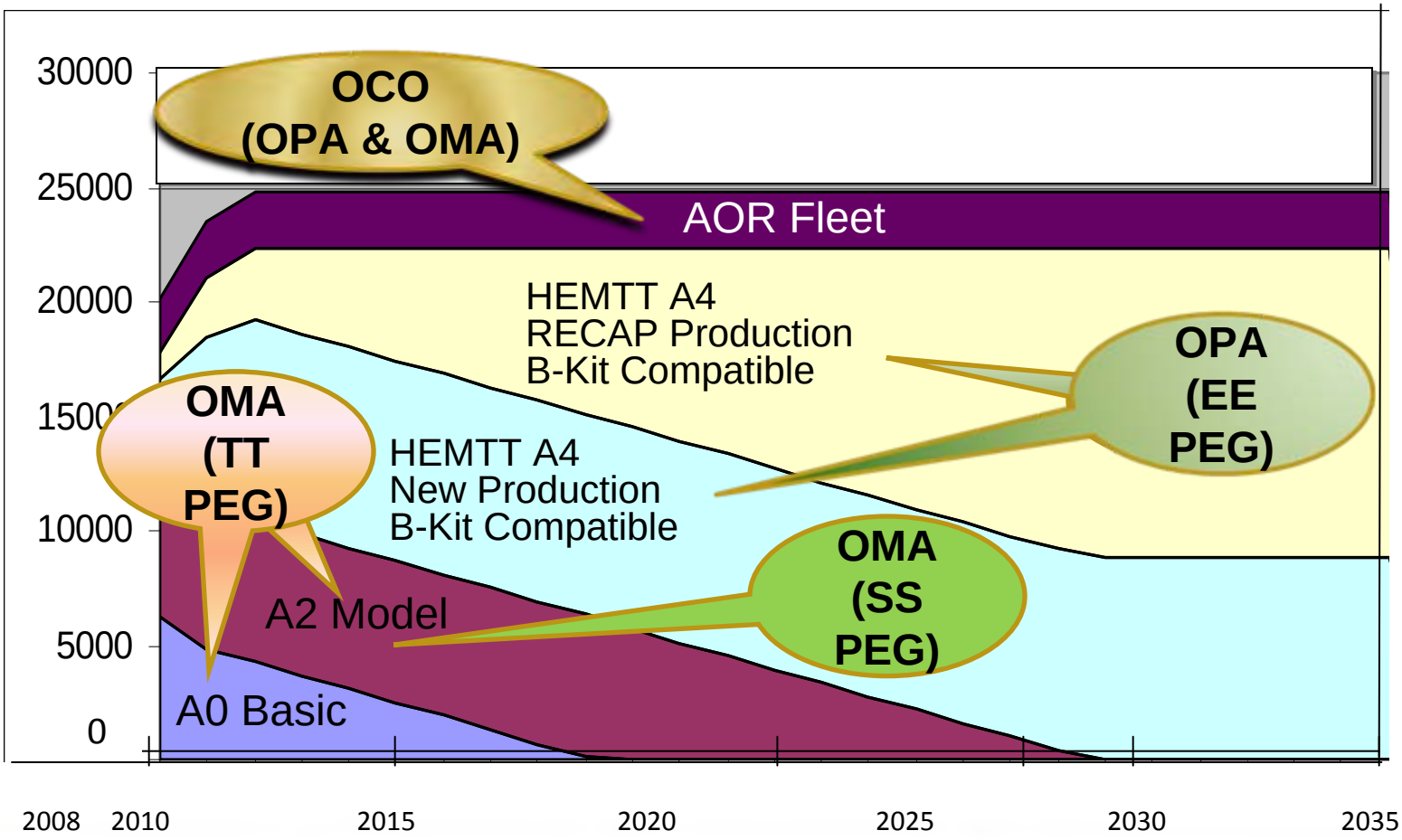




- **Training (TT)**
  - Provides for unit readiness, unit collective training, institutional training and officer acquisition
  - Supports MNF compatibility through integrated training and military exercises with allies & coalition powers
- **Equipping (EE)**
  - Provides resources for the integration of new doctrine, training, organization, and equipment to develop and field. Focus: acquisition
- **Sustaining (SS)**
  - Sustain operations, stressing worldwide readiness, strategic mobility, Army Reserve stocks, and operations of depots
  - Measures operations and procedures to further integration, standardization, and interoperability of information systems
- **Manning (MM)**
  - Authorizes personnel by grade & skill; Integrates ARNG & AR
- **Organizing (OO)**
  - Provides Generating Forces for peacetime sustainment, training, and wartime mobilization capabilities
- **Installations (II)**
  - Plans & Programs installation funding for Base Support, Military Construction, Family Housing, BRAC & Environmental Restoration

PEG Resourcing of Program

HTV Example



Depot Maintenance	Sustainment System Technical Support	Army Prepositioned Stocks	Second Destination Transportation	Core Logistics
				
Sustaining PEG Function				
· Organic & Contract · Overhaul / Repair/ Rebuild End Items · Post Production Software Support · Reset End Items · Modular Force · Test, Measurement, and Diagnostic Equipment (TMDE)	· Engineering Support · Quality Assurance - Modification Work Orders · Safety of Use · Technical Assistance · Logistics Assistance Reps (LARs) - Technical Manuals	· Acquire · Maintain · Reconstitute · Property Accountability -Care of Supplies in Storage - Prepositioned Stocks 2015 Strategy	· Transportation Movements in Support of: - Supplies - Equipment - Major end items - Equipment redistribution - New Equipment Fielding - Title XXXIX and X responsibilities - War Reserve Army	· Supply Depot Operations · IT /Comms · Central Proc · LOGCAP · LOG Automation · Logistics Support Elements (LSE)
Base				
$1,166.2	$437.5	$328.8	$572.3	$986.0
Overseas Contigency Operations (OCO)				
$4,628.5	$194.7	$340.0	$3,119.4	$1,438
Total Base		$3,490.8	**Total OCO**	$9,720.6

OCO = Currently depicts funding request

Tactical Wheeled Vehicle Process Flow

Original Equipment Manufacturer (Factory)

Visibility in IUID

PM/PEO Integration

Visibility in PBUSE

PM Field TM

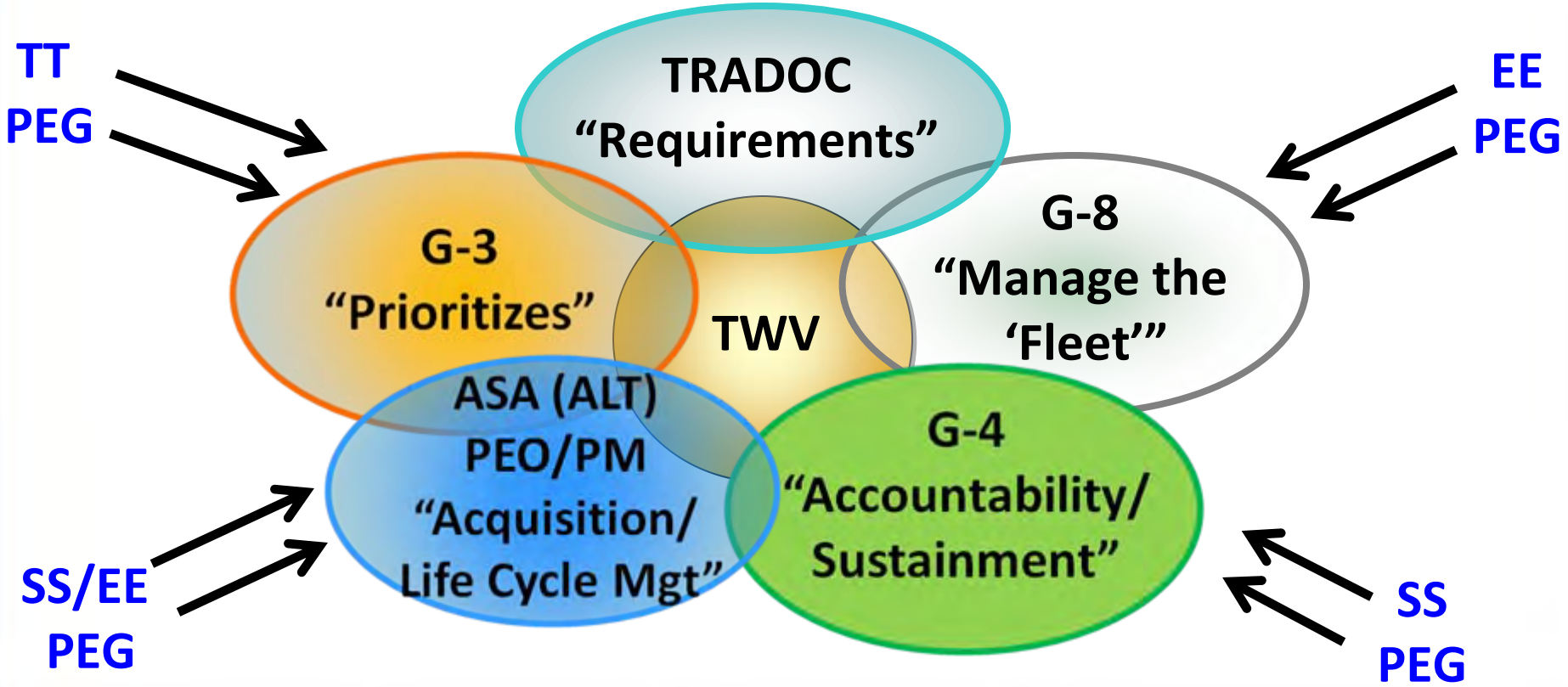
Unit

Accountability in PBUSE SAMS

TWV Balance

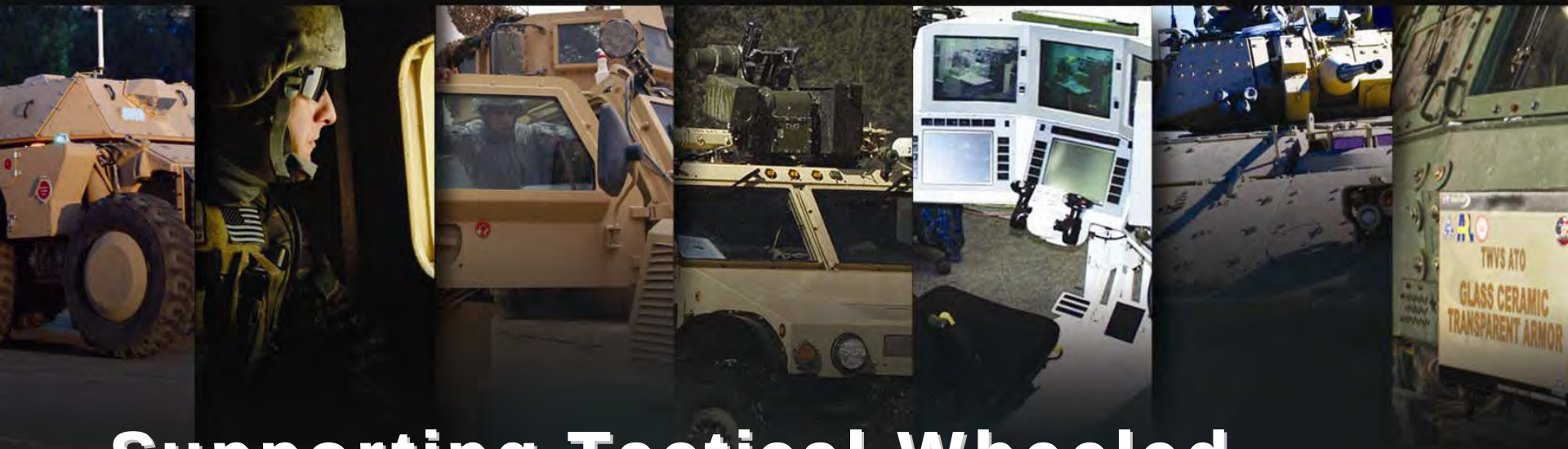
Re-balance Trucks Across COMPOs – Decision Filters

Paragraph Level of detail → Maintain Mobility and Effectiveness → Is Correct Vehicle Assigned? → Is Quantity Correct? → Evaluate Trailer Utilization → Are BOIPs Valid? → Potential Modernization Initiatives (MFS)



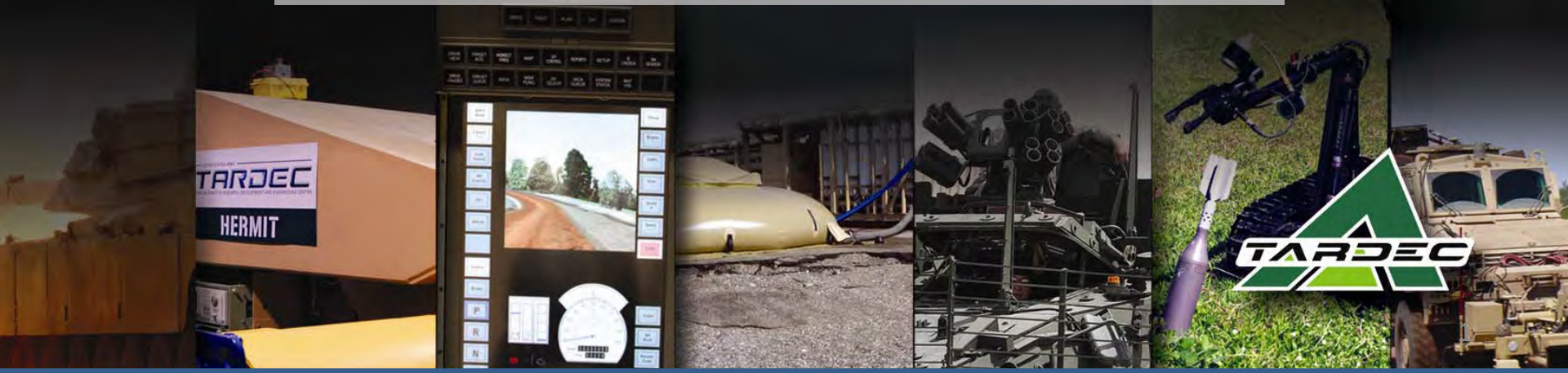
SS PEG Co-Chaired by ASA (ALT) & G-4
EE PEG Co-Chaired by ASA (ALT) & G-8

Questions?



Supporting Tactical Wheeled Vehicles …. Today and Tomorrow

Mr. Thomas Mathes
Executive Director, Product Development Business Group



Challenges

An evolution from a ***Logistics Vehicle*** to a ***Combat Platform***

This equates to an increased need for:

- Protection
- Fuel Efficiency
- Power
- Mobility

ECV (1993-Present)
6.5L Turbo Diesel Engine
Suspension Upgrade
Armor Capable
1,800 – 5,100 lb. Payload
GVW: 12,100 lb.
Current Op: >16,500 lb.
ECV = Expanded Capacity Vehicle

A2 Series (1994-Present)
6.5L Diesel Engine
4 Spd Electronic Transmission
3,520 - 4,400 lb. Payload
GVW: 10,300 lb.

A1 Series (1991-95)
Improved Driveline
Improved Suspension
2,500 – 3,632 lb. Payload
GVW: 10,000 lb.

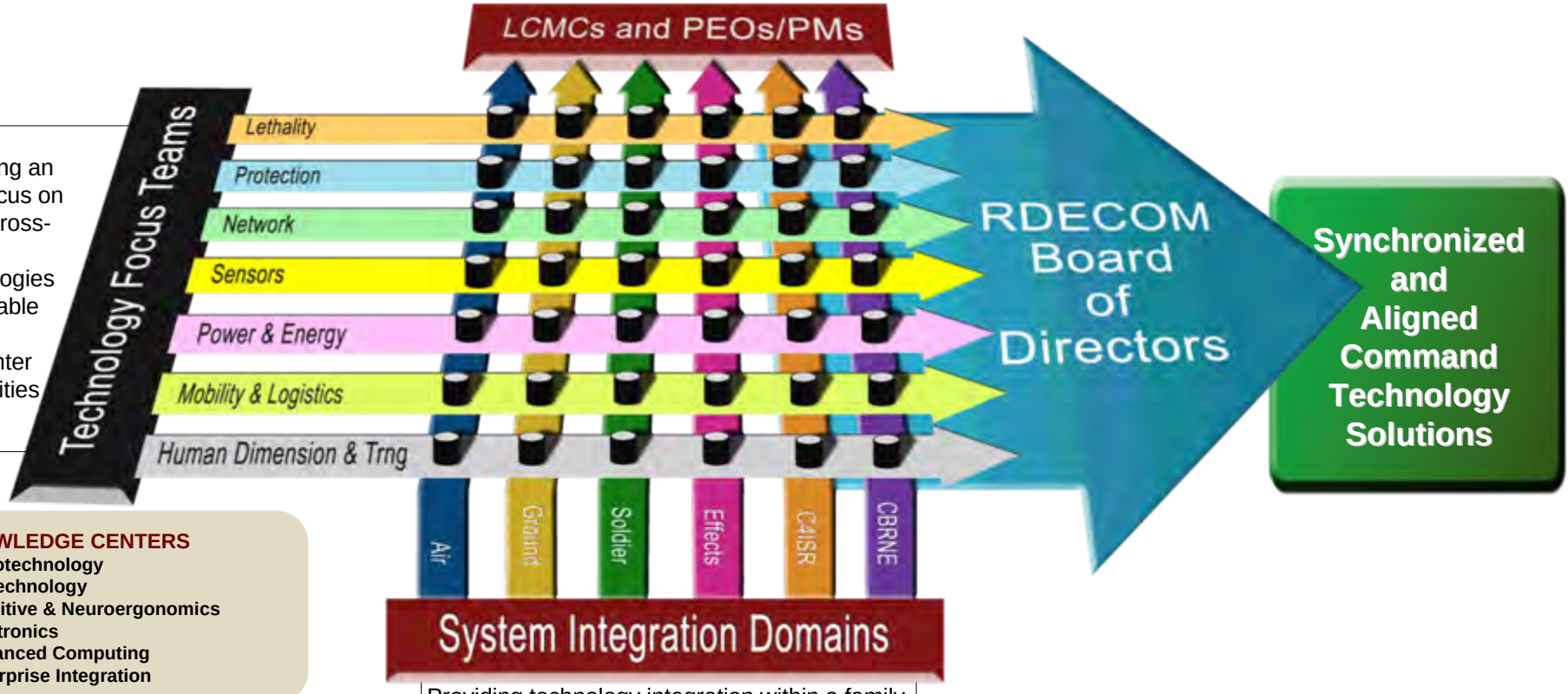
A0 Series (1984-93)
6.2L Diesel Engine
3 Spd Transmission
2,500 – 3,632 lb. Payload
GVW: 7,700 lb.

What TARDEC does

Provide bridge between requirements and technology

- Identify space, weight and power impacts on platforms and technologies
- Provide Feedback to Combat and Material Developers as well as Tech Base on System Impacts/Trades
- Provide Vehicle Characteristics for input into Modeling and Simulation Tools
- Develop "Smart Buyer" for supporting future projects

RDECOM Technology Integration Concept



Providing an S&T focus on those cross-cutting technologies that enable critical Warfighter capabilities

KNOWLEDGE CENTERS
- **Nanotechnology**
- **Biotechnology**
- **Cognitive & Neuroergonomics**
- **Electronics**
- **Advanced Computing**
- **Enterprise Integration**

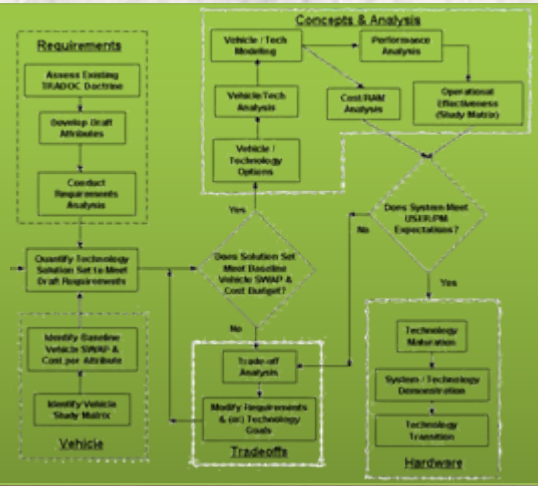
Providing technology integration within a family of common systems to optimize commonality, reduce complexity and life-cycle costs, and manage technology transitions

S&T Guidance & Requirements

Building upon the LCMC Construct

Using a System-Centric Approach

1. Institutionalizing the processes, business models & culture required for transformation



2. Systems-focused with analytical underpinning

3. Robust ground systems integration capabilities

Demonstrated Core Competencies

Integration of systems, sub-systems or platforms

Requirements, data collection and data management

Configuration management

System Engineering Analytical processes

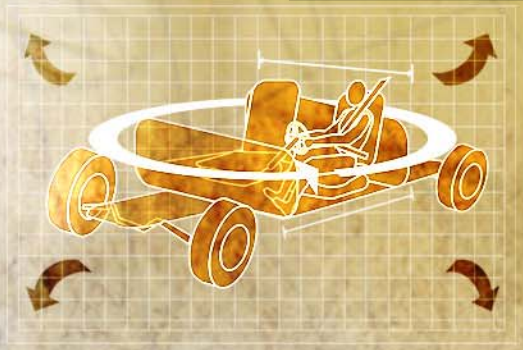
Interfaces with PEOs and OEMs

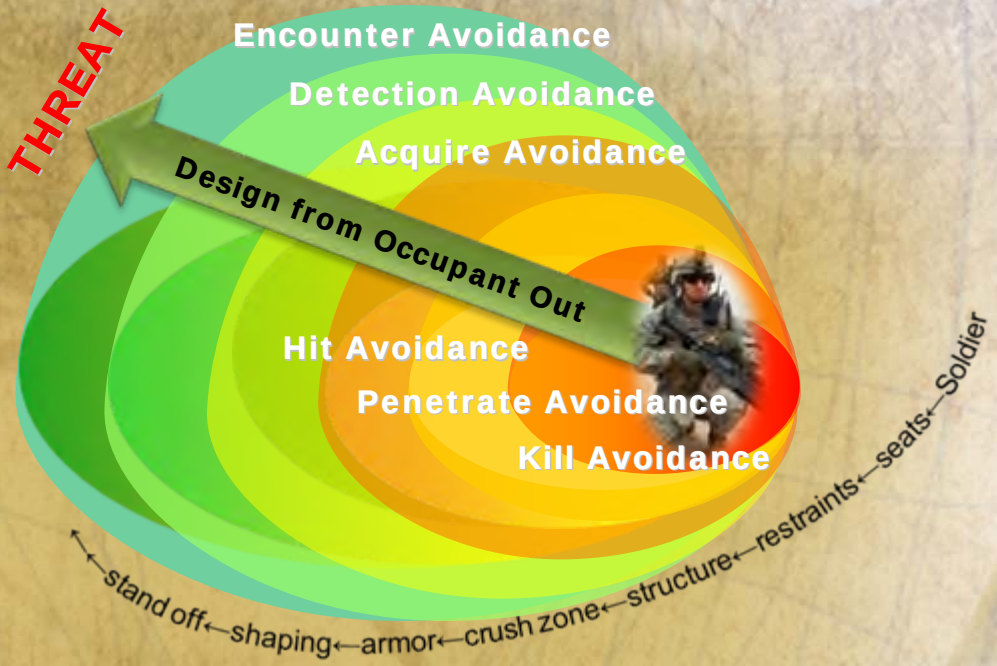
Leveraging partnerships with academia and industry

Occupant Centric Survivability

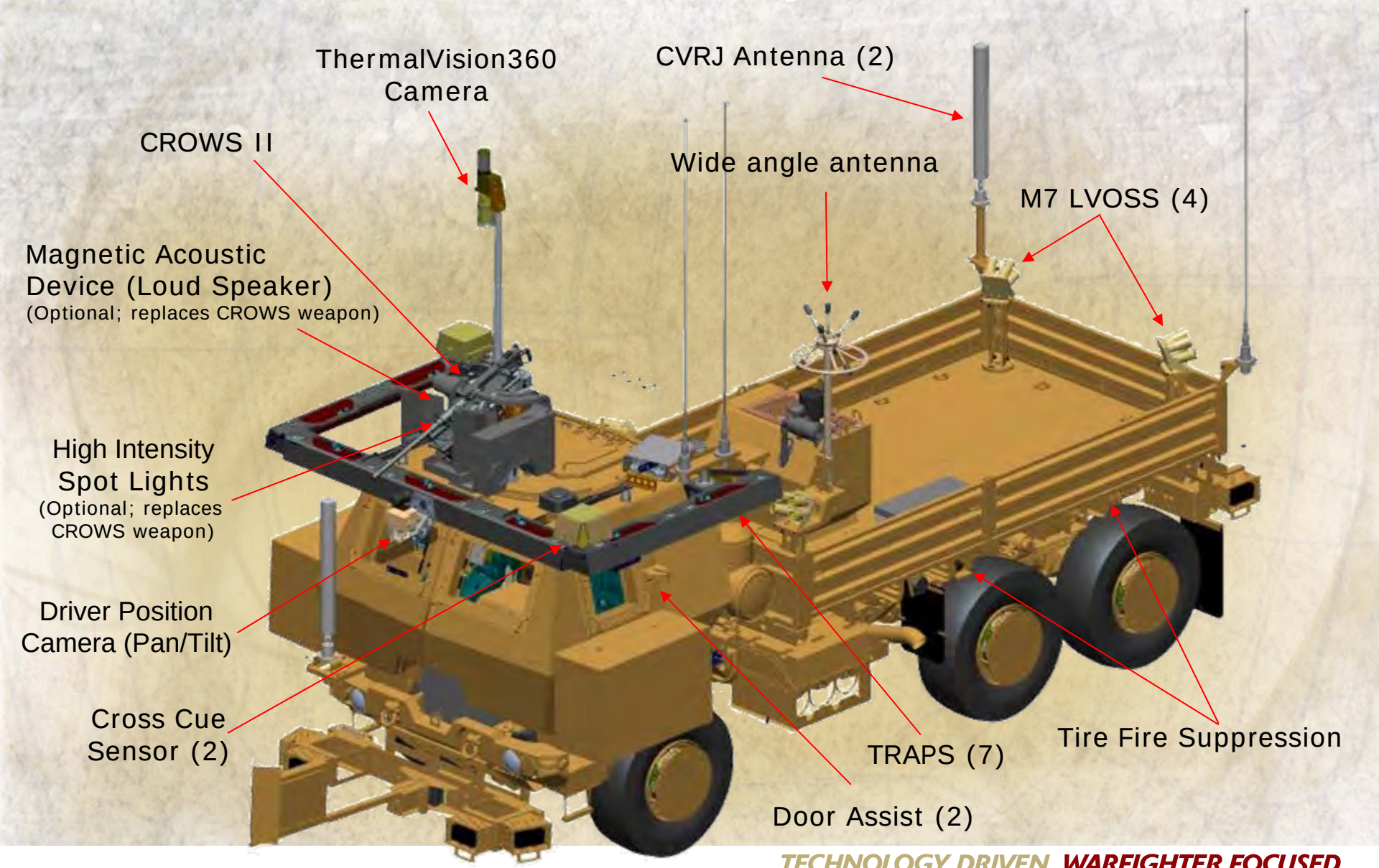
Outside In

Inside Out





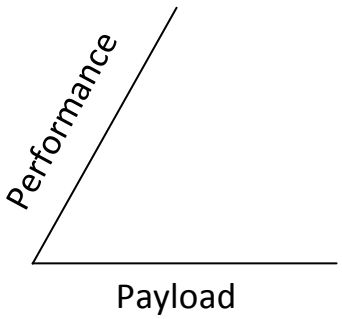
Tactical Wheeled Vehicle Survivability ATO



Balanced Approach

Original TWV Design

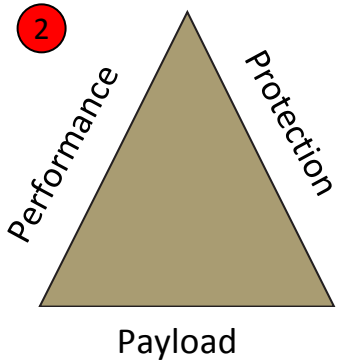
1



Pre 2000

DESIRED TWV Future

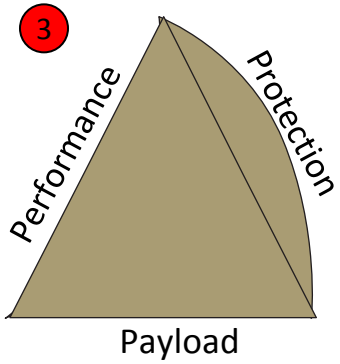
2



Post 2000

Buying Protection

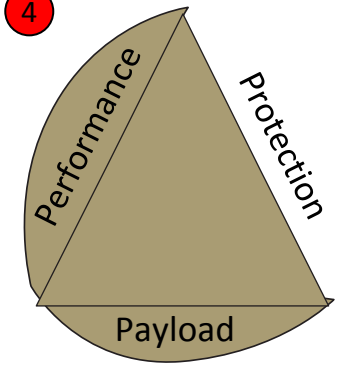
3



Current HMMWV

Buying Performance/Payload

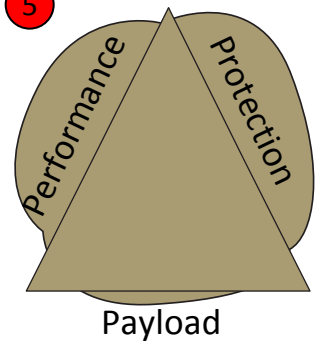
4



Trades

Buying all with current tech

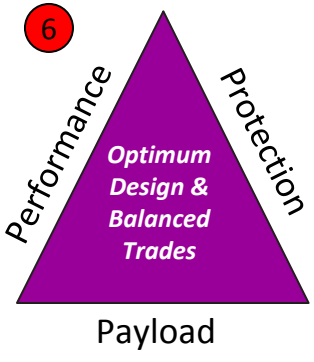
5



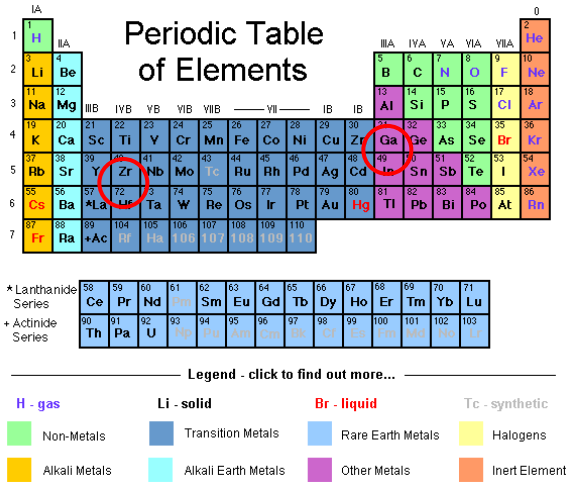
Heavier Vehicle

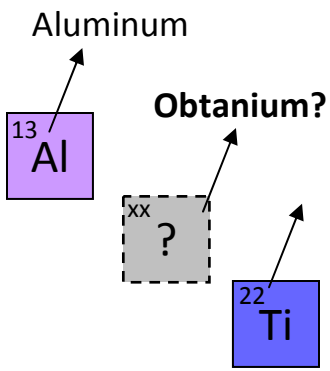
Maintaining the Iron Triangle

6



Desired End State





S&T needs to define/achieve "Obtanium" for Light Weight Armor that is affordable

On-going Support to the Warfighter

R&D Achievement (RDA) Awards

- Convoy Active Safety Technology (CAST)
- Elastomer Improvement Program (EIP)
- Ground Vehicle Control Aids for Improved Mobility with Indirect Vision, Drive-By-Wire Crew Stations (collaboration with ARL)
- High-Pressure Jet Propellant-8 (JP-8) Evaporation and Combustion Variances in Comparison to Diesel Fuel Number 2 (DF-2)
- Lightweight Vehicle Underbody Protection System (LVUPS)

Support to the Warfighter

-Thrown Object Protection System
-MRAP Gunner's Restraint
-M939 Gunner's Restraint
-M-ATV Enhanced Vision Kit
-Overhead Wire Mitigation Kit
-Electronic Tip-Over Antennae System
-MRAP Egress Trainer

Army M&S Awards

- Duty Cycle Experiments (DCE)
- Vehicle Propulsion System Evaluation Tool (VPSET)

Army's Greatest Invention (AGI) Awards

- MEAP Add on Armor Kit
- System Remote Video Terminal A-Kit

We're Open for Partnering & Innovation!

TARDEC's Ground Vehicle Gateway is *YOUR* entry point!

Submit your technology for review at:
https://tardec.groundvehiclegateway.com

Small Business Innovation Research
- Congressionally Mandated Program
- 10.2 Topic/Phase I Schedule 2010
  - 10.2 Solicitation Pre-Release 21 APR-18 MAY
  - http://www.dodsbir.net/solicitation/
  - 10.2 Solicitation Opens 19 MAY
  - http://dodsbir.net/submission
  - 10.2 Solicitation Closes 23 JUN
- Phase II is by Invitation or Fast Track
- ONLY Phase I Awardees are eligible to receive Phase II

Cooperative Research and Development Agreement (CRADA)
- Can be utilized to create innovative collaborative arrangements

Test Services Agreement (TSA)
- Technology transfer mechanism that allows work for hire
- All inventions and data belong to the TSA partner
- Allows industry partners to leverage TARDEC's unique capabilities

TARDEC Omnibus
Awarded August 2009
5 Year IDIQ Contract
Provides a wide variety of services
Will augment existing TARDEC capabilities

TARDEC's priority – Support the Fight!

Our Mission is to develop, integrate, and sustain the right technology solutions for all manned and unmanned DOD ground systems and combat support systems to improve Current Force effectiveness and provide superior capabilities for the Future Force.

Continue fostering relationships with the TACOM-LCMC, Industry & Academia.

GroundVehicleGateway@conus.army.mil

Mr. William E. Taylor
PEO Land Systems





Strategy During Challenging Times


2010 NDIA Tactical Wheeled Vehicle Conference
Portola Plaza Hotel, Monterey, California
Monday, 8 February 2010

What's on my Mind...

1. Uncertain fiscal future

2. Becoming more Energy Efficient

3. Maintaining our Expeditionary Nature
   - Survivability vs. Mobility
   - Survivability vs. Transportability

4. Balancing the “Iron Triangle” to deliver Critical Warfighting Capabilities

1. Our Fiscal Future

"The spigot of defense spending that opened on Sept. 11 is closing."

"We must constantly guard against so-called "requirements creep," validate the maturity of technology at milestones, fund programs to independent cost estimates, and demand stricter contract terms and conditions."

Secretary of Defense Robert Gates before the Senate Armed Services Committee

"This department (DoD) must consistently demonstrate the commitment and leadership to stop programs that significantly exceed their budget or which spend limited tax dollars to buy more capability than the nation needs."

2. Energy Efficiency

"We will be more energy efficient... we have to be."

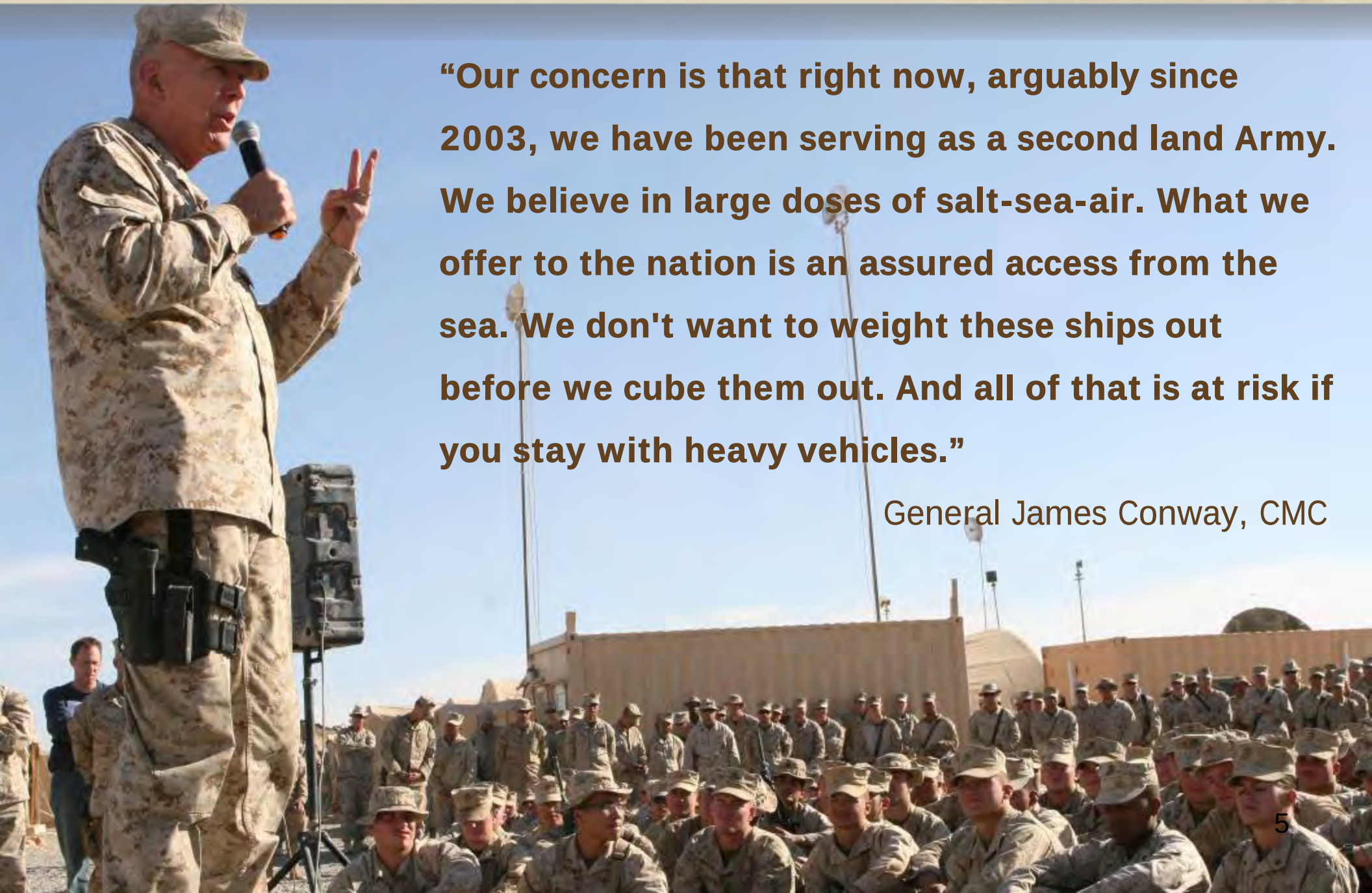
General James T. Conway
Commandant of the Marine Corps

"We can do these things. We have to."

Secretary of the Navy (SECNAV) The Honorable Ray Mabus

- 1. Cut oil consumption 50 percent by 2015.
- 2. By 2016, a Green Strike Group, consisting of nuclear and biofuel powered ships will be in service.
- 3. By 2020, 40% of the Navy's total energy will come from fossil fuel alternatives and 50% percent of its onshore energy will come from renewable sources.
- 4. Lifetime energy costs for systems will be incorporated into Navy and Marine Corps award contracts.
- 5. Reduce petroleum use in the 50,000 commercial vehicle fleet by 50 percent by phasing in hybrid fuel and electric vehicles.

3. Expeditionary Nature



"Our concern is that right now, arguably since 2003, we have been serving as a second land Army. We believe in large doses of salt-sea-air. What we offer to the nation is an assured access from the sea. We don't want to weight these ships out before we cube them out. And all of that is at risk if you stay with heavy vehicles."

General James Conway, CMC

4. Balancing the Challenges

The Technology Challenge

The $Fiscal$ Challenge

Energy Efficiency & Expeditionary Capability

What my GPS is telling me…

Balancing Through Our Strengths

1. Working with our partners

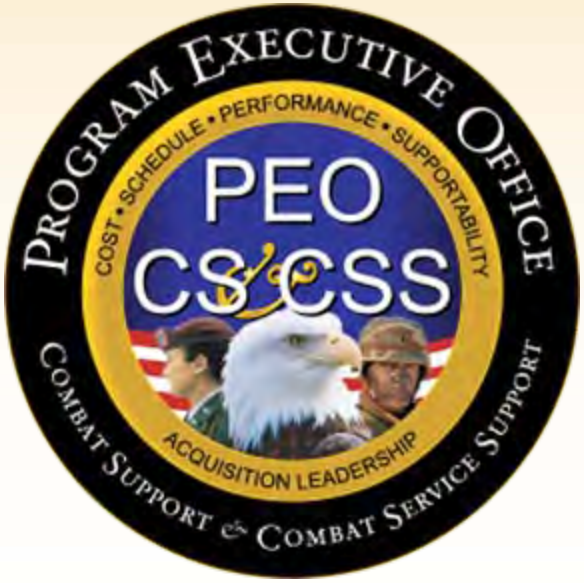
2. Exploiting Science and Technology efforts

3. Balancing our Ground Combat Vehicle Strategy

4. Balancing through internal program management tools

Balancing Through Partnerships

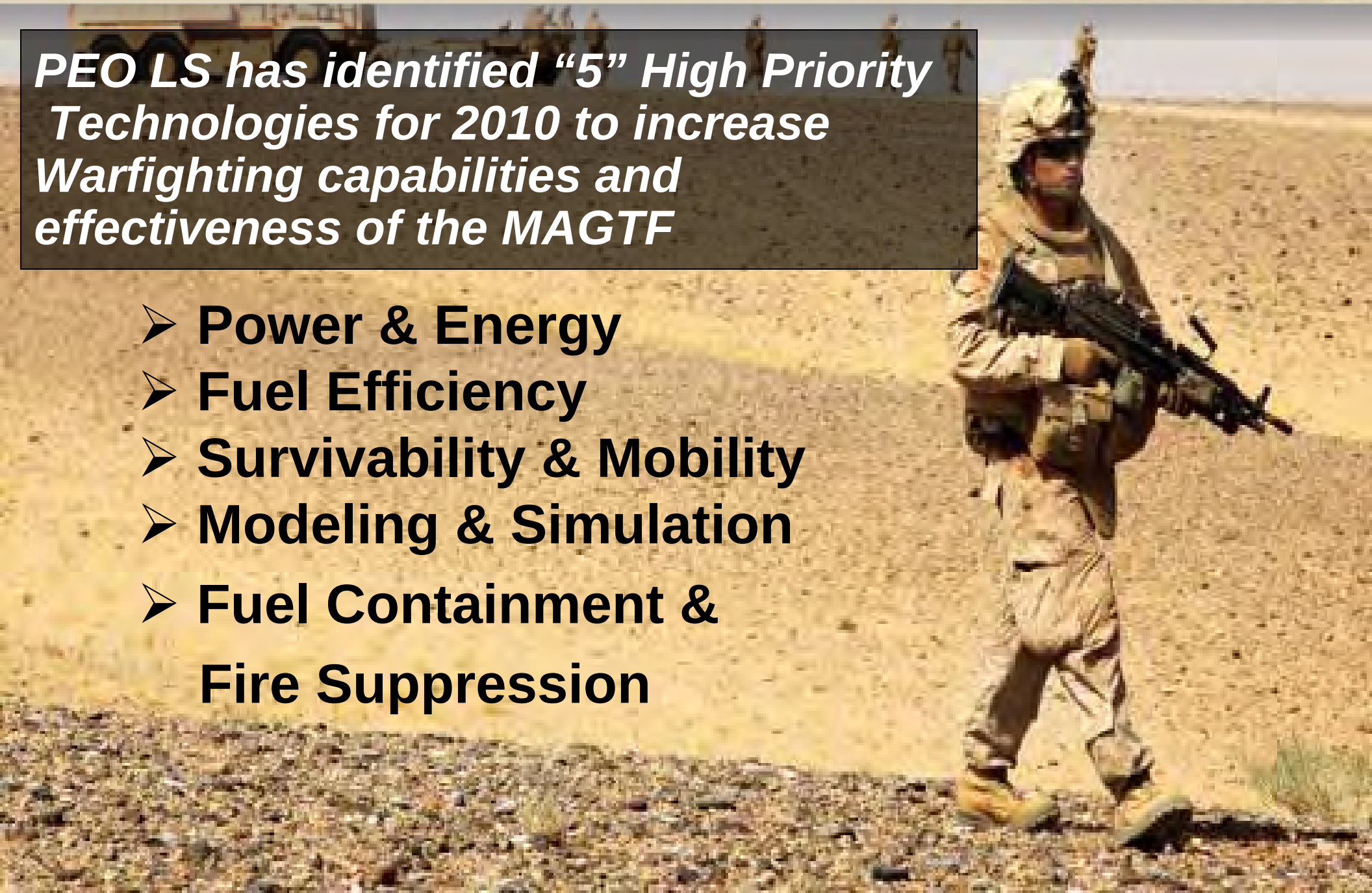
"Our first step is to continue to work with our partners to exploit technology to meet the Warfighter's needs…"



PEO LAND SYSTEMS MARINE CORPS

IT'S ALL ABOUT THE WARFIGHTER

Balancing Through Technology



PEO LS has identified "5" High Priority Technologies for 2010 to increase Warfighting capabilities and effectiveness of the MAGTF

- **Power & Energy**
- **Fuel Efficiency**
- **Survivability & Mobility**
- **Modeling & Simulation**
- **Fuel Containment & Fire Suppression**

Balancing Through a Tactical Vehicle Strategy

ROMO Range of Military Operations		VEHICLES		
		EFV (HEAVY-Tracked) Expeditionary Fighting Vehicle. Employed as a Maneuver Vehicle	**MPC** (MEDIUM-Wheeled) Marine Personnel Carrier Employed as a Maneuver Vehicle	**JLTV** (LIGHT-Wheeled) Joint Light Tactical Vehicle Employed as a Mobility Vehicle
Traditional	**FEO** Forcible Entry Operations	• Amphibious maneuver • High concentration of force and firepower • CBRNE protection • High all-around protection • Speed and mobility = M1A1	• Balanced protected mobility • Reinforcement for the AE • Speed and mobility = M1A1	• Mobility for Combat Leaders, Weapons Company, Combat Support and Combat Service Support
Traditional	**MCO** Major Combat Operations			
IRW	Crisis Response	• Amphibious maneuver • Low Force Dispersion (1 per squad) • Mine Protection • IED Protection	• Balanced protected mobility • Medium Force Dispersion (2 per squad) • Mine Protection • IED Protection	• Urban Maneuver • High Force Dispersion (3 per squad) • Mine Protection • IED Protection
IRW	Stability Ops			
IRW	Humanitarian Relief			

The Ground Combat Vehicle Strategy

Balance Through Key Program Management Tools

- ✓ Life Cycle Logistics (LCL)
  - PBL's
- ✓ Program Maturity
  - PoPS
- ✓ Rigorous Systems Engineering
  - Technical Authority
  - Modeling & Simulation
  - Test & Evaluation
- ✓ Cost Estimation
- ✓ Science & Technology

Our Bottom Line

“America needs to maintain a global Navy and a global presence for a lot of reasons, protection of our economic interests, projection of power to reassure allies, to deter future adversaries. I think that a fleet, and embarked Marines and associated Marine elements are one of our nation's strongest methods of doing that.”

Secretary of the Navy (SECNAV) The Honorable Ray Mabus

Questions?

William E. Taylor
PEO Land Systems Marine Corps
Quantico, VA
703-432-3370
Bill.Taylor@usmc.mil

Backups

Program Portfolio

Expeditionary Fighting Vehicle (EFV)

Logistics Vehicle System Replacement (LVSR)

Medium Tactical Vehicle Replacement (MTVR)

Lightweight 155 (M777)

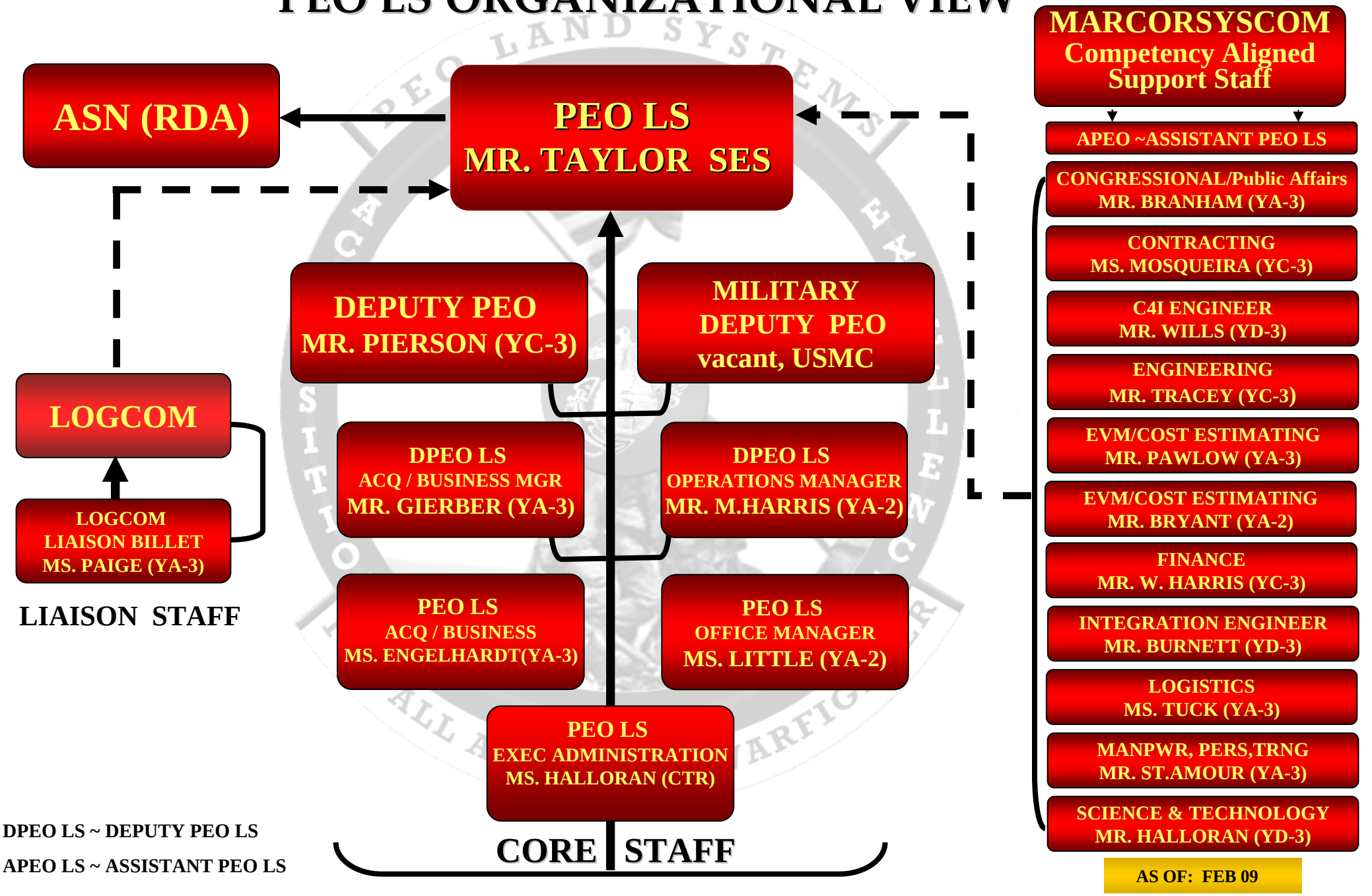
Marine Personnel Carrier (MPC)*

Ground Air Task Oriented Radar G/ATOR

Joint Light Tactical Vehicle (JLTV)

Common Aviation Command & Control System (CAC2S)

PEO LS ORGANIZATIONAL VIEW



DPEO LS ~ DEPUTY PEO LS

APEO LS ~ ASSISTANT PEO LS

AS OF: FEB 09

PEO LS PORTFOLIO IS *$9B * CURRENT & FUTURE APPROPRI ATIONS

CAC2S	EFV	G/ATOR	JLTV	LW155	LVSR	MPC	MTVR

Concept Refinement	Technology Demonstration	Engineering, Manufacturing, Development	Production and Deployment

MS-A | MS-B | MS-C | IOC | FOC

Marine Personnel Carrier (MPC)*

Joint Light Tactical Vehicle (JLTV)

Expeditionary Fighting Vehicle (EFV)

Common Aviation Command & Control System (CAC2S)

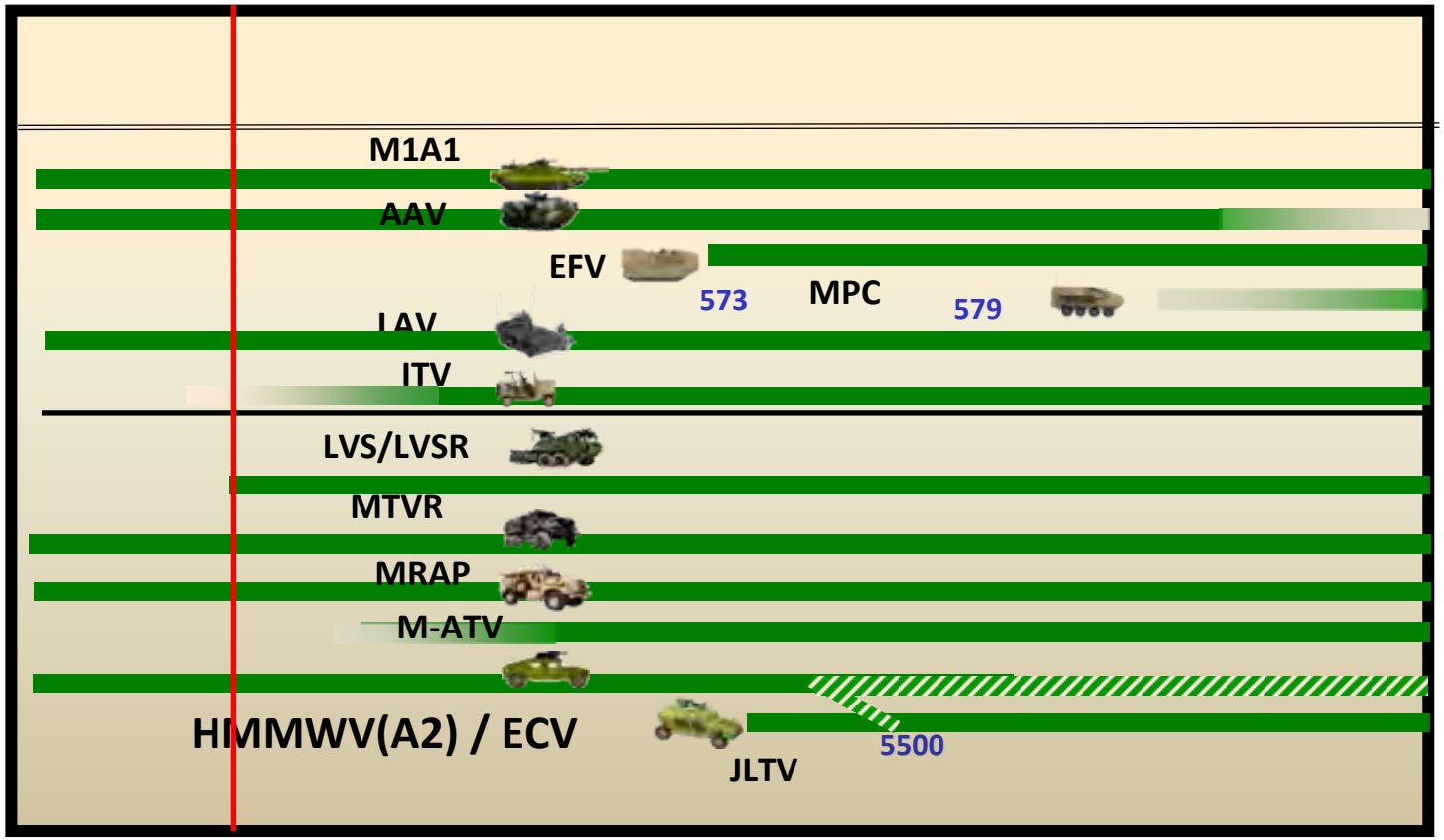
Ground Air Task Oriented Radar G/ATOR

Logistics Vehicle System Replacement (LVSR)

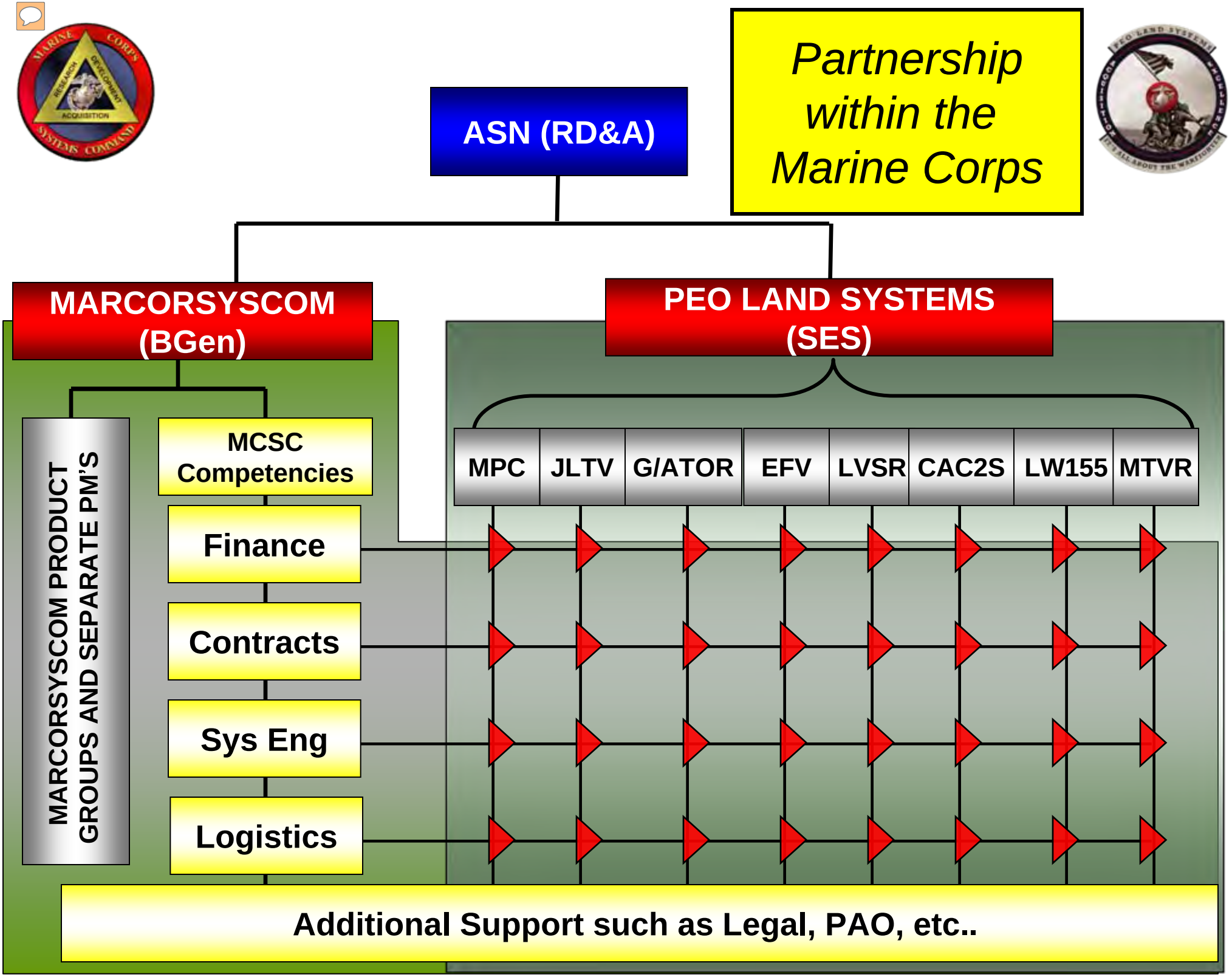
Lightweight 155 (M777)

Medium Tactical Vehicle Replacement (MTVR)

Current GCTV Strategy



Partnership within the Marine Corps



Top 3 Challenges for PEO LS

The Technology Challenge

The $Fiscal$ Challenge

The Iron Triangle Challenge

Tactical Wheeled Vehicle Conference 2010

AMERICA'S ARMY: THE STRENGTH OF THE NATION

U.S. ARMY TRANSPORTATION CORPS: WE MOVE THE NATIONS STRENGTH

Film

Brigadier General Brian R. Layer
Chief of Transportation

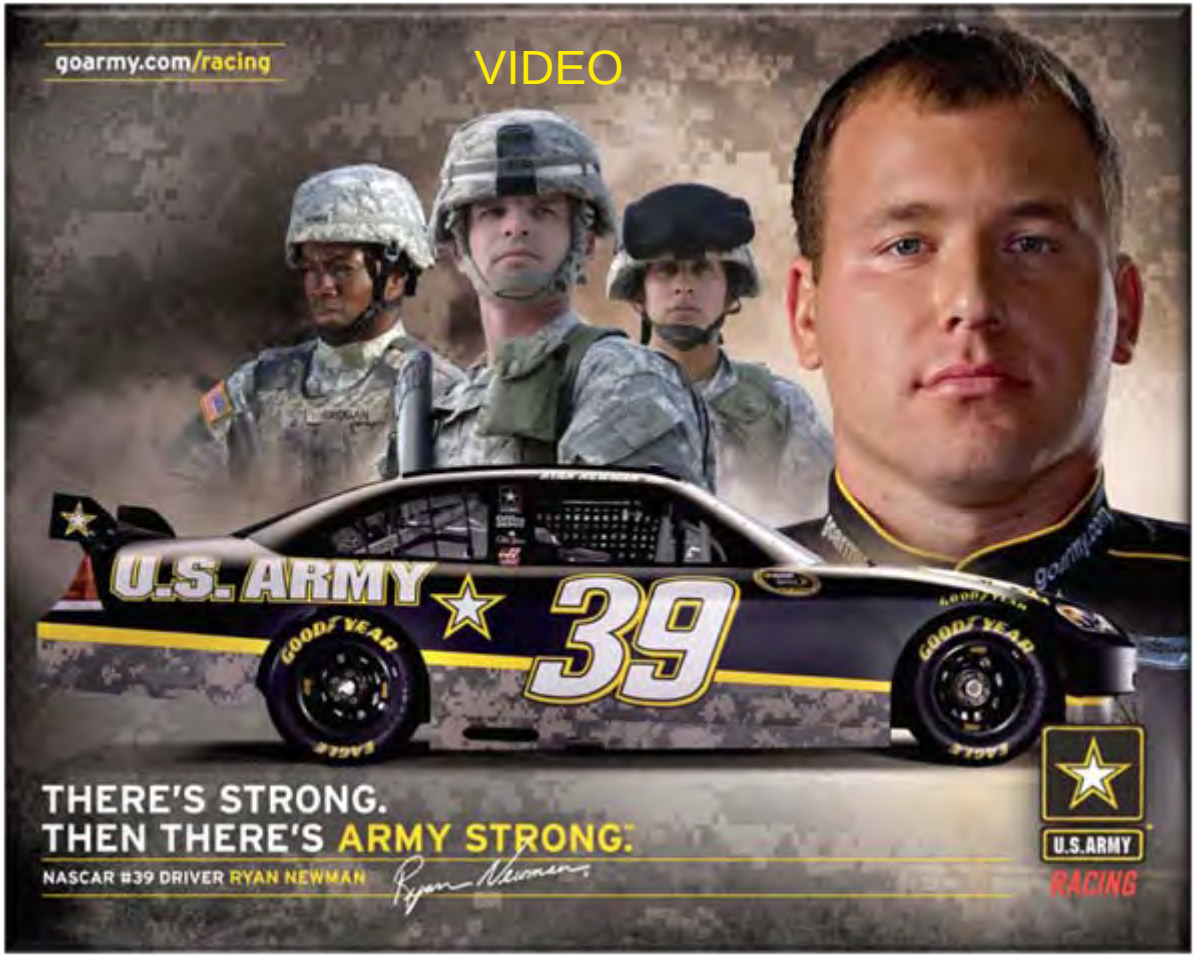
Tactical Wheeled Vehicle Conference 2010

NASCAR Drivers like Army Drivers are:

- ✓ Highly Competitive & adaptive
- ✓ Team Work
- ✓ Sophisticated
- ✓ Technology to Win
- ✓ Winning Spirit
- ✓ Innovative
- ✓ Adaptive
- ✓ Resourceful
- ✓ Opportunistic
- ✓ Agile

Soldier truck drivers are an integral component of tomorrow's combat system

Tactical Wheeled Vehicle Conference 2010



Film

Tactical Wheeled Vehicle Conference 2010

1944 WWII	Today	Tomorrow

Lives the Army Values

Higher Sensory

Techno-Savvy

Willing to Serve

Informed

Warrior Focused

XBOX-IPhone Gen

Unafraid

Committed & Dedicated

Intelligent

Disciplined

Expeditionary

Multi-Tasking

Tactical Wheel Vehicle Conference 2010
Future Truck Driver Requirements

During World War II any boy right off the farm could drive a truck……

Future Truck Characteristics :
- Higher Mobility Rate
- Robotic Operations
- Complex Sensing Systems
- Advance Load Handling - Smart Load Handling System
- Intermodal Operations
- Integrated Armor - Mine and Ballistic
- Higher Degree of Protection w/o Increasing Vehicle Weight
- Integrated Fire Suppression System
- Blast Resistance Seats
- Greater Fuel Efficiency
- Integrated C4ISR
- Dynamic Movement Tracking

Technology Advanced a Smarter Truck

FTTS Cost = $XXX.XX ea

Improved Armor & Increased Mobility

M-ATV Cost = Over $400,000 ea

Driver Assisted Features (Pwr Steering & Air Brakes)

1959 M35 Cost = $15,000 ea

Basic Cargo and Pax Carrier

1945 CCKW Cost = $10,000 ea

……but because of advances; in the future not just anyone can operate the truck.

Tactical Wheel Vehicle Conference 2010
Future Truck Driver Requirements

Future Requirements will impact the way the Army Trains and Fights

---

Doctrine and Training Implications:

- Greater Impact on Leader Development
- Opportunity to Conduct Autonomous Operations
- Complex Sensing Systems with Immediate Feedback
- Flexible Employment of Transportation Assets
- Capability to Conduct Intermodal Operations from the Cab of the Truck
- A Sophisticated Truck will Drive More Simulation Training Time
- The Future Truck will Incorporate Human Elements

Advance TWV Technology Will Add A New Dynamitic Dimension to Training

Tactical Wheeled Vehicle Conference 2010

We are preparing the Human Element for future battlefield by incorporating the latest in simulations, immersive and virtual technologies

Film

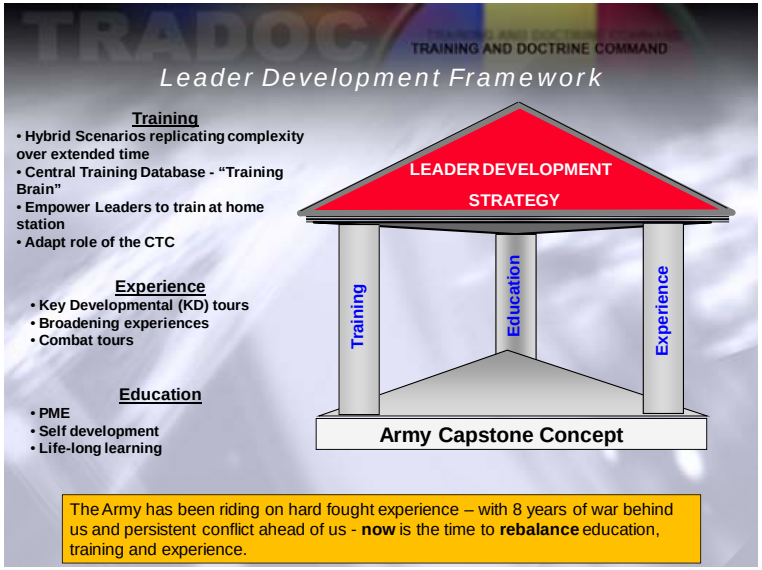
- ❑ Doctrine, Lessons Learned, Latest TTPs from OEF/OIF
- ❑ Live, Interactive individual and Collective simulations like:
  - Virtual Combat Convoy Trainer (VCCT)
  - HMMWV Egress Assistance Trainer (HEAT)
- ❑ Leverage Immersive & Virtual capabilities such as:
  - Counter IED Trainer
  - Common Driver Trainer
  - Warrior Skills Trainer

Tactical Wheeled Vehicle Conference 2010

Training leaders of today and tomorrow to operate in the complex Interactive system of logistics

FM 3.0: The Army requires agile and adaptive leaders able to handle the challenges of full spectrum operations in an era of persistent conflict. Army leaders must Be—

- Competent in their core proficiencies
- Broad enough to operate across the spectrum of conflict
- Able to operate in joint, interagency, intergovernmental, and multinational environments and leverage other capabilities in achieving their objectives
- Culturally astute and able to use this awareness and understanding to conduct operations innovatively
- Courageous enough to see and exploit opportunities in the challenges and complexities of the operational environment
- Grounded in Army Values and the Warrior Ethos.



Film

Tactical Wheeled Vehicle Conference 2010

Questions & Comments

ARMY STRONG

Change and the TWV Fleet

Project Manager
COL Dave Bassett

Deputy PM Acquisition: **Tony Shaw**

(Acting) Deputy PM Logistics: **Tony Warrior**

PRODUCT MANAGERS

- ***Light Tactical Vehicles***
  - **Mr. Dennis Haag**
- ***Medium Tactical Vehicles***
  - **LTC Shane Fullmer**
- ***Armored Security Vehicle***
  - **LTC Kent Moorhouse**
- ***Heavy Tactical Vehicles***
  - **LTC Allen Johnson**

MISSION

The life cycle management of light, medium and heavy tactical vehicles & trailers enabling the Expeditionary Ground Force

OTHER SIGNIFICANT PROCUREMENT EFFORTS

- **Safety Enhancements**
- **Add-on-Armor/GPK**
- **Surge Support**

PM TV Systems – Who we are, how we do it!

Light Tactical Vehicles

- *30 variants*
- *150K systems fielded*
  - *HMMWV Family of Vehicles*
  - *UAH Safety Enhancements*
- *Light Tactical Trailer (LTT) – 1600/month*

2,400 New & Recap HMMWVs/Month

ACAT IC

Medium Tactical Vehicles

- *17 truck variants (3 Trailers)*
- *Over 41,606 trucks / 9,168 trailers fielded*
  - *Family Medium Tactical Vehicles (FMTV)*
  - *High-Mobility Artillery Rocket System (HIMARS)*
  - *Load Handling System (LHS)*

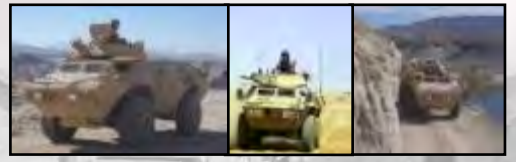
ACAT IC

825 max Sys/Month

Heavy Tactical Vehicles

- *33 variants (8 Trailers)*
- *Over 33K systems fielded*
  - *Heavy Expanded Mobility Tactical Truck (HEMTT)*
  - *Palletized Load System (PLS)*
  - *M915 Family of Vehicles & Trailers*
  - *Trailer (HEMAT)*
  - *Heavy Equipment Transport (HETS)*
  - *Container Handling Unit (CHU)*

1,409 Sys/Month



Armored Security Vehicle

- *Over 1721 systems fielded*
- *1166 Fielded to OCONUS Units*
- *AAO: 2863*
- *ASV Knight Chassis*
  - *AAO: 570*

36 Sys/Month

Big Changes

- ***Changes in Leadership***
  - *AAE, MILDEP*
  - *TV, LTV, MTV in 2009*
  - *ASV, HTV in 2010*
- ***Changes in Guidance***
  - *New 5000 Series – Renewed focus on process*
  - *Focus on Competition*
  - *ACAT level changes*
- ***Post-build up budgets***

Values Don't Change – Commitment to the Warfighter Doesn't Change

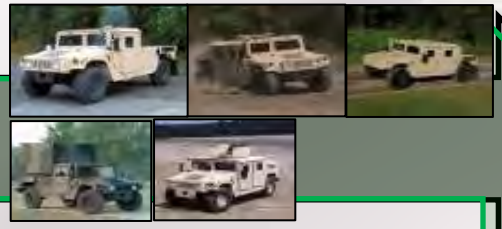
Fleet Evolution

A0 Series (1985-93)

A1 Series (1991-95)

A2 Series (1994-2004)

ECV M1114;M1151/52/65 (1995-Present)



FMTV A0

FMTV A1

FMTV A1R

FMTV A1P2

HEMTT A0

HEMTT A2

HEMTT A4

- Significant survivability improvements
- Higher horsepower engine
- Electronic Transmission
- Integrated AC

- Improved Power Generation
- Improved Seat Belts
- Fire Suppression
- Improved Suspension
- Blast Seats

Restored Performance drivers have been Force Protection, Increased Armor, and Soldier Safety.

Focus Has Shifted

- ***Iraq Drawdown – Afghan Surge***
- ***Industry has answered the call for armor***
- ***Few if any open parking spaces***
- ***New Procurement – RECAP – RESET***
- ***Quality still a major priority***
  - *No finish line*
  - *So technically it's more of a death march than a marathon*

Army must capitalize on and sustain the fleet investment

Increased Competition Opportunities

- *FMTV is not a 4 letter word*
- *Competition for sustainment/RECAP*
- *Component-level competition*
- *Continued safety/survivability improvements*

Managing the Fleet

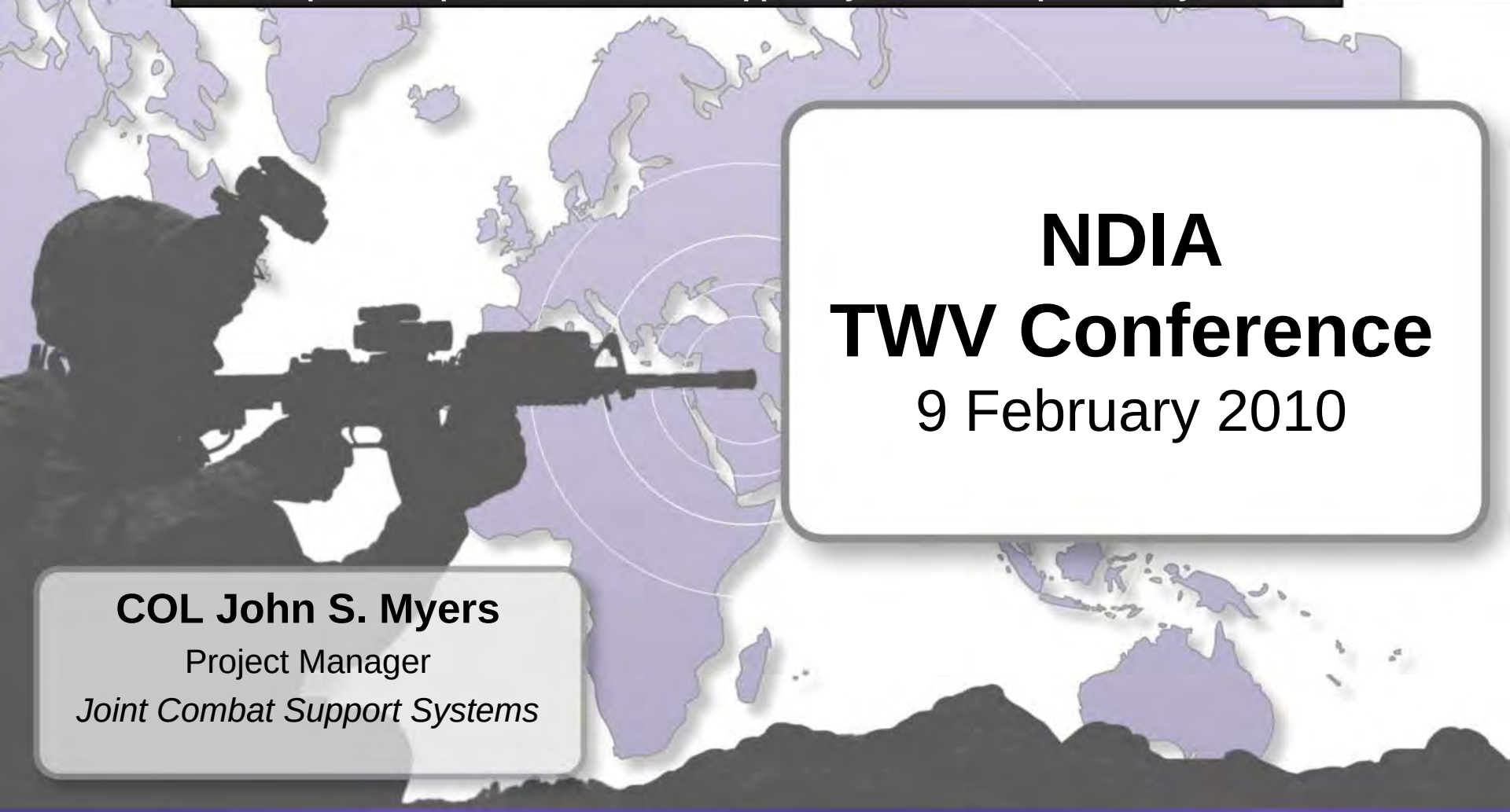
	Funding Type	Acquisition Approach	Requirements/ Configuration	Goal	Lead/ Coordination
Sustain	OMA	Depot RESET TPER MWO	Same Configuration	Restore to 10/20	AMC Lead PM Coordination
Evolve	Limited RDT&E OPA	Depot RECAP ECPs Block/Model Improvements Prime Contractor Led	Current ORD/ CPD/CPD Threshold- Objective ONS/ JUONS	*Incremental* Capability Improvements Manage Obsolescence Emergent theater requirements	PM Lead TCM Trans Coordination
Transform/ Replace	Significant RDT&E OPA	Competitive RECAP Competitive Buy/Rebuy	New CDD/ CPD CPD Annex AROCM	*Significant* Capability improvements that exceed current requirement or vehicle	TCM Trans/ ARCIC Requirements Lead PM Acquisition Lead

Take Aways

- ***Focus is shifting from new procurement to sustainment***
  - *Capitalize on the Army's truck investments*
  - *Modernize / Rebalance 3P's through RECAP*
  - *RESET to sustain capable assets*
- ***New opportunities for competition***
  - *Every fleet. Every chance we get.*
  - *Production and sustainment*
  - *Depot partnerships increasingly important*
- ***Know the process (Sustain, Evolve, Transform / Replace) that applies to your capability/product***
- ***Renewed focus on acquisition process***

Project Manager
Joint Combat Support Systems

Develop and Acquire Joint Combat Support Systems for Expeditionary Forces



NDIA
TWV Conference
9 February 2010

COL John S. Myers
Project Manager
Joint Combat Support Systems

Joint Combat Support Systems ~ *Project Management Office*

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. David Dopp**

PRODUCT MANAGERS

- Sets, Kits, Outfits and Tools
  - ***LTC Brian Tachias (USAR)***
- Joint Light Tactical Vehicles
  - ***LTC Wolfgang Petermann (USA)***
  - ***LtCol Ruben Garza (USMC)***

PRODUCT DIRECTORS

- Test, Measurement & Diagnostics Equipment
  - ***Mr. George Mitchell***

HORIZONTAL TECHNOLOGY INTEGRATION

- ***Pending***

JLTV Video

JLTV Program Status

- **JLTV TD Phase is on schedule**
  - Awarded 3 Contractors - October 29, 2008
    - BAE Systems Land & Armament Systems – Ground Systems Division; Santa Clara, CA
    - General Tactical Vehicles
    - Lockheed Martin Systems Integration – Owego; Owego, NY
      - Two protests were filed and denied by the GAO, allowing work to resume on Feb 17 2009
  - Testing is ongoing
  - Vehicles and trailers will be delivered in April 2010

- **TD Phase will be no longer than 27 months, schedule will be event driven, and will meet the following exit criteria:**
  - Approval of the appropriate capabilities development document (CDD or CPD), supported by analysis from TD work
  - Demonstration of an ability to achieve TRL 6 (minimum) in an integrated system with a focus on: Protection, Transportability, Reliability, Producibilty
  - An assessment of commonality across the JLTV FoV
  - An assessment of the technical risks relevant to entering initial production will to lay a foundation for the Manufacturing Assessment done during EMD.

- **Competitive Prototyping is working**
  - Increased government leverage
  - Competition is being driven by real performance on actual hardware
  - Increased confidence in operational performance through test and evaluation of actual performance capabilities
  - Improved fidelity seen by improvements in design solution from JLTV TD PDR to JLTV TD CDRs
  - Cost information gleaned from this phase increases confidence in cost estimates for the program life cycle.

- **International Participation**
  - Australia and India discussions are ongoing for next phase of EMD International participation

JLTV Hardware

BAE SYSTEMS

GTV General Tactical Vehicles

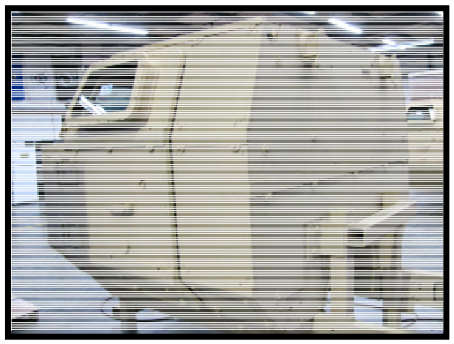
LOCKHEED MARTIN



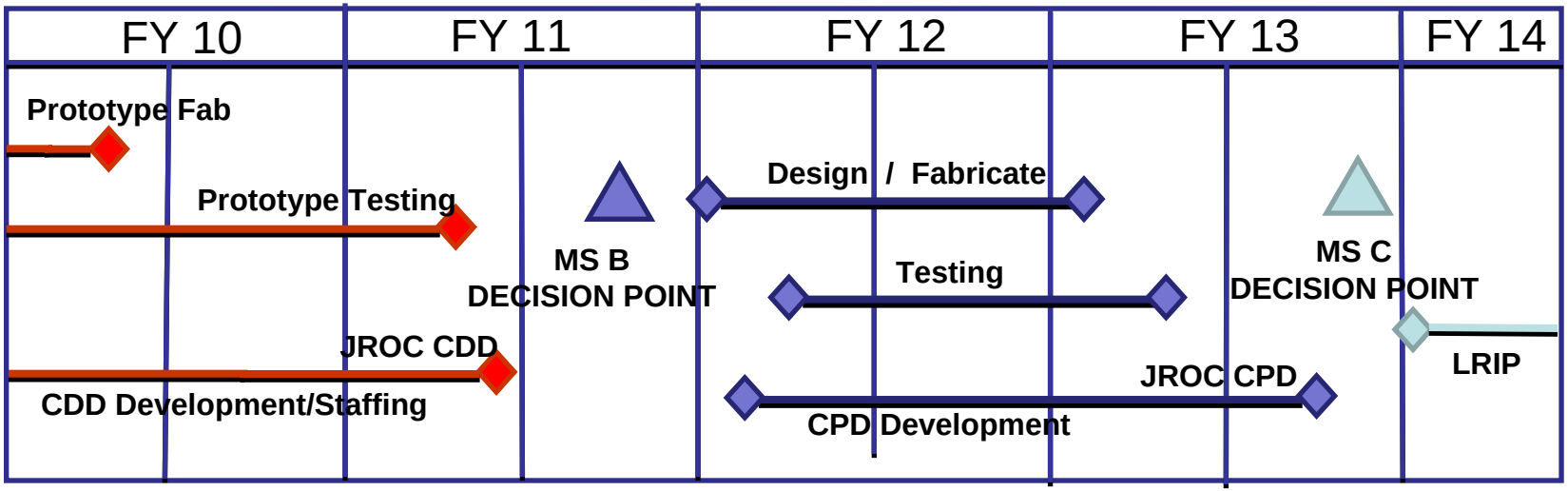








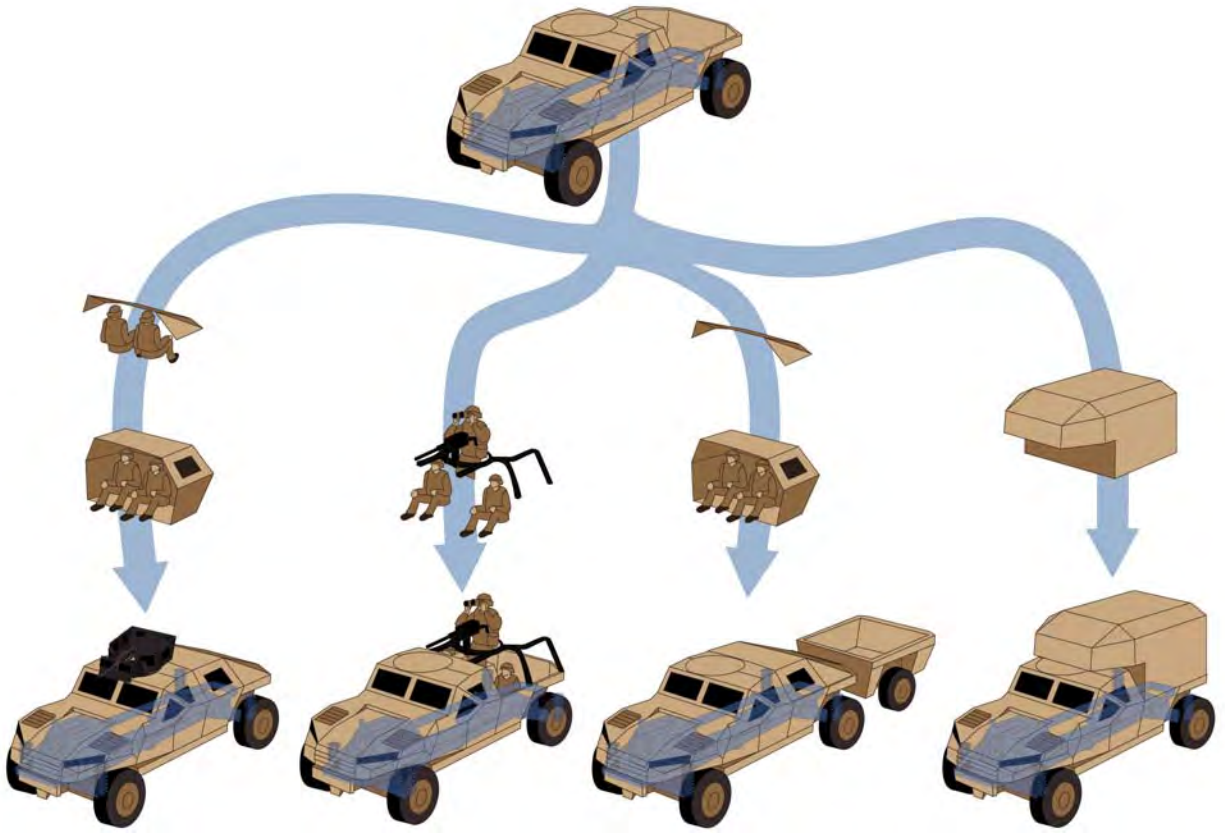
JLTV Acquisition Strategy



- **Tech Development Phase**
  - Full and open competition for 3 Cost Type contracts
  - Prototypes from each Payload Category (including Trailers)
  - Developmental Test, User Evaluation, Limited Live Fire & RAM
- **Engineering, Manufacturing & Development Phase (Notional)**
  - Full and open competition to award 2 contracts
  - Cost or Fixed Price type contracts
  - Developmental Test, RAM, Limited User Test (OT), Limited Live Fire
- **Production Phase (Notional)**
  - Restricted competition (EMD Contractors only), down select to one contractor
  - Fixed Priced type contract for LRIP and FRP
  - Developmental test, RAM, MOT&E, FUSL
  - TDP as an option

Commonality within FoV w/ Trailers

JLTV Cat B, IC.



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

JLTV TD Exit Criteria

- **Approval of the appropriate capabilities development document (CDD or CPD), supported by analysis from TD work**
- **Demonstration of an ability to achieve TRL 6 (minimum) in an integrated system with a focus on:**
  - Protection
  - Transportability
  - Reliability
  - Producibility
- **An assessment of commonality across the JLTV FoV**
- **An assessment of the technical risks relevant to entering initial production will to lay a foundation for the Manufacturing Assessment done during EMD.**

Planning Information for EMD

- **Initial PD posting Mar-Apr 2010 (will solicit comments)**
- **Quarterly updates to PD plan to Apr 2011 RFP release**
- **Initial SOW posting Jun-July 2010 (will solicit comments)**
- **Program Information WWW Address:**
  http://contracting.tacom.army.mil/majorsys/jltvemd/jiltvemd.htm
- **Industry days:**
  - PD focus Spring 2010
  - Pre-Proposal Conference (in conjunction with RFP Release Apr 2011)
- **Final RFP Release: Apr 2011**
- **Planned Award Date: Sep 2011**

Summary

- **Competitive Prototyping appears to be having desired effects**
  - Maintaining a healthy level of competition
  - Developing Government talent
- **Currently design and build of prototype vehicles and companion trailers is on schedule; program is on track to complete a robust TD phase as directed**
- **EMD requirements will be shared through draft PD requirements as they evolve, anticipate EMD RFP release in 3d Qtr 2011**

Back Up

Approach to Schedule, Performance & Cost

- Schedule
  - Each contractor was required to submit an Integrated Master Schedule (IMS)
  - No additional time will be allowed to successfully complete the contract requirements
  - Schedule performance will be monitored by CDRL submittals
- Performance
  - Compliance matrices, trade studies, TPMs, testing and analyses will be used to assess the capabilities of the proposed system solution
  - An integrated teaming approach is being used to achieve best possible system solution
  - Knowledge Point reviews (government only) are being used to holistically assess requirements achievability for EMD
- Cost
  - Each contractor will receive their allocated contract award
  - No other funding will be allocated
  - Cost performance will be monitored by CDRL submittals

Cost, Schedule and Performance will Inform EMD Phase Requirements

Technology Integration

- **Mature individual technologies**
- **TD phase will close "integration gap"**
  - Demonstrate Family of Vehicles (FoV) approach and key vehicle categories
  - Demonstrate commonality of components
  - Demonstrate technology maturity, integration and producibility assessment
  - Demonstrate achievability of requirements across the FoV
- **Trade studies to inform on feasibility of integrated solution on achieving requirements**
- **Assess technical risk relevant to entering initial production**
- **During the TD phase the CDD will be revised almost exclusively based upon the formal test results or approved results of analysis**
- **Provide analysis to base trade off's**

During TD Phase the JLTV PMO will demonstrate technology integration leading to a low-risk EMD phase

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, User Evaluation, Limited Live Fire & RAM
  - Potential Off-Ramp to MS C for select sub-configurations

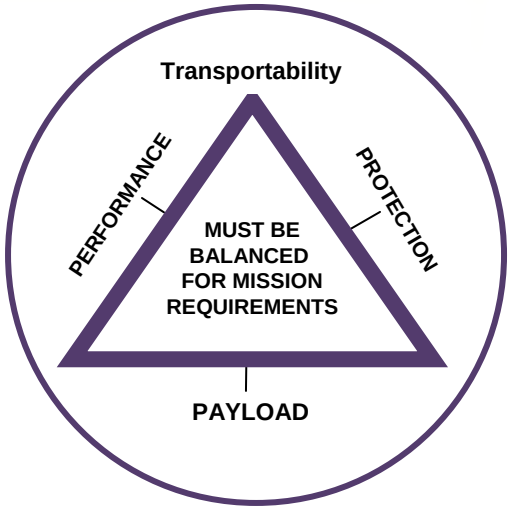
- **Engineering, Manufacturing & Development Phase (Notional)**
  - Full and open competition to award 2 contracts
  - TDP Data rights addressed in RFP
  - TRL 6 or higher required in RFP
  - Cost or Fixed Price type contracts
  - Developmental Test, RAM, Limited User Test (OT), Limited Live Fire

- **Production Phase (Notional)**
  - Restricted competition (SDD Contractors only), down select to one contractor
  - Focused incentives (Reliability Growth, Maintenance Man-hour Reduction, Fuel Efficiency, Life Cycle O&S Reduction, Accelerated Deliveries)
  - RFP to include requirement for TDP (Re-competition, Spares, Engineering Efforts, Etc.)
    - TDP CLIN executed post Production Verification Test
  - Fixed Priced type contract for LRIP and FRP
  - Developmental test, RAM, MOT&E, FUSL

Statement of Need Discussion

- **Current fleet mix:**

Capability gaps within existing fleet are the result of an imbalance in protection, payload, and performance within a transportable vehicle

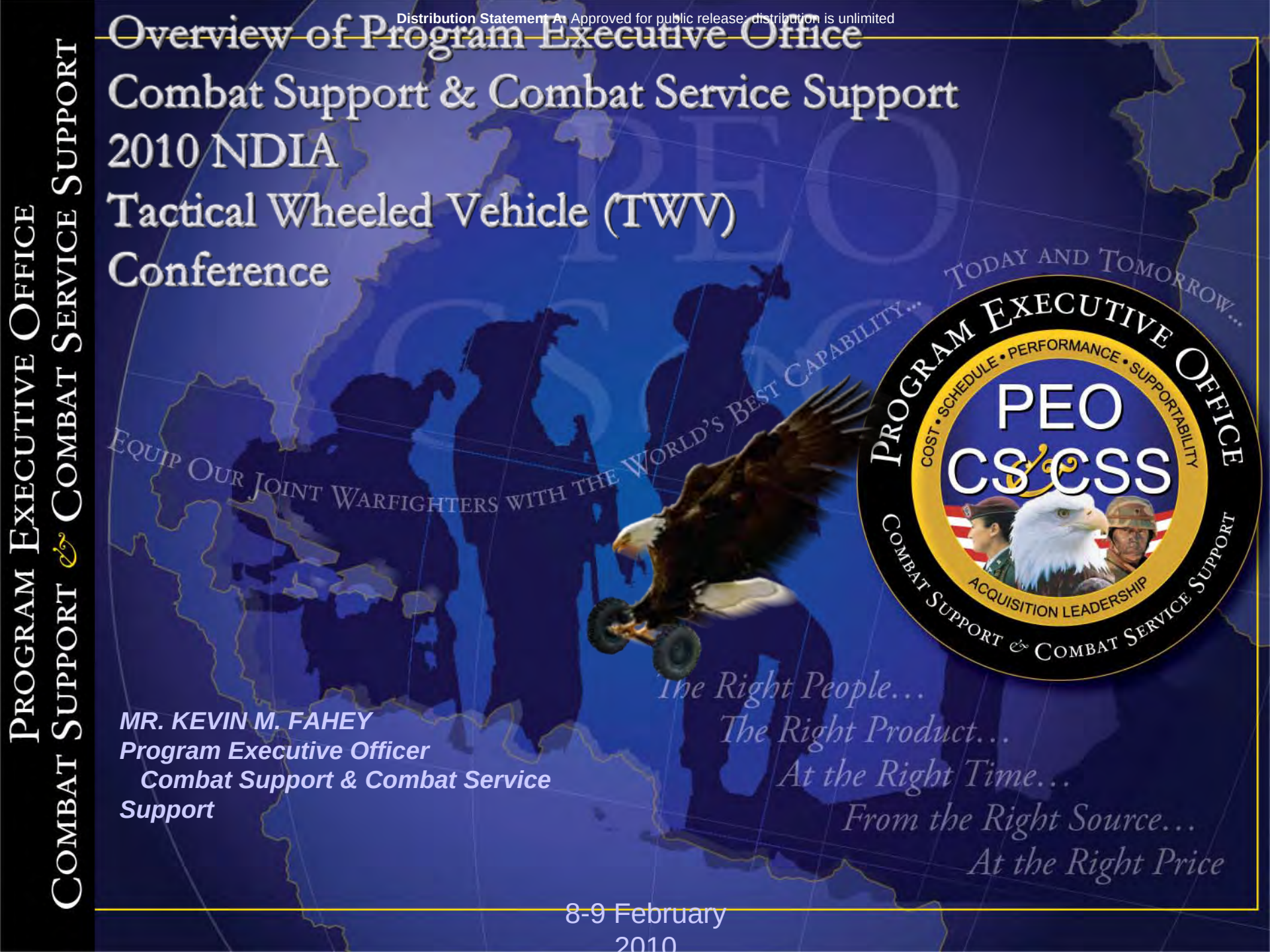


- **Protection:** fixed protection in light vehicles
  - Require inherent and supplemental armor, scalable to mission
- **Payload:** supplemental armor reduces useable payload
  - Require a design that supports armor, warriors, mission equip, C4, cargo
- **Performance:** supplemental armor degrades all elements
  - Require a design that supports mobility, reliability & maintainability at gross vehicle weight & transport at essential combat configuration
- **Transportability:** current platforms lack armor design flexibility to allow full range of transportability
  - Require a design which enables Rotary and Fixed Wing Air, Sea, Overland transport

The JLTV vehicles built will address this imbalance & meet DoD goals for costs & long-term sustainability

PROGRAM EXECUTIVE OFFICE
COMBAT SUPPORT & COMBAT SERVICE SUPPORT

Overview of Program Executive Office Combat Support & Combat Service Support 2010 NDIA Tactical Wheeled Vehicle (TWV) Conference



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

8-9 February 2010

The War is "NOW"

The Future is still unclear!!!

PEO CS&CSS Organization

Program Executive Office Combat Support & Combat Service Support

530+ Programs

Program Executive Officer
Mr. Kevin Fahey

Deputy PEO
Mr. Thomas Bagwell, Jr.

Deputy PEO ~ AL&T
COL Michael Receniello

Chief of Staff / Executive Officer
Ms. Linda Reichlmayr

Force Projection
190 Programs

PM: Ms. Patricia Plotkowski
DPM: Mr. Steve Roberts

- **Product Manager Bridging** — *Mr. David Marck*
- **Product Manager Combat Engineer/Material Handling Equipment** — *LTC Darrell Bennis*
- **Product Manager Force Sustainment Systems** — *LTC Daryl Harger*
- **Product Manager Petroleum & Water Systems** — *LTC Dariel Mayfield*
- **Product Director Army Watercraft Systems** — *Mr. Fred Williams*

Joint Combat Support Systems
210 Programs

PM: COL John Myers
DPM: Mr. Dennis Mazurek

- **Product Manager (USA) Joint Light Tactical Vehicles** — *LTC Wolfgang Petermann*
- **Product Manager (USMC) Joint Light Tactical Vehicles** — *LtCol Ruben Garza*
- **Product Manager Sets, Kits, Outfits & Tools** — *LTC Brian Tachias*
- **Product Director Test, Measurement, & Diagnostic Equipment** — *Mr. George Mitchell*

Mine Resistant Ambush Protected Vehicles
35 Programs

PM: COL Kevin Peterson
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** — *LTC Charles Dease*

Tactical Vehicles
98 Programs

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 Allen Johnson*
- **Product Director Armored Security Vehicles** — *LTC Kent Moorhouse*

Mission & Vision

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.

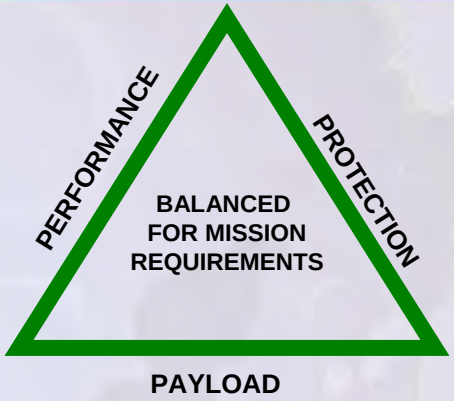
VISION

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

ARFORGEN: ARmy **FOR**ce **GEN**eration

Overview of Portfolio Guidance

- **Army Level Guidance**
  - Support to the War
    - Deploy Ready Units
    - ONS/JUONS
    - Modifications to TWVs as requested by COCOM
  - Force Structure / Modularity Design
    - Large growth in TWV requirements
  - Balance the Army by 2011
    - Fill out the MTOEs
    - Correct Readiness



- **TWV Guidance**
  - TWV Strategy – The Four Tenets:
    - Emphasize the **mixed fleet approach** that spans the Iron Triangle of Protection, Payload and Performance
    - Move the Army to a fleet of TWVs that have **scalable protection** (integrated A-cabs and add-on armor kits)
    - Take maximum advantage of existing platforms through Recap, Reset and Product Improvement
    - Integration of MRAP into the fleet mix
  - TWV Investment Strategy
    - Balance the quantity, quality and sustainment of Army equipment throughout its life cycle to meet combat, training, generating force and homeland defense requirements with appropriate capabilities

Senior Leader Intent

- **Develop a Tactical Wheeled Vehicle Investment Strategy as soon as possible**
- **Ensure the Strategy provides guidance for FY10-11 execution of funding and sets the stage for POM 12-17 development**
- **Ensure Strategy provides guidance enabling the Materiel Enterprise to develop and execute a Fleet Management Strategy**
- **Migrate this process (Strategy and Execution) to other commodities**

Fleet Management Process

PROGRAM EXECUTIVE OFFICE COMBAT SUPPORT & COMBAT SERVICE SUPPORT

Baseline the Fleet

- Requirement
- On Hand Qty
- Fleet Age/Usage
- Condition

Critical Data:
-Age
- % deployed
- Mileage
Beyond usage limits

Army Investment Strategy

- Army objectives for each fleet
- Intended areas of risk

Investment COA's

Levers:
- % AAO Fill
- Acceptable Average Fleet Age
- Fleet Quality
- % Armored (A Kit/B Kit ratio)

Critical Data:
- Projected Average Age
- Effective EUL
- Supportability / Obsolescence
- Fleet mix/% Armored

Pilot Process for POM 12-17

Critical Data:
- Price of new
- Price/scope of RESET
- Price/scope of RECAP

Critical Data:
- OEM MSRs
- Depot capacity
- Executability

Intended as annual process consistent with budget cycle

New Production Plan

RECAP/Modernization Plan: 0 miles/0 years, capability improvements, OPA

Reset Plan: Return to pre-mission condition, OMA

Divestiture Plan

PROJECTED FLEET STATUS

Our Challenge

- **Long term**
  - Develop a comprehensive Tactical Wheeled vehicle strategy 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.
  - Must 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 the tactical wheeled vehicle fleet and develop acquisition and programmatic strategies to support the requirements
- **Conundrum**
  - The Near-term strategy should be based on the Long term strategy … can we afford to wait?

The Strategy

has to be Prepared for….

- **Changes in Environment**
  - **Responsive to Natural Disaster, Regional Conflict**
  - **Quality Product with Accelerated Deliveries and Quantities**
  - **Create Contracts with Maximum Flexibility**
  - **Time = Seconds/Minutes/Hours NOT Days/Months/Years**
- **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**
  - **Add on Armor's Burden on Vehicles, Payload Effects and System Reliability**
  - **Use the Feedback Information from Rotations to Influence Design and Joint Efforts**

Requirements – Strategic Overview

1. **Near term – Focus on supporting GWOT while at the same time preparing for the future**
2. **Long term – Focus on the fleet of tactical wheeled vehicles**
3. **Assumptions for Validation**
   - The Army has and will continue to have a requirement for Tactical wheeled vehicles across a wide variety of operational environments, including complex urban terrain, across the full range of military operations.
   - We are likely to face an asymmetric threat similar to those we are encountering today; therefore, the capability provided by current combat systems will have a role in future conflicts.
   - The current Tactical wheeled vehicles will have a useful role in the Army inventory for the foreseeable future while at the same time recognizing there are capability gaps which must be addressed (e.g. Light Tactical Vehicles)

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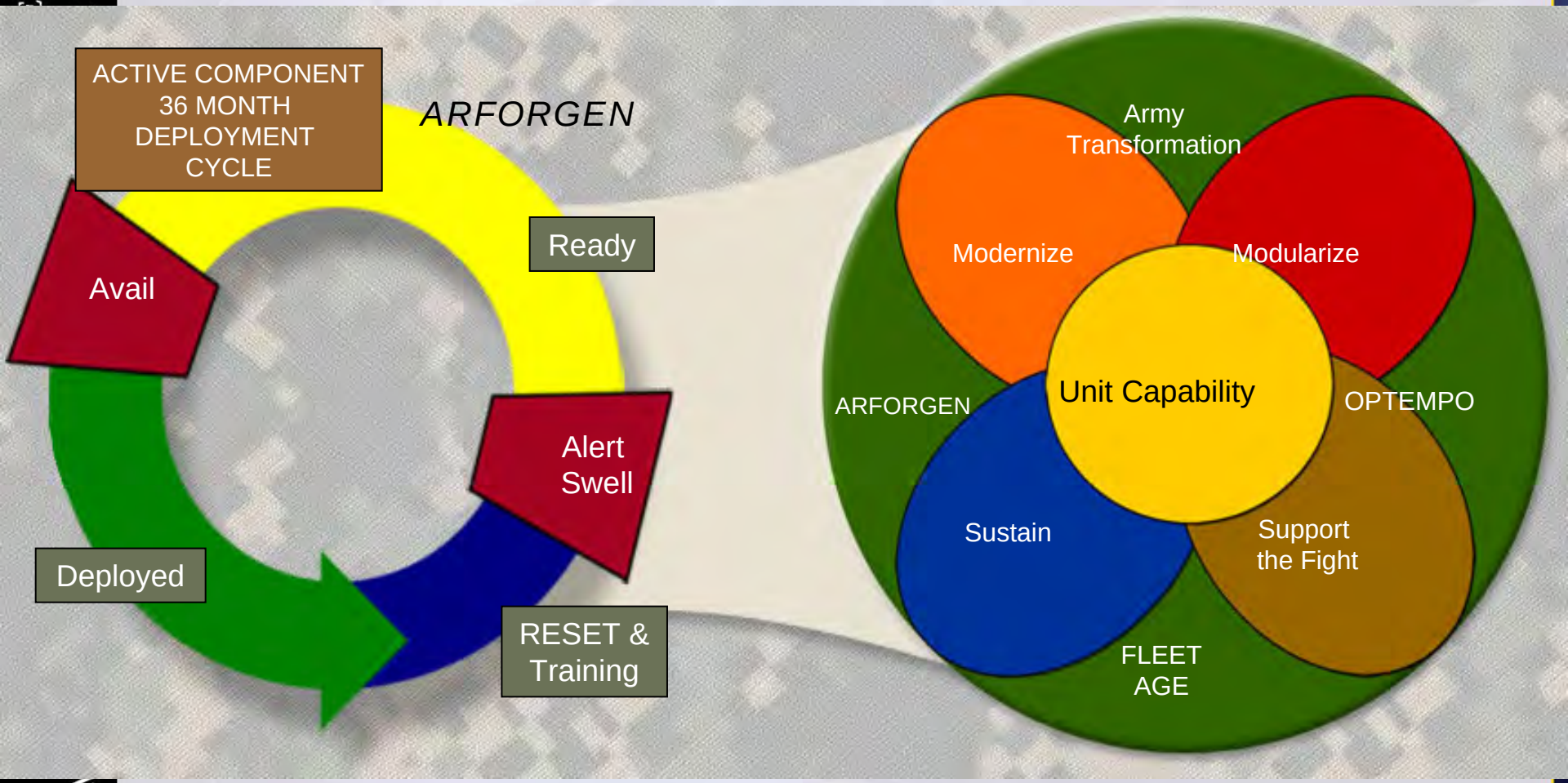

ACTIVE COMPONENT
36 MONTH
DEPLOYMENT
CYCLE
ARFORGEN
Ready
Avail
Alert
Swell
Deployed
RESET &
Training
Army
Transformation
Modernize
Modularize
ARFORGEN
Unit Capability
OPTEMPO
Sustain
Support
the Fight
FLEET
AGE

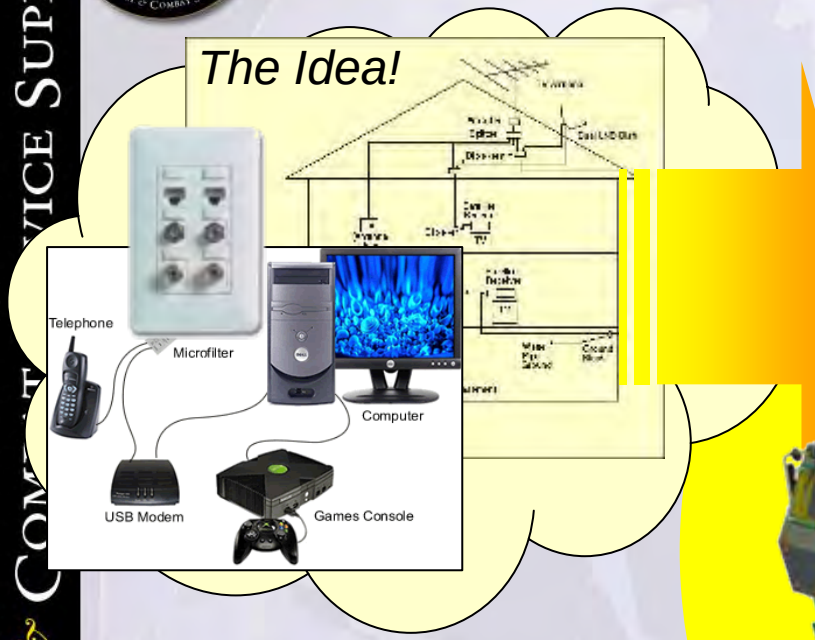
[illegible]

- The Army and USMC TWV strategy will be flexible
- Current wartime experiences will inform the Strategy
- Tenets of TWV Strategy
  - Take maximum advantage of existing platforms
    - Recap, Reset, Product Improvements
  - Plan integration of MRAP into the fleet mix
  - Emphasize a **mixed fleet approach** that spans the "Iron Triangle" of Protection, Payload and Performance
  - Move the Army to a fleet of TWVs that have **scalable protection** (integrated A-kit cabs and add-on armor B-kits)
- Transition to Joint Light Tactical Vehicle (JLTV) as it is ready

TWV Investment Strategy is nested within this Strategy

Strategy for Future Acquisitions: Rapid Change & Upgrade of Large Number of Systems

PROGRAM EXECUTIVE OFFICE COMBAT SUPPORT & COMBAT SERVICE SUPPORT



- **A Kit / B Kit Development**
- **Plug and Play Capability**
- **Modularity**
- **Flexibility**

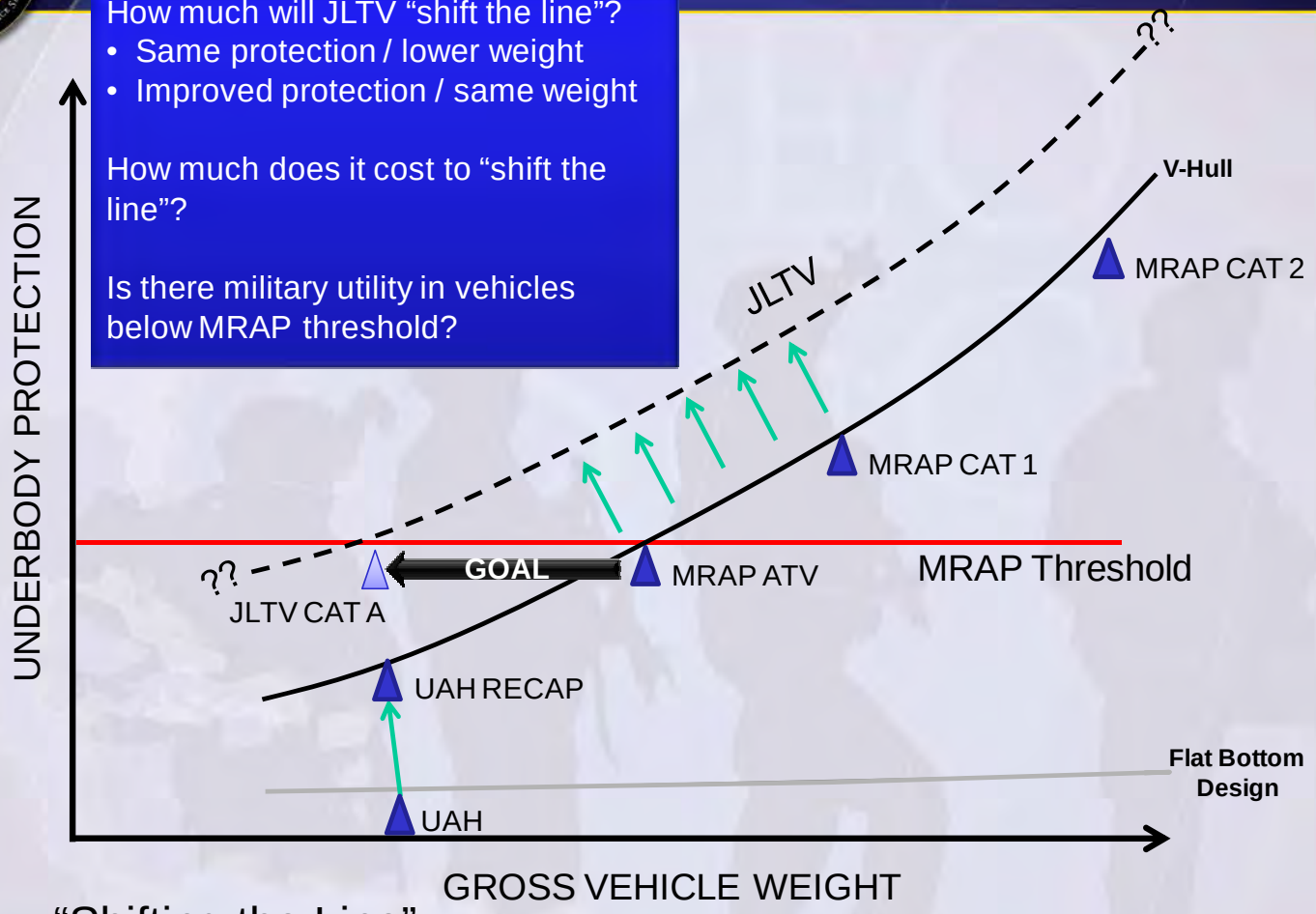
Giving the Commander in the Field the Ability to Adapt to Changes…to Mission…to Environment …to Technology!

LTV Protection Challenge

How much will JLTV "shift the line"?
- Same protection / lower weight
- Improved protection / same weight

How much does it cost to "shift the line"?

Is there military utility in vehicles below MRAP threshold?



"Shifting the Line"
- Geometry (standoff, shape)
- Materials (improved armor recipes)
- Mass (total vehicle weight)

TRADEOFFS

- Mobility
- Transportability
- Protection
- Cost

Capability Package (CP) 2011-2012 – Network Increment 1 Integration

Network Integration Kit (NIK)


Multi-Band Antenna (MBA) (2)


Power Amplifier Group


Personal Control Display Device (PCDD)


HMMWV Integration A-Kit


Low Pass (LPF) (1)


Joint Tactical Radio System Ground Mobile Radio Group


Integrated Computer System (ICS)


Multi-Band Filter (MBF) (2)

CO CDR

BDE, BN CDR & PLT LDR

Theater Provided Equipment (TPE)


Counter Remote Control Improvised Explosive Devices (RCEID) Electronic Warfare CREW V3


Boomerang


RHINO


Remote Weapon System (RWS) / Common Remotely Operated Weapon (CROWS)

Legacy C4I


Defense Advanced GPS Receiver (DAGR)


Force XXI Battle Command Brigade & Below (FBCB2)


Blue Force Tracker (BFT) 2 Antenna


VIC 3 Vehicle Intercom System (VIS)


Enhanced Position Location Reporting System (EPLRS)


Single Channel Ground & Aviation Radio System (SINCGARS)

Integration Team

- PEO CS&CSS
- PEO C3T
- PEO IEWS
- PEO I
- PEO GCS
- RDECs

Our Plan for Future Acquisitions

CURRENT FORCE → **FUTURE FORCE**

- **New**
  - JLTV
  - MRAP ATV

- **Continuous Improvement**
  - M915A5
  - PLS A1
  - HEMTT A4
  - HMMWV RECAP
  - FMTV A1P2
  - HET A1
  - MRAP

- **Sustain**
  - RESET
  - RECAP
  - Two-Level Maintenance

Building Blocks for Sustainment

Change in How We Do Business

- More Efficient Use of Limited Resources
- Correlate Business Strategies with Industrial (Commercial and Organic) Base Planning
- Continue to Pursue Industry/Organic Base Partnerships that Leverage Core Competencies
- Incorporate Lessons Learned and Good Business Practices
- Leverage Innovation in Government, Industry, and Academia
- Continue to RESET/RECAP the Current Fleet while Developing Future Vehicles
- Maintaining Government/Industry Communication in a Competition Environment

We Must Continue to Manage Tactical Fleet Consistent with ARFORGEN Model

Expedited Modernization Initiative Procedure (EMIP)

Expedited Modernization Initiative Procedure (EMIP)

Qualification

- Technology Readiness Level (TRL) 7
  - Actual Prototype System Demonstrated In Military-operational Environment
- Available For Production Within 6 Months
- Technologies New To Army (Not Already Demonstrated In Its Current Configuration)

Submit Technology Application Ideas (TAIs) And Demonstration Plan In MS Word Format To PM JCSS Mailbox: trucktech@conus.army.mil

- **Total # of TAIs submitted to date: 592**
- **Total # of Demos to date: 316**
  - 19 Demos conducted at Ft. Eustis
  - 21 Demos conducted at SANGB
  - 125 Demos conducted at Detroit Arsenal, Warren
  - 151 Demos conducted at Yuma

Next EMIP Demonstration Week

- 26-30 Apr 10 At SANG (Tentative)
- TAI Submission - Cutoff Date Is 12 Feb 10

http://peocscss.tacom.army.mil/EMIP/home.html

How EMIP benefits the Army… The Fire-Fighting Story

2007

Potential fire-fighting requirement identified in theater: NOV '07

MG Bartley issued initial guidance to PM SKOT to begin planning to support an Army firefighting requirement: DEC 07

2008

7 firefighting technologies demonstrated at Fort Eustis: EMIP Demo APR 08

Early prototypes designed using some of the technologies from EMIP AUG 08

2009

Prototype trailer-mounted and backpack fire-fighting systems deployed for user feedback in OIF/OEF: DEC 08

Man-portable Fire Fighting Apparatus

Trailer-mounted Fire Fighting Apparatus

EMIP informs the Army about emerging component technology that may address capability gaps… MARKET RESEARCH (NOT SOURCE SELECTION)

The results of every EMIP demo are captured in the Advanced Collaborative Environment (ACE) and are available to multiple Army organizations

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, . . .***
- **Seeking Bold Innovative Design Solutions From The Beginning To Accommodate Change In Threat, Mission, Technology & Resources**
- **Sustain And Continue Improvement Processes. . .Fact and Data Based Decisions**
- **Breaking New Ground In The Rapid Expansion Of Our Systems Through Reset and Recap in support of the ARFORGEN**
- **We Need To Take Immediate Actions To Resolve Our Critical Strategic Issues and be prepared for the future**

Partner Together to Reach Higher and Achieve More to Meet the Challenges of Today's Rapidly Changing Requirements

PROGRAM EXECUTIVE OFFICE
COMBAT SUPPORT & COMBAT SERVICE SUPPORT

Survivable Vehicles for the Warfighters

NDIA Tactical Wheeled Vehicle Conference

FEB 2010

JPO MRAP Mission:
We deliver survivable, fully capable, Mine Resistant Ambush Protected (MRAP) vehicles to our Warfighters and customers. We demand and support maximum readiness from our MRAP vehicles once delivered. We operate with speed and a sense of urgency always.

Paul Mann
Program Manager

COL Kevin Peterson
Military Deputy Program Manager

Joint MRAP Vehicle Program Office

Agenda

- MRAP Team
- Program Overview
- Key Accomplishments
- Priorities
- Current Operations
- Challenges
- Questions

Joint Program Manager

Civilian PDPM

Military PDPM / Deputy

Marine Corps Program Integration

SOCOM Liaison

USA Liaison

USN Liaison

USAF Liaison

Director Business & Finance / Deputy

Director Acquisition Program Integration / Deputy

Public Affairs Officer

Strategic IPT

Joint Principal for Safety

Director Contracts

Director International Programs

PM Vehicle Systems / Deputy

PM M-ATV / Deputy

PM Cougar / Deputy

PM Assured Mobility Sys (AMS)

APM Capability Insertion (CI)

APM Caiman

APM MaxxPro

APM RG-31

APM RG-33

APM Buffalo

APM Cougar / Deputy

Director Test and Evaluation

Director GFE Integration & PM Detection Systems

PM Forward

PM Logistics and Sustainment

Deputy

Deputy

Chief Engineer / Deputy

Director Quality/ Production

MRAP Team

SPAWAR

DoD

DoN USMC

DCMA

DLA

Logistics COMMAND

LOGCOM

DoA

Joint Program Office
Warfighters We Will Protect
Mine Resistant Ambush Protected Vehicles
MRAP
SURVIVABLE

DoAF

SAF AC

ATEC

SOCOM

DoN

ASN RDA

ATC

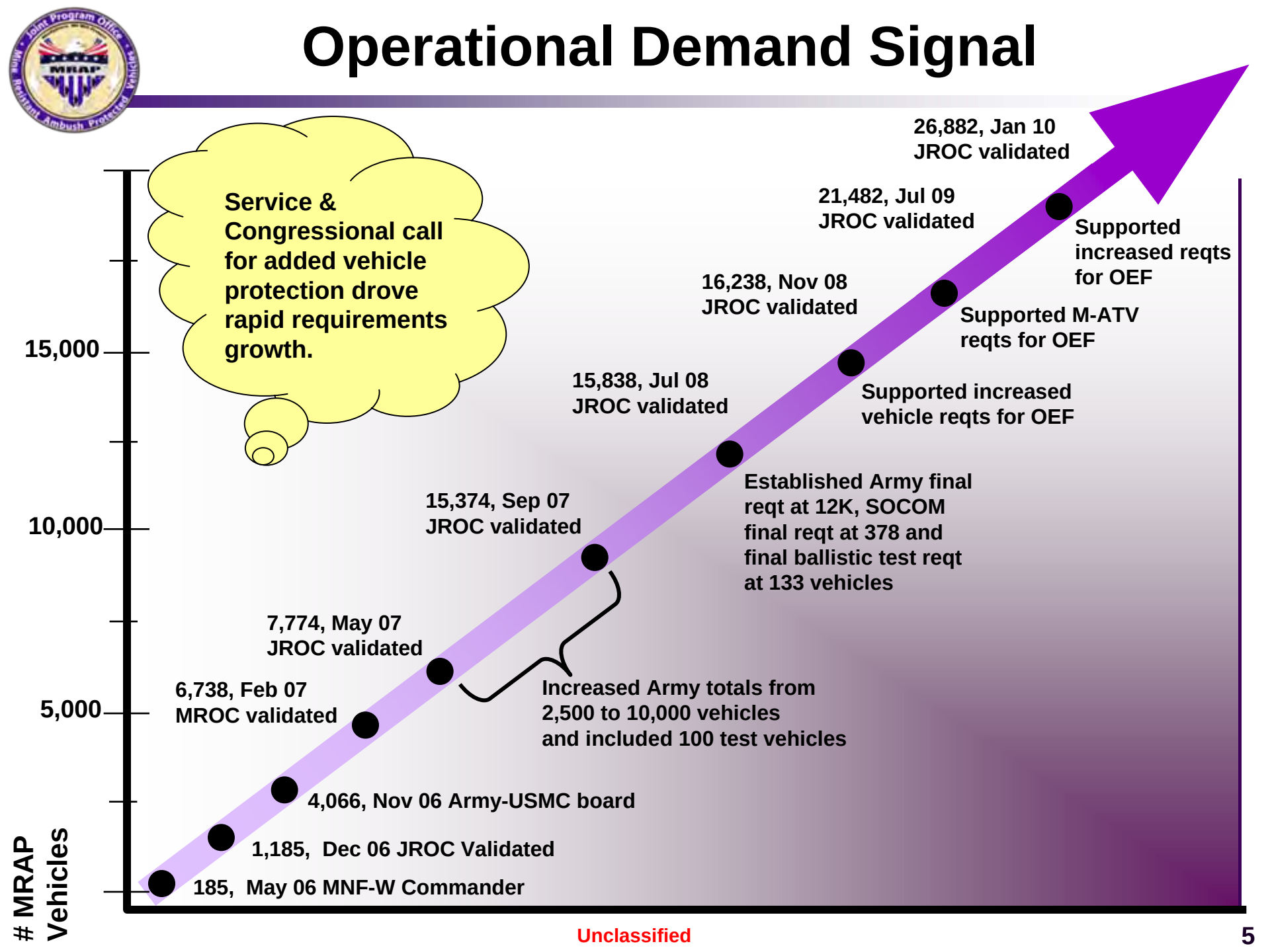
Aberdeen
Test Center

PEO CS&CSS

PEO CSS

NAVFLAC

Operational Demand Signal



MRAP Family of Vehicles

BAE

CAT I (321), CAT II (1,905), CAT II AUV (38), ARV (2)

FPI

CAT I (1,996), CAT II (1,058), CAT III (79)

BAE-TVS

CAT I (2,848), CAT II (16)

GDLS-C

CAT I (1,384)

Navistar Defense

CAT I (6,424), CAT II (16)

Oshkosh

M-ATV (6,624)

International Programs

631

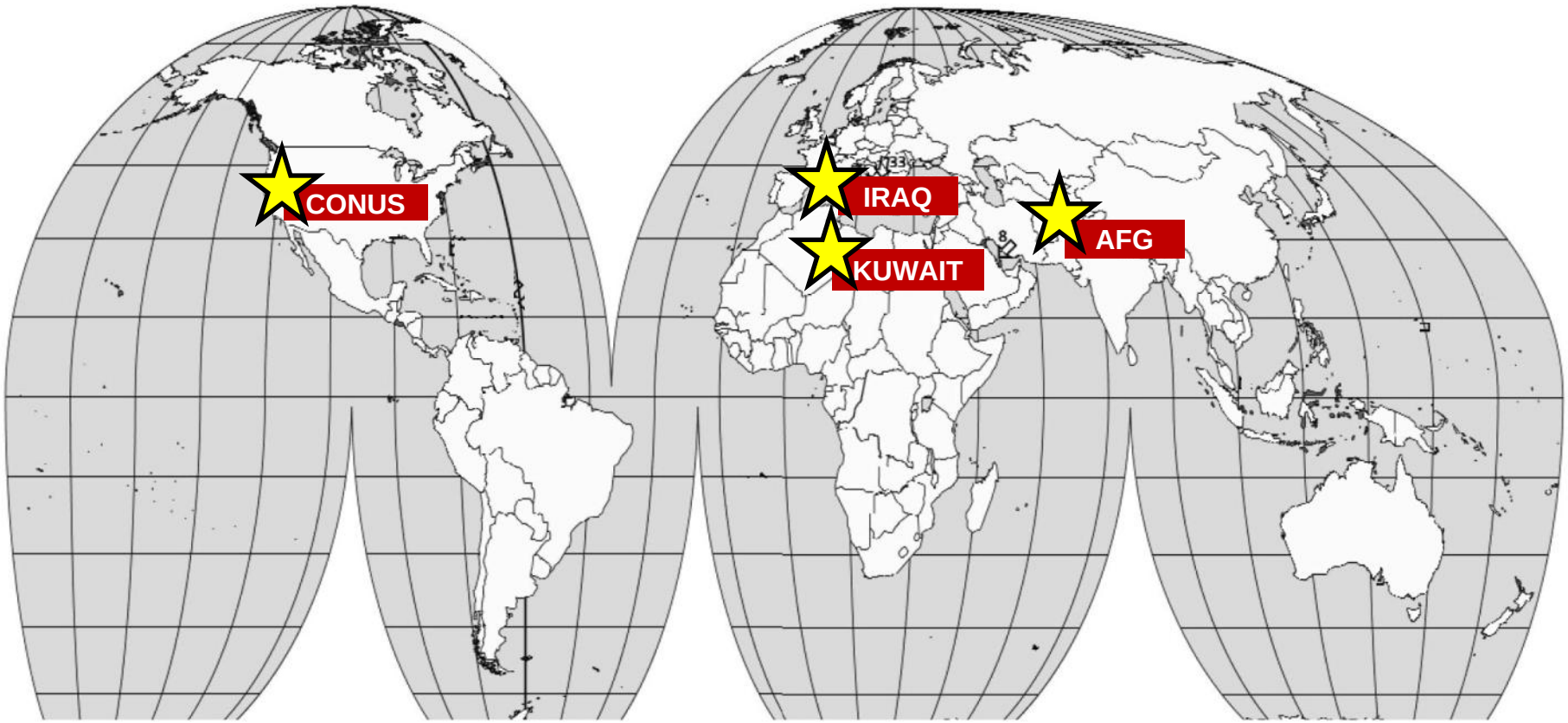
Program Status/Accomplishments

- 25,700 MRAP Family of Vehicles (FoV) Acquisition Objective
  - Executed In Accordance With 17 Low Rate Initial Production (LRIP)
  - 22,882 MRAP vehicles procured against Joint Service requirement
  - 16,236 of 17,596 MRAP Cat I-III vehicles procured to date
  - 6,644 of 8,104 MRAP All Terrain Vehicle (M-ATV) procured to date
    - Initial order – 30 June 09
    - Production – >1,000 per month
    - 3,573 accepted by USG to date*
    - 801 M-ATV transported to OEF*
    - 407 fielded in OEF*
- Suspension System Upgrades
  - Cougar Independent Suspension System (ISS) – installations done at MRAP Sustainment Facility (MSF)
    - 100% of OEF Cougars to be upgraded with ISS
    - 789 Cat I and Cat II installations complete for USMC & USN*
    - 480 vehicles fielded in OEF*
  - RG31, RG33 A1 (SOCOM) & MaxxPro Dash-Evaluating suspension upgrades for OAF
- 15,520 FoV Delivered to Theater*
- Completed IOT&E for M-ATV, DASH and Cougar ISS
- Operational Readiness Rating (OIF) 96%, (OEF) 93% (26 Jan 10)

Priorities

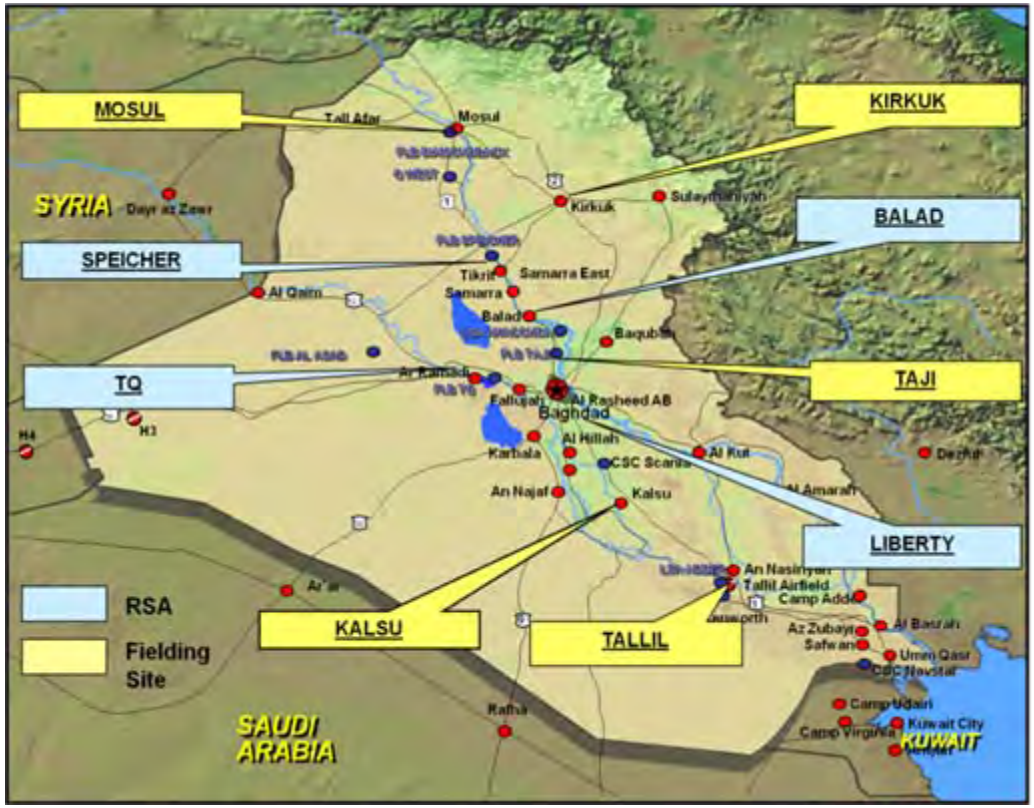
- **Fielding**
  - **M-ATV**
  - **ISS Upgrades – Cougar, RG31, RG-33, MaxxPro**
- **Readiness – all variants**
- **Expanding Theater Facilities**
  - **Kuwait (MSF)**
  - **OEF (Multiple Sites)**
- **Defining OEF Requirements**

JPO MRAP Operations



IRAQ

- **Responsible Drawdown**
  - Scorpion Cascade for HST
  - Off Ramp Equipment to Afghanistan
- **Battle Damage Repair and Sustainment Maintenance**
- **Product Improvements**
  - CROWS
  - Survivability Upgrades
- **Sweep the Fleet**



Ramping Down

Maintain continuous support to Warfighter

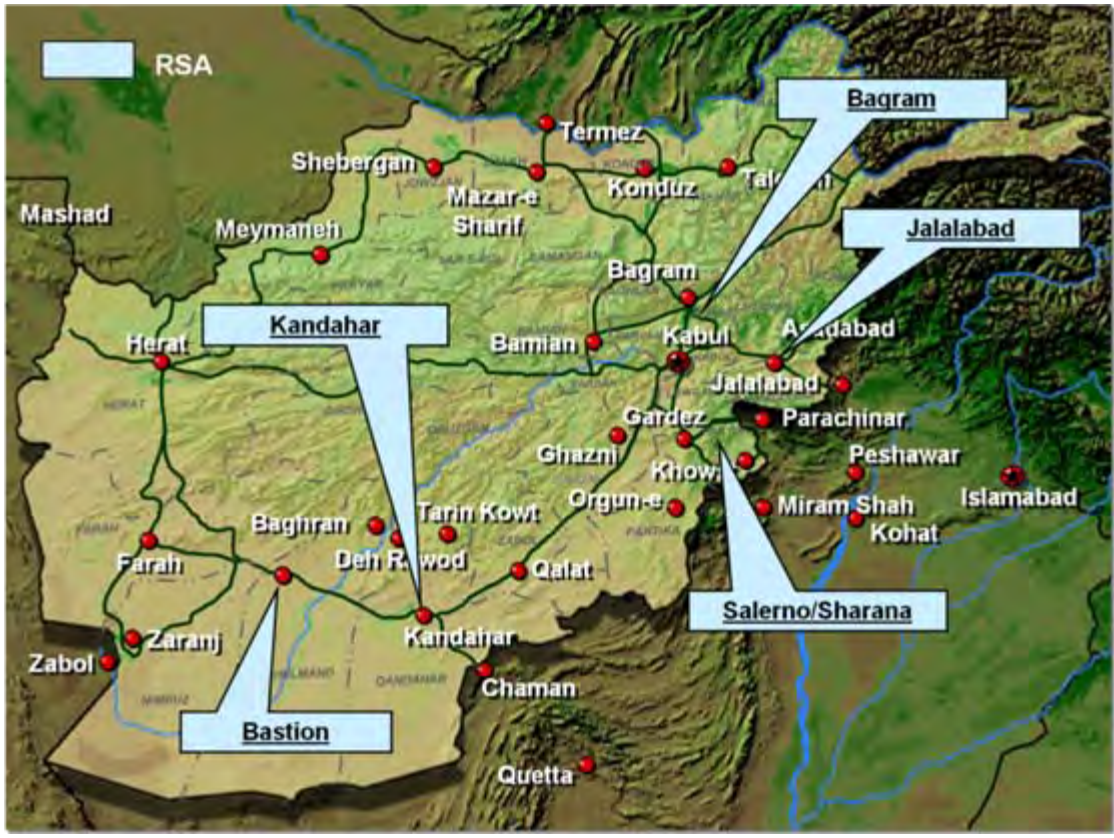
Kuwait/PM Forward

- MRAP Sustainment Facility (MSF) Operations
  - Home Station Training
  - Theater Sustainment Stocks
- Independent Suspension System(ISS) Installations
- Camp Buering
  - RIP/TOA Training
  - TADSS
- Route Clearance Modernization Facility
- Theater Operations Center

Maintain Flexibility

Afghanistan

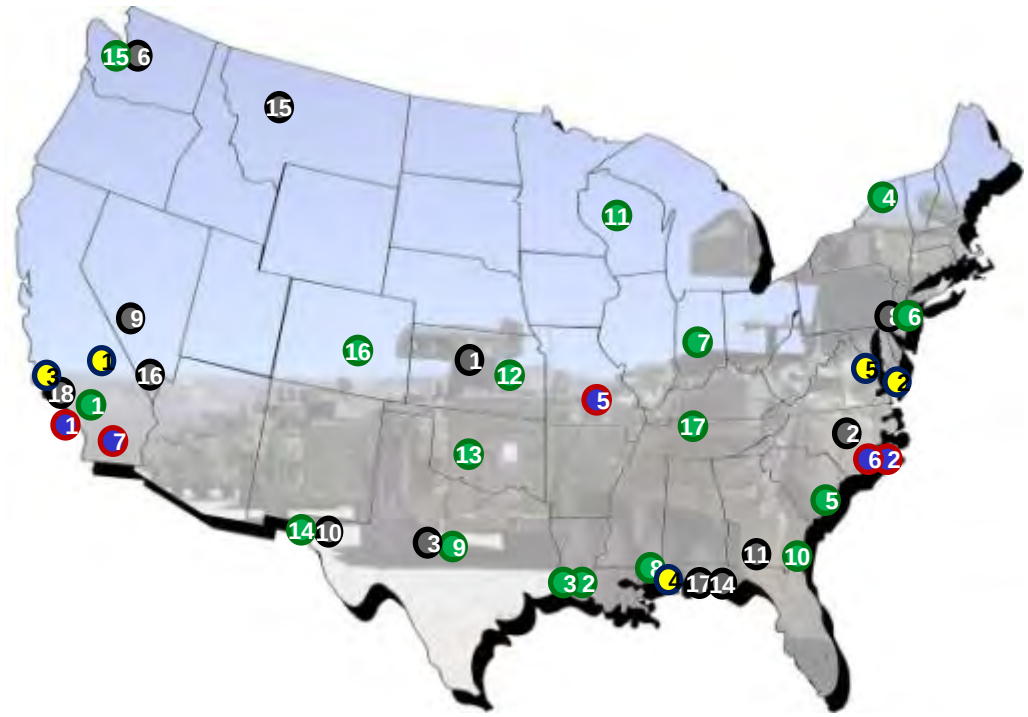
- Fielding
- Sustainment
- Battle Damage Repair
- Facility Infrastructure Build-up
- Joint Solutions Support Center (JSSC)
- Retrofits



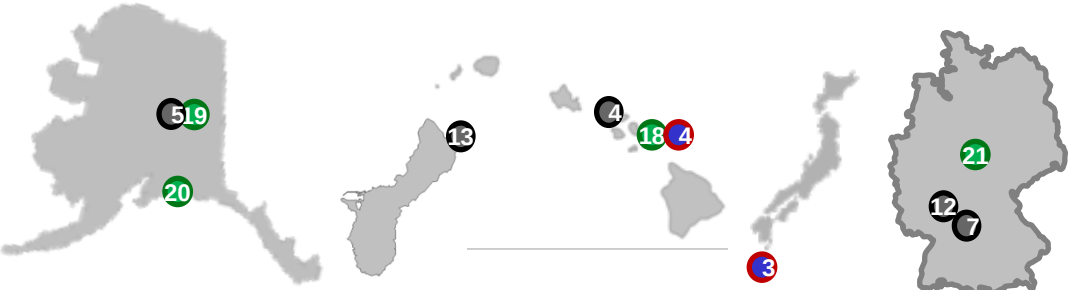
Speed of response to support the Warfighter

Ramping Up

Joint Services MRAP/M-ATV HST Fielding Locations



United States (CONUS)



Alaska Guam Hawaii Okinawa Germany

1 NTC (Irwin)
2 JRTC (Polk)
3 Ft. Polk
4 Ft. Drum
5 Ft. Bragg
6 Ft. Dix
7 Ft. Atterbury
8 Ft. Shelby
9 Ft. Hood
10 Ft. Stewart
11 Ft. McCoy
12 Ft. Riley
13 Ft. Sill
14 Ft. Bliss
15 Ft. Lewis
16 Ft. Carson
17 Ft. Campbell
18 Ft. Schofield
19 Ft. Wainwright
20 Ft. Richardson
21 JMRC (Hohenfels)
1 China Lake, CA
2 Ft. Story, VA
3 Port Hueneme, CA
4 Gulfport, MS
5 Cheatham Annex

1 I MEF(Pendleton)
2 II MEF(Lejeune)
3 III MEF(Okinawa)
4 III MEF(Hawaii)
5 MTIC (FLW)
6 LOS (Lejeune)
7 MAGTFTC (29P)
1 Smoky Hill, KS
2 Pope, NC
3 Ft. Hood
4 Wheeler, HI
5 Ft. Wainwright
6 Ft. Lewis
7 Heidelberg, GE
8 McGuire, NJ
9 Creech, NV
10 Ft Bliss
11 Moody, GA
12 Sembach,GE
13 Andersen, Guam
14 Tyndall, FL
15 Malmstrom, MT
16 Nellis, NV
17 Hurlburt, FL
18 Port Hueneme, CA

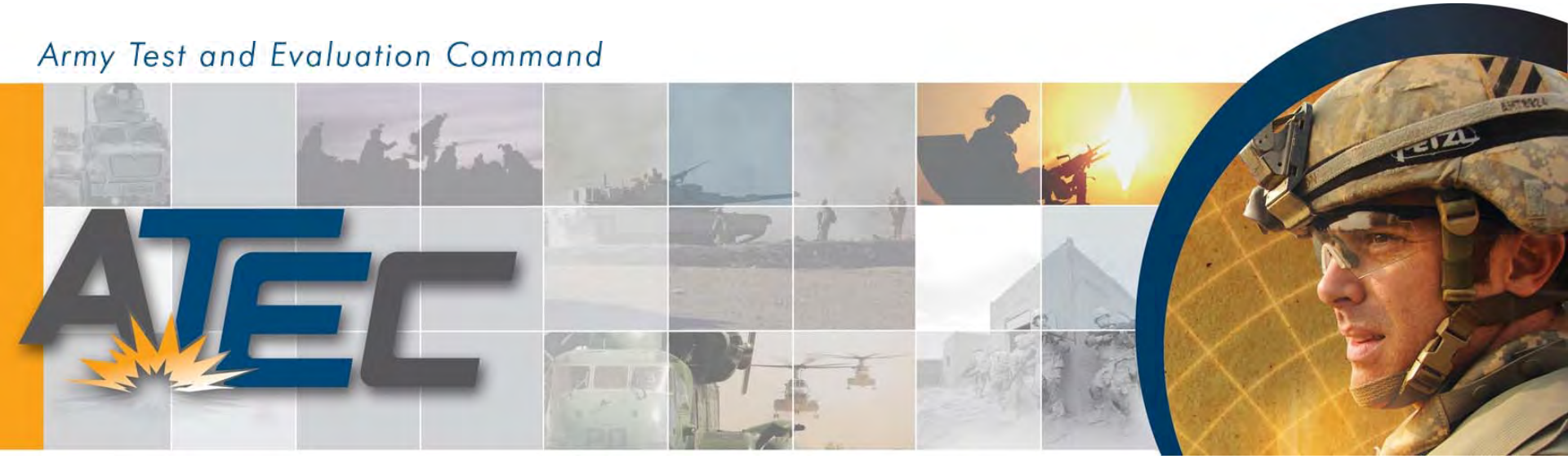
Challenges

- OEF Infrastructure
- OEF Requirements
- ISS Fielding
- M-ATV Fielding

Air Force in Kandahar

Questions?

Army Test and Evaluation Command



Test and Evaluation Operations

An Enabler to Successful Systems Development and Performance

February 2010

Army Proven
Battle Ready

Make Sure This…

...Can Survive This.

Section 231 Report
Eight Core T&E Principles

1. Focus – Measure Improvements To Capability
2. Experiment To Learn Strengths & Weaknesses
3. DT/OT Integration Opportunity
4. Start Early, Be Operationally Realistic, Be Continuous
5. Evaluate In Mission Context At Time Of Fielding
6. Compare To Current Capabilities
7. Use All Available Information
8. Exploit The Benefits Of M&S

Examples of Forward Progress

- Line Haul Truck Instrumentation for Cross Country Drive to DT
- Recommending Multiple LUT's to Mitigate Risk
- If Results don't support MS decision, explore alternatives
- Use of Test Pilots in Operational Test Scenario
- Senior Level Early Involvement if OT Challenges Expected
- ATEC Support to PEO in DOTE Oversight Programs
- Capabilities & Limitations Reports to Support Rapid Fielding
- Growing Early Involvement w/ PEOs & Industry
- Industry/ATEC Success Stories???

Senior Points of Contact

- HQ ATEC
  - MG Roger Nadeau (CG) roger.nadeau@us.army.mil
  - Dr Jim Streilein (Deputy Cdr/Tech Dir) james.streilein@us.army.mil
- HQ DTC
  - Mr James Johnson (Dir) james.b.johnson@us.army.mil
  - Mr Mike Etzinger (Tech Dir) michael.etzinger@us.army.mil
- HQ OTC
  - COL (P) Don MacWillie (CG) donald.macwillie@us.army.mil
  - Mr Jim Amato (Tech Dir) jim.amato@us.army.mil
- HQ AEC
  - Mr Brian Simmons (Dir) brian.simmons@us.army.mil
  - Mr. Frank Apicella (Tech Dir) frank.apicella@us.army.mil

Test and Evaluation Operations

Part Of The Solution...

...Not Part Of The Problem!

PM Heavy Tactical Vehicle

Product Manager:
LTC Allen Johnson

MISSION

The Life Cycle Management of Heavy Tactical Wheeled Vehicles Fleets

Agenda

- *Fleet Modernization*
- *Future Tech Insertion*
- *Upcoming Competitive Procurements*

Heavy Tactical Vehicles
21 Products, 11 OEMs, $2.25B

- *M977 – Heavy Expanded Mobility Tactical Truck (HEMTT) Cargo*
- *M985 – HEMTT Cargo w/MHC*
- *M978 – HEMTT Tanker, 2500 gal*
- *M983 – HEMTT Tractor*
- *M984 – HEMTT Wrecker*
- *M1120 – HEMTT Load Handing System (LHS)*
- *HEMTT A3 – Electric Hybrid Tech Demonstrator*
- *HEMTT A4 – LTAS and Improved Performance*
- *HEMTT M983 Tractor Light Equipment Transporter (LET)*
- *HEMTT RECAP*

- *M1074 – Palletized Load System (PLS) w/MHC*
- *M1075 – PLS Truck*
- *M1076 – PLS Trailer*
- *PLS A1 – LTAS and Improved Performance*

- *M1070 – Heavy Equipment Transporter System (HETS)*
- *M1000 – HETS Semi-trailer*
- *HETS A1– Improved Performance*

- *M1142 – Tactical Firefighting Truck (TFFT)*
- *M1158 – HEMTT-based Water Tender (HEWATT)*

- *Enhanced Container Handling Unit (E-CHU)*
- *M3/M3 A1 – Container Roll On/Off Platform (CROP)*
- *M1, M1077/M1077 A1 – Flat rack*

- *M915 Line Haul Tractor*
- *M915 A5 – LTAS and Improved Performance*
- *M916 – Light Equipment Transporter (LET)*
- *M917 – 20 Ton Dump*

- *Fifth Wheel Towing Device (FWTD)*
- *M870 A3 – 40 ton Low Boy Trailer*
- *M871 A3 – 22.5 ton Flatbed Trailer*
- *M872 A4 – 34 ton Flatbed Trailer*
- *M967 A2 – 5000 Gal Bulkhaul Tanker*
- *M969 A3 – 5000 Gal Refueler Tanker*
- *M989 A1* – Heavy Expanded Mobility Ammunition Trailer *(HEMAT)*

AOR

- *Interim Stryker Recovery System*
- *External Fire Suppression*
- *Armor*
- *LED Headlights*
- *Improved Seats*
- *Remote Control Mirrors*

HTV Fleet Modernization

HEMTT A4		In OEF
PLS A1		TC/MR → JAN 2010
HETS A1		In Test → JUL 2010
		Began Test MAY 2009
M915 A5		TC/MR → MAR 2010

Improvements: Powertrain, Suspensions, Data Bus, LTAS, ABS & Traction Control, Climate Control, IETMs, Commonality

Rebalancing performance protection, and payload

Today's HEMTT Fleet

12,000+ trucks not B-Kit Ready

Basic HEMTT

- AoA Cab
- 8V92 MUI Engine
- HT 740 Transmission
- Hendrickson Suspension

1985 - 2001

HEMTT A2

- AoA Cab
- 445HP 8V92 DDEC IV Engine
- Allison Electronic Transmission
- Corrosion Protection Upgrades

2002 - 2007

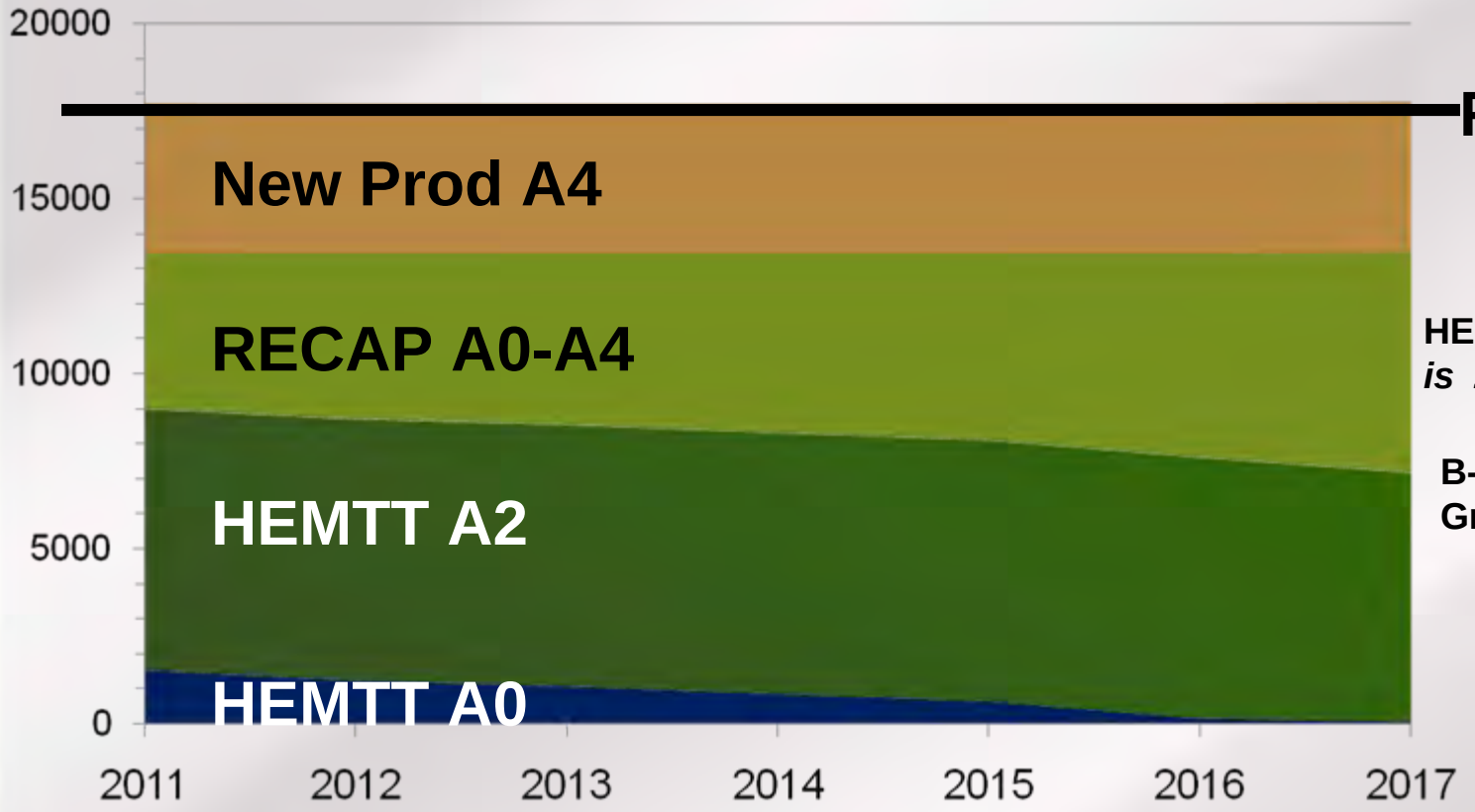
HEMTT A4

- B-Kit Ready
- Integrated under Cab Protection (A Cab)
- 500HP CAT C-15
- ABS & Traction Control
- Air Ride Suspension
- Updated Electrical System
- Common Cab / B-Kit with PLS A1
- Allows Survivability Growth to meet LTPS Standards

2008 →

Modernize through RECAP

HEMTT FLEET MODERNIZATION



HEMTT A0 *average age is 20 years* *today*

B-Kit / LTPS Growth with A4

B-Kit Ready Fleet through HEMTT RECAP

Core Truck in Teardown

After RECAP - B-Kit Ready!

- Established in 2001 by the VSCA directive to lower O&S costs of HEMTT fleet with emphasis on integrating affordable technology upgrades
- Upgrades fleet to B-Kit Ready model for added crew protection
- Inducts old, worn out HEMTT's and produces a new vehicle with the same configuration as new production at less cost

Dependent upon availability of core "seed"

Converts A0 / A2 to B-Kit capable A4

Today's M1075 PLS Fleet

Basic PLS

- AoA
- 500 HP 8V92 DDEC III/IV
- CLT 755 Transmission
- Hendrickson Suspension
- Air Transportable on C141, C5, C17

1994 - 2009

PLS A1

- B-Kit Ready
- 600 HP CAT C-15
- Independent Front Suspension
- Updated Electrical System
- ABS & Traction Control
- Common Cab / B-Kit with HEMTT A4
- Allows Survivability Growth to meet LTPS Standards

2010

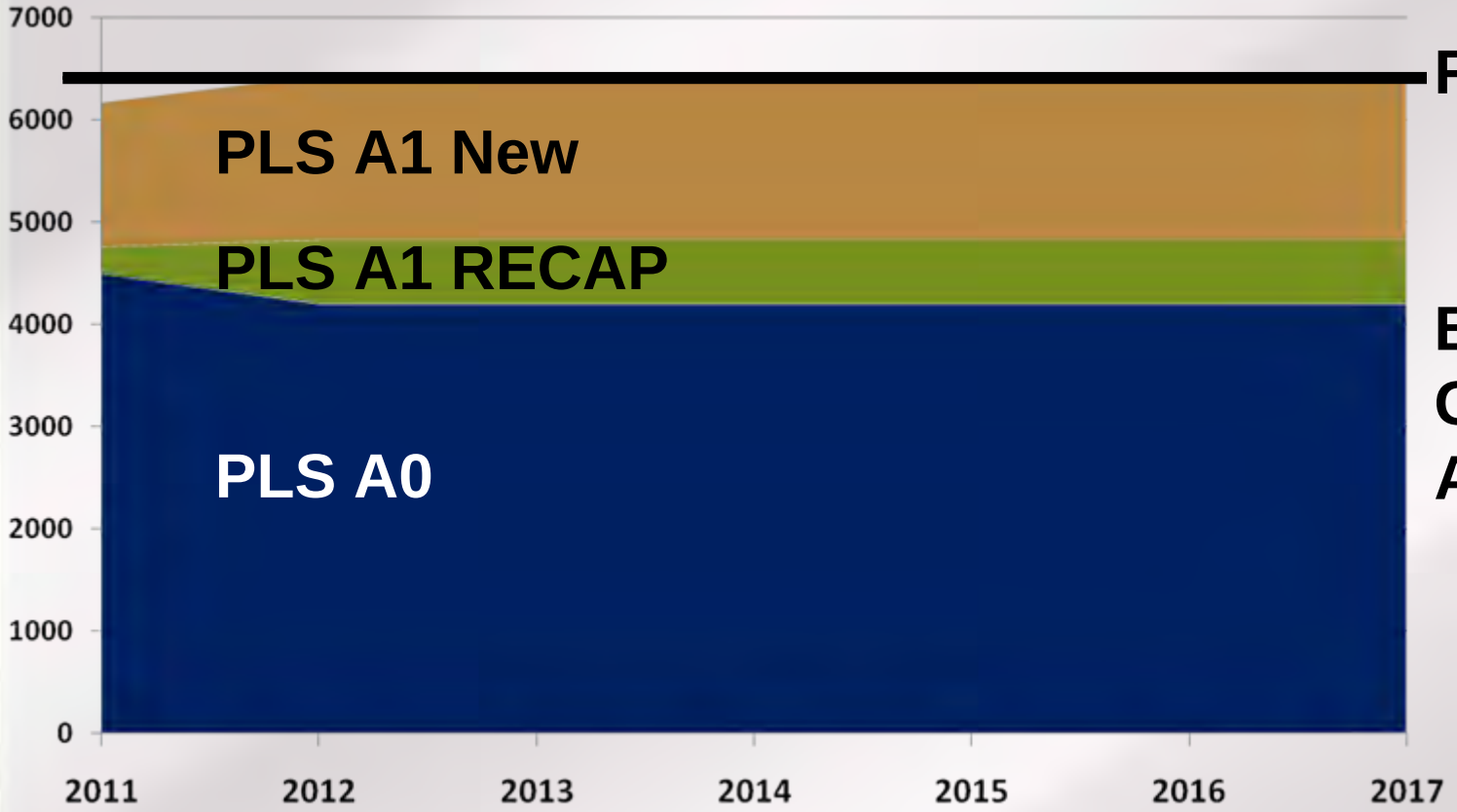
PLS RECAP Way Ahead

- PLS basic inducted, returned as PLS A1
- RECAP < Cost of New Production w/Tech Insertion
- **Currently funded FY10-12 only**

2010-2025

Modernize through RECAP

PLS FLEET MODERNIZATION



Today's M1070 HETS Fleet

Basic HETS

- 8V92 DDEC III/IV Engine
- CLT 754 Transmission
- Hendrickson Suspension
- Air Transportable on C141, C5, C17

19894 - 2002

HETS A1

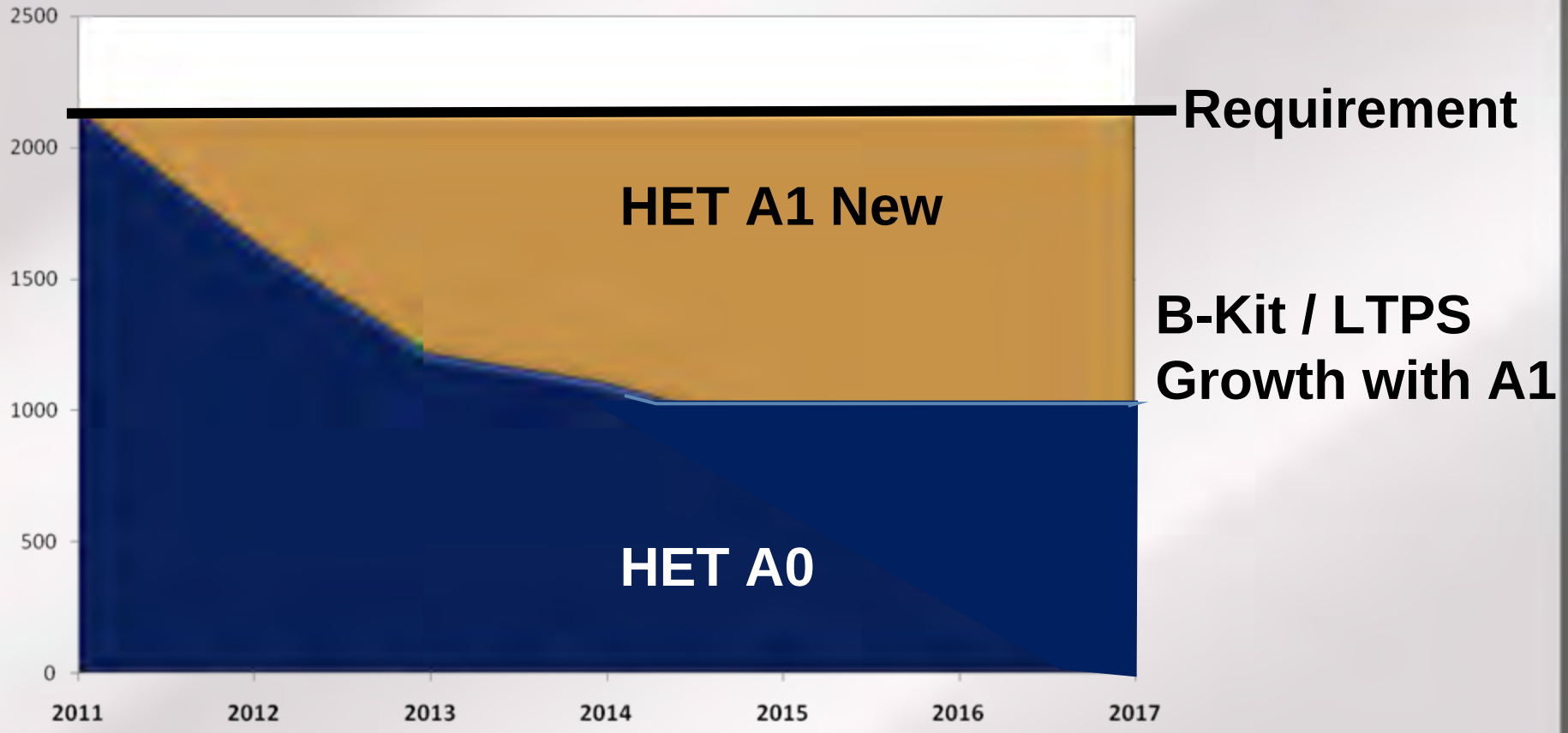
- Modern Powertrain
- Upgraded Front Suspension
- Updated Electrical System
- ABS & Traction Control
- Production Climate Control
- Chassis Capacity for Protection Growth to LTPS Standards
- Maintenance Enhancements to Trailer

2011-2025

	M1070	M1070A1
Engine	500 hp Detroit Diesel 8V92TA	700 hp CAT C-18
Transmission	Allison CLT-754	Allison 4800SP
Transfer Case	Oshkosh 55000, Two Speed	Oshkosh 30000, Single Speed
Axle, Front	21,500 lbs	32,000 lbs
Axle, Rear	23,680 lbs	25,000 lbs
Steering	Shepard hydraulic front gear	Dual front gears
Wheels	11,500 lbs rated	16,000 lb rated
Air Conditioning	A/C Kit available	A/C
Electrical	12 & 24 –volt	24-volt
Alternator	145 amp	400 amp
ABS	No	Yes

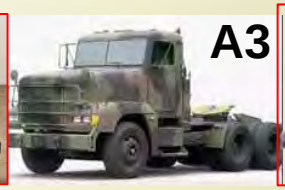
Divest older HETS and procure A1

HET Fleet


2500
2000
1500
1000
500
0
2011
2012
2013
2014
2015
2016
2017
Requirement
HET A1 New
B-Kit / LTPS
Growth with A1
HET A0

Today's M915 Line Haul Fleet

Divest older models



M915 A0

- AM General
- CAT13 Speed semi-automatic transmission
- Cummins Big Cam 1 engine

1978-81

M915 A1

- AM General
- Allison fully automatic transmission
- Cummins Big Cam 3 engine

1981-85

M915 A2

- Freightliner
- ABS system

1989-99

M915 A3

- Freightliner
- Electronically controlled Detroit Diesel Series 60 engine,
- Allison World transmission,
- Freightliner's 'TufTrac' off-road suspension,
- Air Conditioning
- collision warning system

1999-2009

M915 A4

- Retrofit Program with Freightliner/Nat'l Guard
- Enhances A0-A2's with A3 system upgrades

1999 - 2008

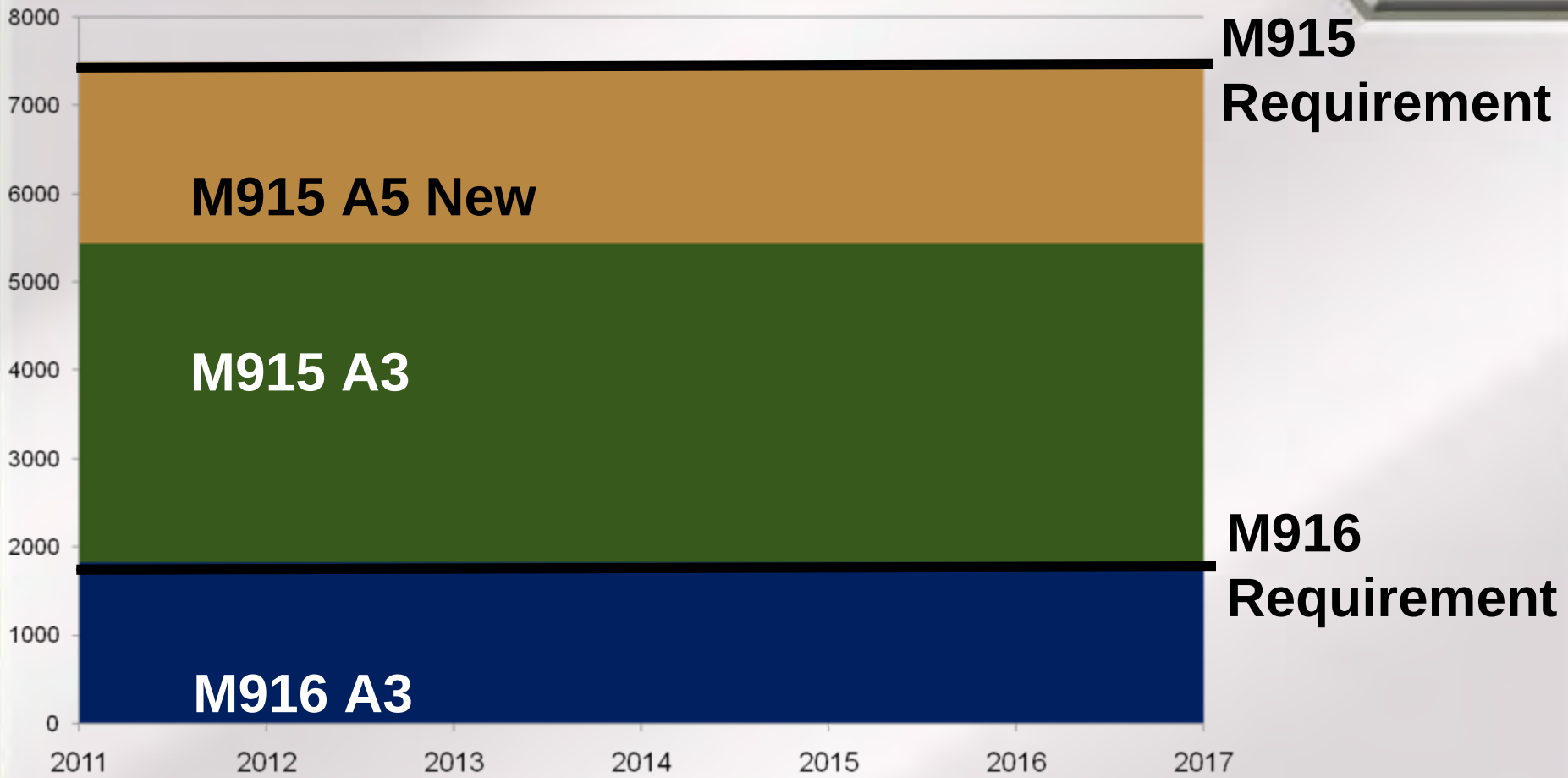
M915 A5

- **500 HP DD-CE 6V53 engine**
- **Extended Cab 10" wider 34" deeper**
- **A-Cab / B-kit design**
- **20K Front axle increase/rear suspension increase for armor weight**
- **7 Auxiliary power connections**
- **Air tap added to allow air tool use**
- **VORAD collision avoidance system**
- **Dual 60 gal. tanks adding range**

2009

Divest older models and procure A5

Line Haul M915/M916 FLEET MODERNIZATION



HTV Fleet Overview
Line Haul Systems

M870A3

80% of fleet > 20 years

23% of fleet > 34 years

FY09-12 Procure 1,326

M871 A3

47% of fleet > 20 years

21% of fleet > 30 years

FY09-12 Procure 440

M967/M969 Tankers

M976 at MTOE

63% of fleet > 25 years

M979 at MTOE

84% of fleet > 25 years

M872A4

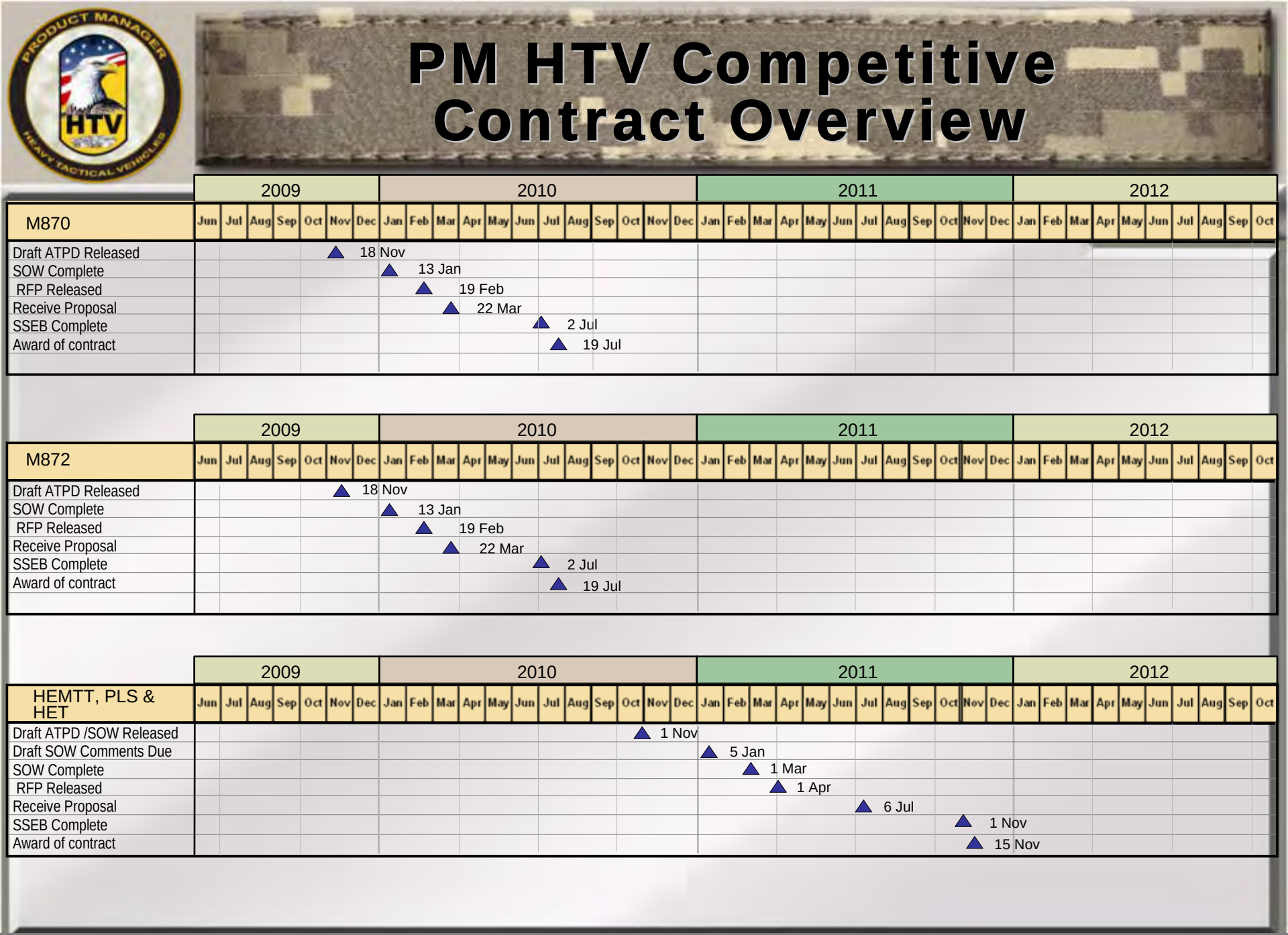
M979 at MTOE

89% of fleet > 24 years

24% > 32 years

Older Fleets, Funding Stops, RESET!!

PM HTV Competitive Contract Overview



"GO HEAVY or GO Home!"

PM's Last Word

Two Customers

The Warfighter + The Taxpayer

We Must Ensure Outstanding Equipment Goes to the Warfighter

PM Light Tactical Vehicles

Product Manager

Mr. Dennis Haag

MISSION

ACAT 1C

The lifecycle management of light battlefield distribution systems enabling the Modular, Joint and Expeditionary Ground Forces.

Distribution Statement A: Approved for public release: Distribution is unlimited

Purpose and Agenda

- ***Purpose: HMMWV Updates***
- ***Agenda:***
  - *Opportunities for Business*
  - *HMMWV Background*
  - *HMMWV Fleet Overview*
  - *HMMWV Evolution*
  - *HMMWV Production & Improvements*
  - *HMMWV Recap*
  - *Light Tactical Trailer Production*
  - *Challenges*
  - *HMMWV Path Forward*

HMMWV Business Opportunities

- ***Full & Open Competition on HMMWV UAH RECAP***
  - *RFI released in December 2009*
  - *Additional RFIs as material is developed.*
  - *Goal is RFP release in March 2010 for ~60K vehicle fleet.*
- ***Reduction of Sole Source Parts***
  - *Would like 3 suppliers for every part.*
  - *Continued emphasis on getting more suppliers qualified.*
- ***Help from Industry***
  - *Armor Weight Reduction*
  - *Fire Suppression*
  - *Survivability*
  - *Reliability & Safety Upgrades*

HMMWV Program Background

- ***ACAT 1C Program***
- ***Milestone C – 1983***
- ***As of 30 Dec 09, 162,589 trucks and 34,845 trailers have been fielded***
- ***Contract Status:***
  - *Completing deliveries on 2009 FY Contract by Dec 2010*
  - *Follow on Production Contract*
  - *Competitive RECAP*
- ***We will reach the Army AAO shortly (166,154 HMMWVs & 44,275 LTTs)***
  - *Army will have greatly reduced demands for new production.*

HMMWV Fleet Overview

M966 HMMWV TOW CARRIER

M1025 HMMWV ARMAMENT CARRIER

M998 HMMWV CARGO TROOP CARRIER

M1037 HMMWV SHELTER CARRIER

M1038 HMMWV SHELTER CARRIER

M1097 HMMWV CARGO CARRIER

M1097 HMMWV SHELTER CARRIER

M1097R1 HMMWV RECAP

M1035 HMMWV AMBULANCE 2 LITTER

M996 HMMWV AMBULANCE 2 LITTER

M997 HMMWV AMBULANCE 4 LITTER

M1113 HMMWV EXPANDED CAPACITY VEHICLE (ECV)

M1114 UP-ARMORED HMMWV (UAH)

M1151 ENHANCED ARMAMENT CARRIER

M1152 ENHANCED CARGO/TROOP CARRIER

M1165 ENHANCED COMMAND AND CONTROL CARRIER

M1167 ENHANCED TOW CARRIER

UAH RECAP

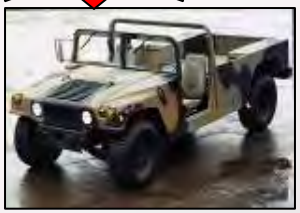
HMMWV Evolution

Block upgrades to increase payload and versatility

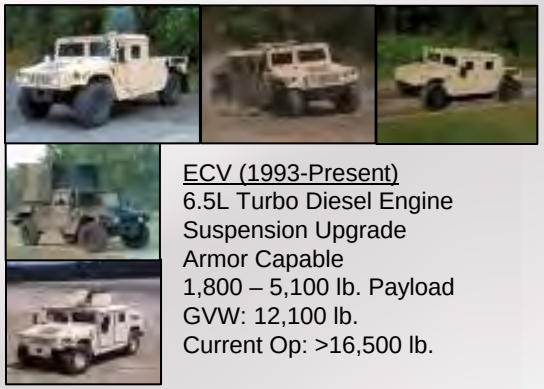
1984 – Present
Payload vs.
Performance
Tradeoffs

A0 Series (1984-93)
6.2L Diesel Engine
3 Spd Transmission
2,500 – 3,632 lb. Payload
GVW: 7,700 lb.

A1 Series (1991-95)
Improved Driveline
Improved Suspension
2,500 – 3,632 lb. Payload
GVW: 10,000 lb.



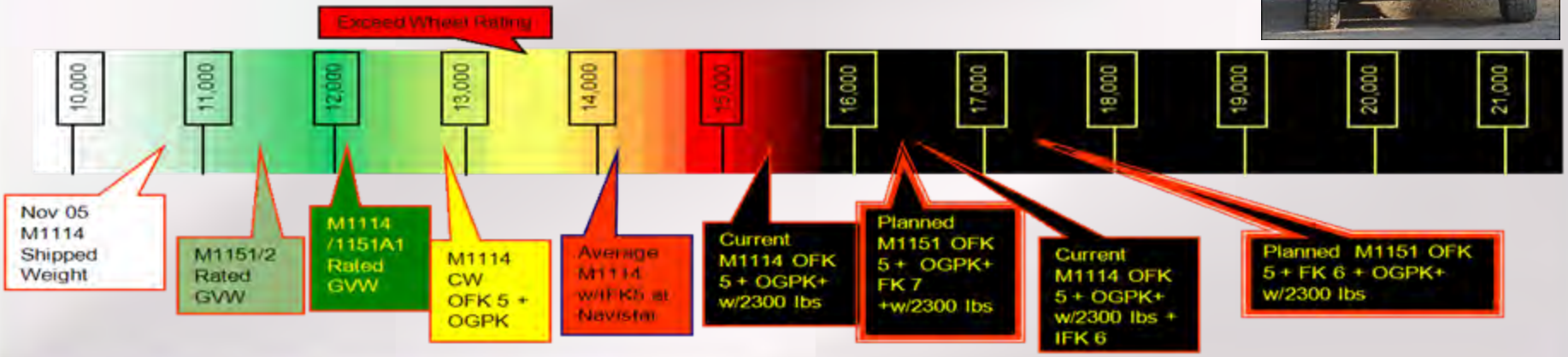
A2 Series (1994-Present)
6.5L Diesel Engine
4 Spd Electronic Trans
3,520 - 4,400 lb. Payload
GVW: 10,300 lb.



ECV (1993-Present)
6.5L Turbo Diesel Engine
Suspension Upgrade
Armor Capable
1,800 – 5,100 lb. Payload
GVW: 12,100 lb.
Current Op: >16,500 lb.

ECV = Expanded Capacity Vehicle

RECAP
Payload: TBD
GVW: TBD



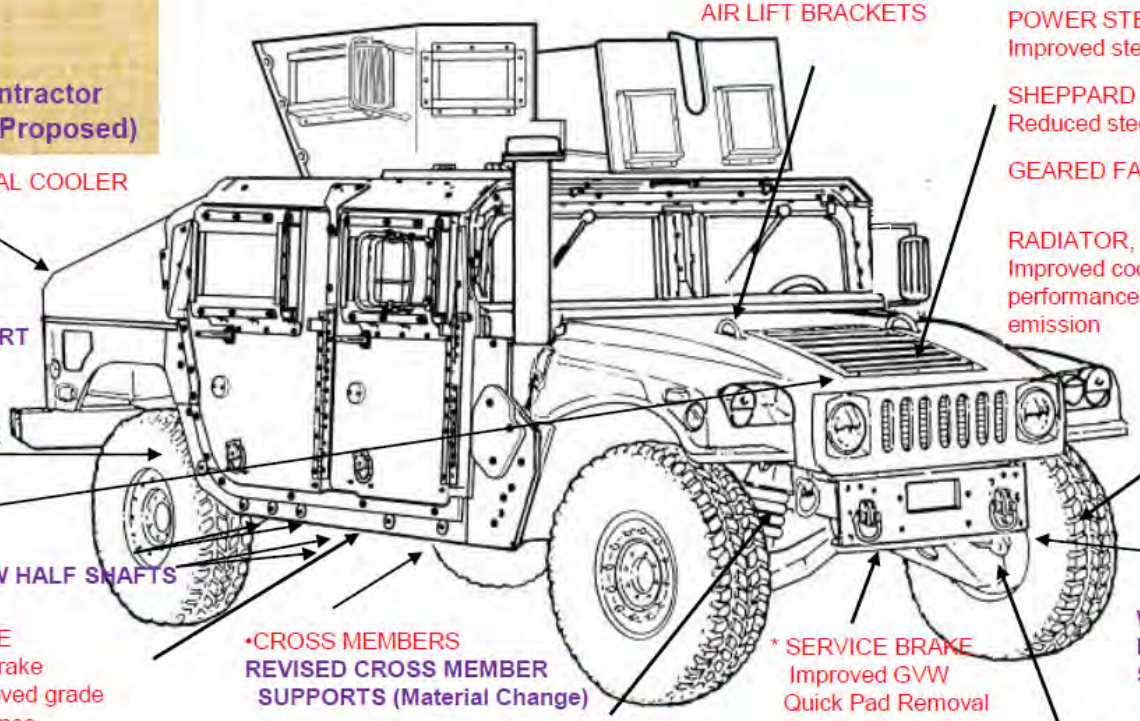
HMMWV Production

- ***Fielding to CONUS after SWA Requirement filled: 162,589 fielded to date (CONUS)***
- ***Production rate: 64/day average***
- ***Introduction model: M1167 (TOW Variant)***
- ***Reliability & Safety Enhancements, to include: Armor coverage, Load range E wheel/tire assembly, Electrical upgrades, Lightweight doors, Suspension upgrades, LED lights, Mending Plate improvements, Fire Suppression System upgrades……***

Reliability Enhancements Vehicle (REV)

Key: REV A
REV B
ASK
FK 7 Mod
REV C (Contractor Proposed)

MAJOR CHASSIS MODS SINCE 2005



ENHANCED STEERING GEOMETRY
"Static Steer Package"

AIR LIFT BRACKETS

POWER STEERING PUMP
Improved steering performance

SHEPPARD STEERING GEAR
Reduced steering effort

GEARED FAN DRIVE (GFD)

RADIATOR, SHROUD & OIL COOLER
Improved cooling & engine performance, reduced noise emission

REAR DIFFERENTIAL COOLER

IMPROVED REAR BUMPER & SUPPORT BRACKETS

REAR BRAKE LINE MOD

COOL PACK

NEW HALF SHAFTS

*WHEELS - 24 bolt
*TIRES –Goodyear MTR

•M1114 SPRINGS

16,000K Springs

PARKING BRAKE
Dedicated park brake system, for improved grade parking performance

•CROSS MEMBERS
REVISED CROSS MEMBER SUPPORTS (Material Change)

* SERVICE BRAKE
Improved GVW
Quick Pad Removal

WHEEL ASSY
NEW GEARED HUB SPINDLE
Larger Bolt Circle

*BODY HARNESS

SHOCK ABSORBERS

* REAR DIFFERENTIAL
Improved cooling

GEARED HUB ASSEMBLY
Improved reliability

* 3-PIECE FRAME RAILS IMPROVEMENT
* PITMAN ARM
* IDLER ARM
* CENTER LINK
* CROSS BRACE ASSEMBLY

CONTROL ARMS
Enhanced bushings & Ball joints

MODIFIED RIGHT RAIL
For Idler Arm Mount
REVISED IDLER ARM MOUNT

REVISED DIFFERNTIAL OUTPUT FLANGE

UPPER CONTROL ARMS
SPRING SEATS
(Front and Rear)

HMMWV Unarmored and UAH RECAP

- ***Program Intent: Extend useful life of fleet at fraction of new production cost***
- ***Current Program (Since FY04) – Convert early models to M1097R1 and M1025R1 models respectively providing:***
  - *Models Eligible: M998/A1, M1025/A1, M1026/A1, M1037, M1038/A1, M1097/A1*
  - *more payload capacity (drive-train and suspension upgrades)*
  - *extending economic useful life by 15 years*
- ***Executed at***
  - *Red River Army Depot - 21,895 complete to date*
  - *Letterkenny Army Depot - 18,227 complete to date*
  - *Maine Military Authority - 1,519 complete to date*

Monthly average 800 per month

- ***Total Recap Vehicles Produced - 41,641; Handed-Off (fielded) - 40,167***
- ***Un-armored RECAP ends FY10 due to meeting goal of 45K systems, with no future funding***
  - *LEAD May / June FY10*
  - *MMA and RRAD Sep FY10*

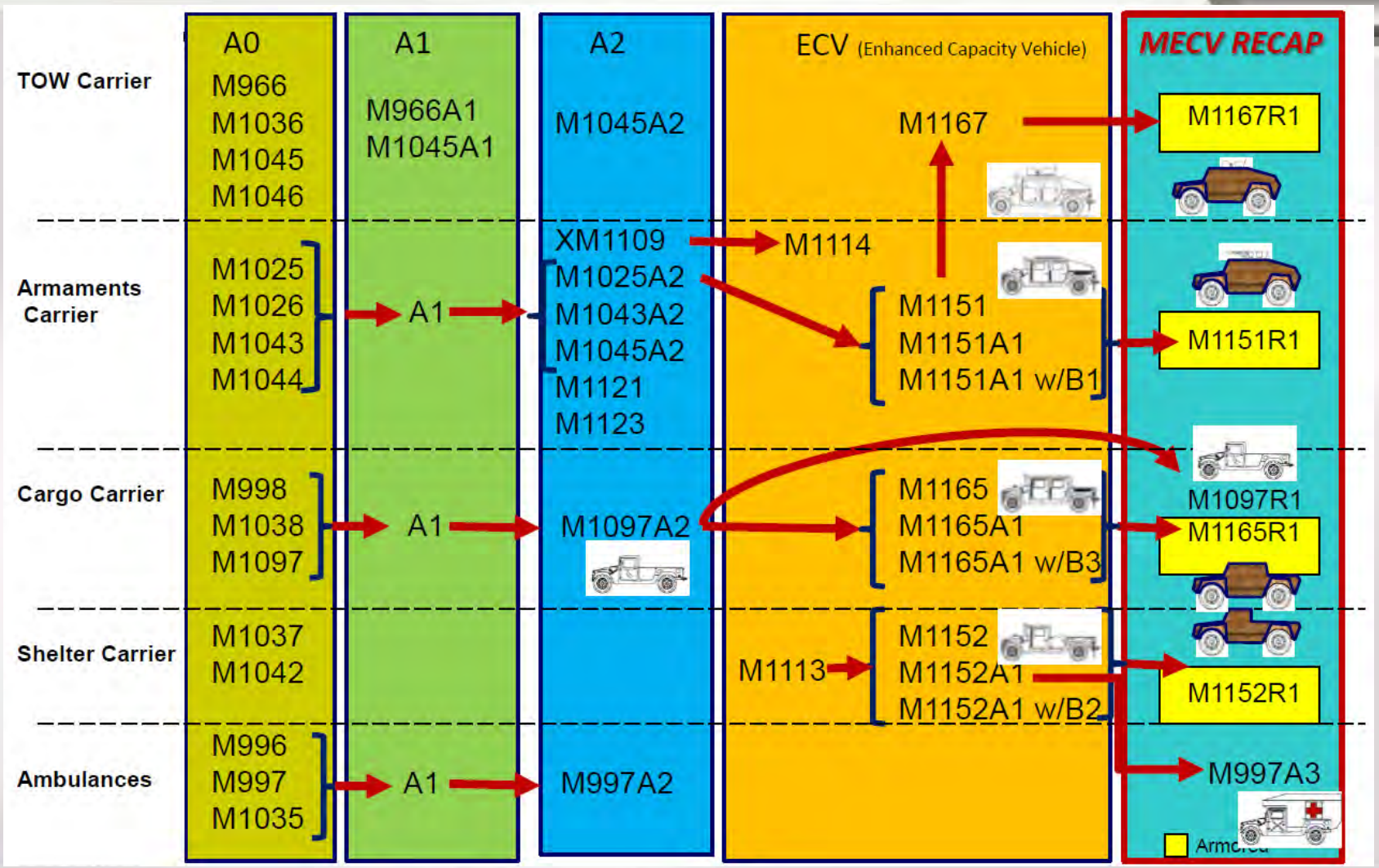
M1097R1s at 10 Mtn Div

HMMWV Fleet Path Forward

Future:
Competitive
RECAP UAH
M-ECV

2010 → 20__?

HMMWV Model Evolution



UAH HMMWV RECAP Modernization

- ***Up-armored HMMWVs (UAH) RECAP Pilot Program – Converts unarmored production configuration models with enhanced reliability components to UAH HMMWV's***
  - *Conducting UAH RECAP / Modernization pilots at RRAD and LEAD 2QFY09*
  - *2 each M1113's and M1097's converted to assess viability of each to carry Armor*
- ***Competitive UAH HMMWV RECAP Modernization Program planned for FY11 and beyond***

HMMWV ECV RECAP – MODERNIZATION

RFI / RFP Milestones

- *Initial Request For Information (RFI) Released - 8 Jan 10*
- *RFI update with Automotive – Tank Purchase Description (ATPD) and Survivability Specification (classified) - 15 Jan 10*
- *RFI Close - 22 Feb 10*
- *DRAFT Request for Proposal (RFP) – early Mar 10*
- *Final Request for Proposal – 31 Mar 10*
- *Contract Award – 4th Quarter FY10*

Light Tactical Trailer Production

- *Over 34,845 LTTs fielded to date*
- *New production contracts awarded in Aug 08 (2 Contractor awards)*
- *Production: 1600 / month combined*

PM Medium Tactical Vehicles

Product Manager

LTC Shane Fullmer

MISSION

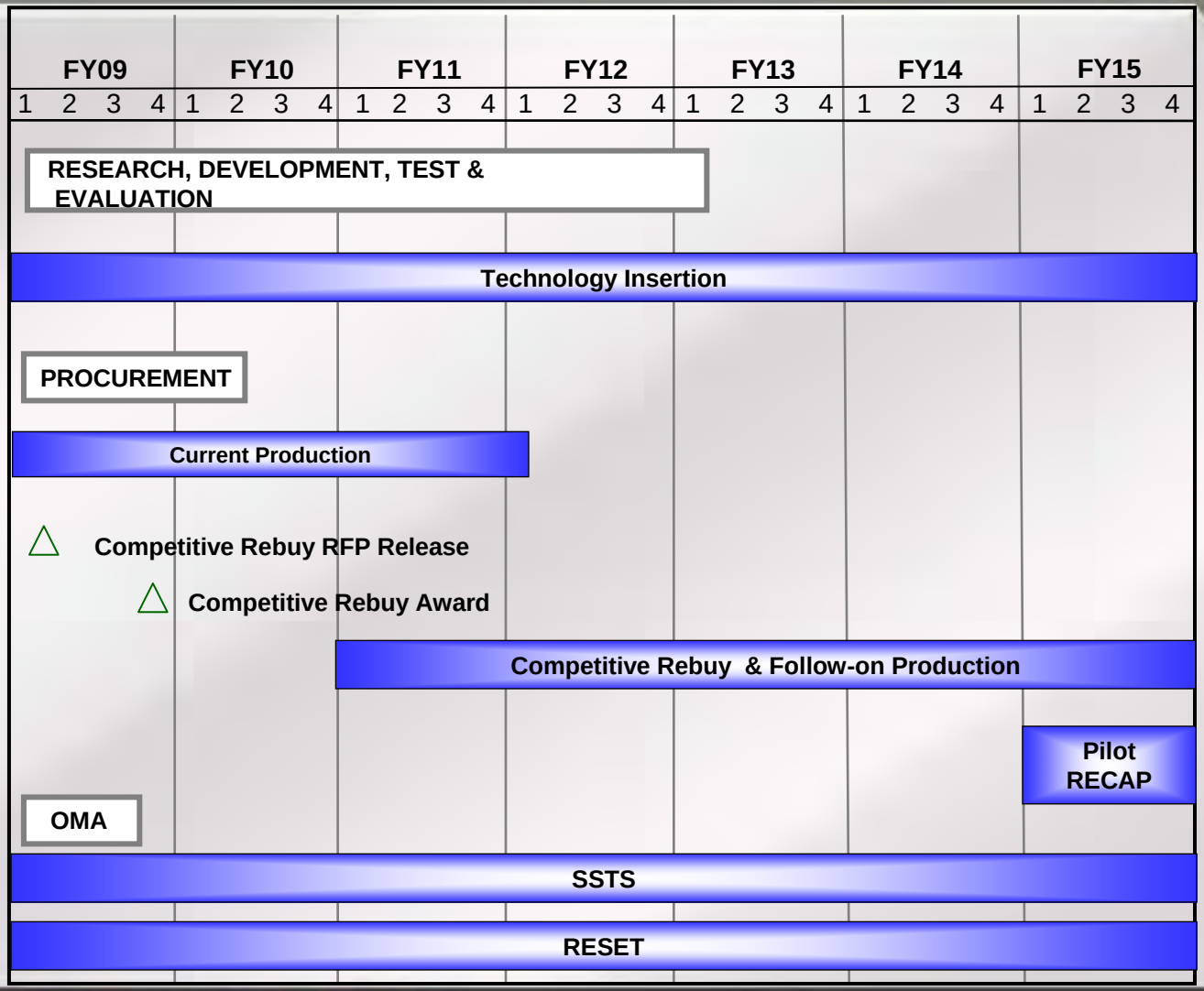
ACAT IC

The life cycle management of medium tactical wheeled vehicles enabling the modular, joint, expeditionary force.

FMTV Program Background

- ***ACAT IC Program***
- ***Milestone C – 1995***
- ***As of 30 Nov 09, 43,584 trucks and 9,723 trailers have been fielded***
- ***Contract Status:***
  - *Completing deliveries on 4th Production Contract (BAE) in Dec 10*
  - *Follow on Production Contract Awarded to Oshkosh on 26 Aug 09*

FMTV Program Overview



FMTV Fleet Overview

M1078
2.5 Ton LMTV Cargo

M1083
5 Ton MTV Standard Cargo

M1084
5 Ton MTV Standard Cargo w/MHE

M1086
5 Ton MTV Long Cargo w/MHE

M1087
2.5 Ton MTV Exp Van

M1088
5 Ton MTV Tractor

M1089
8.5 Ton MTV Wrecker

M1095
5 Ton MTV Trailer

M1157
10 Ton MTV Dump

LSAC

HIMARS

- *17 Truck Variants in 2 1/2 & 5 Ton Payload Class*
- *Expanded Application of FMTV Platform to Support Army Emerging Requirements*
  - *HIMARS, LHS, 10-Ton Dump, MEADS*
- *LVAD Variant Air Drop Certified*
- *85% Commonality of Parts; 80% Commonality of Parts with MRAP Caiman*
- *Companion Trailers Double Hauling Capacity*

- *Unit Resupply*
- *Unit Mobility*
- *Ammunition Resupply*
- *Weapons Platform*
- *Troop Transport*

FMTV History / Future

1994 - 1999 | 1999 - 2004 | 2004 - 2008 | 2008 - 2010 | 2010 - 2015

FMTV A0

- *14 variants (2.5 and 5 ton)*
- *Central Tire Inflation System*
- *7 speed automatic transmission*
- *C-130 transportable*
- *85% commonality of parts*
- *22 year corrosion*

Note: Full Rate Production decision Aug 95

FMTV A1

- *Anti-lock Braking System*
- *Class V Interactive Electronic Technical Manual (IETM)*
- *100% improved Reliability/MR*
- *Open systems architecture*
- *HIMARS*

GWOT SUPPORT

FMTV A1R

- *EPA compliant*
- *Improved reliability/MR*
- *Expansible Van*
- *Air conditioning (A/C)*
- *Low Velocity Air Drop/ 10 ton dump/Load Handling System*
- *260 Amp alternator*

FMTV A1P2

- *Long Term Armoring Strategy (LTAS) Armoring Solution*
- *Increased Load Carrying, 19K Axle*
- *Enhanced A/C*
- *Air/Hydraulic Brake System*
- *B-kit armor*

Future

- *Suspension upgrades*
- *Electronic Stability Control (ESC)*
- *Alternate transmission/ powertrain updates*
- *Increased fuel economy*
- *Optimized maintenance ratio*

FMTV Armor Development

Radian Armor Crew Kit (RACK)

- *Adds ballistic and mine blast protection*
- *Bolt on over existing cab*
- *Incorporates environmental control system for air conditioning*
- *1855 Armor Kits were applied to existing AO/A1 Variant vehicles*

Low Signature Armored Cab (LSAC)

- *Purpose built cab which replaces the standard FMTV cab*
- *Either fully integrated on production line or interchanged with standard cab in approx. 8 hrs.*
- *3,480 LSAC Cabs were applied to existing AO/A1/A1R Variant vehicles*

Long Term Armor Strategy (LTAS)

- *Modular concept consisting of a standard or "A-cab" designed to accept armor referred to as a "B-kit"*
- *Replacing aging RACK and LSAC equipped FMTVs in Theater*
- *Improved Armor Protection*

2004 | 2005 | 2008

FMTV A1P2 (LTAS)

Long Term Armor Strategy (LTAS)

System Description

Mission:

- To provide a vehicle configuration which is able to adapt armor based on the threat, mission or technology and provide a greater level of protection than current AoA configurations.

Characteristics:

- Factory installed, armor capable cabs, which include A/C, provide the structure for soldier-installed armor kits. Major vehicle performance characteristics are not degraded with armor kits installed.
- The A-Cab armor kit concept allows for future armor upgrades to advanced light weight materials (ie, ceramics, composites, etc.).
- Requirement: 1996 TWV Crew Protection Kit (CPK) ORD, CARDS Reference Number 16060, approved by HQDA G3

Fielding

Design & Test Phase: 21 Cargo & Variant Vehicles – Complete
3 Remaining Variants – On-going

 # Vehicles Fielded: 522 (30 Nov 09) **No. on contract:** 15,347

Distribution:

Active Guard & Reserve Units – CONUS & OCONUS

OEF – Support

Schedule

Key Milestones

• LTAS FOT complete	Nov 07 ✔
• LTAS PVT complete	Dec 07 ✔
• Ballistic testing complete	Dec 07 ✔
• SER	Apr 08 ✔
• Safety Confirmation	Apr 08 ✔
• First LTAS vehicle delivered to Gov't	Mar 09 ✔
• Commence LTAS Variants testing	Mar 09 ✔
• Initial fielding to Ft. Polk	May 09 ✔
• Complete all Variant testing	Apr 10

Performance/Risk

Risk:

- Delay in variant deliveries for test cause production to start prior to test completion; BAE difficulty in cutting in test changes.
- Logistics products in support of fielding

Risk	*Performance*	*Schedule*	*Cost*
Risk Level	Low	Med/High	Low

Summary

- ***17 FMTV Variants (2.5 & 5 ton payload class)***
- ***Companion trailers capable of doubling payload.***
- ***Current Challenges***
  - *LTAS Production*
  - *Increase in Armor Protection*
  - *Weight Reduction*
  - *Resolve Contracting Issues*
- ***Future Challenges***
  - *RESET/RECAP of TPE trucks and trailers*
  - *Suspension Mods*
  - *Increased Fuel Economy*
  - *Embedded Vehicular diagnostics (CBM)*