



Welcome to the **TACTICAL WHEELED VEHICLES** WEBINAR

NDIA
AT THE HEART
OF THE MISSION

March 4, 2021 | [NDIA.org/TWVMarch](https://ndia.org/TWVMarch)



Welcome & Introductions

Barry Tyree

Chair, Tactical Wheeled Vehicles Division,
National Defense Industrial Association (NDIA)

Gen Hawk Carlisle, USAF (Ret)

President and Chief Executive Officer, NDIA



PEO CS&CSS – Challenges, Opportunities, and Trends for 2021

Tim Goddette

Program Executive Officer (PEO), Program Executive
Office of Combat Support & Combat Service Support (PEO
CS&CSS), U.S. Army

Mike Sprang

Project Manager, Joint Program Office Joint Light Tactical
Vehicles (PM JLTV), PEO CS&CSS, U.S. Army

Robert “Eric” Fletcher

Deputy Project Manager, Transportation Systems (DPM
TS), PEO CS&CSS, U.S. Army



PEO CS&CSS TWV Overview

“Challenges, Opportunities, and Trends for 2021”

Tim Goddette, SES

Program Executive Officer

Combat Support & Combat Service Support

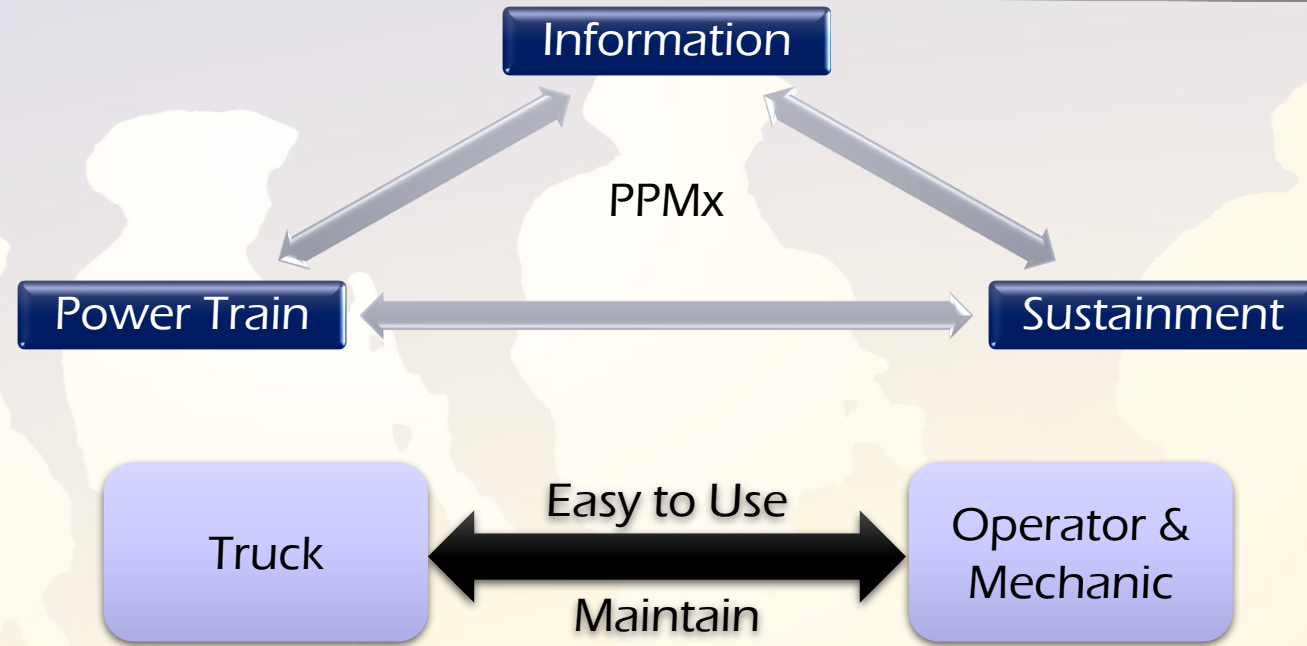


2021

Tactical Wheeled Vehicle Holistic View

- Complete Modernization of 200,000 TWV Fleet needs \$3B per year
- Modernization at lower funding levels could be mitigated by:
 - ✓ Keep Requirement but reduce Authorization in units (Quantity)
 - ✓ Newest Capability in Preposition Stock and Higher Echelon (Pooling)
 - ✓ Consider performance trade-offs (Capability)
 - ✓ Leverage modified Commercial Products (Cost)
 - ✓ Above all: Maintain "Open Long Term Contracts" (Rapid Surge Capacity)
- Opportunities/change:
 - ✓ Impacts of Fuel (Emissions) on Engines (Ultra Low Sulphur Diesel and JP8)
 - ✓ Electric Vehicles – Commercial Lead, (Military unique – Mobile Recharging)
 - ✓ Common Components (ie Next Gen HTV)
 - ✓ Autonomy "Ready" (Evolution of Safety technologies, ABS, Drivers Assist, etc)
 - ✓ Standard Vetrionics Architecture – interoperability
 - ✓ Data – 3D vs 2D drawing (Provisioning and Adv Mfr);
 - PPMx: Testing thru Fielding; Motor Pool Operations (Dispatch, parts)
 - ✓ Technical Manuals – Use power of Video (Key Maintenance tasks).
- Key is competition & stable, predictable funding (Readiness & Healthy Industrial Base)
- LTV / HTV / MTV: min \$1.5B/year w/o reduction in the AAO

Challenges, Opportunities, & Trends



- Diesel w/ Start-Stop
- Hybrid
- Electric
- Drive Assist: Safety and Autonomy

- Digital Engineering
- Video Technical Manuals
 - Parts Provisioning – 3D

Open Long Term Contracts at Minimum Sustaining Rates = Surge

Leverage Commercial Technology and Economies of Scale = Affordability



JOINT PROGRAM OFFICE JOINT LIGHT TACTICAL VEHICLES



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Joint Program Office Joint Light
Tactical Vehicles
NDIA TWV
March 4, 2021

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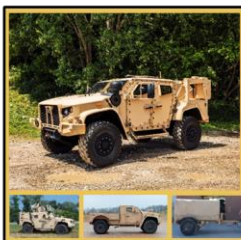
JPO JLTV Initiatives



JOINT PROGRAM OFFICE JOINT LIGHT TACTICAL VEHICLES



Joint Light Tactical Vehicles
(Army and Marine Corps)



Light Tactical Vehicles
(Army)



Ground Mobility Vehicle
(Army)



MISSION

Deliver the right capability at the right time to transform and sustain the Light Tactical Fleet

VISION

Developing and empowering the premier acquisition workforce to deliver and support the world's best light tactical vehicle to the joint force and coalition partners to accomplish the mission.

• Industry Opportunities

- Competition
 - Follow-on JLTV (truck and trailer)
- System technical solutions
- Other transactional authorities
- Partner with primes

• Focus areas

- Balance performance and cost
- Balance speed to warfighter with quality
- Balance modernization with sustainability

Joint Light Tactical Vehicle (JLTV)

LtCol Jose Colunga (USMC)
Product Manager
Vehicle Systems

LtCol Johnathon Nelson
Product Manager
System Integration



General
Purpose



Heavy
Guns
Carrier



Close
Combat
Weapons Carrier



Utility



JLTV-T



• Focus Areas

- Truck Production and Fielding; Quality Control and Efficiencies
- JLTV-Trailer Production Start-up
- Balance new technologies/capabilities and integrations with cost control
- JLTV follow on contract

• Opportunities

- Government will continue Full Rate Production to move towards completing the Army Procurement Objective
- JLTV FOV competitive RFP, 10-year Requirements Contract, Estimated contract value is \$12.4B
- 2nd QTR 2022 RFP Release/4th QTR 2022 Follow-On Contract Award
- On-Going Technology / Capability, primarily through System Technical Support

Light Tactical Vehicle (LTV)

Ms. Diane McCarthy
Product Director
Light Tactical Vehicles



M1151A1
M1152A1
M1165A1
M1167



LEUT



M997/
M997A3
Ambulance



M1061A1



M1097A2 Utility/
M1097R1
RECAP



M200A1



M1101/
1102HC



• Focus Areas

- HMMWV Fleet Management: Current / Near / Mid-term solutions
- Maintain performance and decrease cost; Sustainment
- Multiple trailer procurements

• Opportunities

- 30 Jan 2020 - M200A1 Competitive 7 year IDIQ contract; Estimated value \$41.7M
- LTT - HC Competitive RFP in SSEB; Estimated contract value is \$26.6M
- Nov 2018 – LEUT 5 year IDIQ contract awarded
- Light Tactical Vehicle Fleet (Up-armored and Non-armored)
Modernization/Sustainment Strategy

Ground Mobility Vehicle (GMV)

Mr. Steven Herrick
Product Lead
Ground Mobility Vehicle



A-GMV



ISV



eLRV

PHOTO
COMING SOON

• Focus Areas

- Infantry Squad Vehicle (ISV) Production Phase contract award and initial production for testing
- A-GMV 1.1 Sustainment Strategy
- Electrification Light Reconnaissance Vehicle (eLRV)

• Opportunities

- ISV Production Contract was awarded 26 June, 2020. It has three base years and five options years; totaling eight years. Estimated contract value is \$214M.
- Government continues to refine Electrification Light Reconnaissance Vehicle (eLRV) Program requirements



ACAT 1C

Mr. Alvin Bing III
Product Manager
Heavy Tactical Vehicles
(PdM HTV)



Palletized Load System (PLS)

Heavy Expanded Mobility Tactical Truck (HEMTT)



Heavy Dump Truck

Heavy Equipment Transporter System (HETS)



Line haul Trailers



Common Tactical Truck



ACAT 1C

LTC Benjamin Boring
Product Manager
Multi-Mission Protected Vehicle Systems
(PdM MPVS)



Light Medium Tactical Vehicles (LMTV)



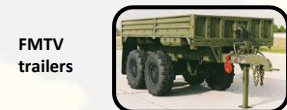
Medium Tactical Vehicle (MTV)



FMTV A2 & FMTV based specialty vehicles



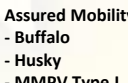
Cold Weather All Terrain Vehicle (CATV)



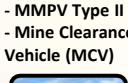
FMTV trailers



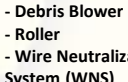
Protected Mobility:
- M-ATV
- MaxxPro



Assured Mobility:
- Buffalo
- Husky
- MMPV Type I
- MMPV Type II
- Mine Clearance Vehicle (MCV)



Explosive Hazard Pre-Detonation (EHP)
- Debris Blower
- Roller
- Wire Neutralization System (WNS)



Mr. John Hufstедler
Product Manager
Allied Tactical Vehicles
(PdM ATV)



Mobile Strike Force Vehicle (MSFV)

HMMWV EDA Recap



Allied Medium Tactical Vehicle (AMTV)



ACAT III

Mr. Chad Stocker
Product Director
Army Watercraft Systems
(PdD AWS)




Landing Craft (Lighters)



Floating Craft



PM TS Prognostics and Predictive Maintenance (PPMx) Pilot Summary

Vendor	Platform (Quantity)	Location	Status / Additional Information
Oshkosh (OEM)	MTV A1P2 (29) 	Ft. Irwin (NTC)	<ul style="list-style-type: none"> COTS Solution installed and moving data Oshkosh Dashboard Analysis resulting in reduced oil changes Resolved Central Tire Inflation System (CTIS) maintenance issue
CCDC-GVSC, DAC, TACOM ILSC, JTDI (ORGANIC)	MTV A1P2 (30) 	Ft. Irwin (NTC)	<ul style="list-style-type: none"> Moving data via CAISI/VSAT from Soldier tablets at NTC to GVSC CBM+ SIL CCDC-GVSC data analysis and modeling Expand pilot to 30 PLS platforms pending PC21 funding. Expand DLB software to enable automatic data collection from the platform and utilize faster tablets
Mack Defense (OEM)	M917A3 Heavy Dump Truck (HDT) (10) 	TBD	<ul style="list-style-type: none"> Determining best high-use fielding location to outfit up to 10 HDT with Mack's Bulldog commercial PPMX solution. 2Q 2021 Software update to interface with Allison Transmission



PM TS Vehicle Electrification Plans



- PM TS plans to pursue a two-pronged approach to incorporate industry advances in vehicle electrification
- Anti-idle Technology
 - Reduces fuel consumption due to vehicle idling
 - Integrates controls and energy storage to reduce engine idle time while providing power for climate control and communication equipment
 - Plan to leverage on-going efforts by JLTV and GVSC
 - Anticipate development of retrofit kits and production ECPs to begin in FY23
- High Power Electrification
 - Provides electrical power to high demand customers (e.g. THAAD, CPI2) via Integrated Starter-Generator
 - Capable of exporting power to micro-grids
 - Technology is being demonstrated through Secure Tactical Advanced Mobile Power (STAMP) Joint Capability Technology Demonstration
 - Anticipate beginning integration of High Power capability in FY24

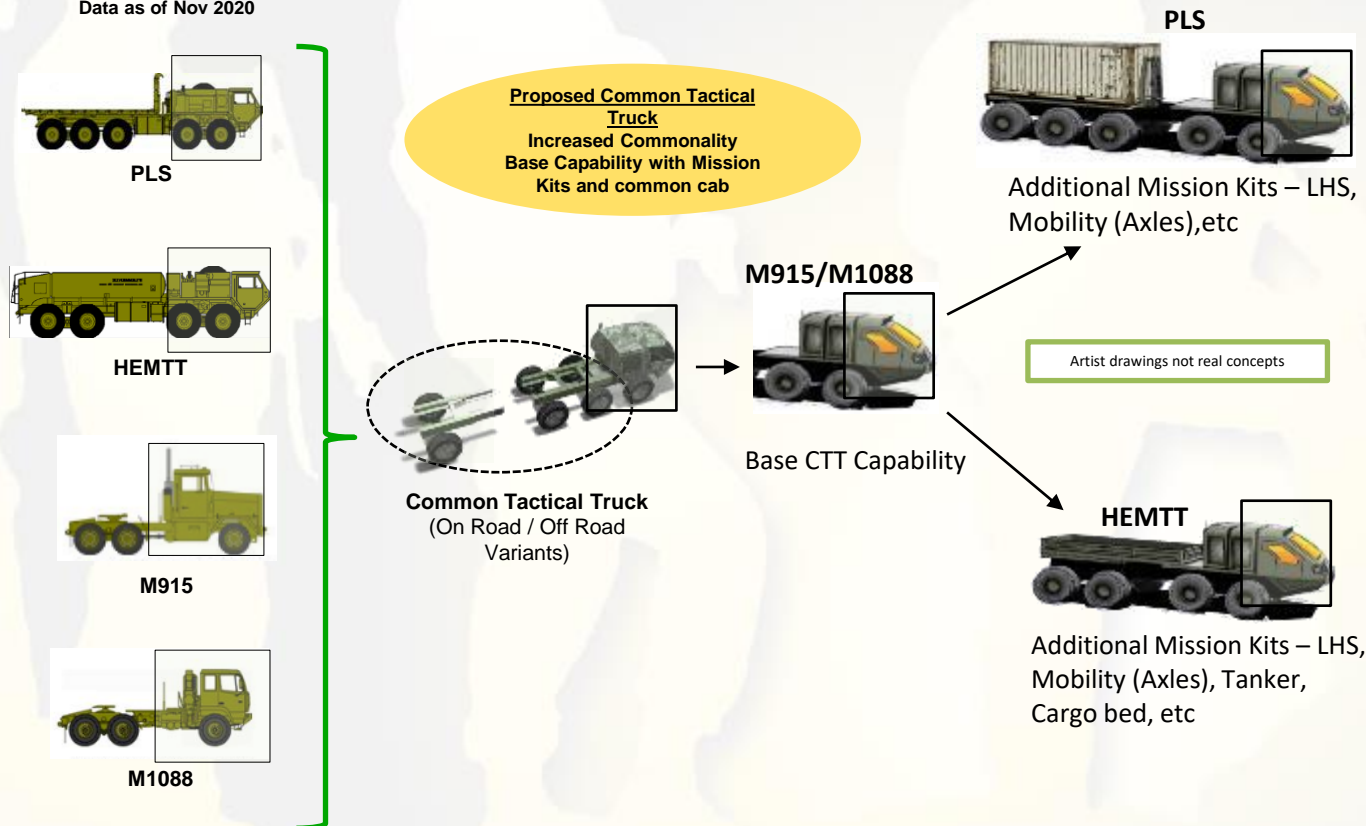


Common Tactical Truck (CTT)

CTT Objective: Develop and procure a commercial based Family of Vehicles (FoV) that support MDO requirements by replacing the M915/M1088 Tractors, Heavy Expanded Mobility Tactical Truck (HEMTT), and Palletized Load System (PLS) with a commercial based CTT thereby leveraging best commercial practices, lowering procurement costs (commercial economies of scale) and optimizing available and emerging technologies to include Prognostics and Predictive Maintenance Logistics (PPMxL) / Telematics, Advanced Driver Assistance Systems (ADAS) and autonomy ready solutions without degrading the performance from current platforms.

Consolidation:

Data as of Nov 2020



CTT: High Level, Desired Capabilities

1. Autonomy ready/ Semi-autonomous capability
2. Demand reduction
3. Prognostic / predictive maintenance
4. Off road mobility
5. Armored cab / Crew Served Weapon capable

PM Transportation Systems Organization and Leadership

\$1 B annual enterprise

328 Personnel:
Military - 7
Core - 122
DS Matrix - 143
Contractors - 57
Interns - 1

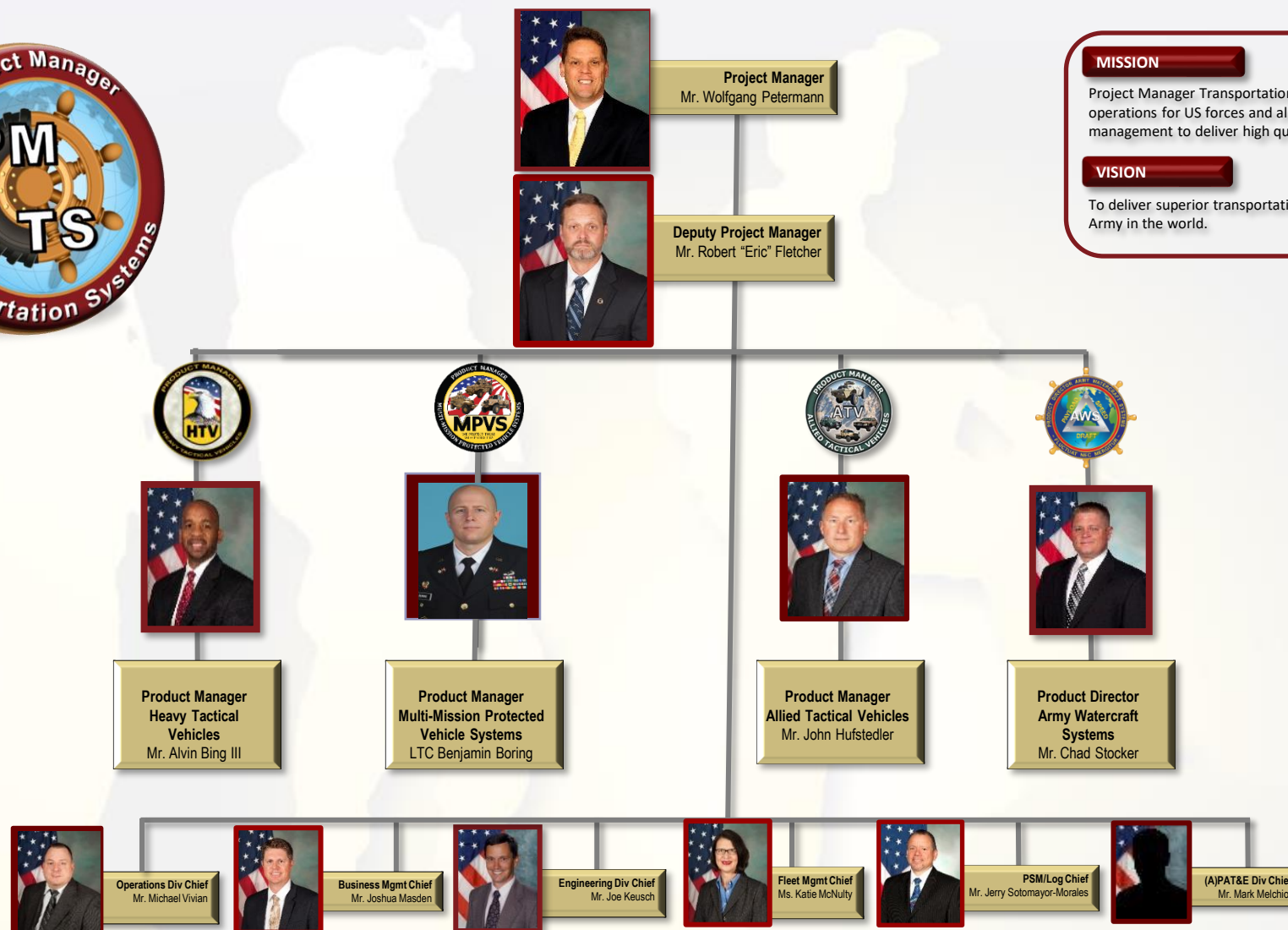


MISSION

Project Manager Transportation Systems enables multi domain operations for US forces and allies by executing life cycle management to deliver high quality land & sea transportation.

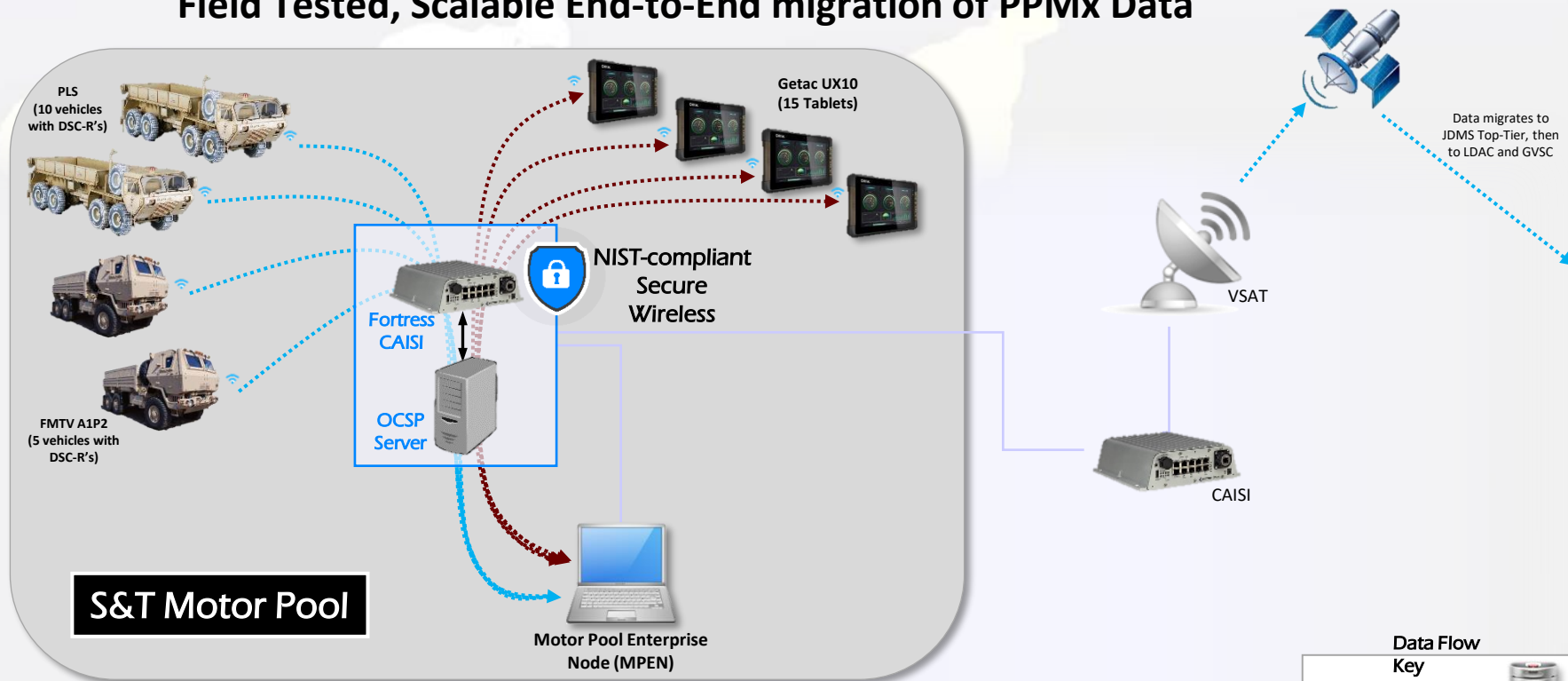
VISION

To deliver superior transportation capability that moves the best Army in the world.



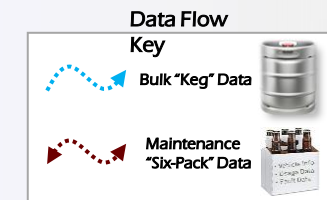
Achieving Secure Wireless End-to-End PPMx Data Migration

Field Tested, Scalable End-to-End migration of PPMx Data



NIST-compliant Secure Wireless Configuration combines four state-of-the-art technologies approved for use by DoD:

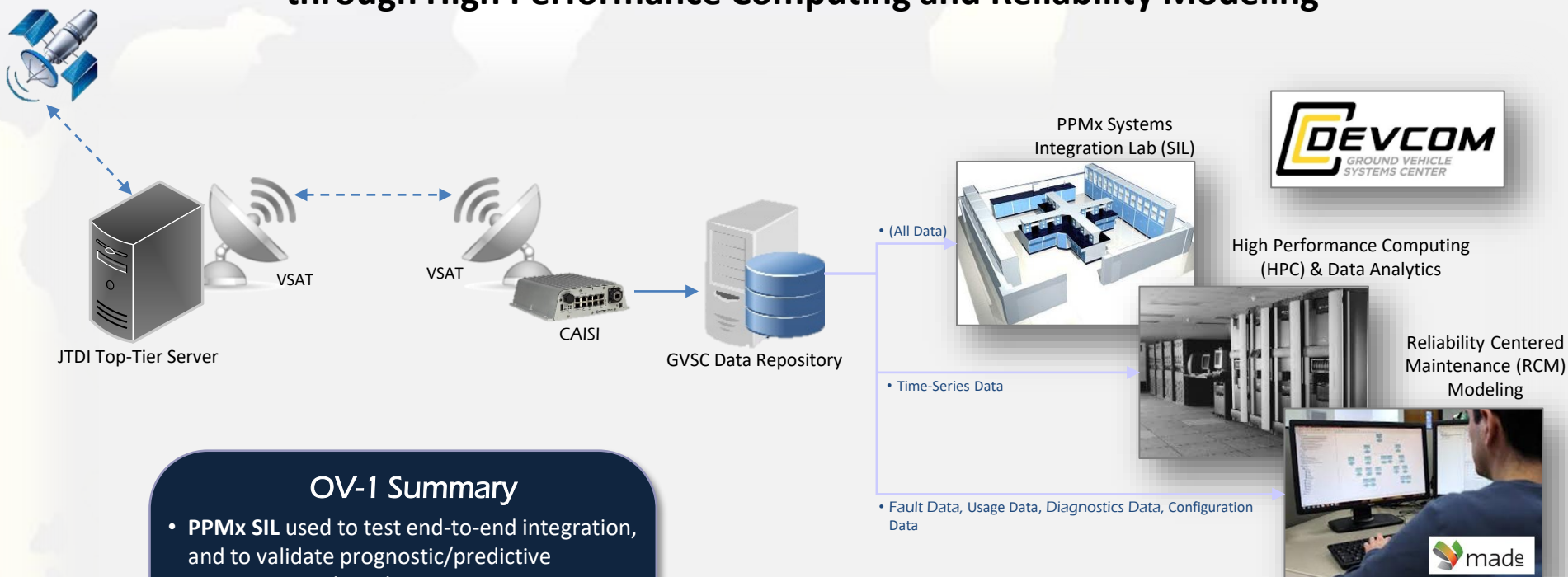
- **TCP/IP** lays the foundation for scalability, access to hardware, and integration of PKI, WPA2-E, and FIPS 140-2 security protocols.
- **PKI Secure Certifications** protect vehicles from sharing data with unauthorized assets (validated via the OCSF Server)
- **WPA2-Enterprise** fully encrypts the wireless communications, and protects the Fortress CAISI and the Primary Mid-Tier by only allowing authenticated DSC-R's to connect to the network.
- **FIPS 140-2** is a NIST Standard that defines and validates the encryption algorithms used for wireless communications



DSC-R – Data Source Collector - Ruggedized
FIPS 140-2 – Federal Information Processing Standards 140-2
GVSC – Ground Vehicle Systems Center (AFC)
JDMS – Joint Delivery Management Service
LDAC – Logistics Data Analysis Center (AMC)
NIST – National Institute of Standards and Technology
OCSF – Online Certificate Status Protocol
PKI – Public Key Infrastructure
TCP/IP – Internet Protocol Suite
WPA2-E – Wi-Fi Protected Access 2 Enterprise

Achieving Secure Wireless End-to-End PPMx Data Migration

High-fidelity Usage and Maintenance data enables Predictive Analytics through High Performance Computing and Reliability Modeling



OV-1 Summary

- **PPMx SIL** used to test end-to-end integration, and to validate prognostic/predictive maintenance algorithms
- **HPC/Data Analytics** used to generate predictive maintenance algorithms and analytics
- **RCM Modeling** used to improve PMCS and Reliability thresholds

JTDI: Joint Technical Data Integration (Program Office providing JDMS)
 JDMS: Joint Delivery Management Service
 PMCS: Preventive Maintenance Checks and Services

CBM+ Return Path

PMCS Improvements
 Predictive Maintenance Algorithms
 Maintenance Notifications



MARCORSYSCOM Overview of Marine Corps TWV

Col John Gutierrez, USMC

Portfolio Manager, Logistics Combat Element Systems (LCES), Marine Corps Systems Command (MCSC)

Jennifer Moore

Program Manager, Light Tactical Vehicles, LCES, MCSC

Lorrie Owens

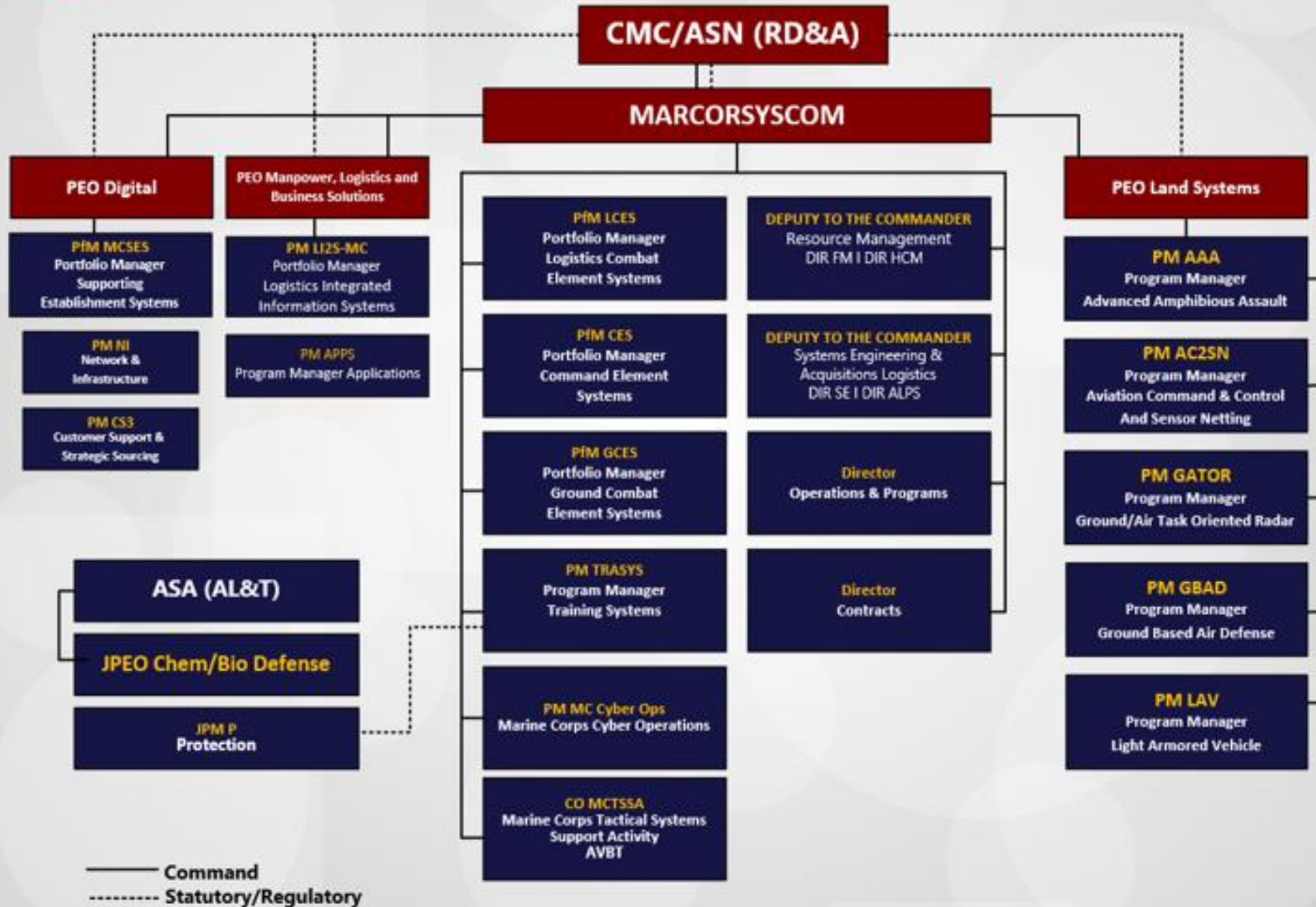
Program Manager, Medium & Heavy Tactical Vehicles, LCES, MCSC



LCES Brief - TWV Conference

Colonel John T. Gutierrez

March 2021





MARINE CORPS SYSTEMS COMMAND

Equipping our MARINES

LCES Overview

\$1.0B annual appropriation (\$6.3B FYDP FY22-26)



Located in 10 States + Japan



392 Marines, Sailors, Civilians & Contractors



ACAT	Pre-MDD	Post-MDD	EMD	P&D	O&S	Total
I	0	0	0	1	0	1
II	0	0	0	0	0	0
III	0	0	0	4	0	4
IV	0	0	1	3	0	4
AAPs + Other/Pre-JCIDS*	85	0	4	48	134	271
Total	85	0	5	56	134	280



Vision: Accelerate innovation and delivery of operationally relevant solutions to enable lethality to the Fleet Marine Force



PMM-150



PMM-151



PMM-152

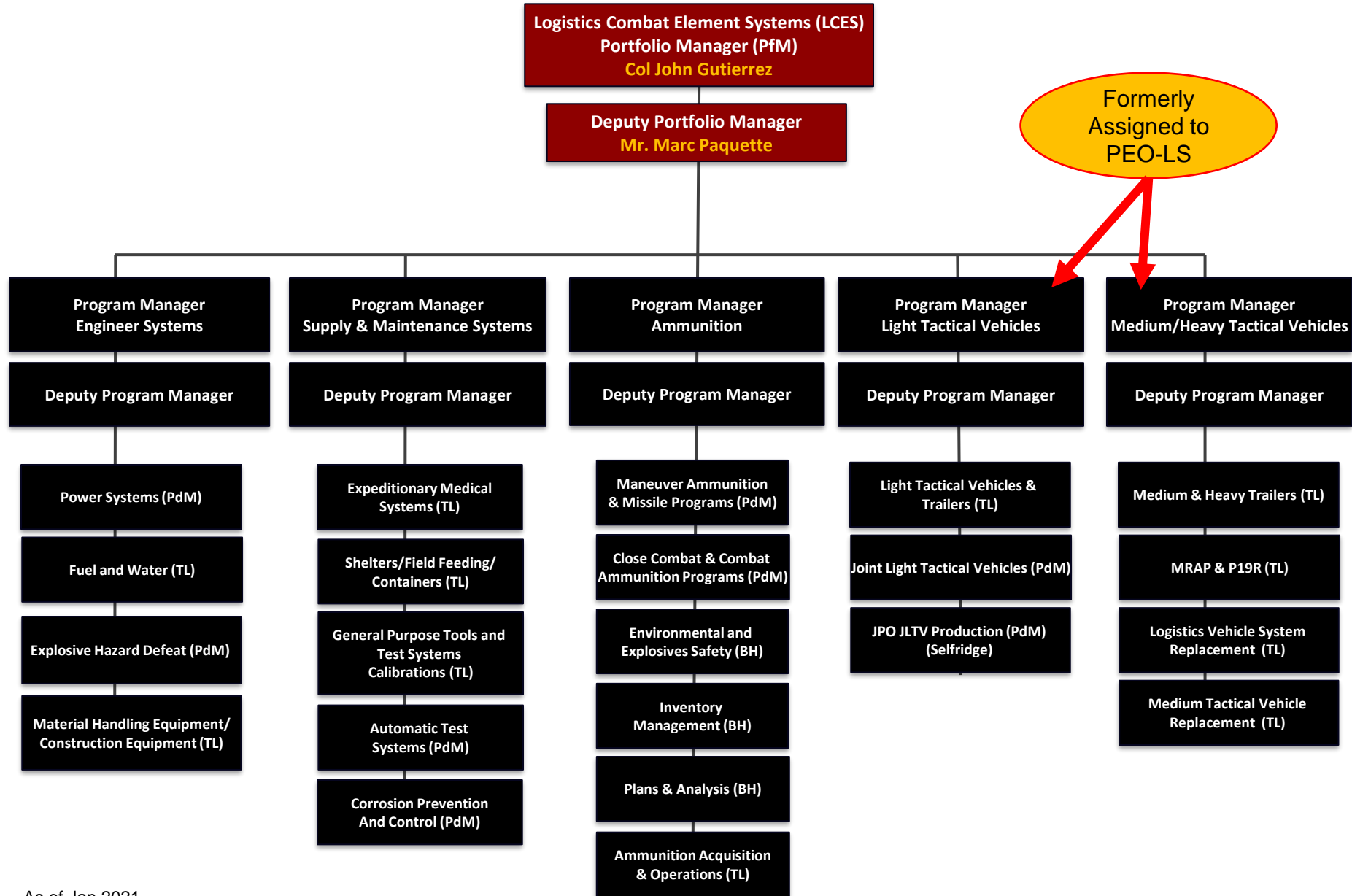


PMM-153



PMM-154

Mission: PfM-Logistics Combat Element Systems equips and sustains the Fleet Marine Force with Engineering, Supply, Maintenance, Ammunition, and Tactical Wheeled Vehicle systems and solutions to enable lethality.





Light Tactical Vehicles (LTV)

\$(M)	FY21
LTV	396.8

Appropriation Breakout

\$(M)	FY21
RDT&E	5.4
PMC	382.8
PANMC	0.0
OMMC	8.5

Medium & Heavy Tactical Vehicles (MHTV)

\$(M)	FY21
MHTV	41.3

Appropriation Breakout

\$(M)	FY21
RDT&E	1.1
PMC	29.4
PANMC	0.0
OMMC	10.8

Numbers may not add due to rounding



FY21 Focus Areas:

- JLTV Fielding
- JLTV systems integration development
- HMMWV and LTT sustainment and divestment
- UTV OPNET and FLMNET execution (CLS)
- UTV maintenance support (CLS)
- UTV Supply Chain Management (CLS)
- ULTV production verification testing
- ULTV systems integration development
- ULTV OPNET and FLMNET development

Challenges:

- JLTV transition into organic supply chain management
- Sustainment of legacy light tactical vehicles past economic useful life spans

Opportunities:

- Corrosion prevention/mitigation on COTS end items
- Survivable & affordable transparent armor that will not delaminate before 60-months of service
- Lighter and more capable scalable armor systems
- Engine / Equipment / POL efficiencies





FY21 Focus Areas:

- LVSR transfer case analysis and follow-on testing
- LVSR corrective maintenance
- LVSR Cab Level II /Level III production
- MTRV Fuel efficiency modifications
- P-19R argon tank leaking
- P-19R handline hose replacement
- HIMARS Resupply Vehicle/ Resupply Trailer (RSV/RST)
- M870 Upgrade Production Verification Testing at Aberdeen Proving Grounds (APG)
- MK970 kingpin plate ECP distribution
- Divestment

Challenges

- Responding to Force Design, Divestment, and future requirements
- Corrosion
- Diminishing Sources of supply

Opportunities

- Medium and Heavy Tactical Vehicles sustainment and integration support services





QUESTIONS?

“As good as we are today, we will need to be even better tomorrow to maintain our warfighting overmatch. We will achieve this through the strength of our innovation, ingenuity, and willingness to continually adapt to and initiate changes...”

- Gen David H. Berger
Commandant of the Marine Corps
Commandant's Planning Guidance, 2019





Red Ball Express Award Presentations

Dion Anglin

Vice Chair, Tactical Wheeled Vehicles Division, NDIA

Enhanced Heavy Equipment Transporter (EHETS) Team

Kent Shea

Program Officer and Product Manager, Heavy Tactical Vehicles, U.S. Army

O'Gara-Hess, Eisenhardt Armoring Company, LLC

Michael Reynolds

President, O'Gara Armoring



“The A Team”



Mr. Timothy Goddette
PEO CS&CSS



Mr. Andrew DiMarco
DPEO CS&CSS



Mr. Wolf Petermann
PM TS



Mr. Eric Fletcher
DPM TS



Mr. Alvin Bing
PdM HTV



Mrs. Jennifer Johnson
DPdM HTV



Mr. Dave Henderson



Mr. Shawn Martin



Mr. Kent Shea

Mr. Lee Kyle

Mr. Rob Kaarlela



Mr. Kyle Harp



Mr. Tim Evers



Mr. Bill Ray



Mr. Jaime Martinez-Galdeano



Mr. Rob Pietrandrea



Mr. Eric Murphy



Operational Need to Fielded Capability



Photos of the M1300 Tractor & M1302 Trailer
Operated by the 16th Sustainment Brigade



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O’Gara-Hess, Eisenhardt Armoring Company, LLC

Michael Reynolds

President, O’Gara Armoring



TWV Webinar Closing Comments

Barry Tyree

Chair, Tactical Wheeled Vehicles Division, NDIA