<table>
<thead>
<tr>
<th>Mr. Jon Vidro</th>
<th>Mr. Ken Fischer</th>
<th>Mr. Bryan LaRose</th>
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<tbody>
<tr>
<td>Division Chief</td>
<td>Division Chief (Acting)</td>
<td>Division Chief</td>
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<tr>
<td>Quality &amp; Production</td>
<td>CBM+ Lead</td>
<td>RAM &amp; Test</td>
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<td><strong>Focus</strong></td>
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<tr>
<td>• Managing the Quality and Production</td>
<td>• Developing Ground Vehicle Systems</td>
<td>• Managing the Reliability-</td>
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<td>competencies for the Ground Domain.</td>
<td>Condition Based Maintenance (CBM+)</td>
<td>Availability-Maintainability (RAM),</td>
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<td>• Developing a trained, interoperable</td>
<td>Minimum Viable Solution (MVS)</td>
<td>Test &amp; Evaluation, and Logistics</td>
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<td>workforce.</td>
<td>Strategy and implementation plans.</td>
<td>Engineering competencies for the</td>
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<td><strong>Responsible for</strong></td>
<td>• Fixing Data Quality and Data</td>
<td>Ground Domain.</td>
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<td>• Providing Quality Assurance, Quality</td>
<td>Sufficiency problems.</td>
<td>• Subsystem and component vibration</td>
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<td>Engineering, and Production</td>
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<td>and environmental testing (MIL STD</td>
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<td>Engineering professionals to Army</td>
<td>• Lead for Analysis IPT – Coordinating</td>
<td>810G / ATPD 2404).</td>
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<td>Ground Program Management offices.</td>
<td>with stakeholders, industry, and</td>
<td><strong>Responsible for</strong></td>
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<tr>
<td>• Supporting Army Ground Sustainment</td>
<td>academia to develop processes and</td>
<td>• Providing RAM, Test &amp; Evaluation,</td>
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<td>through secondary item procurements,</td>
<td>tools for ground vehicle CBM+</td>
<td>and Logistics Engineering</td>
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<td>field failure analysis, and Source</td>
<td>implementation.</td>
<td>professionals to Army Ground</td>
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<td>Approval Request (SAR) processes.</td>
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<td>Program Management offices.</td>
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<td><strong>Responsible for</strong></td>
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<td>• Reliability, Durability, and</td>
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<td>• Fixing Data Quality and Data</td>
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<td>Characterization testing of Army</td>
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<td>Sufficiency problems.</td>
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<td>Ground System technologies.</td>
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<td>Supporting Army Modernization and</td>
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<td>with stakeholders, industry, and</td>
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<td>Readiness efforts with well trained</td>
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<td>professionals, and informing decision</td>
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<td>implementation.</td>
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<td>makers with precise and repeatable</td>
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<td>• Coordinating with Architecture and</td>
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<td>durability test data.</td>
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<td>Requirements IPTs to clarify roles and</td>
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<td>responsibilities and deliver a viable</td>
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<td>ground vehicle system CBM+ strategy.</td>
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Supporting Army Modernization and Readiness efforts with well trained quality, RAM, test, and production professionals, and informing decision makers with precise and repeatable durability test data.
DISTRIBUTION A. See first page.

DURABILITY TEST LAB

Realistic...
• Operations
• Vibration
• Terrain
• Environment
• Sensor stimulation

...that are ...
• Precise
• Repeatable
• Controlled
• Measured
• Documented

THE REALITY OF THE FIELD...

...THE PRECISION OF THE LABORATORY!
PHYSICAL SIMULATION CAPABILITIES

- Vehicle N- Post Testing w/Environmental Chamber
- Turret Evaluation
- Component Testing
- Heavy Vibration (3DOF)
- Light Vibration (6DOF) w/Environmental Chamber
- 3-D Laser Scanning Terrain Profilometer
- Tire/Runflat & Road Wheel Testing
SYSTEM CHARACTERIZATION CAPABILITIES
Testing for Industry

GVSC can support industry partners in their efforts to validate vehicle subsystem and component designs.

Steps:
- Work technical details with GVSC lab
- Construct a Test Service Agreement (TSA) to cover all execution requirements, cost, and data handling
- Review by industry partner and GVSC legal
- Agree and sign TSA terms
- Send check for total amount of testing
- Test execution and reporting

Can Support:
- Engineering changes
- Corrective actions
- Source Approval Requests (SARs)
- Prototypes
**Service Needs**

1. Rapid capability to hire engineering talent.

2. Durability Test Lab calibration services (ISO 17025 accredited lab).

3. Durability Test Lab preventative and ad hoc maintenance.

**Investment Strategy**

Full and Open Contract targeted for RFP in late FY20 or early FY21

- Infancy stage of contract development.

- Collecting scope and Contract Data Requirements List (CDRL) requirements now.

- Bottoms-up development of anticipated yearly demand – will drive contract ceiling and period of performance.
The Acquisition-Logistics-Technology (A-L-T), Army Materiel Command, and Army Futures Command communities at the Detroit Arsenal and other stakeholders from across the Army enterprise are synchronizing efforts to enable CBM+ for Army Ground Systems. By focusing their resources under a common vision, and leveraging investments already made by PEO CS&CSS, PEO EIS, and PEO GCS, they have developed 3 lines of effort that assign organizational responsibilities for fielding hardware and software necessary to meet the planned Army Ground Vehicle CBM+ Strategy. This strategy will be provided to the AMC Commanding General in Spring 2020. The plan will then be socialized across the senior leaders and will be codified in Secretary of Army CBM+ Policy.

**GROUND VEHICLE CBM+ STRATEGY**

As of 24 Feb 2020

**LOE 1: Data Analysis** effort is defining data, processes and tools necessary to support analysis of the ground vehicle fleet in order to improve equipment readiness and support data driven life cycle management.

**CCDC GVSC / CCDC DAC**

- DEC CBM BoD
- Analysis Strategy Development
- Enterprise & Tactical Tool Evaluation
- MVS Implementation Plan
- April BoD

**LOE 2: The Architecture** effort is defining the near term path forward and priorities, roles and responsibilities to execute JDMS, logbook, and other hardware/software to establish the CBM+ end-to-end architecture.

**PEO EIS**

- DEC CBM BoD
- Architecture Strategy Development
- MVS Decision
- MVS Implementation Plan
- April BoD

**LOE 3: The Requirements** effort is defining the requirements needed to implement CBM+ on future programs. Focus is on operationalizing CBM+ data to give commanders the ability to plan operations with real time status of maintenance, supply, fuel, ammunitions and communications at the tactical level.

**CASCOM**

- DEC CBM BoD
- CBM CONOPS Evaluation
- JCIDS CBM+ Review
- April BoD

**ACRONYM LIST**

- AESIP: Army Enterprise Systems Integration Program
- CCDC: Combat Capabilities Development Command
- EIS: Enterprise Information Systems
- JCIDS: Joint Capabilities Integration and Development System
- JDMS: Joint Technical Data Integration Delivery Management Service
- MVS: Minimum Viable Solution

**Participating CBM+ Stakeholders**

- TACOM LCMC, PEO GCS, PEO CS & CSS, CCDC GVSC, CCDC DAC, AMC, PEO EIS, AFC, LDAC, HQDA-G4, CASCOM, TRADOC & FORSCOM

**CG / AMC Strategy**

Spring 2020

AMC to socialize strategy with ASA(ALT) and AFC

CBM+ Policy signed by the Secretary of Army

**Ongoing PEO CS&CSS** Commercial CBM+ Pilots scheduled to conclude in 2021

**PEO GCS** fielding of M1A2 SEP V3 and Paladin A7 fielding in FY20 with CBM+ technology
Technical Challenge

Gap: There is currently no way to objectively evaluate 3rd party CBM+ analysis tool performance.

Barriers: Data Quality, Data Sufficiency, Proprietary Data and Data Models, Cyber Requirements, Cloud Based Processing, Standard Performance Metrics

Resolution: GVSC is working with ground domain stakeholders and leveraging lessons learned from PSU-ARL Data Analysis Sandbox effort to create a new process for tool evaluation. Tied to Army Ground Vehicle Systems CBM+ Strategy in late FY21 or early FY22.

Investment Strategy

Opportunities for Partnership FY21-22

• Army Ground Vehicle System CBM+ Strategy task for CCDC GVSC and DAC to develop this process. Potential for RFI to help inform process definition, evaluation criteria, and protection of industry partner intellectual property.

• Anticipate a CRADA based process with interested analysis tool vendors partnering with GVSC through individual CRADAs and using available Army enterprise data to standardize the evaluation process.
PA&T SUMMARY

**Condition Based Maintenance+ (CBM+)**
- Look for RFIs and CRADA opportunities in FY21 related to evaluation of industry-developed CBM+ analysis tools

**Engineering Services**
- Look for an RFP in late FY20 or early FY21 for engineering and lab services contract.

**Partnerships**
- Contact us with any testing needs – we can enter into Test Service Agreements
Sign-up for one-on-one meetings with *Product Assurance & Test* by filling out the request form on the main page and submitting