

# ABERDEEN PROVING GROUND ADVANCED PLANNING BRIEFINGS TO INDUSTRY



U.S. ARMY TANK AUTOMOTIVE  
RESEARCH, DEVELOPMENT &  
ENGINEERING CENTER (TARDEC)



# ORGANIZATIONAL STRUCTURE



The forecast data is for planning purposes, does not represent a pre-solicitation synopsis, does not constitute an invitation for bid or request for proposal, and is not a commitment by the government to purchase the desired products and services.

# MISSION & VISION



## MISSION:

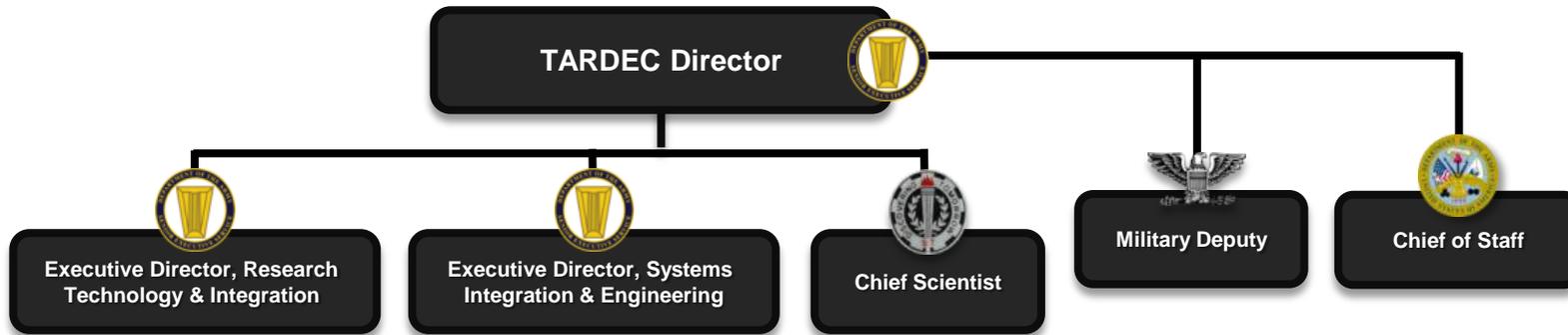
Develop, integrate and sustain the right technology solutions for all manned and unmanned Department of Defense (DOD) ground systems and combat support systems to improve Current Force effectiveness and provide superior capabilities for the Future Force.

## VISION:

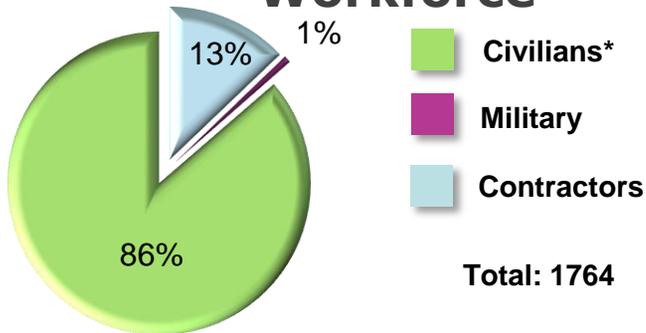
Be the first choice of technology and engineering expertise for ground vehicle systems and support equipment - today and tomorrow.



# ORGANIZATIONAL STRUCTURE & PERSONNEL

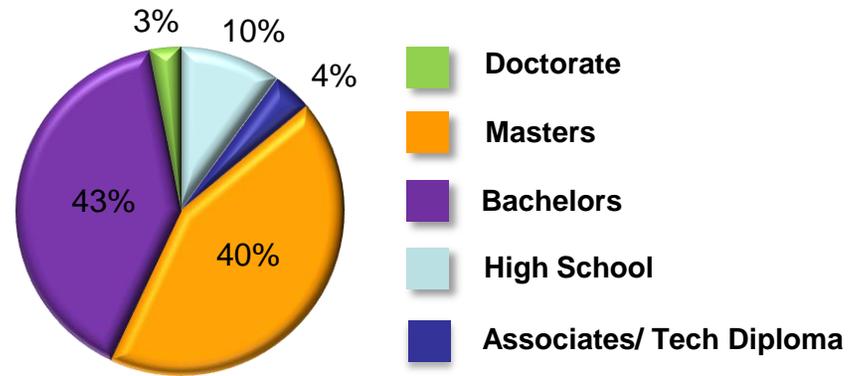


## Total Workforce



\*Includes permanent/term employees, local interns, STEPs, and local SCEPs (in a pay status).

## Education



**TARDEC has a proven, technically proficient workforce that meets mission requirements**



# TARDEC'S 30-YEAR STRATEGY

## Strategic References

**National Command Strategy**  
National Defense Strategy (2008), Sustaining U.S. Global Leadership (2012), Defense Budget Priorities and Choices (2012)

**White House Policy Support**  
U.S. National Security Strategy (2010), Ensuring U.S. Leadership in Manufacturing (2011), National Strategy for Counterterrorism (2011)

**Defense Guidance**  
Chairman's Strategic Directive (2012), Letter from ASORE on S&T Priorities (2012), ASORE White Paper

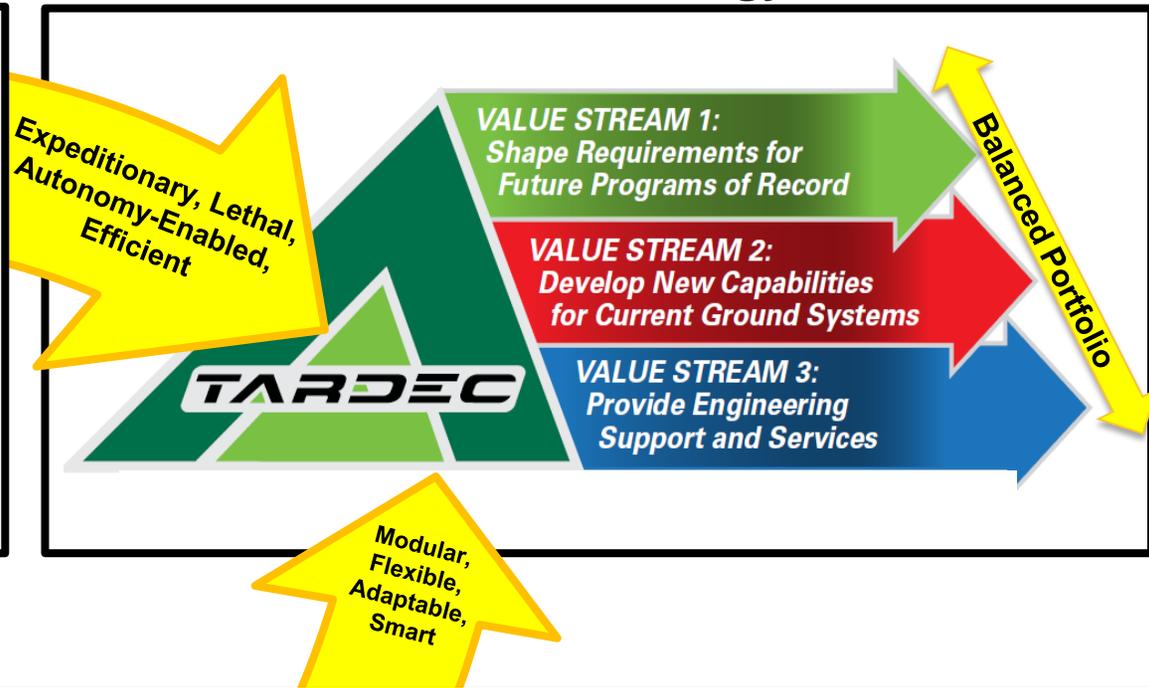
**Army Guidance**  
Army Modernization Plan (2012), Army Priorities Statement (2012), ASO/ALD Strategic Plan (2012), ALC Strategic Plan (2012), RDECOM Strategic Plan (2011)

**Army S&T-related Organization Plans**  
ASO/ALD Strategic Plan (2012), ALC Strategic Plan (2012), RDECOM Strategic Plan (2011)

**Capstone and Operating Concepts**  
525-3-0 (2012), 525-3-1 (2010)

**Army Top and Warfighting Challenges**  
Army Top Challenges

## 30-Year Strategy



## Art of the Possible

**Survivability**    **Power and Energy**    **Electronic Architecture**    **Autonomy**    **Software**    **Human Interface**    **Force Projection**

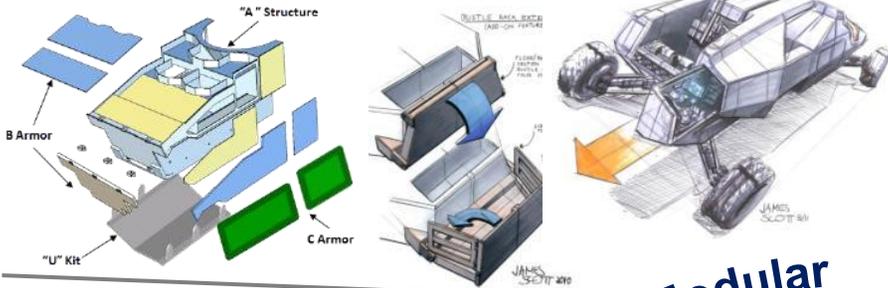
**Modeling and Simulation**    **Advanced Concepts**

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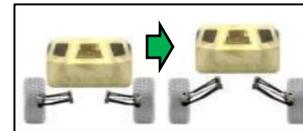
# SYSTEM-LEVEL ATTRIBUTES FOR FUTURE SUCCESS

## Modular Physical Architecture



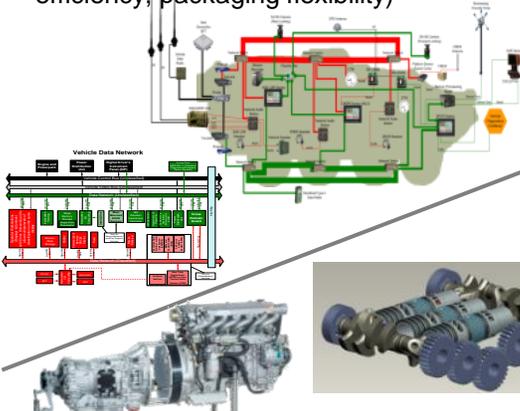
## Adaptable Protection

- Racecar mentality: Design protection from the occupant out
- Techniques to tailor vehicle protection to threat environment



## Open Data/Electronic Architecture

- Set the stage for future upgrades, government owned interface.
- Electrification (manage power, improved efficiency, packaging flexibility)



**Modular**

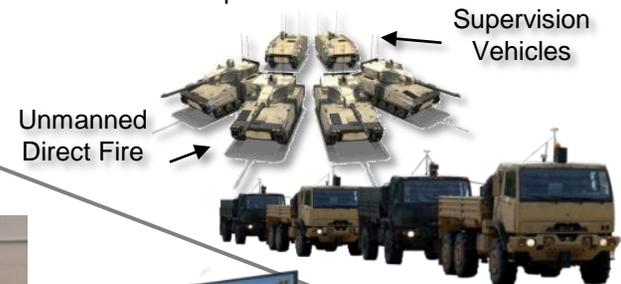


**Smart**

**Flexible**

## Autonomy-Enabled Systems

- Evolutionary implementation of autonomous behaviors for vehicles
- Commander flexibility to utilize autonomous platforms to achieve mission requirements



## Soldier-Machine Interfaces

- Reduced Cognitive Burden
- Enhanced Situational Awareness



## Common Efficient Powertrain

- Revolutionary power generation capability to military specific requirements
- Enable greater capability through efficiency (power generation/driveline efficiency)
- Modular design for common military specific family of engines.

*Enabling "operational adaptability" through ground vehicle materiel solutions*



# SUPPORTING THE ARMY'S TOP PRIORITIES

**Supporting seven of the Army's eleven persistent challenges**



*Greater force protection for Soldier, air and ground platforms*



*Ease overburdened Soldiers in small units*

*Timely mission command & tactical intelligence to provide situation awareness and communications in all environments*



*Reduce logistics burden of storing, transporting, distributing and retrograde of materials*

*Create operational overmatch (enhanced lethality and accuracy)*



*Achieve operational maneuverability in all environments and at high op-tempo*



*Enable ability to operate in CBRNE environment*

*Enable early detection and improved outcomes for Traumatic Brain Injury (TBI) & Post Traumatic Stress Disorder (PTSD)*



*Improve operational energy*

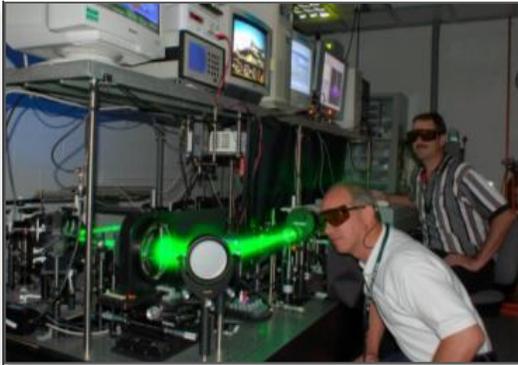
*Improve individual & team training*



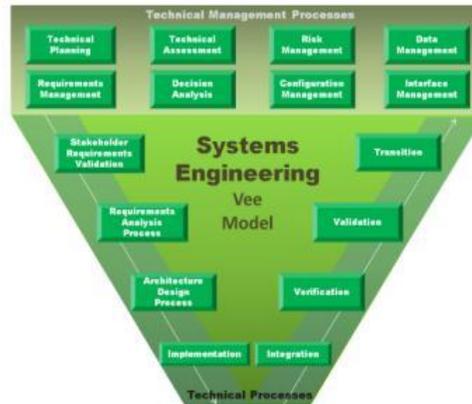
*Reduce life cycle cost of future Army capabilities*



# UNIQUE CAPABILITIES: FULL LIFE-CYCLE TECHNICAL SUPPORT



Research/Technology  
Development



Systems Engineering



Product Development

Integration



Production Support



Field Support



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# UNIQUE FACILITIES

- Warren (MI)
- Southwest Research Institute (SWRI) (TX)  
*(GOCO = Government Owned-Contractor Operated )*
- Selfridge (MI)
- Susquehanna (PA)

## Laboratory Capabilities



Power and Energy  
Vehicle Environment Lab



Ride Motion Simulator



TARDEC Fuels and Lubricants Research  
Facility @ Southwest Research Institute



Turret Motion Base Simulator

- Ground Systems Power and Energy Laboratory (GSPEL)
- Vehicle Full Load Cooling Test Chamber
- Crew Station/Turret Motion Base Simulator (CS/TMBS)
- Ride Motion Simulator
- System-level Analysis Capability
- Center for Ground Vehicle Development and Integration (CGVDI)
- Vehicle Inertial Properties Evaluation Rig (VIPER)
- Mission Equipment Vibration Table (MEVT)
- Suspension Parameter Identification Device and Evaluation Rig (SPIDER)
- Tire, Run-Flat, and Roadwheel Simulation Laboratory (TR2SL)
- Elastomer Improvement Laboratory
- Fuels & Lubricants Laboratory
- Fresh Water Test Facility
- Bridge Dynamic Structural Load Simulation Laboratory
- TARDEC Fuels and Lubricants Research Facility (TFLRF) *(GOCO with SWRI)*
- Quality Surveillance Laboratory (Army Petroleum Laboratory; APL)

**TARDEC's operations have a resource value of over \$1.1B and occupy 936,000 square feet of laboratory space on the Detroit Arsenal.**



# CONDUITS OF COLLABORATION



**Power & Energy Vehicle Environmental Lab (PEVEL)**



**Air Filtration Lab**



**Calorimeter Lab**



**Power Lab**



**Thermal Management Lab**



**Fuel Cell Lab**



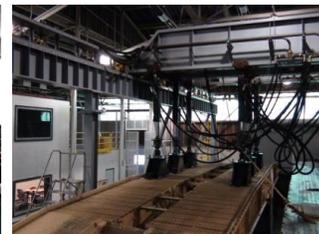
**Electric Components Lab**



**Energy Storage Lab**



**Fuels & POL Research Laboratories**



**Bridging Technology Laboratory at Selfridge Air National Guard Base**



**Fresh Water Test Facility at Selfridge Air National Guard Base**



**Water Quality Laboratory**



**Army Petroleum Laboratory, Susquehanna Army Depot**



**TARDEC Fuels & Lubricants Research Facility at Southwest Research Institute (GOCO)**



**Survivability Armor Ballistic Lab(SABL)**



**Large Robotics Integration Cell**



**Reconfigurable N-Post Simulator**



**Vehicle Inertial Properties Evaluation Rig**



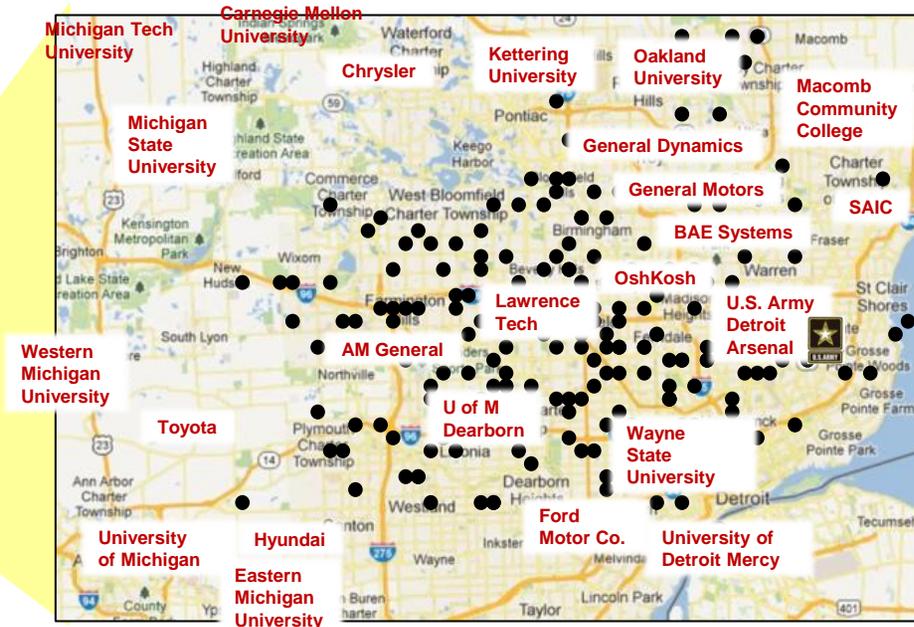
**VICTORY SIL**



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# BUILDING STRATEGIC PARTNERSHIPS WITH GOVERNMENT, INDUSTRY AND ACADEMIA

Recognized conduit connecting RDECOM and the Ground Vehicle Community



Industry

- 66 Active CRADA's
- 30 Active TSAs-FY12
- 21 CRADA's Concluded
- Industry Day 1-2 April 2014



Chartered by Secretary of the Army 21 June 1993

PEO GCS	PEO CS&CSS	TACOM LCMC	PEO Land Systems
<b>Joint Center for Ground Vehicles, Est. JAN 2010</b>			
	MARCORSYSCOM	Office of Naval Research	ILSC



AVPTA Chartered 18 July, 2011

Partnering is critical to the success of our long-term strategy



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# DOING BUSINESS WITH TARDEC

Engage with **TARDEC** at: <http://www.army.mil/tardec>

Visit the homepage and click on “**Collaborate**” where you will find the link to TARDEC’s Ground Vehicle Gateway (GVG), a place where you can request a copy of TARDEC’s Industry Days briefing or share ideas with us.

## Other useful sites:

- The Small Business Innovation Research (SBIR) program  
<http://www.acq.osd.mil/osbp/sbir/>
- Cooperative Research And Development Agreements (CRADA)  
<http://www.army.mil/article/128385/>
- TARDEC OMNIBUS Contract  
<http://contracting.tacom.army.mil/research/omnibus/tardecomnibus.htm>
- USA Job Search  
<https://www.usajobs.gov/>



## GROUND VEHICLE SYSTEMS OTA

The Ground Vehicle Systems (GVS) OTA is a **legally binding document** (10 U.S.C. 2371 Section 845 Other Transaction) which allows the GOV to enter into project agreements with members of the National Advanced Mobility Consortium (NAMC)

NAMC is an open Consortium consisting of U.S. Industry, Academia, and non-profit organizations

To submit proposals and white papers against GVS OTA projects, you must be a member of NAMC. For membership information visit [www.namconsortium.org](http://www.namconsortium.org)



# OPPORTUNITIES

**TITLE:** Advanced Li-ion Modular Battery

**CONTRACT TYPE:** Ground Vehicle System (GVS) OTA

**ESTIMATED VALUE:**

FY15 = \$1.1M

FY16 = \$2.0M

**CONTRACTING CONTACT:**

Mike Del Rose, (586) 282-6242, [michael.s.delrose.civ@mail.mil](mailto:michael.s.delrose.civ@mail.mil)

Garett Patria, (586) 282-5692, [garett.s.patria.civ@mail.mil](mailto:garett.s.patria.civ@mail.mil)

**ESTIMATED SOLICITATION RELEASE DATE:**

TBD: Feb 2015



# OPPORTUNITIES

**TITLE:** Efficient Power Take Off - MANTECH

**CONTRACT TYPE:** Ground Vehicle System (GVS) OTA

**ESTIMATED VALUE:**

FY15 =1.5M

FY16 =1.5M

**CONTRACTING CONTACT:**

Mike Del Rose, (586) 282-6242, [michael.s.delrose.civ@mail.mil](mailto:michael.s.delrose.civ@mail.mil)

Garett Patria, (586) 282-5692, [garett.s.patria.civ@mail.mil](mailto:garett.s.patria.civ@mail.mil)

**ESTIMATED SOLICITATION RELEASE DATE:** Feb 2015



# OPPORTUNITIES

**TITLE:** Modular Active Protection System (MAPS)

**CONTRACT TYPE:** Ground Vehicle System (GVS) OTA

**ESTIMATED VALUE:**

FY15 = \$8.3M

FY16 = \$13.0M

**CONTRACTING CONTACT:**

Mike Del Rose, (586) 282-6242, [michael.s.delrose.civ@mail.mil](mailto:michael.s.delrose.civ@mail.mil)

Garett Patria, (586) 282-5692, [garett.s.patria.civ@mail.mil](mailto:garett.s.patria.civ@mail.mil)

**ESTIMATED SOLICITATION RELEASE DATE:** Feb 2015



# OPPORTUNITIES

**TITLE:** Blast Protection

**CONTRACT TYPE:** Ground Vehicle System (GVS) OTA

**ESTIMATED VALUE:**

FY15 = \$4.4M

FY16 = \$5.1M

**CONTRACTING CONTACT:**

Mike Del Rose, (586) 282-6242, [michael.s.delrose.civ@mail.mil](mailto:michael.s.delrose.civ@mail.mil)

Garett Patria, (586) 282-5692, [garett.s.patria.civ@mail.mil](mailto:garett.s.patria.civ@mail.mil)

**ESTIMATED SOLICITATION RELEASE DATE:** Feb 2015



# OPPORTUNITIES

**TITLE:** Armor (Ballistic Protection)

**CONTRACT TYPE:** Ground Vehicle System (GVS) OTA

**ESTIMATED VALUE:**

FY15 = \$190k

FY16 = \$350k

**CONTRACTING CONTACT:**

Mike Del Rose, (586) 282-6242, [michael.s.delrose.civ@mail.mil](mailto:michael.s.delrose.civ@mail.mil)

Garett Patria, (586) 282-5692, [garett.s.patria.civ@mail.mil](mailto:garett.s.patria.civ@mail.mil)

**ESTIMATED SOLICITATION RELEASE DATE:** Feb 2015



# OPPORTUNITIES

**TITLE:** Light Weight Structures

**CONTRACT TYPE:** Ground Vehicle System (GVS) OTA

**ESTIMATED VALUE:**

FY15 = \$5.7M

FY16 = \$3.7M

**CONTRACTING CONTACT:**

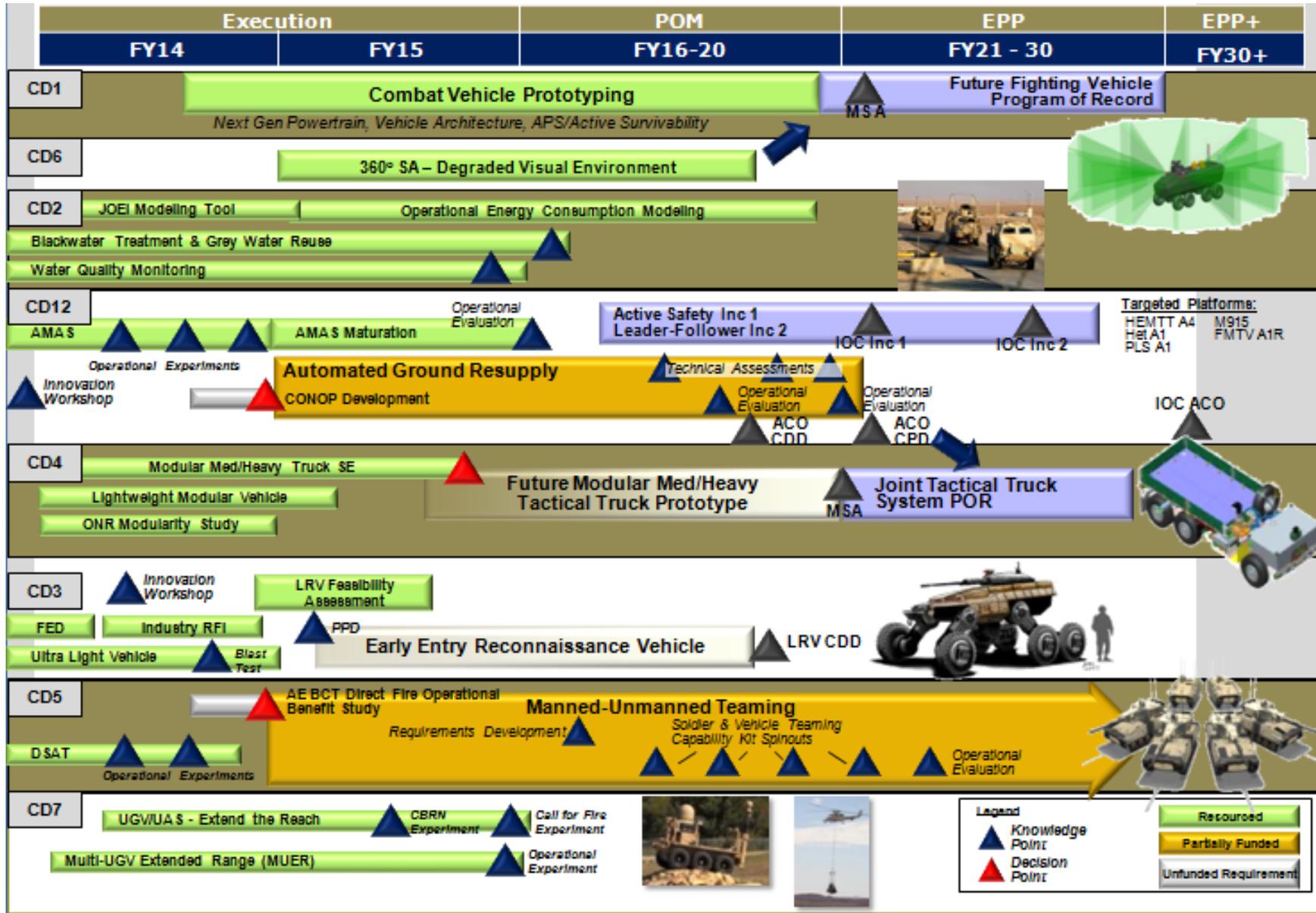
Mike Del Rose, (586) 282-6242, [michael.s.delrose.civ@mail.mil](mailto:michael.s.delrose.civ@mail.mil)

Garett Patria, (586) 282-5692, [garett.s.patria.civ@mail.mil](mailto:garett.s.patria.civ@mail.mil)

**ESTIMATED SOLICITATION RELEASE DATE:** TBD



# GROUND VEHICLE CAPABILITY DEMONSTRATIONS



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