

# 5.0 PEO LS PROGRAMS

## Advanced Technology Investment Plan

The following sections discuss the Technology Investment Plan for each PEO LS program. The various PEO LS programs are introduced, top technical issues are highlighted, active S&T initiatives are listed and a roadmap presented that aligns the S&T initiatives with the program schedule and funding.

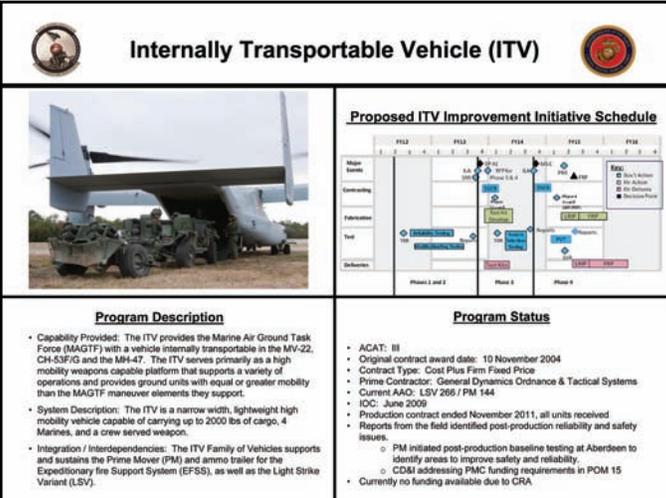
Each PEO LS program has a dedicated section that addresses the specific program’s top three technical issues and is broken down into three parts:



**INTERNALLY TRANSPORTABLE VEHICLE (ITV)**

<p><b>Program Description</b></p> <p>The ITV program has been developed to field a family of light attack vehicles in support of expeditionary forces. The ITV-LSV will replace the Interim Fast Attack Vehicle (IFAV) as well as fill the tactical void created by the disposal of all M151 Jeep variants. The ITV is designed to be internally transportable within both the MV-22 tilt-rotor aircraft and CH-53D/E rotary wing aircraft. ITV has been fielded as a system of systems. Light Strike Vehicle supports Infantry, Recon, and SOF while Prime Mover tows Expeditionary Fire Support System mortars and ammunition trailers.</p> <p><b>Program Status</b></p> <p>Production and fielding completed in December 2012. Support will transition from CLS to organic support in FY14. The ITV Improvement Initiative (I3) is under way to identify safety and reliability issues. Reliability and performance testing is being conducted at Aberdeen Test Center along with engineering and design analysis to improve system deficiencies. Efforts outside of the Program Office are exploring operational concepts to aid in lightening the MAGTF, including the Autonomous resupply mission.</p>	<p><b>ITV'S Top Three Program Technology Issues:</b></p> <p><b>1. Stability/Braking</b> The ITV was designed with a narrow wheel base driven by the requirement to fit in the MV-22. Due to the unconventional vehicle wheel base the front brake proportioning valve has been adjusted to compensate for system design. This design has led to stability and braking issues. System performance could be greatly improved with the addition of an Anti Lock Braking System.</p> <p><b>2. Reliability/Durability</b> Primary vehicle areas that lack adequate reliability include the following: Drive shaft, half shafts, and rear steer system. These issue areas are being addressed through the I3 effort.</p> <p><b>3. Corrosion</b> Improper Chemical Agent Resistant Coating painting procedures during ITV production and lack of operator preventive maintenance, checks, and services has led to significant corrosion issues for the ITV fleet. The Program Office is currently working with the CPAC team to address the corrosion issues encountered in the ITV fleet.</p>
--	---

**Part One - Program Description, Program Status & Top Technical Issues**



**Internally Transportable Vehicle (ITV)**

<p><b>Program Description</b></p> <ul style="list-style-type: none"> <li>• Capability Provided: The ITV provides the Marine Air Ground Task Force (MAGTF) with a vehicle internally transportable in the MV-22, CH-53D/E and the MH-47. The ITV serves primarily as a high mobility weapons capable platform that supports a variety of operations and provides ground units with equal or greater mobility than the MAGTF maneuver elements they support.</li> <li>• System Description: The ITV is a narrow width, lightweight high mobility vehicle capable of carrying up to 2000 lbs of cargo, 4 Marines, and a crew served weapon.</li> <li>• Integration / Interdependencies: The ITV Family of Vehicles supports and sustains the Prime Mover (PM) and ammo trailer for the Expeditionary Fire Support System (EFSS), as well as the Light Strike Variant (LSV).</li> </ul>	<p><b>Proposed ITV Improvement Initiative Schedule</b></p> <p>Phase 1 and 2   Phase 3   Phase 4</p>
<p><b>Program Status</b></p> <ul style="list-style-type: none"> <li>• ACAT: III</li> <li>• Original contract award date: 10 November 2004</li> <li>• Contract Type: Cost Plus Firm Fixed Price</li> <li>• Prime Contractor: General Dynamics Ordnance &amp; Tactical Systems</li> <li>• Current AAO: LSV 266 / PM 144</li> <li>• IOC: June 2009</li> <li>• Production contract ended November 2011, all units received</li> <li>• Reports from the field identified post-production reliability and safety issues. <ul style="list-style-type: none"> <li>◦ PM initiated post-production baseline testing at Aberdeen to identify areas to improve safety and reliability.</li> <li>◦ CDRI addressing PMC funding requirements in POM 15</li> </ul> </li> <li>• Currently no funding available due to CRA</li> </ul>	

**Part Two - Program Quad**

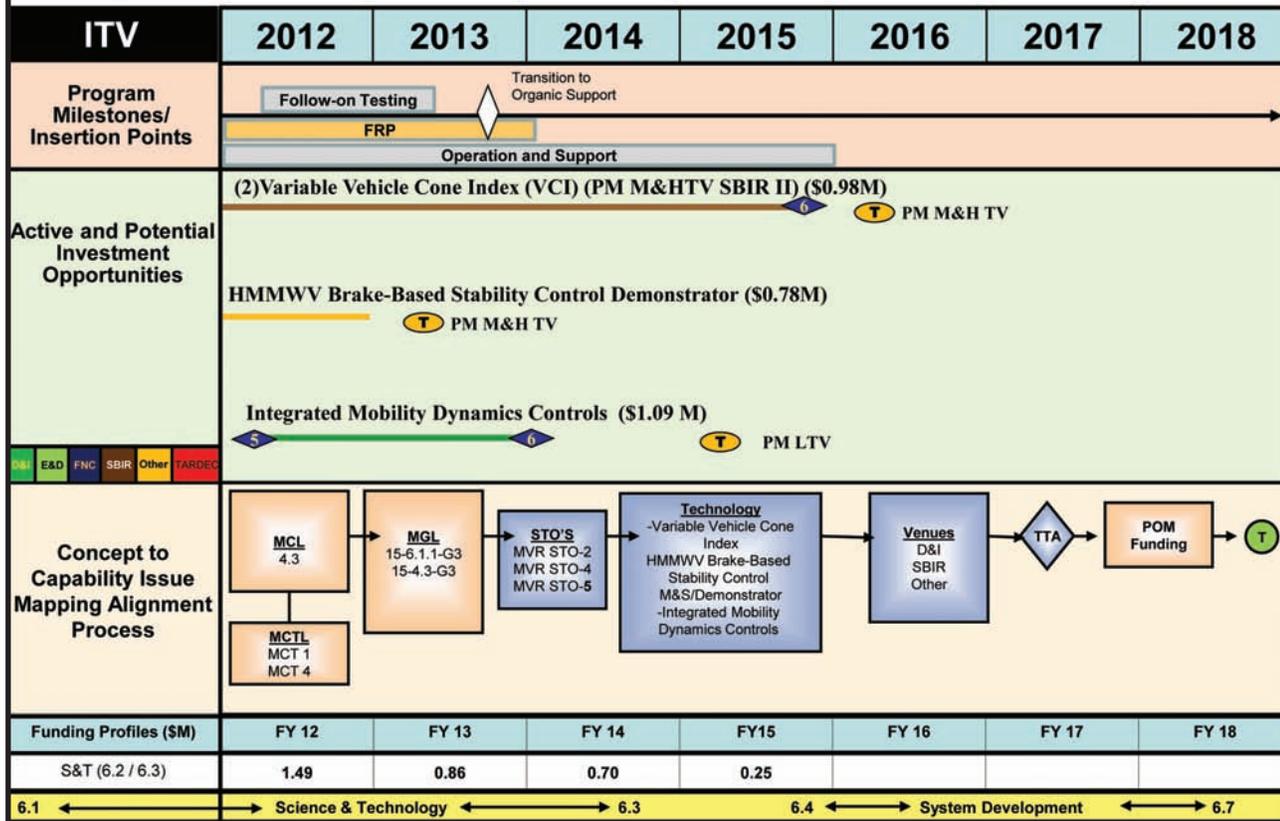
**Part One** contains the individual program’s description, program status, and top three technical issues.

**Part Two** contains the individual program’s quad chart, which addresses the program’s fundamental information and characteristics.

**Part Three** graphically addresses the top three technical issues by breaking down each issue individually and aligning it from the concept to the capability it will provide (see chart on following page). This process traces the issue from the MCL, identifies the Gap in capability via the MGL, identifies the STOs and various S&T technology venues that address the technical issue, and illustrates the transition of the technology to the POR.



## ITV Technical Issue #1 Stability/Braking



**Part Three - Example of an Advanced Technology Investment Plan/Process for ITV**

The Part Three chart above provides an example of an Advanced Technology Investment Plan/Process for the ITV program. The top area identifies the program major milestones. The next area is the S&T initiatives that may help resolve the technology issues identified. The symbol T is used at the end of a project to identify the program that is being targeted for insertion of the new technology. The yellow section maps the top issue to the capability (Marines Corps Capability List), describes the gap (Marines Corps Gap List) the capability is intended to address, and shows the transition period to transition the capability to the POR. The bottom white area shows the funding profile associated with the S&T initiatives for each listed year.

The color-coded key on the middle far left of the roadmap identifies types of S&T venues.

- D&I **Discovery and Invention (D&I)** programs consist of basic and applied research.
- E&D **Exploitation and Development (E&D)** focuses on incorporating that research into systems in preparation for inclusion into acquisition programs.
- FNC **Future Naval Capabilities (FNCs)** provide the best technology solutions to formally defined capability gaps, and usually leverage past D&I and E&D success.



**Small Business Innovation Research (SBIR)/ Small Business Technology Transfer (STTR)** programs for small business innovation.



**Other** is a variety of other investment types, including projects involving the Office of the Secretary of Defense, initiatives that are sponsored by the program office, such as Phase “A” studies, congressional “plus ups”, and all those not otherwise covered.



**Tank and Automotive Research, Development and Engineering Center**, located in Warren, Michigan, is the U.S. Armed Forces’ research and development facility for advanced technology in ground systems. It is part of the RDECOM, a major subordinate command of the United States Army Materiel Command. Current technology focus areas include GVPM, Ground System Survivability and Force Protection Technology, among others.



The diamond shapes depict the Transition Readiness Levels (TRLs). TRLs are used to measure the maturity level of the S&T activities and initiatives.

TRL 1 – Basic principle observation and report

TRL 2 – Technology concepts or applications (or both) formulated

TRL 3 – Analytical and experimental critical function or characteristic proof of concept (or both)

TRL 4 – Component or breadboard validation in a laboratory environment

TRL 5 – Component or breadboard validation in the relevant environment

TRL 6 – System/subsystem model or prototype demonstration in a relevant environment

TRL 7 – System prototype demonstration in an operational environment

***Goal: Use all S&T venues to leverage resources for PEO LS programs to close Warfighter Gaps and solve Program Technology Needs.***

The mapping alignment process traces the technology issue/S&T initiative from the required capability to the transitioned technology. Using ITV as an example, 4.3 (Maintain Equipment) identifies the capability that is associated with the technical issue. MGL 15-6.1.1G3 (On-the-move capability) identifies the gap. Maneuver STO-2 identifies the S&T Objective. The issues are then traced through potential technologies and venues to the funded transition of that advanced technology capability.

In summary, the Advanced Technology Investment Plan for each program captures the active S&T initiatives that are currently being pursued by the program office and are aligned to high priority technical issues and capability gaps in order to “Focus the Future Faster” by delivering gap closing capabilities to the Warfighter.