Ground Combat
Tactical Vehicles

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USMC Capability Development Command
Joint Expeditionary Force in Readiness

Core Missions

Crisis Response

Assuring Littoral Access

Historically Based Knowledge, Expertise & Success

United States Marine Corps
• 75% of people live within 200mi of a coast
• 70% of world is water
• 95% of international communications travels via underwater cables

A Maritime Nation with global responsibilities

Access challenges...

Largely in the Littorals

• 23,000 ships are underway daily carrying 90% of the world’s international commerce
• 49% of the world’s oil travels through 6 chokepoints
• 25% of the world’s oil and gas is drilled at sea

USS KEARSARGE (LHA-3)  USS PONCE (LPD-15)  USS CARTER HALL (LSD-50)

**ODYSSEY DAWN**
19-30 Mar 11 – Air strikes
22 Mar 11 – Recovery ops

**PAKISTAN HA/DR**
4 Sep 10 – 10 Nov 10

**JORDAN OPERATIONAL DEPLOYMENT PROGRAM**
22 Nov 10 – 4 Dec 10

**IRON MAGIC**
12-23 Dec 10

**JOINT OPS**
Sep-Dec 10

**SHAMAL 10**
9 – 20 Nov 10

**EDGED MALLET**
15-29 Nov 10

**OEF Combat Ops**
Jan 10 – May 11

Aug 2010: Deployed one month early to Pakistan
Sep-Nov 2010: Humanitarian relief 400 miles into Pakistan
Sep-Dec 2010: Operations and engagement in Persian Gulf, Jordan, Kenya and Horn of Africa
Jan 10–May 11: Combat ops in Helmand Province, AFG
Feb 2011: Egypt contingency response from the Red Sea
March 11: Ordered to execute operations in Libya
Reinforced from Camp Lejeune
MV-22s self deploy from CENTCOM to Med.
March 2011: Strike operations and recover downed airmen in Libya
May 2011: Return to Camp Lejeune, NC

If Not an ARG/MEU Then What?
Ship to Objective Maneuver

- **Mobility**
  - Vertical & surface options
  - Capability & capacity for high & low-end

- **Command and Control**
  - Decentralized execution & common picture

- **Intelligence**
  - Locate & identify forces & impediments to mobility
  - Pull vice push information

- **Fires**
  - Immediate & responsive – all weather – lethal & non lethal
  - Unmanned systems

- **Information Operations and Computer Network Operations**

- **Sea-based Operations and Logistics**
Our Challenge is not just the “Nature of the Enemy”

1945: 15 sq mi
3 USMC divisions
68,000 Marines/sailors
22,000 Japanese

2009: 17,508 sq mi
1 Infantry Bn

1862: 15 sq mi
8 corps/113,000

There is a tyranny of distance and distribution. Our challenge is make it an advantage – not a liability.

“Recognize that small, distributed, agile general purpose tactical formations are a nightmare for enemy commanders.”
## 2011 Ground Combat Tactical Vehicle Strategy

<table>
<thead>
<tr>
<th>2009 AAO</th>
<th>Current Quantity</th>
<th>Estimated Future AAO (Retire Excess by 2013/14)</th>
</tr>
</thead>
<tbody>
<tr>
<td>609</td>
<td>447 M1A1</td>
<td>400</td>
</tr>
<tr>
<td>1057</td>
<td>1057 AAV</td>
<td>694 decreasing to 392 Upgraded as Bridge to ACV</td>
</tr>
<tr>
<td>573</td>
<td>894 LAV</td>
<td>1000</td>
</tr>
<tr>
<td>1005</td>
<td>191 ITV</td>
<td>250</td>
</tr>
<tr>
<td>2254</td>
<td>2013 LVS/LVSR</td>
<td>2000</td>
</tr>
<tr>
<td>8835</td>
<td>8754 MTVR</td>
<td>8750</td>
</tr>
<tr>
<td>2225</td>
<td>850 MRAP</td>
<td>800</td>
</tr>
<tr>
<td>1420</td>
<td>300 M-ATV</td>
<td></td>
</tr>
<tr>
<td>25,840</td>
<td>23,430 HMMWV (A2) / ECV</td>
<td>12,500, 5500 JLTV, IOC FY17, IOC FY21</td>
</tr>
</tbody>
</table>

### Chart Breakdown:
- **M1A1**: 609 in 2009, decreasing to 392 by 2013.
- **AAV**: 1057 in 2009, decreasing to 392 by 2013.
- **MPC**: 573 in 2009, increasing to 1000 in 2014.
- **LAV**: 894 in 2009, increasing to 1000 in 2014.
- **ITV**: 191 in 2009, increasing to 250 in 2014.
- **MTVR**: 8754 in 2009, increasing to 8750 in 2014.
- **MRAP**: 850 in 2009, increasing to 800 in 2014.
- **M-ATV**: 300 in 2009, no change.
- **HMMWV (A2) / ECV**: 23,430 in 2009, decreasing to 12,500 by 2014, 5500 JLTV by next update.

### Timeline:
- **2008**: Base quantities.
- **2010**: Significant increases for LVS/LVSR, MTVR, MRAP.
- **2012**: Incremental increases for M1A1, AAV, MPC, LAV, ITV.
- **2014**: Peak for MPC, LAV, ITV, with M1A1 and AAV stabilizing.
- **2016**: Mild decreases for M1A1, AAV, MPC, LAV, ITV.
- **2018**: Final updates for M1A1, AAV, MPC, LAV, ITV.
- **2020**: Estimated end for most vehicles, preparations for JLTV.
- **2022**: JLTV transition.
- **2024**: Estimated end for JLTV, future unknown.
What an Amphibious Combat Vehicle Does

Critical Link – the ACV gains access from the sea for the joint force …..crosses the surf zone …gets off the beach ……to the objective

- Rolls out of the well deck of a landing ship combat ready
- Transitions without pause at the water line ready to fight
- Breaches natural and man-made water & land obstacles

- Gets the landing force off the beach
- Protects the force during offensive & defensive operations

  - An Amphibious Combat Vehicle will successfully cross ground where other vehicles get stuck

- Expands a commanders maneuver options
- Maneuvers combat power in a single lift to defeat the enemy or deter aggression

  - An Amphibious Combat Vehicle delivers mass and lethality in the attack …reduces the risk by quick build-up of force during a lodgment ashore

- Carries the supplies and gear to sustain that combat unit through the assault
Amphibious Combat Vehicle (ACV)

Description

The Amphibious Combat Vehicle (ACV) replaces the canceled Expeditionary Fighting Vehicle (EFV) with personnel and C2 variants within the Family of Vehicles (FOV). The ACV will not have the high water speed/planing requirement.

Mission: Amphibious Mobility/Firepower
Dimensions: H: ~130 in
W: ~130-146 in
L: ~320-370 in
Wt: ~50,000 – <80,000 lbs GVW
Weapon: TBD
Fire control: TBD
Capacity: 17 PAX + 3 Marine crew
Range: ~ 120 - 200 miles land, after a 12 nm swim
Speed: ~ 45 mph land, ~ 8 kts sea

Acq Status: Pre MS A
Acq Obj: TBD
IOC/FOC: TBD
Approx Unit Cost: TBD

Modernized the Assault Amphibian Battalion.
Systems Engineering OPT Process

Market Research Database
- Mechanical Systems
- Vetronics
- Systems Integration

Development Cost Estimating Tool

Requirements

Procurement Cost Estimating Tool

Attributes and Characteristics

Schedule Analysis

Technical Attributes

Life Cycle Cost Estimating Tool

Requirements Analysis and Cost Estimate Brief

Combat Development & Integration

START

Requirements Definition and Material Solutions / Cost Models Matured to an "Acceptable" Level?

No

Research and Technical Analysis

Education

Initial Meeting

With CD & I

Go

Yes

Final Report to CD&I
LAV & MPC

LAV – in the Light Armored Reconnaissance Battalion.

- Mission – To conduct reconnaissance, security, and economy-of-force operations, limited offensive or defensive operations that exploit the unit’s mobility and firepower.
  - Conduct Reconnaissance for GCE or MAGTF commander in the close and deep battle space
  - Conduct security operations to protect the GCE or MAGTF
  - Win the counter-reconnaissance fight
  - Exploit opportunities with long range firepower and mobility
- Eight-wheeled armored combat vehicle with a 25-year history to remain in service until to 2025 and possibly beyond.

MPC – will reside in the Amphibious Assault Battalion.

- Mission – To provide armor-protected mobility for infantry battalion maneuver task forces. Two MPC lift a reinforced rifle squad.
- The MPC program balances vehicle performance, protection, and payload attributes.
Joint Light Tactical Vehicle (JLTV)

Mission: Light Combat mission roles and fwd Cmd
Dimensions: H: ~85 in operating ht (reducible to 76 in)
            W: ~96 in
            L: ~207 in
            GVW: below 20k lbs

Weapons: .50cal/Mk19, TOW, Remote weapon

Expeditionary: CH53, CH47, Amphib and MPF compatible

Speed: 70 mph, 45 mph on 5% grade

Range: 300 miles

Acq Status: MS B 2012
Acq Obj: 5,500 (Increment 1)
IOC/FOC: 2017/2022
Approx Unit Cost: $360K

Variants:
  - Weapons carrier
  - Gen Purpose
  - TOW carrier
  - Utility
  - Fwd C2
Affordability and the Iron Triangle

Cost further constrains the Iron Triangle:
Field an affordable fleet of ground combat and tactical vehicles that provide required capabilities and adequate capacity to meet the operational demands of the expeditionary MAGTF.
Managing Affordability

8 Bn Lift via ACV / 4 Bn Lift via MPC

AOA Option
## Acquisition Way Ahead

<table>
<thead>
<tr>
<th>FY12</th>
<th>FY13</th>
<th>FY14</th>
<th>FY15</th>
<th>FY16</th>
<th>FY17</th>
<th>FY18</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ACV</strong></td>
<td><strong>AAV SLEP</strong></td>
<td><strong>MPC</strong></td>
<td><strong>ACV</strong></td>
<td><strong>PRODUCTION</strong></td>
<td><strong>PRODUCTION</strong></td>
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