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Exhibit R-2, RDT&E Budget Item Justification: PB 2012 Army **DATE:** February 2011

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|---|--|--|--|---|--|--|--|--|--|--|--|
| APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 5: <i>Development & Demonstration (SDD)</i> | | | | R-1 ITEM NOMENCLATURE PE 0604642A: <i>LIGHT TACTICAL WHEELED VEHICLES</i> | | | | | | | |
|---|--|--|--|---|--|--|--|--|--|--|--|

| COST (\$ in Millions) | FY 2010 | FY 2011 | FY 2012 Base | FY 2012 OCO | FY 2012 Total | FY 2013 | FY 2014 | FY 2015 | FY 2016 | Cost To Complete | Total Cost |
|------------------------------|----------------|----------------|---------------------|--------------------|----------------------|----------------|----------------|----------------|----------------|-------------------------|-------------------|
| Total Program Element | 1.140 | 1.990 | - | - | - | - | - | - | - | 0.000 | 3.130 |
| E40: <i>LTV Prototype</i> | 1.140 | 1.990 | - | - | - | - | - | - | - | 0.000 | 3.130 |

Note

FY 2012 funds support the HMMWV Ambulance program.

A. Mission Description and Budget Item Justification

The High Mobility Multipurpose Wheeled Vehicle (HMMWV) is a lightweight, high performance, four-wheel drive, air transportable and air droppable, high mobility tactical wheeled vehicle. The HMMWV consists of a basic design with several variants including Cargo/Utility, Armament Carrier, Ambulance, Shelter Carrier and Armored Armament Carrier. RDT&E efforts support the integration and assessment of crew protection and safety improvements to the Light Tactical Vehicles (LTV). FY11 funding supports improvements to the HMMWV family of vehicles through the development of an ambulance variant on the Expanded Capacity Vehicle (ECV) chassis. Utilizing current production chassis for the ambulance variant incorporates engine technologies and maintainability improvements, which will result in decreased operational support costs. The FY10 Congressional Add funds fire support systems. Vehicle fires continue to be a significant cause for the number of crew casualties and equipment damage. The Congressional Funding for Fire Suppression systems will allow us to evaluate water-based extinguishing agents and delivery hardware for their ability to suppress external and internal vehicle fires as well as address aviation applications. The cooling effect, re-ignition prevention, environmental safety, and toxicity of the agents will be assessed. A novel tank fuel design will also be tested for its fire resistance against ballistic threats. Results of this program will form the basis of recommendations to Soldiers and Vehicle Program Managers for improved fire protection.

| <u>B. Program Change Summary (\$ in Millions)</u> | <u>FY 2010</u> | <u>FY 2011</u> | <u>FY 2012 Base</u> | <u>FY 2012 OCO</u> | <u>FY 2012 Total</u> |
|--|-----------------------|-----------------------|----------------------------|---------------------------|-----------------------------|
| Previous President's Budget | - | 1.990 | - | - | - |
| Current President's Budget | 1.140 | 1.990 | - | - | - |
| Total Adjustments | 1.140 | - | - | - | - |
| • Congressional General Reductions | | - | | | |
| • Congressional Directed Reductions | | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | | - | | | |
| • Congressional Directed Transfers | | - | | | |
| • Reprogrammings | - | - | | | |
| • SBIR/STTR Transfer | - | - | | | |
| • Other Adjustments 1 | 1.140 | - | - | - | - |

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| Exhibit R-2A, RDT&E Project Justification: PB 2012 Army | | | | | | | | DATE: February 2011 | | | |
| APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 5: Development & Demonstration (SDD) | | | | R-1 ITEM NOMENCLATURE PE 0604642A: LIGHT TACTICAL WHEELED VEHICLES | | | | PROJECT E40: LTV Prototype | | | |
| COST (\$ in Millions) | FY 2010 | FY 2011 | FY 2012 Base | FY 2012 OCO | FY 2012 Total | FY 2013 | FY 2014 | FY 2015 | FY 2016 | Cost To Complete | Total Cost |
| E40: LTV Prototype | 1.140 | 1.990 | - | - | - | - | - | - | - | 0.000 | 3.130 |
| Quantity of RDT&E Articles | | | | | | | | | | | |
| A. Mission Description and Budget Item Justification | | | | | | | | | | | |
| The High Mobility Multipurpose Wheeled Vehicle (HMMWV) is a lightweight, high performance, four-wheel drive, air transportable and air droppable, high mobility tactical wheeled vehicle. The HMMWV consists of a basic design with several variants including Cargo/Utility, Armament Carrier, Ambulance, Shelter Carrier and Armored Armament Carrier. RDT&E efforts support the integration and assessment of crew protection and safety improvements to the Light Tactical Vehicle (LTV). FY 2011 funding supports improvements to the HMMWV family of vehicles through the development of an ambulance variant on the Expanded Capacity Vehicle (ECV) chassis. Utilizing current production chassis for the ambulance variant incorporates engine technologies and maintainability improvements, which will result in decreased operational support costs. The FY10 Congressional Add funds fire suppression systems. Vehicle fires continue to be a significant cause for the number of crew casualties and equipment damage. The Congressional Funding for Fire Suppression systems will allow us to evaluate water-based extinguishing agents and delivery hardware for their ability to suppress external and internal vehicle fires as well as address aviation applications. The cooling effect, re-ignition prevention, environmental safety, and toxicity of the agents will be assessed. A novel tank fuel design will also be tested for its fire resistance against ballistic threats. Results of this program will form the basis of recommendations to Soldiers and Vehicle Program Managers for improved fire protection. | | | | | | | | | | | |
| B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each) | | | | | | | | FY 2010 | FY 2011 | FY 2012 | |
| Title: Program Management Description: In house Support. FY 2010 Accomplishments: Engineering Salaries | | | | | | | | Articles: 0.166 0 | - | - | - |
| | | | | | | | | | | | |
| Title: Fire Suppression Testing Description: Funding is provided for the following effort FY 2010 Accomplishments: Testing at ATC, ARL, AFRL, Public Health Command | | | | | | | | Articles: 0.678 0 | - | - | - |
| | | | | | | | | | | | |
| Title: Hardware and Test Support Description: Funding is provided for the following effort. | | | | | | | | Articles: 0.296 0 | - | - | - |
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| B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each) | | FY 2010 | FY 2011 |
| FY 2010 Accomplishments: Arctic Fire-Freeze Fire Extinguishing agent/equipment | | | |
| Title: XM997A3 HMMWV Ambulance Platform Development and Testing | | - | 1.990 |
| Description: Funding is provided for the following effort | | | |
| FY 2011 Plans: XM997A3 HMMWV Ambulance Platform Development and Testing | | | |
| Accomplishments/Planned Programs Subtotals | | 1.140 | 1.990 |
| C. Other Program Funding Summary (\$ in Millions) | | | |
| Line Item | FY 2010 | FY 2011 | FY 2012 |
| | | | Base |
| | | | OCO |
| | | | Total |
| | | | FY 2013 |
| | | | FY 2014 |
| | | | FY 2015 |
| | | | FY 2016 |
| | | | Cost To Complete |
| | | | Total Cost |
| • 4: OPA1 HI MOB MULTIPURP WHLD VEH (HMMWV) | 1,317.566 | | 0.000 1,317.566 |
| D. Acquisition Strategy | | | |
| <p>The HMMWV Ambulance strategy involves the integration of the M997A2 ambulance box on an Expanded Capacity Vehicle (ECV) chassis. The new vehicle platform is anticipated to be classified as XM997A3. Integration of the two full materiel release systems is anticipated to allow the XM997A3 to enter the acquisition system post-milestone B. FY 2011 Core RDT&E will be used to fund the developmental testing portion of the XM997A3 program. Developmental testing will occur in a relevant environment at Government and contractor test facilities. The main goals of the developmental testing for this program are: 1.) to ensure that the modified air conditioning configuration on the XM997A3 will meet or exceed the air conditioning requirements of the current ECV platforms; 2.) to ensure that the air conditioning configuration on the XM997A3 will not degrade vehicle powertrain and driveline performance; and 3.) to ensure structural integrity of the integration of the legacy ambulance box on the ECV chassis. This will ensure that the XM997A3 platform will be ready for operational testing to properly support needs of the Army medical community.</p> <p>Fire Suppression Systems Strategy will: 1) develop technical requirements and test parameters for water-based extinguishing agents; 2) identify potential agents and procure test materials; 3) Coordinate with Program Managers and other government agencies to define operational and integration impacts. 4) Conduct comparison testing against military ground vehicle and aircraft fire threats; 5) Provide recommendations to insure field units are aware of most effective extinguishing solutions and proper firefighting techniques.</p> | | | |

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E. Performance Metrics

Performance metrics used in the preparation of this justification material may be found in the FY 2010 Army Performance Budget Justification Book, dated May 2010.

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Army | | | | | | | | | | | DATE: February 2011 | | |
|--|------------------------------|--|------------------------------|--|---------------|-----------------|---------------|-------------------------------|---------------|------------------|---------------------|------------|--------------------------------|
| APPROPRIATION/BUDGET ACTIVITY 2040: Research, Development, Test & Evaluation, Army BA 5: Development & Demonstration (SDD) | | | | R-1 ITEM NOMENCLATURE PE 0604642A: LIGHT TACTICAL WHEELED VEHICLES | | | | PROJECT E40: LTV Prototype | | | | | |
| Product Development (\$ in Millions) | | | | FY 2011 | | FY 2012 Base | | FY 2012 OCO | | FY 2012 Total | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| FY 2010 Congressional Add funds Program Management | MIPR | TARDEC:Warren, MI | 0.166 | - | | - | | - | | - | Continuing | Continuing | 0.000 |
| FY 2011 Core funding supports XM997A3 Ambulance Platform Development/Testing | Various | AM General:Mishawaka, IN | - | 0.390 | | - | | - | | - | Continuing | Continuing | Continuing |
| Subtotal | | | 0.166 | 0.390 | | - | | - | | - | | | |
| Test and Evaluation (\$ in Millions) | | | | FY 2011 | | FY 2012 Base | | FY 2012 OCO | | FY 2012 Total | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| FY 2010 Congressional Add funds Portable and Fixed Extinguishing Systems Testing | MIPR | Aberdeen Test Center:Aberdeen Proving Ground, MD | 0.378 | - | | - | | - | | - | 0.000 | 0.378 | 0.000 |
| FY 2010 Congressional Add funds Fuel Tank Design Fire Vulnerability Testing | MIPR | Army Research Laboratory:Aberdeen Proving Ground, MD | 0.175 | - | | - | | - | | - | 0.000 | 0.175 | 0.000 |
| FY 2010 Congressional Add funds Multiple Aqueous Extinguishing Agent Toxicity Assessment Testing | MIPR | Public Health Command:Aberdeen Proving Ground, MD | 0.025 | - | | - | | - | | - | 0.000 | 0.025 | 0.000 |
| FY 2010 Congressional Add funds Fire Suppression Testing | C/CPFF | Air Force Research Laboratory:Tyndall Air Force Base | 0.051 | - | | - | | - | | - | 0.000 | 0.051 | 0.000 |
| FY 2010 Congressional Add funds Fire Suppression Testing | MIPR | Air Force Research Laboratory:Tyndall Air Force Base, FL | 0.049 | - | | - | | - | | - | 0.000 | 0.049 | 0.000 |
| FY 2010 Congressional Add funds Arctic Fire-Freeze Fire Extinguishing Agent/ Equipment | SS/FFP | Global Safety Labs, Inc.:Tulsa, OK | 0.296 | - | | - | | - | | - | 0.000 | 0.296 | 0.000 |
| | MIPR | | - | 1.600 | | - | | - | | - | 0.000 | 1.600 | Continuing |

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Army | | | | | | | | | | | DATE: February 2011 | | |
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| Test and Evaluation (\$ in Millions) | | | | FY 2011 | | FY 2012 Base | | FY 2012 OCO | | FY 2012 Total | | | |
|--|-----------------------------------|--|-------------------------------|----------------|-------------------|---------------------|-------------------|--------------------|-------------------|----------------------|-------------------------|-------------------|---------------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Total Prior Years Cost | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| FY 2011 Core Funding Supports XM997A3 Structural/Endurance Testing | | Aberdeen Test Center:Aberdeen Proving Ground, MD | | | | | | | | | | | |
| Subtotal | | | 0.974 | 1.600 | | - | | - | | - | 0.000 | 2.574 | |

| | Total Prior Years Cost | FY 2011 | | FY 2012 Base | | FY 2012 OCO | | FY 2012 Total | Cost To Complete | Total Cost | Target Value of Contract |
|----------------------------|-------------------------------|----------------|-------|---------------------|--|--------------------|--|----------------------|-------------------------|-------------------|---------------------------------|
| Project Cost Totals | | 1.140 | 1.990 | - | | - | | - | | | |

Remarks

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| Exhibit R-4, RDT&E Schedule Profile: PB 2012 Army | | | DATE: February 2011 | | |
| APPROPRIATION/BUDGET ACTIVITY 2040: <i>Research, Development, Test & Evaluation, Army</i> BA 5: <i>Development & Demonstration (SDD)</i> | | R-1 ITEM NOMENCLATURE PE 0604642A: <i>LIGHT TACTICAL WHEELED VEHICLES</i> | | PROJECT E40: <i>LTV Prototype</i> | |

| | FY 2010 | | | | FY 2011 | | | | FY 2012 | | | | FY 2013 | | | | FY 2014 | | | | FY 2015 | | | | FY 2016 | | | |
|-------------------------------|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 | 1 | 2 | 3 | 4 |
| Contract Award | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| XM997A3 Developmental Testing | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2012 Army | | | DATE: February 2011 |
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Schedule Details

| Events | Start | | End | |
|-------------------------------|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| Contract Award | 1 | 2011 | 1 | 2011 |
| XM997A3 Developmental Testing | 1 | 2011 | 3 | 2011 |

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