

**UNCLASSIFIED**

PE NUMBER: 0604856F  
 PE TITLE: Common Aero Vehicle

|   |                              |
|---|------------------------------|
| <b>Exhibit R-2, RDT&amp;E Budget Item Justification</b> | DATE<br><b>February 2007</b> |
|---|------------------------------|

|   |   |
|---|---|
| <b>BUDGET ACTIVITY</b><br><b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b> | <b>PE NUMBER AND TITLE</b><br><b>0604856F Common Aero Vehicle</b> |
|---|---|

| Cost (\$ in Millions)           | FY 2006<br>Actual | FY 2007<br>Estimate | FY 2008<br>Estimate | FY 2009<br>Estimate | FY 2010<br>Estimate | FY 2011<br>Estimate | FY 2012<br>Estimate | FY 2013<br>Estimate | Cost to<br>Complete | Total |
|---------------------------------|-------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|-------|
| Total Program Element (PE) Cost | 26.548            | 33.185              | 32.806              | 41.672              | 45.175              | 84.061              | 85.009              | 86.740              | Continuing          | TBD   |
| A012 Common Aerospace Vehicle   | 26.548            | 33.185              | 32.806              | 41.672              | 45.175              | 84.061              | 85.009              | 86.740              | Continuing          | TBD   |

**(U) A. Mission Description and Budget Item Justification**

The Prompt Global Strike (PGS) Mission Needs Statement (MNS) and follow-on PGS Initial Capabilities Document (ICD) identify the warfighter's need for a capability to strike globally, precisely, and rapidly, with kinetic effects, against high-payoff, time-sensitive targets in a single or multi-theater environment, when US and Allied forces have no permanent military presence or only limited infrastructure in a region, regardless of anti-access threats.

In December 2002 the DepSecDef directed the Air Force and Defense Advanced Research Projects Agency (DARPA) to establish a joint program office to accelerate the Common Aero Vehicle (CAV) effort to meet this requirement. This joint program, named Falcon, focused on the development and transition of more mature technologies into a future weapon system capable of delivering and deploying conventional payloads worldwide through space. As a result of FY05 Congressional language, the Falcon portion of the CAV program was restructured by DARPA and the Air Force to ensure it met the intent of Congress. Within the Falcon program, CAV has been redesignated the Hypersonic Technology Vehicle (HTV); all weaponization activities have been excluded from Falcon. Technologies evolving out of the Falcon program are further matured through a series of follow-on demonstrations in support of the MNS and ICD.

The program will also explore the initiation of an operational system. This will include completing the operational requirements documentation, studying least provocative basing alternatives, enhancing international transparency, and conducting effectiveness demonstrations and payload survivability assessments.

This program is Budget Activity 4, Advanced Component Development and Prototypes (ACDP), because it involves evaluating integrated technologies in as realistic an operating environment as possible to assess the performance or cost reduction potential of advanced technology.

**(U) B. Program Change Summary (\$ in Millions)**

|   | <u>FY 2006</u> | <u>FY 2007</u> | <u>FY 2008</u> | <u>FY 2009</u> |
|---|----------------|----------------|----------------|----------------|
| (U) Previous President's Budget         | 26.993         | 33.386         | 32.387         | 40.840         |
| (U) Current PBR/President's Budget      | 26.548         | 33.185         | 32.806         | 41.672         |
| (U) Total Adjustments                   | -0.445         | -0.201         |                |                |
| (U) Congressional Program Reductions    |                | -0.075         |                |                |
| Congressional Rescissions               |                | -0.126         |                |                |
| Congressional Increases                 |                |                |                |                |
| Reprogrammings                          | -0.445         |                |                |                |
| SBIR/STTR Transfer                      |                |                |                |                |
| (U) <u>Significant Program Changes:</u> |                |                |                |                |

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2007**

|  |                   |                     |                     |                     |  |                     |                     |  |                     |       |
|--|-------------------|---------------------|---------------------|---------------------|--|---------------------|---------------------|--|---------------------|-------|
| BUDGET ACTIVITY<br><b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b> |                   |                     |                     |                     | PE NUMBER AND TITLE<br><b>0604856F Common Aero Vehicle</b> |                     |                     | PROJECT NUMBER AND TITLE<br><b>A012 Common Aerospace Vehicle</b> |                     |       |
| Cost (\$ in Millions)  | FY 2006<br>Actual | FY 2007<br>Estimate | FY 2008<br>Estimate | FY 2009<br>Estimate | FY 2010<br>Estimate  | FY 2011<br>Estimate | FY 2012<br>Estimate | FY 2013<br>Estimate  | Cost to<br>Complete | Total |
| A012 Common Aerospace Vehicle  | 26.548            | 33.185              | 32.806              | 41.672              | 45.175   | 84.061              | 85.009              | 86.740   | Continuing          | TBD   |
| Quantity of RDT&E Articles   | 0                 | 0                   | 0                   | 0                   | 0  | 0                   | 0                   | 0  |                     |       |

**(U) A. Mission Description and Budget Item Justification**

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**(U) B. Accomplishments/Planned Program (\$ in Millions)**

|  | <u>FY 2006</u> | <u>FY 2007</u> | <u>FY 2008</u> | <u>FY 2009</u> |
|--|----------------|----------------|----------------|----------------|
| (U) Continue HTV system design and development, systems engineering and flight test planning/support for Phase II  | 20.470         | 23.585         | 20.903         | 9.826          |
| (U) Perform analysis and assess alternative HTV concepts/requirements and program management support   | 2.672          | 3.874          | 2.552          | 1.174          |
| (U) Perform Prompt Global Strike Analysis of Alternatives and requirements development   | 3.406          | 5.726          | 1.000          |                |
| (U) Study potentially least provocative PGS basing alternatives and measures to avoid misinterpretation  |                |                | 1.100          | 0.400          |
| (U) Conduct PGS technology demonstrations of thermal protection technologies, use of multi-mission launch vehicle components, and other technologies to assess maturity and reduce risk                  |                |                | 5.951          | 23.172         |
| (U) Assess the military utility of PGS common munitions, including BLU-108, by conducting effectiveness demonstrations and payload survivability assessments in simulated hypersonic flight environments |                |                | 1.300          | 7.100          |
| (U) Total Cost   | 26.548         | 33.185         | 32.806         | 41.672         |

**Exhibit R-2a, RDT&E Project Justification**

DATE  
**February 2007**

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|--|--|--|
| BUDGET ACTIVITY<br><b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b> | PE NUMBER AND TITLE<br><b>0604856F Common Aero Vehicle</b> | PROJECT NUMBER AND TITLE<br><b>A012 Common Aerospace Vehicle</b> |
|--|--|--|

**(U) C. Other Program Funding Summary (\$ in Millions)**

|   | <u>FY 2006</u> | <u>FY 2007</u>  | <u>FY 2008</u>  | <u>FY 2009</u>  | <u>FY 2010</u>  | <u>FY 2011</u>  | <u>FY 2012</u>  | <u>FY 2013</u>  | <u>Cost to</u>  | <u>Total Cost</u> |
|---|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-------------------|
|   | <u>Actual</u>  | <u>Estimate</u> | <u>Estimate</u> | <u>Estimate</u> | <u>Estimate</u> | <u>Estimate</u> | <u>Estimate</u> | <u>Estimate</u> | <u>Complete</u> |                   |
| (U) Other APPN  |                |                 |                 |                 |                 |                 |                 |                 |                 |                   |
| (U) Defensewide RDT&E,<br>DARPA, PE 0603285E,<br>Falcon | 40.000         | 50.000          | 50.000          | 50.000          |                 |                 |                 |                 | Continuing      | TBD               |

**(U) D. Acquisition Strategy**

Efforts will be executed by the joint AF/DARPA Falcon Program Office. Four Phase I contracts were awarded in November 2003, Other Transaction Agreements, with a duration of 6 months. A downselect between the four Phase I contractors occurred in August 2004 for Phase II with a single award using an Other Transaction Agreements contract vehicle planned through 2009. The follow-on PGS effort will begin with competitions in 2008.

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**Exhibit R-3, RDT&E Project Cost Analysis**

DATE  
**February 2007**

| BUDGET ACTIVITY  |                                   |   |                                    |                     |                           |                     |                           |                     |                           | PE NUMBER AND TITLE                 |                           | PROJECT NUMBER AND TITLE             |                   |                                 |  |
|--|-----------------------------------|---|------------------------------------|---------------------|---------------------------|---------------------|---------------------------|---------------------|---------------------------|-------------------------------------|---------------------------|--------------------------------------|-------------------|---------------------------------|--|
| <b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b>                            |                                   |   |                                    |                     |                           |                     |                           |                     |                           | <b>0604856F Common Aero Vehicle</b> |                           | <b>A012 Common Aerospace Vehicle</b> |                   |                                 |  |
| (U) <u>Cost Categories</u><br>(Tailor to WBS, or System/Item Requirements)<br>(\$ in Millions) | <u>Contract Method &amp; Type</u> | <u>Performing Activity &amp; Location</u> | <u>Total Prior to FY 2006 Cost</u> | <u>FY 2006 Cost</u> | <u>FY 2006 Award Date</u> | <u>FY 2007 Cost</u> | <u>FY 2007 Award Date</u> | <u>FY 2008 Cost</u> | <u>FY 2008 Award Date</u> | <u>FY 2009 Cost</u>                 | <u>FY 2009 Award Date</u> | <u>Cost to Complete</u>              | <u>Total Cost</u> | <u>Target Value of Contract</u> |  |
|  |                                   |   |                                    |                     |                           |                     |                           |                     |                           |                                     |                           |                                      |                   |                                 |  |
| (U) <u>Product Development</u>   |                                   |   |                                    |                     |                           |                     |                           |                     |                           |                                     |                           |                                      |                   |                                 |  |
| Four Phase I contracts   | OTA                               | various                                   | 4.293                              | 0.000               |                           | 0.000               |                           | 0.000               |                           | 0.000                               |                           | 0.000                                | 4.293             | 4.293                           |  |
| Phase II contract  | OTA                               | Lockheed-Martin, Palmdale, CA             | 14.464                             | 20.470              | Dec-05                    | 23.585              | Oct-06                    | 20.903              | Oct-07                    | 9.826                               | Oct-08                    | Continuing                           | TBD               | TBD                             |  |
| Subtotal Product Development   |                                   |   | 18.757                             | 20.470              |                           | 23.585              |                           | 20.903              |                           | 9.826                               |                           | Continuing                           | TBD               | TBD                             |  |
| Remarks:   |                                   |   |                                    |                     |                           |                     |                           |                     |                           |                                     |                           |                                      |                   |                                 |  |
| (U) <u>Test &amp; Evaluation</u>   |                                   |   |                                    |                     |                           |                     |                           |                     |                           |                                     |                           |                                      |                   |                                 |  |
| Conduct PGS tech demos   | TBD                               | SMC/XD, Los Angeles AFB, CA               | 0.000                              | 0.000               |                           | 0.000               |                           | 5.051               | Nov-07                    | 23.172                              | Oct-08                    | Continuing                           | TBD               | TBD                             |  |
| Conduct PGS conventional munitions demos   | TBD                               | SMC/XD, Los Angeles AFB, CA               | 0.000                              | 0.000               |                           | 0.000               |                           | 1.300               | Nov-07                    | 7.100                               | Oct-08                    | Continuing                           | TBD               | TBD                             |  |
| Subtotal Test & Evaluation   |                                   |   | 0.000                              | 0.000               |                           | 0.000               |                           | 6.351               |                           | 30.272                              |                           | Continuing                           | TBD               | TBD                             |  |
| Remarks:   |                                   |   |                                    |                     |                           |                     |                           |                     |                           |                                     |                           |                                      |                   |                                 |  |
| (U) <u>Development Support and Management</u>  |                                   |   |                                    |                     |                           |                     |                           |                     |                           |                                     |                           |                                      |                   |                                 |  |
| Perform analysis and assess alternative HTV concepts/requirements & program support            | various                           | various                                   | 8.821                              | 2.672               | Oct-05                    | 3.874               | Oct-06                    | 2.552               | Oct-07                    | 1.174                               | Oct-08                    | Continuing                           | TBD               | TBD                             |  |
| Perform PGS AoA  | various                           | AFSPC, Peterson AFB, CO                   | 0.000                              | 3.406               | Feb-06                    | 5.726               | Oct-06                    | 0.000               |                           | 0.000                               |                           | 0.000                                | 9.132             | 9.132                           |  |
| Develop critical CAV technology  | MIPR                              | AFRL, Kirtland AFB, NM                    | 2.000                              | 0.000               |                           | 0.000               |                           | 0.000               |                           | 0.000                               |                           | 0.000                                | 2.000             | 2.000                           |  |
| Analyze PGS requirements, basing alternatives, and launch vehicles                             | various                           | SMC/XD, Los Angeles AFB, CA               | 0.000                              | 0.000               |                           | 0.000               |                           | 3.000               | Oct-07                    | 0.400                               | Oct-08                    | Continuing                           | TBD               | TBD                             |  |
| Subtotal Development Support and Management  |                                   |   | 10.821                             | 6.078               |                           | 9.600               |                           | 5.552               |                           | 1.574                               |                           | Continuing                           | TBD               | TBD                             |  |
| Remarks:   |                                   |   |                                    |                     |                           |                     |                           |                     |                           |                                     |                           |                                      |                   |                                 |  |
| (U) Total Cost   |                                   |   | 29.578                             | 26.548              |                           | 33.185              |                           | 32.806              |                           | 41.672                              |                           | Continuing                           | TBD               | TBD                             |  |

Exhibit R-4, RDT&E Schedule Profile

DATE  
February 2007

BUDGET ACTIVITY  
04 Advanced Component Development and Prototypes (ACD&P)

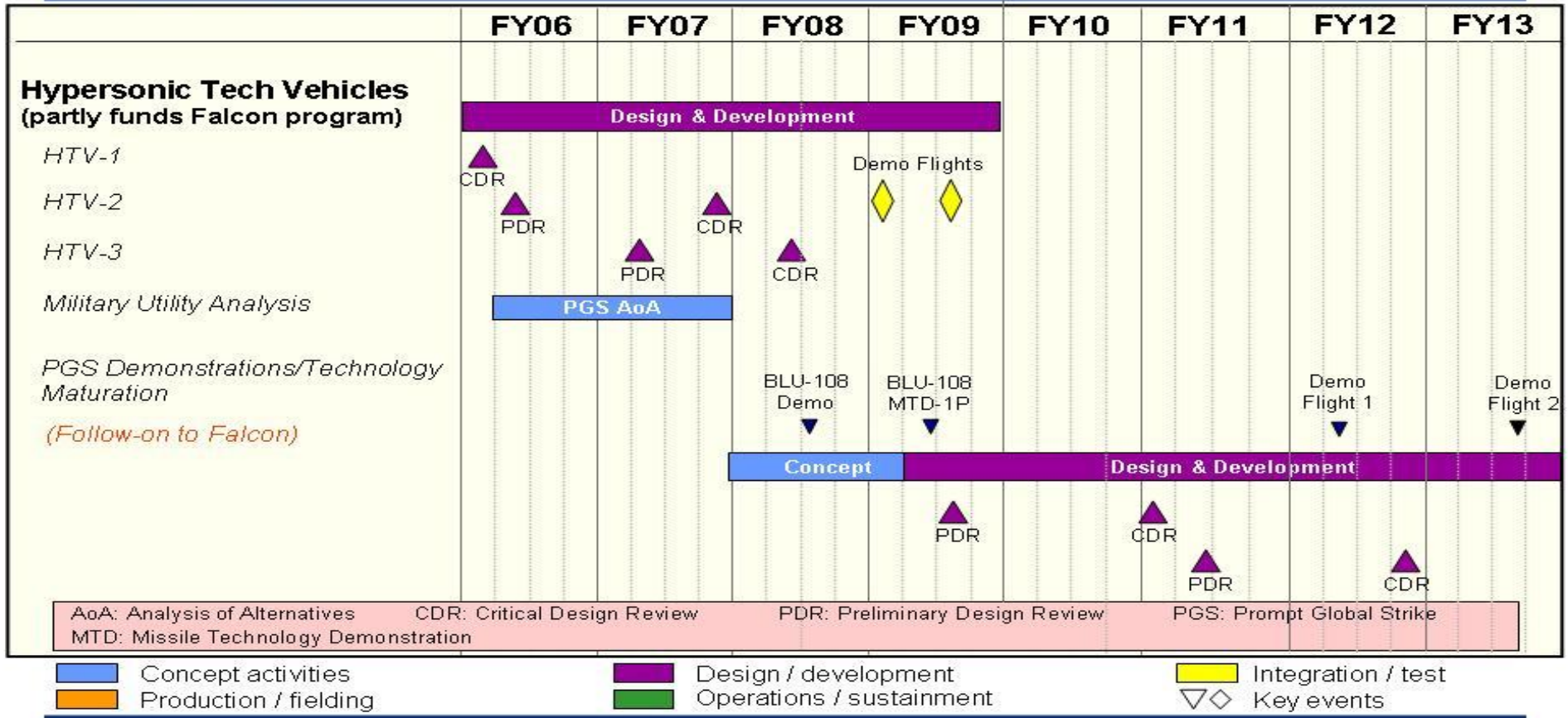
PE NUMBER AND TITLE  
0604856F Common Aero Vehicle

PROJECT NUMBER AND TITLE  
A012 Common Aerospace Vehicle



U.S. AIR FORCE

# HTV Schedule



|  |                              |
|--|------------------------------|
| <b>Exhibit R-4a, RDT&amp;E Schedule Detail</b> | DATE<br><b>February 2007</b> |
|--|------------------------------|

|   |   |   |
|---|---|---|
| <b>BUDGET ACTIVITY</b><br><b>04 Advanced Component Development and Prototypes (ACD&amp;P)</b> | <b>PE NUMBER AND TITLE</b><br><b>0604856F Common Aero Vehicle</b> | <b>PROJECT NUMBER AND TITLE</b><br><b>A012 Common Aerospace Vehicle</b> |
|---|---|---|

|   | <u>FY 2006</u> | <u>FY 2007</u> | <u>FY 2008</u> | <u>FY 2009</u> |
|---|----------------|----------------|----------------|----------------|
| (U) <b>Schedule Profile</b>               |                |                |                |                |
| (U) HTV-1 Critical Design Review (CDR)    | 1Q             |                |                |                |
| (U) HTV-2 Preliminary Design Review (PDR) | 2Q             |                |                |                |
| (U) HTV-2 CDR                             |                | 4Q             |                |                |
| (U) HTV-3 PDR                             |                | 2Q             |                |                |
| (U) HTV-3 CDR                             |                |                | 2Q             |                |
| (U) PGS AoA                               | 2-4Q           | 1-4Q           |                |                |
| (U) First HTV-2 Flight Demo Launch        |                |                |                | 1Q             |
| (U) Second HTV-2 Flight Demo Launch       |                |                |                | 3Q             |
| (U) Initiate PGS concept development      |                |                | 1Q             |                |
| (U) BLU-108 Demos                         |                |                | 3Q             | 2Q             |
| (U) PGS PDR                               |                |                |                | 3Q             |