| Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Air Force | | | | | | | | | | DATE: February 2012 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| APPROPRIATION/BUDGET ACTIVITY<br>3600: *Research, Development, Test & Evaluation, Air Force*<br>BA 7: *Operational Systems Development* | | | | R-1 ITEM NOMENCLATURE<br>PE 0408011F: *SPECIAL TACTICS/COMBAT CONTROL* | | | | | | | |
| **COST ($ in Millions)** | **FY 2011** | **FY 2012** | **FY 2013 Base** | **FY 2013 OCO** | **FY 2013 Total** | **FY 2014** | **FY 2015** | **FY 2016** | **FY 2017** | **Cost To Complete** | **Total Cost** |
| Total Program Element | 17.557 | 5.155 | 4.984 | - | 4.984 | 7.581 | 7.734 | 7.950 | 8.131 | Continuing | Continuing |
| 675138: *ST System Development* | 17.557 | 5.155 | 4.984 | - | 4.984 | 7.581 | 7.734 | 7.950 | 8.131 | Continuing | Continuing |
| Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |

**Note**

FY 2011 funding totals include $10.325M appropriated for Overseas Contingency Operations.

"The Cost to Complete and Total Cost for MDAP projects in this program element are documented in the R3. The Cost to Complete and Total Cost on the R2 are entered as "Continuing" and not reflective of the total cost for MDAP projects since the R2 does not account for prior years funding."

**A. Mission Description and Budget Item Justification**

The Special Tactics (ST) System Development project focuses on modernization developments for the Battlefield Airmen Operations (BAO) Kit. The project is a program within the overarching Battlefield Airmen Modernization (BA-Mod) Program. The BAO Kit will develop and modernize the existing Family of Systems (FoS) that provides a state-of-the-art Command, Control, Communications, Computer, Intelligence, Surveillance and Reconnaissance (C4ISR) suite for Air Force Special Operations Command's (AFSOC's) ST Battlefield Airmen. Efforts in the ST System Development project focus on reducing the risk of fratricide through C4ISR technology advances and substantially reducing the weight and bulk of the equipment carried by the ST Battlefield Airmen operator through four core capabilities: Human Machine Interface (HMI), Non Line of Sight (XLOS) targeting, Line of Sight (LOS) targeting, and Machine to Machine C4ISR System.

This program will develop and enhance technologies for ST Battlefield Airmen to recognize, identify, range and designate targets during both day and night operations. The BAO Kit significantly reduces the time required to find, fix, track, target and engage the enemy by providing highly accurate target coordinates in three dimensions, (distance, direction, elevation) generating vital imagery both pre and post-strike, and transmitting critical data to Command and Control centers. The BAO Kit system enables the ST Battlefield Airmen to employ lethal combat airpower effectively due to each system being light, compact and portable. FY13 funding of the BAO Kit will build upon HMI, XLOS targeting, LOS targeting, and Machine to Machine C4ISR System efforts which will deliver enhanced capability for the dismounted ST Battlefield Airmen through dramatic weight reduction and increased situational awareness across the full spectrum of conflict.

The Special Tactics (ST) System Development activities also include studies and analysis to support both current and future program planning and execution.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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| B. Program Change Summary ($ in Millions) | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total |
|---|---|---|---|---|---|
| Previous President's Budget | 7.345 | 7.118 | 7.538 | - | 7.538 |
| Current President's Budget | 17.557 | 5.155 | 4.984 | - | 4.984 |
| Total Adjustments | 10.212 | -1.963 | -2.554 | - | -2.554 |
| • Congressional General Reductions | - | -0.063 | | | |
| • Congressional Directed Reductions | - | -1.900 | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | - | | | |
| • Reprogrammings | - | - | | | |
| • SBIR/STTR Transfer | - | - | | | |
| • Other Adjustments | 10.212 | - | -2.554 | - | -2.554 |

**Change Summary Explanation**

FY11 Congressional General Reduction of $0.114M in Other Adjustment row.

FY12 Congressional General Reduction (FFRDC, Sec. 8023) of 0.063M.

FY12 Congressional Directed Reduction of 1.9M from FY12 Defense Appropriation Act for contract delay

FY13 funding decrease is due to higher Department of Defense priorities.

| C. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total |
|---|---|---|---|---|---|
| ***Title:*** Human Machine Interface | 2.460 | 1.316 | 1.316 | - | 1.316 |
| ***Description:*** Power Generation management exploits fuel cell battery technology to power the entire BAO Kit system (radios/computers) at a fraction of the weight and exponentially more efficient than legacy batteries carried by the operator. | | | | | |
| ***FY 2011 Accomplishments:***<br>Explored fuel cell prototypes for power generation of HMI systems through development and testing of universal batteries to drastically reduce weight and increase longevity and effectiveness for the entire suite of electronics within the BAO kit versus legacy batteries and charging systems. | | | | | |
| ***FY 2012 Plans:*** | | | | | |

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| C. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total |
|---|---|---|---|---|---|
| Continuing exploration of fuel cell prototypes for power generation of HMI systems through development and testing of universal batteries to drastically reduce weight and increase longevity and effectiveness for the entire suite of electronics within the BAO kit versus legacy batteries and charging systems through incorporating test feedback into subsequent iterations of the universal battery.<br>***FY 2013 Base Plans:***<br>Will continue exploration of fuel cell prototypes for power generation of HMI systems through development and testing of universal batteries to drastically reduce weight and increase longevity and effectiveness for the entire suite of electronics within the BAO kit versus legacy batteries and charging systems through incorporating test feedback into subsequent iterations of the universal battery to further decrease system complexity, and simplify use by incorporating intelligent power regulation and integrating low profile cabling. | | | | | |
| ***Title:*** Non-Line of Sight (XLOS)<br>***Description:*** Non-Line of Sight targeting enables the ST Battlefield Airmen to find, fix, track, target and engage the enemy by providing highly accurate target coordinates in three dimensions, generating vital imagery both pre and post-strike, and transmitting critical data to Command and Control centers all without being in direct contact with the enemy.<br>***FY 2013 Base Plans:***<br>Will continue to exploit current sensor and small unmanned aerial vehicle technology to decrease platform size and weight while increasing the capability to find, fix, track, target and engage the enemy. | - | - | 0.001 | - | 0.001 |
| ***Title:*** Line of Sight<br>***Description:*** Line of Sight-Short targeting enables the ST Battlefield Airmen to find, fix, track, target and engage the enemy at close range during day or night operations by providing highly accurate target coordinates in three dimensions and generates vital imagery both pre and post-strike at a fraction of the weight and more efficiently than legacy equipment carried by the operator.<br>***FY 2011 Accomplishments:***<br>Exploited current Line of Sight-Short technologies to improve detection and targeting of enemy forces and reduce the size and weight of the device by combining multiple capabilities of several legacy equipment items into one device.<br>***FY 2012 Plans:*** | 4.772 | 0.990 | 2.717 | - | 2.717 |

| Exhibit R-2, RDT&E Budget Item Justification: PB 2013 Air Force | DATE: February 2012 |
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| C. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total |
|---|---|---|---|---|---|
| Continuing development/testing of current and emerging Line of Sight-Short technologies to improve ST Battlefield Airmen's ability to detect and target enemy forces as well as continuing to reduce the size and weight of the device by combining multiple capabilities of several legacy equipment items into one device.<br>***FY 2013 Base Plans:***<br>Will continue development of emerging Line of Sight-Short technologies and incorporate testing feedback into system refinements to improve ST Battlefield Airmen's ability to detect and target enemy forces as well as reduce the size and weight of the device by combining multiple capabilities of several legacy equipment items into one device. | | | | | |
| ***Title:*** Machine to Machine C4ISR System<br>***Description:*** Machine to Machine Command, Control, Communications and Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) provides the ST Battlefield Airmen the ability to find, fix, track, target and engage the enemy which greatly reduces the kill chain and drastically decreases the possibility of fratricide by enhancing the operators situational awareness on the battlefield.<br>***FY 2012 Plans:***<br>Continuing development/testing of Machine to Machine technology and interfaces for C4ISR; enabling reduced kill chains and will provide greater battlefield situational awareness while engaged with the enemy, reducing the possibility of fratricide.<br>***FY 2013 Base Plans:***<br>Will continue to develop and test material prototypes of Machine to Machine interfaces for C4ISR; enabling a reduced kill chain and will provide greater battlefield situational awareness while engaged with the enemy, reducing the possibility of fratricide. | - | 2.849 | 0.950 | - | 0.950 |
| ***Title:*** HMI Software Development<br>***Description:*** Develops software to improve targeting and communications flow.<br>***FY 2011 Accomplishments:***<br>FY11 OCO focused on completing the testing for the software for targeting and communications for the Anubis Remotely Piloted Vehicle and transitioning the capability to the warfighter. | 1.650 | - | - | - | - |
| ***Title:*** PRC-117G Radio Waveform Development<br>***Description:*** Improves the waveforms used by the PRC-117G radio for use in the theater of operations. | 1.775 | - | - | - | - |

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| C. Accomplishments/Planned Programs ($ in Millions) | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total |
|---|---|---|---|---|---|
| ***FY 2011 Accomplishments:***<br>FY11 OCO focused on improving the waveforms used by the PRC-117G radio for use in the theater of operations. | | | | | |
| ***Title:*** Anubis Development Testing<br>***Description:*** Completes the testing for the Anubis Remotely Piloted Vehicle and transitioning the capability to the warfighter.<br>***FY 2011 Accomplishments:***<br>FY11 OCO focused on completing the testing for the Anubis Remotely Piloted Vehicle and transitioning the capability to the warfighter. | 6.900 | - | - | - | - |
| **Accomplishments/Planned Programs Subtotals** | 17.557 | 5.155 | 4.984 | - | 4.984 |

**D. Other Program Funding Summary ($ in Millions)**

| Line Item | FY 2011 | FY 2012 | FY 2013 Base | FY 2013 OCO | FY 2013 Total | FY 2014 | FY 2015 | FY 2016 | FY 2017 | Cost To Complete | Total Cost |
|---|---|---|---|---|---|---|---|---|---|---|---|
| • OPAF, PE 0408011F, Tactical C-E ...: *Special Operations Command* | 13.896 | 24.133 | 11.469 | 7.000 | 18.469 | 17.242 | 16.932 | 15.931 | 16.388 | Continuing | Continuing |
| • APAF, PE 0305234F, WASP: *STUASLO* | 3.253 | 2.472 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | Continuing | Continuing |

**E. Acquisition Strategy**

The evolutionary acquisition strategy will focus on meeting immediate requirements with current technology while pursuing future increments for improved accuracy, increased vertical and horizontal integration, and reduced weight. Future increments will be incorporated as funding and technology allow.

**F. Performance Metrics**

Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.

| Exhibit R-4, RDT&E Schedule Profile: PB 2013 Air Force | | DATE: February 2012 |
|---|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>3600: *Research, Development, Test & Evaluation, Air Force*<br>BA 7: *Operational Systems Development* | **R-1 ITEM NOMENCLATURE**<br>PE 0408011F: *SPECIAL TACTICS/COMBAT CONTROL* | **PROJECT**<br>675138: *ST System Development* |

| Exhibit R-4A, RDT&E Schedule Details: PB 2013 Air Force | | DATE: February 2012 |
|---|---|---|
| **APPROPRIATION/BUDGET ACTIVITY**<br>3600: *Research, Development, Test & Evaluation, Air Force*<br>BA 7: *Operational Systems Development* | **R-1 ITEM NOMENCLATURE**<br>PE 0408011F: *SPECIAL TACTICS/COMBAT CONTROL* | **PROJECT**<br>675138: *ST System Development* |

## Schedule Details

| | Start | | End | |
|---|---|---|---|---|
| **Events** | **Quarter** | **Year** | **Quarter** | **Year** |
| Human Machine Interface (HMI) | 1 | 2011 | 4 | 2017 |
| Beyond Line of Sight (XLOS) | 2 | 2015 | 3 | 2016 |
| Line of Sight (LOS) | 4 | 2012 | 3 | 2015 |
| Machine to Machine (M2M) | 1 | 2012 | 1 | 2014 |