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| Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency | | | | | | | | | | Date: February 2015 | | |
|--|-------------|---------|---------|--------------|---|---------------|---------|---------|---------|---------------------|------------------|------------|
| Appropriation/Budget Activity 0400: Research, Development, Test & Evaluation, Defense-Wide I BA 4: Advanced Component Development & Prototypes (ACD&P) | | | | | R-1 Program Element (Number/Name) PE 0604874C I Improved Homeland Defense (HLD) Interceptors | | | | | | | |
| COST (\$ in Millions) | Prior Years | FY 2014 | FY 2015 | FY 2016 Base | FY 2016 OCO | FY 2016 Total | FY 2017 | FY 2018 | FY 2019 | FY 2020 | Cost To Complete | Total Cost |
| Total Program Element | - | - | 99.500 | 278.944 | - | 278.944 | 279.565 | 71.663 | 14.004 | 14.251 | Continuing | Continuing |
| MD97: Improved HD Interceptors | - | - | 99.500 | 266.676 | - | 266.676 | 266.348 | 67.993 | 13.258 | 13.479 | Continuing | Continuing |
| MD40: Program Wide Support | - | - | - | 12.268 | - | 12.268 | 13.217 | 3.670 | 0.746 | 0.772 | Continuing | Continuing |
| Program MDAP/MAIS Code: 362 | | | | | | | | | | | | |
| Note Beginning in FY 2015, Improved Homeland Defense (HLD) Interceptors was transferred from PE Ballistic Missile Defense Midcourse Defense Segment (0603882C) MD08 Ground Based Midcourse project in accordance with Public Law 113-235, FY2015 Omnibus; Consolidated and Further Continuing Appropriations Act. | | | | | | | | | | | | |
| A. Mission Description and Budget Item Justification The intercontinental ballistic missile (ICBM) threat that endangers the United States is projected to make significant progress over the next decade in: quantity of threats; rapid launch time line with no warning; and complexity with the use of countermeasures. To counter this evolving threat, Missile Defense Agency (MDA) is adding key Homeland Defense capabilities to the Ballistic Missile Defense System (BMDS) (i.e., Long Range Discriminating Radar (LRDR) and Discrimination Improvements for Homeland Defense (DIHD)) and Ground-Based Midcourse Defense (GMD) Redesigned Kill Vehicle (RKV). The RKV will address the following three areas: design to the evolving threat for increased performance; improve reliability, availability, maintainability, testability, and producibility; and increase in-flight communications to improve usage of off-board sensors information and situational awareness to combatant commanders for enabling improvements in tactics such as shoot-assess-shoot. In FY 2016, three significant events are planned: a Preliminary Design Review (PDR), a Critical Design Review (CDR) of key components, and long lead purchases to provide a fully qualified and integrated RKV for a controlled flight test in FY 2018. To support a FY 2018 test, the Program will perform a CDR for those components requiring the longest purchase lead time. In FY 2016 the long lead material will be purchased. RKV subassemblies driving long lead procurement include the kill vehicle sensor and propulsion systems. Long lead components to be procured include the focal plane array, sensor optics, structure, thrusters and associated tooling. Procurement of these long lead components in FY2016 is required to support component and sub-assembly development testing as well as the FY2018 flight test. In addition, consideration of kill vehicle components from multiple technology offerings are to be evaluated at the design reviews allowing the government to select the best components. The two design reviews and material purchases in FY 2016 are reasons for the increase in requested funding from FY 2015 to FY 2016. In addition to concept development, government costs, and pre-contract costs, only one quarter of full effort for development will be on contract in FY 2015 versus a full year in FY 2016. MD40 Program-Wide Support (PWS) consists of essential non-headquarters management efforts providing integrated and efficient support to the MDA functions and activities across the entire Ballistic Missile Defense System (BMDS). | | | | | | | | | | | | |

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| Exhibit R-2, RDT&E Budget Item Justification: PB 2016 Missile Defense Agency | | | | Date: February 2015 | |
|--|---------|--|--------------|---------------------|---------------|
| Appropriation/Budget Activity | | R-1 Program Element (Number/Name) | | | |
| 0400: Research, Development, Test & Evaluation, Defense-Wide I BA 4: Advanced Component Development & Prototypes (ACD&P) | | PE 0604874C I Improved Homeland Defense (HLD) Interceptors | | | |
| B. Program Change Summary (\$ in Millions) | FY 2014 | FY 2015 | FY 2016 Base | FY 2016 OCO | FY 2016 Total |
| Previous President's Budget | - | - | - | - | - |
| Current President's Budget | - | 99.500 | 278.944 | - | 278.944 |
| Total Adjustments | - | 99.500 | 278.944 | - | 278.944 |
| • Congressional General Reductions | - | - | | | |
| • Congressional Directed Reductions | - | - | | | |
| • Congressional Rescissions | - | - | | | |
| • Congressional Adds | - | - | | | |
| • Congressional Directed Transfers | - | 99.500 | | | |
| • Reprogrammings | - | - | | | |
| • SBIR/STTR Transfer | - | - | | | |
| • Other Adjustment | - | - | 278.944 | - | 278.944 |
| Change Summary Explanation | | | | | |
| FY 2015 and 2016 changes reflect Public Law 113-235, FY2015 Omnibus; Consolidated and Further Continuing Appropriations Act which transferred Improved Homeland Defense (HLD) Interceptors from PE Ballistic Missile Defense Midcourse Defense Segment (0603882C) MD08 Ground Based Midcourse project. | | | | | |

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| Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency | | | | | | | | | | Date: February 2015 | | |
| Appropriation/Budget Activity 0400 / 4 | | | | | R-1 Program Element (Number/Name) PE 0604874C / Improved Homeland Defense (HLD) Interceptors | | | | Project (Number/Name) MD97 / Improved HD Interceptors | | | |
| COST (\$ in Millions) | Prior Years | FY 2014 | FY 2015 | FY 2016 Base | FY 2016 OCO | FY 2016 Total | FY 2017 | FY 2018 | FY 2019 | FY 2020 | Cost To Complete | Total Cost |
| MD97: Improved HD Interceptors | - | - | 99.500 | 266.676 | - | 266.676 | 266.348 | 67.993 | 13.258 | 13.479 | Continuing | Continuing |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |
| Note | | | | | | | | | | | | |
| Beginning in FY 2015, Improved Homeland Defense (HLD) Interceptors was transferred from PE Ballistic Missile Defense Midcourse Defense Segment (0603882C) MD08 Ground Based Midcourse project in accordance with Public Law 113-235, FY2015 Omnibus; Consolidated and Further Continuing Appropriations Act. | | | | | | | | | | | | |
| A. Mission Description and Budget Item Justification | | | | | | | | | | | | |
| The intercontinental ballistic missile (ICBM) threat that endangers the United States is projected to make significant progress over the next decade in: quantity of threats; rapid launch timeline with no warning; and complexity with the use of countermeasures. To counter this evolving threat, Missile Defense Agency (MDA) is adding key Homeland Defense capabilities to the Ballistic Missile Defense System (BMDS) (i.e., Long Range Discriminating Radar (LRDR) and Discrimination Improvements for Homeland Defense (DIHD)) and Ground-Based Midcourse Defense (GMD) Redesigned Kill Vehicle (RKV). The RKV will address the following three areas: design to the evolving threat for increased performance; improve reliability, availability, maintainability, testability, and producibility; and increase in-flight communications to improve usage of off-board sensors information and situational awareness to combatant commanders for enabling improvements in tactics such as shoot-assess-shoot. | | | | | | | | | | | | |
| MDA is conducting market research, completing Material Solution Analysis and is developing the RKV Acquisition Strategy. MDA is completing the RKV requirements documents to support a development contract award in FY15 that will follow a robust acquisition and systems engineering approach following the MDA acquisition management policies and processes which are tailored to DoD 5000.02 regulations. | | | | | | | | | | | | |
| B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each) | | | | | | | | | FY 2014 | FY 2015 | FY 2016 | |
| Title: Improved Homeland Defense (HLD) Interceptors | | | | | | | | | - | 99.500 | 266.676 | |
| | | | | | | | | | Articles: | | | - |
| Description: Improved Homeland Defense Interceptor provides for capability improvements to the Ground-based Midcourse Defense (GMD) component of the Ballistic Missile Defense System (BMDS). Improvements will include design work for reliability and performance updates common to the current Exoatmospheric Kill Vehicle (EKV) and GMD Redesigned Kill Vehicle (RKV) (leveraging Common Kill Vehicle Technology) built with a modular, open architecture and designed to common interfaces and standards, making upgrades easier and broadening the vendor and supplier base. Additionally, the GMD RKV will address the following three areas: design to the evolving threat for increased performance; improve reliability, availability, performance and producibility; and increase in-flight communications to improve usage of off-board sensors information and situational awareness to combatant commanders for enabling improvements in tactics such as shoot-assess-shoot. To fully comprehend the planned GMD RKV improvements, GMD will develop and deploy improvements to the Ground Systems architecture for increased in- | | | | | | | | | | | | |
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| Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency | | Date: February 2015 | |
| Appropriation/Budget Activity 0400 / 4 | R-1 Program Element (Number/Name) PE 0604874C / <i>Improved Homeland Defense (HLD) Interceptors</i> | Project (Number/Name) MD97 / <i>Improved HD Interceptors</i> | |
| B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each) | | FY 2014 | FY 2015 |
| <p>flight communications and both GMD RKV and fire control software to improve the effectiveness of on-board and off-board communication and discrimination.</p> <p>FY 2014 Accomplishments: N/A</p> <p>FY 2015 Plans: -Provide technical and business management support activities, financial management, cost and schedule performance analysis, cost estimation and analysis, configuration management and integration activities, to the Program Director with critical program status and decision quality data -Complete Market Analysis, Material Solution Analysis and Receive approval of the Redesigned Kill Vehicle (RKV) Acquisition Strategy at the Acquisition Strategy Board (ASB). -Conduct the Technology Baseline Review (TBR), the MDA equivalent to the MS A, and award the RKV Development Contract. -Complete Independent Government Estimate and Cost Analysis Requirements Document (CARD) for the RKV Development Program and submit to the Office of Secretary of Defense Cost Assessment and Program Evaluation (CAPE) for the preparation of an Independent Cost Estimate (ICE) -Initiate Preliminary Design efforts to Improve Homeland Defense for a RKV initiate long-lead for Design Verification Testing that follows Preliminary Design Review in FY 2016 -Initiate RKV Component Reliability Program to support and eliminate known risks and identify reliability improvements -Initiate development efforts to Improve Homeland Defense for Ground Systems upgrades required to support the RKV -Conduct trade studies for various technologies for Government decisions at the RKV component and system PDR -Initiate and complete System Requirements Review RKV -Initiate activities to support an FY 2016 Preliminary Design Review and Critical Design Review -Initiate long-lead material acquisitions to support design verification testing</p> <p>FY 2016 Plans: -Increase from FY 2015 to FY 2016 due to three significant events: 1) Preliminary Design Review (PDR); 2) Critical Design Review (CDR) of key components; and 3) Long lead purchases to provide a fully qualified and integrated RKV for a controlled flight test in FY 2018. To support a FY 2018 test, the Program will perform a CDR for those components requiring the longest purchase lead time. In FY 2016 the long lead material will be purchased. In addition, consideration of kill vehicle components from multiple technology offerings are to be evaluated at the design reviews allowing the government to select the best components. The two design reviews and material purchases in FY 2016 are reasons for the increase in requested funding from FY 2015 to FY 2016. In addition to concept development, government costs, and pre-contract costs, only one quarter of full effort for development will be on contract in FY 2015 versus a full year in FY 2016.</p> | | | |

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| Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency | | Date: February 2015 |
| Appropriation/Budget Activity 0400 / 4 | R-1 Program Element (Number/Name) PE 0604874C / <i>Improved Homeland Defense (HLD) Interceptors</i> | Project (Number/Name) MD97 / <i>Improved HD Interceptors</i> |

| B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each) | FY 2014 | FY 2015 | FY 2016 |
|--|----------------|----------------|----------------|
| -Provide technical and business management support activities, financial management, cost and schedule performance analysis, cost estimation and analysis, configuration management and integration activities, to the Program Director with critical program status and decision quality data -Includes robust system engineering activities that follow the FY 2015 contract award and system requirements review to include component Preliminary Design Reviews (PDR), system level PDR, Design Verification Testing, Component Critical Design Reviews (CDRs) and preparation for Component Qualification Testing -Complete component and system PDRs and order remaining long lead hardware for Design Verification Testing -Initiate robust subsystem Design Verification Testing to include Electromagnetic Environmental Effects (E3), temperature, vibration and shock environments and Highly Accelerated Lifecycle Testing to ensure increased reliability and producibility -Conduct a Development Baseline Review (DBR) following PDR, the MDA equivalent of milestone B to establish the Product Development phase and approve moving from the Technology Development phase to Development phase -Conduct Critical Design Review for Redesigned Kill Vehicle (RKV) components -Following the completion of the component CDRs, MDA will procure long lead items for Component Qualification Testing that occurs in FY 2017 to include robust ground testing, Hardware in the Loop and Computer in the Loop testing, and flight test articles -Initiate detailed design activities that support FY 2017 RKV system level Critical Design Review, test planning, and equipment and labs for Component Qualification Testing -Initiate development of special tooling and other special test equipment for the system -Initiate long-lead material acquisitions to support RKV and Ground Based Interceptors (GBI) system level ground and flight testing in FY 2018/ FY 2019 | | | |
| Accomplishments/Planned Programs Subtotals | - | 99.500 | 266.676 |

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

| Line Item | FY 2014 | FY 2015 | FY 2016 Base | FY 2016 OCO | FY 2016 Total | FY 2017 | FY 2018 | FY 2019 | FY 2020 | Cost To Complete | Total Cost |
|---|----------------|----------------|-------------------------|------------------------|--------------------------|----------------|----------------|----------------|----------------|-----------------------------|-------------------|
| • 0603294C: <i>Common Kill Vehicle Technology</i> | 67.796 | 25.639 | 46.753 | - | 46.753 | 75.262 | 71.476 | 86.814 | 99.701 | Continuing | Continuing |
| • 0603882C: <i>Ballistic Missile Defense Midcourse Defense Segment</i> | 1,064.445 | 873.923 | 1,284.891 | - | 1,284.891 | 936.425 | 803.392 | 903.539 | 912.890 | Continuing | Continuing |
| • 0604887C: <i>Ballistic Missile Defense Midcourse Defense Segment Test</i> | - | 79.877 | 64.618 | - | 64.618 | 73.485 | 81.385 | 73.848 | 94.954 | Continuing | Continuing |

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| Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency | | | | | | | | | | Date: February 2015 | |
| Appropriation/Budget Activity 0400 / 4 | | | | R-1 Program Element (Number/Name) PE 0604874C / Improved Homeland Defense (HLD) Interceptors | | | | Project (Number/Name) MD97 / Improved HD Interceptors | | | |
| C. Other Program Funding Summary (\$ in Millions) | | | | | | | | | | | |
| | | | <u>FY 2016</u> | <u>FY 2016</u> | <u>FY 2016</u> | | | | | <u>Cost To</u> | |
| <u>Line Item</u> | <u>FY 2014</u> | <u>FY 2015</u> | <u>Base</u> | <u>OCO</u> | <u>Total</u> | <u>FY 2017</u> | <u>FY 2018</u> | <u>FY 2019</u> | <u>FY 2020</u> | <u>Complete</u> | <u>Total Cost</u> |
| Remarks | | | | | | | | | | | |
| D. Acquisition Strategy | | | | | | | | | | | |
| <p>The threat continues to grow as our potential adversaries are acquiring a greater number of ballistic missiles, increasing their range and making them more complex, survivable, reliable, and accurate. The Agency will redesign the kill vehicle (RKV) to keep pace with the threats to the U.S. homeland. The RKV will be built with a modular, open architecture and designed with common interfaces and standards, making upgrades easier and broadening our vendor and supplier base. The design for growth allows future upgradability. Eventually, the new RKV will replace the kill vehicle on our current GBI fleet.</p> <p>Overall, the RKV will be developed to improve: reliability, maintainability, producibility, survivability, affordability and testability. The RKV will be designed to utilize the enhanced capabilities being developed in the Long Range Discriminating Radar (LRDR) and Discrimination Improvements for Homeland Defense (DIHD). The redesign will improve performance to meet emerging threats and will maximize the operational capacity of the GMD weapon system. The goal of this effort is to develop and field an integrated set of capabilities to improve BMDS reliability, lethality, and discrimination. The end result will be a deployed future BMDS architecture more capable of discriminating and destroying a reentry vehicle.</p> <p>The Missile Defense Agency (MDA) is developing the Ground-Based Midcourse Defense (GMD) Redesign Kill Vehicle (RKV) acquisition strategy. The RKV acquisition strategy will include a best-of-breed design approach where possible with the Government as the design authority responsible to ensure overall RKV design and development integration. The Government will implement rigorous systems engineering processes and use Federally Funded Research and Development Centers and University Affiliated Research Centers in support of the design and development. The MDA intends to award a development contract for the RKV in FY 2015, with a goal to field in 2020.</p> | | | | | | | | | | | |
| E. Performance Metrics | | | | | | | | | | | |
| N/A | | | | | | | | | | | |

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency | | | | | | | | | | | | Date: February 2015 | | | |
| Appropriation/Budget Activity 0400 / 4 | | | | | | R-1 Program Element (Number/Name) PE 0604874C / Improved Homeland Defense (HLD) Interceptors | | | | | | Project (Number/Name) MD97 / Improved HD Interceptors | | | |
| Product Development (\$ in Millions) | | | | FY 2014 | | FY 2015 | | FY 2016 Base | | FY 2016 OCO | | FY 2016 Total | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| Improved Homeland Defense (HLD) Interceptors - Advanced Concepts KV Simulation and Analysis | C/TBD | TBD : TBD | 0.000 | - | | 2.000 | | - | | - | | - | Continuing | Continuing | Continuing |
| Improved Homeland Defense (HLD) Interceptors - RKV Development | C/TBD | TBD : TBD | 0.000 | - | | 71.169 | | 157.955 | | - | | 157.955 | Continuing | Continuing | Continuing |
| Improved Homeland Defense (HLD) Interceptors - Requirements Development | C/TBD | TBD : TBD | 0.000 | - | | 4.463 | | - | | - | | - | - | 4.463 | - |
| Subtotal | | | 0.000 | - | | 77.632 | | 157.955 | | - | | 157.955 | - | - | - |
| Remarks N/A | | | | | | | | | | | | | | | |
| Support (\$ in Millions) | | | | FY 2014 | | FY 2015 | | FY 2016 Base | | FY 2016 OCO | | FY 2016 Total | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| Improved Homeland Defense (HLD) Interceptors - Concept Definition and Program Planning | C/TBD | TBD : TBD | 0.000 | - | | 6.555 | | - | | - | | - | Continuing | Continuing | Continuing |
| Improved Homeland Defense (HLD) Interceptors - Contract Support Services | C/CPFF | Various : AL/VA | 0.000 | - | | 3.045 | | 3.105 | | - | | 3.105 | Continuing | Continuing | Continuing |
| Improved Homeland Defense (HLD) | MIPR | MDA : AL/VA | 0.000 | - | | 3.080 | | 3.160 | | - | | 3.160 | Continuing | Continuing | Continuing |

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency | | | | | | | | | | | | Date: February 2015 | | | |
| Appropriation/Budget Activity 0400 / 4 | | | | | | R-1 Program Element (Number/Name) PE 0604874C / Improved Homeland Defense (HLD) Interceptors | | | | | | Project (Number/Name) MD97 / Improved HD Interceptors | | | |
| Support (\$ in Millions) | | | | FY 2014 | | FY 2015 | | FY 2016 Base | | FY 2016 OCO | | FY 2016 Total | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| Interceptors - Government Civilian Salaries | | | | | | | | | | | | | | | |
| Improved Homeland Defense (HLD) Interceptors - Other Govt Agencies | MIPR | Various : AL/VA | 0.000 | - | | 3.928 | | 4.005 | | - | | 4.005 | Continuing | Continuing | Continuing |
| Improved Homeland Defense (HLD) Interceptors - Small Business Innovation Research (SBIR) | MIPR | MDA : AL/VA | 0.000 | - | | - | | 4.395 | | - | | 4.395 | Continuing | Continuing | Continuing |
| Improved Homeland Defense (HLD) Interceptors - System and Component Engineering | C/TBD | TBD : TBD | 0.000 | - | | - | | 72.065 | | - | | 72.065 | Continuing | Continuing | Continuing |
| Improved Homeland Defense (HLD) Interceptors - Travel | MIPR | MDA : AL/VA | 0.000 | - | | 0.360 | | 0.367 | | - | | 0.367 | Continuing | Continuing | Continuing |
| Subtotal | | | 0.000 | - | | 16.968 | | 87.097 | | - | | 87.097 | - | - | - |
| Remarks N/A | | | | | | | | | | | | | | | |
| Test and Evaluation (\$ in Millions) | | | | FY 2014 | | FY 2015 | | FY 2016 Base | | FY 2016 OCO | | FY 2016 Total | | | |
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| Improved Homeland Defense (HLD) Interceptors - Qualification and Subsystem Testing | C/TBD | TBD : TBD | 0.000 | - | | - | | 21.624 | | - | | 21.624 | Continuing | Continuing | Continuing |
| Improved Homeland Defense (HLD) | C/TBD | TBD : TBD | 0.000 | - | | 4.900 | | - | | - | | - | Continuing | Continuing | Continuing |

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency | | | | | | | | | | | | Date: February 2015 | | | |
| Appropriation/Budget Activity 0400 / 4 | | | | | | R-1 Program Element (Number/Name) PE 0604874C / Improved Homeland Defense (HLD) Interceptors | | | | Project (Number/Name) MD97 / Improved HD Interceptors | | | | | |

| Test and Evaluation (\$ in Millions) | | | | FY 2014 | | FY 2015 | | FY 2016 Base | | FY 2016 OCO | | FY 2016 Total | | | |
|--------------------------------------|------------------------|--------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| Interceptors - Test Facilities | | | | | | | | | | | | | | | |
| Subtotal | | | 0.000 | - | | 4.900 | | 21.624 | | - | | 21.624 | - | - | - |

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| Remarks N/A | | | | | | | | | | | | | | | |
|-----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|

| | | | Prior Years | FY 2014 | | FY 2015 | | FY 2016 Base | | FY 2016 OCO | | FY 2016 Total | Cost To Complete | Total Cost | Target Value of Contract |
|----------------------------|--|--|-------------|---------|--|---------|--|--------------|--|-------------|--|---------------|------------------|------------|--------------------------|
| Project Cost Totals | | | 0.000 | - | | 99.500 | | 266.676 | | - | | 266.676 | - | - | - |

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| Remarks N/A | | | | | | | | | | | | | | | |
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| Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency | | | Date: February 2015 | | |
| Appropriation/Budget Activity 0400 / 4 | | R-1 Program Element (Number/Name) PE 0604874C / <i>Improved Homeland Defense (HLD) Interceptors</i> | | Project (Number/Name) MD97 / <i>Improved HD Interceptors</i> | |

Significant Event Complete ▲ Milestone Decision Complete ★ Element Test Complete ◆ System Level Test Complete ● Complete Activity ✦
 Significant Event Planned △ Milestone Decision Planned ☆ Element Test Planned ◇ System Level Test Planned ○ Planned Activity ✧

| | FY 2014 | | | | FY 2015 | | | | FY 2016 | | | | FY 2017 | | | | FY 2018 | | | | FY 2019 | | | | FY 2020 | | | |
|--|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 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 |
| Preliminary Design Review (PDR) | | | | | | | | | | | ☆ | | | | | | | | | | | | | | | | | |
| Key Component Critical Design Review (CDR) | | | | | | | | | | | | ☆ | | | | | | | | | | | | | | | | |
| Critical Design Review (CDR) | | | | | | | | | | | | | ☆ | | | | | | | | | | | | | | | |
| Complete Qualification Test | | | | | | | | | | | | | | | △ | | | | | | | | | | | | | |
| GM CTV-03 (GM Flight Test) | | | | | | | | | | | | | | | | | | △ | | | | | | | | | | |
| FTG-17 (GM Intercept Flight Test) | | | | | | | | | | | | | | | | | | | | | | △ | | | | | | |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency | | | Date: February 2015 |
| Appropriation/Budget Activity 0400 / 4 | R-1 Program Element (Number/Name) PE 0604874C / <i>Improved Homeland Defense (HLD) Interceptors</i> | Project (Number/Name) MD97 / <i>Improved HD Interceptors</i> | |

Schedule Details

| Events | Start | | End | |
|--|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| Preliminary Design Review (PDR) | 2 | 2016 | 2 | 2016 |
| Key Component Critical Design Review (CDR) | 4 | 2016 | 4 | 2016 |
| Critical Design Review (CDR) | 2 | 2017 | 2 | 2017 |
| Complete Qualification Test | 4 | 2017 | 4 | 2017 |
| GM CTV-03 (GM Flight Test) | 3 | 2018 | 3 | 2018 |
| FTG-17 (GM Intercept Flight Test) | 3 | 2019 | 3 | 2019 |

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| Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency | | | | | | | | | | Date: February 2015 | | |
| Appropriation/Budget Activity 0400 / 4 | | | | | R-1 Program Element (Number/Name) PE 0604874C / Improved Homeland Defense (HLD) Interceptors | | | | Project (Number/Name) MD40 / Program Wide Support | | | |
| COST (\$ in Millions) | Prior Years | FY 2014 | FY 2015 | FY 2016 Base | FY 2016 OCO | FY 2016 Total | FY 2017 | FY 2018 | FY 2019 | FY 2020 | Cost To Complete | Total Cost |
| MD40: Program Wide Support | - | - | - | 12.268 | - | 12.268 | 13.217 | 3.670 | 0.746 | 0.772 | Continuing | Continuing |
| Quantity of RDT&E Articles | - | - | - | - | - | - | - | - | - | - | | |
| Note Beginning in FY 2016, Program Wide Support was proportionately allocated to the Improved Homeland Defense (HLD) Interceptors | | | | | | | | | | | | |
| A. Mission Description and Budget Item Justification Program-Wide Support (PWS) contains non-headquarters management costs in support of Missile Defense Agency (MDA) functions and activities across the entire Ballistic Missile Defense System (BMDS). It Includes Government Civilians, Contract Support Services, and Federally Funded Research and Development Center (FFRDC) support. This provides integrity and oversight of the BMDS as well as supports MDA in the development and evaluation of technologies that will respond to the changing threat. Additionally, PWS includes Global Deployment personnel and support performing deployment site preparation and activation and, provides facility capabilities for MDA Executing Agent locations. Other MDA wide costs includes: physical and technical security; civilian drug testing; audit readiness; the Science, Technology, Engineering, and Mathematics (STEM) program; legal services and settlements; travel and agency training; office and equipment leases; utilities; data and unified communications support; supplies and maintenance; materiel and readiness and central property management of equipment; and similar operating expenses. Program Wide Support is allocated on a pro-rata basis and therefore, fluctuates by year based on the total adjusted RDT&E profile (which excludes:0305103C Cyber Security Initiative, 0603274C Special Program, 0603913C Israeli Cooperative Program and 0901598C Management Headquarters). | | | | | | | | | | | | |
| B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each) | | | | | | | | | FY 2014 | FY 2015 | FY 2016 | |
| Title: Program Wide Support Articles: Description: N/A FY 2014 Accomplishments: - FY 2014 Accomplishments were captured in multiple RDT&E Program Elements under MD40 Budget Project FY 2015 Plans: - FY 2015 Accomplishments are captured in multiple RDT&E Program Elements under MD40 Budget Project FY 2016 Plans: - Beginning in FY 2016, Program Wide Support was redistributed across RDT&E Program Elements with a proportional allocation to Homeland Defense (HLD) Interceptors - See paragraph A: Mission Description and Budget Item Justification | | | | | | | | | - | - | 12.268 | |
| | | | | | | | | | - | - | - | |
| Accomplishments/Planned Programs Subtotals | | | | | | | | | - | - | 12.268 | |

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| Exhibit R-2A, RDT&E Project Justification: PB 2016 Missile Defense Agency | | Date: February 2015 |
| Appropriation/Budget Activity 0400 / 4 | R-1 Program Element (Number/Name) PE 0604874C / <i>Improved Homeland Defense (HLD) Interceptors</i> | Project (Number/Name) MD40 / <i>Program Wide Support</i> |
| C. Other Program Funding Summary (\$ in Millions) N/A | | |
| Remarks | | |
| D. Acquisition Strategy N/A | | |
| E. Performance Metrics N/A | | |

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| Exhibit R-3, RDT&E Project Cost Analysis: PB 2016 Missile Defense Agency | | | | | | | | | | | | Date: February 2015 | | | |
| Appropriation/Budget Activity 0400 / 4 | | | | | | R-1 Program Element (Number/Name) PE 0604874C / Improved Homeland Defense (HLD) Interceptors | | | | Project (Number/Name) MD40 / Program Wide Support | | | | | |

| Support (\$ in Millions) | | | | FY 2014 | | FY 2015 | | FY 2016 Base | | FY 2016 OCO | | FY 2016 Total | | | |
|--|------------------------|--------------------------------------|-------------|---------|------------|---------|------------|--------------|------------|-------------|------------|---------------|------------------|------------|--------------------------|
| Cost Category Item | Contract Method & Type | Performing Activity & Location | Prior Years | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Award Date | Cost | Cost To Complete | Total Cost | Target Value of Contract |
| Program Wide Support - Agency Facilities and Maintenance (MIPR) | MIPR | Various : Multi: AL, VA | 0.000 | - | | - | | 4.944 | | - | | 4.944 | Continuing | Continuing | Continuing |
| Program Wide Support - Agency Operations and Support Civilian Salaries, Travel, Training | Allot | Various : MDA Multi: AL, CO, CA, VA, | 0.000 | - | | - | | 2.182 | | - | | 2.182 | Continuing | Continuing | Continuing |
| Program Wide Support - Agency Operations and Support Services | C/CPFF | Various : Multi: AL, VA | 0.000 | - | | - | | 5.142 | | - | | 5.142 | Continuing | Continuing | Continuing |
| Subtotal | | | 0.000 | - | | - | | 12.268 | | - | | 12.268 | - | - | - |

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| Remarks N/A | | | | | | | | | | | | | | | |
|-----------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|

| | Prior Years | FY 2014 | | FY 2015 | | FY 2016 Base | | FY 2016 OCO | | FY 2016 Total | Cost To Complete | Total Cost | Target Value of Contract |
|----------------------------|-------------|---------|--|---------|--|--------------|--|-------------|--|---------------|------------------|------------|--------------------------|
| Project Cost Totals | 0.000 | - | | - | | 12.268 | | - | | 12.268 | - | - | - |

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| Remarks N/A | | | | | | | | | | | | | | | |
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Exhibit R-4, RDT&E Schedule Profile: PB 2016 Missile Defense Agency

Date: February 2015

| | | |
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| Appropriation/Budget Activity 0400 / 4 | R-1 Program Element (Number/Name) PE 0604874C / Improved Homeland Defense (HLD) Interceptors | Project (Number/Name) MD40 / Program Wide Support |
|---|--|--|

Significant Event Complete ▲
Significant Event Planned △

Milestone Decision Complete ★
Milestone Decision Planned ☆

Element Test Complete ◆
Element Test Planned ◇

System Level Test Complete ●
System Level Test Planned ○

Complete Activity ✦
Planned Activity ✧

| | FY 2014 | | | | FY 2015 | | | | FY 2016 | | | | FY 2017 | | | | FY 2018 | | | | FY 2019 | | | | FY 2020 | | | |
|---------------------------|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|---------|---|---|---|
| | 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 |
| MD40 Program-Wide Support | | | | | | | | | ✧ | ✧ | ✧ | ✧ | ✧ | ✧ | ✧ | ✧ | ✧ | ✧ | ✧ | ✧ | ✧ | ✧ | ✧ | ✧ | ✧ | ✧ | ✧ | ✧ |

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| Exhibit R-4A, RDT&E Schedule Details: PB 2016 Missile Defense Agency | | | Date: February 2015 |
| Appropriation/Budget Activity 0400 / 4 | R-1 Program Element (Number/Name) PE 0604874C / <i>Improved Homeland Defense (HLD) Interceptors</i> | Project (Number/Name) MD40 / <i>Program Wide Support</i> | |

Schedule Details

| Events | Start | | End | |
|---------------------------|---------|------|---------|------|
| | Quarter | Year | Quarter | Year |
| MD40 Program-Wide Support | 1 | 2016 | 4 | 2020 |