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

<b>APPROPRIATION/BUDGET ACTIVITY</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>
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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	-	66.969	160.818	-	160.818	272.881	302.344	273.623	331.205	Continuing	Continuing
MD10: <i>Precision Tracking Space System (PTSS)</i>	-	64.716	154.227	-	154.227	261.452	288.779	261.922	317.087	Continuing	Continuing
MD40: <i>Program-Wide Support</i>	-	2.253	6.591	-	6.591	11.429	13.565	11.701	14.118	Continuing	Continuing

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

Space-based sensors offer on-demand, geographically independent, persistent coverage of areas of specific concern for ballistic missiles with no need for indications and warning, enabling earlier intercept opportunities. With the successful launch of two Space Tracking & Surveillance System (STSS) demonstration spacecraft in 2009, the agency has assets on-orbit to inform the design and operation of the Precision Tracking Space System (PTSS).

In FY 2010, the Missile Defense Agency (MDA) Engineering Directorate and Advanced Technology Directorate conducted system architecture studies and system engineering studies that defined the space-borne system capability needs. That effort provided the system engineering foundation for the Precision Tracking Space System FY 2011 new start.

The Precision Tracking Space System is a space and ground segment system that will provide persistent sensor coverage of enemy ballistic missiles in areas of specific concern. The Precision Tracking Space System is designed from the ground up to be an integrated part of the BMDS: one that receives inputs from acquisition sensors and provides outputs to the BMDS battle manager & missile systems. The program mitigates cost, schedule and performance risk by: 1) simplifying the design by focusing on the BMDS mission, 2) incorporating components and subsystems with high technology readiness levels and on-orbit pedigrees and 3) involving industry and the military services up front & early to inform the design for producibility, operations and sustainment.

Precision Tracking Space System supports the combatant commands` priority capability needs:

- Increase surveillance during entire threat flight spectrum.
- Provide cross-Area of Responsibility (AOR) surveillance with global coverage of missile threats to homeland.

Precision Tracking Space System contributions to combatant commanders Achievable Capabilities List include:

- Capability to engage and re-engage medium-range / intermediate-range / long-range ballistic missile threats.

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**APPROPRIATION/BUDGET ACTIVITY**  
0400: *Research, Development, Test & Evaluation, Defense-Wide*  
BA 4: *Advanced Component Development & Prototypes (ACD&P)*

**R-1 ITEM NOMENCLATURE**  
PE 0604883C: *PRECISION TRACKING SPACE SYSTEM*

- Unambiguous tracks of air and missile threats and contacts of interest continuously.
- Capability to discriminate and characterize detected objects.
- Capability to deploy mobile sensors with existing systems in response to emergent threats.
- Capability to collect and report aerospace event surveillance data.
- Capability to estimate and to confirm effects of Integrated Air and Missile Defense (IAMD) action against adversary Air and Missile Defense (AMD) systems.
- A system that maintains operational availability through natural and induced environments.

Goals and objectives for the Precision Tracking Space System are:

- Develop an operational missile tracking capability from space, which will close the BMDS fire control loop, specifically starting with the Aegis Ballistic Missile Defense weapon system. Reduce operational, fire control risk by co-locating the national lab design teams for Precision Tracking Space System and Aegis Ballistic Missile Defense, and by embedding US Navy and US Air Force operations and sustainment experts in the Precision Tracking Space System hybrid program office
- Focus on tracking raids of regional Medium-Range Ballistic Missiles, Intermediate-Range Ballistic Missiles and potential Intercontinental Ballistic Missiles from today's regional threats
- Develop and test the first spacecraft articles and the integrated ground system with the BMDS
- Ensure early industry involvement by awarding contracts to join the Integrated Systems Engineering Team (ISET) during the first spacecraft article development
- Industry partners (up to five) contribute to the national lab development effort to improve the Precision Tracking Space System design for manufacturability and reduce the production risk
- Use data from the two on-orbit Space Tracking & Surveillance System demonstration spacecraft testing events
- Benchmark models and simulations
- Allocate requirements, interface controls, and evaluate operations concepts
- Leverage experience gained from Space Tracking & Surveillance System test events to demonstrate capability and insight into Command, Control, Communication, Computers, Intelligence, Surveillance, and Reconnaissance linkages and hand off to the Aegis Ballistic Missile Defense fire control system

The Precision Tracking Space System is an element of the President's Phased Adaptive Approach.

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<b>APPROPRIATION/BUDGET ACTIVITY</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>
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<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012 Base</b>	<b>FY 2012 OCO</b>	<b>FY 2012 Total</b>
Previous President's Budget	-	66.969	123.851	-	123.851
Current President's Budget	-	66.969	160.818	-	160.818
Total Adjustments	-	-	36.967	-	36.967
• Congressional General Reductions		-			
• Congressional Directed Reductions		-			
• Congressional Rescissions	-	-			
• Congressional Adds		-			
• Congressional Directed Transfers		-			
• Reprogrammings	-	-			
• SBIR/STTR Transfer	-	-			
• Other Adjustment Detail	-	-	36.967	-	36.967

**Change Summary Explanation**

The FY 2012 \$36.967 million dollar increase in this program element corrects a prior shortfall in preliminary planning for the technical design and testbeds for the spacecraft, optical payload, and communication payload of the first article satellites. This amount is offset by \$6.928 million in efficiency savings.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2012 Missile Defense Agency									<b>DATE:</b> February 2011		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>				<b>R-1 ITEM NOMENCLATURE</b> PE 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>				<b>PROJECT</b> MD10: <i>Precision Tracking Space System (PTSS)</i>			
<b>COST (\$ in Millions)</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012 Base</b>	<b>FY 2012 OCO</b>	<b>FY 2012 Total</b>	<b>FY 2013</b>	<b>FY 2014</b>	<b>FY 2015</b>	<b>FY 2016</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
MD10: <i>Precision Tracking Space System (PTSS)</i>	-	64.716	154.227	-	154.227	261.452	288.779	261.922	317.087	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

**Note**

Preliminary Precision Tracking Space System analyses and trade studies were conducted in the BMDS Technology Program Element 0603175C in FY2010 (\$21M).

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

This Program Element funds the development of a space-borne sensor constellation and ground system that closes the fire control loop with the BMDS, specifically starting with the Aegis Ballistic Missile Defense weapon system. The Precision Tracking Space System also focuses on tracking raids of regional Medium-Range Ballistic Missiles, Intermediate-Range Ballistic Missiles and potential Intercontinental Ballistic Missiles from today's regional threats. As threats expand and mature the need for continuously available sensors and faster interceptors supports continued investment in a Precision Tracking Space System development in FY 2012. Lessons learned from the two Space Tracking & Surveillance System demonstration spacecraft currently on orbit will guide our decisions on the development of a fiscally sustainable, continuously available, operational precision track space sensor constellation and ground system.

The Precision Tracking Space System provides the effectiveness of a highly available early missile tracking capability from space by developing, launching and operating a set of first spacecraft articles using an integrated ground control system in FY 2016. The Precision Tracking Space System first spacecraft articles will demonstrate early, precise, real-time tracking of ballistic missiles in order to close the BMDS fire control loop from space. This capability significantly improves BMDS performance.

The Precision Tracking Space System avoids some of the challenges of terrestrial and airborne sensors.

- Provides reliable and constantly available ballistic missile tracking capability in the areas of the world of most concern.
- Eliminates the need for host nation agreements.
- Does not require transport to theater or limit our operational flexibility.
- Mitigates the impacts of weather effects (clouds, crosswinds and icing for airborne, and rain for radar).
- Deals with threats arising from unexpected locations or adversaries.
- Greatly lowers operation and maintenance costs.
- Observes and tracks launches beyond the range of airborne and terrestrial sensors.

Precision Tracking Space System supports essential BMDS functions by:

- Continuously observing the regional and rogue ballistic missile threat in post-boost.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2012 Missile Defense Agency	<b>DATE:</b> February 2011
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<b>APPROPRIATION/BUDGET ACTIVITY</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	<b>PROJECT</b> MD10: <i>Precision Tracking Space System (PTSS)</i>
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- Sending fire-control quality tracks to the BMDS, specifically the Aegis Ballistic Missile Defense weapon system by way of the BMDS battle manager.
- Tracking large raids of nearly simultaneously launched missiles.
- Providing radiometric data supporting challenging post-boost detection requirements, object classification, and hit/kill assessments.
- Adding infrared-based tracking to the existing radio frequency sensors in the architecture for dual phenomenology.
- Providing coverage of the geographic regions and latitudes of concern.
- Contributing modeling and simulation (M&S) emulation models to the BMDS-level M&S environment. The Precision Tracking Space System models, when added to M&S products from other BMDS elements and advanced technology projects like Airborne Infrared, will facilitate trade studies and analyses for SM3-IIB development.

The Precision Tracking Space System team capitalizes on expertise from external organizations to aid the design process:

- US Air Force. The USAF, as presumed lead service for the Precision Tracking Space System, provides operations and sustainment strategies and concepts to ensure the ground and space segments can be easily transferred to a service. The USAF has embedded its personnel in the Precision Tracking Space System hybrid program office to facilitate this function.
- US Navy. The USN, as operator of the Aegis Ballistic Missile Defense weapon system, is providing assured communications and weapon system expertise so that the Precision Tracking Space System can effectively close the fire control loop from space. To the same end, the USN will embed its personnel in the Precision Tracking Space System hybrid program office.
- Johns Hopkins University Applied Physics Laboratory (JHU/APL). As both the lead performer on the Precision Tracking Space System and the design expert for the Aegis Ballistic Missile Defense weapon system, JHU/APL shortens the communications chain by leveraging the collocation of its two design teams.

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>
<p><b>Title:</b> Precision Tracking Space System</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> See Description Below</p> <p><b>FY 2010 Accomplishments:</b> Preliminary Precision Tracking Space System analyses and trade studies were conducted in the BMDS Technology Program Element 0603175C in FY2010 (\$21M).</p> <ul style="list-style-type: none"> <li>-Conducted preliminary PTSS analyses and trade studies.</li> <li>-Defined functional allocation to integrate Precision Tracking Space System (PTSS) into the BMDS.</li> <li>-Reached Service agreement and identified the initial cadre of an Air Force Service Cell in the Precision Tracking Space System hybrid program office.</li> <li>-Conducted a BMDS-Level Review of the PTSS System Concept.</li> </ul> <p><b>FY 2011 Plans:</b></p>	<p>-</p> <p>0</p>	<p>64.716</p> <p>0</p>	<p>154.227</p> <p>0</p>

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2012 Missile Defense Agency		<b>DATE:</b> February 2011		
<b>APPROPRIATION/BUDGET ACTIVITY</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	<b>PROJECT</b> MD10: <i>Precision Tracking Space System (PTSS)</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2010</b>	<b>FY 2011</b>	<b>FY 2012</b>
<p>-Complete trades, alternatives analysis, technology readiness assessment, and concept review for Precision Tracking Space System.</p> <p>-Conduct systems engineering efforts to allocate performance between the space segment and ground segment.</p> <p>-Determine location of Precision Tracking Space System ground entry points and interfaces to the BMDS.</p> <p>-Define and document internal and external interfaces including track quality and timeliness requirements for successful Command and Control, Battle Management and Communications and sensor integration.</p> <p>-Allocate functions among major components (satellite, ground station, and command and control).</p> <p>-Define feasible system implementation to meet requirements including establishing technical trades.</p> <p>-Conduct integrated fire-control risk reduction activity with software-in-the-loop testing initially, but moving towards more complicated hardware-in-the-loop testing.</p> <p>-Conduct System Requirements Review / System Design Review.</p> <p>-Select up to five contractors to join the Integrated Systems Engineering Team (ISET) during first spacecraft article development for manufacturability and producibility analyses.</p> <p><b>FY 2012 Plans:</b></p> <p>-Obtain measurements from the breadboards models of the optical tracking and communications payloads.</p> <p>-Complete preliminary designs for subsystems in the spacecraft bus, optical payload and communications payload.</p> <p>-Complete preliminary design for the ground entry point; begin procurement and equipment installation to support 2014 segment test.</p> <p>-Complete designs engineering models for spacecraft bus, optical payload and communications payload.</p> <p>-Complete initial test bed design for the space segment (bus, optical payload and communications payload).</p> <p>-Complete mission &amp; system final design.</p> <p>-Complete preliminary architect-engineer (A-E) design and begin construction of the PTSS ground segment components necessary to support first article testing.</p>				
<p><b>Title:</b> FY 2010 Accomplishments</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> See Description Below</p> <p><b>FY 2010 Accomplishments:</b> NA</p>		-	-	-
		0		
<b>Accomplishments/Planned Programs Subtotals</b>		-	64.716	154.227

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**Exhibit R-2A, RDT&E Project Justification:** PB 2012 Missile Defense Agency **DATE:** February 2011

<b>APPROPRIATION/BUDGET ACTIVITY</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	<b>PROJECT</b> MD10: <i>Precision Tracking Space System (PTSS)</i>
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**C. Other Program Funding Summary (\$ in Millions)**

<u>Line Item</u>	<u>FY 2010</u>	<u>FY 2011</u>	<u>FY 2012</u> <u>Base</u>	<u>FY 2012</u> <u>OCO</u>	<u>FY 2012</u> <u>Total</u>	<u>FY 2013</u>	<u>FY 2014</u>	<u>FY 2015</u>	<u>FY 2016</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• 0603175C: <i>Ballistic Missile Defense Technology</i>	164.670	132.220	75.003		75.003	103.844	111.712	164.378	170.851	Continuing	Continuing
• 0603888C: <i>Ballistic Missile Defense Test and Targets</i>	737.863	1,113.425	1,071.039		1,071.039	898.680	790.906	787.113	878.215	Continuing	Continuing
• 0603890C: <i>Ballistic Missile Defense Enabling Programs</i>	355.870	402.769	373.563		373.563	331.203	314.193	336.749	346.560	Continuing	Continuing
• 0603892C: <i>BMD AEGIS</i>	1,418.992	1,467.278	960.267		960.267	957.992	1,001.510	970.607	1,033.710	Continuing	Continuing
• 0603893C: <i>SPACE TRACKING &amp; SURVEILLANCE SYSTEM</i>	148.506	112.678	96.353		96.353	53.577	47.592	32.289	34.308	Continuing	Continuing

**D. Acquisition Strategy**

MDA's FY 2012 budget submission reflects the continued emphasis on early intercept research and development, including - in the case of the Precision Tracking Space System (PTSS) - expanded sensor coverage. The acquisition strategy to conduct this technology effort consists of:

- Precision Tracking Space System leveraging the technical expertise of Federally Funded Research and Development Centers, University Affiliated Research Centers, National and DoD Laboratories.
- A national lab team will develop the PTSS first spacecraft articles and ground segment. That team is comprised of Johns Hopkins University Applied Physics Laboratory, Sandia National Laboratories, Space Dynamics Laboratory, Massachusetts Institute of Technology Lincoln Laboratory and the Naval Research Laboratory. The first article effort will define the system performance of the production system.
- PTSS awarded contracts to incorporate industry early in the laboratory-led phase via the PTSS Integrated System Engineering Team. Industry examined candidate system, subsystem and component designs for manufacturing and producibility and provided feedback to inform the overall design.
- For production of the constellation, we will competitively award a contract with industry in FY 2014. It is projected that industry participants on the Integrated System Engineering Team will be among the bidders in the production competition in an acquisition strategy that will mitigate the transition risk to industry.

**E. Performance Metrics**

NA

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency** **DATE:** February 2011

<b>APPROPRIATION/BUDGET ACTIVITY</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	<b>PROJECT</b> MD10: <i>Precision Tracking Space System (PTSS)</i>
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<b>Product Development (\$ in Millions)</b>				<b>FY 2011</b>		<b>FY 2012 Base</b>		<b>FY 2012 OCO</b>		<b>FY 2012 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Precision Tracking Space System PTSS Space and Ground Segment MD10	Various	Various:Various	-	60.646	Jan 2011	147.002	Jan 2012	-		147.002	Continuing	Continuing	Continuing
<b>Subtotal</b>			-	60.646		147.002		-		147.002			

**Remarks**  
FY 2011 PTSS Space and Ground Segment Development and Integration costs were listed under the Test and Evaluation section in the FY 2011 exhibits.

<b>Support (\$ in Millions)</b>				<b>FY 2011</b>		<b>FY 2012 Base</b>		<b>FY 2012 OCO</b>		<b>FY 2012 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Subtotal</b>			-	-		-		-		-	0.000	0.000	0.000

**Remarks**  
None.

<b>Test and Evaluation (\$ in Millions)</b>				<b>FY 2011</b>		<b>FY 2012 Base</b>		<b>FY 2012 OCO</b>		<b>FY 2012 Total</b>			
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Total Prior Years Cost</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Award Date</b>	<b>Cost</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
Precision Tracking Space System Demonstrations Testing MD10	Various	Various:Various	-	1.500	Jan 2011	1.400	Jan 2012	-		1.400	Continuing	Continuing	Continuing
<b>Subtotal</b>			-	1.500		1.400		-		1.400			

**Remarks**  
Most of the FY 2011 Test and Evaluation costs listed in the FY 2011 exhibits are now listed under the Product Development section (above).

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2012 Missile Defense Agency** **DATE:** February 2011

<b>APPROPRIATION/BUDGET ACTIVITY</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	<b>PROJECT</b> MD10: <i>Precision Tracking Space System (PTSS)</i>
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<b>Management Services (\$ in Millions)</b>				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
Precision Tracking Space System MDA Civilians MD10	Allot	MDA:MDA	-	0.600	Jan 2011	1.188	Jan 2012	-		1.188	Continuing	Continuing	Continuing
Precision Tracking Space System OGA Civilians MD10	MIPR	NRL:Various	-	0.360	Jan 2011	0.360	Jan 2012	-		0.360	Continuing	Continuing	Continuing
Precision Tracking Space System Travel and Transportation MD10	Allot	MDA:MDA	-	0.060	Jan 2011	0.200	Jan 2012	-		0.200	Continuing	Continuing	Continuing
Precision Tracking Space System Contractor Support Services MD10	C/CPFF	MDA:MDA	-	1.550	Jan 2011	4.077	Jan 2012	-		4.077	Continuing	Continuing	Continuing
<b>Subtotal</b>			-	2.570		5.825		-		5.825			

**Remarks**  
None.

	Total Prior Years Cost	FY 2011	FY 2012 Base	FY 2012 OCO	FY 2012 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	-	64.716	154.227	-	154.227			

**Remarks**

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2012 Missile Defense Agency		<b>DATE:</b> February 2011
<b>APPROPRIATION/BUDGET ACTIVITY</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	<b>PROJECT</b> MD10: <i>Precision Tracking Space System (PTSS)</i>

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<b>Exhibit R-4, RDT&amp;E Schedule Profile:</b> PB 2012 Missile Defense Agency		<b>DATE:</b> February 2011
<b>APPROPRIATION/BUDGET ACTIVITY</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	<b>PROJECT</b> MD10: <i>Precision Tracking Space System (PTSS)</i>

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**Exhibit R-4A, RDT&E Schedule Details:** PB 2012 Missile Defense Agency **DATE:** February 2011

<b>APPROPRIATION/BUDGET ACTIVITY</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604883C: <i>PRECISION TRACKING SPACE SYSTEM</i>	<b>PROJECT</b> MD10: <i>Precision Tracking Space System (PTSS)</i>
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Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
System Concept Review	4	2010	4	2010
Precision Tracking Space System First Article Initiation	2	2011	2	2011
Integrated System Engineering Team Contract Awards	2	2011	2	2011
First Article System Requirements Review	2	2011	2	2011
Optical Payload Breadboard Complete	2	2012	2	2012
First Article Preliminary Design Review	1	2013	1	2013
Ground Segment Component Implementation	1	2013	2	2015
First Article Critical Design Review	1	2014	1	2014
OPIR Cue to Track Algorithms Complete	4	2013	4	2013
Optical Payload Engineering Model Complete	4	2013	4	2013
Product Development Decision	3	2014	3	2014
Subsystem Algorithms Integrated Complete	3	2014	3	2014
Spacecraft Flight Fabrication Complete	3	2014	3	2014
Optical Payload Flight Assembly Complete	2	2015	2	2015
Precision Tracking Space Systems Production System Development & Deployment Start and Contract Award	4	2014	4	2014
Spacecraft Assembly Complete	3	2015	3	2015
Communications Payload Flight Assembly Complete	2	2015	2	2015
Ground Segment Component Complete	3	2015	3	2015
First Article Performance Verification	4	2015	4	2015
Environmental Testing Complete	3	2016	3	2016
First Article Launch	4	2016	4	2016

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<b>APPROPRIATION/BUDGET ACTIVITY</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604883C: <i>PRECISION TRACKING</i> <i>SPACE SYSTEM</i>	<b>PROJECT</b> MD40: <i>Program-Wide Support</i>
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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
MD40: <i>Program-Wide Support</i>	-	2.253	6.591	-	6.591	11.429	13.565	11.701	14.118	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0		0	0	0	0	0		

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

Program-Wide Support (PWS) contains non-headquarters management costs in support of MDA functions and activities across the entire Ballistic Missile Defense System (BMDS). Includes Government Civilians, Advisory and Assistance Services, and Federally Funded Research and Development Contracts (FFRDC) providing integrity and oversight of the BMDS as well as supporting MDA in enabling the development and evaluation of technologies that will respond to the changing threat. Other costs included provide facility capabilities for MDA Executing Agent locations (with the exception of Federal Office Building 2 after FY 2011), such as physical and technical security, legal services, travel and agency training, office and equipment leases, rents and utilities, data and unified communications support, supplies and maintenance, and similar operating expenses. Also includes legal settlements, and foreign currency fluctuations on a limited number of foreign contracts. In keeping with congressional intent, PWS is allocated among the PEs on a pro-rata basis and therefore fluctuates by year based on the total MDA budget and the individual PE's budget amount.

The budget project did not exist in program wide support in FY2010.

**B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)**

	FY 2010	FY 2011	FY 2012
<b>Title:</b> Civilian Salaries and Support	-	2.253	6.591
<b>Articles:</b>	0	0	0
<b>Description:</b> See Description Below			
<b>FY 2010 Accomplishments:</b> The budget project did not exist in program wide support in FY2010.			
<b>FY 2011 Plans:</b> See paragraph A, Mission Description and Budget Item Justification			
<b>FY 2012 Plans:</b> See paragraph A, Mission Description and Budget Item Justification			
<b>Accomplishments/Planned Programs Subtotals</b>	-	2.253	6.591

**UNCLASSIFIED**

<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2012 Missile Defense Agency		<b>DATE:</b> February 2011
<b>APPROPRIATION/BUDGET ACTIVITY</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide</i> BA 4: <i>Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 ITEM NOMENCLATURE</b> PE 0604883C: <i>PRECISION TRACKING</i> <i>SPACE SYSTEM</i>	<b>PROJECT</b> MD40: <i>Program-Wide Support</i>

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

N/A

**D. Acquisition Strategy**

N/A

**E. Performance Metrics**

NA