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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2022 Missile Defense Agency **Date:** May 2021

<b>Appropriation/Budget Activity</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide / BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 Program Element (Number/Name)</b> PE 1206893C / <i>Space Tracking and Surveillance System</i>
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COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
Total Program Element	71.122	35.469	34.144	15.176	-	15.176	-	-	-	-	-	-
MD12: <i>Space Tracking and Surveillance System (STSS)</i>	63.499	31.796	32.044	14.437	-	14.437	-	-	-	-	-	-
MC12: <i>Cyber Operations</i>	4.349	2.147	0.744	0.156	-	0.156	-	-	-	-	-	-
MD40: <i>Program-Wide Support</i>	3.274	1.526	1.356	0.583	-	0.583	-	-	-	-	-	-

**Program MDAP/MAIS Code:** 362

**Note**

Decrease from FY 2021 to FY 2022 reflects the decision to passivate the Space Tracking and Surveillance System (STSS) satellites by 3rd quarter FY 2022 due to end of service life assessment.

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

The two Space Tracking and Surveillance System (STSS) satellites launched in 2009 provide an on-orbit capability to validate remote sensor fire control integration to inform design and operation of the Missile Defense Agency (MDA) space-layer capabilities. MDA uses STSS data to characterize contribution of space data into the Missile Defense System (MDS) and to provide sensor measurements and background data supporting trade studies and analyses for MDA space-layer options for both Homeland and Regional Defense.

STSS continues to provide risk reduction for MDA space capabilities, models, algorithms, interface definitions, communications architectures, and performance across threat object acquisition, tracking, complex target signatures, discrimination, and multi-mission support. STSS also informs the MDS Concept of Operations, timelines, and performance requirements for remote space sensor cuing for ballistic missile engagements, expanding battle space for weapon systems such as Aegis Ballistic Missile Defense (BMD).

The STSS program demonstrates the functions and interfaces required for space data delivery to the MDS, validating the data quality necessary for interceptors to launch and/or engage on STSS sensor data. The two STSS satellites are operated from the ground station processing center at the Missile Defense Space Center (MDSC). The STSS satellites demonstrate MDA space-layer capabilities and reduce risk for future systems (e.g., Hypersonic and Ballistic Tracking Space Sensor) by viewing high-value Targets of Opportunity and participating in MDS flight tests. Though the STSS satellites are operating beyond their life expectancy, MDA continues STSS operations due to the continued contributions to the MDS mission. Based on annual health and status assessment of the STSS satellites, a decision to passivate the STSS satellites in FY 2022 was made. This decision enables a safe conclusion and continued stewardship of space for the extremely successful STSS program which demonstrated the necessity of on-orbit detection and tracking capability for the MDS.

The MDSC provides MDA's only centralized collaboration and integration environment that leverages existing Overhead Persistent Infrared (OPIR) enterprise integration in support of MDS research and development test, and sensor operations. The MDSC capabilities and infrastructure support flight tests, operational concept and

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<b>Appropriation/Budget Activity</b> 0400: <i>Research, Development, Test &amp; Evaluation, Defense-Wide / BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 Program Element (Number/Name)</b> PE 1206893C / <i>Space Tracking and Surveillance System</i>
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prototype development, technology demonstrations, experiments, and algorithm development within a multi-security, collaborative environment to integrate and exploit national space asset data. The MDSC also conducts studies and experiments with MDA assets such as the Spacebased Kill Assessment (SKA), and STSS, as well as other agencies' assets.

<b>B. Program Change Summary (\$ in Millions)</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>
Previous President's Budget	36.349	34.144	34.657	-	34.657
Current President's Budget	35.469	34.144	15.176	-	15.176
Total Adjustments	-0.880	0.000	-19.481	-	-19.481
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.880	0.000			
• Missile Defeat and Defense Enhancement	0.000	0.000	0.000	-	0.000
• Other Adjustment	0.000	0.000	-19.481	-	-19.481

**Change Summary Explanation**

Decrease in FY 2022 reflects decision to passivate the STSS satellites in FY 2022, bringing the program to a conclusion. Funding realigned to PE 1206895C, Budget Project MD42, to support continued development of the Hypersonic and Ballistic Tracking Space Sensor (HBTSS) program.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency										<b>Date:</b> May 2021		
<b>Appropriation/Budget Activity</b> 0400 / 4					<b>R-1 Program Element (Number/Name)</b> PE 1206893C / <i>Space Tracking and Surveillance System</i>				<b>Project (Number/Name)</b> MD12 / <i>Space Tracking and Surveillance System (STSS)</i>			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
MD12: <i>Space Tracking and Surveillance System (STSS)</i>	63.499	31.796	32.044	14.437	-	14.437	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

The decrease from FY 2021 to FY 2022 reflects the decision to passivate the STSS satellites by 3rd quarter FY 2022 due to end of service life assessment. Residual funding is transferred to PE 1206895C, Budget Project MD42, to support continued development of the Hypersonic and Ballistic Tracking Space Sensor (HBTSS) program.

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

Two Space Tracking and Surveillance System (STSS) satellites provide a low earth orbit sensor capability with visible and infrared sensors for integrated testing with other Missile Defense System (MDS) elements. STSS demonstrates space-based capabilities including persistent tracking and integrated MDS discrimination improvements. These two satellites provide valuable risk reduction for acquisition, tracking, complex scenes, and discrimination functionality to include stereo data fusion, cuing radars over-the-horizon, and over-the-horizon fire control.

The on-orbit sensors collect invaluable background, scene, and target signature data to support the Missile Defense Agency (MDA) space-layer and other weapon sensor development trade studies. STSS activities provide information for integration of space-based missile tracking (midcourse phase); remote sensor and weapons cuing via Command and Control, Battle Management and Communications (C2BMC); features and discrimination; and hit/impact point assessments. STSS enables early capability assessment to address Warfighter need for highly available early missile tracking from space, providing an operationally suitable means of global persistent surveillance and engagement. Capabilities being assessed for MDA space-layer capabilities include detecting and acquiring missiles; tracking missiles and their deployed objects; performing autonomous acquisition-to-track handover within a satellite; performing tracking handover to a satellite from a ground cue; performing uplink and downlink of mission, health, and status data both directly and via crosslink between two satellites; reporting missile and intercept event to close the fire-control loop; filtering reports to C2BMC; and providing near real-time object data to external users. STSS support to other mission areas improves definition for Enterprise system approaches.

The Missile Defense Space Center (MDSC) provides capabilities and infrastructure to support space operations, integration, and testing with the MDS. It provides a multi-level security environment for sensor data management and integration across space and terrestrial sensor data activities. MDSC experiments leverage DoD and national security space capabilities. MDSC activities support analyses, demonstration, and integration of space sensor capabilities into developmental and operational MDA elements. MDSC enables the development of advanced technology and algorithms including fusion of multiple sensor types (radar, overhead persistent infrared, electro-optical, and other emerging sensor technologies). It also supports mission integration of space-based missile tracking, sensor and weapons cuing via C2BMC, features and discrimination, kill, and impact point assessments into the MDS and other non-MDA mission areas, including Space Situational Awareness and battle space characterization.

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency	<b>Date:</b> May 2021
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<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 1206893C / <i>Space Tracking and Surveillance System</i>	<b>Project (Number/Name)</b> MD12 / <i>Space Tracking and Surveillance System (STSS)</i>
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Lessons learned and data gathered from the STSS demonstration satellites program provide valuable information for MDA space-layer modeling and simulation activities in assessing the capability provided by Overhead Persistent Infrared sensors.

Based on annual health and status assessment of the STSS satellites, a decision to passivate the STSS satellites in FY 2022 was made. This decision enables a safe conclusion and continued stewardship of space for the extremely successful STSS program which demonstrated the necessity of on-orbit detection and tracking capability for the MDS.

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

	FY 2020	FY 2021	FY 2022
<p><b>Title:</b> Demonstration Satellites</p> <p align="right"><b>Articles:</b></p> <p><b>Description:</b> The Space Tracking and Surveillance System (STSS) demonstration satellites collect and deliver critical space and missile characterization data used to design and inform the Missile Defense System (MDS) and space-layer capabilities. The Missile Defense Space Center (MDSC) facilities and activities are required for safe STSS satellite operations and sustainment. STSS activities include:</p> <ul style="list-style-type: none"> <li>- Perform risk reduction for MDA tracking and surveillance initiatives and Overhead Persistent Infrared (OPIR) Enterprise integration and demonstrations across OPIR cuing, Joint Tasking Operations, and data utility</li> <li>- Collect data to support joint OPIR mission utility assessments across Space Situational Awareness and Battle Space Awareness missions to include integration, analyses, and studies to confirm data sharing capabilities</li> <li>- Participate in Integrated Master Test Plan events</li> <li>- Conduct satellite testing to demonstrate critical space capabilities, including:                             <ul style="list-style-type: none"> <li>-- Ability to support MDS integrated discrimination efforts</li> <li>-- Ability to support Hit/Kill assessment from space</li> <li>-- Ability to cue MDS sensors from space</li> <li>-- Ability to provide precision cue to MDS sensors</li> </ul> </li> <li>- Perform satellite functionality testing and calibration as part of the satellite operations</li> <li>- Conduct missile tracking experiments as identified in the test specific sections</li> <li>- Provide Space Operations Command Space Situational Awareness support</li> </ul> <p>MDSC efforts related to STSS include:</p> <ul style="list-style-type: none"> <li>- Analyze space radiation environment and its influence on MDA space system performance</li> <li>- Analyze space-based sensor data from STSS and OPIR observations, both individually and combined, to identify phenomenology and techniques to aid tracking and discrimination architectures</li> <li>- Provide data for concept studies and analyses for alternative sensor payload configurations</li> <li>- Sustain MDSC resources for all participant activities, including data, voice, and/or video communications, and support MDA cybersecurity directives</li> </ul>	<p>31.796</p> <p align="center">-</p>	<p>32.044</p> <p align="center">-</p>	<p>14.437</p> <p align="center">-</p>

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 1206893C / <i>Space Tracking and Surveillance System</i>	<b>Project (Number/Name)</b> MD12 / <i>Space Tracking and Surveillance System (STSS)</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
- Document requirements and perform tracking, design, implementation, and verification necessary for the MDSC facility - Implement ongoing and emerging cybersecurity requirements  Specific and/or unique accomplishments to each Fiscal Year (FY) are as follows:  <b>FY 2021 Plans:</b> - SEE ABOVE  <b>FY 2022 Plans:</b> - Perform activities required for safe passivation of the two STSS satellites - Conduct contract close-out activities  <b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> Decrease from FY 2021 to FY 2022 reflects decision to passivate the STSS satellites in FY 2022, bringing the program to a conclusion.			
<b>Accomplishments/Planned Programs Subtotals</b>	31.796	32.044	14.437

<b>C. Other Program Funding Summary (\$ in Millions)</b>											
<b>Line Item</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• 0603882C: <i>Ballistic Missile Defense Midcourse Defense Segment</i>	1,275.414	1,219.261	745.144	-	745.144	-	-	-	-	-	-
• 0603884C: <i>Ballistic Missile Defense Sensors</i>	348.356	265.803	224.750	-	224.750	-	-	-	-	-	-
• 0603890C: <i>BMD Enabling Programs</i>	630.196	616.455	595.301	-	595.301	-	-	-	-	-	-
• 0603892C: <i>AEGIS BMD</i>	722.582	877.336	732.512	-	732.512	-	-	-	-	-	-
• 0603896C: <i>Ballistic Missile Defense Command and Control, Battle Management &amp; Communication</i>	550.513	645.741	603.448	-	603.448	-	-	-	-	-	-
• 0603904C: <i>Missile Defense Integration and Operations Center (MDIOC)</i>	54.783	55.356	52.403	-	52.403	-	-	-	-	-	-

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency	<b>Date:</b> May 2021
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<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 1206893C / <i>Space Tracking and Surveillance System</i>	<b>Project (Number/Name)</b> MD12 / <i>Space Tracking and Surveillance System (STSS)</i>
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**C. Other Program Funding Summary (\$ in Millions)**

<b>Line Item</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
• 0603914C: <i>Ballistic Missile Defense Test</i>	398.939	365.208	362.906	-	362.906	-	-	-	-	-	-
• 0603915C: <i>Ballistic Missile Defense Targets</i>	545.764	536.133	553.334	-	553.334	-	-	-	-	-	-
• 1206895C: <i>Ballistic Missile Defense System Space Programs</i>	139.887	162.068	292.811	-	292.811	-	-	-	-	-	-

**Remarks**

**D. Acquisition Strategy**

The STSS demonstration satellites program follows MDA's capability-based acquisition strategy that emphasizes testing, incremental development, and evolutionary acquisition. The STSS effort utilizes a single prime contractor, Northrop Grumman Aerospace Systems (NGAS) with the subcontractor Raytheon providing the sensor payload. This contract implements MDA's capability-based acquisition strategy by using existing satellite hardware as a low risk opportunity, building upon the lessons learned from previous development efforts, and establishing a series of planned enhancements to bring added capability to the MDS.

MDSC efforts will be acquired on the Specialized Warfighter Development Contract and Integrated Research and Development for Enterprise Solutions vehicles. These contracts are responsible for integrating Research, Development, Test and Evaluation, operations support, and resource and infrastructure management for the MDSC.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Missile Defense Agency** **Date:** May 2021

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 1206893C / <i>Space Tracking and Surveillance System</i>	<b>Project (Number/Name)</b> MD12 / <i>Space Tracking and Surveillance System (STSS)</i>
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<b>Product Development (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</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>Award Date</b>	<b>Cost</b>			
Demonstration Satellites - Capability Based R&D	SS/CPAF	NGAS : Redondo Beach, CA, Schriever AFB, CO	42.307	19.621	Nov 2019	20.352	Nov 2020	6.750	Nov 2021	-		6.750	0.000	89.030	69.409
Demonstration Satellites - STSS Support to Missile Defense Space Center (MDSC)	C/CPFF	Northrop Grumman/ Jacobs Engineering : Schriever AFB, CO	6.951	2.430	Nov 2019	3.805	Nov 2020	0.000		-		0.000	0.000	13.186	13.554
Demonstration Satellites - Systems Engineering	FFRDC	Aerospace : Los Angeles, CA	0.995	0.573	Nov 2019	0.000		0.000		-		0.000	0.000	1.568	1.568
<b>Subtotal</b>			50.253	22.624		24.157		6.750		-		6.750	0.000	103.784	N/A

**Remarks**  
All efforts listed above are a continuation of Program Element (PE) 0603893C, MD12

<b>Support (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</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>Award Date</b>	<b>Cost</b>			
Demonstration Satellites - Contract Support Services (CSS)	C/Various	Various : AL, CO	5.122	3.108	Nov 2019	3.072	Nov 2020	3.111	Dec 2021	-		3.111	0.000	14.413	14.413
Demonstration Satellites - IT User Services	C/CPAF	Northrop Grumman/ Jacobs Engineering : AL, AK, CA, CO, HI, NM, VA	1.194	0.646	Dec 2019	0.651	Dec 2020	0.636	Dec 2021	-		0.636	0.000	3.127	3.127
Demonstration Satellites - MDA Civilian	Allot	MDA : AL, CO	4.385	3.439	Oct 2019	3.478	Oct 2020	3.567	Oct 2021	-		3.567	0.000	14.869	14.869
Demonstration Satellites - Other Government Agency (OGA) Civilian	MIPR	SMC : Schriever AFB, CO	0.325	0.167	Nov 2019	0.000		0.000		-		0.000	0.000	0.492	0.492
Demonstration Satellites - Program Mission Support	Various	Various : Various	1.384	1.472	Nov 2019	0.346	Nov 2020	0.033	Nov 2021	-		0.033	0.000	3.235	32.353

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**Exhibit R-3, RDT&E Project Cost Analysis:** PB 2022 Missile Defense Agency **Date:** May 2021

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 1206893C / <i>Space Tracking and Surveillance System</i>	<b>Project (Number/Name)</b> MD12 / <i>Space Tracking and Surveillance System (STSS)</i>
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<b>Support (\$ in Millions)</b>				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Demonstration Satellites - UARC	C/CPFF	Utah University, Space Dynamics Laboratory : CO, VA	0.836	0.340	Nov 2019	0.340	Nov 2020	0.340	Nov 2021	-		0.340	0.000	1.856	1.856
<b>Subtotal</b>			13.246	9.172		7.887		7.687		-		7.687	0.000	37.992	N/A

**Remarks**  
All efforts listed above are a continuation of PE 0603893C, MD12

	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	63.499	31.796	32.044	14.437	-	14.437	0.000	141.776	N/A

**Remarks**  
Award Date reflects date of first obligation. Additional obligations may incrementally occur throughout the year.



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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2022 Missile Defense Agency		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 1206893C / <i>Space Tracking and Surveillance System</i>	<b>Project (Number/Name)</b> MD12 / <i>Space Tracking and Surveillance System (STSS)</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
STSS Demonstration Satellites-MDS Flight Tests/Targets of Opportunity - 1Q2020	1	2020	1	2020
STSS Demonstration Satellites On-Orbit Operations - 1Q2020-4Q2020	1	2020	4	2020
MIS Operations - 1Q2020-4Q2020	1	2020	4	2020
Mission Planning, Tasking and Analysis - 1Q2020-4Q2020	1	2020	4	2020
MDSC TIL Operations - 1Q2020-4Q2020	1	2020	4	2020
STSS Demonstration Satellites-MDS Flight Tests/Targets of Opportunity - 2Q2020	2	2020	2	2020
STSS Demonstration Satellites-MDS Flight Tests/Targets of Opportunity - 3Q2020	3	2020	3	2020
STSS Demonstration Satellites-MDS Flight Tests/Targets of Opportunity - 4Q2020	4	2020	4	2020
MIS Operations - 1Q2021-4Q2021	1	2021	4	2021
STSS Demonstration Satellites On-Orbit Operations - 1Q2021-4Q2021	1	2021	4	2021
STSS Demonstration Satellites-MDS Flight Tests/Targets of Opportunity - 1Q2021	1	2021	1	2021
Mission Planning, Tasking and Analysis - 1Q2021-4Q2021	1	2021	4	2021
MDSC TIL Operations - 1Q2021-4Q2021	1	2021	4	2021
STSS Demonstration Satellites-MDS Flight Tests/Targets of Opportunity - 2Q2021	2	2021	2	2021
STSS Demonstration Satellites-MDS Flight Tests/Targets of Opportunity - 3Q2021	3	2021	3	2021
STSS Demonstration Satellites-MDS Flight Tests/Targets of Opportunity - 4Q2021	4	2021	4	2021
Satellite Passivation/Contract Completion	1	2022	4	2022

**Note**

Based on the OUSD(C) FY 2022 President's Budget Submission Guidance, fiscal years covered in the justification material will include FY 2020 through FY 2022. Planned entries in the R4 may continue past FY 2022, out-years will be addressed in future budget submissions.

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**Exhibit R-2A, RDT&E Project Justification:** PB 2022 Missile Defense Agency **Date:** May 2021

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 1206893C / <i>Space Tracking and Surveillance System</i>	<b>Project (Number/Name)</b> MC12 / <i>Cyber Operations</i>
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COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
MC12: <i>Cyber Operations</i>	4.349	2.147	0.744	0.156	-	0.156	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

**Note**

Decrease reflects decision to passivate the STSS satellites in FY 2022, bringing the program to a conclusion.

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

Space Tracking and Surveillance System (STSS) Cyber Operations sustain the Missile Defense Agency (MDA) Risk Management Framework (RMF) and Security Controls Assessments (SCA)/Controls Validation Testing (CVT) activities, analysis of validation results, risk assessments and reviews of proposed Program Manager/Information System Security Manager (PM/ISSM) Plans of Action and Milestones (POA&Ms) for MDA STSS mission systems. Activities in this Project are necessary to comply with the Federal Information Security Management Act (FISMA).

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

	FY 2020	FY 2021	FY 2022
<b>Title:</b> Network / System Certification and Accreditation (C&A)	2.147	0.744	0.156
<b>Articles:</b>	-	-	-
<p><b>Description:</b> This activity maintains the Assessment and Authorization (A&amp;A) and C&amp;A data repository, capturing the RMF documentation (artifacts, validation results, and Information Assurance Risk Assessment results, and Designated Approving Authority (DAA) accreditation decisions) and POA&amp;Ms on all MDA information systems. This activity prepares and submits C&amp;A documentation and accreditation recommendations to the MDA Chief Information Officer (CIO) /Certification Authority and the DAA. Independent Verification and Validation team actions ensure the availability, integrity, authentication, confidentiality, and non-repudiation of MDA mission, test, and administrative systems.</p> <p>Recurring accomplishments include the following:</p> <ul style="list-style-type: none"> <li>- Monitor and track cybersecurity and mitigations detailed in Information Technology security POA&amp;Ms</li> <li>- Conduct cybersecurity design, engineering, and architecture planning for STSS information technology systems</li> <li>- Plan and test the cybersecurity controls for STSS and MDSC systems</li> <li>- Conduct SCA testing continuous monitoring of STSS and MDSC mission systems and provide POA&amp;Ms to mitigate cybersecurity vulnerabilities</li> </ul> <p>Specific and/or unique accomplishments to each Fiscal Year (FY) are as follows:</p> <p><b>FY 2021 Plans:</b></p>			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency		<b>Date:</b> May 2021		
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 1206893C / <i>Space Tracking and Surveillance System</i>	<b>Project (Number/Name)</b> MC12 / <i>Cyber Operations</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
See Above				
<b>FY 2022 Plans:</b> - Support STSS passivation activities				
<b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> Decrease in FY 2022 from FY 2021 reflects decision to passivate the STSS satellites in FY 2022, bringing the program to a conclusion.				
<b>Accomplishments/Planned Programs Subtotals</b>		2.147	0.744	0.156
<b>C. Other Program Funding Summary (\$ in Millions)</b>				
N/A				
<b>Remarks</b>				
<b>D. Acquisition Strategy</b>				
N/A				

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2022 Missile Defense Agency** **Date:** May 2021

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 1206893C / <i>Space Tracking and Surveillance System</i>	<b>Project (Number/Name)</b> MC12 / <i>Cyber Operations</i>
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<b>Product Development (\$ in Millions)</b>				<b>FY 2020</b>		<b>FY 2021</b>		<b>FY 2022 Base</b>		<b>FY 2022 OCO</b>		<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Cost Category Item</b>	<b>Contract Method &amp; Type</b>	<b>Performing Activity &amp; Location</b>	<b>Prior Years</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>Award Date</b>	<b>Cost</b>			
Network / System Certification and Accreditation (C&A) - Civ Cyber Labor	Allot	MDA : Schriever AFB	0.346	0.187	Oct 2019	0.171	Oct 2020	0.156	Oct 2021	-		0.156	0.000	0.860	0.860
Network / System Certification and Accreditation (C&A) - Contractor Support	C/Various	Various : AL, CO	0.926	0.570	Nov 2019	0.573	Nov 2020	0.000		-		0.000	0.000	2.069	2.069
Network / System Certification and Accreditation (C&A) - Cross Domain Upgrade	C/CPFF	Jacobs : Schriever AFB, CO	0.000	0.019	Apr 2020	0.000		0.000		-		0.000	0.000	0.019	0.019
Network / System Certification and Accreditation (C&A) - Information Assurance	C/CPAF	NGAS : Schriever AFB, CO/Redondo Beach, CA	3.077	1.371	Mar 2020	0.000		0.000		-		0.000	0.000	4.448	4.448
<b>Subtotal</b>			4.349	2.147		0.744		0.156		-		0.156	0.000	7.396	N/A

**Remarks**  
N/A

	<b>Prior Years</b>	<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022 Base</b>	<b>FY 2022 OCO</b>	<b>FY 2022 Total</b>	<b>Cost To Complete</b>	<b>Total Cost</b>	<b>Target Value of Contract</b>
<b>Project Cost Totals</b>	4.349	2.147	0.744	0.156	-	0.156	0.000	7.396	N/A

**Remarks**  
Award Date reflects date of first obligation. Additional obligations may incrementally occur throughout the year.

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**Exhibit R-4, RDT&E Schedule Profile: PB 2022 Missile Defense Agency** **Date:** May 2021

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 1206893C / <i>Space Tracking and Surveillance System</i>	<b>Project (Number/Name)</b> MC12 / <i>Cyber Operations</i>
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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 2020		FY 2021		FY 2022		FY 2023		FY 2024		FY 2025		FY 2026		
MC12 Cyber Operations					◆	◆	◆	◆											
MC12 Cyber Operations Planned									◇	◇	◇	◇	◇	◇	◇				

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2022 Missile Defense Agency		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 1206893C / <i>Space Tracking and Surveillance System</i>	<b>Project (Number/Name)</b> MC12 / <i>Cyber Operations</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MC12 Cyber Operations	1	2020	4	2020
MC12 Cyber Operations Planned	1	2021	4	2022

**Note**

Based on the OUSD(C) FY 2022 President's Budget Submission Guidance, fiscal years covered in the justification material will include FY 2020 through FY 2022. Planned entries in the R4 may continue past FY 2022, out-years will be addressed in future budget submissions.

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**Exhibit R-2A, RDT&E Project Justification:** PB 2022 Missile Defense Agency **Date:** May 2021

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 1206893C / <i>Space Tracking and Surveillance System</i>	<b>Project (Number/Name)</b> MD40 / <i>Program-Wide Support</i>
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COST (\$ in Millions)	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	FY 2023	FY 2024	FY 2025	FY 2026	Cost To Complete	Total Cost
MD40: <i>Program-Wide Support</i>	3.274	1.526	1.356	0.583	-	0.583	-	-	-	-	-	-
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-	-	-

**Note**

Program Wide Support (PWS) is allocated on a pro-rata basis across multiple Agency PEs each fiscal year based on the total Agency budget, and therefore fluctuates per PE by fiscal year.

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

PWS contains non-headquarters management costs in support of MDA functions and activities across the entire MDS. These functions include Government Civilians and Contract Support Services. This effort provides integrity and oversight of the MDS as well as supports MDA in the development and evaluation of technologies that will respond to the changing threat. Additionally, PWS includes personnel to support global deployments performing deployment site preparation and activation, and provides facility capabilities for MDA Executing Agent locations worldwide. Other MDA wide costs include: 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, equipment, vehicle, and warehouse leases; utilities and base operations across multiple geographic locations; commercial and ancillary facility services; management of all facility aspects regardless of lifecycle stage; supplies and maintenance; compliance with statutory environmental requirements; data and unified communications support; materiel and readiness and central property management of equipment; Facilities Sustainment, Restoration and Modernization (FSRM) program, (formerly Real Property Maintenance) to keep the Department's inventory of facilities in good working order; and similar operating expenses. PWS is allocated on a pro-rata basis across most Agency PEs and therefore fluctuates per PE by fiscal year based on the total Agency budget in that fiscal year.

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

	FY 2020	FY 2021	FY 2022
<b>Title:</b> Program Wide Support	1.526	1.356	0.583
<b>Articles:</b>	-	-	-
<b>Description:</b> PWS contains non-headquarters management costs in support of MDA functions and activities across the entire MDS. These functions include Government Civilians and Contract Support Services. This effort provides integrity and oversight of the MDS as well as supports MDA in the development and evaluation of technologies that will respond to the changing threat. Additionally, PWS includes personnel to support global deployments performing deployment site preparation and activation, and provides facility capabilities for MDA Executing Agent locations worldwide. Other MDA wide costs include: 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, equipment, vehicle, and warehouse leases; utilities and base operations across multiple geographic locations; commercial and ancillary facility services; management of all facility aspects regardless of lifecycle stage; supplies and maintenance; compliance with statutory environmental requirements; data and unified communications support; materiel and readiness and central property management of equipment; Facilities Sustainment,			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2022 Missile Defense Agency		<b>Date:</b> May 2021		
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 1206893C / <i>Space Tracking and Surveillance System</i>	<b>Project (Number/Name)</b> MD40 / <i>Program-Wide Support</i>		
<b>B. Accomplishments/Planned Programs (\$ in Millions, Article Quantities in Each)</b>		<b>FY 2020</b>	<b>FY 2021</b>	<b>FY 2022</b>
<p>Restoration and Modernization (FSRM) program, (formerly Real Property Maintenance) to keep the Department's inventory of facilities in good working order; and similar operating expenses. PWS is allocated on a pro-rata basis across most Agency PEs and therefore fluctuates per PE by fiscal year based on the total Agency budget in that fiscal year.</p> <p><b>FY 2021 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2022 Plans:</b> - SEE ABOVE.</p> <p><b>FY 2021 to FY 2022 Increase/Decrease Statement:</b> Decrease from FY 2021 to FY 2022 reflects the PWS allocation on a pro-rata basis across multiple Agency PE's each fiscal year based on the total Agency budget, and therefore fluctuates per PE by fiscal year.</p>				
<b>Accomplishments/Planned Programs Subtotals</b>		1.526	1.356	0.583
<b>C. Other Program Funding Summary (\$ in Millions)</b>				
N/A				
<b>Remarks</b>				
<b>D. Acquisition Strategy</b>				
N/A				

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**Exhibit R-3, RDT&E Project Cost Analysis:** PB 2022 Missile Defense Agency **Date:** May 2021

<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 1206893C / <i>Space Tracking and Surveillance System</i>	<b>Project (Number/Name)</b> MD40 / <i>Program-Wide Support</i>
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<b>Support (\$ in Millions)</b>				FY 2020		FY 2021		FY 2022 Base		FY 2022 OCO		FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Wide Support - Agency Operations and Support Services	C/CPAF	Northrop Grumman : CO	2.592	1.503	Jul 2020	1.315	Nov 2020	0.557	Nov 2021	-		0.557	0.000	5.967	0.000
Program Wide Support - Agency Operations Management	C/CPAF	Various Multi: AL, CA, CO, : VA	0.463	0.023	Jul 2020	0.041	Jul 2021	0.026	Apr 2022	-		0.026	0.000	0.553	0.000
Program Wide Support - Prior year no longer funded in the FYDP	Various	Various : Various	0.219	0.000		0.000		0.000		-		0.000	0.000	0.219	0.000
<b>Subtotal</b>			3.274	1.526		1.356		0.583		-		0.583	0.000	6.739	N/A

**Remarks**  
N/A

	Prior Years	FY 2020	FY 2021	FY 2022 Base	FY 2022 OCO	FY 2022 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	3.274	1.526	1.356	0.583	-	0.583	0.000	6.739	N/A

**Remarks**  
Award Date reflects date of first obligation. Additional obligations may incrementally occur throughout the year.



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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2022 Missile Defense Agency		<b>Date:</b> May 2021
<b>Appropriation/Budget Activity</b> 0400 / 4	<b>R-1 Program Element (Number/Name)</b> PE 1206893C / <i>Space Tracking and Surveillance System</i>	<b>Project (Number/Name)</b> MD40 / <i>Program-Wide Support</i>

Schedule Details

Events	Start		End	
	Quarter	Year	Quarter	Year
MD40 Program-Wide Support	1	2020	4	2022

**Note**

Based on the OUSD(C) FY 2022 President's Budget Submission Guidance, fiscal years covered in the justification material will include FY 2020 through FY 2022. Planned entries in the R4 may continue past FY 2022, out-years will be addressed in future budget submissions.