Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force										DATE: February 2010	
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 4: *Advanced Component Development & Prototypes (ACD&P)*				R-1 ITEM NOMENCLATURE PE 0604857F: *Operationally Responsive Space*							
COST ($ in Millions)	**FY 2009 Actual**	**FY 2010 Estimate**	**FY 2011 Base Estimate**	**FY 2011 OCO Estimate**	**FY 2011 Total Estimate**	**FY 2012 Estimate**	**FY 2013 Estimate**	**FY 2014 Estimate**	**FY 2015 Estimate**	**Cost To Complete**	**Total Cost**
Total Program Element	228.540	124.308	93.978	0.000	93.978	88.019	78.103	54.382	125.611	Continuing	Continuing
64A015: *ORS COMMON SERVICES*	12.749	10.815	19.450	0.000	19.450	69.958	66.306	33.776	10.075	Continuing	Continuing
64A020: *AF-funded ORSSats*	215.791	113.493	74.528	0.000	74.528	18.061	11.797	20.606	115.536	Continuing	Continuing

A. Mission Description and Budget Item Justification

The successful integration of space-based capabilities into the core of U.S. national security operations has resulted in dramatically increased demand for and dependence upon space capabilities. As a result, U.S. Strategic Command (USSTRATCOM) identified three needs: 1) to rapidly augment existing space capabilities when needed to expand operational capability; 2) to rapidly reconstitute/replenish critical space capabilities to preserve operational capability; 3) to rapidly exploit and infuse space technological or operational innovations to increase U.S. advantage. Operationally Responsive Space (ORS) is designed to both improve the responsiveness of existing space capabilities (e.g., space, launch, and ground segments) and to develop complementary, affordable small satellite/launch vehicle combinations, and associated ground and command and control systems, that can be deployed in operationally relevant timeframes.

ORS is defined as "assured space power focused on timely satisfaction of Joint Force Commanders' needs." The ORS goals are to: 1) Improve robustness--provide a focused, limited capability to augment and reconstitute, with assured warfighter access and control. 2) Respond to urgent needs--deliver effects to joint warfare in response to an urgent or previously unanticipated need. 3) Reduce development/deployment time and cost--complement existing space capabilities with an element focused on increased value and timely delivery. 4) Capitalize on emerging/innovative capabilities--adopt new capabilities from advanced technologies and innovative operational concepts.

When enabling responsiveness conditions are fully established, commanders will have three "tiers" of ORS capabilities for meeting urgent needs. Tier 1 involves employing existing, fielded space capabilities in a new and novel fashion within hours to days. Tier 1 solutions will not typically involve the design, engineering, or fabrication of new materiel items. Tier 2 involves deploying field-ready capabilities within days to weeks through rapid assembly, integration, testing, and deployment of small, low-cost satellites. Tier 3 involves developing new capabilities within a months-to-one-year timeframe. Tier 3 activities typically involve hardware and software design, engineering, fabrication, and integration. Insertion of advanced technology into Tier 3 systems must be consistent with the targeted timeframe for the solution.

The first ORS satellite (ORS-1) will provide reconnaissance and surveillance capabilities focused on directly supporting theater warfighting requirements. These capabilities will satisfy an urgent and compelling need validated by the Commander, USSTRATCOM. This project will directly support USCENTCOM and Overseas Contingency Operations (OCO).

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
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ORS program funds (along with other Service and Agency funds) are programmed to systematically mature ORS enabling elements to meet the responsiveness timelines required by the USSTRATCOM CONOPS (hours, days, weeks, months...not years) and the price points established in the 2007 NDAA ($40M satellite vehicles, $20M launches). This includes the development of a modular open system architecture, including plug and play concepts, to enhance the rapid assembly and integration of mission-specific elements into operational satellites. A focus for these ORS efforts will be the Rapid Response Space Works.

ORS funds will also aid in the leadership, coordination, and integration of Tier 1, 2, and 3 activities; fund TacSat and ORS launch vehicles and operations support; fund transition of TacSat demos to operational capabilities; and acquire and deploy operational satellites in response to USSTRATCOM urgent needs. When ORS-appropriate USSTRATCOM urgent needs arise during execution year, programmed ORS projects may be modified or delayed to meet those urgent needs.

This program is Budget Activity 04, Advanced Component Development and Prototypes, because it involves operational experimentation and evaluating integrated technologies to assess the performance or cost reduction potential of advanced technology.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	196.561	112.861	0.000	0.000	0.000
Current President's Budget	228.540	124.308	93.978	0.000	93.978
Total Adjustments	31.979	11.447	93.978	0.000	93.978
• Congressional General Reductions		-0.903			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		12.350			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	31.979	0.000	93.978	0.000	93.978

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Project: 64A020: *AF-funded ORSSats*		
Congressional Add: *work with the Hawaii Space Flight Lab and Sandia National Lab on the Low Earth Orbit Nanosatellite Integrated Defense Autonomouns Systems (LEONIDAS) program.*	5.000	4.750

Exhibit R-2, RDT&E Budget Item Justification: PB 2011 Air Force	DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0604857F: *Operationally Responsive Space*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2009	FY 2010
Congressional Add: *Work in conjunction with Third Generation Infrared Surveillance system to mature the technology for a wide field of view, Commercially Hosted IR Payload (CHIRP).*	75.000	0.000
Congressional Add: *Ballistic Missile Technology*	2.400	0.000
Congressional Add: *Micro-Satellite Serial Manufacturing to include Academic Outreach Educational program*	0.800	1.200
Congressional Add: *Florida National Guard Missile Range Safety Technology*	1.600	0.000
Congressional Add: *Rapid Small Satellite Development Test Facility*	0.000	1.600
Congressional Add: *Space Sensor Data Link Technology*	0.000	4.800
Congressional Add Subtotals for Project: 64A020	84.800	12.350
Congressional Add Totals for all Projects	84.800	12.350

Change Summary Explanation

FY2009: There were a +$28.1M Omnibus and +$10.0M below threshold reprogramming increases to maintain the accelerated ORS-1 schedule. Chip Scale Atomic Clock Congressional Add ($2.347M) was moved to correct PE. -$3.774M SBIR transfer.

FY2010: Congressional increases of $1.2M for Micro-Satellite Serial Manufacturing, $4.75M for Low-Earth Orbit Nanosatellite Integrated Defense Autonomous Systems, $1.6M for Rapid Small Satellite Test Facilities, and $4.8M for Space Sensor Data Link Technology. FFRDC -$0.903M. The FY 2010 President's Budget submittal did not reflect FY 2011 through FY 2015 funding. Therefore, explanation of changes between the two budget positions cannot be made in a relevant manner.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604857F: *Operationally Responsive Space*	PROJECT 64A015: *ORS COMMON SERVICES*	

COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
64A015: *ORS COMMON SERVICES*	12.749	10.815	19.450	0.000	19.450	69.958	66.306	33.776	10.075	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

ORS Common Services supports the entire ORS partnership (Services, Intelligence Community, Reserve Component, NASA, and our Allies). These activities include studies and analysis to maintain the ORS investment roadmap and coordination and planning activities across the ORS Enterprise. ORS Common Services works with Joint Force Commanders (JFC) and the Services to identify the most likely emergent space needs, make plans and preparations to meet those needs, evaluate results of operational experimentation, and prepare plans and procedures for operational employment and transition. These foundational activities ensure ORS enabler investments are optimally targeted to quickly mature ORS's ability to execute rapid responses to time-critical needs when they arise. Common Services identifies and presents options for concepts/solutions and experimentation including international efforts, conducts concepts development, solutions assessment, rapid evaluation of alternatives, experimentation planning, modeling and simulation, and develops budgetary recommendations for ORS solutions.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Perform concepts and solutions for warfighter urgent needs. Perform modeling, simulations, and analyses for various alternative concepts, and develop conceptual requirements.	12.749	10.815	19.450	0.000	19.450
FY 2009 Accomplishments: In FY 2009: conclude the Rapid Deployable Space (RDS) Capabilities Based Analysis (CBA). Completed the ground system architechture for surveillance and reconnaissance.					
FY 2010 Plans: In FY 2010: Perform the kick-off study for USSTRATCOM Urgent Need #4--Missile Warning. Obtain final DoD approval for the RDS CBA. Complete the ground system architechture for communications.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Complete the first RF modular payload design study. Complete the TacSat-3 Military Utility Analysis (MUA) and continue the TacSat-4 MUA. Perform the signals intelligence mission design study. *FY 2011 Base Plans:* In FY 2011: Perform kick off studies for urgent needs. Integrate the findings from the RDS CBA. Complete the ground systems architecture for space situational awareness. Continue the TacSat-4 MUA. Conclude the protected communications mission design study. Continue the RF modular mission kit development. *FY 2011 OCO Plans:* In FY 2011 OCO: Not Applicable					
Accomplishments/Planned Programs Subtotals	12.749	10.815	19.450	0.000	19.450

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE Not Provided (15138): *Activity Not Provided*	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

D. Acquisition Strategy

Competitively award contracts through ORS Office or partner organizations.

E. Performance Metrics

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

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force			DATE: February 2010
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Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 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
RF Modular payload Mission Kit Enabler Project	TBD/TBD	TBD TBD	0.000	0.000		9.000	Oct 2010	0.000		9.000	0.000	9.000	0.000
		Subtotal	0.000	0.000		9.000		0.000		9.000	0.000	9.000	0.000

Remarks

Management Services ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 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
Perform modeling, simulation, analysis and assess alternative concepts/requirements & program support	Various/ Various	Various Various	12.749	10.815	Oct 2009	10.450	Oct 2010	0.000		10.450	Continuing	Continuing	Continuing
		Subtotal	12.749	10.815		10.450		0.000		10.450			

Remarks

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force			DATE: February 2010
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	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	12.749	10.815		19.450		0.000		19.450			

Remarks

Total Prior Years Cost may include only FY 2009 data.

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0604857F: *Operationally Responsive Space*	**PROJECT** 64A015: *ORS COMMON SERVICES*

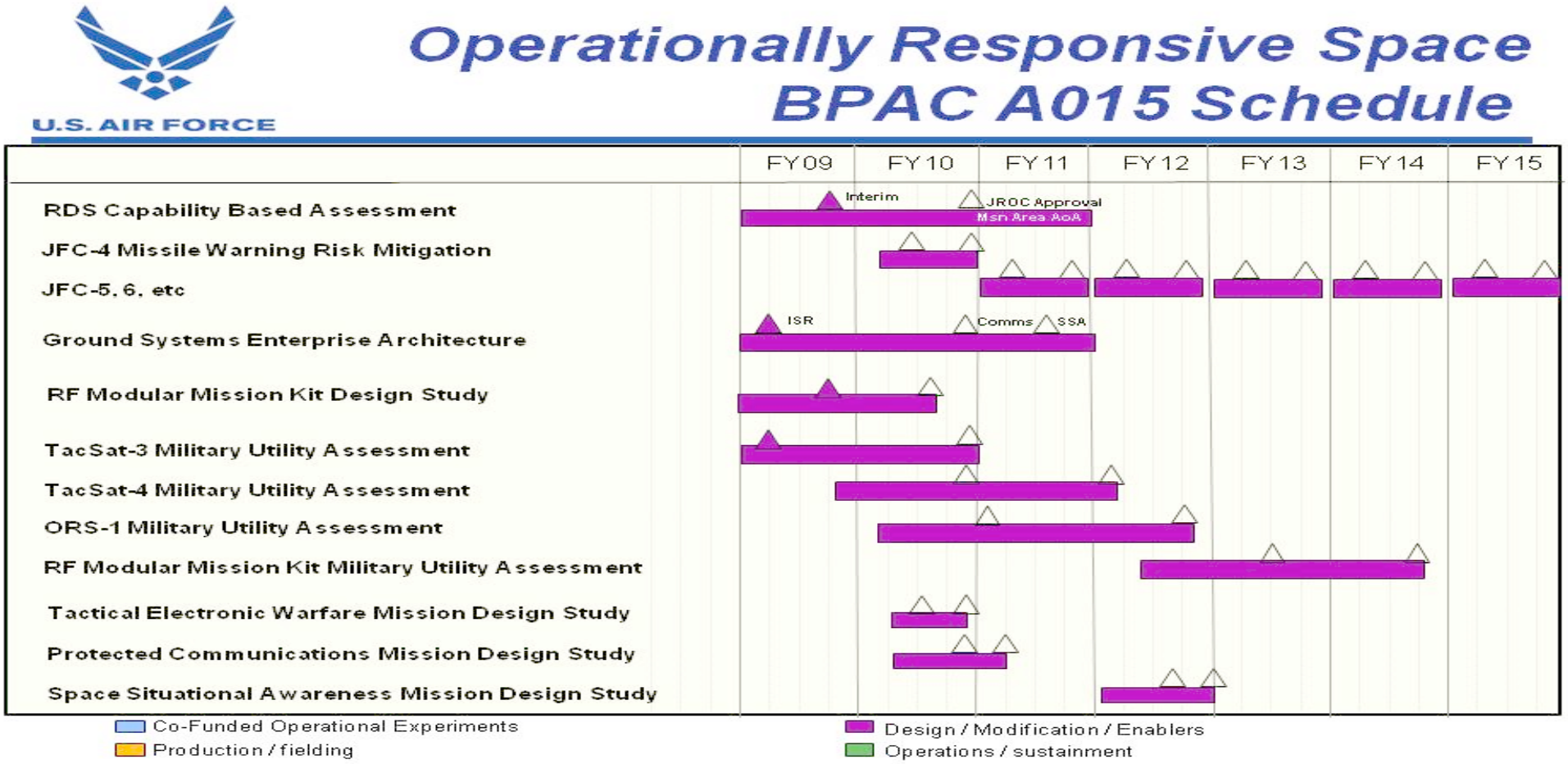

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0604857F: *Operationally Responsive Space*	**PROJECT** 64A015: *ORS COMMON SERVICES*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
Rapidly Deployable Space (RDS) Capability Based Assessment	1	2009	4	2011
JFC-4 Missile Warning Risk Mitigation	1	2010	4	2010
Additional JFC urgent need analyses	1	2011	4	2011
Ground Systems Enterprise Architecture for surveillance/reconnaissance, communications, and space situational awareness	1	2009	4	2011
RF Modular Mission Kit Design Study	1	2009	3	2010
TacSat-3 military utility assessment	1	2009	4	2010
TacSat-4 military utility assessment	4	2009	4	2011
ORS-1 military utility assessment	1	2010	4	2011
Tactical Electronic Warfare Mission Design Study	2	2010	4	2010
Protected Communications Mission Design Study	2	2010	1	2011

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force			DATE: February 2010
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COST ($ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
64A020: *AF-funded ORSSats*	215.791	113.493	74.528	0.000	74.528	18.061	11.797	20.606	115.536	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

AF-funded Operationally Responsive Space projects are optimized for prioritized theater use and/or surge, augmentation and replenishment of traditional space capabilities. The ORS Concept of Operations (CONOPS) drives the need for satellites featuring high degrees of modularity, standard interface vehicles, and the use of plug and play payloads and buses. Responsive satellites will be capable of rapid satellite initialization and be networked with other national security space, air and surface systems.

ORS projects provide a broad range of capabilities directly supporting warfighter needs. Potential missions include communications, data exfiltration, blue-force situational awareness, positioning, navigation and timing, weather, and battlefield intelligence, surveillance, and reconnaissance (ISR). The highest priority project is ORS-1 being fielded to respond to CENTCOM's urgent need to rapidly provide ISR for theater users. The remainder of the funding is to continue maturing ORS enabling elements including the Radio Frequency (RF) Modular Payload mission kit (this mission kit will enable Synthetic Aperature Radar (SAR), Communications, and Tactical Electronic Warfare (EW) capabilities), complete funding for TacSat-4 support, and to satisfy high priority needs for augmentation and reconstitution, such as Space Situational Awareness, Counterspace, ISR, and Missile Warning.

The capabilities planned for TacSat-4 and the RF Modular Payload mission kit were selected to systematically mature the ORS enabling elements to fully meet the USSTRATCOM-specified responsiveness timelines and 2007 NDAA cost targets. This includes the development of a modular open system architecture employing plug and play standards, a Rapid Response Space Works, a modular space vehicle (MSV), and integration with the Multi-Mission Satellite Operations Center.

Additionally, these funds will support on-going analyses, employment and integration of new concepts and methods for enhancing the responsiveness of the existing capabilities (Tier 1) and quick reaction opportunities such as the Jumpstart rapid development, integration and launch demonstrations. When ORS-appropriate USSTRATCOM urgent needs arise during execution year, programmed ORS projects may be modified or delayed to meet those urgent needs.

ORS Mission Kit Enabler Projects include satellite vehicle(s), launch, integration, operational experimentation, and interim transitions from ORS derived solutions to operational capabilities. Each mission kit also includes enabler investments to improve the responsiveness and lower the cost of designing, fabricating, launching, and operating ORS space capabilities. These mission kits culminate in on-orbit capabilities ready for operational experimentation and, when desired, transition to enduring operations.

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
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ORS is working in conjunction with Third Generation Infrared Surveillance system (3GIRS) to mature the technology for a wide field of view, Commercially Hosted IR Payload (CHIRP), including payload development, on-orbit testing, and algorithm development.

ORS is working with the University of Hawaii's (U of H) Hawaii Space Flight Laboratory (HSFL) and Sandia National Laboratory on the Low Earth Orbit Nanosatellite Integrated Defense Autonomous Systems (LEONIDAS) program. LEONIDAS is to design, fabricate, launch, and perform on-orbit operation of small- and micro-satellites for early detection of missile launches by hostile forces

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: Perform cross-cutting activities that support all three tiers of ORS activities.	30.691	26.343	5.228	0.000	5.228
FY 2009 Accomplishments: In FY 2009: successfully completed the Joint Reconnaissance Program (JRP) demonstration providing valuable insight in command and control, processing, and dissemination architecture. Awarded contract for the development of smaller crypto package for smallsats and nanosats. Initiated development of enabling missions: Space Common Data Link, Virtual Mission Operations Center, ORS enterprise architecture, and joint satellite operations capability.					
FY 2010 Plans: In FY 2010: provide the TacSat-4 launch and support on-orbit operations. Plan the development of the first enabler mission kit launch demonstration and continue responsive launch and range enablers. Develop the requirements, concepts, and solutions for USSTRATCOM's urgent need #4 for missile warning. Collaborate with the National Reconnaissance Office on a signals intelligence payload and other efforts. Complete the Space Common Data Link and continue command & control, data processing, and dissemination enablers.					
FY 2011 Base Plans: In FY 2011: provide TacSat-4 on-orbit flight support and performance analysis. Deliver and flight test the small space crypto package.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 OCO Plans: In FY 2011 OCO: Not Applicable					
MAJOR THRUST: Perform Tier I activities, including operational capabilities, development, and integration *FY 2009 Accomplishments:* In FY 2009: created the automated reference guide (toolkit) for non-National System space capabilities for government use of commercial and foreign geospatial intelligence assets. Supported US Coast Guard with concept demonstration for use of commercial imagery to support and increase effectiveness of cutter and patrol aircraft in the Pacific. Demonstrated concept for leveraging civil and foreign satellites to increase Maritime Domain Awareness for Pacific Command, Southern Command, and Northern Command to increase effectiveness of US and Allied forces. *FY 2010 Plans:* In FY 2010: Transition the automated toolkit to the Virtual Mission Operations Center (VMOC) as a reference guide of non-National System assets that warfighters use to fill collection shortfalls. Participate in war games and exercises to introduce and apply ORS and ORS-like assets. *FY 2011 Base Plans:* In FY 2011: Coordinate operational demonstrations and assess utility of nano and microsatellites with partners. Conduct operational demonstrations with services and combatant commanders using ORS and ORS-like assets. Release the automated Toolkit for use on VMOC to combatant commanders and other users. *FY 2011 OCO Plans:* In FY 2011 OCO: Not applicable	4.600	2.900	2.800	0.000	2.800
MAJOR THRUST: Perform Tier II deployment demonstrations to provide field-ready capabilities and Enabler maturing projects.	6.300	31.900	40.800	0.000	40.800

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: In FY 2009: completed Critical Design Review for modular, multi-mission bus based on open standards allowing for rapid assembly of the bus in several configurations for various missions. Completed trials ("Jump Start") for maturing rapid assembly, integration, and test (AI&T) processes to include adaptation for changing payload configurations. *FY 2010 Plans:* In FY 2010: Initiate Modular Space Vehicle (MSV) (Bus and modular RF Payload) to provide foundation for rapid integration, assembly, and test of components to demonstrate compressed deployment timelines and achieve more rapid integration of mature, enabling technologies. Award contract and implement Rapid Response Space Works (RRSW) establishing the key processes and relationships that will allow rapid AI&T. Initiate Phase 1 for RRSW facility modifications and purchase of long-lead items supporting demonstrations and responses to urgent needs. *FY 2011 Base Plans:* In FY 2011: Design a definitive MSV Bus and modular RF Payload (CDR-level design) with demonstration of end-to-end RRSW capabilities for technology development and integration. Initiate Phase 2 for RRSW-complete facility modifications, major equipment installation, complete clean room and start RRSW initial operations. Conduct limited operations for participation in wargames and exercises to demonstrate rapid assembly, integration, and test. *FY 2011 OCO Plans:* In FY 2011 OCO: Not applicable.					
MAJOR THRUST: Perform Tier III design, fabrication, and integration to satisfy joint force commander needs. Provide strategic science and technology direction and execution.	89.400	40.000	25.700	0.000	25.700

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2009 Accomplishments: In FY 2009: initiated ORS-1, the electro-optical satellite to satisfy USCENTCOM's urgent need for in-theater ISR. Prioritized ORS technology needs and integration into Air Force planning. Developed initial enabler roadmaps in areas of launch and range, command and control, processing, and dissemination, bus, and payload architecture. Initiated science and technology demonstrations; provided conduit for new capability and validated initial ORS capabilities. *FY 2010 Plans:* In FY 2010: complete assembly, integration, and test of ORS-1 in preparation for early FY2011 launch. Complete version one of enabler roadmaps (launch and range, command and control, processing, and dissemination, bus, and payload). Design innovation cell for rapid transition of innovations in science and technology. *FY 2011 Base Plans:* In FY 2011: launch ORS-1 to support USCENTCOM urgent need. Conduct enabler demonstration mission for innovation cell (conduit for enabling science and technology capabilities and improvements to architecture). *FY 2011 OCO Plans:* In FY 2011 OCO: Not applicable					
Accomplishments/Planned Programs Subtotals	130.991	101.143	74.528	0.000	74.528

	FY 2009	FY 2010
Congressional Add: work with the Hawaii Space Flight Lab and Sandia National Lab on the Low Earth Orbit Nanosatellite Integrated Defense Autonomouns Systems (LEONIDAS) program.	5.000	4.750

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
FY 2009 Accomplishments: In FY 2009: held University of HI's LEO-1 PDR and Super Strypi launch vehicle PDR. Obtained agreement with Pacific Missile Range Facility (PMRF) to launch Super Strypi at Kokole Point. *FY 2010 Plans:* In FY 2010: Holding System Requirements Review for HawaiiSat-1, CDR for Super Strypi, and begin construction of launch pad structure at PMRF.		
Congressional Add: Work in conjunction with Third Generation Infrared Surveillance system to mature the technology for a wide field of view, Commercially Hosted IR Payload (CHIRP). *FY 2009 Accomplishments:* In FY 2009: Worked on CHIRP payload development, on-orbit testing, and algorithm development. *FY 2010 Plans:* In FY 2010: N/A	75.000	0.000
Congressional Add: Ballistic Missile Technology *FY 2009 Accomplishments:* In FY 2009: Performed analyses of unique, critical strategic design, development skills, and capabilities required to support current and future Sea Launch Ballistic Missile (SLBM) and Intercontinental Ballistic Missile (ICBM) guidance systems requirements for rapid launch campaigns. *FY 2010 Plans:* In FY 2010: N/A	2.400	0.000
	0.800	1.200

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
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B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
Congressional Add: Micro-Satellite Serial Manufacturing to include Academic Outreach Educational program *FY 2009 Accomplishments:* In FY 2009: Produced CDR-level spacecraft design in support of the Department of Homeland Security; on pace to be completed by late FY10 with CubeSat demonstration. *FY 2010 Plans:* In FY 2010: Continue CubeSat demonstration		
Congressional Add: Florida National Guard Missile Range Safety Technology *FY 2009 Accomplishments:* In FY 2009: Conducted Force Development Evaluation (FDE) at the Eastern Range and fixed resulting Deficiency Reports. Continued BMRST development, improvements, and fielding. *FY 2010 Plans:* In FY 2010: N/A	1.600	0.000
Congressional Add: Rapid Small Satellite Development Test Facility *FY 2009 Accomplishments:* In FY 2009: N/A *FY 2010 Plans:* In FY 2010: Initiate the rapid small satellite development test facility	0.000	1.600
Congressional Add: Space Sensor Data Link Technology	0.000	4.800

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0604857F: *Operationally Responsive Space*	**PROJECT** 64A020: *AF-funded ORSSats*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010
FY 2009 Accomplishments: In FY 2009: N/A *FY 2010 Plans:* In FY 2010: Develop space sensor data link technology		
Congressional Adds Subtotals	84.800	12.350

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total	FY 2012	FY 2013	FY 2014	FY 2015	Cost To Complete	Total Cost
• PE Not Provided (15646):	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Activity Not Provided											

D. Acquisition Strategy

Expeditiously award contracts through ORS Office or partner organizations.

E. Performance Metrics

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

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force			DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604857F: *Operationally Responsive Space*	PROJECT 64A020: *AF-funded ORSSats*	

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 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
ORS-1 (JFC need #3)	SS/CPFF	Goodrich Danbury CT	85.091	31.900	Oct 2009	15.700	Oct 2010	0.000		15.700	Continuing	Continuing	Continuing
MSV RF modular mission kit	Various/ Various	Various Various	6.400	26.543	Apr 2010	35.328	Oct 2010	0.000		35.328	Continuing	Continuing	Continuing
Sys Eng, Launch & range, C², TPED enablers	Various	Various Various	9.100	18.400	Oct 2009	6.800	Oct 2010	0.000		6.800	Continuing	Continuing	Continuing
JFC needs (#1 & #2)	MIPR	AFRL Sandia Kirtland AFB NM	0.800	1.200	Oct 2009	0.300	Oct 2010	0.000		0.300	Continuing	Continuing	Continuing
Rapid Response Space Works	TBD/TBD	NASA Ames	0.000	7.000	Nov 2009	5.800	Oct 2010	0.000		5.800	Continuing	Continuing	Continuing
Tier 1 operational capabilities, development, and integration	Various/ Various	Various Various	4.600	2.600	Oct 2009	2.600	Oct 2010	0.000		2.600	Continuing	Continuing	Continuing
Innovation Cell & TacSat Planning	Various/ Various	AFRL and NRL TBD	0.000	3.000	Dec 2009	3.000	Oct 2010	0.000		3.000	Continuing	Continuing	Continuing
Micro-satellite serial manufacturing	MIPR	AFRL Kirtland AFB, NM	0.800	1.200	Feb 2010	0.000		0.000		0.000	0.000	2.000	0.776
Chip Scale Atomic Clock	MIPR	AFMC Wright-Patterson AFB, OH	2.400	0.000		0.000		0.000		0.000	0.000	2.400	2.327
FLANG Missile Range Safety Technology	MIPR	FLANG Patrick AFB, FL	1.600	0.000		0.000		0.000		0.000	0.000	1.600	1.522
Ballistic Missile Technology	Allot	SMC	2.400	0.000		0.000		0.000		0.000	0.000	2.400	2.327

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604857F: *Operationally Responsive Space*	PROJECT 64A020: *AF-funded ORSSats*

Product Development ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 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
		Los Angeles AFB, CA											
CHIRP	Allot	SMC Los Angeles AFB, CA	75.000	0.000		0.000		0.000		0.000	0.000	75.000	75.000
LEONIDAS	SS/TBD	U of Hawaii Honolulu, HI	5.000	4.750	Feb 2010	0.000		0.000		0.000	Continuing	Continuing	Continuing
Rapid small satellite development test facilities	TBD/TBD	TBD TBD	0.000	1.600	Mar 2010	0.000		0.000		0.000	0.000	1.600	1.600
Space sensor data link technology	TBD/TBD	TBD TBD	0.000	4.800	Mar 2010	0.000		0.000		0.000	0.000	4.800	4.800
		Subtotal	193.191	102.993		69.528		0.000		69.528			

Remarks

Test and Evaluation ($ in Millions)

				FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 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
ORS Sat / TacSat launch vehicles, range	C/FPI	Orbital Chandler, AZ	22.600	10.500	Oct 2009	5.000	Oct 2010	0.000		5.000	Continuing	Continuing	Continuing

Exhibit R-3, RDT&E Project Cost Analysis: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	R-1 ITEM NOMENCLATURE PE 0604857F: *Operationally Responsive Space*	PROJECT 64A020: *AF-funded ORSSats*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Total Prior Years Cost	FY 2010 Cost	FY 2010 Award Date	FY 2011 Base Cost	FY 2011 Base Award Date	FY 2011 OCO Cost	FY 2011 OCO Award Date	FY 2011 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
operations, and related launch support													
		Subtotal	22.600	10.500		5.000		0.000		5.000			

Remarks

	Total Prior Years Cost	FY 2010		FY 2011 Base		FY 2011 OCO		FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	215.791	113.493		74.528		0.000		74.528			

Remarks

Total Prior Years Cost may include only FY 2009 data.

Exhibit R-4, RDT&E Schedule Profile: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0604857F: *Operationally Responsive Space*	**PROJECT** 64A020: *AF-funded ORSSats*

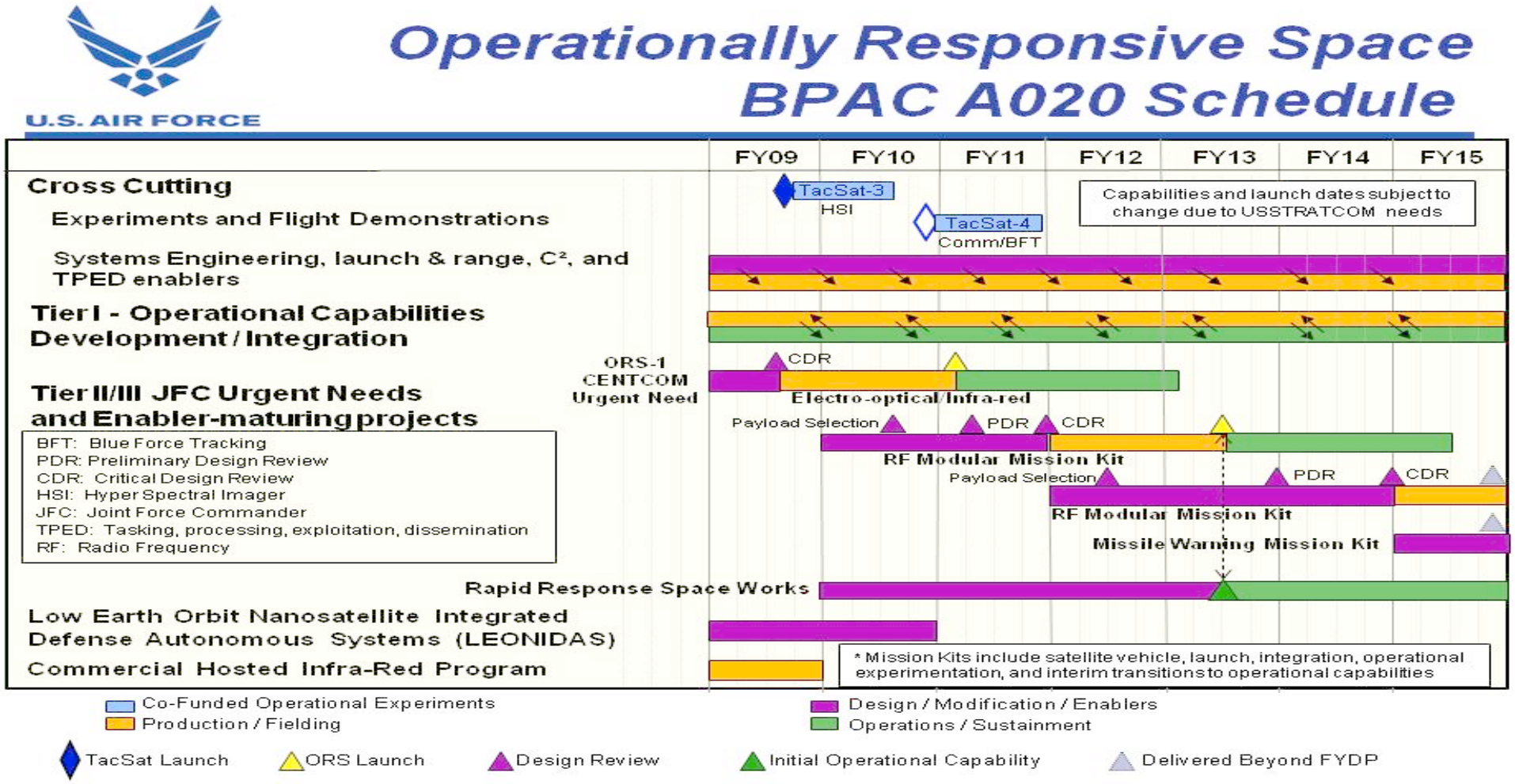

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 4: *Advanced Component Development & Prototypes (ACD&P)*	**R-1 ITEM NOMENCLATURE** PE 0604857F: *Operationally Responsive Space*	**PROJECT** 64A020: *AF-funded ORSSats*

Schedule Details

	Start		End	
Event	**Quarter**	**Year**	**Quarter**	**Year**
TacSat-3 launch and ops	3	2009	3	2010
TacSat-4 launch and ops	4	2010	4	2011
ORS-1 development	1	2009	3	2009
ORS-1 production/fielding	3	2009	1	2011
ORS-1 launch and operations	1	2011	4	2011
Modular space vehicle--RF modular payload mission kit development	1	2010	4	2011
Rapid Response Space Works	1	2010	4	2011