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 7: *Operational Systems Development*				R-1 ITEM NOMENCLATURE PE 0101127F: *B-2 SQUADRONS*							
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	0.000	407.189	260.466	0.000	260.466	295.333	399.052	390.798	318.270	Continuing	Continuing
675345: *B-2 Modernization*	0.000	407.189	260.466	0.000	260.466	295.333	399.052	390.798	318.270	Continuing	Continuing

A. Mission Description and Budget Item Justification

The B-2A Spirit is the world's most advanced long-range strike asset. The unique combination of range, precision, payload, and ability to operate in anti-access environments allow the B-2 to identify, locate, target, and destroy the highest value enemy targets. The B-2 can accomplish its mission regardless of location, return to base safely, and permit freedom of movement for follow-on forces, including other long range strike platforms. The array of planned RDT&E projects are necessary to both preserve this strategic advantage as well as increase the flexibility, lethality, and survivability of this national asset tasked across a broad spectrum, from tactical to national objectives.

Avionics upgrades include, but are not limited to, Radar Modernization Program (RMP), Link-16 Center Instrument Display (CID)/In-Flight Replanner (IFR), Ultra High Frequency (UHF) Satellite Communication (SATCOM), Mode 5/S Identification Friend or Foe (IFF), Adaptable Communications Suite (ACS), Extremely High Frequency (EHF) SATCOM and Computers, Defensive Management System (DMS), EMP Hardening Testing, and advanced, low detection data links upgrades. RMP changes the operating frequency of the radar to enable the B-2 to operate as the primary user worldwide in the future. Link-16 CID/IFR upgrade allows the B-2 access to theater tactical data links, improving on-board situational awareness while greatly enhancing the ability of the theater commanders to coordinate the B-2 with other assets. UHF SATCOM provides beyond line of sight secure communications to aircrews enabling verbal and data updates to missions. ACS provides UHF SATCOM data for beyond line of sight Link-16 situational awareness and airborne mission transfer. EHF SATCOM and Computers provides a secure, survivable communication and Net Ready infrastructure systems upgrade, preserving the critical ability to guarantee communication in a nuclear environment, as well as a basis for surveillance and reconnaissance. EHF SATCOM and Computers will provide a dramatic increase in the B-2 processing capability, paving the way for greater bandwidth and integration into the Global Information Grid (GIG), and Airborne Network Attack in an anti-access environment. Upgrades include extremely high frequency components and the computer infrastructure upgrades such as, but not limited to, flight management processors and onboard network components necessary to host new capability on the aircraft. Mode 5 provides enhanced combat identification of friend or foe functions for military Air Traffic Management; Mode S provides enhanced surveillance functions with commercial Air Traffic Management to allow operations in controlled air space. The DMS upgrade includes improvements and counters obsolescence of the defensive management processors and threat emitter system. The display processing improvement included in the DMS upgrade will be in harmony with the B-2 display architecture, which is common to all future upgrades requiring a cockpit display. Defensive Management System upgrades and improved displays are essential to ensuring platform survivability and reducing non-mission capable events. These system upgrades will transition from the current analog design to modern digital technology and provide necessary infrastructure which is prerequisite to enhanced threat location, identification, and warning capability for improved survivability, and enabling increased flexibility in strike, moving target kill, and non-traditional surveillance/reconnaissance (NTSR), positioning the B-2 for increased combat lethality, becoming the world's premier anti-access moving target kill platform. Electro-magnetic pulse (EMP) hardening

requirements will test individual components and the entire B-2 fleet at higher EMP levels for NC2 Survivability. Integrated Strike Warfare (ISW) Airborne Network project will model and simulate combat effects and performance constraints in an environment that can demonstrate, integrate, generate and validate four generic wave form models which will be used on the B-2 platform. Additionally, this project will establish a viable end-to-end distributed modeling and simulation network. Advanced Tactical Data Link (TDL) will identify B-2 CONOPS requirements and integration issues which will permit B-2 to communicate with other stealth platforms in an anti-access environment to enhance situational awareness and to permit time-critical targeting and engagement.

Armament upgrades include, but are not limited to, integration of new and/or advanced weapons on the B-2 to destroy a wider array of target sets, to include moving target sets and Hardened, Deeply Buried Targets (HDBT), as well as destroy more targets per sortie. Integration of the 30K lb class Massive Ordnance Penetrator (MOP) will provide the nation with the ability to hold additional HDBT targets at risk that are currently unachievable with 5K lb class penetrator munitions. The B-2 is the only anti-access penetrating platform capable of carrying the MOP and meets Urgent Operational Needs (UON) requirements. The MOP project will design, develop, integrate, and test hardware, software, and support equipment required for carriage, jettison, and release of both weapons from the B-2. The initial MOP Quick Reaction Capability (QRC) effort will be expanded to include a fully developed Launch Acceptability Region (LAR), single Smart Bomb Rack Controller (SBRC) per bay weapon control and monitor, dual fuze control, and mixed carriage capability with Smart Bomb Rack Assemblies (SBRA). The Moving Target Kill (MTK) effort will leverage a high precision munition such as the Small Diameter Bomb II (SDB II) as the mobile target kill munition forming the foundation to exploit the modularity and improved precision algorithms of Universal Armament Interface as well as a display infrastructure that can support the integration of this future weapon. Planned upgrades also include integration of upgrades to currently fielded or inventory weapons and weapons development, such as but not limited to, GBU-28 E/B Selective Availability Anti-Spoofing Module (SAASM) with impact angle control and GBU-28 D/B SAASM with impact angle control, Hard Target Void Sensing Fuse (HTVSF), extended range Joint Air-to-Surface Standoff Missile (JASSM-ER), and JDAM-5000. Finally, basic armament improvements include, but are not limited to, stores management hardware and software modernization and improvements to enable a simultaneous configuration of the Rotary Launcher Assemblies (RLA) and the Smart Bomb Rack Assemblies (SBRA), and integration of new and improved weapon capabilities thus affording maximum strike flexibility. The B-2 Weapons System Tester and its associated Test Program Sets (TPS) will be continually upgraded for increased reliability and performance to support current and new B-2 weapon suspension and release systems.

Structures improvements include, but are not limited to, Aft Deck upgrade which addresses an interim and long term solution to persistent cracking of aft deck surfaces while preserving the key stealth characteristics that are vital to the survivability of the B-2; windshield redesign provides improved components and windshield manufacturing processes to remedy windshield cracking and electrical conductivity limitations; Proximity Sensor Logic Unit (PSLU) replacement counters obsolescence issues with electronic components, improving safety of maintainers working around various aircraft bay doors.

Engine improvements include, but are not limited to, the F-118 engine service life extension program. Stage 1 and 3 engine fan blade improvements will reduce engine changes, increasing aircraft availability. Engine upgrades are necessary to maintain commonality with the F110 engine core.

Low Observable (LO) programs include, but are not limited to, improvements to door edge treatments, tile protection system, Magnetic Radar Absorbing Material (MAGRAM) picture framing and other LO materials development, hot structures, tailpipe material improvements, nozzle bay doors, windshield low observable treatments, advanced topcoat system, radar frequency diagnostics and other LO diagnostic tools development such as improvements of the Signature Diagnostic

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 7: *Operational Systems Development*	**R-1 ITEM NOMENCLATURE** PE 0101127F: *B-2 SQUADRONS*

System database, Low Observable Combat Readiness Model, and other low observable information systems. These upgrades decrease maintenance man-hours and increase aircraft availability while improving/maintaining LO signature of the B-2 fleet.
Baseline support maintains the B-2 unique flight test aircraft and as well as obtains, modifies, and operates a flying test bed and developmental hardware/software and test equipment to support developmental systems integration and flight test, reducing the need for additional operational aircraft and accelerates deployment of advanced operational capabilities to the warfighter. Baseline support also ensures the B-2 training systems keep pace with aircraft system updates and counters obsolescence issues; ensures the Mission Planning system keeps pace with aircraft modifications and mission planning core system updates; provides for other B-2 unique government costs, and includes acquisition planning activities for future capabilities such as, but not limited to, Stores Management Processor/Infrastructure upgrades, Advanced Tactical Datalink capabilities, Port Transducer upgrades, mixed weapon load-outs, Universal Armament Interface (UAI), Global Positioning System (GPS) M-Code receivers upgrades, Joint Precision Approach and Landing System (JPALS) upgrades, Radar Processor Modernization (RPM), Automatic Dependent Surveillance - Broadcast (ADS-B), and Extended Mission Oil Tank.

This program is included in budget activity code 07, Operational System Development.

B. Program Change Summary ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	0.000	415.414	0.000	0.000	0.000
Current President's Budget	0.000	407.189	260.466	0.000	260.466
Total Adjustments	0.000	-8.225	260.466	0.000	260.466
• Congressional General Reductions		-30.000			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		21.775			
• Congressional Directed Transfers		0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	260.466	0.000	260.466

Change Summary Explanation

FY09 and prior fiscal years are funded from PE 0604240F.
FY10 changes reflect the completion of development for the B-2 radar modernization program
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 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101127F: *B-2 SQUADRONS*	PROJECT 675345: *B-2 Modernization*	

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
675345: *B-2 Modernization*	0.000	407.189	260.466	0.000	260.466	295.333	399.052	390.798	318.270	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

A. Mission Description and Budget Item Justification

The B-2A Spirit is the world's most advanced long-range strike asset. The unique combination of range, precision, payload, and ability to operate in anti-access environments allow the B-2 to identify, locate, target, and destroy the highest value enemy targets. The B-2 can accomplish its mission regardless of location, return to base safely, and permit freedom of movement for follow-on forces, including other long range strike platforms. The array of planned RDT&E projects are necessary to both preserve this strategic advantage as well as increase the flexibility, lethality, and survivability of this national asset tasked across a broad spectrum, from tactical to national objectives.

Avionics upgrades include, but are not limited to, Radar Modernization Program (RMP), Link-16 Center Instrument Display (CID)/In-Flight Replanner (IFR), Ultra High Frequency (UHF) Satellite Communication (SATCOM), Mode 5/S Identification Friend or Foe (IFF), Adaptable Communications Suite (ACS), Extremely High Frequency (EHF) SATCOM and Computers, Defensive Management System (DMS), EMP Hardening Testing, and advanced, low detection data links upgrades. RMP changes the operating frequency of the radar to enable the B-2 to operate as the primary user worldwide in the future. Link-16 CID/IFR upgrade allows the B-2 access to theater tactical data links, improving on-board situational awareness while greatly enhancing the ability of the theater commanders to coordinate the B-2 with other assets. UHF SATCOM provides beyond line of sight secure communications to aircrews enabling verbal and data updates to missions. ACS provides UHF SATCOM data for beyond line of sight Link-16 situational awareness and airborne mission transfer. EHF SATCOM and Computers provides a secure, survivable communication and Net Ready infrastructure systems upgrade, preserving the critical ability to guarantee communication in a nuclear environment, as well as a basis for surveillance and reconnaissance. EHF SATCOM and Computers will provide a dramatic increase in the B-2 processing capability, paving the way for greater bandwidth and integration into the Global Information Grid (GIG), and Airborne Network Attack in an anti-access environment. Upgrades include extremely high frequency components and the computer infrastructure upgrades such as, but not limited to, flight management processors and onboard network components necessary to host new capability on the aircraft. Mode 5 provides enhanced combat identification of friend or foe functions for military Air Traffic Management; Mode S provides enhanced surveillance functions with commercial Air Traffic Management to allow operations in controlled air space. The DMS upgrade includes improvements and counters obsolescence of the defensive management processors and threat emitter system. The display processing improvement included in the DMS upgrade will be in harmony with the B-2 display architecture, which is common to all future upgrades requiring a cockpit display. Defensive Management System upgrades and improved displays are essential to ensuring platform survivability and reducing non-mission capable events. These system upgrades will transition from the current analog design to modern digital technology and provide necessary infrastructure which is prerequisite to enhanced threat location, identification, and warning capability for improved survivability, and enabling increased flexibility in strike, moving target kill, and non-traditional surveillance/reconnaissance (NTSR), positioning the B-2 for increased combat lethality, becoming the world's premier anti-access moving target kill platform. Electro-magnetic pulse (EMP) hardening

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 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101127F: *B-2 SQUADRONS*	PROJECT 675345: *B-2 Modernization*

requirements will test individual components and the entire B-2 fleet at higher EMP levels for NC2 Survivability. Integrated Strike Warfare (ISW) Airborne Network project will model and simulate combat effects and performance constraints in an environment that can demonstrate, integrate, generate and validate four generic wave form models which will be used on the B-2 platform. Additionally, this project will establish a viable end-to-end distributed modeling and simulation network. Advanced Tactical Data Link (TDL) will identify B-2 CONOPS requirements and integration issues which will permit B-2 to communicate with other stealth platforms in an anti-access environment to enhance situational awareness and to permit time-critical targeting and engagement.

Armament upgrades include, but are not limited to, integration of new and/or advanced weapons on the B-2 to destroy a wider array of target sets, to include moving target sets and Hardened, Deeply Buried Targets (HDBT), as well as destroy more targets per sortie. Integration of the 30K lb class Massive Ordnance Penetrator (MOP) will provide the nation with the ability to hold additional HDBT targets at risk that are currently unachievable with 5K lb class penetrator munitions. The B-2 is the only anti-access penetrating platform capable of carrying the MOP and meets Urgent Operational Needs (UON) requirements. The MOP project will design, develop, integrate, and test hardware, software, and support equipment required for carriage, jettison, and release of both weapons from the B-2. The initial MOP Quick Reaction Capability (QRC) effort will be expanded to include a fully developed Launch Acceptability Region (LAR), single Smart Bomb Rack Controller (SBRC) per bay weapon control and monitor, dual fuze control, and mixed carriage capability with Smart Bomb Rack Assemblies (SBRA). The Moving Target Kill (MTK) effort will leverage a high precision munition such as the Small Diameter Bomb II (SDB II) as the mobile target kill munition forming the foundation to exploit the modularity and improved precision algorithms of Universal Armament Interface as well as a display infrastructure that can support the integration of this future weapon. Planned upgrades also include integration of upgrades to currently fielded or inventory weapons and weapons development, such as but not limited to, GBU-28 E/B Selective Availability Anti-Spoofing Module (SAASM) with impact angle control and GBU-28 D/B SAASM with impact angle control, Hard Target Void Sensing Fuse (HTVSF), extended range Joint Air-to-Surface Standoff Missile (JASSM-ER), and JDAM-5000. Finally, basic armament improvements include, but are not limited to, stores management hardware and software modernization and improvements to enable a simultaneous configuration of the Rotary Launcher Assemblies (RLA) and the Smart Bomb Rack Assemblies (SBRA), and integration of new and improved weapon capabilities thus affording maximum strike flexibility. The B-2 Weapons System Tester and its associated Test Program Sets (TPS) will be continually upgraded for increased reliability and performance to support current and new B-2 weapon suspension and release systems.

Structures improvements include, but are not limited to, Aft Deck upgrade which addresses an interim and long term solution to persistent cracking of aft deck surfaces while preserving the key stealth characteristics that are vital to the survivability of the B-2; windshield redesign provides improved components and windshield manufacturing processes to remedy windshield cracking and electrical conductivity limitations; Proximity Sensor Logic Unit (PSLU) replacement counters obsolescence issues with electronic components, improving safety of maintainers working around various aircraft bay doors.

Engine improvements include, but are not limited to, the F-118 engine service life extension program. Stage 1 and 3 engine fan blade improvements will reduce engine changes, increasing aircraft availability. Engine upgrades are necessary to maintain commonality with the F110 engine core.

Low Observable (LO) programs include, but are not limited to, improvements to door edge treatments, tile protection system, Magnetic Radar Absorbing Material (MAGRAM) picture framing and other LO materials development, hot structures, tailpipe material improvements, nozzle bay doors, windshield low observable treatments, advanced topcoat system, radar frequency diagnostics and other LO diagnostic tools development such as improvements of the Signature Diagnostic

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 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101127F: *B-2 SQUADRONS*	PROJECT 675345: *B-2 Modernization*

System database, Low Observable Combat Readiness Model, and other low observable information systems. These upgrades decrease maintenance man-hours and increase aircraft availability while improving/maintaining LO signature of the B-2 fleet.
Baseline support maintains the B-2 unique flight test aircraft and as well as obtains, modifies, and operates a flying test bed and developmental hardware/software and test equipment to support developmental systems integration and flight test, reducing the need for additional operational aircraft and accelerates deployment of advanced operational capabilities to the warfighter. Baseline support also ensures the B-2 training systems keep pace with aircraft system updates and counters obsolescence issues; ensures the Mission Planning system keeps pace with aircraft modifications and mission planning core system updates; provides for other B-2 unique government costs, and includes acquisition planning activities for future capabilities such as, but not limited to, Stores Management Processor/Infrastructure upgrades, Advanced Tactical Datalink capabilities, Port Transducer upgrades, mixed weapon load-outs, Universal Armament Interface (UAI), Global Positioning System (GPS) M-Code receivers upgrades, Joint Precision Approach and Landing System (JPALS) upgrades, Radar Processor Modernization (RPM), Automatic Dependent Surveillance - Broadcast (ADS-B), and Extended Mission Oil Tank.

This program is included in budget activity code 07, Operational System Development.

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: B-2 baseline support	0.000	23.165	14.560	0.000	14.560
FY 2009 Accomplishments: In FY2009: Not applicable. Work was performed under PE 0604240F					
FY 2010 Plans: In FY2010: Continue B-2 baseline support to include developmental flight test aircraft modification and base of operations; Mission Planning, Trainer support, long range planning, studies, program integration activities, acquisition planning, and other government costs.					
FY 2011 Base Plans: In FY2011: Continue B-2 baseline support to include developmental flight test aircraft modification and base of operations; Mission Planning, Trainer support, long range planning, studies, program integration activities, acquisition planning, and other government costs.					

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 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101127F: *B-2 SQUADRONS*	PROJECT 675345: *B-2 Modernization*

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: Development of airframe and avionics improvements. *FY 2009 Accomplishments:* In FY2009: Not applicable. Work was performed under PE 0604240F *FY 2010 Plans:* In FY2010: Continue development of Aft Deck, Low Observable improvements, Mode 5/S IFF, Proximity Sensor Logic Unit (PSLU), Moving Target Kill (MTK), Massive Ordnance Penetrator (MOP), Display Systems, Integrated Windshield Solution, Trainer Upgrades, EMP Testing, and other airframe and avionics improvements. *FY 2011 Base Plans:* In FY2011: Continue development of Aft Deck, Low Observable improvements, Mode 5/S IFF, Proximity Sensor Logic Unit (PSLU), Moving Target Kill (MTK), Massive Ordnance Penetrator (MOP), Display Systems, Integrated Windshield Solution, Trainer Upgrades, EMP Testing, and other airframe and avionics improvements. *FY 2011 OCO Plans:* In FY 2011 OCO: Not Applicable.	0.000	76.428	12.611	0.000	12.611
MAJOR THRUST: Development of Defensive Management System (DMS). *FY 2009 Accomplishments:* In FY2009: Not applicable. Work was performed under PE 0604240F *FY 2010 Plans:* In FY2010: Continue development of Defensive Management System (DMS).	0.000	84.773	62.948	0.000	62.948

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 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101127F: *B-2 SQUADRONS*	PROJECT 675345: *B-2 Modernization*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: In FY2011: Continue development of Defensive Management System (DMS). *FY 2011 OCO Plans:* In FY 2011 OCO: Not Applicable.					
MAJOR THRUST: Development of EHF SATCOM and Computers Increment 1 System Development and Demonstration (SDD) *FY 2009 Accomplishments:* In FY2009: Not applicable. Work was performed under PE 0604240F *FY 2010 Plans:* In FY2010: Continue development of EHF SATCOM and Computers Increment 1 System Development and Demonstration (SDD) and design and fabrication of new and modified components for two test aircraft and two Force Development Evaluation (FDE) aircraft. *FY 2011 Base Plans:* In FY2011: Continue development of EHF SATCOM and Computers Increment 1 System Development and Demonstration (SDD) and design and fabrication of new and modified components for two test aircraft and two Force Development Evaluation (FDE) aircraft. *FY 2011 OCO Plans:* In FY 2011 OCO: Not Applicable.	0.000	83.003	78.028	0.000	78.028
MAJOR THRUST: Develop EHF SATCOM and Computer Increment 2 *FY 2009 Accomplishments:* In FY2009: Not applicable. Work was performed under PE 0604240F	0.000	123.063	92.319	0.000	92.319

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 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101127F: *B-2 SQUADRONS*	PROJECT 675345: *B-2 Modernization*

B. Accomplishments/Planned Program ($ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: In FY2010: Continue EHF SATCOM and Computer Increment 2 component advanced design, risk reduction activities to meet milestone B, and further refinement of Increment 3 net ready requirement. *FY 2011 Base Plans:* In FY2011: Continue EHF SATCOM and Computer Increment 2 component advanced design, risk reduction activities to meet milestone B, and further refinement of Increment 3 net ready requirement. *FY 2011 OCO Plans:* In FY 2011 OCO: Not Applicable.					
MAJOR THRUST: Development of Radar Modernization Program including continuing System Development and Demonstration (SDD) *FY 2009 Accomplishments:* In FY2009: Not applicable. Work was performed under PE 0604240F *FY 2010 Plans:* In FY2010: Complete development of Radar Modernization Program including completing System Development and Demonstration (SDD) and design and fabrication of new and modified components for test aircraft and six developmental units. *FY 2011 Base Plans:* In FY2011: Not applicable *FY 2011 OCO Plans:* In FY 2011 OCO: Not Applicable.	0.000	16.757	0.000	0.000	0.000
Accomplishments/Planned Programs Subtotals	0.000	407.189	260.466	0.000	260.466

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 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101127F: *B-2 SQUADRONS*	PROJECT 675345: *B-2 Modernization*

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 0101127F: *B-2 Squadrons, A/C Proc, AF, Modifications/BA05/ B-2A*	0.000	240.968	57.415	0.000	57.415	98.593	137.629	226.394	145.791	0.000	0.000
• PE 0101127F (1): *B-2 Squadrons, A/C Prod, AF, Post Prod Support/BA07/B-2A/ICS (XX50)*	0.000	24.403	20.755	0.000	20.755	20.688	21.528	21.498	21.018	0.000	0.000
• PE 0101127F (2): *B-2 Squadrons, A/C Proc, AF, Post Prod Support/BA07/B-2A*	0.000	19.800	5.462	0.000	5.462	1.142	2.795	2.843	2.896	0.000	0.000
• PE 0101127F (3): *B-2 Squadrons, A/C Proc, AF, A/C Initial Spares/BA06/B-2A*	0.000	0.000	15.099	0.000	15.099	14.900	6.273	13.695	5.488	0.000	0.000
• PE 0101127F (4): *B-2 Squadrons, A/C Proc, AF, Depot Activation/BA07/B-2A*	0.000	19.153	166.067	0.000	166.067	12.068	10.593	4.961	2.123	0.000	0.000

D. Acquisition Strategy

Key elements of the overall acquisition strategy include: use of sole source contract with a prime/integrating contractor (Northrop Grumman); use of cost plus award fee/ incentive fee (CPAF/IF) development contracts; and the combination of developmental upgrades with software sustainment blocks to minimize the number of software releases, aircraft downtime, and differences in fielded configurations.

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 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101127F: *B-2 SQUADRONS*	PROJECT 675345: *B-2 Modernization*

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
Air Vehicle	Various/ Various	Various Various	0.000	378.837	Oct 2009	240.953	Oct 2010	0.000		240.953	Continuing	Continuing	0.000
Aircrew Training	Various/ Various	Various Various	0.000	3.170	Jan 2010	3.183	Jan 2011	0.000		3.183	Continuing	Continuing	0.000
Mission Planning	Various/ Various	Various Various	0.000	2.504	Jan 2010	2.017	Jan 2011	0.000		2.017	Continuing	Continuing	0.000
Engines	Various/ Various	Various Various	0.000	0.000		0.000		0.000		0.000	0.000	0.000	0.000
		Subtotal	0.000	384.511		246.153		0.000		246.153			0.000

Remarks

Support ($ 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
Other Government Costs	Various/ Various	Various Various	0.000	17.898	Oct 2009	8.560	Oct 2010	0.000		8.560	Continuing	Continuing	0.000
		Subtotal	0.000	17.898		8.560		0.000		8.560			0.000

Remarks

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 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101127F: *B-2 SQUADRONS*	PROJECT 675345: *B-2 Modernization*

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
Government Test	Various/ Various	AFFTC Various	0.000	4.780	Oct 2009	5.753	Oct 2010	0.000		5.753	Continuing	Continuing	0.000
		Subtotal	0.000	4.780		5.753		0.000		5.753			0.000

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	0.000	407.189		260.466		0.000		260.466			0.000

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 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101127F: *B-2 SQUADRONS*	PROJECT 675345: *B-2 Modernization*

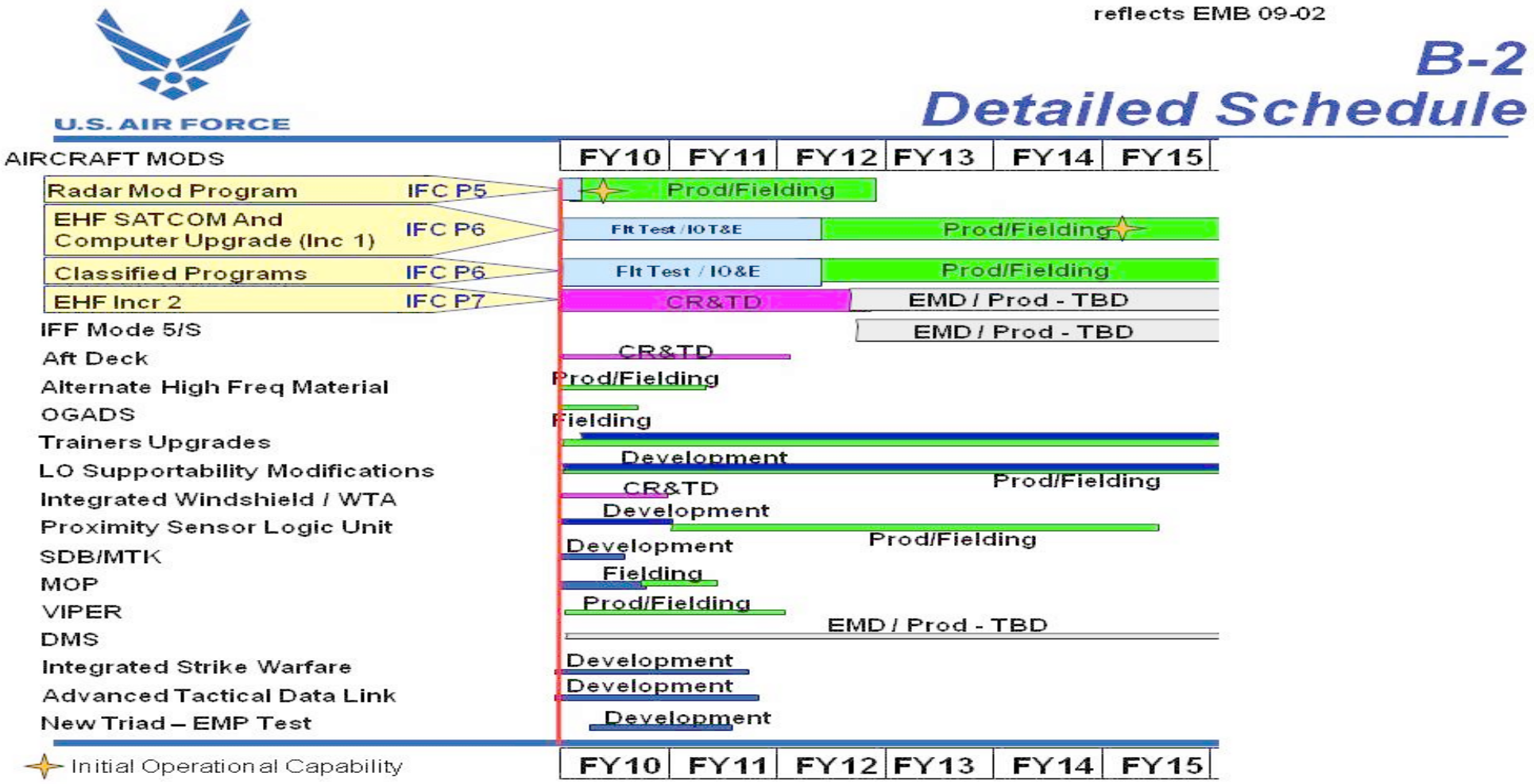

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force		DATE: February 2010
APPROPRIATION/BUDGET ACTIVITY 3600: *Research, Development, Test & Evaluation, Air Force* BA 7: *Operational Systems Development*	R-1 ITEM NOMENCLATURE PE 0101127F: *B-2 SQUADRONS*	PROJECT 675345: *B-2 Modernization*

Schedule Details

	Start		End	
Event	Quarter	Year	Quarter	Year
EHF SATCOM and Computers Inc 1 First Flight	2	2010	2	2010
EHF SATCOM and Computers Inc 2 CAD Contract Award	1	2010	1	2010
EMP Testing Contract Award	3	2010	3	2010
Viper Contract Award	3	2010	3	2010
DMS TD Contract Award	3	2011	3	2011