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 0305116F: AERIAL TARGETS

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	10.970	54.807	63.573	0.000	63.573	39.581	30.525	25.094	35.092	Continuing	Continuing
675136: Target Systems Development	10.970	4.018	3.472	0.000	3.472	3.976	4.271	5.369	5.443	Continuing	Continuing
675366: QF-16	0.000	50.789	60.101	0.000	60.101	35.605	26.254	19.725	29.649	Continuing	Continuing

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

Full-scale and subscale targets assure warfighters weapon systems will perform effectively against real-world enemy fighters and cruise missiles. Aerial targets support adherence to public law Title 10, Section 2366, which requires major systems and munitions programs to conduct survivability and lethality testing before full-rate production. The Aerial Targets program provides drones to satisfy "Live Fire/Lethality" developmental/operational test requirements. Target drones are used to validate operational missile/weapon system effectiveness and fighter operational flight program (OFP) updates. Target drones are also essential for developmental/operational testing for all air-to-air and ground-to-air missiles, and for the F-22A, F-35, F-16, F-15, etc., aircraft. This program element funds development, improvements, and updates of full-scale/subscale aerial targets and target control systems to ensure aerial targets represent enemy threat airborne systems. Specialized target payload subsystems are developed for requirements to include but not limited to missile scoring, electronic attack and infrared (IR) countermeasures, radar and IR signature augmentation, and chaff and flare dispensing systems.

This program is in budget activity 7 - RDT&E Operational System Development because it provides aerial targets, target payloads, and target control systems in support of operational and developmental testing.

Note: In FY10, QF-16 was separated from the Target Systems Development BPAC (675136) in RDT&E funding only.

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 0305116F: AERIAL TARGETS

## **B. Program Change Summary (\$ in Millions)**

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	34.683	54.807	0.000	0.000	0.000
Current President's Budget	10.970	54.807	63.573	0.000	63.573
Total Adjustments	-23.713	0.000	63.573	0.000	63.573
<ul> <li>Congressional General Reductions</li> </ul>		0.000			
<ul> <li>Congressional Directed Reductions</li> </ul>		0.000			
<ul> <li>Congressional Rescissions</li> </ul>	0.000	0.000			
<ul> <li>Congressional Adds</li> </ul>		0.000			
<ul> <li>Congressional Directed Transfers</li> </ul>		0.000			
<ul> <li>Reprogrammings</li> </ul>	0.000	0.000			
<ul> <li>SBIR/STTR Transfer</li> </ul>	0.000	0.000			
<ul> <li>Other Adjustments</li> </ul>	-23.713	0.000	63.573	0.000	63.573

# **Change Summary Explanation**

FY2009 changes include congressional rescission in the FY10 Congressional marks and reprorammings for higher Air Force priorities.

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, RD1&E Project Jus	EXPLIBIT R-2A, RD I & Project Justification: PB 2011 Air Force										
3600: Research, Development, Tes	PROPRIATION/BUDGET ACTIVITY  00: Research, Development, Test & Evaluation, Air Force  37: Operational Systems Development				<b>IOMENCLA</b> 6F: <i>AERIAL</i>			PROJECT 675136: Target Systems Development			
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
675136: Target Systems Development	10.970	4.018	3.472	0.000	3.472	3.976	4.271	5.369	5.443	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

## A. Mission Description and Budget Item Justification

Full-scale and subscale targets assure warfighters weapon systems will perform effectively against real-world enemy fighters and cruise missiles. The BQM-167A Air Force Subscale Aerial Target (AFSAT) is a jet powered drone aircraft measuring approximately 20 feet long with a mission to simulate threat aircraft for testing and evaluation of surface-to-air, ship-to-air, or air-to-air missiles. The target accomplishes this mission through the use of optional payloads including chaff and flare, electronic attack, and infrared devices.

The 691 ARSS, in consultation with the system operators and maintainers, has implemented a continuing system improvement process. Funding will continue improvement of launch phase performance and overall reliability improvement efforts. In addition, efforts are on-going to determine ways to improve the efficiency of BQM-167A maintenance processes. Results of on-going system improvement efforts are evaluated to determine which improvements will be incorporated into the BQM-167A. Also funds development, improvements, and updates of target control systems and specialized target payload subsystems for requirements to include but not limited to missile scoring, electronic attack and infrared (IR) countermeasures, radar and IR signature augmentation, and chaff and flare dispensing systems.

Note: Note: In FY10, QF-16 was separated from the Target Systems Development BPAC (675136) in RDT&E funding only.

# B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: QF-16 Development	9.565	0.000	0.000	0.000	0.000
FY 2009 Accomplishments: In FY 2009: F-16 aircraft withdrawal and refurbishment, engine maintenance and refurbishment, acquisition of support equipment, programmatic efforts in support of QF-16 development program. QF-16 funding moved to new BPAC 675336 starting in FY2010.					

	UNCLASSIFIED					
Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force				DATE: Febr	uary 2010	
APPROPRIATION/BUDGET ACTIVITY 3600: Research, Development, Test & Evaluation, Air Force BA 7: Operational Systems Development	R-1 ITEM NOMENCLATURE PE 0305116F: AERIAL TARGETS		<b>PROJECT</b> 675136: <i>Ta</i>	rget Systems	s Developme	ent
B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: In FY 2010: Not Applicable.						
FY 2011 Base Plans: In FY 2011: Not Applicable.						
FY 2011 OCO Plans: In FY 2011 OCO: Not Applicable.						
MAJOR THRUST: Continue improvement of performance, reliabili	ty, and maintenance for BQM-167A.	1.405	4.018	3.472	0.000	3.472
FY 2009 Accomplishments: In FY 2009: Product improvements for the Air Force Subscale payload and propulsion improvements, and other objective resystem acquisition and engineering support which includes straystem, the weapon scoring system, payload systems and oth basic operating support.	quirements/enhancements; continue udies, upgrades for the target control					
FY 2010 Plans: In FY 2010: AFSAT product enhancements to include Alternate enhancements. Spares and production will be focus of contra						
FY 2011 Base Plans: In FY 2011: Continue AFSAT product enhancements to inclu augmentation, Alternate Launch Study, and other objective er						
FY 2011 OCO Plans: In FY 2011 OCO: Not Applicable.						
Acco	mplishments/Planned Programs Subtotals	10.970	4.018	3.472	0.000	3.472

# **UNCLASSIFIED**

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**Exhibit R-2A**, **RDT&E Project Justification**: PB 2011 Air Force

APPROPRIATION/BUDGET ACTIVITY

R-1 ITEM NOMENCLATURE PROJECT

3600: Research, Development, Test & Evaluation, Air Force

PE 0305116F: AERIAL TARGETS

BA 7: Operational Systems Development

675136: Target Systems Development

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

			FY 2011	FY 2011	FY 2011					<b>Cost To</b>	
<u>Line Item</u>	FY 2009	FY 2010	<u>Base</u>	OCO	<u>Total</u>	FY 2012	FY 2013	FY 2014	FY 2015	<b>Complete</b>	Total Cost
PE Not Provided (16285):	80.135	90.870	101.599	0.000	101.599	80.745	181.152	204.910	282.011	0.000	0.000
PE0305116F, Aerial Targets APAF,											
3010 Total											
<ul> <li>PE Not Provided (16297):</li> </ul>	70.364	74.473	85.505	0.000	85.505	65.687	165.940	189.533	266.442	0.000	0.000
PE0305116F, Aircraft Procurement											
PE Not Provided (16309):	0.544	0.521	0.523	0.000	0.523	0.532	0.539	0.549	0.559	0.000	0.000
PE0305116F, Initial Spares											
• PE Not Provided (16321):	0.095	5.713	5.311	0.000	5.311	4.207	4.277	4.350	4.432	0.000	0.000
PE0305116F, Munitions											
PE Not Provided (16333):	9.132	10.163	10.260	0.000	10.260	10.319	10.396	10.478	10.578	0.000	0.000
PE0305116F, Electronic Attack											

## D. Acquisition Strategy

Pods

The AFSAT acquisition strategy is sole source follow-on to a competitive award, with fixed price and time and materials contracts.

#### **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

R-1 ITEM NOMENCLATURE

**PROJECT** 

3600: Research, Development, Test & Evaluation, Air Force

PE 0305116F: AERIAL TARGETS

675136: Target Systems Development

BA 7: Operational Systems Development

# **Product Development (\$ in Millions)**

				FY 2	010	FY 2 Ba		FY 2		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
AFSAT P3I Efforts	SS/FFP	Composite Engineering Inc Sacramento CA	0.646	4.018	Jan 2010	3.472	Jan 2011	0.000		3.472	0.000	8.136	0.000
QF-16 Risk Reduction activities	MIPR	691 ARSS Eglin AFB, FL, AMARG: Tucson, AZ, 162d ANG, Tu	9.565	0.000		0.000		0.000		0.000	0.000	9.565	0.000
		Subtotal	10.211	4.018		3.472		0.000		3.472	0.000	17.701	0.000

#### **Remarks**

# Support (\$ in Millions)

	•					FY 2	0011	FY 2	011	FY 2011	]		
				FY 2	010	Ba		00		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
Mission Support	Various/ Various	691 ARSS Eglin AFB, FL	0.759	0.000		0.000		0.000		0.000	0.000	0.759	0.000
		Subtotal	0.759	0.000		0.000		0.000		0.000	0.000	0.759	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 0305116F: AERIAL TARGETS

**PROJECT** 

675136: Target Systems Development

	Total Prior Years Cost	FY 2010		2011 ise	FY 2	2011 CO	FY 2011 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	10.970	4.018	3.472		0.000		3.472	0.000	18.460	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

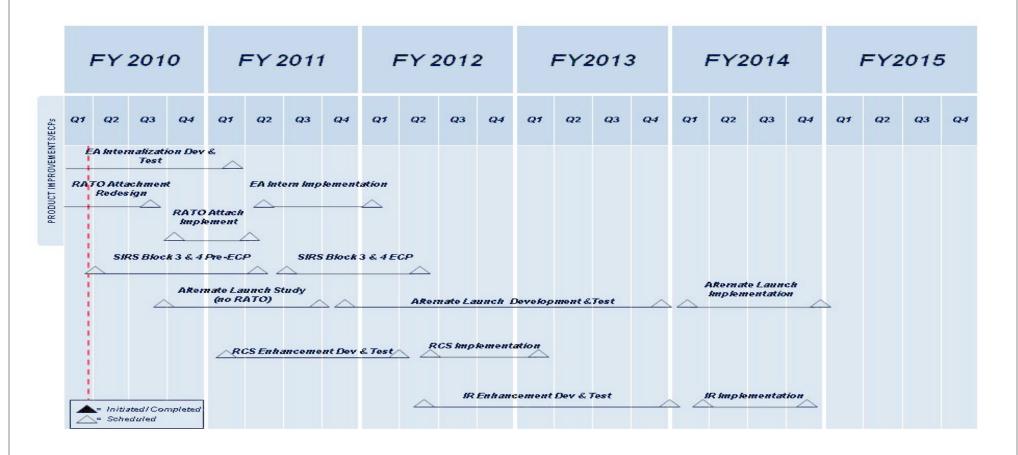
R-1 ITEM NOMENCLATURE

PE 0305116F: AERIAL TARGETS

**PROJECT** 

675136: Target Systems Development

# **AFSAT Schedule**



R-1 Line Item #191 Page 8 of 16

Exhibit R-4A, RDT&E Schedule Details: PB 2011 Air Force

APPROPRIATION/BUDGET ACTIVITY
3600: Research, Development, Test & Evaluation, Air Force
BA 7: Operational Systems Development

BA 7: Operational Systems Development

DATE: February 2010

R-1 ITEM NOMENCLATURE
PE 0305116F: AERIAL TARGETS
675136: Target Systems Development

# Schedule Details

	St	art	End		
Event	Quarter	Year	Quarter	Year	
Product Improvements	2	2009	4	2011	
RCS Enhancement, contractor NAWC/ATSO	1	2011	4	2011	
Alternate Launch, contractor CEi	4	2010	4	2011	

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force

DATE: February 2010

APPROPRIATION/BUDGET ACTIVITY R-1 ITEM NOMENCLATURE PROJECT

3600: Research, Development, Test & Evaluation, Air Force PE 0305116F: AERIAL TARGETS 675366: QF-16

BA 7: Operational Systems Development

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
675366: <i>QF-16</i>	0.000	50.789	60.101	0.000	60.101	35.605	26.254	19.725	29.649	Continuing	Continuing
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0		

#### Note

Note: In FY10, QF-16 was separated from the Target Systems Development BPAC (675136) in RDT&E funding only.

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

Full-scale targets assure warfighters weapon systems perform effectively against real-world enemy fighters and cruise missiles. Aerial targets support adherence to Public Law Title 10, Section 2366, which requires major systems and munitions programs to conduct survivability and lethality testing before full-rate production. The Aerial Targets program provides drones to satisfy "Live Fire/Lethality" developmental/operational test requirements. Target drones are used to validate operational missile/weapon system effectiveness and fighter operational flight program (OFP) updates. Target drones are also essential for developmental/operational testing for all air-to-air and ground-to-air missiles, and for the F-22A, F-35, F-16, F-15, etc., aircraft. The United States Air Force's (USAF) Air Superiority Modernization/Mission Area Plan has identified aerial targets as a capability shortfall. The QF-16 program will fulfill this requirement. Funding supports continued development of the follow-on full scale aerial target (QF-16), development, improvements, and updates of target control systems and specialized target payload subsystems for requirements such as: missile scoring, electronic attack and infrared (IR) countermeasures, radar and IR signature augmentation, and chaff and flare dispensing systems.

## B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
MAJOR THRUST: QF-16 Development Program	0.000	33.903	43.026	0.000	43.026
FY 2009 Accomplishments: In FY 2009: Not Applicable.					

Exhibit R-2A, RDT&E Project Justification: PB 2011 Air Force

APPROPRIATION/BUDGET ACTIVITY

3600: Research, Development, Test & Evaluation, Air Force
BA 7: Operational Systems Development

BA 7: Operational Systems Development

DATE: February 2010

R-1 ITEM NOMENCLATURE
PE 0305116F: AERIAL TARGETS

675366: QF-16

# B. Accomplishments/Planned Program (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: In FY 2010: Design/develop/integrate drone package into F-16; efforts include design/development of drone peculiar equipment, build/install drone hardware prototypes and contractor system test and evaluation.					
FY 2011 Base Plans: In FY 2011: Continued design/development/integration of drone package into F-16; efforts include design/development of drone peculiar equipment, build/install drone hardware prototypes and contractor system test and evaluation.					
FY 2011 OCO Plans: In FY 2011 OCO: Not Applicable.					
MAJOR THRUST: QF-16 Regeneration	0.000	16.886	17.075	0.000	17.07
FY 2009 Accomplishments: In FY 2009: Not Applicable.					
FY 2010 Plans: In FY 2010: F-16 aircraft withdrawal and refurbishment, engine maintenance and refurbishment, acquisition of support equipment, programmatic efforts in support of QF-16 development program.					
FY 2011 Base Plans: In FY 2011: Continued support of F-16 aircraft withdrawal and refurbishment, engine maintenance and refurbishment, acquisition of support equipment, programmatic efforts in support of QF-16 development program.					
FY 2011 OCO Plans: In FY 2011 OCO: Not Applicable.					

# **UNCLASSIFIED**

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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 0305116F: AERIAL TARGETS

**PROJECT** 675366: QF-16

## B. Accomplishments/Planned Program (\$ in Millions)

			FY 2011	FY 2011	FY 2011
	FY 2009	FY 2010	Base	oco	Total
Accomplishments/Planned Programs Subtotals	0.000	50.789	60.101	0.000	60.101

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

			FY 2011	FY 2011	FY 2011					<b>Cost To</b>	
<u>Line Item</u>	FY 2009	FY 2010	<u>Base</u>	OCO	<u>Total</u>	FY 2012	FY 2013	FY 2014	FY 2015	<b>Complete</b>	Total Cost
PE Not Provided (16555):	80.135	90.870	101.599	0.000	101.599	80.745	181.152	204.910	282.011	0.000	0.000
PE0305116F, Aerial Targets APAF,											
3010 Total											
PE Not Provided (16567):	70.364	74.473	85.505	0.000	85.505	65.687	165.940	189.533	266.442	0.000	0.000
PE0305116F, Aircraft Procurement											
PE Not Provided (16579):	0.544	0.521	0.523	0.000	0.523	0.532	0.539	0.549	0.559	0.000	0.000
PE0305116F, Initial Spares											
• PE Not Provided (16591):	0.095	5.713	5.311	0.000	5.311	4.207	4.277	4.350	4.432	0.000	0.000
PE0305116F, Munitions											
PE Not Provided (16603):	9.132	10.163	10.260	0.000	10.260	10.319	10.396	10.478	10.578	0.000	0.000
PE0305116F, Electronic Attack											

# D. Acquisition Strategy

The QF-16 acquisition strategy is competitive with planned fixed price incentive firm, time and materials and fixed price production contracts.

### **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.

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Pods

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 0305116F: AERIAL TARGETS

**PROJECT** 675366: QF-16

# **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
Development of Drone Peculiar Equipment	C/TBD	TBD TBD	0.000	33.903	Mar 2010	43.026		0.000		43.026	0.000	76.929	0.000
Airframe/Engine GFE	MIPR	691 ARSS Eglin AFB, FL, AMARG: Tucson, AZ, 162d ANG: Tu	0.000	10.814		11.500		0.000		11.500	0.000	22.314	0.000
		Subtotal	0.000	44.717		54.526		0.000		54.526	0.000	99.243	0.000

#### **Remarks**

# **Support (\$ in Millions)**

				FY 2	010	FY 2 Ba	-	FY 2		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
QF-16 Program Support	MIPR	691 ARSS Eglin AFB, FL, AMARG: Tucson, AZ, 162d ANG: Tu	0.000	6.072		5.575		0.000		5.575	0.000	11.647	0.000
		Subtotal	0.000	6.072		5.575		0.000		5.575	0.000	11.647	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 0305116F: AERIAL TARGETS

**PROJECT** 675366: *QF-16* 

	Total Prior Years Cost	FY 2	2010	FY 2 Ba	FY 20 OCC		Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	0.000	50.789		60.101	0.000	60.101	0.000	110.890	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

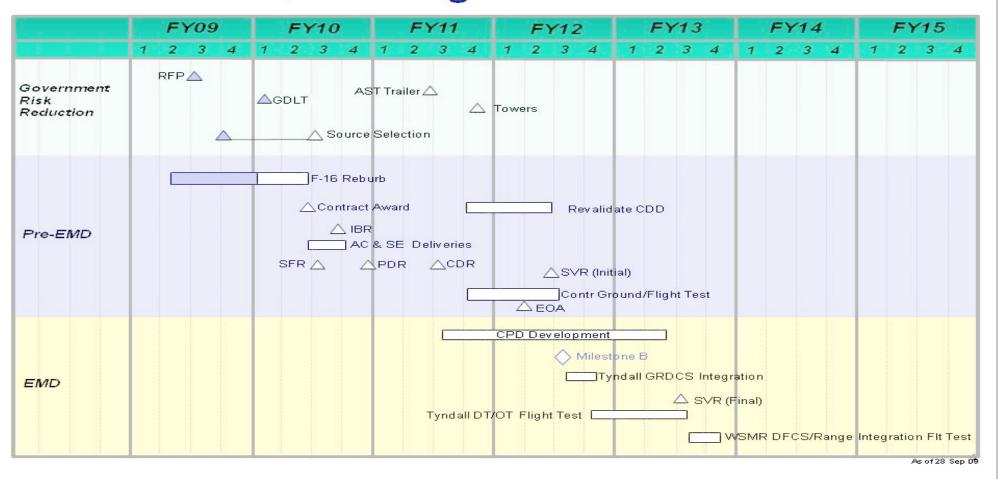
#### R-1 ITEM NOMENCLATURE

PE 0305116F: AERIAL TARGETS

PROJECT

675366: *QF-16* 

# QF-16 Program Schedule



## **UNCLASSIFIED**

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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 0305116F: AERIAL TARGETS

**PROJECT** 

675366: QF-16

# Schedule Details

	St	art	End		
Event	Quarter	Year	Quarter	Year	
QF-16 Development Contract Award	2	2010	2	2010	