Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Air Force											Date: February 2019	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*					R-1 Program Element (Number/Name) PE 0207110F / *Next Generation Air Dominance*							
COST ($ in Millions)	**Prior Years**	**FY 2018**	**FY 2019**	**FY 2020 Base**	**FY 2020 OCO**	**FY 2020 Total**	**FY 2021**	**FY 2022**	**FY 2023**	**FY 2024**	**Cost To Complete**	**Total Cost**
Total Program Element	-	283.964	429.610	1,000.000	0.000	1,000.000	1,046.000	1,545.000	1,710.000	1,267.000	Continuing	Continuing
646007: *AS 2030 Air Dominance Technologies (ADT)*	-	282.961	418.463	1,000.000	0.000	1,000.000	1,046.000	1,545.000	1,710.000	1,267.000	Continuing	Continuing
646203: *Air Dominance Air-to-Air Weapon*	-	1.003	11.147	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

Next Generation Air Dominance (NGAD) is a family of capabilities enabling Air Superiority for the Joint Force in the most challenging operational environments. The program matures technology and reduces risk through prototyping activities and demonstration efforts. Key NGAD attributes include enhancements in survivability, lethality, and persistence across a range of military operations. The NGAD program is directed by Joint Requirements Oversight Council Memorandum (JROCM) 043-13 and CSAF approved Air Superiority Enterprise Capability Collaboration Team (ECCT) Flight Plan. Program activities will also include the pursuit of open architecture solutions including Open Mission Standards (OMS) and Universal Control Interface (UCI) standards management and preplanned product improvements. Funding provides program management support, operational concept exploration, technology studies, multi-domain integration assessments, operational and system architecture development, maturation and risk reduction of air superiority related technologies, including weapons systems and integrated system concept development and demonstration.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver NGAD capabilities. The use of such program funds would be in addition to the civilian pay expenses budgeted in PE's: 0605826F, 0605827F, 0605828F, 0605829F 0605830F, 0605831F, 0605832F, and 0605898F.

NGAD civilian pay is executed in PE 020711F.

Better Alignment of Resources: Next Generation Air Dominance (NGAD)
Deferral of the development of specific Next Generation Air Dominance (NGAD) classified technologies results in a realignment of $357M in FY 2020, and $6,646M across the FYDP, to fund the development of the most promising classified technologies, which improve lethality by providing expanded capabilities.

As directed in the FY 2018 NDAA, Sec 825, amendment to PL 114-92 FY 2016 NDAA, Sec 828 Penalty for Cost Overruns, the FY 2018 Air Force penalty total is $14.373M. The calculated percentage reduction to each research, development, test and evaluation and procurement account will be allocated proportionally from all programs, projects, or activities under such account.

This effort is in Budget Activity 4, Advanced Component Development and Prototypes (ACD&P), because efforts are necessary to evaluate integrated technologies, representative modes or prototype systems in a high fidelity and realistic operating environment.

Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Air Force					Date: February 2019
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 4: *Advanced Component Development & Prototypes (ACD&P)*		R-1 Program Element (Number/Name) PE 0207110F / *Next Generation Air Dominance*			
B. Program Change Summary ($ in Millions)	**FY 2018**	**FY 2019**	**FY 2020 Base**	**FY 2020 OCO**	**FY 2020 Total**
Previous President's Budget	294.746	503.997	1,356.491	0.000	1,356.491
Current President's Budget	283.964	429.610	1,000.000	0.000	1,000.000
Total Adjustments	-10.782	-74.387	-356.491	0.000	-356.491
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	-70.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-10.032	-4.387			
• Other Adjustments	-0.750	0.000	-356.491	0.000	-356.491

Change Summary Explanation

FY 2018: -$10.032M SBIRS and -$.750M FFRDC reductions

FY 2019: -$70.0M Congressional Mark and -$4.4M FFRDC reductions

FY 2020: Next Generation Air Dominance (NGAD) saved $356.5M in BY. NGAD Description: Decision to defer development of specific classified technologies and refocus resources to develop the most promising classified technologies, which improve lethality by providing expanded capabilities.

Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force			Date: February 2019
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0207110F / *Next Generation Air Dominance*	Project (Number/Name) 646007 / *AS 2030 Air Dominance Technologies (ADT)*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
646007: *AS 2030 Air Dominance Technologies (ADT)*	-	282.961	418.463	1,000.000	0.000	1,000.000	1,046.000	1,545.000	1,710.000	1,267.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Next Generation Air Dominance (NGAD) is a family of capabilities enabling Air Superiority for the Joint Force in the most challenging operational environments. The PE matures technology and reduces risk through prototyping activities and demonstration efforts. Key NGAD attributes include enhancements in survivability, lethality, and persistence across a range of military operations. The NGAD program is directed by Joint Requirements Oversight Council Memorandum (JROCM) 043-13 and CSAF approved Air Superiority Enterprise Capability Collaboration Team (ECCT) Flight Plan. Program activities will also include the pursuit of open architecture solutions including Open Mission Standards (OMS) and Universal Control Interface (UCI) standards management and preplanned product improvements. Funding provides program management support, operational concept exploration, technology studies, multi-domain integration assessments, operational and system architecture development, maturation and risk reduction of air superiority related technologies, including weapons systems and integrated system concept development and demonstration.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Title: 2030+ Air Dominance	282.961	418.463	1,000.000
Description: The 2030+ Air Dominance (AD) candidate concepts consist of operational analyses, threat studies and technology candidate assessments and prototyping to identify operational concepts and technologies that improve persistence, survivability, lethality, connectivity, interoperability and affordability in 2030 and beyond. These efforts will provide for contractors to conduct analyses, identify technology candidates and perform concept refinement. Furthermore, studies are required to develop operational/system architectures to include family of systems and system of systems. In addition, technical risk reduction activities will be performed to include experimentation, integration and building demonstrative prototypes. The 2030+ AD working groups methodically assessed candidate concepts using USAF directives and guidance. Resulting concepts informed the NGAD Analysis of Alternatives (AoA), which is in the final stages of coordination. Ongoing studies are conducted to refine system concepts and operational/system architectures incorporating family of systems and system of systems that may be required to inform and support strategic choices. In addition, technical risk reduction studies concerning technology integration, operational and system trade space utilizing preliminary data from AD concept development have resulted in multiple activities and engagements to inform strategic USAF experimentation and prototyping efforts. Finally, technical overviews were presented to the Air Force - Scientific Advisory Board (AF-SAB) and other senior leaders.			
FY 2019 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force		Date: February 2019
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0207110F / *Next Generation Air Dominance*	**Project (Number/Name)** 646007 / *AS 2030 Air Dominance Technologies (ADT)*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
The 2030+ Air Dominance candidate concepts consist of operational analyses, threat studies and technology candidate assessments and prototyping to identify operational concepts and technologies that improve persistence, survivability, lethality, connectivity, interoperability and affordability in 2030 and beyond. These efforts will provide for contractors to conduct analyses, identify technology candidates and perform concept refinement. Furthermore, studies are required to develop operational/system architectures to include family of systems and system of systems. In addition, technical risk reduction activities will be performed to include experimentation, integration and building demonstrative prototypes. Program activities will also include the pursuit of open architecture solutions.			
FY 2020 Plans: The 2030+ Air Dominance candidate concepts consist of operational analyses, threat studies and technology candidate assessments and prototyping to identify operational concepts and technologies that improve persistence, survivability, lethality, connectivity, interoperability and affordability in 2030 and beyond. These efforts will provide for contractors to conduct analyses, identify technology candidates and perform concept refinement. Furthermore, studies are required to develop operational/system architectures to include family of systems and system of systems. In addition, technical risk reduction activities will be performed to include experimentation, integration and building demonstrative prototypes. Program activities will also include the pursuit of open architecture solutions.			
FY 2019 to FY 2020 Increase/Decrease Statement: Program increasing technology maturation, risk reduction activities, and hardware prototyping efforts			
Accomplishments/Planned Programs Subtotals	282.961	418.463	1,000.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• RDTE 04 0207110F/646203: *Air Dominance Air-to-Air Weapon*	1.003	11.147	0.000	-	0.000	0.000	0.000	0.000	-	Continuing	Continuing

Remarks

N/A

D. Acquisition Strategy

The Next Generation Air Dominance acquisition strategy is based on top-down, multi-domain capabilities development planning and oversight framework. Cross-functional teams will conduct analysis, demonstrations, and experiments to quantify the operational value of alternative concepts and technologies to provide solutions to current and future air superiority capability gaps.

Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force		Date: February 2019
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0207110F / *Next Generation Air Dominance*	**Project (Number/Name)** 646007 / *AS 2030 Air Dominance Technologies (ADT)*

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 2020 Air Force			Date: February 2019
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0207110F / *Next Generation Air Dominance*	Project (Number/Name) 646007 / *AS 2030 Air Dominance Technologies (ADT)*	

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Research/Development Efforts	Various	Various : Various	-	268.419		394.262		945.310		-		945.310	Continuing	Continuing	-
		Subtotal	-	268.419		394.262		945.310		-		945.310	Continuing	Continuing	N/A

Remarks

Contractual specifics are not available at this level of security classification.

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Program Management Support	Various	Various : Various	-	14.542		24.201		54.690		-		54.690	Continuing	Continuing	-
		Subtotal	-	14.542		24.201		54.690		-		54.690	Continuing	Continuing	N/A

Remarks

May include civ pay for FY18+

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	282.961		418.463		1,000.000		-		1,000.000	Continuing	Continuing	N/A

Remarks

Details of contract data are not shown because of the level of security classification.

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Air Force		Date: February 2019
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0207110F / *Next Generation Air Dominance*	**Project (Number/Name)** 646007 / *AS 2030 Air Dominance Technologies (ADT)*

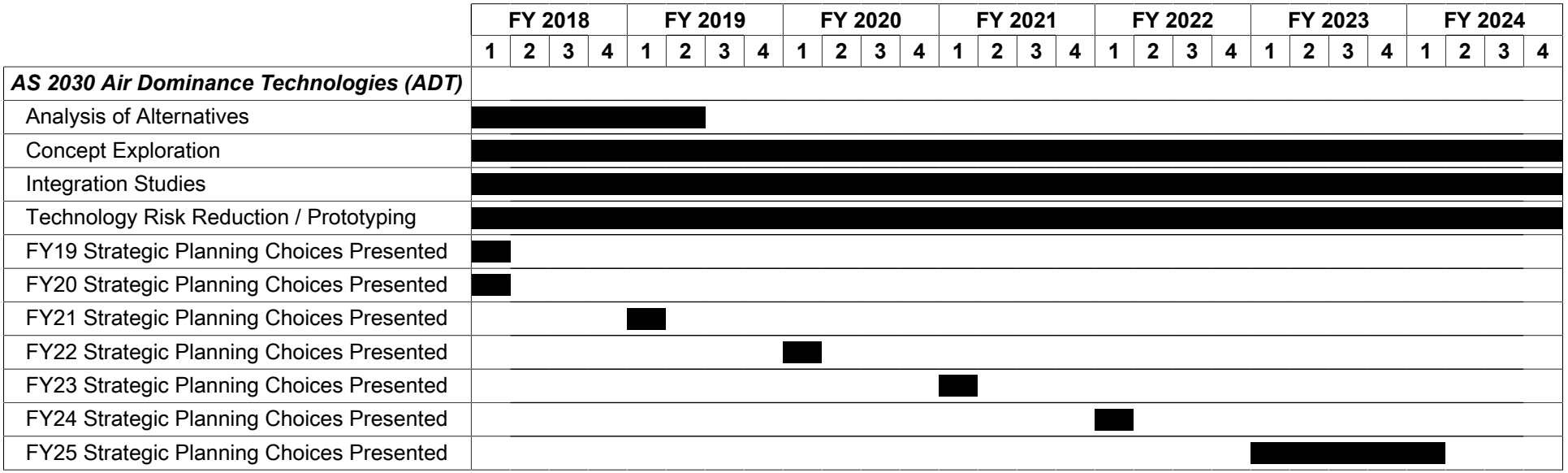

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Air Force		Date: February 2019
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0207110F / *Next Generation Air Dominance*	**Project (Number/Name)** 646007 / *AS 2030 Air Dominance Technologies (ADT)*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
AS 2030 Air Dominance Technologies (ADT)				
Analysis of Alternatives	1	2018	2	2019
Concept Exploration	1	2018	4	2024
Integration Studies	1	2018	4	2024
Technology Risk Reduction / Prototyping	1	2018	4	2024
FY19 Strategic Planning Choices Presented	1	2018	1	2018
FY20 Strategic Planning Choices Presented	1	2018	1	2018
FY21 Strategic Planning Choices Presented	1	2019	1	2019
FY22 Strategic Planning Choices Presented	1	2020	1	2020
FY23 Strategic Planning Choices Presented	1	2021	1	2021
FY24 Strategic Planning Choices Presented	1	2022	1	2022
FY25 Strategic Planning Choices Presented	1	2023	1	2024

Note

Analysis of Alternatives began 2QFY17

Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force			Date: February 2019
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0207110F / *Next Generation Air Dominance*	Project (Number/Name) 646203 / *Air Dominance Air-to-Air Weapon*	

COST ($ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
646203: *Air Dominance Air-to-Air Weapon*	-	1.003	11.147	0.000	0.000	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Next Generation Air Dominance (NGAD) is a family of capabilities enabling Air Superiority for the Joint Force in the most challenging operational environments. The PE matures technology and reduces risk through prototyping activities and demonstration efforts. Key NGAD attributes include enhancements in survivability, lethality, and persistence across a range of military operations. The NGAD program is directed by Joint Requirements Oversight Council Memorandum (JROCM) 043-13 and CSAF approved Air Superiority Enterprise Capability Collaboration Team (ECCT) Flight Plan. Program activities will also include the pursuit of open architecture solutions including Open Mission Standards (OMS) and Universal Control Interface (UCI) standards management and preplanned product improvements. Funding provides program management support, operational concept exploration, technology studies, multi-domain integration assessments, operational and system architecture development, maturation and risk reduction of air superiority related technologies, including weapons systems and integrated system concept development and demonstration.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Title: AS2030 Weapons	1.003	11.147	0.000
Description: The 2030+ Air Dominance Weapon Systems candidate concepts will develop, refine and integrate technologies into evolving threat scenarios and environments. Funding supports studies that refine system concepts and operational/system architectures to include family of systems and system of systems are required in support of the strategic choices and technical risk reduction activities that include but not limited to experimentation, integration and building demonstrative prototypes.			
FY 2019 Plans: The 2030+ Air Dominance candidate concepts consist of operational analyses, threat studies and technology assessments to identify operational concepts and technologies to improve persistence, survivability, lethality, connectivity, interoperability and affordability in 2030+ timeframe and beyond. These efforts will provide for contractors to conduct analyses and concept studies. Additional studies are required to develop operational/system architectures to include family of systems and system of systems. Includes A&AS, travel, supplies, other government costs, and program costs.			
FY 2020 Plans: N/A			
FY 2019 to FY 2020 Increase/Decrease Statement:			

Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force		Date: February 2019
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0207110F / *Next Generation Air Dominance*	**Project (Number/Name)** 646203 / *Air Dominance Air-to-Air Weapon*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2018	FY 2019	FY 2020
Decrease in scope			
Accomplishments/Planned Programs Subtotals	1.003	11.147	0.000

C. Other Program Funding Summary ($ in Millions)

Line Item	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
• RDTE 04 0207110F/646007: *2030+ AIR DOMINANCE AOS*	282.961	418.463	1,000.000	-	1,000.000	1,046.000	1,545.000	1,710.000	1,267.000	Continuing	Continuing

Remarks

N/A

D. Acquisition Strategy

The Next Generation Air Dominance Air-to-Air Weapon acquisition strategy is based on top-down, multi-domain capabilities development planning and oversight framework. Cross-functional teams will conduct analysis, demonstrations, and experiments to quantify the operational value of alternative concepts and technologies to provide solutions to current and future air superiority capability gaps.

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 2020 Air Force		Date: February 2019
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0207110F / *Next Generation Air Dominance*	**Project (Number/Name)** 646203 / *Air Dominance Air-to-Air Weapon*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2018 Cost	FY 2018 Award Date	FY 2019 Cost	FY 2019 Award Date	FY 2020 Base Cost	FY 2020 Base Award Date	FY 2020 OCO Cost	FY 2020 OCO Award Date	FY 2020 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
Research/Development Efforts	Various	Various : Various	-	1.003		11.147		-		-		-	Continuing	Continuing	-
		Subtotal	-	1.003		11.147		-		-		-	Continuing	Continuing	N/A

Remarks

Contractual specifics are not available at this level of security classification.
Includes PMA activities and may include program specific civilian pay expenses.

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	1.003		11.147		-		-		-	Continuing	Continuing	N/A

Remarks

Contractual specifics are not available at this level of security classification.
Includes PMA activities and may include program specific civilian pay expenses.

Exhibit R-4, RDT&E Schedule Profile: PB 2020 Air Force		Date: February 2019
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0207110F / *Next Generation Air Dominance*	**Project (Number/Name)** 646203 / *Air Dominance Air-to-Air Weapon*

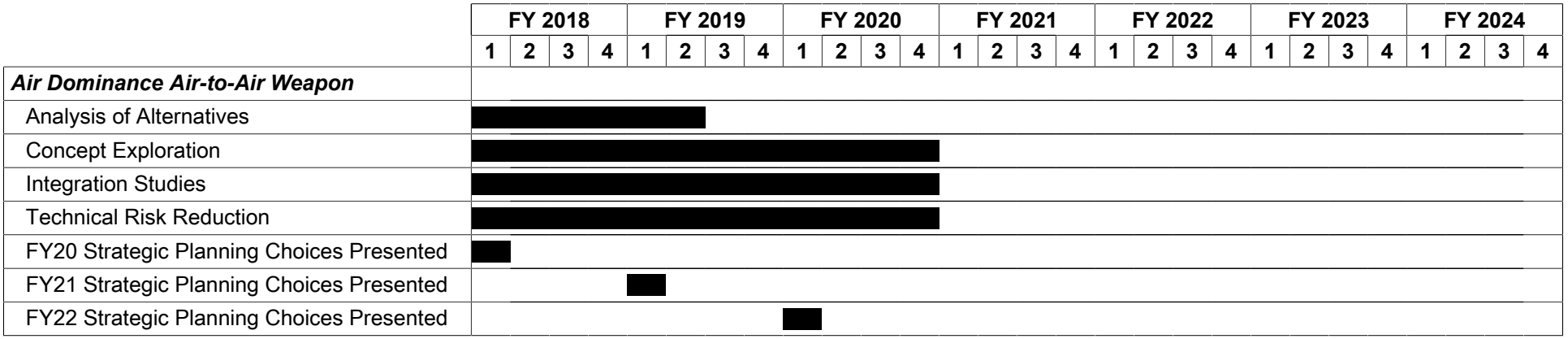

Exhibit R-4A, RDT&E Schedule Details: PB 2020 Air Force		Date: February 2019
Appropriation/Budget Activity 3600 / 4	**R-1 Program Element (Number/Name)** PE 0207110F / *Next Generation Air Dominance*	**Project (Number/Name)** 646203 / *Air Dominance Air-to-Air Weapon*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Air Dominance Air-to-Air Weapon				
Analysis of Alternatives	1	2018	2	2019
Concept Exploration	1	2018	4	2020
Integration Studies	1	2018	4	2020
Technical Risk Reduction	1	2018	4	2020
FY20 Strategic Planning Choices Presented	1	2018	1	2018
FY21 Strategic Planning Choices Presented	1	2019	1	2019
FY22 Strategic Planning Choices Presented	1	2020	1	2020

Note

- FY19 is last year of BPAC 646203 funding. It supports Strategic Planning Choices activity through FY20
- Analysis of Alternatives began 2QFY17