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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Air Force **Date:** February 2018

Appropriation/Budget Activity					R-1 Program Element (Number/Name)							
3600: <i>Research, Development, Test & Evaluation, Air Force I BA 4: Advanced Component Development & Prototypes (ACD&P)</i>					PE 0207110F / <i>Next Generation Air Dominance</i>							
COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
Total Program Element	-	22.272	294.746	503.997	0.000	503.997	1,356.491	2,013.294	3,149.204	2,866.847	Continuing	Continuing
646007: <i>2030+ AIR DOMINANCE AOS</i>	-	22.272	293.743	492.850	0.000	492.850	1,336.491	1,993.294	3,129.204	2,846.847	Continuing	Continuing
646203: <i>Air Dominance Air-to-Air Weapon</i>	-	0.000	1.003	11.147	0.000	11.147	20.000	20.000	20.000	20.000	Continuing	Continuing

A. Mission Description and Budget Item Justification

Next Generation Air Dominance enables future execution of Air Force air superiority doctrine within the Air Superiority core mission area, as directed in Joint Requirements Oversight Council Memorandum (JROCM) 043-13 and by the CSAF approved Air Superiority 2030 Enterprise Capability Collaboration Team (AS2030 ECCT) Flight Plan. Program efforts mitigate critical capability gaps identified in the March 2011 Air Force Next Generation Tactical Air (TACAIR) Capabilities Based Assessment and revalidated in 2016 by the AS2030 ECCT. This program will provide air superiority capability improvements in the areas of persistence, survivability, lethality, connectivity, interoperability, and affordability. Program activities will also include the pursuit of open architecture solutions including OMS and UCI standards management and preplanned product improvements. Funding provides program management support; operational concept exploration; technology studies, assessments and development; operational and system architecture development; maturation and risk reduction of air superiority related technologies, which includes 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 system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 0605826F, 0605827F, 0605828F, 0605829F, 0605830F, 0605831F, 0605832F, and 0605898F.

BA-04 - This program 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.

B. Program Change Summary (\$ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	167.595	294.746	507.705	0.000	507.705
Current President's Budget	22.272	294.746	503.997	0.000	503.997
Total Adjustments	-145.323	0.000	-3.708	0.000	-3.708
• Congressional General Reductions	-0.434	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	-144.151	0.000			
• SBIR/STTR Transfer	-0.738	0.000			
• Other Adjustments	0.000	0.000	-3.708	0.000	-3.708

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Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 4: Advanced Component Development & Prototypes (ACD&P)</i>	R-1 Program Element (Number/Name) PE 0207110F / <i>Next Generation Air Dominance</i>	
<u>Change Summary Explanation</u> FY17 - -\$147M Correction to actual FY17 budget (denied RAA reprogramming) along with \$2.849M Below Threshold reprogramming (BTR) for SACM and Small Business Innovative Research and FFRDC reductions		

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Air Force										Date: February 2018		
Appropriation/Budget Activity 3600 / 4					R-1 Program Element (Number/Name) PE 0207110F / <i>Next Generation Air Dominance</i>				Project (Number/Name) 646007 / <i>2030+ AIR DOMINANCE AOS</i>			
COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
646007: <i>2030+ AIR DOMINANCE AOS</i>	-	22.272	293.743	492.850	0.000	492.850	1,336.491	1,993.294	3,129.204	2,846.847	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Next Generation Air Dominance enables future execution of Air Force air superiority doctrine within the Air Superiority core mission area, as directed in Joint Requirements Oversight Council Memorandum (JROCM) 043-13 and by the CSAF approved Air Superiority 2030 Enterprise Capability Collaboration Team (AS2030 ECCT) Flight Plan. Program efforts mitigate critical capability gaps identified in the March 2011 Air Force Next Generation Tactical Air (TACAIR) Capabilities Based Assessment and revalidated in 2016 by the AS2030 ECCT. This program will provide air superiority capability improvements in the areas of persistence, survivability, lethality, connectivity, interoperability, and affordability. Program activities will also include the pursuit of open architecture solutions including OMS and UCI standards management and preplanned product improvements. Funding provides program management support; operational concept exploration; technology studies, assessments and development; operational and system architecture development; maturation and risk reduction of air superiority related technologies, which includes 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 system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 0605826F, 0605827F, 0605828F, 0605829F, 0605830F, 0605831F, 0605832F, and 0605898F.

BA-04 - This program 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.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2017	FY 2018	FY 2019
Title: 2030+ Air Dominance	22.272	293.743	492.850
<p>Description: The 2030+ Air Dominance (AD) candidate concepts consist of operational analyses, threat studies and technology candidate assessments 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.</p> <p>FY17 Accomplishments: The 2030+ AD working groups methodically assessed candidate concepts using USAF directives and guidance. Resulting concepts continue to inform the on-going Analysis of Alternatives (AoA), which remains on schedule. Furthermore, the AoA</p>			

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0207110F / <i>Next Generation Air Dominance</i>	Project (Number/Name) 646007 / 2030+ AIR DOMINANCE AOS

B. Accomplishments/Planned Programs (\$ in Millions)

<p>continues to integrate technologies into evolving threat environments and scenarios. 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.</p> <p>FY 2018 Plans: The 2030+ Air Dominance candidate concepts consist of operational analyses, threat studies and technology candidate assessments 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.</p> <p>FY 2019 Plans: The 2030+ Air Dominance candidate concepts consist of operational analyses, threat studies and technology candidate assessments 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.</p> <p>FY 2018 to FY 2019 Increase/Decrease Statement: \$199.107M increase, see above description</p>	FY 2017	FY 2018	FY 2019
Accomplishments/Planned Programs Subtotals	22.272	293.743	492.850

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

<u>Line Item</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u>	<u>FY 2019</u>	<u>FY 2019</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>Cost To</u>	
			<u>Base</u>	<u>OCO</u>	<u>Total</u>					<u>Complete</u>	<u>Total Cost</u>
• RDTE 04 0207110F/646203: <i>Air Dominance Air-to-Air Weapon</i>	0.000	1.003	11.147	-	11.147	20.000	20.000	20.000	20.000	Continuing	Continuing

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0207110F / <i>Next Generation Air Dominance</i>	Project (Number/Name) 646007 / <i>2030+ AIR DOMINANCE AOS</i>

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

<u>Line Item</u>	<u>FY 2017</u>	<u>FY 2018</u>	<u>FY 2019</u> <u>Base</u>	<u>FY 2019</u> <u>OCO</u>	<u>FY 2019</u> <u>Total</u>	<u>FY 2020</u>	<u>FY 2021</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
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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.

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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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Air Force **Date:** February 2018

Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0207110F / Next Generation Air Dominance	Project (Number/Name) 646007 / 2030+ AIR DOMINANCE AOS
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Product Development (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Research/Development Efforts	Various	Various : Various	-	19.840		276.298		465.505		-		465.505	Continuing	Continuing	-
Subtotal			-	19.840		276.298		465.505		-		465.505	Continuing	Continuing	N/A

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

Management Services (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Program Management Support	Various	Various : Various	-	2.432		17.445		27.345		-		27.345	Continuing	Continuing	-
Subtotal			-	2.432		17.445		27.345		-		27.345	Continuing	Continuing	N/A

Remarks
May include civ pay for FY18+

	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	22.272	293.743	492.850	-	492.850	Continuing	Continuing	N/A

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

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0207110F / <i>Next Generation Air Dominance</i>	Project (Number/Name) 646007 / <i>2030+ AIR DOMINANCE AOS</i>

	FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
2030+ AIR DOMINANCE AOS																													
Concept Exploration																													
Integration Studies																													
Technology Risk Reduction																													
Analysis of Alternatives																													
FY19 Strategic Planning Choices Presented																													
FY20 Strategic Planning Choices Presented																													
FY21 Strategic Planning Choices Presented																													
FY22 Strategic Planning Choices Presented																													
FY23 Strategic Planning Choices Presented																													
FY24 Strategic Planning Choices Presented																													
FY25 Strategic Planning Choices Presented																													

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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0207110F / <i>Next Generation Air Dominance</i>	Project (Number/Name) 646007 / <i>2030+ AIR DOMINANCE AOS</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
2030+ AIR DOMINANCE AOS				
Concept Exploration	1	2017	4	2023
Integration Studies	1	2017	4	2023
Technology Risk Reduction	1	2017	4	2023
Analysis of Alternatives	2	2017	3	2018
FY19 Strategic Planning Choices Presented	1	2017	1	2017
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	2023

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Air Force										Date: February 2018		
Appropriation/Budget Activity 3600 / 4					R-1 Program Element (Number/Name) PE 0207110F / <i>Next Generation Air Dominance</i>				Project (Number/Name) 646203 / <i>Air Dominance Air-to-Air Weapon</i>			
COST (\$ in Millions)	Prior Years	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
646203: <i>Air Dominance Air-to-Air Weapon</i>	-	0.000	1.003	11.147	0.000	11.147	20.000	20.000	20.000	20.000	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Next Generation Air Dominance enables future execution of Air Force air superiority doctrine within the Air Superiority core mission area, as directed in Joint Requirements Oversight Council Memorandum (JROCM) 043-13 and by the CSAF approved Air Superiority 2030 Enterprise Capability Collaboration Team (AS2030 ECCT) Flight Plan. Program efforts mitigate critical capability gaps identified in the March 2011 Air Force Next Generation Tactical Air (TACAIR) Capabilities Based Assessment and revalidated in 2016 by the AS2030 ECCT. This program will provide air superiority capability improvements in the areas of persistence, survivability, lethality, connectivity, interoperability, and affordability. Funding provides program management support; operational concept exploration; technology studies, assessments and development; operational and system architecture development; maturation and risk reduction of air superiority related technologies, which includes 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 system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 0605826F, 0605827F, 0605828F, 0605829F, 0605830F, 0605831F, 0605832F, and 0605898F.

BA-04 - This program 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.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2017	FY 2018	FY 2019
Title: AS2030 Weapons	0.000	1.003	11.147
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 2018 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 2019 Plans:			

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Exhibit R-2A, RDT&E Project Justification: PB 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0207110F / <i>Next Generation Air Dominance</i>	Project (Number/Name) 646203 / <i>Air Dominance Air-to-Air Weapon</i>

B. Accomplishments/Planned Programs (\$ in Millions)	FY 2017	FY 2018	FY 2019
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 2018 to FY 2019 Increase/Decrease Statement: \$10.144M increase, see above description			
Accomplishments/Planned Programs Subtotals	0.000	1.003	11.147

C. Other Program Funding Summary (\$ in Millions)											
Line Item	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	FY 2020	FY 2021	FY 2022	FY 2023	Cost To Complete	Total Cost
• RDTE 04 0207110F/646007: 2030+ AIR DOMINANCE AOS	22.272	293.743	492.850	-	492.850	1,336.491	1,993.294	3,129.204	2,846.947	Continuing	Continuing

Remarks

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.

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Air Force **Date:** February 2018

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
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Product Development (\$ in Millions)				FY 2017		FY 2018		FY 2019 Base		FY 2019 OCO		FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
Research/Development Efforts	Various	Various : Various	-	0.000		1.003		11.147		-		11.147	Continuing	Continuing	-
Subtotal			-	0.000		1.003		11.147		-		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 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	0.000	1.003	11.147	-	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.

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Exhibit R-4, RDT&E Schedule Profile: PB 2019 Air Force		Date: February 2018
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

FY 2017				FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<i>Air Dominance Air-to-Air Weapon</i>																												
Concept Exploration																												
Integration Studies																												
Technical Risk Reduction																												
Analysis of Alternatives																												
FY20 Strategic Planning Choices Presented																												
FY21 Strategic Planning Choices Presented																												
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Exhibit R-4A, RDT&E Schedule Details: PB 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0207110F / <i>Next Generation Air Dominance</i>	Project (Number/Name) 646203 / <i>Air Dominance Air-to-Air Weapon</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Air Dominance Air-to-Air Weapon</i>				
Concept Exploration	1	2018	4	2022
Integration Studies	1	2018	4	2022
Technical Risk Reduction	1	2018	4	2022
Analysis of Alternatives	1	2018	3	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	2023