Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Air Force											Date: February 2020	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 2: *Applied Research*					R-1 Program Element (Number/Name) PE 0602788F / *Dominant Information Sciences and Methods*							
COST ($ in Millions)	**Prior Years**	**FY 2019**	**FY 2020**	**FY 2021 Base**	**FY 2021 OCO**	**FY 2021 Total**	**FY 2022**	**FY 2023**	**FY 2024**	**FY 2025**	**Cost To Complete**	**Total Cost**
Total Program Element	-	182.221	216.062	178.668	0.000	178.668	174.121	167.838	171.504	175.011	Continuing	Continuing
625315: *C4I Dominance Technology*	-	31.804	134.355	91.558	0.000	91.558	90.307	87.117	89.032	90.697	Continuing	Continuing
625316: *Info Mgt and Computational Tech*	-	11.890	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	11.890
625317: *Information Decision Making Tech*	-	16.443	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	16.443
625318: *Operational Awareness Tech*	-	21.969	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	21.969
625319: *Cyberspace Dominance Technology*	-	79.410	60.281	63.926	0.000	63.926	60.832	57.840	59.109	60.468	Continuing	Continuing
62OMMS: *Research Site Support*	-	20.705	21.426	23.184	0.000	23.184	22.982	22.881	23.363	23.846	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program develops enterprise-centric information technology for the Air Force. Advances in enterprise-centric information technologies are required to increase warfighter readiness and effectiveness by providing the right information, at the right time, in the right format, anytime, anywhere in the world. The Connectivity and Protection Tech project provides the technologies for multi-level, secure, seamless networks; advanced communications processors; anti-jam and low probability of intercept techniques, as well as technologies that deter any adversary from attacking computer systems while allowing access to, presence on, manipulation of, and operational effects on adversary computer systems. This project also develops the technology base for the next generation of ultra-wide-bandwidth, multi-channeled, air- and space-based communications networks. The Information Management and Computational Tech project provides advances in information management and dissemination technologies to ensure the delivery of high-quality, timely, secure information to the warfighter, and develop technologies to produce both advanced on demand computational processing and computer architectures with greater capacity and sophistication for addressing dynamic mission objectives under constraints imposed by Air Force systems. The Information Decision Making Tech project develops the technology to support the commander and staff's ability to command all viable options to achieve desired effects across the full spectrum of operations. The Operational Awareness Tech project develops technologies that improve their capability to generate, process, manage, fuse, exploit, interpret, and disseminate timely and accurate information. The Research Site Support project provides the Rome Research Site infrastructure at Rome, New York and provides for the continued operations of all Rome Research Site properties, buildings, and services necessary for the research mission. Efforts in this program have been coordinated through the Department of Defense (DoD) Science and Technology (S&T) Executive Committee process to harmonize efforts and eliminate duplication.

Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Air Force	Date: February 2020
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 2: *Applied Research*	**R-1 Program Element (Number/Name)** PE 0602788F / *Dominant Information Sciences and Methods*

In FY 2020, Project 625316, Info Mgt and Computational Tech, Project 625317, Information Decision Making Tech, and Project 625318, Operational Awareness Tech efforts transferred to Project 625315, C4I Dominance Technology, in order to realign technology areas that better support the National Defense Strategy and Air Force Future Operating Concept.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver science & technology capabilities. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 0601102F, 0602102F, 0602201F, 0602202F, 0602203F, 0622041F, 0602605F, 1206601SF, and 0602298F.

This program is in Budget Activity 2, Applied Research because this budget activity includes studies, investigations, and non-system specific technology efforts directed toward general military needs with a view toward developing and evaluating the feasibility and practicality of proposed solutions and determining their parameters.

B. Program Change Summary ($ in Millions)	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total
Previous President's Budget	185.276	181.562	184.766	0.000	184.766
Current President's Budget	182.221	216.062	178.668	0.000	178.668
Total Adjustments	-3.055	34.500	-6.098	0.000	-6.098
• Congressional General Reductions	0.000	0.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	34.500			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-3.055	0.000			
• Other Adjustments	0.000	0.000	-6.098	0.000	-6.098

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2019	FY 2020
Project: 625315: *C4I Dominance Technology*		
Congressional Add: *Program Increase- Artificial Intelligence/Machine Learning Accelerator*	0.000	8.000
Congressional Add: *Program Increase- Combat Cloud Technology*	0.000	2.500
Congressional Add: *Program Increase- Quantum Communications*	0.000	4.000
Congressional Add: *Program Increase- Quantum Cryptography*	0.000	7.000
Congressional Add: *Program Increase*	0.000	5.000
Congressional Add: *Program Increase- Quantum Information Science Innovation Center*	0.000	8.000
Congressional Add Subtotals for Project: 625315	0.000	34.500

Exhibit R-2, RDT&E Budget Item Justification: PB 2021 Air Force	Date: February 2020
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 2: *Applied Research*	**R-1 Program Element (Number/Name)** PE 0602788F / *Dominant Information Sciences and Methods*

Congressional Add Details ($ in Millions, and Includes General Reductions)	FY 2019	FY 2020
Project: 625316: *Info Mgt and Computational Tech*		
Congressional Add: *Program Increase - Quantum Computing CoE*	7.376	0.000
Congressional Add Subtotals for Project: 625316	7.376	0.000
Project: 625319: *Cyberspace Dominance Technology*		
Congressional Add: *Program Increase - Cyber Testbed for Unidentified C-UAS*	5.409	0.000
Congressional Add: *Program Increase*	9.835	0.000
Congressional Add Subtotals for Project: 625319	15.244	0.000
Congressional Add Totals for all Projects	22.620	34.500

Change Summary Explanation

Decrease in FY 2021 due to realignment and consolidation of Future Air Force Capabilities Applied Research efforts/activities to PE 0602020F, Future AF Capabilities Applied Research, Project 620200, Enterprise Transformational Appld Research to better align with Air Force Science and Technology Strategy, SECAF April 2019, and to provide Congress with increased transparency on transformational Air Force Science and Technology activities.

Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force			Date: February 2020
Appropriation/Budget Activity 3600 / 2	R-1 Program Element (Number/Name) PE 0602788F / *Dominant Information Sciences and Methods*	Project (Number/Name) 625315 / *C4I Dominance Technology*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
625315: *C4I Dominance Technology*	-	31.804	134.355	91.558	0.000	91.558	90.307	87.117	89.032	90.697	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Air Force requires advanced technologies which support the Air Force five core missions and enable the Air Force to achieve Global Vigilance, Global Reach, and Global Power in support of national security objectives. The technologies developed under this project enable the National Defense Strategy and Air Force future operating concepts which require operational agility (the ability to rapidly generate—and shift among—multiple solutions for a given challenge), creating combinations of air, space, and cyberspace capabilities to achieve desired effects in the battlespace.

This project provides the technologies for secure, self-configuring, self-healing, seamless networks; advanced communications processors; anti-jam and low probability of intercept communications techniques; agile and dynamic policy-based network management capabilities; and modular, programmable, low-cost software radios. In addition, it develops both the technology base for ultra-wide bandwidth and multi-channeled communications networks (both air and space based) on and between platforms.

This project provides the technologies which enable the ability to globally share, discover, and access information across organizational, functional, and coalition boundaries and between and among domains, the timely delivery of information to tactical assets, the tailoring and prioritization of information based on mission needs and importance, and the scaling, robustness, and collaboration features required of the Air Force net-centric information management environment.

This project advances technologies enabling the effective execution of military objectives that will vastly improve the ability to support the commander and staff's ability to command all viable options to achieve desired effects across the full spectrum of operations (air, space, and cyberspace) at all levels of war (strategic, operational, and tactical) and during all phases of conflict. This project provides technologies for anticipatory decision support; course of action development, planning, scheduling, and assessment; and the real-time effective portrayal of complex data sets.

This project improves and automates the capability to generate, process, manage, fuse, exploit, interpret, and disseminate timely and accurate information. This project provides not only a network-centric, collaborative intelligence analysis capability that enables the fusion of multi-intelligence and sensor sources to provide timely situational awareness, understanding, and anticipation of the threats in the battlespace, but also the advanced, novel exploitation technologies needed to intercept, collect, locate, and process both covert and overt raw data from intelligence and sensor sources.

In FY 2020, Project 625316, Info Mgt and Computational Tech, Project 625317, Information Decision Making Tech, and Project 625318, Operational Awareness Tech efforts transferred to Project 625315, C4I Dominance Technology, in order to realign technology areas that better support the National Defense Strategy and Air Force Future Operating Concept.

Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3600 / 2	**R-1 Program Element (Number/Name)** PE 0602788F / *Dominant Information Sciences and Methods*	**Project (Number/Name)** 625315 / *C4I Dominance Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: Advanced Connectivity Technologies	31.804	0.000	0.000
Description: Develop improved, survivable, higher bandwidth communications, networking, and signal processing technologies to provide secure, adaptive, covert, anti-jam, and assured global battlespace connectivity tailored to anti-access and area-denial environments and contested operations. ***FY 2020 Plans:*** Starting in FY 2020, this work is performed within this Project, under the Assured Communications & Networks, the Nuclear C3 Modernization, and the Quantum Information Science efforts. ***FY 2021 Plans:*** Not Applicable.			
Title: Assured Communications & Networks	0.000	23.680	24.598
Description: Develop communications, networking, and signal processing technologies with improved survivability and capacity to provide secure, adaptive, covert, anti-jam, and assured global battlespace connectivity tailored to anti-access and area-denial environments and contested operations. For FY 2019 and prior years, the Advanced Connectivity Technologies activities were performed within this Project, under the Advanced Connectivity Technologies effort. For FY 2019 and prior years, the Dissemination Technologies activities were performed within Project 625316, Info Mgt and Computational Tech, under the Dissemination Technologies effort. ***FY 2020 Plans:*** Continue the research and development of technologies for robust, adaptive, and mission aware airborne networks. Continue the investigation of high frequency pathways (for example, the V and W band of the electromagnetic spectrum) to support aerial and space-based beyond line of sight communications. Continue the research and development of dynamic map-to-mission for secure message exchange operations continuity and agile info management. Continue development of a waveform testbed and flight test a new multi-waveform radio. Continue research and development to measure propagation at millimeter wave frequencies to validate previously developed models and enable future definition of military satellite communications systems. Continue ionospheric research, propagation modeling and simulation. ***FY 2021 Plans:*** Continue the research and development of technologies for robust, adaptive, and mission aware airborne networks. Continue the investigation of high frequency pathways (for example, the V and W band of the electromagnetic spectrum) to support aerial and			

Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3600 / 2	**R-1 Program Element (Number/Name)** PE 0602788F / *Dominant Information Sciences and Methods*	**Project (Number/Name)** 625315 / *C4I Dominance Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
space-based beyond line of sight communications. Continue the research and development of dynamic map-to-mission for secure message exchange operations continuity and agile info management. Continue development of a waveform testbed and flight test a new multi-waveform radio. Continue research and development to measure propagation at millimeter wave frequencies to validate previously developed models and enable future definition of military satellite communications systems. Continue ionospheric research, propagation modeling and simulation. Develop an ultra-wide band protocol stack to enable future ultra wide-band communications. Develop a directional radio prototype, with optimized user discovery and network interference control interface. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** FY 2021 increased compared to FY 2020 by $0.918 million. Justification for the increase is described in the plans above.			
Title: Data to Decisions	0.000	13.272	14.271
Description: Investigate and develop technologies for decision quality information dissemination services via publish, subscribe, and query across the Global Information Grid to enterprise and tactical assets and coalition partners. For FY 2019 and prior years, the Multi-Source Fusion Technologies and the Exploitation Technologies activities were performed within Project 625318, Operational Awareness Tech, under the Multi-Source Fusion Technologies effort and the Exploitation Technologies effort. ***FY 2020 Plans:*** Continue the research and development of data analytics and strategic indications and warnings technologies (including large data alignment, indexing and search on textual data, large-scale and disparate data sources, both structured and unstructured data, and employment of various ontologies and machine learning techniques). Continue to advance research and development for cloud-based data and information sharing environment for optimized processing and automated association capability. Continue to focus signals intelligence characterization on audio and other electronic signals. Continue research and development in exploitation technologies using audio processing for language modeling and deep learning techniques. Continue research on enhanced emitter feature extraction capabilities and development of automated electronics intelligence analysis toolsets. ***FY 2021 Plans:*** Continue the research and development of data analytics and strategic indications and warnings technologies (including large data alignment, indexing and search on textual data, large-scale and disparate data sources, both structured and unstructured data, and employment of various ontologies and machine learning techniques). Continue to advance research and development for cloud-based data and information sharing environment for optimized processing and automated association capability. Continue to focus signals intelligence characterization on audio and other electronic signals. Continue research and development in exploitation technologies using audio processing for language modeling and deep learning techniques. Continue research on			

Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3600 / 2	**R-1 Program Element (Number/Name)** PE 0602788F / *Dominant Information Sciences and Methods*	**Project (Number/Name)** 625315 / *C4I Dominance Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
enhanced emitter feature extraction capabilities and development of automated electronics intelligence analysis toolsets. Develop network dynamics algorithms. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** FY 2021 increased compared to FY 2020 by $0.999 million. Funding increased due to work initiated in network dynamics algorithms.			
Title: Processing Technologies ***Description:*** Develop automatic and dynamically reconfigurable, scalable, affordable distributed peta-flop processing technologies for real-time global information systems. ***FY 2020 Plans:*** For FY 2020 and prior years, the work is performed in this PE within Project 625319 Cyberspace Dominance Technology under the Processing Technologies effort. ***FY 2021 Plans:*** Develop the application of novel neuromorphic systems for robust machine learning. Continue to advance research and development of the neuromorphic processor and validate capabilities for dynamic learning on mobile and power-constrained platforms. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** FY 2021 increased compared to FY 2020 by $6.509 million. Funding increased due to realignment of advanced neuromorphic processing research for advanced processing capability on low-power platforms from Processing Technologies effort, Project 625319 Cyberspace Dominance Technology.	0.000	0.000	6.509
Title: Multi-Domain Command & Control (MDC2) ***Description:*** Develop advanced monitoring, planning, and assessment technologies enabling aerospace commanders to develop effects-based campaigns. Investigate, analyze, and develop technologies for planning, execution, and automatic rapid reconfiguration of distributed intelligent and integrated command and control information systems to achieve the commander's intent throughout varying crisis levels. For FY 2019 and prior years, the Command and Control System Technologies activities were performed within Project 625317, Information Decision Making Tech, under Command and Control System Technologies effort. For FY 2019 and prior years, the Next Generation Command Technologies activities were performed within Project 625318, Operational Awareness Tech, under Next Generation Command Technologies effort.	0.000	17.954	18.863

Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3600 / 2	**R-1 Program Element (Number/Name)** PE 0602788F / *Dominant Information Sciences and Methods*	**Project (Number/Name)** 625315 / *C4I Dominance Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
FY 2020 Plans: Continue to leverage prior efforts in developing plan assessment services and conduct quantitative evaluations of cyber assets to cyber operators, enabling them to present viable cyber options to commanders for multi-domain (air, space, cyberspace, land, sea, undersea) integrated plans. Continue the development of command and control system technologies in the area of multi-domain command and control. Continue research for applying machine learning techniques to enhance and optimize space operations. ***FY 2021 Plans:*** Continue research for applying machine learning techniques to enhance and optimize space operations. Develop a system for distributed command and control, enabling cyber operators viable options for decision making in the multi-domain arena. Leverage prior efforts in developing a series of experiments in the area of multi-domain command and control. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** FY 2021 increased compared to FY 2020 by $0.909 million. Justification for the increase is described in the plans above.			
Title: Artificial Intelligence/Autonomy/Machine Learning ***Description:*** Perform research and development (R&D) to harness the speed and scale of computers and machines to address problems of complexity. For FY 2019 and prior years, the Campaign Planning Technologies activities were performed within Project 625317, Information Decision Making Tech, under the Campaign Planning Technologies effort. ***FY 2020 Plans:*** Continue to research combat planning and tactical assessment software services. Continue research for identifying and implementing state-of-the-art learning models. Develop algorithms for data-efficient leaning and integrate with a machine learning framework. ***FY 2021 Plans:*** Research and develop machine learning approaches for supporting and performing operations in complex adversarial environments. Conduct research to understand operations needs of machine learning algorithms and systems with the multi-domain command and control connect. Demonstrate analytical and simulation framework for large-scale swarms that considers potential constraints on communications, on-board processing, sensors, and flight systems. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** FY 2021 increased compared to FY 2020 by $0.960 million. Justification for the increase is described in the plans above.	0.000	14.808	15.768
Title: Nuclear C3 Modernization	0.000	3.893	4.027

Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3600 / 2	**R-1 Program Element (Number/Name)** PE 0602788F / *Dominant Information Sciences and Methods*	**Project (Number/Name)** 625315 / *C4I Dominance Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Description: Perform research and development (R&D) to advance existing nuclear capable forces to ensure command, control, and connectivity for the President without constraints. For FY 2019 and prior years, the Advanced Connectivity Technologies activities were performed within this Project, under the Advanced Connectivity Technologies effort. ***FY 2020 Plans:*** Continue high-frequency mesh networking algorithm development, further very low frequency software-defined radio development. Continue to enhance/modernize propagation tools and the High Frequency Laboratory, and, will initiate trans-auroral and trans-equatorial long haul communication. ***FY 2021 Plans:*** Develop advanced, airborne high-frequency antenna/ionospheric structure. Test advanced waveforms. Develop, verify, and validate software-defined radio prototypes. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** FY 2021 increased compared to FY 2020 by $0.134 million. Justification for the increase is described in the plans above.			
Title: Quantum Information Science ***Description:*** Perform research and development (R&D) that will utilize quantum physics for the storage, transmission, manipulation, computing, or measurement of information in ways that offer advantages to classical capabilities. For FY 2019 and prior years, the Advanced Connectivity Technologies activities were performed within this Project, under the Advanced Connectivity Technologies effort. ***FY 2020 Plans:*** Continue research and development in the area of supreme and quantum computing information sciences to establish the memory-based network nodes, to further evolve and adapt the photon-based interconnects, and to develop an integration scheme to interface a quantum network. Continue testing the ability to teleport quantum information between network nodes, and to establish two-way quantum communication between two memory nodes. Conduct an analysis of conventional/quantum channel interface for long-distance communication. ***FY 2021 Plans:*** Continue research and development in the area of supreme and quantum computing information sciences. Demonstrate entangling gates within a trapped ion based network node and perform remote entangling operations between independent	0.000	6.581	7.522

Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3600 / 2	**R-1 Program Element (Number/Name)** PE 0602788F / *Dominant Information Sciences and Methods*	**Project (Number/Name)** 625315 / *C4I Dominance Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
network nodes. Conduct performance of interface using trapped ion, superconducting, and photon-based qubit. Develop compact memory-and photon-based network components to be used in future field demonstrations. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** FY 2021 increased compared to FY 2020 by $0.941 million. Justification for this increase is described in the plans above.			
Title: Future AF Capabilities Applied Research ***Description:*** Investigate, design, and develop science and technologies supporting future Air Force capabilities to provide compelling advantage to the warfighter. To the greatest extent practical, research efforts will utilize modeling and simulation and cross-discipline systems integration (For example: air and space vehicles, avionics, propulsion, materials, human performance, cybersecurity, command, control, communications, computer and intelligence, sensors, electronic warfare, and conventional/ unconventional weapons). The National Defense Strategy and Air Force Science and Technology 2030 Strategy will inform investments over the FYDP. In FY 2019, this work was performed under multiple projects and efforts within the following Air Force S&T Programs: 0602102F, Materials; 0602201F, Aerospace Vehicle Technologies; 0602202F, Human Effectiveness Applied Research; 0602203F, Aerospace Propulsion; 0602204F, Aerospace Sensors; 1206601F, Space Technology; 0602602F, Conventional Munitions; 0602605F, Directed Energy Technology; and 0602788F, Dominant Information Science and Methods. ***FY 2020 Plans:*** Investigate and mature science and technology that enables future warfighting concepts to provide leap-ahead capabilities. The National Defense Strategy and Air Force S&T Strategy focus this science and technology toward, but not limited to, the following capabilities: 1) global persistent awareness; 2) resilient information sharing; 3) rapid, effective decision-making; 4) complexity, unpredictability, and mass; and 5) speed and reach of disruption and lethality. ***FY 2021 Plans:*** Starting in FY 2021, this work is performed in PE 0602020F, Future AF Capabilities Applied Research, Project 620200, Enterprise Transformational Applied Research, Transformational Capability Incubator effort. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** FY 2021 decreased compared to FY 2020 by $19.667 million. Funding decreased due to realignment and consolidation of Future AF Capabilities Applied Research effort to PE 0602020F, Future AF Capabilities Applied Research, Project 620200, Enterprise	0.000	19.667	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3600 / 2	**R-1 Program Element (Number/Name)** PE 0602788F / *Dominant Information Sciences and Methods*	**Project (Number/Name)** 625315 / *C4I Dominance Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Transformational Applied Research, Transformational Capability Incubator effort, to better align with the Air Force S&T Strategy SECAF April 2019 and provide Congress with increased transparency on transformational Air Force S&T activities.			
Accomplishments/Planned Programs Subtotals	31.804	99.855	91.558

	FY 2019	FY 2020
Congressional Add: Program Increase- Artificial Intelligence/Machine Learning Accelerator ***FY 2019 Accomplishments:*** Not applicable ***FY 2020 Plans:*** Conduct congressionally directed efforts.	0.000	8.000
Congressional Add: Program Increase- Combat Cloud Technology ***FY 2019 Accomplishments:*** Not applicable ***FY 2020 Plans:*** Conduct congressionally directed efforts.	0.000	2.500
Congressional Add: Program Increase- Quantum Communications ***FY 2019 Accomplishments:*** Not applicable ***FY 2020 Plans:*** Conduct congressionally directed efforts.	0.000	4.000
Congressional Add: Program Increase- Quantum Cryptography ***FY 2019 Accomplishments:*** Not applicable ***FY 2020 Plans:*** Conduct congressionally directed efforts.	0.000	7.000
Congressional Add: Program Increase ***FY 2019 Accomplishments:*** Not applicable ***FY 2020 Plans:*** Conduct congressionally directed efforts.	0.000	5.000
Congressional Add: Program Increase- Quantum Information Science Innovation Center ***FY 2019 Accomplishments:*** Not applicable ***FY 2020 Plans:*** Conduct congressionally directed efforts.	0.000	8.000
Congressional Adds Subtotals	0.000	34.500

Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3600 / 2	**R-1 Program Element (Number/Name)** PE 0602788F / *Dominant Information Sciences and Methods*	**Project (Number/Name)** 625315 / *C4I Dominance Technology*

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force			Date: February 2020
Appropriation/Budget Activity 3600 / 2	R-1 Program Element (Number/Name) PE 0602788F / *Dominant Information Sciences and Methods*	Project (Number/Name) 625316 / *Info Mgt and Computational Tech*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
625316: *Info Mgt and Computational Tech*	-	11.890	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	11.890

A. Mission Description and Budget Item Justification

The Air Force requires the capability to maximize the value, sharing, management, and use of its information and information assets in achieving its mission objectives as the importance of information grows in the current net-centric environment. Technology development in this project must be capable of taking advantage of future net-centric environments including new structured and ad hoc processes in response to rapidly changing warfare challenges. Advances in robust information management focus on quality of service and flow of information within the enterprise, information transformation and brokering, secure information sharing across and among domains, and collaboration of workflow within the enterprise. Technologies addressed in this project include the ability to globally share, discover, and access information across organizational, functional, and coalition boundaries and between and among domains, the timely delivery of information to tactical assets, the tailoring and prioritization of information based on mission needs and importance, and the scaling, robustness, and collaboration features required of the Air Force net-centric information management environment.

The National Defense Strategy and Air Force Future Operating Concept established science and technology challenges to enable operational agility (the ability to rapidly generate and shift among multiple solutions for a given challenge) as a way to adapt swiftly to any situation or enemy action. In order to enable multi-domain operations, this project will begin to shape future research and development to focus on the capability to maximize the value, sharing, management, and use of information and information assets in support of multi-domain command and control.

In FY 2020, Project 625316, Info Mgt and Computational Tech efforts transferred to Project 625315, C4I Dominance Technology, in order to realign technology areas that better support the National Defense Strategy and Air Force Future Operating Concept.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: Dissemination Technologies	4.514	0.000	0.000
Description: Investigate and develop technologies for decision quality information dissemination services via publish, subscribe, and query across the Global Information Grid to enterprise and tactical assets and coalition partners. ***FY 2020 Plans:*** Starting in FY 2020, the work is performed in this PE, within Project 625315, C4I Dominance Technology under the Assured Communications & Networks effort. ***FY 2021 Plans:*** Not Applicable			
Accomplishments/Planned Programs Subtotals	4.514	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3600 / 2	**R-1 Program Element (Number/Name)** PE 0602788F / *Dominant Information Sciences and Methods*	**Project (Number/Name)** 625316 / *Info Mgt and Computational Tech*

	FY 2019	FY 2020
Congressional Add: Program Increase - Quantum Computing CoE	7.376	0.000
FY 2019 Accomplishments: Conducted Congressionally directed efforts in the area of Quantum Computing.		
FY 2020 Plans: Not Applicable		
Congressional Adds Subtotals	7.376	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force			Date: February 2020
Appropriation/Budget Activity 3600 / 2	R-1 Program Element (Number/Name) PE 0602788F / *Dominant Information Sciences and Methods*	Project (Number/Name) 625317 / *Information Decision Making Tech*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
625317: *Information Decision Making Tech*	-	16.443	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	16.443

A. Mission Description and Budget Item Justification

The Air Force requires advances in technologies enabling the effective execution of military objectives that will vastly improve the ability to support the commander and staff's ability to command all viable options to achieve desired effects across the full spectrum of operations (air, space, and cyberspace) at all levels of war (strategic, operational, and tactical) and during all phases of conflict. Technology development in this project includes anticipatory decision support; course of action development, planning, scheduling, and assessment; and the real-time effective portrayal of complex data sets.

The National Defense Strategy and Air Force Future Operating Concept established science and technology challenges to enable operational agility (the ability to rapidly generate and shift among multiple solutions for a given challenge) as a way to adapt swiftly to any situation or enemy action. In order to enable multi-domain operations, this project will begin to shape future research and development to focus on the capability to maximize the value, sharing, management, and use of information and information assets in support of multi-domain command and control.

In FY 2020, Project 625317, Information Decision Making Tech efforts transferred to Project 625315, C4I Dominance Technology, in order to realign technology areas that better support the National Defense Strategy and Air Force Future Operating Concept.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: Campaign Planning Technologies	9.612	0.000	0.000
Description: Develop advanced monitoring, planning, and assessment technologies enabling aerospace commanders to develop effects-based campaigns. ***FY 2020 Plans:*** Starting in FY 2020, the work is performed within this PE, in Project 625315, C4I Dominance Technology, under the Artificial Intelligence/Autonomy/Machine Learning effort. ***FY 2021 Plans:*** Not Applicable			
Title: Command and Control System Technologies	6.831	0.000	0.000
Description: Investigate, analyze, and develop technologies for planning, execution, and automatic rapid reconfiguration of distributed intelligent and integrated command and control information systems to achieve the commander's intent throughout varying crisis levels.			

Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3600 / 2	**R-1 Program Element (Number/Name)** PE 0602788F / *Dominant Information Sciences and Methods*	**Project (Number/Name)** 625317 / *Information Decision Making Tech*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
FY 2020 Plans: Starting in FY 2020, the work is performed within this PE, in Project 625315, C4I Dominance Technology, under the Multi-Domain Command and Control effort. ***FY 2021 Plans:*** Not Applicable			
Accomplishments/Planned Programs Subtotals	16.443	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force			Date: February 2020
Appropriation/Budget Activity 3600 / 2	R-1 Program Element (Number/Name) PE 0602788F / *Dominant Information Sciences and Methods*	Project (Number/Name) 625318 / *Operational Awareness Tech*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
625318: *Operational Awareness Tech*	-	21.969	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	21.969

A. Mission Description and Budget Item Justification

The Air Force requires technologies that improve and automate the capability to generate, process, manage, fuse, exploit, interpret, and disseminate timely and accurate information. This project provides not only a network-centric, collaborative intelligence analysis capability that enables the fusion of multi-intelligence and sensor sources to provide timely situational awareness, understanding, and anticipation of the threats in the battlespace, but also the advanced, novel exploitation technologies needed to intercept, collect, locate, and process both covert and overt raw data from intelligence and sensor sources. It leads the research, discovery, and development of technology that enables the fusion of multi-intelligence sources to provide accurate object tracking and identification, situational awareness, understanding, and anticipation of the threats in the battlespace (air, ground, space, and cyber). It also leads in the development of advanced exploitation technologies to maximize the intelligence gained from our adversaries in the areas of spectral detection and geolocation, signal recognition and analysis, and the data tagging, tracking, and tracing via the insertion of secure, imperceptible signal embedding for future fusion and understanding of the information.

The National Defense Strategy and Air Force Future Operating Concept established science and technology challenges to enable operational agility (the ability to rapidly generate and shift among multiple solutions for a given challenge) as a way to adapt swiftly to any situation or enemy action. In order to enable multi-domain operations, the Air Force requires dynamic and elastic intelligence, surveillance, and reconnaissance forces and capabilities to provide actionable intelligence to commanders and to increase understanding of the environment and an adversary's capabilities and intentions.

In FY 2020, Project 625318, Operational Awareness Tech efforts transferred to Project 625315, C4I Dominance Technology, in order to realign technology areas that better support the National Defense Strategy and Air Force Future Operating Concept.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: Multi-Source Fusion Technologies	9.748	0.000	0.000
Description: Develop higher-level fusion and the enabling text information/knowledge base technologies to achieve situational awareness and understanding at all command levels for dynamic planning, assessment, and execution processes. ***FY 2020 Plans:*** Starting in FY 2020, the work is performed within this PE, under Project 625315, C4I Dominance Technology, in the Data to Decisions effort. ***FY 2021 Plans:*** Not Applicable			
Title: Exploitation Technologies	10.970	0.000	0.000

Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3600 / 2	**R-1 Program Element (Number/Name)** PE 0602788F / *Dominant Information Sciences and Methods*	**Project (Number/Name)** 625318 / *Operational Awareness Tech*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Description: Develop digital information exploitation technologies for electronic communications and special signals intelligence, imagery, and measurement signatures to increase accuracy, correlation, and timeliness of the information. ***FY 2020 Plans:*** Starting in FY 2020, the work is performed within this PE, under Project 625315, C4I Dominance Technology, in the Data to Decisions effort. ***FY 2021 Plans:*** Not Applicable			
Title: Next Generation Command Technologies ***Description:*** Develop modeling and simulation technologies for the next generation of planning, assessment, and execution environments. ***FY 2020 Plans:*** Starting in FY 2020, the work is performed within this PE, under Project 625315, C4I Dominance Technology, in the Multi-Domain Command & Control effort. ***FY 2021 Plans:*** Not Applicable	1.251	0.000	0.000
Accomplishments/Planned Programs Subtotals	21.969	0.000	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force			Date: February 2020
Appropriation/Budget Activity 3600 / 2	R-1 Program Element (Number/Name) PE 0602788F / *Dominant Information Sciences and Methods*	Project (Number/Name) 625319 / *Cyberspace Dominance Technology*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
625319: *Cyberspace Dominance Technology*	-	79.410	60.281	63.926	0.000	63.926	60.832	57.840	59.109	60.468	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Air Force requires technologies to deliver a full range of options in cyberspace on par with air and space dominance in each of the areas of cyber-attack, cyber defense, and cyber support to achieve the strategic capability of cyber dominance. The Air Force requires the development of superior, intelligent, on-demand computing to enable information superiority to include advances in secure information sharing across domains and boundaries as well as technologies that successfully deter any adversary from attacking computer systems anytime, anywhere by ensuring the Air Force's ability to: access, maintain presence on, and deliver effects to adversary systems; detect, defend, and respond to attacks on friendly computer systems and provide forensic analysis concerning those attack attempts; and provide cyber situational awareness to Air Force Commanders. In addition, the Air Force requires technology development that produces computing architectures with greater capacity and sophistication for addressing constrained, dynamic mission objectives; game-changing computing power to the warfighter, disruptive computing power at the tactical edge and for federated grid services; and interactive and real-time computing improving the usability of high-performance computing to the Air Force. It includes technologies in computational sciences and engineering, computer architectures and software intensive systems.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: Cyber Defense Technologies	18.768	20.531	21.432
Description: Develop cyber defense and supporting technologies to detect, defend, and respond to attacks on computer systems as well as provide forensic concerning attacks. ***FY 2020 Plans:*** Continue research in the area of autonomous integrated cyber operations. Continue applied research in the area of biologically resilient cyber technologies. Continue research into mission-specific block-chain capabilities, and the alignment of cyber resilient services and dynamic management tailored towards unmanned aerial systems. ***FY 2021 Plans:*** Continue research in the area of autonomous integrated cyber operations. Continue applied research in the area of biologically resilient cyber technologies. Continue research into mission-specific block-chain capabilities, and the alignment of cyber resilient services and dynamic management tailored towards unmanned aerial systems. Develop radical architectural and infrastructural changes from computational diversity, to deliver a quantifiable improvement to cybersecurity. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** FY 2021 increased compared to FY 2020 by $0.901 million. Justification for the increase is described in the plans above.			
Title: Cyber Offense Technologies	17.175	17.037	20.121

Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3600 / 2	**R-1 Program Element (Number/Name)** PE 0602788F / *Dominant Information Sciences and Methods*	**Project (Number/Name)** 625319 / *Cyberspace Dominance Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Description: Develop offensive cyber operations technologies to access, maintain presence on, and deliver effects to adversary systems. ***FY 2020 Plans:*** Advance research and development of new, leading-edge technologies that are game changing and employ dominant power for cyber offensive operations. Continue increased activity in capabilities for multi-function, non-kinetic cyber effects against adversarial systems. Continue to demonstrate ground-based and airborne delivery of disrupt, deny, degrade, destroy, or deceive effects that are both cyber and physical/kinetic. ***FY 2021 Plans:*** Continue to advance research and development of new, leading-edge technologies that are game changing and employ dominant power for cyber offensive operations. Continue increased activity in capabilities for multi-function, non-kinetic cyber effects against adversarial systems. Continue to demonstrate ground-based and airborne delivery of disrupt, deny, degrade, destroy, or deceive effects that are both cyber and physical/kinetic. Initiate implementation of automated extension of attack model. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** FY 2021 increased compared to FY 2020 by $3.084 million. Funding increased due to implementation of automated extension of attack model and additional research and development of techniques to detect, track, and defeat the exploitation of cyber vulnerabilities, both physical and kinetic.			
Title: Advanced Architectural Technologies	10.105	7.689	8.624
Description: Develop the architectural mechanisms that form the basis for predictable software and high assurance systems. ***FY 2020 Plans:*** Sustain research and validation of a cyber hardened (robust, secure) processor for embedded weapon systems. Maintain applied research to create trusted and resilient embedded systems that are capable of identifying, localizing, and automatically repairing previously unknown and/or unintended vulnerabilities. Continue development of software using evolutionary approaches to make embedded systems tolerant to unexpected and unforeseen situations. ***FY 2021 Plans:*** Continue to sustain research and validation of a cyber-hardened (robust, secure) processor for embedded weapon systems. Continue to maintain applied research to create trusted and resilient embedded systems that are capable of identifying, localizing, and automatically repairing previously unknown and/or unintended vulnerabilities. Continue development of software using evolutionary approaches to make embedded systems tolerant to unexpected and unforeseen situations. ***FY 2020 to FY 2021 Increase/Decrease Statement:***			

Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3600 / 2	**R-1 Program Element (Number/Name)** PE 0602788F / *Dominant Information Sciences and Methods*	**Project (Number/Name)** 625319 / *Cyberspace Dominance Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
FY 2021 increased compared to FY 2020 by $0.935 million. Justification for the increase is described in the plans above.			
Title: Processing Technologies ***Description:*** Develop automatic and dynamically reconfigurable, scalable, affordable distributed peta-flop processing technologies for real-time global information systems. ***FY 2020 Plans:*** Extend research the application of novel neuromorphic systems for robust machine learning. Advance research and development of the neuromorphic processor and validate capabilities for dynamic learning on mobile and power-constrained platforms. ***FY 2021 Plans:*** Starting in FY 2021, the non-cyber work will be performed within this PE, under Project 625315, C4I Dominance Technology, in the Processing Technologies effort. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** FY 2021 decreased compared to FY 2020 by $4.715 million. Funding decreased due to completion of cyber component and remaining non-cyber technology transferred to Project 625315, C4I Dominance Technology, in the Processing Technologies effort.	8.938	4.715	0.000
Title: Survivability Technologies ***Description:*** Develop methods and technologies for controlled operation of information systems during attacks and fault conditions, minimizing vulnerabilities of cyber attacks, and guaranteeing the accuracy and correctness of data and codes. ***FY 2020 Plans:*** Maintain research concepts and capabilities for cyber survivability techniques and algorithms for counter-unmanned aerial systems. Sustain development of a counter-unmanned aerial systems open architecture to enable interoperability. Extend evolution of autonomous machine learning functions. Pursue validation and demonstration of automated workflows into defensive cyber operations systems. ***FY 2021 Plans:*** Continue to investigate research concepts and capabilities for cyber survivability techniques and algorithms for counter-unmanned aerial systems. Continue development of a counter-unmanned aerial systems open architecture to enable interoperability. Continue with evolution of autonomous machine learning functions. Continue the validation and demonstration of automated workflows into defensive cyber operations systems. ***FY 2020 to FY 2021 Increase/Decrease Statement:***	2.072	3.011	3.989

Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3600 / 2	**R-1 Program Element (Number/Name)** PE 0602788F / *Dominant Information Sciences and Methods*	**Project (Number/Name)** 625319 / *Cyberspace Dominance Technology*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
FY 2021 increased compared to FY 2020 by $0.978 million. Justification for the increase is described in the plans above.			
Title: Cross-Domain Technologies	6.462	5.944	6.012
Description: Develop secure cross-domain discovery services for access to services outside the existing domain. Develop the tools to allow collaboration of workflows required by the Air Force net-centric information management system.			
FY 2020 Plans: Advance research and development in for cross-domain solution technologies by developing content filtering, with an emphasis on improving support for rapid inclusion of new data types with minimal requirements for lengthy data type threat assessments and minimal custom coding. Sustain research and development for machine to machine interfaces. Extend development of cross-domain solution command and control capabilities to manage cross-domain solution risks based upon changes in mission and threat for diversified platforms via hardware abstraction, containerization/separation of the operation system (mobile, desktop, server).			
FY 2021 Plans: Continue the research and development in cross-domain solution technologies by developing content filtering, with an emphasis on improving support for rapid inclusion of new data types with minimal requirements for lengthy data type threat assessments and minimal custom coding. Continue research and development for machine to machine interfaces. Continue to extend the development of cross-domain solution command and control capabilities to manage cross-domain solution risks based upon changes in mission and threat for diversified platforms via hardware abstraction, containerization/separation of the operation system (mobile, desktop, server).			
FY 2020 to FY 2021 Increase/Decrease Statement: FY 2021 increased compared to FY 2020 by $0.068 million. Justification for the increase is described in the plans above.			
Title: Cyber Technologies for Spectrum Warfare	0.646	1.354	3.748
Description: Develop technologies combining electronic warfare, signals intelligence, communications, and cyber technologies that provide synergistic access, exploitation and effects across air and cyber domains in congested and contested environments.			
FY 2020 Plans: Continue to advance research in systems to perform blind data discovery associated with the Internet of Things. Pursue identification of items of interest associated with the Internet of Things. Initiate research for specific items of interest within the Internet of Things.			
FY 2021 Plans:			

Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force		Date: February 2020
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Continue to advance research in systems to perform blind data discovery associated with the Internet of Things. Continue with identification of items of interest associated with the Internet of Things. Continue research for specific items of interest within the Internet of Things. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** FY 2021 increased compared to FY 2020 by $2.394 million. Funding increased due to additional applied research and development to address emerging threats and additional signals of interest.			
Accomplishments/Planned Programs Subtotals	64.166	60.281	63.926

	FY 2019	FY 2020
Congressional Add: Program Increase - Cyber Testbed for Unidentified C-UAS ***FY 2019 Accomplishments:*** Conducted Congressionally directed efforts. ***FY 2020 Plans:*** Not Applicable	5.409	0.000
Congressional Add: Program Increase ***FY 2019 Accomplishments:*** Conducted Congressionally directed efforts. ***FY 2020 Plans:*** Not Applicable	9.835	0.000
Congressional Adds Subtotals	15.244	0.000

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A

Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force			Date: February 2020
Appropriation/Budget Activity 3600 / 2	R-1 Program Element (Number/Name) PE 0602788F / *Dominant Information Sciences and Methods*	Project (Number/Name) 62OMMS / *Research Site Support*	

COST ($ in Millions)	Prior Years	FY 2019	FY 2020	FY 2021 Base	FY 2021 OCO	FY 2021 Total	FY 2022	FY 2023	FY 2024	FY 2025	Cost To Complete	Total Cost
62OMMS: *Research Site Support*	-	20.705	21.426	23.184	0.000	23.184	22.982	22.881	23.363	23.846	Continuing	Continuing

A. Mission Description and Budget Item Justification

The Air Force Research Laboratory Information Directorate leads the discovery, development and implementation of information science and technology to drive transformation within the Air Force and across the Department of Defense. The focus of the work is to provide the warfighter with the required technology-based capabilities to defend the Nation by unleashing the power of innovative information science and technology to anticipate, find, fix, track, target, engage, and assess anything, anytime, anywhere. Since the site is a single-purpose location which is not located on a military installation, the Information Directorate has unique requirements for supporting its science and technology mission. As the host unit, the directorate is responsible to provide the Rome Research Site infrastructure at Rome, New York and provide for the continued operations of all Rome Research Site properties, buildings, and services necessary for the research mission. Operations include: logistics and communication services, utilities, maintenance of facilities and structures, safety and security of the workforce and visiting researchers, and ensures compliance with the laws, regulations, and directives that pertain to site operations. These services are host unit responsibilities and are necessary to provide a safe and effective environment for the Research Site's workforce and mission.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Title: Rome Research Infrastructure	20.705	21.426	23.184
Description: Provide the necessary services and support including, but not limited to: fire inspections, refuse collection, water, electricity, steam, heat, custodial, and grounds maintenance services to the Research Site. Provide the necessary support for the maintenance and repair of Research Site facilities (buildings and other structures), vehicle and equipment lease and security/ safety inspections and services as necessary for compliance and safety/security of personnel and research assets. Provide the Research Site with long haul communications (using the Government Services Administration set of Networx contracts for Continental United States), trunk connectivity and wireless communications.			
FY 2020 Plans: Continue to provide civilian payroll and non-pay costs for installation operations in support of the Rome Research Site property and all onsite personnel. Continue to provide facilities, facility operations, facility sustainment, support equipment, contracts, and associated costs to plan, manage and execute the following functions: fire prevention, disaster preparedness, plant operation and purchase of commodity, refuse collection, pavement clearance of snow and ice, grounds maintenance including landscaping, real property special inspections, pest control, and custodial services. Continue to provide Real Property Management and Engineering Services, including: (1) Facility Management and Administration and (2) Installation Engineering Services. Facility Management includes public works management costs, contract management, material procurement, facility data management, furnishings management costs, and real estate management. Installation Engineering Services includes annual inspection of facilities, master planning, overhead of planning and design, overhead of construction management, and non Site Recovery			

Exhibit R-2A, RDT&E Project Justification: PB 2021 Air Force		Date: February 2020
Appropriation/Budget Activity 3600 / 2	**R-1 Program Element (Number/Name)** PE 0602788F / *Dominant Information Sciences and Methods*	**Project (Number/Name)** 62OMMS / *Research Site Support*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2019	FY 2020	FY 2021
Management service calls. Continue to provide basic installation communication services, including long haul trunk and telecommunications services. Continue to provide site vehicle lease for logistics, security, and mission support under the Government Services Administration. ***FY 2021 Plans:*** Continue to provide civilian payroll and non-pay costs for installation operations in support of the Rome Research Site property and all onsite personnel. Continue to provide facilities, facility operations, facility sustainment, support equipment, contracts, and associated costs to plan, manage and execute the following functions: fire prevention, disaster preparedness, plant operation and purchase of commodity, refuse collection, pavement clearance of snow and ice, grounds maintenance including landscaping, real property special inspections, pest control, and custodial services. Continue to provide Real Property Management and Engineering Services, including: (1) Facility Management and Administration and (2) Installation Engineering Services. Facility Management includes public works management costs, contract management, material procurement, facility data management, furnishings management costs, and real estate management. Installation Engineering Services includes annual inspection of facilities, master planning, overhead of planning and design, overhead of construction management, and non Site Recovery Management service calls. Continue to provide basic installation communication services, including long haul trunk and telecommunications services. Continue to provide site vehicle lease for logistics, security, and mission support under the Government Services Administration. ***FY 2020 to FY 2021 Increase/Decrease Statement:*** FY 2021 increased compared to FY 2020 by $1.758 million. Funding increased due to civilian pay reprice adjustment.			
Accomplishments/Planned Programs Subtotals	20.705	21.426	23.184

C. Other Program Funding Summary ($ in Millions)

N/A

Remarks

D. Acquisition Strategy

N/A