Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Air Force											Date: February 2018	
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 5: *System Development & Demonstration (SDD)*					R-1 Program Element (Number/Name) PE 0604281F / *Tactical Data Networks Enterprise*							
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	-	78.167	38.250	207.746	0.000	207.746	261.742	202.483	202.505	192.550	Continuing	Continuing
655050: *TDL System Integration*	-	34.990	35.585	188.888	0.000	188.888	212.243	156.237	121.293	127.904	Continuing	Continuing
655262: *Family of Gateways*	-	43.177	2.665	18.858	0.000	18.858	49.499	46.246	81.212	64.646	Continuing	Continuing

Note

This program, BA 5, PE 0604281F, project 655050, Agile Comms, is a new start.
This program, BA 5, PE 0604281F, project 655050, High Capacity Backbone (HCB), is a new start.
This program, BA 5, PE 0604281F, project 655050, Link 16 Enhancements, is a new start.

A. Mission Description and Budget Item Justification

The Tactical Data Networks Enterprise (TDNE) develops, enhances and fields Tactical Data Links (TDL), advanced waveforms, radios, network management tools, and associated hardware and software that comprise the Joint Aerial Layer Network (JALN). This will be accomplished by upgrading currently fielded communications and TDL systems and by developing and fielding more advanced systems in the future. Also addresses warfighter urgent demands through the establishment of Quick Reaction Capabilities (QRC) and Enterprise activities as directed by JALN council. TDNE supports the development, fielding and training of aerial layer networking capabilities across multiple core functions including air superiority, ground precision attack, command and control, space operations, intelligence, surveillance and reconnaissance (ISR), and personal recovery. These activities provide the Joint Forces Air Component Commander with networks to build a common operating picture of the battlespace. TDNE executes quick reaction response capability requests by the warfighter and support activities (including ramp-up) associated with the Joint Aerial Layer Network (JALN) Enterprise activities as directed by the JALN Council. This program ensures the continued enhanced interoperability of Air Force and joint/coalition/NATO assets through efforts such as early systems engineering and use of the Political, Operational, Economic and Technical (POET) process for program requirements analysis and architectural design development/coordination of all TDN standards and management capabilities, configuration management, platform/system interoperability assessments, development of government reference architectures, interoperability certification testing, and flight testing. PTW is a waveform designed to mitigate the effects of advanced jamming in Anti-Access/Area Denial environments. PTW provides worldwide, beyond line of sight, Anti-Jam (AJ), Low Probability of Intercept communications, via military and commercial satellite systems for tactical users in all Services. This effort funds Protected Tactical Waveform (PTW) modem development and aperture development on suitable platforms like (but not limited to) RQ-4 and BACN. PTW provides communication path diversity by increasing SATCOM resilience through satellite, spectral, and waveform diversity. This effort continues work started in Protected Tactical Service Field Demonstration (PTSFD) to complete PTW maturity and modem development, leveraging TALON Tacet Avis aperture work to develop the PTW antenna and radome. It includes terminal certification efforts (Information Assurance (IA), NSA and MIL-STD). This effort funds continued development of PTW components, protected tactical terminal modems that will be capable of being fully integrated into existing wideband terminals and will ensure delivery of protected tactical SATCOM to the joint and coalition warfighters in contested, degraded environments. PTW development activities may also include technical and acquisition-related studies, analysis, early systems engineering and risk reduction activities, addressing all subsystems to support both current program planning/execution and future AF program planning.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Air Force	Date: February 2018
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604281F / *Tactical Data Networks Enterprise*

TDL System Integration will provide for the study (acquisitions current and proposed), analysis, enhancement, development, integration, demonstration, test, and evaluation of Tactical Data Links (TDLs) as a subset of the broader aerial layer networks. TDLs are used in both peace time and combat environments to exchange information such as character-oriented and fixed-formatted messages, data, radar tracks, target information, platform status, imagery, free-text messaging and command assignments. TDLs provide interoperability, local and global connectivity, and situational awareness to the user when training or fighting under rapidly changing operational conditions. TDLs increase mission effectiveness by providing enhanced air domain situational awareness, positive combat identification of aircraft in the network, fusion/correlation of on- and off-board sensor data, digital sharing of machine-to-machine target and threat information, thereby, enabling time critical targeting and other mission assignment tasking. TDLs are used by all service theater command and control (C2) elements, weapons platforms, and sensors. TDLs include, but are not limited to: Link 16, Link 11, Link 22, Situational Awareness Data Link (SADL), Variable Message Format (VMF), Intra-Flight Data Link (IFDL), and other Advanced TDL Link technologies, such as Tactical Targeting Network Technology (TTNT), Common Data Link (CDL), and Multifunction Advanced Data Link (MADL). TDLs typically include both a waveform specification as well as the standards for exchanging messages. Agile Communications include the capability to share tactically significant information within/to/from highly contested environments in support of the Air Superiority 2030 Flight Plan. Agile Communication efforts provide for pre-Analysis of Alternatives (AoA) and development activities. High Capacity Backbone (HCB), a subset of the overall JALN concept, will provide the warfighter with a robust communication infrastructure enhancing C2 capabilities. HCB connects users operating within disadvantaged conditions to space and terrestrial communications utilizing Deployed Ground Entry Points (DGEP) and aerial nodes. Link 16 Enhancements will develop and field a Link 16 Anti Jam (AJ) capabilities on 4th and 5th generation platform to address Link 16 jamming threats in the contested and highly contested environment. Link 16 Enhancement funding will be utilized for Non recurring engineering and integration of AJ capabilities on airborne and ground platforms.

Family of Gateways provides for the study (acquisitions current and proposed), analysis, enhancement, development, integration, costing, demonstration, test, and evaluation efforts that will allow joint combat forces to exchange information quickly and accurately by bridging discrete airborne, terrestrial, maritime, and space-based C4ISR networks producing operational effects not possible within individual networks. Gateway functions include enabling interoperability between data formats, protocols, and communication mediums. Additionally, gateway functions extend the connectivity range, consolidate data from multiple networks into high capacity links for transmission to key C2ISR nodes, route information between disadvantaged users, and fuse/correlate data from multiple sources to improve accuracy. Gateway functions also provide application hosting, shared data storage, on-demand information access, smart data forwarding, and system monitoring and network management. Further, this project supports 5th-to-4th Generation communications capabilities, 5th-to-5th Generation efforts and future TDL communications development. Additionally, Family of Gateways will support to enhance existing TDL performance, through upgrades and engineering analysis of system designs. Efforts in this project include waveform, ground, and rapid acquisition activities supporting Air Force requirements for communications bridging across multiple platforms, sources and communication domains. Moreover, the E-3G AWACS, 5th-to-4th Generation Gateway effort provides 4th Generation tactical edge assets with a common tactical operating picture for enhanced battlespace awareness via integration of 5th Generation sensor data. This effort integrates the core components (5th-to-4th Gateway, Correlation/fusion, and National sensor inputs) for use on the E-3G platform.

In FY18 SFF/DACAS Modernization and System-of-Systems (SoS) Enterprise Integration was a new start.
In FY18 Applique Technologies for TDLs was a new start.
In FY18 Link 16 Evolution was a new start.

Exhibit R-2, RDT&E Budget Item Justification: PB 2019 Air Force	Date: February 2018
Appropriation/Budget Activity 3600: *Research, Development, Test & Evaluation, Air Force* / BA 5: *System Development & Demonstration (SDD)*	**R-1 Program Element (Number/Name)** PE 0604281F / *Tactical Data Networks Enterprise*

This program element may include necessary civilian pay expenses required to manage, execute, and deliver TDL weapon 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.

This program is in BA 5, SDD because it has passed Milestone B approval and is conducting engineering and manufacturing development tasks aimed at meeting validated requirements prior to full-rate production.

B. Program Change Summary ($ in Millions)	FY 2017	FY 2018	FY 2019 Base	FY 2019 OCO	FY 2019 Total
Previous President's Budget	82.380	38.250	100.028	0.000	100.028
Current President's Budget	78.167	38.250	207.746	0.000	207.746
Total Adjustments	-4.213	0.000	107.718	0.000	107.718
• Congressional General Reductions	-1.581	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	0.000	0.000			
• SBIR/STTR Transfer	-2.632	0.000			
• Other Adjustments	0.000	0.000	107.718	0.000	107.718

Change Summary Explanation

FY19 $68M addition for Agile Communications Development
FY19 $33M addition for High Capacity Backbone
FY19 $6M addition for Link 16 Enhancements

Exhibit R-2A, RDT&E Project Justification: PB 2019 Air Force			Date: February 2018
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0604281F / *Tactical Data Networks Enterprise*	Project (Number/Name) 655050 / *TDL System Integration*	

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
655050: *TDL System Integration*	-	34.990	35.585	188.888	0.000	188.888	212.243	156.237	121.293	127.904	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

Note

This program, BA 5, PE 0604281F, project 655050, Agile Comms, is a new start.
This program, BA 5, PE 0604281F, project 655050, High Capacity Backbone (HCB), is a new start.
This program, BA 5, PE 0604281F, project 655050, Link 16 Enhancements, is a new start.

In FY 2018, Project Cursor on Target (CoT) was terminated

A. Mission Description and Budget Item Justification

TDL System Integration provides for the study, analysis, enhancement, development, integration, demonstration, joint/coalition/NATO interoperability exercises, costing, training, test, trials, and evaluation of Tactical Data Links (TDL) as a subset of the broader aerial layer network. TDLs are used in both peacetime and combat environments to exchange information such as character-oriented and fixed-formatted messages, data, radar tracks, target information, platform status, imagery, free-text messaging and command assignments. TDLs provide interoperability, local and global connectivity, and situational awareness to the user when training or fighting under rapidly changing operational conditions. TDLs increase mission effectiveness by providing enhanced air domain situational awareness, positive combat identification of aircraft in the network, fusion/correlation of on- and off-board sensor data, digital sharing of machine to machine target and threat information and, thereby, enabling time critical targeting and other mission assignment tasking. TDLs are used by all service, NATO, and coalition theater C2 elements, weapons platforms, and sensors.

The number of Air Force platforms hosting TDLs has expanded from C2 aircraft (E-3, E-8, E-11A, EQ-4B, etc.) to the fighter, bomber, intelligence, surveillance and reconnaissance (ISR), tanker, airlift and other tactical fleets (F-15, F-16, F-22A, Rivet Joint, B-1, B-2, B-52, KC-46, etc.), as well as precision guided munitions. Utilization of TDLs in joint and international environments requires the integration of terminals into host platforms and interoperability of TDL networks across all deployed joint/Coalition/NATO platforms. Recent mandates require additional studies and analysis in order to meet frequency reprogramming and cryptographic requirements.

Efforts in this project include waveform and integration activities.

Waveform:
Waveform activities include, but are not limited to, enabling and supporting Joint Interoperability of Tactical Command and Control Systems (JINTACCS), joint/Coalition/ NATO Interoperability, Link 16 enhancements, and development of a next generation waveform and/or advanced tactical data link. Funding will provide training, logistics development, testing and certification of individual TDL implementations to joint/allied standards, establishment of service-wide network management procedures/ operations, and system wide enhancements/testing, demonstration and experimentation.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Air Force		Date: February 2018
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Integration:
Integration activities include but are not limited to, Data Link Test Facility (DTF), Block Upgrade 2 (BU2) retrofit/MIDS JTRS, Block Cycle 1 (BC1) retrofit , Air Force Participating Test Unit (AFPTU), Interoperable System Management and Requirements Transformation (iSMART), Joint Airborne Network Tactical Edge (JAN-TE), Network Centric Capability Assessment (NCCA), NATO interoperability, Coalition interoperability, TDL Planning, Analysis, and Monitoring (TDL PAM), integration analysis of C2 of JALN, Cursor on Target (CoT), Combat Cloud, Tactical Communications Suite (TCS), and analysis of integration on platforms of existing TDN systems, system-of-systems analysis. Funding will ensure continued enhanced interoperability of Air Force/joint/Coalition/NATO assets through efforts such as early systems engineering and use of the POET process for program requirements analysis and architectural design development/coordination of all TDN standards and management capabilities, configuration management, platform/system interoperability assessments, development of government reference architectures, integration of cyber technologies, interoperability certification testing, and flight testing, demonstration and experimentation.

Activities include studies and analysis (engineering and cost) to support both current program planning and execution and future program planning efforts for Tactical Data Networks (TDN), including development of joint concepts for C2 of JALN, JALN Analysis of Alternatives (AoA) follow-on analysis, and JALN gateway planning.

Activities also include joint/Coalition/NATO Interoperability that provides program office system engineering to support Foreign Military Sales (FMS) case development, FMS planning for tech refresh modifications, Crypto-Modernization, and Net Management.

Agile Communications include the capability to share tactically significant information within/to/from highly contested environments in support of the Air Superiority 2030 Flight Plan. Agile Communication efforts provide for pre-Analysis of Alternatives (AoA) and development activities. Agile Communications supports the application of open standards & advanced apertures over an Enterprise-wide Aerial Network, enabling all platforms to share combat-relevant data/info to, from & within the Highly Contested Environment (HCE).

High Capacity Backbone (HCB) effort implements an incremental approach for deploying resilient reachback connectivity to DISN services and in-theater rear echelon organizations through dedicated aerial gateways and opportunistic airborne nodes. The HCB Transport supports a robust deployable ground infrastructure required, through reach back, range extension and payload control. It will use an open system approach composed of non-proprietary government and commercial interface standards.

Link 16 Enhancement will develop and field Link 16 Anti Jam (AJ) capabilities on 4th and 5th generation platforms to address Link 16 jamming threats in the contested and highly contested environments. Focus will be directed toward non recurring engineering and integration of AJ capabilities on airborne and ground platforms.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver TDL weapon 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.

Exhibit R-2A, RDT&E Project Justification: PB 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0604281F / *Tactical Data Networks Enterprise*	**Project (Number/Name)** 655050 / *TDL System Integration*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: Tactical Data Networks (TDN) Integration	13.291	9.044	16.545
Description: TDN Integration activities include but are not limited to, Data Link Test Facility (DTF), Air Force Participating Test Unit (AFPTU), Network Centric Capability Assessment (NCCA), Joint/Coalition/NATO Interoperability, Joint Aerial Layer Network (JALN) Analysis of Alternatives (AoA) follow-on, and JALN gateway planning. ***FY 2018 Plans:*** - Manage the development, certification, developmental training, and logistics plans for individual TDL implementations to joint/ allied standards. - Provide management with the necessary engineering, technical, and administrative support needed to facilitate development. - Plan for testing, integration, and associated training for all MIDS LVT and MIDS JTRS upgrade configurations. - Provide support to TDL interoperability testing of development and fielded systems through the DTF. - Provide support to DoD-mandated TDL MIL-STD conformance testing and interoperability assessments for all TDL-capable Air Force platforms through the AFPTU. - Conduct aerial layer network focused studies and analysis that support data link enhancements. - Assess tactical airborne network and network management gaps that are validated in existing requirements documents through the Network Centric Capability Assessments (NCCA). - Studies and analysis will include, but will not be limited to, supporting both current program planning and execution and future program planning efforts for TDN (e.g. development of joint concepts for C2 and network management of the Joint Aerial Layer Network (JALN), Combat Cloud, and JALN gateway planning). - Provide support to Coalition interoperability and provide program office system engineering to support NATO C3I, Foreign Military Sales (FMS) case development, FMS planning for technology refresh modifications, Crypto-Modernization, and Net Management. - Provide support to the DTF and AFPTU with required hardware and software upgrades and license renewals, which provide development and interoperability support for new capabilities and technology growth. ***FY 2019 Plans:*** - Will continue to manage the development, certification, developmental training, and logistics plans for individual TDL implementations to joint/allied standards. - Will continue to provide management with the necessary engineering, technical, and administrative support needed to facilitate development. - Will continue to plan for testing, integration, and associated training for all MIDS LVT and MIDS JTRS upgrade configurations. - Will continue to provide support to TDL interoperability testing of development and fielded systems through the DTF. - Will continue support to DoD-mandated TDL MIL-STD conformance testing and interoperability assessments for all TDL-capable Air Force platforms through the AFPTU.			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0604281F / *Tactical Data Networks Enterprise*	**Project (Number/Name)** 655050 / *TDL System Integration*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
- Will continue to conduct aerial layer network focused studies and analysis that support data link enhancements. - Will continue to assess tactical airborne network and network management gaps that are validated in existing requirements documents through the Network Centric Capability Assessments (NCCA). - Studies and analysis will include, but will not be limited to, supporting both current program planning and execution and future program planning efforts for TDN (e.g. development of joint concepts for C2 and network management of the Joint Aerial Layer Network (JALN), Combat Cloud, and JALN gateway planning). - Will continue to provide support to Coalition interoperability and provide program office system engineering to support NATO C3I, Foreign Military Sales (FMS) case development, FMS planning for technology refresh modifications, Crypto-Modernization, and Net Management. - Will provide support to the DTF and AFPTU with required hardware and software upgrades and license renewals, which provide development and interoperability support for new capabilities and technology growth. - Will provide support to Agile Communications efforts that include pre-Analysis of Alternatives (AoA) and development activities. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Funding increased due to ramp up in development, testing and research support efforts for three new starts.			
Title: Joint Interoperability of Tactical Command and Control Systems (JINTACCS)	6.924	7.068	6.414
Description: Joint Interoperability of Tactical Command and Control Systems (JINTACCS) ensures interoperability of TDL systems with associated joint, allied, and Coalition systems. It includes configuration management of TDL Military Standards (MIL-STDs), TDL message development, interoperability test/certification, and TDL message standard implementation using interoperable System Management and Requirements Transformation (iSMART) for Link 11A/B, Link 16, Link 22, Variable Message Format (VMF), Integrated Broadcast Service (IBS), Intraflight Data Link (IFDL), Multifunction Advanced Data Link (MADL), and others. ***FY 2018 Plans:*** - Provide the necessary engineering, technical, and administrative support required to add and/or update Air Force platform and system information exchange requirements. - Ensure compatibility and interoperability of TDLs by funding required Air Force/joint MIL-STD compliance and interoperability tests. - Ensure compatibility and interoperability of TDLs by developing TDL messaging capability to address new or updated operational requirements. - Provide support to IFDL and MADL specific message translation development in support of the 5th-to-4th Generation Communications Capability. ***FY 2019 Plans:***			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Air Force		Date: February 2018
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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
- Will continue to provide the necessary engineering, technical, and administrative support required to add and/or update Air Force platform and system information exchange requirements. - Will continue to ensure compatibility and interoperability of TDLs by funding required Air Force/joint MIL-STD compliance and interoperability tests. - Will continue to ensure compatibility and interoperability of TDLs by developing TDL messaging capability to address new or updated operational requirements. - Will continue to provide support to IFDL and MADL specific message translation development in support of the 5th-to-4th Generation Communications Capability. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Funding decreased due to development work tapering minimally in FY19.			
Title: Cursor on Target (CoT) ***Description:*** Cursor on Target (CoT) is an extensible, 'What, When, Where' (W3) XML message format for interconnecting Command, Control, Communication and Computer (C4), Intelligence, Surveillance and Reconnaissance (ISR) systems. The CoT suite consists of the W3 base schema, 14 tailored sub-schema, and a set of 10 software plug-ins and translators that facilitate Machine-to-Machine (M2M) transmission of Command and Control (C2), ISR, and situational awareness data at reduced cost compared with traditional integration methods. ***FY 2018 Plans:*** - Bring closure to the program - Update Website to alert users that the program will no longer be supported - Send email to current users about program ending ***FY 2019 Plans:*** - Program ending in FY18 ***FY 2018 to FY 2019 Increase/Decrease Statement:*** -Funding decreased due to program ending.	1.585	1.621	0.000
Title: 5th to 4th Generation Gateway ***Description:*** 5th-to-4th Generation Gateway facilitates track sharing and sensor data between 5th Generation and 4th Generation aircraft as well as Command and Control (C2) nodes. The capabilities developed under this effort enable interoperability between data formats, protocols, and communication mediums. Additionally, these capabilities extend the connectivity range, consolidate data from multiple networks, domains and sensors into high capacity links for transmission to key C2ISR nodes, route information between disadvantaged users, and correlate data from multiple sources to facilitate early detection and tracking while enabling	12.771	0.000	0.000

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
collaborative targeting. The addition of multi-domain capabilities as a future requirement of 5th-to-4th Generation communications capabilities enable track sharing at the tactical edge for the timely destruction of ground and airborne target sets. These additional capabilities are a combat force multiplier that enhance total force synergy for target prosecution and weapons employment. The initial increment will provide the baseline 5th-to-4th communication capability upon which future requirements will build capability. ***FY 2018 Plans:*** No funding or work in FY18. ***FY 2019 Plans:*** No funding or work in FY 19 ***FY 2018 to FY 2019 Increase/Decrease Statement:*** No delta			
Title: TDL Planning, Analysis, and Monitoring (TDL PAM) ***Description:*** This effort was previously captured in project 655050 under TDN Integration. Project is pending result of a DCR. The greater burdens placed on Multi-TDL Networks (MTN) due to an increasing number of network subscribers and emerging capabilities such as Net-Enabled Weapon (NEW) systems and Digital Aided Close Air Support (DACAS) via Combat Net Radio (CNR) requires an automated toolset to enable Interface Control Officers (ICO) to effectively employ TDL capabilities to support different AORs and missions within an increasingly complex MTN. Tasks include but are not limited to managing the TDL interfaces (and data that flows across them) that build the common tactical/operational pictures; planning the MTN; running predictive LOS computations; creating validated operational tasking data links messages; monitoring connectivity status; perceiving and remedying network conflicts and outages; and performing other analyses to enhance MTN performance. ***FY 2018 Plans:*** - Engage stakeholders to refine requirements in support of developing relevant documentation needed to inform key decision points, e.g. MOA/MOUs, ECPs for future capability drops/requirements development packages, etc. - Support enterprise level HPT DCR efforts to leverage a joint materiel solution for ICOs across the theater air control system - Perform studies and analysis, risk reduction and prototype user evaluation exercises (e.g. Bold Quest, Timber Express). ***FY 2019 Plans:*** - Will continue to engage stakeholders to refine requirements in support of developing revelant pre-acquisition documentation needed to inform key decision points, e.g. MOA/MOUs, ECPs for future capability drops/requirements development packages. - Will continue to support enterprise level HPT DCR effort to field a joint materiel solution to satisfy the TDL PAM capability gap	0.419	1.952	29.000

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
- Will continue to perform studies and analysis, risk reduction and prototype user evaluation exercises (e.g. Bold Quest). ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Funding increased due to additional development work in FY19.			
Title: Agile Comms ***Description:*** Agile Comms supports the application of open standards and advanced apertures over an Enterprise-wide Aerial Network, enabling all platforms to share combat-relevant data/info to, from and within the Highly Contested Environment (HCE). ***FY 2018 Plans:*** No funding in FY 18 ***FY 2019 Plans:*** - Will engage in post ICD and pre AoA activities including the development of the Architecture and Enterprise Approach to the Joint Aerial Network ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Effort starts in FY19	-	0.000	68.000
Title: High Capacity Backbone (HCB) ***Description:*** The Joint Aerial Layer Network High Capacity Backbone (JALN HCB) will provide a robust communication infrastructure to the warfighter enhancing command and control (C2) capabilities within any theater of operations. JALN HCB will enable range extension, enhance interoperability, increase situation awareness by reducing the time it takes to gather intelligence data, delivery the intelligence for analysis and to delivery the information to the user. ***FY 2018 Plans:*** No funding in FY18 ***FY 2019 Plans:*** Will conduct risk reduction efforts/experiments to inform decision ahead of CDD ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Efforts starts in FY19	-	0.000	33.000
Title: Link 16 Enhancements ***Description:*** Link 16 Enhancement will develop and field Link 16 Anti Jam (AJ) capabilities on 4th and 5th generation platforms to address Link 16 jamming threats in the contested and highly contested environments.	-	0.000	5.955

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B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
FY 2018 Plans: No funding in FY18 ***FY 2019 Plans:*** - Will perform non recurring engineering and integration on airborne and ground platforms ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Effort starts in FY19			
Title: SFF/DACAS Modernization and System-of-Systems (SoS) Enterprise Integration ***Description:*** This effort will support the development and demonstration of Small Form Factor (SFF) technologies that can support Digitally Assisted Close Air Support (DACAS) and other missions across the full spectrum of operating environments. This effort will consider System-of-Systems (SoS) engineering, technical analysis/performance, platform integration, and Tactics, Techniques, and Procedures (TTPs) to best utilize technologies and acquisition approaches for enterprise modernization. ***FY 2018 Plans:*** - Engage Subject Matter Expert (SME) and stakeholder community to identify initial demonstration objectives and intended technical performance. - Perform market research and/or analyze alternative materiel solutions - Baseline key candidate solutions. - Develop statement of work for risk reduction contract - Establish initial evaluation/analysis process for SoS interoperability/capability. ***FY 2019 Plans:*** - Will continue to engage Subject Matter Expert (SME) and stakeholder community to identify initial demonstration objectives and intended technical performance. - Award risk reduction contract developing prototypes. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Funding increased due to ramp up in development effort.	-	7.000	11.910
Title: Applique Technologies for TDLs ***Description:*** This effort will develop and test low Size, Weight, and Power (SWaP) applique production kits to support TDL communications; it will incorporate proven techniques related to RF components, system interfaces, and platform integration. This effort will identify appropriate platforms, apertures, and interfaces and evaluate using representative flight environments and conditions.	-	0.900	9.131

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Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0604281F / *Tactical Data Networks Enterprise*	**Project (Number/Name)** 655050 / *TDL System Integration*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
FY 2018 Plans: - Complete low SWaP prototype and develop production kit. - Identify and vet candidate platform(s). - Complete lab integration testing and relevant Modeling, Simulation, and Analysis (MS&A). - Prepare for ground and flight test activities. - Identify and develop necessary test equipment and infrastructure. ***FY 2019 Plans:*** - Will continue to complete low SWaP prototype and develop production kit. - Will continue to identify and vet candidate platform(s). - Will continue to complete lab integration testing and relevant Modeling, Simulation, and Analysis (MS&A). - Will continue to prepare for ground and flight test activities. - Will continue to identify and develop necessary test equipment and infrastructure. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Funding increased due to ramp up in development effort.			
Title: Link 16 Evolution (changed from "Cognitive Enterprise Development and Baselining" on FY18 PB) ***Description:*** This effort will implement Link 16 technologies into TDL terminals and investigate the integration of additional emerging technologies to improve communications reliability. This effort will maintain a government-controlled technical baseline(s) to efficiently execute development and enhancements. Emerging technologies will be developed and evaluated for efficacy; recommendations will be identified for appropriate terminal fielding/upgrades to platforms and will be considered when evaluating enterprise TDL capabilities/gaps. ***FY 2018 Plans:*** - Coordinate scope and schedule with terminal developers and stakeholders to establish technical baseline for future work. - Assess and mature emerging technologies in coordination with terminal developers and stakeholders. ***FY 2019 Plans:*** - Will continue to coordinate scope and schedule with terminal developers and stakeholders to establish technical baseline for future work. - Will continue to assess and mature emerging technologies in coordination with terminal developers and stakeholders. ***FY 2018 to FY 2019 Increase/Decrease Statement:***	-	8.000	8.933

Exhibit R-2A, RDT&E Project Justification: PB 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0604281F / *Tactical Data Networks Enterprise*	**Project (Number/Name)** 655050 / *TDL System Integration*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Funding increased due to a minimal bump in development work.			
Accomplishments/Planned Programs Subtotals	34.990	35.585	188.888

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 07 PE 0207448F: *C2ISR TDL*	1.580	2.875	1.505	-	1.505	1.531	1.559	1.587	1.616	Continuing	Continuing
• APAF 05 Line Item F01500: *F-15*	0.000	0.844	46.903	-	46.903	53.211	40.167	20.933	21.310	Continuing	Continuing
• APAF 05 Line Item F01600: *F-16*	6.447	-	6.755	-	6.755	8.371	8.525	8.695	8.851	Continuing	Continuing
• APAF 05 Line Item B00200: *B-2A*	0.415	1.718	2.315	-	2.315	0.201	0.206	0.210	0.213	Continuing	Continuing
• APAF 05 Line Item B01B00: *B-1B*	1.380	-	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• OPAF 03 Line Item 834010: *General Information Technology*	1.842	0.312	0.177	-	0.177	0.180	1.698	1.701	1.731	Continuing	Continuing

Remarks

D. Acquisition Strategy

The Airborne Networking Directorate provides for common development, integration, and interoperability across the entire airborne network and ensures that data links are procured and maintained as a joint, end-to-end command and control system. The program is post Milestone A but still determining the type of materiel solution going forward. Awaiting results from High Performance Team to determine way ahead.

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 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0604281F / *Tactical Data Networks Enterprise*	**Project (Number/Name)** 655050 / *TDL System Integration*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
TDN Integration	Various	Various : Various	-	11.538	Jan 2017	6.150	Jan 2018	15.639	Jan 2019	-		15.639	Continuing	Continuing	-
TDN Integration - TDL PAM	MIPR	Various : Various	-	-		-		28.325	Feb 2019	-		28.325	Continuing	Continuing	-
High Capacity Backbone (HCB)	C/TBD	Various : Various	-	-		-		33.000	Mar 2019	-		33.000	Continuing	Continuing	-
Agile Comms	C/TBD	Various : Various	-	-		-		60.000	Mar 2019	-		60.000	Continuing	Continuing	-
SFF/DACAS Modernization and SoS Enterprise	MIPR	Various : Various	-	-		7.000	Mar 2018	11.910	Mar 2019	-		11.910	Continuing	Continuing	-
Applique Technologies for TDLs	MIPR	Various : Various	-	-		0.900	Mar 2018	9.131	Mar 2019	-		9.131	Continuing	Continuing	-
Link 16 Evolution	MIPR	Various : Various	-	-		8.000	Mar 2018	14.933	Mar 2019	-		14.933	Continuing	Continuing	-
		Subtotal	-	11.538		22.050		172.938		-		172.938	Continuing	Continuing	N/A

Support ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
TDN Integration - NCCA	C/T&M	MITRE : Bedford, MA	-	1.719	Oct 2016	1.183	Oct 2017	1.287	Oct 2018	-		1.287	Continuing	Continuing	-
		Subtotal	-	1.719		1.183		1.287		-		1.287	Continuing	Continuing	N/A

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
TDN Integration - DTF	PO	46th Test Squadron : Eglin AFB, FL	-	0.900	Feb 2017	0.900	Feb 2018	1.222	Dec 2018	-		1.222	Continuing	Continuing	-
JINTACCS	C/FFP	Spectrum Comm Inc : Newport News, VA	-	2.676	Feb 2017	2.665	Feb 2018	6.414	Feb 2019	-		6.414	Continuing	Continuing	-
TDN Integration - AFPTU	MIPR	Various : Various	-	2.281	Jun 2017	1.157	Sep 2018	1.802	Sep 2019	-		1.802	Continuing	Continuing	-

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0604281F / *Tactical Data Networks Enterprise*	**Project (Number/Name)** 655050 / *TDL System Integration*

Test and Evaluation ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
5th to 4th redirect efforts	MIPR	Various : Various	-	10.423	Sep 2017	-		-		-		-	Continuing	Continuing	-
Cursor on Target	PO	46 TS : FL	-	0.000	Nov 2017	-		-		-		-	Continuing	Continuing	-
		Subtotal	-	16.280		4.722		9.438		-		9.438	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
TDN Integration PMA - A&AS support - NCCA, Coalition Interoperability, JALN AoA	C/CPAF	Various : Various	-	3.529	Jan 2017	4.085	Jan 2018	3.667	Jun 2019	-		3.667	Continuing	Continuing	-
Cursor on Target PMA - A&AS support	C/CPAF	Various : Various	-	0.419	Dec 2016	1.000	Jan 2018	-		-		-	Continuing	Continuing	-
TDN Integration PMA - FFRDC support - Coalition Interoperability, JALN AoA	C/T&M	MITRE : Bedford, MA	-	0.660	Oct 2016	0.709	Oct 2017	0.538	Oct 2018	-		0.538	Continuing	Continuing	-
TDN Integration PMA - Travel, Government Purchase Cards, etc...DTF, NCCA, Coalition Interoperability, AFPTU, JALN AoA	Various	Various : Various	-	0.361	Sep 2017	0.750	Sep 2018	0.285	Sep 2019	-		0.285	Continuing	Continuing	-
JINTACCS PMA - Travel, Government Purchase Cards, etc...	Various	Various : Various	-	0.042	Sep 2017	0.035	Sep 2018	0.060	Sep 2019	-		0.060	Continuing	Continuing	-
TDL PAM development program	C/CPAF	Various : Various	-	0.442	Jun 2017	1.051	Jan 2018	0.675	Jun 2019	-		0.675	Continuing	Continuing	-
		Subtotal	-	5.453		7.630		5.225		-		5.225	Continuing	Continuing	N/A

Exhibit R-3, RDT&E Project Cost Analysis: PB 2019 Air Force			Date: February 2018
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0604281F / *Tactical Data Networks Enterprise*	Project (Number/Name) 655050 / *TDL System Integration*	

	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	-	34.990		35.585		188.888		-		188.888	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0604281F / *Tactical Data Networks Enterprise*	**Project (Number/Name)** 655050 / *TDL System Integration*

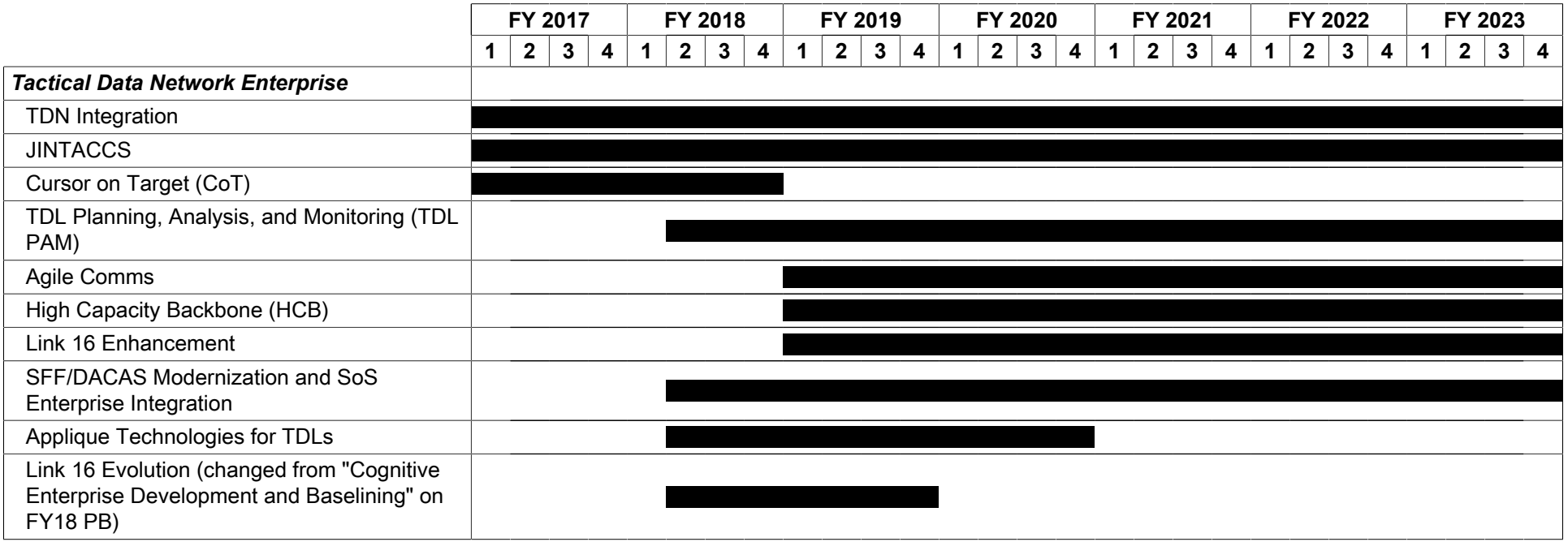

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0604281F / *Tactical Data Networks Enterprise*	**Project (Number/Name)** 655050 / *TDL System Integration*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
Tactical Data Network Enterprise				
TDN Integration	1	2017	4	2023
JINTACCS	1	2017	4	2023
Cursor on Target (CoT)	1	2017	4	2018
TDL Planning, Analysis, and Monitoring (TDL PAM)	2	2018	4	2023
Agile Comms	1	2019	4	2023
High Capacity Backbone (HCB)	1	2019	4	2023
Link 16 Enhancement	1	2019	4	2023
SFF/DACAS Modernization and SoS Enterprise Integration	2	2018	4	2023
Applique Technologies for TDLs	2	2018	4	2020
Link 16 Evolution (changed from "Cognitive Enterprise Development and Baselining" on FY18 PB)	2	2018	4	2019

Exhibit R-2A, RDT&E Project Justification: PB 2019 Air Force			Date: February 2018
Appropriation/Budget Activity 3600 / 5	R-1 Program Element (Number/Name) PE 0604281F / *Tactical Data Networks Enterprise*	Project (Number/Name) 655262 / *Family of Gateways*	

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
655262: *Family of Gateways*	-	43.177	2.665	18.858	0.000	18.858	49.499	46.246	81.212	64.646	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Family of Gateways provides for the study (acquisitions current and proposed), analysis, enhancement, development, integration, costing, demonstration, test, and evaluation efforts that will allow joint combat forces to exchange information quickly and accurately by bridging discrete airborne, terrestrial, maritime, and space-based C4ISR networks producing operational effects not possible within individual networks. Gateway functions include enabling interoperability between data formats, protocols, and communication mediums. Additionally, gateway functions extend the connectivity range, consolidate data from multiple networks into high capacity links for transmission to key C2ISR nodes, route information between disadvantaged users, and fuse/correlate data from multiple sources to improve accuracy. Gateway functions also provide application hosting, shared data storage, on-demand information access, smart data forwarding, and system monitoring and network management. Further, this project supports 5th-to-4th Generation communications capabilities, 5th-to-5th Generation efforts and future TDL communications development. Additionally, Family of Gateways will support to enhance existing TDL performance, through upgrades and engineering analysis of system designs. Efforts in this project include waveform, ground, and rapid acquisition activities supporting Air Force requirements for communications bridging across multiple platforms, sources and communication domains. Moreover, the E-3G AWACS, 5th-to-4th Generation Gateway effort provides 4th Generation tactical edge assets with a common tactical operating picture for enhanced battlespace awareness via integration of 5th Generation sensor data. This effort integrates the core components (5th-to-4th Gateway, Correlation/fusion, and National sensor inputs) for use on the E-3G platform.

Activities also include studies, analysis, demonstrations and experiments to support both current program planning/execution and future program planning efforts for Family of Gateways.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver TDL weapon 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.

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
Title: 5th-to-4th Generation Gateway	43.177	2.665	18.858
Description: 5th-to-4th Generation Gateway facilitate sharing track and sensor data between 5th Generation and 4th Generation aircraft as well as Command and Control (C2) nodes. The capabilities developed under this effort enable interoperability between data formats, protocols, and communication mediums. Additionally, these capabilities extend the connectivity range, consolidate data from multiple networks, domains and sensors into high capacity links for transmission to key C2ISR nodes, route information between disadvantaged users, and correlate data from multiple sources to facilitate early detection and tracking while enabling collaborative targeting. The addition of multi-domain capabilities as a future requirement of 5th-to-4th Generation communications			

Exhibit R-2A, RDT&E Project Justification: PB 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0604281F / *Tactical Data Networks Enterprise*	**Project (Number/Name)** 655262 / *Family of Gateways*

B. Accomplishments/Planned Programs ($ in Millions)	FY 2017	FY 2018	FY 2019
capability enables track sharing at the tactical edge for the timely destruction of ground and airborne target sets. These additional capabilities are a combat force multiplier that enhance total force synergy for target prosecution and weapons employment. The initial increment will provide the baseline 5th-to-4th communication capability upon which future requirements will build capability. ***FY 2018 Plans:*** - Continue to develop the 5th-to-4th Generation GW / communications capabilities. - Upgrade the 46 TS facility to MADL capability and conduct Link-16 NDL development demo. ***FY 2019 Plans:*** - Will continue to develop the 5th-to-4th Generation GW / communications capabilities. - Will upgrade the 46 TS facility to MADL capability and conduct Link-16 NDL development demo. - Will provide 4th Generation tactical edge assets with a common tactical operating picture for enhanced battlespace awareness via integration of 5th Generation sensor data, as part of the E-3G AWACS, 5th-to-4th Generation Gateway effort. -- Will integrate the core components (5th-to-4th Gateway, Correlation/fusion, and National sensor inputs) for use on the E-3G platform. ***FY 2018 to FY 2019 Increase/Decrease Statement:*** Funding increased due to change in requirement.			
Accomplishments/Planned Programs Subtotals	43.177	2.665	18.858

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 07 PE 0207448F: *C2ISR TDL*	1.580	2.875	1.505	-	1.505	1.531	1.559	1.587	1.616	Continuing	Continuing
• APAF 05 Line Item F01500: *F-15*	0.000	0.844	46.903	-	46.903	53.211	40.167	20.933	21.310	Continuing	Continuing
• APAF 05 Line Item F01600: *F-16*	6.447	-	6.755	-	6.755	8.371	8.525	8.695	8.851	Continuing	Continuing
• APAF 05 Line Item B00200: *B-2A*	0.415	1.718	2.315	-	2.315	0.201	0.206	0.210	0.213	Continuing	Continuing
• APAF 05 Line Item B01B00: *B-1B*	1.380	-	0.000	-	0.000	0.000	0.000	0.000	0.000	Continuing	Continuing
• OPAF 03 Line Item 834010: *General Information Technology*	1.842	0.312	0.177	-	0.177	0.180	1.698	1.701	1.731	Continuing	Continuing

Remarks

Exhibit R-2A, RDT&E Project Justification: PB 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0604281F / *Tactical Data Networks Enterprise*	**Project (Number/Name)** 655262 / *Family of Gateways*

D. Acquisition Strategy

The Airborne Networking Directorate provides for common development, integration and interoperability across the entire airborne network and ensures that data links are procured and maintained as a joint, end-to-end, command and control system. The program is post-Milestone-A but still determining the type of materiel solution going forward. Awaiting results from High Performance Team to determine way ahead.

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 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0604281F / *Tactical Data Networks Enterprise*	**Project (Number/Name)** 655262 / *Family of Gateways*

Product Development ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
5th To 4th Generation Gateway development	Various	Various : Various	-	42.937	Mar 2017	2.665	Mar 2018	18.858	Mar 2019	-		18.858	Continuing	Continuing	-
		Subtotal	-	42.937		2.665		18.858		-		18.858	Continuing	Continuing	N/A

Management Services ($ in Millions)

Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	FY 2017 Cost	FY 2017 Award Date	FY 2018 Cost	FY 2018 Award Date	FY 2019 Base Cost	FY 2019 Base Award Date	FY 2019 OCO Cost	FY 2019 OCO Award Date	FY 2019 Total Cost	Cost To Complete	Total Cost	Target Value of Contract
5th To 4th Generation Gateway PMA - Travel, Government Purchase Cards, etc.	Various	Various : Various	-	0.240	Jun 2017	0.000		0.000		-		0.000	Continuing	Continuing	-
		Subtotal	-	0.240		0.000		0.000		-		0.000	Continuing	Continuing	N/A

	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	-	43.177		2.665		18.858		-		18.858	Continuing	Continuing	N/A

Remarks

Exhibit R-4, RDT&E Schedule Profile: PB 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0604281F / *Tactical Data Networks Enterprise*	**Project (Number/Name)** 655262 / *Family of Gateways*

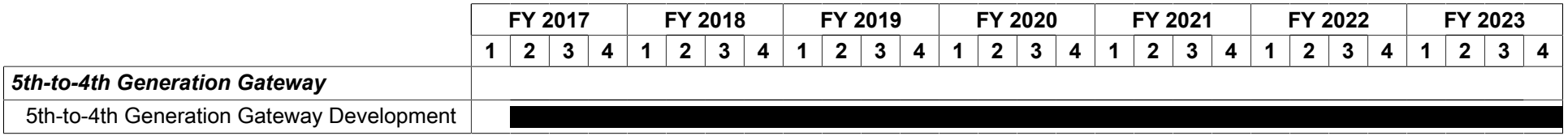

Exhibit R-4A, RDT&E Schedule Details: PB 2019 Air Force		Date: February 2018
Appropriation/Budget Activity 3600 / 5	**R-1 Program Element (Number/Name)** PE 0604281F / *Tactical Data Networks Enterprise*	**Project (Number/Name)** 655262 / *Family of Gateways*

Schedule Details

	Start		End	
Events by Sub Project	**Quarter**	**Year**	**Quarter**	**Year**
5th-to-4th Generation Gateway				
5th-to-4th Generation Gateway Development	2	2017	4	2023