PE NUMBER: 0603789F PE TITLE: C3I Advanced Development

| | Exhit | DATE | February | 2004 | | | | | | |
|------------------------------|------------------------------------------------------------------------------------------------|---------|----------|----------|----------|----------|----------|----------|------------|-----|
| BUDGE ⁻ 03 Adv | UDGET ACTIVITY PE NUMBER AND TITLE 3 Advanced Technology Development (ATD) 0603789F C3I Advanc | | | | | | | | | |
| Cost (\$ in Millions) | FY 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 | Cost to | Total | |
| | Cost (\$ III WIIIIolis) | Actual | Estimate | Estimate | Estimate | Estimate | Estimate | Estimate | Complete | |
| | Total Program Element (PE) Cost | 43.160 | 44.917 | 28.524 | 30.832 | 38.144 | 30.744 | 33.193 | Continuing | TBD |
| 4072 | Dominant Battlespace Awareness | 23.105 | 24.894 | 11.785 | 11.987 | 16.087 | 13.191 | 13.090 | Continuing | TBD |
| 4216 | Battlespace Information Exchange | 9.596 | 9.352 | 6.469 | 6.522 | 6.642 | 6.753 | 6.862 | Continuing | TBD |
| 4872 | Aerospace Information Dominance | 8.680 | 8.424 | 8.390 | 10.426 | 13.483 | 8.836 | 11.245 | Continuing | TBD |
| 4925 | Collaborative Info Superiority | 1.779 | 2.247 | 1.880 | 1.897 | 1.932 | 1.964 | 1.996 | Continuing | TBD |

Note: In FY 2004 Project 4872, Dynamic Aerospace C2 and Execution, changed to Aerospace Information Dominance, and Project 4925, Collaborative C2, changed to Collaborative Info Superiority.

(U) A. Mission Description and Budget Item Justification

This program develops and demonstrates Aerospace Command, Control, Communications, and Intelligence (C3I) technologies for the warfighter. The technologies address the ability to support the global information exchange of correlated and fused information to ensure the Air Force can plan and execute missions in a dynamic environment. The Dominant Battlespace Awareness project will provide affordable operational data capabilities for personnel to understand militarily relevant situations, on a consistent basis, with the precision and timeliness needed to accomplish the mission. The Battlespace Information Exchange project will develop the reliable, secure, jam-resistant, inter-operable worldwide global information enterprise capabilities, providing the Air Force assured communications and reach-back capability in a joint/coalition environment. The Aerospace Information Dominance project provides the technology and demonstrations needed to allow the warfighter to plan, assess, execute, monitor, and re-plan on the compressed time scales required for tomorrow's conflicts, whether they be combat or peacekeeping missions. The Collaborative Information Superiority project provides the technology and demonstrations needed to establish virtual, distributed Air Operations (AOC), allowing the majority of the AOC resources to remain in the Continental United States, while only a small command element is deployed forward. The resultant products of this program will be technologies needed to build the capability to dynamically plan and replan over a secure network. Note: In FY 2004, Congress added \$3.0 million for Fusion Signals Intelligence Enhancements for Network Centric Intelligence, Surveillance and Reconnaissance, \$2.0 million for Automatic Acoustic Target Recognition, \$4.8 million for Information Authentication and Protection, and \$1.0 million for Effects-Based Operations. This program is in Budget Activity 3, Advanced Technology Development, since it develops and demonstrates technologies for existing upgrades and/or

Exhibit R-2 (PE 0603789F)

| | Exhibit R-2, RDT&E Bu | DATE Febru: | DATE February 2004 | |
|--------------------|-------------------------------------------------------|----------------------------------------------------------|-----------------------|----------------|
| BUD 03 / | GET ACTIVITY Advanced Technology Development (ATD) | PE NUMBER AND TITLE 0603789F C3I Advanced Development | | - |
| (U) | B. Program Change Summary (\$ in Millions) | | | |
| | | <u>FY 2003</u> | <u>FY 2004</u> | <u>FY 2005</u> |
| (U) | Previous President's Budget | 45.030 | 31.538 | 28.599 |
| (U) | Current PBR/President's Budget | 43.160 | 44.917 | 28.524 |
| (U) | Total Adjustments | -1.870 | 13.379 | |
| (U) | Congressional Program Reductions | | -0.037 | |
| | Congressional Rescissions | | -0.384 | |
| | Congressional Increases | | 13.800 | |
| | Reprogrammings | -0.626 | | |
| | SBIR/STTR Transfer | -1.244 | | |
| (U) | Significant Program Changes: | | | |
| | Not Applicable. | | | |
| | | | | |
| 1 | | | | |

| | Exhibit R-2a, RDT&E Project Justification | | | | | | | | | ATE February 2004 | |
|-------------------------------------------------------------|-------------------------------------------|---------|----------|--------------------------------------------------|-------------|------------|-----------------------------------------|-----------------------------------------------------------------|------------|----------------------|--|
| BUDGET ACTIVITY 03 Advanced Technology Development (ATD) | | | F (| ² E NUMBER AND)603789F C3I | Advanced De | evelopment | PROJECT NUM 4072 Domina Awareness | VUMBER AND TITLE ninant Battlespace ss 9 Cost to Total | | | |
| | Cost (\$ in Millions) | FY 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 | Cost to | Total | |
| | Cost (\$ III Millions) | Actual | Estimate | Estimate | Estimate | Estimate | Estimate | Estimate | Complete | | |
| 4072 | Dominant Battlespace Awareness | 23.105 | 24.894 | 11.785 | 11.987 | 16.087 | 13.191 | 13.090 | Continuing | TBD | |
| | Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | |
| | | | | | | | | | | | |

(U) <u>A. Mission Description and Budget Item Justification</u>

This project develops, integrates, and demonstrates advanced technologies to achieve Dominant Battlespace Awareness (DBA) and Predictive Battlespace Awareness (PBA) using information from all sources, exploiting government and commercial technologies in support of the Global Strike Task Force and the Space and Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) Task Force. DBA is the information required to support dynamic planning and execution with the accuracy, fidelity, and timeliness needed to dominate in battle. Technology development includes: tasking information collectors (intelligence, surveillance, and reconnaissance (ISR) platforms, national intelligence sources, etc.); correlating and geo-registering the collected data; exploiting the data to extract information of military significance; fusing information from multiple sources to create a digital representation of the battlespace; assessing the situation; predicting enemy course of action; and archiving the results for ready use by decision makers. This is a dynamic process that involves technologies for information access, extraction, fusion, processing, storage, and retrieval, as well as technologies for machine reasoning, pattern recognition, and timeline analysis.

| (U) | <u>B. Accomplishments/Planned Program (\$ in Millions)</u> | <u>FY 2003</u> | <u>FY 2004</u> | <u>FY 2005</u> |
|-----|--------------------------------------------------------------------------------------------------------------------------|----------------|----------------|----------------|
| (U) | MAJOR THRUST: Develop and demonstrate advanced data handling and event visualization technologies. | 4.411 | 4.135 | 3.391 |
| (U) | In FY 2003: Developed and demonstrated automated capabilities to access, extract, process, and display fused | | | |
| | multi-source intelligence for in-time situational awareness. Developed tools for timeline, event, and motion pattern | | | |
| | recognition to support analysis, visualization, and decision aids to detect enemy activity. Developed probabilistic | | | |
| | approaches for accumulation of data/information to support target/activity identification and situational awareness. | | | |
| | Developed a capability for precise geo-location and identification of targets exploiting multi-sensor data. Developed | | | |
| | technologies to use multiple source correlation of sensor reports to optimize allocation of sensor resources. | | | |
| (U) | In FY 2004: Develop and deliver probabilistic approaches for accumulation of data/information to support | | | |
| | target/activity identification and situational awareness, in support of Predictive Battlespace Awareness (PBA). | | | |
| | Complete development of the interface required to feed fused sensor information and derived higher levels of | | | |
| | intelligence, such as enemy force structures, lines of communications, and possible courses of actions, into | | | |
| | effects-based operations tools and decision aids. Continue development of tools for timeline, event, and motion | | | |
| | pattern recognition to support analysis, visualization, and decision aids to detect enemy activity. Initiate development | | | |
| | of an operations-based approach for intelligent and adaptive intelligence, surveillance, and reconnaissance (ISR) | | | |
| | management, based upon quantified information deficiencies in the fused data-space. Initiate development of a fusion | | | |
| | evaluation environment and provide the analysis, evaluation, and transition of fusion products to the warfighter. | | | |
| (U) | In FY 2005: Complete probabilistic approaches for accumulation of data/information to support target/activity | | | |
| | identification and situation awareness in support of PBA. Complete development and deliver tools for timeline, event | | | |
| Pro | ject 4072 R-1 Shopping List - Item No. 31-4 of 31-19 | | Exhibit R-2a | (PE 0603789F) |
| | 457 | | | |

| Exhibit R-2a, RDT&E Pr | DA | DATE February 2004 | | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|--------------------------------------------------------|--------------|--|
| BUDGET ACTIVITY 03 Advanced Technology Development (ATD) | PE NUMBER AND TITLE 0603789F C3I Advanced Develo | PROJECT NU oment 4072 Domi Awareness | ECT NUMBER AND TITLE Dominant Battlespace reness | | |
| and motion pattern recognition to support analysis, visualization and de to develop an Operations-based approach for intelligent and adaptive IS information deficiencies in the fused data-space. Continue to develop a environment, providing for the analysis, evaluation, and transition of fu | ecision aids to detect enemy activity. Continue SR management, based upon quantified and deliver an initial fusion evaluation usion products to the warfighter. | | | | |
| (U) MAJOR THRUST/CONGRESSIONAL ADD: Develop and demonstrate technologies for detection, tracking, identification, and targeting of time technologies for situational awareness. Note: This effort includes \$2.8 funding for Fusion Signals Intelligence (SIGINT) Enhancements to Ele 2004 Congressional Add funding for Fusion SIGINT Enhancements for (U) In FY 2003: Developed tools to extract information from data derived in the second s | ate advanced signal and data exploitation e-critical targets, and information extraction million in FY 2003 Congressional Add ectronic Intelligence and \$3.0 million for FY r Network Centric ISR. from image, and measurement and signature | 7.597 | 7.590 | 2.992 | |
| intelligence (MASINT). Developed and demonstrated information extra and their relationships from free form text, allowing the warfighter mor (U) In FY 2004: Complete the development of tools to extract information measurement and MASINT. Continue to develop and demonstrate info extract events and their relationships from free text, including human in sources, allowing the warfighter more time to perform analysis. Initiate advanced ISR platforms that provide the detection and tracking of air at tools for the exploitation of High Range Resolution, Identification Frier characteristics for feature-aided tracking and targeting. Start developm support collection planning for ISR platforms | raction tools that automatically extract events re time to perform analysis. from data derived from image, and ormation extraction tools that automatically ntelligence and communication intelligence e development of an exploitation toolkit for nd ground targets. Initiate investigation of nd or Foe, and Synthetic Aperture Radar sensor tent of automated sensor management tools to | | | | |
| (U) In FY 2005: Complete development and demonstration of intermediated development of advanced text exploitation tools that automatically extra text, including human intelligence and communication intelligence sour perform analysis. Continue the development and deliver an exploitation surveillance, and reconnaissance (ISR) platforms that provide the detec Deliver tools for the exploition of High Range Resolution, Identification sensor characteristics for feature aided tracking and targeting. Continue management tools to support collection planning for ISR platforms. In dynamic tasking of ISR assets (Unmanned Aireal Vehicle/Manned/Spa and fusion of multi-source/multi-platform information, in order to provintelligence to allied/coalition forces. | e information extraction tools and initiate act events and their relationships from free rces, allowing the warfighter more time to n toolkit for advanced intelligence, tion and tracking of air and ground targets. n Friend or Foe, and Synthetic Aperture Radar e to develop and deliver automated sensor itiate development of algorithms for the ce ISR collectors) based upon the exploitation ide timely dissemination of useable | | | | |
| (U) (U) MAJOR THRUST/CONGRESSIONAL ADD: Develop and demonstration | ate advanced data and information fusion | 11.097 | 13.169 | 5.402 | |
| Project 4072 R-1 S | Shopping List - Item No. 31-5 of 31-19 458 | | Exhibit R-2a (F | PE 0603789F) | |

| Exhibit R-2a, RDT&E Project Justification | | | | | | DATE | DATE February 2004 | | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|------------------------------------------|------------------------------------------------------|-------------------|--|
| BUDGET ACTIVITY 03 Advanced Technology Developi | ment (ATD) | | | PE NUMBER A 0603789F C | ND TITLE 3I Advanced I | Development | PROJECT NUME 4072 Domina Awareness | JECT NUMBER AND TITLE 2 Dominant Battlespace areness | | |
| capabilities to support multi-source management. Note: This effort inc funding for Automatic Acoustic Tar Congressional Add funding for Iden (U) In FY 2003: Developed and demon time-critical targets. Demonstrated fix, identify, and track moving air at concealment, and deception techniq provide higher levels of intelligence action. Initiated collaborative collection improve accuracy and timeliness for the supervise of the supervise for the s | capabilities, new ludes \$1.75 milli get Recognition itification of Tim strated an all-sou fusion systems a nd ground target ues. Developed such as enemy f ction and fusion | v sensor types, c ion in FY 2003 and \$3.9 millio ne-Critical Targe urce advanced c and architectures s, and to detect a fusion algorithm force structures, of intelligence, repess and targe | ognitive models and \$2.0 million n in FY 2003 an ets. apability for the s capable of expl and track targets ns and tools to e lines of commu surveillance, and | , and automated in FY 2004 Co d \$4.8 million in detection and tr oiting multiple employing carr xploit fused sen nication, and po l reconnaissance | fusion process ngressional Add n FY 2004 acking of sources to find, ouflage, sor information to ssible courses of e information to | to f | | | | |
| (U) In FY 2004: Demonstrate and delive targets that employ camouflage, corr system architectures capable of explosed warnings, and time-critical target id tools to exploit fused sensor information of communications, and possible coordination to improve accuracy and demonstrate a capability for fusing a data for the detection and tracking or | er an all-source acealment, and de loiting multiple s entification and r ation to provide l urses of action. d timeliness for s signal intelligence f time-critical ta | advanced capab eception technic sources of data t tracking. Comp higher levels of Complete the co situational awar ce, moving targe rgets. | wility for the dete ques. Complete to provide situati plete the develop intelligence, suc collaborative colle eness and target et indicator, folia | ction and trackin the demonstratio onal awareness, ment of fusion a h as enemy force ection and fusio ang. Develop, co ge penetrating r | ng of time-critica on of fusion indications and lgorithms and e structures, line n of ISR omplete, and adar, and imager | al es | | | | |
| (U) In FY 2005: Develop and demonstrater targets within the context of a continue techniques for reasoning about energy information, to be able to find, identideception techniques. Initiate an indynamics of the battlefield. (U) Total Cost | J) In FY 2005: Develop and demonstrate multi-intelligence data mining and reasoning techniques to locate hard to find targets within the context of a continuously changing battlefield environment. Initiate development of approaches and techniques for reasoning about enemy movements and actions, from historical databases and real-time multi-source information, to be able to find, identify, and track difficult targets that employ concealment, camouflage, and deception techniques. Initiate an investigation of reasoning techniques to aid the analyst in understanding the dynamics of the battlefield. | | | | | | | | | |
| (U) <u>C. Other Program Funding Sum</u> | <u>nary (\$ in Milli</u> | <u>ons)</u> | | | | | | | | |
| (U) Related Activities: (U) PE 0602702F, Command, Control, and Communications | FY 2003 Actual | <u>FY 2004</u> <u>Estimate</u> | FY 2005 Estimate | <u>FY 2006</u> <u>Estimate</u> | FY 2007 Estimate | FY 2008 Estimate | FY 2009 Estimate | <u>Cost to</u> Complete | <u>Total Cost</u> | |
| Project 4072 | | R | R-1 Shopping List - | Item No. 31-6 of 3 | 31-19 | | | Exhibit R-2a | (PE 0603789F) | |

| Exhibit R-2a, RDT&E Pro | oject Justification | DATE February 2004 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------|-------------------------------------------------------------|
| BUDGET ACTIVITY 03 Advanced Technology Development (ATD) | PE NUMBER AND TITLE PRC 0603789F C3I Advanced Development 407 Aw | DJECT NUMBER AND TITLE 2 Dominant Battlespace areness |
| (U) <u>C. Other Program Funding Summary (\$ in Millions)</u> (U) PE 0603203F, Advanced Aerospace Sensors. (U) PE 0603742F, Combat Identification Technology. This project has been coordinated through the (U) Reliance process to harmonize efforts and eliminate duplication. (U) <u>D. Acquisition Strategy</u> Not Applicable. | | |
| | | |
| Project 4072 R-1 SI | hopping List - Item No. 31-7 of 31-19 | Exhibit R-2a (PE 0603789F) |

| | Exi | hibit R-2a, F | RDT&E Pro | oject Justifi | ication | | | DATE | February | 2004 |
|-------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|----------|----------|----------------|--------------|
| BUDGI 03 Ac | JDGET ACTIVITY 3 Advanced Technology Development (ATD) | | | | PE NUMBER AND TITLE PROJECT NUMBER AND TITLE 0603789F C3I Advanced Development 4216 Battlespace Information Exchange | | | | | |
| | Cost (\$ in Millions) | FY 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 | Cost to | Total |
| | Cost (\$ III Willions) | Actual | Estimate | Estimate | Estimate | Estimate | Estimate | Estimate | Complete | |
| 4216 | Battlespace Information Exchange | 9.596 | 9.352 | 6.469 | 6.522 | 6.642 | 6.753 | 6.862 | Continuing | TBD |
| | Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | |
| (U) | A. Mission Description and Budget Item Justification This project develops and demonstrates advanced communications technologies to implement a secure information grid for the worldwide information exchange of near-real-time multimedia (i.e., voice, data, video, and imagery) information in a joint/coalition environment. This secure information grid will be rapidly deployable, mobile, interoperable, and seamless between aircraft, either en route or in theater, and Air Operations Centers. It will: a) provide interoperability across echelon, Service, and multi-national force boundaries; b) support mobile information superiority, sensor-to-shooter operations, and the battle management decision process; and c) provide in-transit visibility of en route aircraft, cargo, mission status, and reachback capabilities for aircraft to operations centers in the Continental United States (i.e., updating information and mission changes to en route aircraft). Technology developments include an information assurance decision support system, advanced information management, multi-level secure communications, secure survivable networks, mission and content-based routing, quality-of-service mechanisms, and communications transmission systems. | | | | | | | | | |
| (U) H (U) M (U) I in c C n e | J) B. Accomplishments/Planned Program (\$ in Millions) FY 2003 FY 2004 FY 2005 J) MAJOR THRUST: Develop and demonstrate advanced expert system decision algorithms to prioritize and control 1.152 1.329 1.795 resources for global reach in the Air Mobility Command (AMC) environment. J) In FY 2003: Demonstrated an Intelligent Information Manager agent that will throttle and regulate mission information flow among AMC components based on changing system capabilities. Integrated the airborne components of Intelligent Information Manager, Integrated Network Controller, and the Global Media Access Controller to produce a combined commercial/military global communications system, a dynamically switched network, and an intelligent heterogeneous database access interface to prioritize and control resources in a mobility | | | | | | | | | |
| (U) I ff vv s c C n e (U) I (U) I N | n FY 2004: Finalize and demonstrate adv or global reach in the AMC environment. vill autonomously throttle and regulate mi ystem capabilities. Complete Phase 1 into omponents of the Intelligent Information Controller to produce a combined commer tetwork, and an intelligent heterogeneous nvironment. n FY 2005: Further develop the Intelligen Media Access Controller into a software ap | vanced expert sy Complete and d assion informatic egration in an A Manager, Integr cial/military glo database access nt Information N pplication for a s | stem decision a lemonstrate an on flow among MC airlifter (c ated Network bal communic interface to pr lanager, Integr software define | algorithms to p n intelligent info AMC compon arry-on capabil Controller, and ations system, a ioritize and con rated Network (ed radio in prep | rioritize and co ormation manag- ents based on c lity) of the airbo the Global Me a dynamically s ntrol resources i Controller, and paration for tran | ntrol resources ger agent that hanging orne dia Access switched in a mobility the Global ssitioning the | | | | |
| Proje | ct 4216 | | <u>R-1 Sh</u> | opping List - Item | n No. 31-8 of 31-1 | 9 | | | Exhibit R-2a (| PE 0603789F) |

| BUDGET ACTIVITY PE NUMBER AND TITLE PROJECT NUMBER AND TITLE 03 Advanced Technology Development (ATD) Dig3789F C31 Advanced Development 24216 Battlespace Information Exchange (U) MAURE THRUST: Develop advanced network protocols and commercial management technologies to provide communications from deployed aircraft and ground elements to the Air Mobility Command (AMC) Tanker Airlift Control Center (TACC), as well as in-transit visibility at the TACC of all aircraft, personnel, and cargo. 1.160 1.654 0.000 10) In FY 2003: Demonstrate technology to dynamically reconfigure the network and communications systems to optimally match the requirements for information transfer with changing transmission path availability. Controller, and Clobal Media Access Controller in AMCS TACC and AMCS forward deployed unit, the Tanker Airlin Control Element, resulting in a seamless information infrastructure providing total asset visibility and enhanced Statutand awareness. 1.176 1.654 0.000 (U) In YY 2004: Complete the demonstration of technology to dynamically reconfigure the network and communications systems to optimally match the requirements for information transfer with changing transmission path availability. Complete development and integrated on these for information infrastructure, providing total asset visibility and enhanced situational awareness. 0.950 1.809 0.000 (U) In YY 2005: Not Applicable. Effort will be completed in the requirement entwork transport services, hased on mission profritiss. Complete the dargivice communications cont | | Exhibit R-2a, RDT&E Project Just | | DATE February 2004 | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|---------------------|---------|
| capability to the Joint Tactical Radio System clusters. (I) (II) MAJOR THRUST: Develop advanced network protocols and commercial management technologies to provide communications from deployed aircraft and ground elements to the Air Mobility Command (AMC) Tanker Airlift Control Center (TACC), us well as in-transit visibility at the TACC of all aircraft, personnel, and cargo. I.160 I.654 0.000 (U) In FY 2003: Demonstrated technology to dynamically reconfigure the network and communication systems to optimally match the requirements for information manager. Integrated availability. Integrated and demonstrated the ground-based components of the Intelligent Information Manager, Integrated Network Controller, and Global Media Access Conroller in AMCS forward deployed unit, the Tanker Airlift Control Element, resulting in a seamless information transfer with changing traporting vervices and demonstrate duelonpont and integration of technology to dynamically reconfigure the network and communications systems to optimally match the requirements for information transfer with changing traporting vervice and demonstrate datitional capabilities for ground-based components of the Intelligent Information Manager, Intelligent Network Controller, and Global Media Access Controller into AMC, Air Continue to integrate and demonstrate dualional avarentess. 1.809 0.000 (I) In FY 2005: Not Applicable. Effort will be completed in FY 2004. 1.809 0.000 (I) In FY 2005: Controlet in AMCS, integratian dational and emerging media types for increased bandwidth between applications and network transport services based on mission priorities. Completed development and bandwidth betwe | BUD 03 / | GET ACTIVITY Advanced Technology Development (ATD) | PE NUMBER AND TITLE 0603789F C3I Advanced Development | PROJECT NUMBER AND TITLE 4216 Battlespace Information Exchange | | |
| (1) MAJOR THRUST: Develop advanced network protocols and commercial management technologies to provide 1.160 1.654 0.000 (2) MAJOR THRUST: Develop advanced network protocols and commercial management technologies to provide 1.160 1.654 0.000 (2) Control Center (TACC), see well as in-transit visibility at the TACC of all alreraft, personnel, and cargo. 1.160 1.654 0.000 (1) In FY 2003: Demonstrated technology to dynamically reconfigure the network and communications systems to optimally match the requirements for information transfer with changing transmission path availability. Integrated and demonstrated the ground-based components of the Intelligent Information datager, Integrated Network Control Element, resulting in a scamelses information transfer with changing transmission path availability and enhanced situation awareness. 1.160 1.654 0.000 (1) In FY 2004: Complete the demonstration of technology to dynamically reconfigure the network and communications systems to optimally match the requirements for information transfer with changing transmission path availability. Complete development and integration of methoniarism stat intelligent 1.654 0.000 (1) In FY 2004: Complete the demonstrate in network transport services based on mission priorities. Continue to integrate and demonstrate additional capabilities for ground-based components of the Intelligent Information Manager, Intelligent Network Controller, and Global Media Access Controller in OAMC, Air Combat Command, and other DoD users' communications arechticeture, resulting i | aD | capability to the Joint Tactical Radio System clusters. | | | | |
| (1) In FY 2003: Demonstrated technology to dynamically reconfigure the network and communications systems to optimally match the requirements for information transfer with changing transmission path availability. Integrated Network Controller, and Global Media Access Controller in AMC's TACC and AMC's forward deployed unit, the Tanker Airlift Control Element, resulting in a seamless information infrastructure providing total asset visibility and enhanced situation awareness. (10) In FY 2004: Complete the demonstration of technology to dynamically reconfigure the network and communications systems to optimally match the requirements for information transfer with changing transmission path availability. Complete development and integration of mechanisms that intelligent lingent formations. So optimally match the requirements for information transfer with changing transmission path availability. Complete development and integration of mechanisms that intelligent 1 formation. Continue to integrate and bendwidth between applications and network transport services based on mission priorities. Continue to integrate and bandwidth between applications and network transport services based on mission priorities. Continue to integrate and bendwidth between applications and network transport services based on mission priorities. Continue to integrate and bendwidth between applications and network transport services and success controller, and Global Media Access Controller into AMC, Air Combat Command, and other Do1 users' communications architecture, resulting in a seamless information infrastructure, providing total asset visibility and enhanced biautional awareness. (10) In FY 2005: Not Applicable. Effort will be completed in FY 2004. (11) In FY 2003: Complete the adaptive communications controller system(s), integrating additional and emerging media types for increased bandwidth between applications and network reasport services based on mission priorities. (11) In F | (U) | MAJOR THRUST: Develop advanced network protocols and commercial manageme communications from deployed aircraft and ground elements to the Air Mobility Com Control Center (TACC), as well as in-transit visibility at the TACC of all aircraft, per | nt technologies to provide nmand (AMC) Tanker Airlift rsonnel, and cargo. | 1.160 | 1.654 | 0.000 |
| (U) In FY 2004: Complete the demonstration of technology to dynamically reconfigure the network and communications systems to optimally match the requirements for information transfer with changing transmission path availability. Complete development and integration of mechanisms that intelligently and dynamically negotiate quality of service and bandwidth between applications and network transport services based on mission priorities. Continue to integrate additional capabilities for ground-based components of the Intelligent Information Manager, Intelligent Network Controller, and Global Media Access Controller into AMC, Air Combat Command, and other DoD users' communications architecture, resulting in a seamless information infrastructure, providing total asset visibility and enhanced situational awareness. (U) In FY 2005: Not Applicable. Effort will be completed in FY 2004. (U) MJOR THRUST: Develop and demonstrate improved global networking and resource management technologies 0.950 1.809 0.000 that provide reliable efficient, secure, interoperable, and dynamic deployable communications. (U) In FY 2003: Completed the adaptive communications controller system(s), integrating additional and emerging media types for increased bandwidth between applications and network transport services based on mission priorities. Completed development of affordable multi-level secure network management capabilities to provide commanders with status and control of information resources. (U) In FY 2004: Complete the development of affordable multi-level secure network management capabilities to provide commanders with status and control of mechanisms that intelligently and dynamically negotiate quality of service and bandwidth between applications and network transport services, based on mission priorities. Develop and demonstrate an integration of mechanisms that intelligently and dynamically negotiate quality of service and bandwidth betwere applications status | (U) | In FY 2003: Demonstrated technology to dynamically reconfigure the network and c optimally match the requirements for information transfer with changing transmission and demonstrated the ground-based components of the Intelligent Information Manage Controller, and Global Media Access Controller in AMC's TACC and AMC's forward Airlift Control Element, resulting in a seamless information infrastructure providing to enhanced situation awareness. | ommunications systems to n path availability. Integrated ger, Integrated Network d deployed unit, the Tanker total asset visibility and | | | |
| (U) In FY 2005: Not Applicable. Effort will be completed in FY 2004. (U) (U) MAJOR THRUST: Develop and demonstrate improved global networking and resource management technologies (U) MAJOR THRUST: Develop and demonstrate improved global networking and resource management technologies (U) In FY 2003: Completed the adaptive communications controller system(s), integrating additional and emerging media types for increased bandwidth capability. Developed and integrated mechanisms that intelligently and dynamically negotiate quality of service and bandwidth between applications and network transport services based on mission priorities. Completed development of affordable multi-level secure network management capabilities to provide commanders with status and control of information grid network resources. (U) In FY 2004: Complete the development and integration of mechanisms that intelligently and dynamically negotiate quality of service and bandwidth between applications and network resources. (U) In FY 2004: Complete the development and integration of mechanisms that intelligently and dynamically negotiate quality of service and bandwidth between applications and network ransport services, based on mission priorities. Develop and demonstrate advanced cross-domain network management technology for enabling the exchange of network management, command and control applications status, and information assurance events, across security domains. Develop and demonstrate a highly flexible real-time controlled interface that parses and filters protocol level information with a fine degree of granularity. This advanced cross domain technology will enable the eventual | (U) | In FY 2004: Complete the demonstration of technology to dynamically reconfigure to systems to optimally match the requirements for information transfer with changing to Complete development and integration of mechanisms that intelligently and dynamic and bandwidth between applications and network transport services based on mission and demonstrate additional capabilities for ground-based components of the Intelligent Intelligent Network Controller, and Global Media Access Controller into AMC, Air C DoD users' communications architecture, resulting in a seamless information infrastration visibility and enhanced situational awareness. | he network and communications ransmission path availability. ally negotiate quality of service priorities. Continue to integrate nt Information Manager, Combat Command, and other acture, providing total asset | | | |
| (U) MAJOR THRUST: Develop and demonstrate improved global networking and resource management technologies 0.950 1.809 0.000 that provide reliable efficient, secure, interoperable, and dynamic deployable communications. (U) In FY 2003: Completed the adaptive communications controller system(s), integrating additional and emerging media types for increased bandwidth capability. Developed and integrated mechanisms that intelligently and dynamically negotiate quality of service and bandwidth between applications and network transport services based on mission priorities. Completed development of affordable multi-level secure network management capabilities to provide commanders with status and control of information grid network resources. (U) In FY 2004: Complete the development and integration of mechanisms that intelligently and dynamically negotiate quality of service and bandwidth between applications and network transport services, based on mission priorities. Develop and demonstrate advanced cross-domain network management technology for enabling the exchange of network management, command and control applications status, and information assurance events, across security domains. Develop and demonstrate a highly flexible real-time controlled interface that parses and filters protocol level information with a fine degree of granularity. This advanced cross domain technology will enable the eventual | (U) | In FY 2005: Not Applicable. Effort will be completed in FY 2004. | | | | |
| (U) In FY 2003: Completed the adaptive communications controller system(s), integrating additional and emerging media types for increased bandwidth capability. Developed and integrated mechanisms that intelligently and dynamically negotiate quality of service and bandwidth between applications and network transport services based on mission priorities. Completed development of affordable multi-level secure network management capabilities to provide commanders with status and control of information grid network resources. (U) In FY 2004: Complete the development and integration of mechanisms that intelligently and dynamically negotiate quality of service and bandwidth between applications status that intelligently and dynamically negotiate quality of service and bandwidth between applications grid network resources. (U) In FY 2004: Complete the development and integration of mechanisms that intelligently and dynamically negotiate quality of service and bandwidth between applications and network transport services, based on mission priorities. Develop and demonstrate advanced cross-domain network management technology for enabling the exchange of network management, command and control applications status, and information assurance events, across security domains. Develop and demonstrate a highly flexible real-time controlled interface that parses and filters protocol level information with a fine degree of granularity. This advanced cross domain technology will enable the eventual | (U) (U) | MAJOR THRUST: Develop and demonstrate improved global networking and resout that provide reliable efficient, secure, interoperable, and dynamic deployable communication of the secure o | rce management technologies | 0.950 | 1.809 | 0.000 |
| (U) In FY 2004: Complete the development and integration of mechanisms that intelligently and dynamically negotiate quality of service and bandwidth between applications and network transport services, based on mission priorities. Develop and demonstrate advanced cross-domain network management technology for enabling the exchange of network management, command and control applications status, and information assurance events, across security domains. Develop and demonstrate a highly flexible real-time controlled interface that parses and filters protocol level information with a fine degree of granularity. This advanced cross domain technology will enable the eventual | (U) | In FY 2003: Completed the adaptive communications controller system(s), integratin media types for increased bandwidth capability. Developed and integrated mechanism dynamically negotiate quality of service and bandwidth between applications and net mission priorities. Completed development of affordable multi-level secure network provide commanders with status and control of information grid network resources. | ng additional and emerging ms that intelligently and work transport services based on management capabilities to | | | |
| | (U) | In FY 2004: Complete the development and integration of mechanisms that intelliger quality of service and bandwidth between applications and network transport services Develop and demonstrate advanced cross-domain network management technology f network management, command and control applications status, and information assu domains. Develop and demonstrate a highly flexible real-time controlled interface th level information with a fine degree of granularity. This advanced cross domain tech | ntly and dynamically negotiate s, based on mission priorities. or enabling the exchange of arance events, across security at parses and filters protocol anology will enable the eventual | | | |
| Project 4216 R-1 Shopping List - Item No. 31-9 of 31-19 Exhibit R-2a (PE 0603789F) | Pro | ject 4216 R-1 Shopping List - It | em No. 31-9 of 31-19 | | Exhibit R-2a (PE 06 | 03789F) |

| | Exhibit R-2a, RDT&E Project Jus | | DATE February 2004 | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|---------------------|---------|--|
| BUDGET 03 Adv | r ACTIVITY vanced Technology Development (ATD) | PE NUMBER AND TITLE 0603789F C3I Advanced Development | PROJECT NUMBER AND TITLE 4216 Battlespace Information Exchange | | | |
| dev sec (U) In (U) | velopment of a Network Common Operational Picture for situational awareness to curity and health of the multi-level information infrastructure. FY 2005: Not Applicable. Effort will be completed in FY 2004. | o assist in gauging the overall | | | | |
| (U) Ma pro (U) In a wo der (U) In a aut sel | AJOR THRUST: Develop and demonstrate intelligent networking transport and r bovide assured, seamless, battlespace connectivity to the aerospace forces with a gr FY 2003: Developed and demonstrated technology to support an en route and in- orldwide exchange of near-real-time multimedia (i.e., voice, data, video, and imag monstrated beyond line of sight wideband technologies between airborne platform FY 2004: Develop and demonstrate user-friendly, assured wideband wireless into tomatically senses and adapts to its environment and service demands. Conduct p | nanagement technology to eatly reduced footprint. theater information grid for the ery). Developed and as and ground terminals. elligent networking capability that preliminary lab demonstration of a | 1.255 | 1.123 | 1.895 | |
| (U) In interpretended of the second s | FY 2005: Study, define, and develop mission and content delivery network mech elligent networking technology, which will adapt to its environment and varying o oviding mission and context-based quality-of-service (QoS) routing. Merge wide tworking with context-based QoS routing and fashion for ease of implementation mmon Joint Service Network Service Layer. | aanisms. Refine and enhance demands for service, while band wireless intelligent into, and the expansion of, the | | | | |
| (U) (U) M/ Joi Th | AJOR THRUST: Develop and demonstrate secure wideband assured networking int Direct Attack Munition, etc.) and integration with the developing airborne segu- is effort started in FY 2004 in Project 4925. | for small cavity munitions (e.g. nent of the Global Grid. Note: | 0.000 | 0.000 | 2.294 | |
| (U) In (U) In (U) In of situ | FY 2003: Not Applicable. FY 2004: Not Applicable. FY 2005: Design and brassboard affordable high-capacity data links that are mini minature munitions. Data networking will support command and control of the n uational awareness and battle-damage-assessment with other weapon platforms. | aturized to fit within the confines nunition and cooperative | | | | |
| (U) (U) M∠ inf ent | AJOR THRUST: Develop and demonstrate an enterprise management system that formation from multiple systems and sources, monitors enterprise integrity, analyze terprise-wide information. | at collects and evaluates status zes situations, and displays | 0.958 | 0.437 | 0.485 | |
| (U) In and app dis | FY 2003: Completed development and demonstrated technologies that integrate, d control (C2) assets within the air operations center C2 process. Developed and plication and network technologies that provide the capability to monitor, underst stributed C2 weapon systems. Development of interface methodologies for seamle | illuminate, and manage command demonstrated advanced and, and maintain the status of ess integration of theater battle | | | | |
| Project | 4216 R-1 Shopping List - | Item No. 31-10 of 31-19 | | Exhibit R-2a (PE 06 | 03789F) | |

| | Exhibit R-2a, RDT&E Proje | DAT | DATE February 2004 | | | |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|----------------------------------------------------------------------|--------------|--|
| BUD0 03 A | GET ACTIVITY Advanced Technology Development (ATD) | PE NUMBER AND TITLE 0603789F C3I Advanced Develo | PROJECT NU oment 4216 Battle Exchange | PROJECT NUMBER AND TITLE 4216 Battlespace Information Exchange | | |
| (U) (U) (U) | management applications into the joint battlespace infosphere. In FY 2004: Initiate the development of an integrated command and control suite, comprised of common, scalable, and tailorable visualizations and man various fixed and deployed operations of command, control, and communic In FY 2005: Complete demonstration of an enterprise management system information from multiple systems in multiple security domains to display of compromising security in the individual domains. | ol Enterprise Management System tool nagement-control capabilities to support cations centers. that collects and evaluates status enterprise-wide information without | | | | |
| (U) (U) | MAJOR THRUST: Develop and demonstrate an information assurance ded defensive courses-of-action. In FY 2003: Developed and demonstrated an information assurance decision defensive courses-of-action relating to intrusion detection, intrusion response Demonstrated data correlation and data fusion tools for detection of large-se automatic forensics analysis of attack information. Developed the capability the threat level against the mission. Initiated development and demonstration counter measures. | cision support system to provide real-time on support system to provide real-time se, and information system recovery. cale coordinated attacks and provided ty to assess attacks and sophistication of on of automated deployment of defensive | 0.921 | 0.000 | 0.000 | |
| (U) (U) | In FY 2004: Not Applicable. Effort was discontinued due to higher Air Fo In FY 2005: Not Applicable. | pree priorities. | | | | |
| (U) (U) | CONGRESSIONAL ADD: Information Protection and Authentication. In FY 2003: Developed and demonstrated information hiding, steganograp information protection and authentication systems. Developed steganograp detection and proofing, image and video content authentication, and secure investigation of new generation methods for digital security using steganog digital forgeries without watermarks. | by, and digital watermarking for phic techniques for data embedding, tamper information dissemination. Began graphic techniques and for detection of | 3.200 | 3.000 | 0.000 | |
| (U) | In FY 2004: Continue development and demonstration of information hidir watermarking for information protection and authentication systems. Continue techniques for data embedding, tamper detection and proofing, image and v information dissemination. Continue investigation of new generation methor steganographic techniques and for detection of digital forgeries without water and the steganographic techniques and for detection of digital forgeries without water | ng, steganography, and digital inue development of steganographic video content authentication, and secure ods for digital security using termarks. | | | | |
| (U) (U) | In FY 2005: Not Applicable. Total Cost | | 9.596 | 9.352 | 6.469 | |
| Pro | ject 4216 R-1 Shopp | bing List - Item No. 31-11 of 31-19 | | Exhibit R-2a (F | PE 0603789F) | |

| | Exhibit R-2a, RDT&E | Project Justification | | DATE February 2004 |
|-------------|-------------------------------------------------------|----------------------------------------------------------|-----------------------------|-----------------------------------------------------|
| BUD 03 / | GET ACTIVITY Advanced Technology Development (ATD) | PE NUMBER AND TITLE 0603789F C3I Advanced Development | PROJEC 4216 Ba Exchar | T NUMBER AND TITLE attlespace Information age |
| (U) | C. Other Program Funding Summary (\$ in Millions) | | | |
| (U) | D. Acquisition Strategy Not Applicable. | | | |
| | | | | |
| Pro | ject 4216 R- | 1 Shopping List - Item No. 31-12 of 31-19 | | Exhibit R-2a (PE 0603789F) |

| | Ext | nibit R-2a, I | RDT&E Pro | ject Justif | ication | | | DATE | February | 2004 |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|---------------|-------------------------|-------------------------|
| BUD 03 / | GET ACTIVITY Advanced Technology Development (| F | PE NUMBER AND TITLE 0603789F C3I Advanced Development Dominance PROJECT NUMBER AND TITLE 4872 Aerospace Information Dominance | | | | | | | |
| | Cost (\$ in Millions) | FY 2003 | FY 2004 | FY 2005 | FY 2006 | FY 2007 | FY 2008 | FY 2009 | Cost to | Total |
| 187 | 2 Aerospace Information Dominance | Actual | Estimate 8 424 | Estimate 8 300 | Estimate | Estimate | Estimate 8 836 | Estimate | Complete | |
| 407 | Quantity of RDT&E Articles | 0.000 | 0.424 | 0.590 | 0 | 0 | 0.050 | 0 | Continuing | |
| (U) | J) A. Mission Description and Budget Item Justification In order to achieve information dominance for the Expeditionary Aerospace Force, the Air Force must be able to plan, assess, monitor, and replan missions rapidly in a dynamic environment. This project develops and demonstrates technologies necessary for dynamic decision making. It provides the technology and demonstrations needed to enable the warfighter to plan, assess, execute, monitor, and replan on the compressed time scales required for tomorrow's conflicts, whether they be combat or operations other than war. It will develop and demonstrate a new generation of planning assessment technologies that enable a new paradigm of effects-based operations, allowing the aerospace commanders to determine the desired operational effects and prosecute the mission accordingly. It will develop innovative capabilities capable of realizing a strategy to task approach to aerospace warfare exploiting a link between command, strategy, and assessment functions. It will develop and demonstrate distributed Information technologies that provide the commander and staff with seamless access to tailored multi-media, multi-spectral data within a mobile, dynamic Air Operations Center. Knowledge-based intelligent information technologies will be developed to support robust, real-time, large-scale Air Force command and control (C2) systems. | | | | | | | | | |
| (U) (U) | B. Accomplishments/Planned Program (MAJOR THRUST: Develop and demonstr reconfigurable and provide seamless access mobile, dynamic C2 centers. | \$ in Millions) rate distributed s to tailored mu | information te lti-media, mult | chnologies tha i-spectral data | t are scalable ar for commander | nd rs and staff in | FY | 2003 2.067 | <u>FY 2004</u> 1.776 | <u>FY 2005</u> 2.693 |
| (U) | In FY 2003: Developed and demonstrated and presentation to enhance joint force batt operations within the battlespace infospher elements into an aerospace command cente for planning, execution, and assessment. D readiness for the warfighter. In FY 2004: Demonstrate multi-user collal to enhance joint force battle plan simulation the battlespace infosphere. Deliver and de elements into an aerospace command cente planning, execution and assessment. Comp Program Office an integrated C2 system ca multi-spectral data for commanders and stat the C2 system. Initiate the design and deve | multi-user colla the plan simulative. Developed to the that provides Developed ember borative interace n, assessment, a communication of a b | aborative intera- ion, assessmen- echnology that the Expedition edded training to tion technology and implementa- nology that inter- the Expedition ion to the Thea- hat provides see OC weapon sy- aseline of critic | action technolog t, and impleme integrates offe ary Aerospace technologies to y for adaptive ation, focused egrates offensiv ary Air Force a ater Battle Mar eamless access stem, allowing cal functionalit | egy for adaptive entation focused ensive, defensive Force a cohesive provide rapid r visualization an- on aerospace op ve, defensive, an a cohesive envir agement Core S to tailored mult them to monitor y and supportin | visualization on aerospace e, and support ve environment nission d presentation berations within nd support conment for System i-media, or the status of g infrastructure | | | | |
| Pro | oject 4872 | | R-1 Sho | opping List - Item | No. 31-13 of 31- | 19 | | | Exhibit R-2a (| PE 0603789F) |

| | Exhibit R-2a, RDT&E Project Just | DATE February 20 | 004 | | |
|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|----------------------------------------------------|-----------|
| BUD 03 / | GET ACTIVITY Advanced Technology Development (ATD) | PE NUMBER AND TITLE 0603789F C3I Advanced Development | PROJEC 4872 A Domina | T NUMBER AND TITLE erospace Information ance | |
| | that will support the evolving Advanced Technology AOC weapon system and its spli essential elements of information for the Advanced Technology AOC and develop me representations that can be seamlessly exchanged across security boundaries. | t-operations concept. Define thodologies and information | | | |
| (U) | In FY 2005: Continue to design and develop a baseline of critical functionality and su support the evolving Advanced Technology AOC weapon system and its split operation develop a capability for the commander to monitor, and repair where necessary, the he superiority function within the AOC weapon system. Investigate the demonstration of supporting infrastructure of an Advanced Technology AOC weapon system enabling a coordinate, and control air forces and operations across security boundaries. Initiate a options generation capability for correcting failures and degradations within the commander the Advanced Technology AOC weapon system. Initiate and develop highly efficient support information exchange between the Aerospace Operations Center and other C Control Structure. | apporting infrastructure that will ons concept. Initiate and ealth of the information f a core set of functionality and the ability to plan, direct, and develop an automatic hand and control (C2) system of business processes and tools to 2 centers in the Theater Air | | | |
| (U) | | | | | |
| (U) | MAJOR THRUST: Develop and demonstrate the integration of planning tools and in | formation-based intelligent | 2.107 | 1.553 | 0.399 |
| (U) | In FY 2003: Developed and integrated planning and information-based intelligent age Developed and demonstrated improved integrated flight management capabilities for r improved search, retrieval, and handling of data and information required for optimal resources. Developed and demonstrated continuous updating of the type, location, an assets to improve situational awareness. | ents for adaptive replanning. mobility operations such as an use of available mobility d status of DoD transportation | | | |
| (U) | In FY 2004: Demonstrate improved integrated flight management capabilities for mo- improved search, retrieval, and handling of data and information required for optimal resources. Complete the development of tools to continuously update type, location, a assets to improve situational awareness. Demonstrate decision support tools and tech- define the defense transportation system, accomplish mission viability and conflict an assessment and evaluation. | bility operations, such as use of available mobility and status of DoD transportation nologies to better manage and alyses, and course of action | | | |
| (U) | In FY 2005: Begin developing tools and technologies to revolutionize air mobility inf swiftly and effectively to global demands across all spectrums of operations from hum conflict. Enable the capability to rapidly synchronize theater information superiority of mobility forces to support time critical mobility and the seamless interoperability of D for air traffic control. Initiate development of advanced reasoning techniques for mobil development. Explore the use of advanced computer mark-up languages and initiate to mobility ontology to improve automation of the decision support tools for increased s | formation superiority to respond nanitarian relief to a major capabilities between combat and oD, Civil, and Coalition units vility courses-of-action he development of common ituational awareness, planning, | | | |
| Pro | pject 4872 R-1 Shopping List - Ite | m No. 31-14 of 31-19 | | Exhibit R-2a (PE | 0603789F) |
| | 46 | 67 | | | |

| BUDGET ACTIVITY PE NUMBER AND TITLE PROJECT NUMBER AND TITLE 03 Advanced Technology Development (ATD) 0603789F C3I Advanced Development 4872 Aerospace Inform Dominance and execution management. (U) (U) MAJOR THRUST: Develop and demonstrate publish, subscribe, and query information management services that aggregate, share, and tailor information products, enabling horizontal integration of Air Force command, control, communication, computers, intelligence, surveillance, and reconnaissance information management systems. 2.575 2.357 (U) In FY 2003: Developed and demonstrate the techniques to produce and manage information objects within the Joint Battlespace Infosphere from numerous web-enabled information sources, to customize information products, and to deliver decision-quality information to any warfighter. Developed and demonstrated data system wrapper technologies to dynamically integrate disparate command and control, intelligence, surveillance, and reconnaissance information sources and data environments. Develop and demonstrate data systems. (U) (U) In FY 2004: Continue to develop and demonstrate the techniques to manage information objects within the Joint Battlespace Infosphere (IBI). from diverse information sources and data environments. Develop and demonstrate data system wrapper technologies to dynamically integrate disparate and legacy command and control, intelligence, surveillance, and reconnaissance information systems into the JBI. Continue to evaluate and integrate core JBI information management services to enable information exchange among disparate information systems. (U) <td< th=""><th>E Ition 2.793</th></td<> | E Ition 2.793 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| (U) (U) (U) MAJOR THRUST: Develop and demonstrate publish, subscribe, and query information management services that aggregate, share, and tailor information products, enabling horizontal integration of Air Force command, control, communication, computers, intelligence, surveillance, and reconnaissance information management systems. 2.575 2.357 (U) In FY 2003: Developed and demonstrate the techniques to produce and manage information objects within the Joint Battlespace Infosphere from numerous web-enabled information sources, to customize information products, and to deliver decision-quality information to any warfighter. Developed and demonstrated data system wrapper technologies to dynamically integrate disparate command and control, intelligence, surveillance, and reconnaissance information exchange among disparate information systems. (U) (U) In FY 2004: Continue to develop and demonstrate the techniques to manage information objects within the Joint Battlespace Information systems into the JBI. Continue to develop and demonstrate and legacy command and control, intelligence, surveillance, and reconnaissance information systems into the JBI. Continue to develop and demonstrate the IBI. Continue to evaluate and integrate core JBI information management services to dynamically integrate disparate and legacy command and control, intelligence, surveillance, and reconnaissance information exchange among disparate information systems. (U) In FY 2005: Demonstrate the techniques to manage among disparate information systems. (U) In FY 2005: Demonstrate the techniques to manage among disparate information systems. (U) In FY 2005: Demons | 2.793 |
| (U) MAJOR THRUST: Develop and demonstrate publish, subscribe, and query information management services that aggregate, share, and tailor information products, enabling horizontal integration of Air Force command, control, communication, computers, intelligence, surveillance, and reconnaissance information management systems. (U) In FY 2003: Developed and demonstrated the techniques to produce and manage information objects within the Joint Battlespace Infosphere from numerous web-enabled information sources, to customize information products, and to deliver decision-quality information to any warfighter. Developed and demonstrated data system wrapper technologies to dynamically integrate disparate command and control, intelligence, surveillance, and reconnaissance information systems into the Joint Battlespace Infosphere (JBI). Evaluated and integrated core JBI information management services that enable information sources and data environments. Develop and demonstrate data systems. (U) In FY 2004: Continue to develop and demonstrate the techniques to manage information objects within the Joint Battlespace Infosphere (JBI), from diverse information sources and data environments. Develop and demonstrate data system wrapper technologies to dynamically integrate disparate and legacy command and control, intelligence, surveillance, and reconnaissance information systems into the JBI. Continue to evaluate and integrate core JBI information management services to enable information exchange among disparate information systems. (U) In FY 2005: Demonstrate the techniques to manage thousands of information objects from diverse information sources and data environments within a command and control information space. Complete the integration and demonstrate technologies that enable information exchange among disparate information systems. (U) In FY 2005: Demonstrate technologies that enable the selective dissemination objects across multiple security level boundaries. <l< th=""><th>2.793</th></l<> | 2.793 |
| Joint Battlespace Infosphere from numerous web-enabled information sources, to customize information products, and to deliver decision-quality information to any warfighter. Developed and demonstrated data system wrapper technologies to dynamically integrate disparate command and control, intelligence, surveillance, and reconnaissance information systems into the Joint Battlespace Infosphere (JBI). Evaluated and integrated core JBI information management services that enable information exchange among disparate information objects within the Joint Battlespace Information exchange among disparate information objects within the Joint Battlespace Information sources and data environments. Develop and demonstrate data system wrapper technologies to dynamically integrate disparate disparate and legacy command and control, intelligence, surveillance, and reconnaissance information systems into the JBI. Continue to evaluate and integrate core JBI information systems. (U) In FY 2005: Demonstrate information systems into the JBI. Continue to evaluate and integrate core JBI information systems. (U) In FY 2005: Demonstrate the techniques to manage thousands of information objects from diverse information sources and data environments within a command and control information objects from diverse information systems. (U) In FY 2005: Demonstrate techniques to manage thousands of information objects from diverse information systems. (U) In FY 2005: Demonstrate techniques to manage thousands of information objects from diverse information systems within a command and control information exchange among disparate information systems. (U) In FY 2005: Demonstrate technologies that enable the selective dissemination of information objects across multiple security level boundaries. | |
| (U) In FY 2004: Continue to develop and demonstrate the techniques to manage information objects within the Joint Battlespace Infosphere (JBI), from diverse information sources and data environments. Develop and demonstrate data system wrapper technologies to dynamically integrate disparate and legacy command and control, intelligence, surveillance, and reconnaissance information systems into the JBI. Continue to evaluate and integrate core JBI information management services to enable information exchange among disparate information systems. (U) In FY 2005: Demonstrate the techniques to manage thousands of information objects from diverse information sources and data environments within a command and control information space. Complete the integration and demonstrate information management services that enable information exchange among disparate information systems management services that enable information objects from diverse information systems. (U) U | |
| (U) In FY 2005: Demonstrate the techniques to manage thousands of information objects from diverse information sources and data environments within a command and control information space. Complete the integration and demonstrate information management services that enable information exchange among disparate information systems. Evaluate and demonstrate technologies that enable the selective dissemination of information objects across multiple security level boundaries. (U) | |
| (U) | |
| | |
| (U) MAJOR THRUST/CONGRESSIONAL ADD: Develop and demonstrate an effects-based approach for the next 1.931 2.738 generation of planning and assessment techniques that enable aerospace commanders to determine the desired operational effects at the right place at the right time. Note: This effort includes \$1.0 million of FY 2004 6 Congressional Add funds for Effects-Based Operations. 6 6 6 | 2.505 |
| (U) In FY 2003: Demonstrated the effects-based operations capability through active template technologies to provide recommended priorities, resource availability, and provide the information to the battle managers in time to achieve mission objectives. Developed and demonstrated effects-based tools to operate in the battlespace infosphere that will allow the commander and his/her staff to make decisions with uncertain, ambiguous, or vague information during the course of an aerospace campaign. Developed a dynamic tasking toolkit that enables the warfighter to develop a | |
| comprehensive, coherent, and integrated joint aerospace operations plan. | |
| (U) In FY 2004: Complete the demonstration of effects-based operational capability, using planning and decision-aid technologies that provide recommended priorities, resource availability, tasking, and scheduling to the battle | |
| Project 4872 R-1 Shopping List - Item No. 31-15 of 31-19 Exhibit R-2 | (PE 0603789E) |

| | | Exhibit R- | 2a, RDT&E | Project Jus | stification | | | DAT | E February | 2004 |
|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|----------------------------------------|-----------------------------------|-------------------|
| BUD(03 A | GET ACTIVITY Advanced Technology Develop | ment (ATD) | | | PE NUMBER A 0603789F C | ND TITLE 3I Advanced | Development | PROJECT NUI 4872 Aeros Dominance | MBER AND TITLE pace Informat | ion |
| (U) | managers in time to achieve mission forces' command and control tools t his/her staff to quickly obtain releva campaign. Develop and complete a comprehensive, coherent, and integi In FY 2005: Initiate design of new assessment by enabling the generati Investigate various capabilities to su in near-real-time, various course of predictive battlespace awareness too shorten the current execution timelit in an AOC. | n objectives. Con co operate in the l ant information, a dynamic tasking rated joint aerosp concepts and tec ion, tasking, and upport Aerospace action options ba ols and processes nes while also al | mplete demonst battlespace infor and make timely g process archite bace operations hnologies suppor assessment of e e Operation Cen ased upon comm s. Initiate invest lowing significa | ration of combat sphere, which w decisions durin ecture that enable plan, which can orting effects-ba ffects-based Dyn ter (AOC) person ander's intent an igation of advant | t air forces' and r ill allow the con og the course of a es the warfighter be dynamically sed planning, ex namic Air Execu onnel in develop nd knowledge ga need information the number of p | mobility air nmander and a global aerospa r to develop a executed. ecution, and ation Orders. bing and assessir ained from technologies to bersonnel require | ce ng, ed | | | |
| (U) | Total Cost | | | | | | | 8.680 | 8.424 | 8.390 |
| (U) (U) (U) (U) | C. Other Program Funding Summ Related Activities: PE 0602702F, Command, Control, and Communications This project has been coordinated through the Reliance process to harmonize efforts and eliminate duplication. D. Acquisition Strategy Not Applicable. | <u>mary (\$ in Milli</u> <u>FY 2003</u> <u>Actual</u> | <u>ons</u>) <u>FY 2004</u> <u>Estimate</u> | FY 2005 Estimate | FY 2006 Estimate | <u>FY 2007</u> <u>Estimate</u> | FY 2008 Estimate | <u>FY 2009</u> <u>Estimate</u> | <u>Cost to</u> <u>Complete</u> | <u>Total Cost</u> |
| Pro | ject 4872 | | R· | 1 Shopping List - | Item No. 31-16 of | 31-19 | | | Exhibit R-2a (| PE 0603789F) |

| | Ext | nibit R-2a, F | RDT&E Pro | ject Justifi | cation | | | DATE | February | 2004 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|----------------------|----------------------|---------------------------------------------------------|--------------|
| BUD | GET ACTIVITY | | | PI | | | volonmont | | BER AND TITLE | uporiority |
| 03 / | Advanced Technology Development (| | EV 2004 | EV 2005 | EX 2006 | EX 2007 | | 4925 COllabo | Cast to | Tatal |
| | Cost (\$ in Millions) | FY 2005 Actual | F I 2004 Estimate | F Y 2005 Estimate | F I 2000 Estimate | F 1 2007 Estimate | F 1 2008 Estimate | F Y 2009 Estimate | Complete | Total |
| 492 | 5 Collaborative Info Superiority | 1.779 | 2.247 | 1.880 | 1.897 | 1.932 | 1.964 | 1.996 | Continuing | TBD |
| | Quantity of RDT&E Articles | 0 | 0 | 0 | 0 | 0 | 0 | 0 | Continuing | 122 |
| (U) <u>A. Mission Description and Budget Item Justification</u> This project develops and demonstrates technologies for the next generation of distributed collaborative environments, which will provide cross-disciplinary information to a decision-maker when, where, and how it is needed. Technologies developed will demonstrate advanced integrated information architectures for the near-real-time transfer of large volumes of information over existing and future Air Force Information Superiority systems. The application of these new technologies will allow reconfiguration and adaptation of existing operational aerospace systems to support seamless integrated operations. (U) <u>B. Accomplishments/Planned Program (\$ in Millions)</u> (U) MAJOR THRUST: Develop, demonstrate, and integrate a broad range of technologies that have application within an 0.244 0.457 0.55 embedded information architecture applicable to manned and unmanned vehicles. | | | | | | | | | rmation to me <i>N</i> <u>FY 2005</u> 0.598 | |
| (U) (U) | In FY 2003: Developed next generation co architectures for advanced Air Force enterp and collaborative environments for simulat In FY 2004: Develop, demonstrate, and in maker-to-shooter functions and concepts of automated decision-aiding capability to der facility. Initiate development of airborne p information sources or information sinks (u fielded assets to reduce the timeline of the information mining and collaborative anying | bilaborative env orises. Demons ion-based acqui tegrate technolo f operations. In ny the enemy th latform capabil using both on-bo TCT kill chain. | tranents and trated technolo sition. ogies to address itiate developm e sanctuary of ities to engage bard and off-bo Complete and | s a broad range nent of a time-c time, for use in in the TCT envo bard resources) demonstrate tec | space informat platform inform of sensor-to-de critical target (7) a command ar vironment eithe to maximize ex chnology to pe | nation mining ecision FCT) nd control (C2) or as exploitation of rform platform | | | | |
| (U) | Information mining and collaborative environments for simulation-based acquisition. U) In FY 2005: Continue the development of a TCT automated decision-aiding capability for an Advanced Technology Aerospace Operations Center type of facility to deny the enemy the sanctuary of time. Continue development of airborne platform capabilities to engage in this environment either as information sources or sinks (on- and off-board resources) toward the end of assuring maximum exploitation of fielded assets in accomplishing the maximum strike responsiveness of the shooting elements for completing the TCT kill chain. Initiate development of distributive collaborative environments for C2 warfighter decision making for a broad range of operations other than war including modeling of non-combatant, neutral, and adversarial forces with social, economic, political, and cultural influences. | | | | | | | | | |
| (U) (U) | MAJOR THRUST: Develop communication capacity. | on technologies | to increase ae | rospace platfor | m information | transfer | | 0.840 | 1.188 | 0.659 |
| Pro | oject 4925 | | R-1 Sho | opping List - Item | No. 31-17 of 31- | 19 | | | Exhibit R-2a (| PE 0603789F) |
| | | | | 470 | | | | | | |

| | Exhibit R-2a, RDT&E Project Just | | DATE February 2004 | | | |
|-----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-------------------|-----------------|--|
| BUDGET | ACTIVITY | PE NUMBER AND TITLE | PROJEC | NUMBER AND TITL | E | |
| 03 Adv | anced Technology Development (ATD) | 0603789F C3I Advanced Development | 4925 C | ollaborative Info | Superiority | |
| (U) In l tim cor tecl | FY 2003: Developed technology to increase aerospace platform information transfile-critical threat, sensor, and C2 information between aircraft and cooperating space mmunication assets. Completed the design and begin the fabrication of high-capac hnology for point-to-point and multiple platform connectivity. | Fer capacity for exchange of e, airborne, and surface ity, bandwidth efficient, modem | | | | |
| (U) In l exc spa mo dat wit stru cap | FY 2004: Continue to develop technology to increase aerospace platform informat change of time-critical threat, sensor, and command and control (C2) information b ice, airborne, and surface communication assets. Complete the fabrication of high- idem technology for point-to-point and multiple platform connectivity. Initiate dev a link capability for modernization of aerospace and C2 platforms to support the sy thin the Global Strike Task Force concept. Start investigations of the interface of v ucture that will implement a high tempo, weapons on target capability. Begin defir pabilities and munitions-to-weapon platform pairing. | ion transfer capacity for the etween aircraft and cooperating capacity, bandwidth efficient, elopment of an initial weapon ystem-of-systems interoperability yeapon systems to the C2 nition of munitions data link | | | | |
| (U) In l cap and wil | FY 2005: Complete development and demonstration of an increased aerospace pla bacity exchange of time-critical threat, sensor, and C2 information between aircraft d surface communication assets. Note: In FY 2005, the development of an initial m ll move to Project 4216. | tform information transfer and cooperating space, airborne, nunitions data link capability | | | | |
| (U) MA frai (U) In l cor | AJOR THRUST: Develop and demonstrate embedded information system technolog mework for seamless, rapid insertion of battlespace infosphere technology. FY 2003: Developed techniques for inserting battlespace infosphere technology th mprehensive re-test of the entire C2 system. Developed capability for modernization technology to support autom of automa interpreterior battlespace infosphere technology. | ogies to support a transparent at do not require a on of aerospace and C2 | 0.695 | 0.602 | 0.623 | |
| (U) In l con aer dev sys | FY 2004: Complete development techniques for inserting battlespace infosphere techniques and C2 platforms to support system-of-systems interoperability within the byvelopment of embedded information technology to support command and control o stems. | echnology that do not require a lity for modernization of pattlespace infosphere. Initiate f autonomous unmanned | | | | |
| (U) In I ma | FY 2005: Continue development of embedded information technology to support t inagement of unmanned and autonomous systems. | he Aerospace Operations Center | 1 770 | 2.247 | 1 990 | |
| (U) 10t | tai Cost | | 1.//9 | 2.247 | 1.880 | |
| Project | 4925 R-1 Shopping List - Ite | em No. 31-18 of 31-19 | | Exhibit R-2a | a (PE 0603789F) | |

| | | Exhibit R- | 2a, RDT&E | Project Ju | stification | | | | DATE February | 2004 |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|---------------------|---------------------|---------------------------|----------------------------------|---------------------|------------------------------|------------------------|-------------------|
| BUD 03 A | GET ACTIVITY Advanced Technology Develop | oment (ATD) | | | PE NUMBER A 0603789F C | ND TITLE 3I Advanced I | Development | PROJECT 4925 Co | NUMBER AND TITLE | uperiority |
| (U) | C. Other Program Funding Sum | mary (\$ in Millio | <u>ons)</u> | | | | | | | |
| | | <u>FY 2003</u> <u>Actual</u> | FY 2004 Estimate | FY 2005 Estimate | FY 2006 Estimate | FY 2007 Estimate | FY 2008 Estimate | <u>FY 20</u> <u>Estim</u> | 009Cost tonateComplete | <u>Total Cost</u> |
| (U) (U) | Related Activities: PE 0602702F, Command, Control, and Communications This project has been coordinated through the Reliance process to harmonize | | | | | | | | | |
| (0) | efforts and eliminate duplication. | | | | | | | | | |
| (U) | D. Acquisition Strategy Not Applicable. | | | | | | | | | |
| Pro | ject 4925 | | R· | 1 Shopping List - | Item No. 31-19 of 3 | 31-19 | | | Exhibit R-2a (I | PE 0603789F) |