
Project Plan

NCR Interoperability Program Phase 2

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I. Project Summary

The jurisdictions in the NCR are working together to develop a coordinated strategic plan to establish emergency preparedness goals and priorities, and have embarked on the establishment of a secure communications infrastructure that will facilitate comprehensive inter-regional data sharing throughout the National Capital Region (NCR) and between the NCR and critical Federal, DOD and other State agencies. The instant exchange of data, applications, and critical information between emergency stakeholders will enable emergency managers and officials in the NCR to respond to regional emergencies based on a common operating picture and will enable emergency responders in the field to rapidly and efficiently deploy critical resources to save lives.

The National Capital Region Interoperability Program Phase 2 consists of three projects

- a) A dedicated network of local government-owned Institutional networks (I-Nets) in the jurisdictions interconnected into a redundant, secure, high-capacity network;
- b) Wireless broadband to deploy comprehensive field access to emergency responders on the combined network; and
- c) A data exchange hub to enable the exchange and sharing of applications and data within an interoperable framework.

This program is focused on the implementation of these three infrastructure projects as it supports the comprehensive exchange of anytime, anywhere data, both cross-jurisdiction and cross-ESF (emergency support function) during incidents and day-to-day operations. This is a multi-phased program that is anticipated to be fully implemented by 2010, pending final funding arrangements. While the projects are managed and phased independently of one another, they are closely integrated into a comprehensive regional communications solution and have a common Project Management Office. As such, there is considerable interconnection, and interoperability between the projects as collectively they provide the NCR a comprehensive infrastructure and critical data exchange capability, essential to the prevention of, response to, or recovery from emergencies. These projects will enable the effective regional management of incidents and events affecting multiple jurisdictions of the NCR, including the state and federal government.

Interconnected networks (I-Nets)

This proposal seeks to fund the second phase of a five-phase deployment. Phase 2 focuses on activating eleven (11) fiber optic Network Hub Facilities by the end of 2006 and a total of nineteen (19) fiber optic Network Hub Facilities by 2008. Network operating services will be implemented to ensure 24/7 operational support of the network, and applications will be rolled out on the network to allow jurisdictions to meet their applications needs.

The benefits include of this network of networks:

- Private, dedicated infrastructure, Fiber optic and microwave
- Interconnecting existing network resources
 - Points of presence at key NCR jurisdiction network locations
 - Leveraging existing infrastructure where available
- Reliable, fast “tracks” for critical first-responder resources
 - Internet and leased connections, by themselves, not sufficiently reliable, cost-effective, or high-capacity
- Backhaul for broadband wireless

- Reliability
 - Provides a mesh of multiple, survivable, high-capacity networks
 - Allows first responders priority access exactly at the time when commercial conduits overload and shut down

Regional Wireless Broadband Network

This proposal seeks to fund the second phase of a five-phase deployment that will ensure that valuable public safety data communication exists in the same dependable manner as voice communication systems. Phase two focuses on deploying a wireless, broadband data network in Fairfax County, a jurisdiction that encompasses 410 square miles and hosts many high target locations such as the Central Intelligence Agency (CIA) building, Dulles Airport and the National Reconnaissance Office (NRO). When complete the Fairfax County network will provide seamless, integrated voice, video data capabilities for the County's local public safety agencies but also integrate with the previously deployed wireless broadband data networks in Arlington County, the City of Alexandria and the District of Columbia providing an information-sharing tool and seamless roaming capabilities.

The key steps to achieving this goal are the following:

- Secure authority to install wireless equipment at locations providing Fairfax County wide coverage
- Construct antenna sites and deploy broadband network equipment at the jurisdiction's Public Safety sites
- Optimize network coverage
- Accept network and prepare to load additional regional end users.
- Develop memorandum of understanding (MOU) for regional network access.
- Distribute and install subscriber devices to personnel in the jurisdiction.
- Provide user manual documentation and train end users
- Support the jurisdiction to secure the remaining antenna sites.

Data Exchange Hub

The NCR Data Exchange Hub (DEH) implementation and expansion will facilitate comprehensive inter-regional data sharing throughout the National Capital Region (NCR) and between the NCR and critical Federal, DOD and other State agencies and fusion centers. The architecture is designed as a comprehensive 'architecture of architectures' and will be used to align emergency support processes, IT software and hardware resources, local and wide-area networks, people, operations and projects within the NCR's overall mission of "building and sustaining an integrated effort to prepare for, prevent, protect against, respond to, and recover from 'all-hazards,' threats or events."

A Services Oriented Architecture (SOA)-based DEH will ensure device independent accessibility to information and services. This access will provide subscribers meaningful use of diverse data in real world tactical scenarios. While access to the data can be provided through use of common standards and protocols, extraction of data from one entity in which it is produced, for use by another entity within a different context, can present a challenge. To address this challenge, it is imperative that we remember that SOA is not a product or technology that can be purchased. Instead, it is a composition of business processes and information systems designed to enable entities to, in the case of the DEH, share information securely and efficiently. Implementing a SOA for the DEH requires:

- The alignment of processes across entities to preserve the meaning of data
- The definition of a bundle of governance-related capabilities necessary to achieve interoperability. Gartner refers to this bundle as a Web Services Framework.

The NCR DEH Project will benefit all ESF end users and facilitate whenever-wherever sharing of critical NCR data and applications between and within emergency responder ESFs. An essential Data Exchange Hub will make possible the secure and effective sharing of critical responder data, information and applications.

The 2006 UASI grant request builds upon the DEH Phase 0 – FY'04 Project and the DEH Phase 1 – FY'05 Project described in more detail below in the Project Background Section. It will continue the deployment and expansion of the DEH project beyond the core jurisdictions achieved through the 2005 grant. The DEH project will continue the deployment of data exchange technology and a web services platform, and provide technical support to NCR jurisdictions to support their implementation of the DEH. It will also assist ESFs and jurisdictions in beginning to convert data to national standards for sharing through the DEH. Operational governance for the NCR will be identified and referred to the appropriate governance body for resolution during this phase of the program. Technical standards will be followed for both infrastructure and data to ensure regional and national sharing and access compliance. Ultimately, this program could serve as a model for other UASI regions or other regional implementation programs leading to greater efficiency and reduced cost from a regional perspective.

Although a concerted effort in many aspects of public organizations will be required to achieve smooth interoperability across jurisdictions and ESFs, a Web Services Framework and process alignment require a group of commonly used standards and protocols. The DEH approach fosters a collaborative communications environment through which members can collect and disseminate information amongst and between themselves as well as with federal and state agencies involved in securing the NCR as depicted by the ARC structure and the organization chart in the Section III Project Approach below. The project is designed to enhance ability of emergency managers to support their Chief Administrative Officers (CAO's) and other senior elected officials within their jurisdictions by providing secure voice, video, and data communication and collaboration tools to facilitate regional situational awareness, rapid collaborative discussion, and coordination and tracking of authorized actions while preventing, preparing for, responding to, and/or recovering from emergencies or disasters.

The ultimate goal of the DEH is to provide a robust and secure architecture that supports interoperability at the application, data, and portal levels within an open system for all ESFs in the NCR.

The following benefits will be derived from the continued deployment of the NCR DEH:

Architectural Domains	Benefit
Data	Improved Situation Awareness - The NCR DEH will provide emergency responders with increased awareness of the available data stores within the region and the business processes each supports. Data will be structured using a common vocabulary describing both the data and emergency resources available in the region.
Security	Secure Flexible Access - The NCR DEH will provide emergency responders with secure access to the heterogeneous data stores held around the region. Access will be controlled with thru a single logon account that allows access to all systems for which they have appropriate privileges.
Web Services/Processes	Increased Productivity and Reduction in Response Times - The NCR DEH will provide emergency responders with a framework that maps data to processes. The overlap between processes performed across ESF's within the region will become apparent and processes can be refined to facilitate timely decisions.
Frameworks	Benefit
IT Service Management and Support	Tools Supporting Today's Business Needs - The NCR DEH will provide public safety executives with a set of basic IT services, including Change Management, Release Management, Configuration Management and Help Desk Services. This foundation will allow users to focus on business needs when selecting IT solutions.
Governance	Framework for Supporting Future Business Needs - The NCR DEH will provide public safety executives with a structured approach for implementing, monitoring and maintaining regional IT systems which ensures interoperability at the data level. Strategies, policies, processes, standards and procedures for implementing regional IT systems will promote such interoperability.

II. Project Background and Goals

A. Project Background

Interconnected Networks

Currently, some NCR jurisdictions have limited inter-jurisdictional connections via leased T1 services for specific and limited data purposes). Only Alexandria and Arlington County interconnect by way of a direct I-Net fiber link. The existing links do not have redundancy, nor is there a regional network framework to link the jurisdictions together to allow for applications or data exchange in a secure, interoperable environment.

An in-depth needs assessment conducted by the I-Nets team as well as the need to meet NCR strategic plans and DHS Target Capabilities and performance measures makes it clear that a new communications infrastructure is essential. First responders and information technology stakeholders made it clear that they need a secure way to exchange data and communicate with counterparts in other jurisdictions. Moreover, such communication needs to be always-on, have the capacity to provide data recovery services, and the broad pipe to accommodate a wide variety of data and communications applications in real time.

To meet these needs, high bandwidth is essential. It is costly in the medium to long term for NCR jurisdictions to rely on leased services or commercial alternatives that do not have first responders as a priority in the solution. Government-managed fiber optic networks allow for control of the network, leverage existing infrastructure, save on leasing costs, provide redundancy, increase reliability, and will provide first responders and government officials with critical first-priority use.

The project is designed to proceed in two phases:

Phase 1: Pilot fiber implementation; microwave installation

In this phase, more hub locations are connected and network operations will commence. A limited number of applications, including video conferencing, will be implemented over this phased network.

Phase 2: Increasing redundancy of network; reaching outer jurisdictions.

In this phase, the core ring will extend to outer jurisdictions and redundancy will be added as well. More applications can be added at this point, and more robust support for wireless broadband and the Data Exchange Hub will be provided.

The outcome of the implementation will allow for scalable connectivity for broadband data communications. This will enable first responders in the field and the NCR jurisdictions to exchange data and to better communicate, especially in times of emergency. It will enable the following NCR initiatives and DHS target capabilities to be met. It will also specifically address the attendant performance measures of the Interoperable Communications capability.

Regional Wireless Broadband Network

The goal of the Regional Wireless Broadband Network is to deploy a seamless interoperable, redundant network of networks with the capacity to provide integrated voice, video and data solutions for public safety agencies leveraging standardized commercially available technologies as well as dedicated public safety frequencies. The FCC's clearing of 700 MHz spectrum provides Public Safety a clear path to build these networks now using the their allocated 24 MHz and specifically, the 12 MHz data frequencies currently configured for wideband. The NCR has submitted a waiver to the FCC requesting the ability to operate broadband technologies in the wideband spectrum that is completely consistent with the National Public Safety Telecommunications Council (NPSTC) plan. This plan accommodates standardized, commercially available broadband technologies, allows Public Safety to capitalize on significant research and development investments made by commercial carrier manufacturers and provide atypical economies of scale for network infrastructure and end user devices. In short, Public Safety will be able to buy and use commercial off the shelf devices at a tenth of the cost of what they currently pay for their land mobile radios.

In phase 0 of this program, we collected requirements, assessed technologies and spectrum opportunities, and identified budgetary numbers of sites and costs to achieve the objectives. Phase I UASI funds provide for broadband transmission sites covering 85% inside the Capital Beltway including Arlington County, the City of Alexandria, and the District of Columbia. The phase II effort will continue the regional deployment with additional wireless broadband antenna sites covering Fairfax County. The deployment of each phase will allow each of the respective jurisdictions to migrate their public safety data users off commercial services to a dedicated data-only network offering more reliability and full control of network resources.

Consistent with the DHS Target Capabilities and Priorities, this project supports the following capabilities:

- Expanded Regional Collaboration
- Strengthen Information Sharing and Collaboration Capabilities
- Strength Interoperable Communications Capabilities
- Strengthen CBRNE Detection, Response, and Decontamination Capabilities

Data Exchange Hub

NCR DEH Phase I – FY'04 Project

The NCR DEH FY'04 Project was tasked with researching, designing and recommending an architecture for the DEH. The recommendation was predicated on technical solutions that promote data exchange across a heterogeneous environment, while respecting and protecting the needs and existing technical

architectures of the participating jurisdictions. The architectural recommendation proposed for the NCR DEH was developed through a process that leveraged information gained by:

- Identifying the technical requirements of participating jurisdictions,
- Conducting assessments of existing data sharing programs across the NCR for compatibility and reusability,
- Reviewing pertinent industry literature and examining existing architectural frameworks.

Specifically, the DEH FY'04 Project accomplished the following deliverables:

- Resource Typing Demonstration Project
 - Resource Typing Demonstration (<http://www.ncrnet.us:8080/frri/pages/main.jsp>)
 - Resource Typing IEPD (<http://www.ncrnet.us/deh/IEPD/index.htm>)
 - Exchange Development Life Cycle (EDLC) (http://www.ncrnet.us/deh/support_documents/NCR%20Exchange%20Development%20Life%20Cycle.ppt)
 - Development Toolkit (<http://www.ncrnet.us/deh/toolkit/index.htm>)
 - Repeatable Training Curriculum
- Technology Guidelines (http://www.ncrnet.us/deh/support_documents/NCR%20DEH%20Technology%20Guidelines.pdf)
- Data Sharing and Security Strategy
- Technical Requirements
- Technical Assessment of Data Sharing Programs in the NCR
- Architectural Recommendation

Although the NCR DEH cannot implement SOA by December 2006; it can deliver a foundation for beginning the SOA journey. This 'Roadmap to SOA' architectural recommendation is based on a phased SOA implementation requiring the set of defined actions over a 2 to 3 year timeframe:

In addition to the above deliverables, the following priority exchanges were identified in the FY'04 Project:

- Alert/Notification: Agency to agency, application to application, targeted alerts and notifications regarding regional incidents. For example, sending weather service alert directly to CAD, CIMS (e.g., WebEOC, RAMSAFE), sending information between CAD and WebEOC, sending information between WebEOC and HSIN.
- Resource and Assets: Agency to agency, application to application, human and physical resources and asset information exchanges.

NCR DEH Phase II – FY'05 Project

Phase II DEH FY05 Project and using existing staff and skill sets from the FY04 project and have accomplishment of the following infrastructure, exchange, and enterprise architecture / governance goals:

Infrastructure

- Define detailed functional and technical requirements; perform a comparative analysis; and evaluate and ultimately procure the following software components:
 - Identity Management Software (LDAP Directory (or Identity Repository), Policy Authorization engine, Authorization Store, Identity Administration, Web Service Integration Modules)
 - Data Management software (metadata repository)
 - Process Analysis Software

- Continuous Availability , Orchestration and XML Server components to augment the existing ESB Technology
 - Operating Systems
 - Portal Software
- Select, define technology profiles for, install, configure and deploy the following hardware to support the Near Term Architecture / Development Environment includes support and services for infrastructure hosting, network, security, performance, availability and application support options.
 - Work with Phase 1 jurisdictions (3-5) to identify and implement their On-Ramps to the DEH Development Environment:
 - On-Ramp A: Jurisdictional integration with the DEH shall be performed by the jurisdiction using tools hosted by the DEH. This involves the use of thin client technology at the jurisdiction, training, and support from DEH and jurisdiction personnel.
 - On-Ramp B: Jurisdictional integration with the DEH shall be performed using tools and guidance provided by the DEH to an individual jurisdiction. This involves the installation of software and/or hardware in the jurisdiction, training, and support from DEH and jurisdiction personnel.
 - On-Ramp C: Jurisdictional integration with the DEH shall be performed using tools and knowledge available within the jurisdiction. This involves training jurisdiction personnel in integrating with the DEH, a moderate amount of support from DEH personnel, and utilizes capabilities and tools within the jurisdiction.

Exchanges

- Define ICOM processes to evaluate, review, and identify projects and data exchanges that will use the DEH infrastructure to improve interoperability
- Use the project / exchange evaluation process and work with NCR executives and stakeholders to select the initial exchanges to be deployed on the DEH
- Refine and modify the project / exchange evaluation process based on executive and stakeholder feedback
- Define the artifacts (e.g., templates for charter, MOUs, mapping sheets, requirements documents, process maps, etc.) to support the project / exchange evaluation and EDLC processes
- Prepare approach to engage jurisdictional stakeholders in data exchange facilitation sessions, identify stakeholders, define specific charter(s) and MOU(s) to support requirements definition phase for the first exchange.

EA/Governance

- Define a Business Process Model to be used to support the DEH
- Define the Data Management Strategy for the DEH to include definition of a metamodel, which identifies and tracks metadata attributes like Data Owner, Accuracy, Latency to ensure the validity and integrity of the data being exchanged.
- Define taxonomies and classification schemes derived from the TCLs to support Exchanges.
- Define an IT Service Support Framework and Plan for implementing support processes defined in the ITIL standards

The following are the goals of the NCR Interoperability Phase 2 as they align with the NCR Strategic Initiatives and DHS target capabilities:

NCR Strategic Initiatives	DHS Target Capabilities & Performance Measures
4.2.3	Establish architecture, infrastructure, and concept of operations for Regional Interoperable Communications
<p>Strategic Goal 3: An enduring capability to protect the NCR jurisdictions by preventing or mitigating “all-hazards” threats or events.</p> <ul style="list-style-type: none"> ▪ Strengthen the gathering, fusion, analysis, and exchange of multi-discipline strategic and tactical information and data for shared situational awareness. <p>Strategic Goal 4: A sustained capacity to respond to and recover from “all-hazards” threats or events across the NCR territory.</p> <ul style="list-style-type: none"> ▪ Ensure the capacity to operate multi-level coordinated response and recovery. ▪ Ensure adequate and effective sharing of resources. 	<p>Expanded Regional Collaboration</p> <p>Strengthen Information Sharing and Collaboration Capabilities</p> <p>Strengthen Interoperable Communications Capabilities</p> <p>Strengthen CBRNE Detection, Response, and Decontamination Capabilities</p>
NCR Goals:	
<p>Goal 3: Prevention and Mitigation</p> <ul style="list-style-type: none"> • Develop a prevention and mitigation framework • Develop common regional information sharing and collaboration frameworks, to include determining roles, responsibilities and protocols • Enhance regional interoperability, and protection of sensitive and classified information, through technical connectivity and protocols, while building upon existing programs and promoting <p>TCLs</p> <ul style="list-style-type: none"> • Information Sharing and Dissemination • Interoperable Communications • Law Enforcement Investigation and Operations • CBRNE Detection • Community Preparedness & Participation <p>Critical Infrastructure Protection</p>	

<p>Goal 4: Response and Recovery</p> <ul style="list-style-type: none"> Align and integrate each regional ESF plan across jurisdictions (including Federal partners) and other regional ESF's Develop a resource management process for the NCR Develop coordinated and standardized protocols for mandatory notification of regional partners during an emerging incident to maintain situational awareness Develop architecture, infrastructure, and concept of operations for regional interoperable communications Close the gaps identified in the regional assessment of resources and capabilities Establish and implement regional, interdisciplinary standards for equipment interoperability <p>TCLs:</p> <ul style="list-style-type: none"> Explosive Device Response Operations WMD/Hazardous Materials Response and Decontamination Medical Surge Mass Prophylaxis <p>NCR Priority:</p> <ul style="list-style-type: none"> Citizen Preparedness and Participation Critical Resource Logistics and Distribution Citizen Protection: Evacuation and/or In-Place Protection Mass Care 	
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B. Goals and Outcomes

Interconnected Networks (I-Nets)

Goal	Outcomes
<ul style="list-style-type: none"> Providing jurisdictions with ability to communicate reliably with each other Providing infrastructure for application exchange Providing secure, reliable, and redundant infrastructure for communications Whenever-wherever sharing of critical NCR data and applications between 	<ul style="list-style-type: none"> Fiber optic network Microwave network Regional broadband wireless network Network electronics Applications support for voice, email, imaging, files, video, daily and emergency event data exchanges within NCR Secure and effective sharing of critical

Goal	Outcomes
and within emergency responder ESFs	responder data, information, and applications

Regional Wireless Broadband Network:

The NCR has submitted a waiver to the FCC requesting the ability to operate broadband technologies in the wideband spectrum that is completely consistent with the National Public Safety Telecommunications Council (NPSTC) plan. This plan accommodates standardized, commercially available broadband technologies, allows Public Safety to capitalize on significant research and development investments made by commercial carrier manufacturers and provide atypical economies of scale for network infrastructure and end user devices. In short, Public Safety will be able to buy and use commercial off the shelf devices at a tenth of the cost of what they currently pay for their land mobile radios.

Goal	Outcomes
<p>To deploy a seamless interoperable, redundant network of networks with the capacity to provide integrated voice, video and data solutions for public safety agencies leveraging standardized commercially available technologies as well as dedicated public safety frequencies.</p>	<ul style="list-style-type: none"> • Phase 0 of this program, we collected requirements, assessed technologies and spectrum opportunities, and identified budgetary numbers of sites and costs to achieve the objectives. • Phase 1 UASI funds provide for broadband transmission sites covering 85% inside the Capital Beltway including Arlington County, the City of Alexandria, and the District of Columbia. • Phase 2 effort will continue the regional deployment with additional wireless broadband antenna sites covering Fairfax County. The deployment of each phase will allow each of the respective jurisdictions to migrate their public safety data users off commercial services to a dedicated data-only network offering more reliability and full control of network resources.

Data Exchange Hub:

The overall mission of the DEH FY'06 Project is to design, develop and deploy a sustainable, enabling architecture for the secure sharing of data (text, voice, video, and multi-media) to facilitate target capability delivery across all Emergency Support Functions within the NCR when needed and as authorized.

Goal	Outcomes
<p>Enable emergency support functions across NCR jurisdictions to exchange data between their operational applications.</p>	<ul style="list-style-type: none"> • Operational exchanges (3 max) • Standardized inventory of emergency resource assets • Expanded jurisdiction participation
<p>Develop a secure, scalable, and reliable operational technology infrastructure to support multiple services and exchanges</p>	<ul style="list-style-type: none"> • Transition DEH from pilot to production • Implement redundant Enterprise Service Bus (ESB) nodes • Deploy operational DEH, NCRIP, and push Virtual IT Services to existing ESF portals • Provide enhanced role-based access control to support additional jurisdictional participants • Fully implement "on ramp" models utilizing repeatable processes and services for all participating jurisdictions

Goal	Outcomes
Enable SOA compliant architectural domains and governance processes that support federated interoperability across jurisdictions	<ul style="list-style-type: none"> • Mature SOA compliance for all five (5) domains including data, security, processes, delivery, and IT services with improved accountability through production of standard documentation artifacts as outputs of repeatable Exchange Development Life Cycle (EDLC) • Common operational governance structure • Scalable, reusable architectural domains • Fully implemented Data Standards • Robust IT Service Support framework and deployment plan with implementation of configuration management, change management, release management and service desk processes

C. Project Managers

The following individuals contributed to each project and the achievement of their goals.

Interconnected Networks (I-Nets)

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Regional Wireless Broadband Network

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Data Exchange Hub

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D. Project Assumptions

Item Number	Description	Notes
1	Staff is available, with the required skill set, to complete all tasks identified in the project schedule	Requires commitment from all jurisdictions and timely budget decisions to develop skill sets required to support SOA.
2	Operating funds will be available in each jurisdiction for FY06 and beyond to accommodate the ongoing maintenance costs	Unconfirmed
3	Planning for a separate project to implement Phase II of this initiative can start before the completion of this project plan	Unconfirmed
4	This project meets the basic measures defined in the target capabilities list (TCL) published by DHS on MM/DD/YYYY	Confirmed with SAA, SPG, and DHS on MM/DD/YYYY
5	Existing jurisdiction controlled I-Net fiber to be made available for NCRnet where called for in design; NCR purchases additional I-Net fiber in jurisdictions where necessary, leveraging jurisdiction agreements with fiber providers	Requires commitment from all jurisdictions
6	Space to be made available for network electronics in existing I-Net hubs	Requires commitment from all jurisdictions
7	The NCR Waiver is approved by the FCC	The FCC is sending the NCR Waiver out for comment by July '06. NCRIP expects approval by the end of CY06
8	Region 20 and the FCC approve the NCR radio spectrum licenses.	NCRIP expects approval by the end of CY06
9	Fairfax County staff is available to provide access for network installation, end user device configuration, and training.	Requires commitment from Fairfax County
10	A contract to purchase broadband equipment and operations support is in place by March 2007	Expected by end of CY06
11	All jurisdictions will fund operating costs following one year of network operations	Requires commitment from Fairfax County

Item Number	Description	Notes
12	An initial governance structure, similar to the one shown in the figure below, will be established by September 2006 through which the DEH team can receive quick turnaround on policies, procedures and processes.	Unconfirmed
13	DEH environment hosting decision will be made by July 1, 2006	Unconfirmed
14	Priority exchanges shall be identified by August 1, 2006	Unconfirmed

III. Project Approach

A. Activities

Phase / Activity
Interconnected Networks
Engineering Services, including network design
Procurements of <ul style="list-style-type: none"> • fiber connecting existing fiber resources • network equipment and integration services • facility upgrades to accommodate equipment • other support services
Coordination and ongoing requirements gathering with jurisdictions
Coordination with other interoperability projects in the NCR
Applications rollout – using NCRnet. Continue to work with jurisdictions to enable internal applications to run over NCRnet
Testing and documentation
Training
Regional Wireless Broadband Network
Project Kickoff
Regulatory Efforts <ul style="list-style-type: none"> • Contribute to regional spectrum plan • Secure adjacent region approvals for plan • Submit applications for spectrum

Phase / Activity
Interconnected Networks
Engineering Services, including network design
Procurements of <ul style="list-style-type: none"> • fiber connecting existing fiber resources • network equipment and integration services • facility upgrades to accommodate equipment • other support services
Coordination and ongoing requirements gathering with jurisdictions
Coordination with other interoperability projects in the NCR
Applications rollout – using NCRnet. Continue to work with jurisdictions to enable internal applications to run over NCRnet
Testing and documentation
Training
Contract Execution and Management
Site Acquisition
Site Leasing
Lease Approvals
Sites Construction
Equipment Installation
Testing and Optimization
System Acceptance
Subscriber Device Configuration/Installation
Training
Coordination with other interoperability projects in the NCR
Project Update Reporting (occurs monthly) to SPG, RPGW-I, CAOs, MetroCIOs, Other groups like Police and Fire Technology and Communication groups, Regional planning committees, state and federal partners will be updated periodically.
Data Exchange Hub – General
Project Update Reporting (occurs monthly) to SPG, RPGW-I, CAOs, MetroCIOs, and NCR RWBN Communications Working Group representatives. Other groups like Police and Fire Technology, Regional planning committees, state and federal partners will be updated periodically.

Phase / Activity
Interconnected Networks
Engineering Services, including network design
Procurements of <ul style="list-style-type: none"> • fiber connecting existing fiber resources • network equipment and integration services • facility upgrades to accommodate equipment • other support services
Coordination and ongoing requirements gathering with jurisdictions
Coordination with other interoperability projects in the NCR
Applications rollout – using NCRnet. Continue to work with jurisdictions to enable internal applications to run over NCRnet
Testing and documentation
Training
Coordination with other interoperability projects in the NCR
Data Exchange Hub Physical Environment
Establish Production Environment <ul style="list-style-type: none"> ▪ Define revised / comparative requirements for the production environment. Evaluate and ultimately procure additional software and hardware components to support the production environment. Additional software may include: <ul style="list-style-type: none"> ○ Identity Management ○ Data Management ○ Process Analysis ○ Continuous Availability, Orchestration, and XML Server components to augment existing ESB technology ▪ Install production environment hardware and software
Configure and Test Production Environment Components <ul style="list-style-type: none"> ▪ Identity Management <ul style="list-style-type: none"> ○ Define data elements to support the Identity Management Service ○ Implement Roles Based Access to the DEH in conjunction with providing access to view the Expanded DEH Prototype Resource Inventory Application and CAPWIN ▪ ESB <ul style="list-style-type: none"> ○ Implement Actional SOAPstation to manage data transactions across jurisdictions and to monitor and manage SLAs ○ Implement additional node(s) / orchestration server(s) for redundancy ▪ Testing <ul style="list-style-type: none"> ○ Test Production Environment ○ Conduct Performance Testing

Phase / Activity
Interconnected Networks
Engineering Services, including network design
Procurements of <ul style="list-style-type: none"> • fiber connecting existing fiber resources • network equipment and integration services • facility upgrades to accommodate equipment • other support services
Coordination and ongoing requirements gathering with jurisdictions
Coordination with other interoperability projects in the NCR
Applications rollout – using NCRnet. Continue to work with jurisdictions to enable internal applications to run over NCRnet
Testing and documentation
Training
Document Production Environment <ul style="list-style-type: none"> ▪ Fully document production environment ▪ Publish environment documentation
Data Exchange Hub – Exchanges
Process and Functional Requirements <ul style="list-style-type: none"> ▪ Obtain RPWG-I decision on exchange priorities ▪ Facilitate working sessions with Emergency Responders to define process and functional requirements for the first exchange
Design and Development <ul style="list-style-type: none"> ▪ Define the service definition and assist participating jurisdictions with the development of on-ramps to support service implementation ▪ Configure and deploy services on the Enterprise Service Bus ▪ Integrate services into the producing / consuming applications (e.g., WebEOC, HSIN, CapWIN, etc.) ▪ Perform unit, integration, system, and user acceptance testing of exchange components ▪ Deploy exchanges
Refine Exchange Development Lifecycle and Implement Additional Exchanges <ul style="list-style-type: none"> ▪ Revise and modify the exchange development lifecycle to incorporate lessons learned from first exchange ▪ Iterate through the exchange development lifecycle to implement additional exchanges
Data Exchange Hub Enterprise Architecture / Governance

Phase / Activity
Interconnected Networks
Engineering Services, including network design
Procurements of <ul style="list-style-type: none"> • fiber connecting existing fiber resources • network equipment and integration services • facility upgrades to accommodate equipment • other support services
Coordination and ongoing requirements gathering with jurisdictions
Coordination with other interoperability projects in the NCR
Applications rollout – using NCRnet. Continue to work with jurisdictions to enable internal applications to run over NCRnet
Testing and documentation
Training
Define DEH Enterprise Architecture Model <ul style="list-style-type: none"> ▪ Define the DEH Enterprise Architecture framework along the following areas: <ul style="list-style-type: none"> ○ Performance Reference Model ○ Business Reference Model ○ Technical Reference Model ○ Service Component Reference Model ○ Data Reference Model
Establish Architectural Domains <ul style="list-style-type: none"> ▪ Establish architecture domains for the following: <ul style="list-style-type: none"> ○ Data ○ Security ○ Process and Delivery ○ IT Services and Support
Deploy IT Services and Support <ul style="list-style-type: none"> ▪ Deploy sufficient segments of the IT Service Support Plan (developed in Phase II) to support initial and subsequent exchanges. At a minimum, the following processes will be established: <ul style="list-style-type: none"> ○ Service Desk ○ Configuration Management ○ Release and Change Management
Design DEH Governance Framework <ul style="list-style-type: none"> ▪ Create policies, procedures, and agreements to guide DEH governance ▪ Develop contingency planning documentation

B. Resources

Resource Name	Type*	Responsibility	Duration
PMO – Program Director		Manages the day-to-day operations of the program	
PMO – Financial Manager		Manages all grant reporting, procurement and invoicing	
PMO – Financial Analyst		Assists in grant reporting, invoicing, timesheet maintenance	
PMO – Program Coordinator		Assists with the day-to-day operations of the program	
INETS - Director of Engineering	P	Manages the day-to-day operations of the project,;	Duration of project
INETS - Principal Engineers	P		Duration of project
INETS - Principal Analysts	P	Responsible for all project communication and status updates	Duration of project
INETS - Telecommunications Engineers	P		Duration of project
INETS – Analysts	P		Duration of project
INETS - Tel. Video Tech	P		Duration of project
INETS - Tel. Inspector	P		Duration of project
INETS - Engineering Aides	P		Duration of project
INETS – Fiber	E		Duration of project
INETS - Hub sites in jurisdictions	F	Equipment to facilitate the fiber connection	Duration of project
INETS - Network operations center	F/P	Host facility and personnel to manage the day to day operations	Duration of project
INETS - Jurisdictional information technology planners and coordinators	P		Duration of project
INETS - Jurisdictional procurement departments	P	INets; Jurisdictions	Duration of project
INETS – CIOs	P	Overseas technical implementations in	Duration of project

Resource Name	Type*	Responsibility	Duration
		their respective locality.	
INETS - Administrative Equipment and Support	E; P	Computers, office space, phone lines, etc. to sustain project team	Duration of project
RWBN - Wireless Programs Director	P	Oversees all NCRIP wireless projects and reports directly to the NCRIP Program Manager	Duration of project
RWBN - Program Manager	P	Manages the day-to-day operations of the project; Responsible for all project communication and status updates.	Duration of project
RWBN - Network Manager	P	Manages the network deployment team, develops the implementation plan, and reports to the Program Manager.	Duration of project
RWBN - Principal Engineer/Team Leader	P	Leads the engineer team and manages the vendor and primary point of contact for network installation. Quality Assurance / Vendor Management to assure that the requirements of the RFP have been met: to include verification of R56 standards, coverage and throughput requirements, system and site acceptance, Vendor – Jurisdiction/Region liaison,	Duration of project
RWBN - Network Engineer	P	Technical review of basics design rules to assure compatibility with narrow band systems, End User Device testing and integration,	Duration of project
RWBN - Site Acquisition and Deployment Specialist	P	Conducts candidate searches to provide engineers with suitable candidates for the network design and will secure leases upon selection of the top ranked site candidates by the network design engineers. The site acquisition specialist will also prepare budgetary estimates for any physical modifications required to candidate sites.	Duration of project
RWBN - Customer Operations	P	Manages the customer operations and provides the primary point of contact for	Duration of project

Resource Name	Type*	Responsibility	Duration
Manager		access onto the network.	
RWBN - Customer Tech Support Engineer	P	Supports the customer operations department and works with the end user to configure their computing device to gain access to the network.	Duration of project
RWBN -Project Coordinator	P	Administers, coordinates, manages, and provides administrative, logistics and ancillary support to the management and technical staff.	Duration of project
RWBN -Administrative Equipment and Support	E; P	Computers, office space, phone lines, etc. to sustain project team	Duration of project
RWBN -Wireless Base Stations	E	Transceiver equipment used to transmit and receive broadband signals over wide areas	Duration of project
RWBN -Core Network	E; F	Equipment that controls wireless base stations and interfaces network into municipal wide area networks and the Internet	Duration of project
RWBN -Subscriber Devices	E	PC Cards, PDAs, and other devices needed to connect to wireless base stations and provide users with broadband connections	Duration of project
DEH Project Manager	P	Overall project management	Duration of project
DEH Business Manager	P	Overall business office, procurement, budget management	Duration of project
DEH Functional Analyst Lead	P	Project Advisor	Duration of project
DEH Administrative Assistant	P	Supporting business and project teams	Duration of project
DEH Budget Analyst	P	Spend plan and procurement processing	Duration of project
DEH Project Coordinator	P	Liaison between team leads and project manager	Duration of project
DEH Technical Writer	P	Assembling and editing all technical documentation deliverables	Duration of project

Resource Name	Type*	Responsibility	Duration
DEH Technical Analyst Lead	P	Data Management Lead	Duration of project
DEH Data Modeler	P	XML data modeling	Duration of project
DEH Senior Developer	P	.NET coding	Duration of project
DEH Security Architect Lead	P	Physical Environment and Security Lead	Duration of project
DEH System Administrator	P	Maintain Hardware/Software Environment	Duration of project
DEH Enterprise Service Bus Administrator	P	Maintain ESB environment	Duration of project
DEH Governance Lead	P	Governance and EA Team Lead	Duration of project
DEH Research Analyst	P	EA documentation	Duration of project
DEH Governance Specialist	P	Governance documentation	Duration of project
DEH Process Lead	P	Exchange Team Lead	Duration of project
DEH Process Modeler	P	Develop and model processes	Duration of project
DEH Technical Analyst	P	Exchange processes	Duration of project
DEH Functional Analyst	P	Exchange requirements	Duration of project
DEH System Network Analyst	P	Data Management and Standards	Duration of project
DEH ITIL Process Expert	P	ITIL processes	Duration of project
DEH Physical Hosting Environment	F	DEH physical environment	Duration of project
DEH APC UPS	E	APC SmartUPS 2200 3U 30 amp battery backup	Duration of project
DEH APC UPS Management Card	E	APC SNMP based 10/100 Ethernet port management card	Duration of project
DEH Electrical Circuit Installation	E	Power surge	Duration of project

Resource Name	Type*	Responsibility	Duration
DEH Managed Gigabit Ethernet Switch	E	Cisco Catalyst 20 port Managed Gigabit Ethernet Switch	Duration of project
DEH Rack	E	Dell PowerEdge 42U rack	Duration of project
DEH Video and Keyboard Console	E	Dell pullout monitor, keyboard and mouse (1U)	Duration of project
DEH KVM Switch	E	Cyclades Alterpath 32-port KVM with 2 remote users	Duration of project
DEH KVM Terminator	E	Cyclades Alterpath terminator (server side) – PS/2	Duration of project
DEH Servers	E	Dell 2850 Dual Processor Servers	Duration of project
DEH Firewall	E	Cisco Pix 515E	Duration of project
DEH Microsoft Exchange Server	E	email	Duration of project
DEH Microsoft Project Server	E	Project collaboration	Duration of project
DEH IMS Software	E		Duration of project
DEH XML Editor Data Direct	E	Data Modeling	Duration of project
DEH Wasp MobileInventory Combo Pack with WDT2200 scanner	E	Inventory control	Duration of project
DEH Wasp Bar Code FontWare Software	E	Inventory control	Duration of project
DEH WSDL Tester for interoperability	E	Testing environment	Duration of project
DEH Web Service Policy Manager	E	Governance support	Duration of project
DEH Metadata Repository	E	Data Management Environment	Duration of project
DEH QA Software	E	Supporting testing	Duration of project
DEH Citrix Presentation Server v 3.0	E	Accessibility	Duration of project
DEH Data Warehouse	E	Data management environment	Duration of project
DEH IT Service Management Software	E	Supporting Architectural Domains	Duration of project

* P=People, F=Facilities, E=Equipment

C. Deliverables

Deliverable	Delivery Date	Estimated Cost
NCR Program Management Office		
Program & Financial Management	December 31, 2007	\$1.6M
<ul style="list-style-type: none"> • Bi-Monthly status updates and reports 	Ongoing	
Interconnected Networks		
<ul style="list-style-type: none"> • Redundant connectivity in DC, Fairfax, Montgomery, Arlington, Alexandria, Prince George's and Prince William Counties by way of redundant core rings • All other NCR jurisdictions connected with either single point microwave or fiber • Network electronics installation and integration • Network operational support • Application exchange and support (video-conferencing) <ol style="list-style-type: none"> 1. All NCR jurisdictions connected as well as Frederick County 2. All connectivity through fully government-controlled fiber and microwave 3. Network designed to be high-bandwidth, highly scalable and with flexible network electronics 4. Meets needs for all known potential types of applications and services 	December 31, 2007, with most inner-jurisdiction connectivity complete by February 28, 2007.	\$4.6M
<ul style="list-style-type: none"> • Bi-Monthly status updates and reports 	Ongoing	
Regional Wireless Broadband Network		
<ul style="list-style-type: none"> • Fifteen (15) radio sites in Fairfax County • Redundant core • One thousand (1,000) subscriber devices 	1/31/07	\$9.2M
<ul style="list-style-type: none"> • Bi-Monthly status updates and reports 	Ongoing	
Data Exchange Hub		

Data Exchange Hub Physical Environment Installed Production Infrastructure	Q2 '07	\$750,000
Configured and Tested Production Infrastructure	Q2 '07	\$550,000
Production Environment Documentation	Q2 '07	\$60,000
Exchange Requirements that include: ▪ Process Maps ▪ Domain Requirements	Q1 '07	\$120,000
Designed and Developed Exchange	Q1 '07	\$500,000
▪ Refined Exchange Development Lifecycle	Q2 '07	\$90,000
▪ Designed and Developed Exchanges	Q4 '07	575,000
Enterprise Architecture Framework	Q3 '07	\$760,000
Domain Models	Q3 '07	\$300,000
IT Services and Support Infrastructure	Q3 '07	\$300,000
▪ DEH Policies, Procedures and Agreements ▪	▪ Q3 '07	\$300,000
• Contingency Planning Documentation	Q4 '07	\$295,000
	Total	\$20,000,000

D. Next Steps

Interconnected Networks

- Replace university-owned fiber with higher capacity fiber-optic connections that are government-controlled, and more cost-effective over the long run.
- Add more flexible network electronics to accommodate more advanced applications needs to support the Data Exchange Hub and inter-jurisdictional communications needs.
- Development and implementation of an IT Recovery plan to make use of NCRnet to link to sites outside the NCR using the National LambdaRail Network and other private high-capacity networks for national, distributed data recovery.
- Develop NCRnet as an interoperability model for other areas, and potentially linking NCRnet and its resources to networks in other regions to support national interoperability and coordination.
- Provide expanded redundancy; and

- Add NCRnet locations to connect to additional jurisdictions and resources in the region:
 1. other local governments (Anne Arundel County, Charles County, Baltimore and Richmond areas)
 2. other resources (universities, schools, Federal government, critical private sector stakeholders).

Regional Wireless Broadband Network

The NCRIP will be seeking additional funding to deploy the third phase of the NCR wireless broadband network of networks and will target funds to complete coverage of Montgomery County and eventually the remaining jurisdictions.

Additionally, NCRIP will work to stimulate additional regional deployments around the country to provide additional public safety deployments that will result in increased interoperability coverage areas and lower costs for network equipment and user devices. The media has already shown an interest in this program and we will leverage it to send the message throughout the country to further this cause.

Data Exchange Hub

At the conclusion of the Phase 2 project, the DEH team will continue its efforts to expand the DEH foundation that will lead to a Service Oriented Architecture for the NCR. Follow-on activities will include:

- Increasing jurisdiction participation
- Expanding number of exchanges implemented through the DEH
- Implementing service orchestration and choreography
- Expanding DEH security controls
- Enabling discoverable and structured data
- Facilitating policy driven processes and procedures
- Expanding and maturing the IT Support services

IV. Project Methodology

A. Project Dependencies

Question	Yes or No
Interconnected Networks	
Does this project conflict or compete for resources with any other project?	No. This project provides the infrastructure for many other emergency support projects and reduces their need for resources and cost in the form of leased communications.
Does any other project depend on this project?	Wireless Broadband, Data Exchange Hub, ESF5a (Integration of Communication and Collaboration Tools for EOCs and ECCs), Patient Tracking System, regional Geographic Information System integration, and other projects that depend on interjurisdictional connectivity greater than 1.5 Mbps (T1) capacity.
Are there any other important dependencies that will affect this project?	No.
Regional Wireless Broadband Network	
Does this project conflict or compete for resources with any other project?	No.
Does any other project depend on this project?	Yes. All projects that expect to deliver high-speed data to personnel in the field in a reliable manner will rely on this project to deliver such information.
Are there any other important dependencies that will affect this project?	Yes. RWBN depends on the INETs program to provide broadband connections between jurisdictions to carry large volumes of data and to establish regional data architecture.
Data Exchange Hub	
Does this project conflict or compete for resources with any other project?	No
Does any other project depend on this project?	Yes, especially as we begin providing IT Service Support
Are there any other important dependencies that will affect this project?	YES. The project is dependent on the expedient purchase of necessary hardware and software, as well as fulfilling staffing requirements to meet deliverable dates

B. Project Risk Assessment

1. Scope

Area of Risk or Threat	Likelihood	Mitigation Steps
Conflicting goals, resistance to change	Low	<p>Increase communication about project goals and direction</p> <p>Increase communication about benefits to stakeholder</p> <p>Engage NCR Program Manager for escalation and intervention</p>
Jurisdictional officials, emergency responders, and other stakeholders desiring intercommunications connections, capacity or support beyond current scope	Medium	<p>Increase communication about project goals and cost constraints</p> <p>Encourage and help identify use of jurisdictions' own resources to address needs</p>
Stakeholders and jurisdictions unwilling or unable to assist in leveraging fiber or fiber construction opportunities	High in selected jurisdictions; otherwise Low	Engage NCR Program Manager for escalation and intervention at higher political level and develop and use "Plan B" approaches to acquiring infrastructure or capacity
Vendor delays	Medium	<p>Increase oversight and project management</p> <p>Identify alternative vendors and vehicles when possible</p>
Procurement delays	Medium/High	<p>Establish relationships with jurisdictional procurement offices to:</p> <ul style="list-style-type: none"> understand processes, procedures, and timelines identify optimal procurement vehicles as well as backup alternatives for needed procurements "fast track" needed interventions ensure flow of information to manage risks <p>Engage NCR Program Manager when needed to intervene directly with procurement offices or through</p>

Ongoing network operations	Low	<p>jurisdictional stakeholders</p> <p>Fund NCRnet network operations for duration of grant.</p> <p>Actively develop operational and funding model with participating jurisdictions for period beyond grant.</p> <p>To the extent that it is feasible, design network to minimize ongoing costs, by purchasing fiber or obtaining long-term IRU fiber agreements, maximizing compatibility of equipment and processes with existing internal IT processes of jurisdictions (so that NCRnet can be a logical extension of their existing network), training jurisdiction staff in operation and ongoing support of NCRnet equipment, and maximizing use of existing jurisdiction fiber agreements (where jurisdictions already have staff and mechanisms for resolving trouble).</p>
Governance	Medium	<p>Utilize existing mechanisms of governance such as MOUs, informal relations and other regional institutional structures.</p> <p>Provide engineering support for crafting new agreements when needed</p> <p>Focus on engineering solutions that solve rather than complicate governance relations where possible</p> <p>Offer engineering based options that rely on existing jurisdictional operations and governance</p> <p>Anticipate potential trouble areas when possible and communicate to NCR Manager and stakeholders</p> <p>Engage NCR Program Manager when needed</p>

Area of Risk or Threat	Likelihood	Mitigation Steps
Required Network Equipment Exceeds Budgeted Level	Medium	RWBN has completed a comprehensive site design based on conservative engineering practices and has set expectations to account only for outdoor coverage.
Coverage desired may exceed designed coverage	Medium	RWBN designs account for some in-building coverage despite communication that system does not accommodate in-building coverage. Lower speed connections are expected inside buildings that should satisfy the majority of NCR personnel.
The FCC and/or neighboring regions may be reluctant to grant/approve NCR spectrum requests	Medium	We are constantly reaching out to all entities, including adjacent regions and Congress, to educate them on the project and build support for this use of the spectrum. Adjacent regions have already begun thinking about similar deployments.
Subscriber device availability may not include all forms of desired devices initially	Low	NCRIP has briefed the vendor community on the project and asked this community to consider all types of devices. If PDAs and other devices are not initially available, jurisdictions may only have PC Card deployments on the outset.
Data Exchange Hub		
Unfunded changes in scope could prevent meeting intended objectives in the defined timeline	Medium	Implementation of Change Management processes. Communicate change in scope to sponsors
Project sponsor	Low	Re-sequence tasks or re-scope project based on input

2. Budget

Area of Risk or Threat	Likelihood	Mitigation Steps
Interconnected Networks		
Project sponsor	Medium	Re-sequence tasks or re-scope project based on input
Vendor delays	Medium	See above

Lack of cooperation of fiber-optic cable stakeholders leading to redesign of interconnections	High in selected jurisdictions, otherwise Low	<p>Increase communication about project goals and direction</p> <p>Increase communication about benefits to stakeholder</p> <p>Build -in alternatives and backups to design where possible</p> <p>Explore cost-effective fiber or microwave alternatives on ongoing basis</p> <p>Engage NCR Program Manager for escalation and intervention</p>
Project management due to executive, resource, stakeholder demands	Low	Increase communication with NCR Program Manager and with stakeholders to anticipate needs and changes
Program integration	Medium	<p>Increase communication with other projects to manage risks and changes in requirements</p> <p>Engage NCR Program Manager to facilitate flow of information</p>
Regional Wireless Broadband Network		
Re-appropriation of funds	High	Continue to work with the SAA to communicate the need and benefit gained for the capabilities RWBN will provide.
Limited DHS funds	High	Continue to brief and build relationships with DHS funding decision makers and NCR leaders on the importance of this program.
Data Exchange Hub		
Unforeseen budget cuts can affect available labor in achieving intended outcomes	Medium	Insure adequate budgetary allocation by program sponsor

3. Timeline

Area of Risk or Threat	Likelihood	Mitigation Steps
Interconnected Networks		
Availability of jurisdictional resources for: <ul style="list-style-type: none"> • engineering, • operational coordination, • requirements gathering, • access to jurisdictional • resources such as fiber and equipment 	Medium	Communicate schedule to all relevant stakeholders Provide suggestions to stakeholders for alternative resources Engage NCR Program Manager for escalation and intervention Readjust project plan for differential implementation when needed
Governance	Medium	See above
Procurement delays	Medium/High	See above
Regional Wireless Broadband Network		
Jurisdiction Resource Availability	Medium	Limit jurisdictional time constraints Communicate schedule to all functional areas Provide suggestions for functional back ups Engage NCR Program Manager and MetroCIOs for escalation and intervention
Data Exchange Hub		
Jurisdiction Resource availability	Medium	<ul style="list-style-type: none"> ▪ Communicate schedule to all functional areas ▪ Provide suggestions for functional back ups ▪ Engage NCR Program Manager for escalation and intervention
Timely procurement of labor, hardware, software	Medium	Formalization of Procurement process by Program Management office
Ability to make timely decisions on key project areas, risks, and issues	Medium	Create established escalation path to ensure timely resolution

4. Executive Support

Area of Risk or Threat	Likelihood	Mitigation Steps
Interconnected Networks		
Business dynamics – priorities change due to state, local, or federal events (see also “Project Management” risk under “Budget”)	Medium/High	Communicate progress and next steps Provide alternative design to meet change in priorities Balance project progress with definition of outcome
Sponsorship change	Low	Continue communication around the outcomes relative to the strategic plan via monthly status reports to NCR PMO Provide communication to alternative or potential stakeholders when possible Include benefits of outcomes in all project communication to management and NCR PMO
Regional Wireless Broadband Network		
Sponsorship change	Low	Prepare and disseminate documentation on the project goals, the project plan, and its benefits to the NCR. Continue communication around the outcomes relative to the strategic plan via monthly status reports to NCR PMO Include benefits of outcomes in all project communication to management and NCR PMO
Data Exchange Hub		
Buy in, conflicting goals, resistance to change	Medium	<ul style="list-style-type: none"> ▪ Increase communication about project goals and direction ▪ Engage NCR Program Manager for escalation and intervention
Jurisdiction/ESF acceptance	Medium	Mapping jurisdictional business needs to DEH capabilities

Business dynamics – priorities change due to state, local, or federal events	Low	<ul style="list-style-type: none"> ▪ Communicate progress and next steps ▪ Balance project progress with definition of outcome
Sponsorship change	Low	<ul style="list-style-type: none"> ▪ Continue communication around the outcomes relative to the strategic plan via monthly status reports to NCR PMO ▪ Include benefits of outcomes in all project communication to management and NCR PMO
<p>Failure to establish a strong governance structure -</p> <p>The following items are critical: definition of standard, repeatable processes for developing, implementing and maintaining IT solutions; definition of standard artifacts required for documenting compliance with defined processes; maintenance of those artifacts in an organized, searchable repository (see the following graphic)..</p>	Medium	CIOs have formed a subcommittee and the RPWGI is dealing with the matter.

C. Communication

The project team will implement the following formal communications:

- Bi-Weekly Status Reports including critical risks and issues
- Weekly timesheets and task lists
- Monthly spend plan
- Weekly PMO meetings
- Weekly Project Team meetings
- ARC meetings
- Virtual IT Services Portal
- Update regional stakeholder groups such as: Senior Policy Group, Chief Administrative Officers, Regional Programmatic Working Group for Interoperability, Metro CIOs, Radio Managers, COG Committees, SAA PMO, ONCRC, DHS OG&T

D. Training

Interconnected Networks

After network integration is implemented, Operator Training will be performed with the participating jurisdictions, including System Maintenance and Administration Training. Two days of classroom instruction and two days of hands-on training sessions in the greater Washington DC area to train technical and engineering staff of NCRIP and participating jurisdictions in the configuration and operation of network equipment. Along with the provided documentation this will ensure that jurisdictional IT staff are able to operate the network and identify corrective services in case of disruption.

Regional Wireless Broadband Network

Like any foundational network, this network provides an important facility, but is not, in and of itself, an application. Training, in the context of this program, will be then primarily focused on providing the jurisdictional support personnel with the training to administer the network and to support the user base. The vendor will train each jurisdiction on how to manage, operate and support the network. The jurisdiction will learn how to monitor the network's status and address any equipment outages, adjust the quality of service, determine network growth requirements, and address any network performance issues.

The customer operations team consisting of the customer operations manager and the technical support engineer will participate in training each of the subscribers added to the network. This role entails distributing the user manuals and software, distributing the subscriber devices, and training the users on how to access the network with their computing device as necessary (it is expected that a self-install process could be established and hands on training would be required only if activation coincides with a new application (e.g., a new DEH application)).

E. Project Team

Role	Name	Description of Activities
NCR Program Management		
Program Executive	Robert LeGrande	Overall guidance of program, Key Stakeholder briefings, risk management
Program Manager	Rick Burke	Day-to-Day program management of all projects, key stakeholder outreach, risk management
Financial Manager	Rola Hariri	Program Financial Management
Program Coordinator	Jennifer Sundergill	Business Analyst, Documentation, regional outreach, project coordination, data management
Interconnected Networks		
Project Manager	Andrew Afflerbach, P.E., Ph.D.	Engineering oversight of project, coordination with CIOs and technical staff of participating jurisdictions and stakeholders, engineering review of primary documents, representation of project before MetroCIO and decision makers, planning and oversight of fiber asset and electronics acquisition.
Principal Engineer	David Doulong	Coordination of project with District of Columbia Office of the Chief Technology Officer, oversight of active fiber construction, development of technical specifications as part of procurement process, liaison to Washington Metropolitan Area Transit Authority, facility site surveys, oversight of electronics integration.
Principal Engineer	Vijaya Poudyal, Ph.D.	Development of concept and specifications for Dark Fiber RFI and Network Electronics RFP and other primary design documents. Development of needs assessment document and other I-Nets explanatory material.
Principal Engineer	David Randolph, P.E.	Fiber optic physical plant subject matter expert, responsible for outside plant cost estimates and site surveys. RF engineering subject matter expert, responsible for overseeing microwave path calculations, licensing requirements, equipment selection and procurement, and assistance in technical management of microwave project.

Principal Engineer	Wesley Smith	Overall management of microwave project, oversight of interactive video demonstration project, development of project cost analysis, coordination with Mid Atlantic Exchange (MAX)
Principal Analyst	Robert Hunnicutt	Coordination with Montgomery County and development of inventory of County fiber assets.
Principal Analyst	Joanne Hovis	Overall project management and staffing coordination, interface with NCR Project Management office.
Principal Analyst	Thomas Asp	Development of cost analysis.
Telecommunications Engineer III	Matthew DeHaven	Development of network architecture, development of standards for network configuration, liaison with users and application and with participating jurisdictions, development of key design components and strategies, coordination with network integration subject matter experts, coordination with equipment suppliers, project liaison with participating jurisdiction technical staff and with network stakeholder technical staff.
Telecommunications Engineer III	Daniel Foster	Subject matter expert in network integration, oversight of development of device configuration standards and detailed specifications.
Telecommunications Engineer III	Ziggy Rivkin-Fish	Management of project staff, liaison with NCR Program Management Office, oversight of project procurements, development of needs assessment report, documentation of network operational considerations, development of network management model
Analyst III	Cheryl Johnson	Preparation of procurement documentation and project research.
Analyst III	Maryanne Anthony	Identification of issues related to network management and interjurisdictional coordination
Telecommunications Engineer II	Eric Wirth	Technical coordination of microwave network, including site selection, site preparation, licensing, permitting, and developing standards with equipment configuration
Telecommunications	Eric Rumburg	Site surveys, assistance in network equipment

Engineer II		configuration and integration
Telecommunications Engineer II	Robert Thorne	Physical plant surveys and cost estimates for Montgomery County portion of network.
Telecommunications Engineer I	Johnny Chang	Preparation of technical drawings and maps, assistance in analyzing vendor bids
Telecommunications Engineer I	Mamta Sodikumar	Preparation of technical drawings and maps, preparation of draft technical documents
Analyst I	Casey Clark	Preparation of reports and cost projections
Telecommunications/Video Technician	Jesse Stump	Preparation of technical drawings and maps, assistance with procurement of equipment and services for microwave network, assist in obtaining permits, assist in site surveys.
Telecommunications Inspector	Harvey Smith	Survey and cost estimate of potential fiber paths.
Engineering Aide II	Nancy Harman	Preparation of technical drawings and maps, assistance with procurement of equipment and services for microwave network, assist in obtaining permits.
Engineering Aide I	Bill Clark	Preparation of project cost projections
Engineering Aide I	Crystal Thomas	Assistance to Program Management Office for procurement
<u>Regional Wireless Broadband Network</u>		
<u>Wireless Programs Director</u>	<u>Joe Ross</u>	<u>Manage all NCR wireless projects</u>
<u>RWBN Program Manager</u>	<u>Bryan Casey</u>	<u>Manage all deliverables</u>
<u>Network Manager</u>	<u>Frank Aghili</u>	<u>Network services manager</u>
<u>Network Engineer, Team Lead</u>	<u>Mark Navolio</u>	<u>Leads network engineer and manages vendor</u>
<u>Network Engineer</u>	<u>TBD</u>	

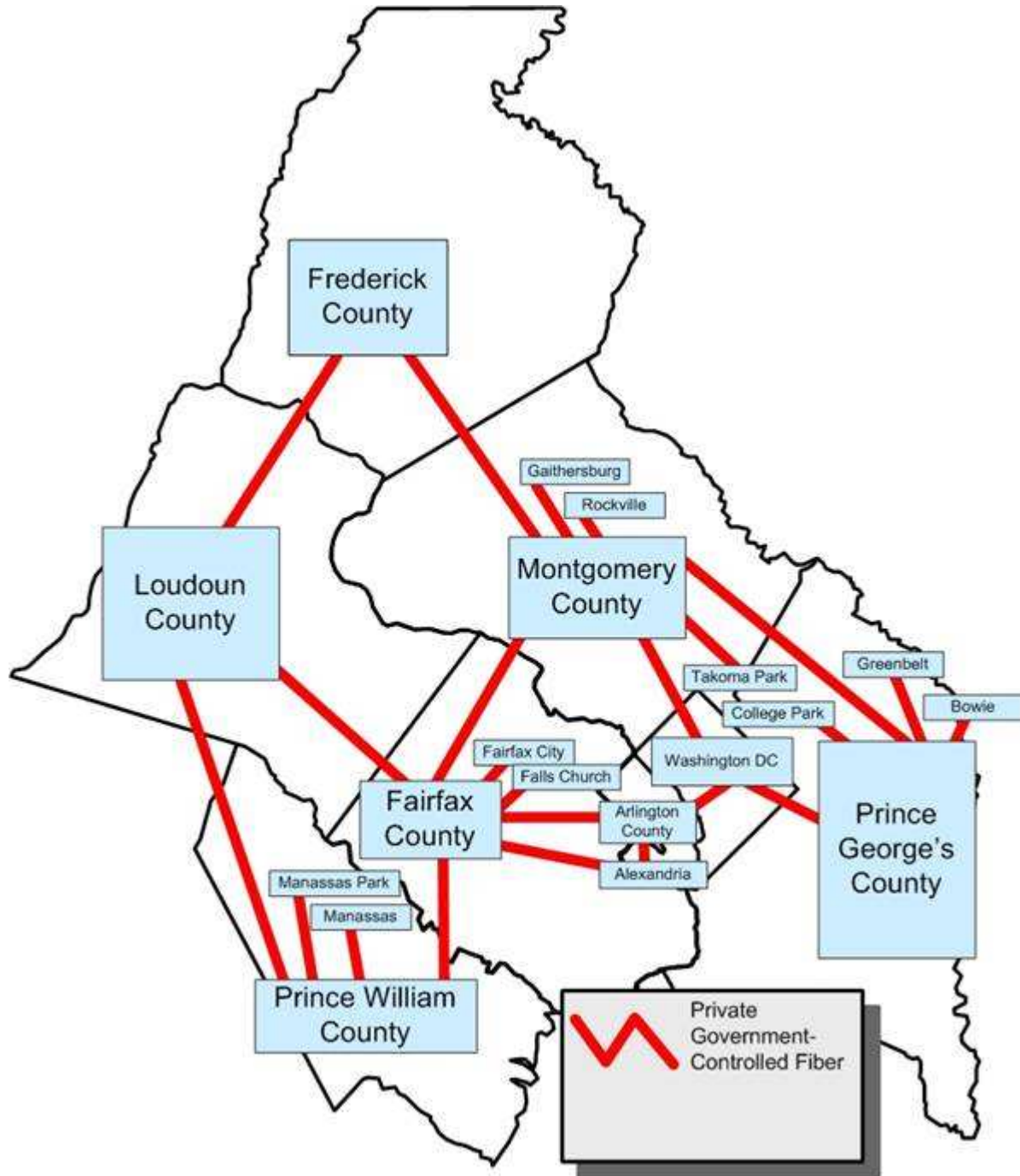
Site Acquisition/Deployment Specialist	TBD	Facilitates site acquisition and deployment
Customer Operations Manager	TBD	Manages customer operations
Customer Technical Support Engineer	TBD	Configures and installs subscriber devices
Project Coordinator	Danait Berhe	Provides administrative, logistics and ancillary support to the management and technical staff
IT Director	Steve Brundage	Primary point of contact; Reports to Fairfax Counties CIO; Subscriber device configuration/installation facilitator.
Public Safety Systems Architect	Dinese Drake	Application/Network integration
Radio Manager	David Barney	Radio tower access; Lease facilitator
Data Exchange Hub		
Project Manager	Lynn Hadden	Overall project management
Business Manager	Miles Windsor	Overall business office, procurement, budget management
Functional Analyst Lead	Rolf Palmer	Project Advisor
Administrative Assistant	Beth LaPilusa	Supporting business and project teams
Budget Analyst	Stefan Cline	Spend plan and procurement processing
Project Coordinator	Kara Kelch	Liaison between team leads and project manager
Technical Writer	TBD	Assembling and editing all technical documentation deliverables
Technical Analyst Lead	Enoch Moses	Data Management Lead
Data Modeler	TBD	XML data modeling
Developer	TBD	.NET coding

Security Architect Lead	Scott Scheurich	Physical Environment and Security Lead
System Administrator	TBD	Maintain Hardware/Software Environment
Enterprise Service Bus Administrator	Chris Wiseman	Maintain ESB environment
Governance Lead	Nelson Barry	Governance and EA Team Lead
Research Analyst	TBD	EA documentation
Governance Specialist	TBD	Governance documentation
Process Lead	Stephan Papadopulos	Exchange Team Lead
Process Modeler	TBD	Develop and model processes
Technical Analyst	Robert Moorhead	Exchange processes
Functional Analyst Lead	Cindy Prezgar	Exchange requirements
System Network Analyst	Sukumar Dwarkanath	Data Management and Standards
ITIL Process Expert	Catherine Miller	ITIL processes

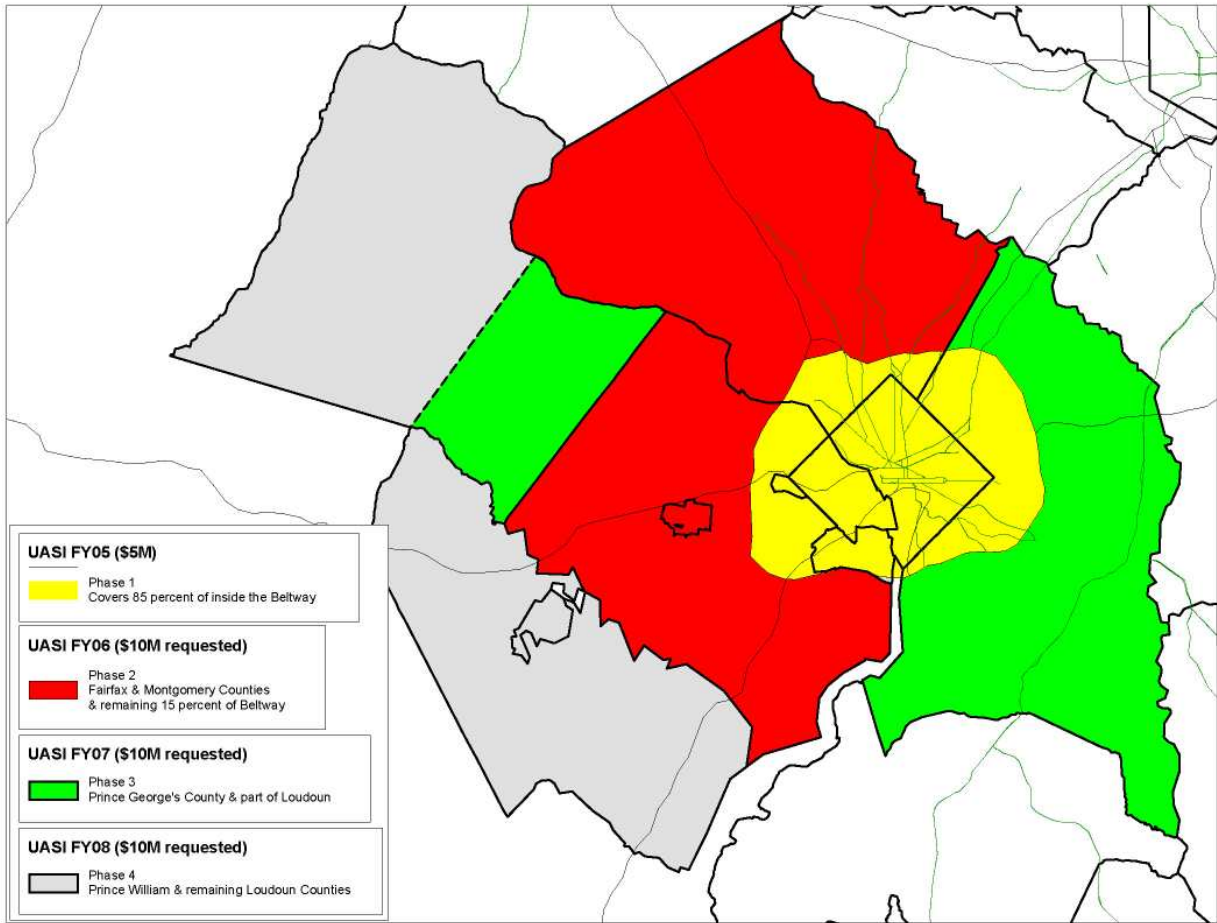


Appendix A

Interconnected Networks

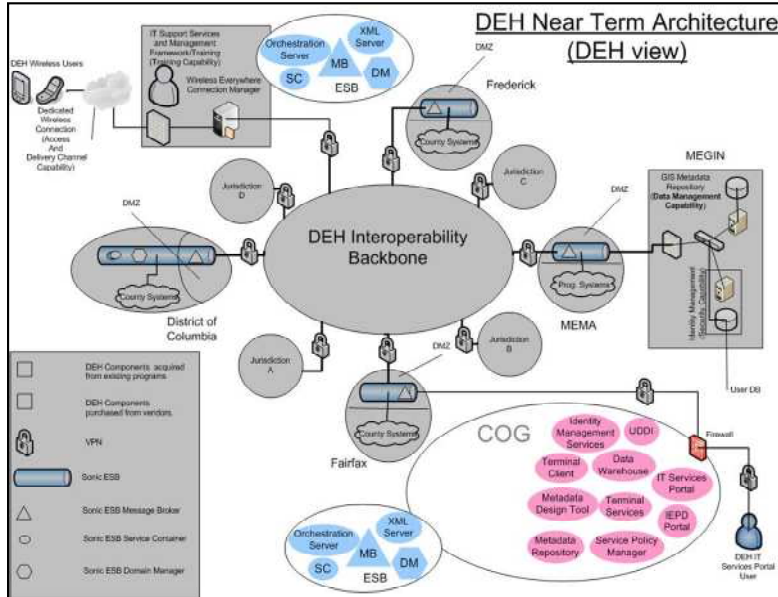


Regional Wireless Broadband Networks -



NCR DEH Architectural Recommendation

Enhanced DEH Functionality (Data Mgmt, Federated Identity Mgmt, Registries and Repositories, & Highly Available Messaging Infrastructure)



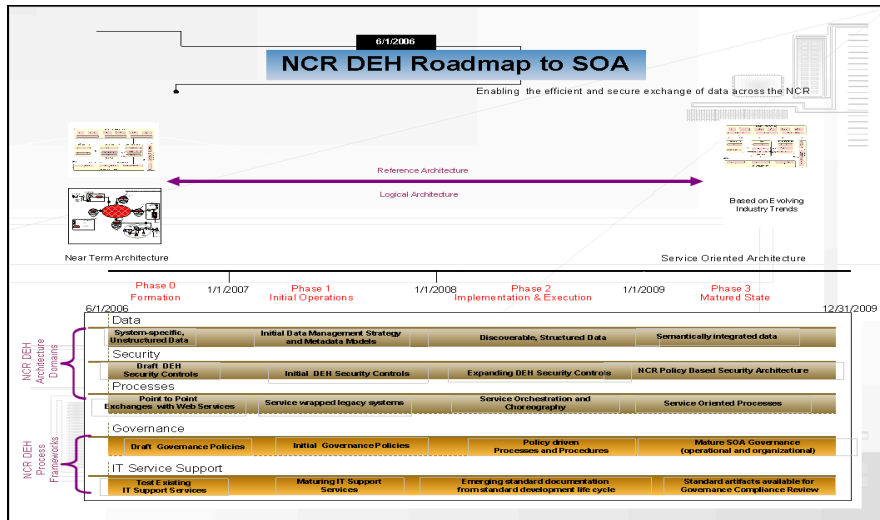
NCR DEH FY'04 General Project Briefing 2006_06_14 Final for distribution.ppt

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Figure 1. NCR DEH Near Term Architecture

NCR DEH Architectural Recommendation

Roadmap to SOA



NCR DEH FY'04 General Project Briefing 2006_06_14 Final for distribution.ppt

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Figure 2. NCR DEH Roadmap to SOA

Project Plan

National Capital Region Base MAP (NCRBM) – Regional GIS Development and Maintenance

Contact Information

Contact name: Thomas Conry

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Facsimile number:

Mailing address:

Project Information:

Period of Performance: 18 Months

Grant Award: \$1,000,000.00

Related Documents: Concept Paper and Initiative Plan

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V. Project Summary

Project Description: The GIS Managers' Committee is responsible for providing, maintaining and serving data and applications that will support a regional base map and interoperable geospatial services (see attached copy of the committee draft scope of work for MWCOG GIS Committee).

The committee has established an initial minimum essential geospatial data set (MEGDS) and collected data about that set (metadata) from some of the committee members. This initial work has identified significant limitations in the data, such as it does not list the necessary attributes necessary in an NCR emergency response. The initial list of data categories has not been cross-checked with the ESFs to ensure that their data categories and the related data elements necessary for regional response are identified and maintained locally. The identified data sets need to be evaluated in terms of consistency across the region, the maintenance status at each locality, and priority for inclusion in the DEH regional GIS map.

The MEGDS is only a starting point for building a regionally consistent, locally maintained GIS data set to serve via the DEH. Determining the Essential Geospatial Data Set (EGDS) is also critical, it will require analysis of the end user requirements documents from the a sister project the NCRIP AIGA and follow up with COG/NCR members to verify the need and then determine the availability and accuracy of those data. Additional means used to inform the content and structure of the EGDS include; the Homeland Security Information Protection Tiger Team Report and the NSDI Stewardship program under GIS for the Nation's Project Bluebook. The source of the data for the EGDS is also critical, commercial data sets exist for the region (e.g., centerlines) that could provide some of the data, but they will need to be carefully evaluated prior to implementation.

These in-depth analyses will identify the data and data maintenance gaps for each COG/NCR member. Subsequently, providing assistance to those localities to initially complete those data sets, and then establishing business processes to regularly maintain them will ensure accurate, up-to-date GIS data for real-time response.

The NCR requirement includes a geospatial metadata clearing house compatible with federal efforts such as the Geospatial One Stop. Maryland's Emergency Geographic Information Network (MEGIN), an ITEP funded program, may be a candidate to provide this, but will need to be evaluated.

Aerial imagery will be a vital component of the regional GIS base map. There are varied sets of these data available. The optimum source for that aerial imagery needs to be determined and the method for serving it to the NCR via the DEH needs to be decided as well. Furthermore, as Katrina has shown, there needs to be a mechanism in place to update that imagery after a regional emergency. Thus, there is a need to identify contract vehicles or MOUs (possibly with Federal data providers such as DHS, USGA, and or NGA) that will enable quick acquisition of imagery. A distribution approach also needs to be determined and implemented.

Once the NCR Base Map is defined and created, distribution to the region becomes critical. This project will determine how to best make the GIS data available to the region's applications for consumption. It will include delivery to Web Services as well as end user applications such as WebEOC and the DEH. These web services need to be determined and then prioritized for implementation. In the first year the initial services will be created. Additions will be in subsequent years. Analysis must also be conducted on how best to consume (display) the regional map in the end-user applications. There are multiple options available which must be reviewed to determine adequacy of their functionality in delivering the regional map. Finally, load testing of the GIS web services must be conducted since there is potential for processing large amounts of data quickly which could significantly impact response time of the systems.

VI. Project Background and Goals

A. Project Background

Problem Statement: Geospatial data and applications support a broad range of Emergency Support Functions (ESFs). Combining spatial data from multiple ESFs serving multiple jurisdictions on a common map is essential to understanding and responding to large-scale events. Currently the NCR does not have the ability to display and use a common, standard, regional GIS map in an emergency response. The Data Exchange Hub (a core component of the National Capital Region Interoperability Program for Data Exchange – NCRIP DEH) will provide the technical capability to distribute the GIS data regionally. However, the data necessary to create the regional maps is not sufficiently complete, standardized or comprehensive. Additionally, the GIS web services necessary to serve the data are not complete or standardized. Without a standard, up to date (maintained) map and data, regional interoperability will be severely impacted and the DEH will not be able to deliver the critically important GIS data.

NCR Strategic Initiatives	DHS Target Capabilities & Performance Measures
<p>1.1.1</p> <p>3.1.1</p> <p>3.2.1</p> <p>The regional GIS data and resulting maps and products are a component of and align with all four NCR Strategic Goals.:</p> <p>Strategic Goal 1: A collaborative culture for planning, decision-making, and implementation across the NCR.</p> <ul style="list-style-type: none"> Enhance and continually adapt the framework for regional strategic planning and decision-making to achieve an optimal balance of capabilities across the NCR. <p>Strategic Goal 2: An informed and prepared community of those who live, work, and visit within the region, engaged in the safety and security of the NCR.</p> <ul style="list-style-type: none"> Deliver timely, coordinated and targeted emergency information across the NCR before, during, and after emergencies <p>Strategic Goal 3: An enduring capability to protect the NCR by preventing or mitigating “all-hazards” threats</p>	<p>Develop and periodically update the strategic plan and related processes.</p> <p>Develop a prevention and mitigation framework for the region</p> <p>Develop common regional information sharing and collaboration frameworks, to include determining roles, responsibilities, and protocols</p>

<p>or events.</p> <ul style="list-style-type: none"> ▪ Strengthen the gathering, fusion, analysis, and exchange of multi-discipline strategic and tactical information and data for shared situational awareness. <p>Strategic Goal 4: A sustained capacity to respond to and recover from “all-hazards” threats or events across the NCR.</p> <ul style="list-style-type: none"> ▪ Ensure the capacity to operate multi-level coordinated response and recovery. ▪ Ensure adequate and effective sharing of resources 	
---	--

B. Goals and Outcomes

Describe your project goals and the outcomes for each in the table below.

Goal	Outcomes
<ul style="list-style-type: none"> ▪ Refine Concept of Operations for Regional Geospatial Interoperability ▪ Determine a Essential Geospatial Data Set (EGDS) for the NCR ▪ Determine capability of jurisdictions to serve EGDS ▪ Model the EGDS in compliance with National Information Exchange Model (NEIM) ▪ Analyze Aerial Imagery Availability across the NCR ▪ Create Aerial Imagery Acquisition plans and contracts for the NCR ▪ Determine Strategy for United States National Grid Implementation ▪ Develop a regional situation map and related geospatial web services ▪ Develop a Geospatial Metadata Clearing House for the NCR 	<p>All jurisdictions can create and share mapped information during emergencies and non-emergencies.</p> <ul style="list-style-type: none"> ▪ NCR Consensus for exchanging mapped information ▪ There is a regional situation map and related web services. ▪ Detailed schema for essential data to be exchanged ▪ Detailed inventory of jurisdictions to determine availability of essential data ▪ Compatibility with NCR Data Exchange Hub ▪ Up-to-date aerial imagery is available including quickly after emergencies ▪ National grid is ready to support federal response in support of a regional emergency.

C. Project Managers

Let us know who contributed on your team to help you achieve your goals.

Thomas Conry, GIS Program Manager, Fairfax County, Virginia
Barney Krucoff, GIS Director, District of Columbia
Apollo Teng, GIS Manager, Montgomery County, Maryland
Metropolitan Washington Council of Governments Staff

D. Project Assumptions

It is appropriate to list assumptions your team is operating under which guide decision making, priorities, resource engagement, etc. The table below provides an example of assumptions a Team may make in the course of planning a project. The Team will periodically revisit the assumptions list to determine if the assumption is still valid and if there are any new items to include on the list.

Item Number	Description	Notes
1	FY06 UASI funds will be available to support this effort.	
2	Operating funds will be available in each jurisdiction for FY08 and beyond to accommodate the ongoing maintenance costs	
3	The NCR Data Exchange Hub will exist and manage security and provide the network connectivity required for the Geospatial systems develop in this grant to function.	
4	This project meets the basic measures defined in the target capabilities list (TCL) published by DHS	

VII. Project Approach

Now that we know what you want to accomplish, we'd like to understand in greater detail how you'll accomplish the project. Effectively completing this section will likely determine whether you succeed; it's also the section we most closely scrutinize before issuing sub-grants.

A. Activities

Please see attached Scope of Work highlighted activities within the SOW are:

- Refine Concept of Operations for Regional Geospatial Interoperability
- Determine a Essential Geospatial Data Set (EGDS) for the NCR

- Determine capability of jurisdictions to serve EGDS
- Model the EGDS in compliance with National Information Exchange Model (NIEM)
- Analyze Aerial Imagery Availability across the NCR
- Create Aerial Imagery Acquisition plans and contracts for the NCR
- Determine Strategy for United States National Grid Implementation
- Develop a regional situation map and related geospatial web services
- Develop a Geospatial Metadata Clearing House for the NCR

You may choose to present the material as timeline with work activities, target dates, and expected deliverables. Remember monthly status reports are required by terms and conditions in the award of the funding.

B. Resources

Tell us about the resources you'll need: People, facilities, and equipment. (Budget is included in the next section.) For each resource, complete the adjacent columns in the same row.

Resource Name	Type	Responsibility	Duration
Barney Krucoff, GIS Director DC	PM	Manage Project in coordination with the MWCOG GIS Directors Committee	Part-time for 1 year
Jurisdictional participation in the MWCOG GIS Directors Committee	All NCR GIS Leads	Direct project and review progress. Coordinate/support project team.	Part-time for 1.5 years
Jason Mattis	GIS Analyst	Assist project PM and Committee members	Full-time for 1.5 years
Contractor Team	Contractor Team	To implement the attached SOW	One PM, One GIS Analyst, and one GIS Developer for 1 year
Support from DEH Team	TBD	NIEM Modeling, Security, Networking, Hosting	Ongoing
Support from United States Geological Survey	Regional Liaison	Aerial Imagery Analysis and Acquisition Contracts	Part time 1 year

C. Deliverables

Include a list that identifies each deliverable, a description, and the estimated cost.

Preliminary Project Plan (Tasks, Resources, Deliverables, Collaborating Partners, etc.)			
Task(s)	Owner(s) or Collaborating Partners	Deliverable(s)	Target Date
2. Essential	COG GIS Managers, GIS Data	• Validation of EGDS Layers	12/1/2006

Geospatial Data Set Analysis	Subcommittee members, ESF-2	<ul style="list-style-type: none"> EGDS Schema EGDS Regional Inventory/Gap Analysis Level of effort to complete the EGDS Security Requirement for EGDS 	12/1/2006 12/1/2006 2/1/2007 12/1/2006
3. Aerial Imagery Availability Analysis	COG GIS Managers, GIS Data Committee members, ESF- 2	<ul style="list-style-type: none"> Aerial Image data sets available to DEH Metadata for those data sets Update cycle for each data set. 	1/15/2007 1/15/2007 1/15/2007
4. Aerial Imagery Acquisition	COG GIS Managers, GIS Data Subcommittee members, ESF- 2	<ul style="list-style-type: none"> Options for acquisition of Aerial imagery promptly after an incident Analysis of approaches to acquire the imagery quickly post emergency 	9/1/2006 9/1/2006
5. Spatial Web Services	COG GIS Managers, GIS Data Subcommittee members, ESF- 2	<ul style="list-style-type: none"> Coordination with EMMA and Megan (Maryland), VR3 (Virginia) Candidate list of spatial web services for DEH 	3/1/2007
6. Security Analysis	COG GIS Managers, GIS Technical Sub-committee members, ESF- 2	<ul style="list-style-type: none"> Analysis of security (access) requirements for EGDS Establishment and verification of DEH security protocols to protect spatial data. 	2/1/2007 2/1/2007
7. Load Testing	COG GIS Managers, GIS Tech. Subcommittee members, ESF- 2	Test bandwidth and processor demands of the DEH web services.	5/1/2007
8. Metadata clearing house	COG GIS Managers, GIS Data Subcommittee members, ESF- 2	<ul style="list-style-type: none"> Analysis of Implementation Options Implement Clearinghouse 	6/1/2007
9. Compatibility Testing	Subcommittee Members and vendors	WebEOC, OGC, GOS, ArcGIS, Megan, EMMA, VR3	9/1/2007
1. Project Performance Measures		2. Baseline Value	3. Target Value (all of these activities are for the NCR as a whole plus the states of MD and VA)
1. EGDS Analysis		0	21
2. Complete EGDS for NCR		0	21
3. Aerial Imagery Availability Analysis		0	21
4. Aerial Imagery Acquisition/Serving Options		0	21
5. Candidates & Standards for Spatial Web Services		0	21
6. Security Analysis		0	21

Monthly status reports are required by terms and conditions in the award of the funding.

D. Next Steps

If appropriate, spell out next steps following the completion of the project. For example, you may want to set expectations for acquiring additional funding, or presenting the findings or outcome of the project to a specific group, or a media campaign to announce the project completion.

VIII. Project Methodology

For complex projects we ask that you complete the sections below.

A. Project Dependencies

Thinking about dependencies, like the examples below, will identify where the availability of resources could affect your success. Example: financial or human assets that support your project.

Question	Yes or No (If yes, please describe how)
Does this project conflict or compete for resources with any other project?	Yes, but concentrates resources otherwise focused within each jurisdiction on a regional solution.
Does any other project depend on this project?	WebEOC's integration with improved mapping
Are there any other important dependencies that will affect this project?	UASI funding
This project depends on the DEH	Yes

Project Asset - defines the resources – financial and human - required to support the successful execution of the plan, along with a high-level estimate of the resources and costs for implementing the project

B. Project Risk Assessment

The following risks have been identified:

- Scope: The GIS Directors need to do more than anticipated
 - We have prepared a detailed scope of work (attached) and reviewed it as a committee. If more is required, the committee will review the issue(s) and make a recommendation to the Metro Chief Information Officers.
- Budget: You need more funds to get the job done
 - The MWCOG GIS Directors have prepared a detailed government estimate. If money is required, the committee will review the issue(s) and make a recommendation to the Metro Chief Information Officers.
- Timeline: You can't get everything done fast enough
 - The committee has reviewed the timeline and believes it to be aggressive, but reasonable. A detailed project plan is being developed by the committee. Progress or deviations from that schedule will be reported.
- Executive support: You can't get executive support to help make decisions.
 - The MWCOG GIS Directors Committee was established at the request of the Metro Chief Information Officers. We are proceeding under the CIO's direction, and will keep them advised of progress.

1. Scope

Identify factors that could expand or contract the scope of the project as it is defined in the grant proposal. For each factor, list it in the table below and complete the adjoining columns.

Area of Risk or Threat	Likelihood	Mitigation Steps

<ul style="list-style-type: none"> ▪ The GIS Directors need to do more than anticipated 	Moderate	<ul style="list-style-type: none"> - We have prepared a detailed scope of work (attached) and reviewed it as a committee. If more is required, the committee will review the issue(s) and make a recommendation to the Metro Chief Information Officers.
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2. Budget

The budget for the project is threatened primarily by the availability of resources, the potential for vendor agreements and contract terms that may cause unexpected cash outlays, and the potential for changes in project sponsorship or direction. The chart below summarizes the Team’s assessment of potential risk areas with respect to the project budget. This does not represent a wholly comprehensive list relative to the budget risks – the threat to the budget is also discussed as an element of the other risks areas discussed in this section.

Area of Risk or Threat	Likelihood	Mitigation Steps
<ul style="list-style-type: none"> ▪ Budget: Is not sufficient 	Unknown as UASI funds not yet allocated	<ul style="list-style-type: none"> - The MWCOG GIS Directors have prepared a detailed government estimate. If money is required, the committee will review the issue(s) and make a recommendation to the Metro Chief Information Officers.

3. Timeline

This section provides consideration for events or factors that could most directly affect the time line of the project and the ability of the project manager to meet the grant performance terms. These factors are in addition to the topics presented above which – as discussed – could affect the project time line as well.

Having skilled resources available as defined in the work breakdown structure is critical to achieving success. The absence of necessary skills or delays in each functional area providing a skilled resource will affect the timeline of the project, may threaten the quality of the planned deliverables and may result in cost overruns. This is a significant area of risk for the project manager to manage.

The table below summarizes the impact of resource availability on the project timeline. Resource availability is seen as a primary area of concern.

Area of Risk or Threat	Likelihood	Mitigation Steps
<ul style="list-style-type: none"> ▪ Timeline: GIS Directors can not get everything done fast enough 	High	<ul style="list-style-type: none"> - The committee has reviewed the timeline and believes it to be aggressive, but reasonable. A detailed project plan is being developed by the committee. Progress or deviations from that

		schedule will be reported.
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4. Executive Support

This section assesses the effect a change in leadership or executive direction, or the absence of executive support and sponsorship, could have on the overall project plan – cost, scope, and timeline.

Area of Risk or Threat	Likelihood	Mitigation Steps
Example: Business dynamics – priorities change due to state, local, or federal events	Low	Mapping is clearly important and will remain so.
Sponsorship change	Low	The MWCOG GIS Directors Committee was established at the request of the Metro Chief Information Officers. We are proceeding under the CIO's direction, and will keep them advised of progress.

C. Communication

This sub-section includes a description of project level communication the team will initiate. One standard project level communication is the monthly status report to the NCR PMO. From a communication standpoint, the project plan should consider how the project team will update the project sponsor and stakeholders regarding progress, or how the project manager will provide input to the Public Information Officers to announce the delivery or availability of new or improved capabilities. (required in sub grant terms and conditions)

Not-yet-determined.

D. Training

This sub-section includes assumptions or plans with respect to training the recipients of the project outcome. For example, if this project includes the implementation of a new or upgraded software application, this sub-section would include a discussion of how the Team expects to prepare the new end users of the application to operate the system 'live' once it is in production.

Not-yet-determined.

E. Project Team

This sub-section describes the resources the Team expects to engage in completing the project. Each resource named on the chart below should be included in the WBS with specifically assigned tasks that show how each resource will be tasked to complete the project. The chart below includes a sample of roles; the resources for each project will vary based on the project goals, objectives, timeline, and funding.

Resource Name	Type	Responsibility	Duration
Barney Krucoff, GIS Director DC	PM	Manage Project in coordination with the MWCOG GIS Directors Committee	Part-time for 1 year
Jurisdictional participation in the MWCOG GIS Directors Committee	All NCR GIS Leads	Direct project and review progress. Coordinate/support project team.	Part-time for 1.5 years
Jason Mattis	GIS Analyst	Assist project PM and Committee members	Full-time for 1.5 years
Contractor Team	Contractor Team	To implement the attached SOW	One PM, One GIS Analyst, and one GIS Developer for 1 year
Support from DEH Team	TBD	NIEM Modeling, Security, Networking, Hosting	Ongoing
Support from United States Geological Survey	Regional Liaison	Aerial Imagery Analysis and Acquisition Contracts	Part time 1 year

Project Plan

Mass Notification

Contact Information

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Mailing address: 441 4th Street, NW Suite 930 S
Washington, DC 20001

Project Information:

Period of Performance: 18 Months

Grant Award: (Fiscal year 06): \$900,000

Related Documents: FY 06 Concept Paper and Initiative Plan

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IX. Project Summary

The NCR’s approach to Reverse 911 is to leverage existing R911 systems and PSTN customer data to facilitate regional notifications, cross-jurisdictional message creation, first responder mobilization, and evacuation logistics.

Since many of the 18 NCR jurisdictions have successfully implemented mass notification systems, this project seeks to maximize previous installations as well as the underlying infrastructure and customer data and to ensure that proper National Capital Region wide notification is coordinated and delivered. It is not anticipated that any jurisdiction will need to replace an existing system with a new one.

Additionally, new communications mechanisms such as VOIP, cellular, SMS, and special PBXs must be effectively integrated as delivery mechanisms

The Project will have the following core components:

Notification and Message sharing protocols -- establish the structure, templates, and policy guidance for launching cross-jurisdictional messages.

Horizontal Integration of existing mass notification systems-- build tools, infrastructure, data stores, and customer data pipes which allow cross-jurisdictional mass notifications.

Training and outreach programs—effective multimedia campaigns which can be componentized and rapidly launched.

Telcom and cable customer data acquisition business model – business model for acquiring and sharing customer data

Project Background and Goals

A. Project Background

Problem: *In an emergency, government agencies need to notify targeted population groups of evacuation, hazardous material, bio threat, or other crisis situations to ensure proper public awareness and to provide response directives. Orderly facilitation of mass evacuation along a timed and preplanned set of routes is a direct evacuation critical function to protect populations and mobilize first responders during such disaster responses. Coordination of these activities throughout the National Capital Region (NCR) must be coordinated during a region wide disaster event.*

NCR Strategic Initiatives	DHS Target Capabilities & Performance Measures
<p>2.1.1</p> <p>2.2.2</p> <p>Strategic Goal 3: An enduring capability to protect the NCR by preventing or mitigating “all-hazards” threats or events.</p> <p>➤ Strengthen the gathering, fusion, analysis, and exchange of multi-discipline strategic and tactical</p>	<p>Establish regional protocols and systems for developing and distributing emergency information</p> <p>Increase civic involvement and volunteerism in all phases of disaster preparedness</p>

information and data for shared situational awareness.	
--	--

B. Goals and Outcomes

Describe your project goals and the outcomes for each in the table below. We've added an example; please delete it before you add yours.

Goal	Outcomes
Establish shareable GIS layers	<ul style="list-style-type: none"> • GIS layers that transcend jurisdictional boundaries • GIS layer standards to enhance data sharing • Establishment of a region-wide plan for maintenance of the GIS layers
Full integration with existing GIS systems	<ul style="list-style-type: none"> • Seamless geo-coding of emergency alerts and messages across jurisdictional boundaries
Text, graphical and voice multilingual messages	<ul style="list-style-type: none"> • Alert messages that can be tailored to selected ethnic groups • A mechanism to specify what language is appropriate for each household
Data acquisition plan and cost sharing	<ul style="list-style-type: none"> • A reduction of development and operational costs • Leveraging the bulk buying power of the NCR to further reduce operational costs (e.g. data update costs)
Scripted messages and message templates	<ul style="list-style-type: none"> • The ability to utilize the pre-formatted messages and message templates developed by ESF14
Full integration with existing WebEOC systems	<ul style="list-style-type: none"> • The ability to initiate alert messages from within WebEOC • The ability to have WebEOC track alert progress and maintain an incident log relating to alerts and notifications

Other discussion you may choose to cover includes relevant portions of your Concept Paper

C. Project Managers

Let us know who contributed on your team to help you achieve your goals. Please list them using the following format:

Chris Tonjes Program Manager
 Mark Pennington Project Manager

D. Project Assumptions

It is appropriate to list assumptions your team is operating under which guide decision making, priorities, resource engagement, etc. The table below provides an example of assumptions a Team may make in the course of planning a project. The Team will periodically revisit the assumptions list to determine if the assumption is still valid and if there are any new items to include on the list.

Item Number	Description	Notes
1	Staff is available, with the required skill set, to complete all tasks identified in the project schedule	Requires commitment from all jurisdictions
2	Operating funds will be available in each jurisdiction for FY06 and beyond to accommodate the ongoing maintenance costs	Confirmed with SPG/CAOs on 6/27/06
3	Planning for a separate project to implement Phase II of this initiative can start before the completion of this project plan	Confirmed with SAA via email on 7/1/06
4	This project meets the basic measures defined in the target capabilities list (TCL) published by DHS.	

X. Project Approach

Now that we know what you want to accomplish, we'd like to understand in greater detail how you'll accomplish the project. Effectively completing this section will likely determine whether you succeed; it's also the section we most closely scrutinize before issuing sub-grants.

A. Activities

Insert a list of the work activities you will perform to complete the project. Here is an example of typical activities:

NOTE – These phases would apply to the GIS development as well as the horizontal integration of mass notification systems.

I. Development Phase

A. Create WBS for each integration strategy

1. Develop objectives
2. Develop tasks
3. Define dependencies

4. *Define initial critical path(s)*
 5. *Define task level milestones*
 - B. *Create progress reporting criteria, formats and deliverables*
 - C. *Identify system hardware requirements*
 - D. *Create system specifications (e.g. - hardware specs)*
 - E. *Procure system(s) as necessary*
- II. *Prototype and Beta-testing phase***
- A. *Identify test jurisdictions*
 1. *At least one jurisdiction for each existing mass notification system type*
 - B. *Create testing methodologies*
 - C. *Perform tests and analyze results*
 - D. *Perform remedial development as necessary*
 - E. *Repeat the tests until all issues have been resolved and all requirements have been met.*
- III. *Deployment Phase***
- A. *Develop deployment strategies and timelines*
 - B. *Identify staff support for deployment*
 - C. *Create user documentation and training program*
 - D. *Schedule and conduct deployment and training*
 - E. *Obtain initial acceptance from all stakeholders*
 1. *Obtain commitment from each stakeholder to change internal processes as necessary*
- IV. *Acceptance Phase***
- A. *Create and execute full-scale system tests, to include:*
 1. *Data uploads from E911 databases*
 2. *Live test with an abbreviated database*
 3. *System fail-over and recovery*
 4. *Automatic (unattended) processing of messages (if desired)*

- B. *Analyze test results*
- C. *Perform remedial development as indicated*
- D. *Repeat the tests until all issues have been resolved*
- E. *Obtain final acceptance from stakeholders*

V. **Project Closeout Phase**

- A. *Create and implement continuing system maintenance and training*
- B. *Review project documentation*
 - 1. *Document that all requirements have been met*
 - 2. *Review final financial records*
- C. *Schedule final IV&V*
- D. *Create press releases for stakeholders*

You may choose to present the material as timeline with work activities, target dates, and expected deliverables. Remember monthly status reports are required by terms and conditions in the award of the funding.

B. Resources

Tell us about the resources you'll need: People, facilities, and equipment. (Budget is included in the next section.) For each resource, complete the adjacent columns in the same row.

Resource Name	Type	Responsibility	Duration
Project Manager	People	Oversee the progress and execution of the project. Serve as liaison between the rest of the project team and the project oversight committee.	Duration of the project
Project Coordinator	People	Provide day-to-day coordination in terms of scheduling, documentation, etc.	Duration of the project
Subject Matter Expert(s)	People	Provide technical input and coordination on specialized portions of the project (e.g. emergency alerting, GIS development, database development)	Periodically, as needed.
Development and Integration Contractor	People	To do the actual software development and integration. Ensure that each jurisdiction is integrated seamlessly into the overall system.	Duration of the project

Organization charts are an effective way to convey how your project team is organized.

C. Deliverables

Include a list that identifies each deliverable, a description, and the estimated cost. Again, we've included a table to make your life easier:

Task(s)	Owner(s) or CP	Deliverable(s)	Target Date(s)
10. Message templates and GIS layers	METRO CIO DHS NIMS	<ul style="list-style-type: none"> • Shareable specialized GIS layers • Text, graphical, and multilingual messages • Message scripts and templates 	Completed by 12/31/07
11. Data integration plan and mechanism	METRO CIO	<ul style="list-style-type: none"> • Horizontal integration web service • Launch web service • Timed evacuation web service 	Completed by 12/31/07
12. Customer data acquisition plan and business model	METRO CIO	<ul style="list-style-type: none"> • Plan and cost sharing agreement • Customer data distribution plan • Simplified billing mechanism • Access Control and PKI infrastructure 	Completed by 12/31/07
1. Project Performance Measures		2. Baseline Value	3. Target Value
1. Outreach plan		0	18
2. Billing and customer acquisition plan		0	1
3 Horizontal Integrations		0	18
4. New Technology Delivery Mechanisms		0	5

Monthly status reports are required by terms and conditions in the award of the funding.

D. Next Steps

If appropriate, spell out next steps following the completion of the project. For example, you may want to set expectations for acquiring additional funding, or presenting the findings or outcome of the project to a specific group, or a media campaign to announce the project completion.

Development and funding of on-going maintenance activities will be a high priority. Once this system is complete, to remain a valuable tool in protecting the citizens of the NCR, it must be maintained and periodically updated. Without this constant maintenance and updating, the NCR Mass Notification system would soon become unusable. The Emergency Subscriber Listing (ESL) database must be updated at least quarterly to obtain the telephone number changes that have occurred. The core software must be updated to reflect the changes in technology and equipment that occur in the NCR jurisdictions. Finally, the NCR jurisdictions' systems themselves must be maintained to ensure correct system and security patch levels.

A media campaign to make the citizens aware of the new system is already planned in the final phases of this project, however, additional campaigns in the future will be necessary to remind existing citizens and inform new citizens about the system. The importance of having the citizens understand this system should not be understated. An emergency alert phone call that goes unanswered because the recipient did not understand the importance of the call could defeat the entire purpose of the project.

XI. Project Methodology

For complex projects, we ask that you complete the sections below.

A. Project Dependencies

Thinking about dependencies, like the examples below, will identify where the availability of resources could affect your success. Example: financial or human assets that support your project.

Question	Yes or No (If yes, please describe how)
Does this project conflict or compete for resources with any other project?	Yes...shrinking UASI grant money.
Does any other project depend on this project?	No
Are there any other important dependencies that will affect this project?	Yes....the activities of ESF14 regarding unified messaging and message content will input into project. Completion of their activities is required for completion of this project.

Project Asset - defines the resources – financial and human - required to support the successful execution of the plan, along with a high-level estimate of the resources and costs for implementing the project

B. Project Risk Assessment

Possibly the most challenging portion of the project plan, the risk assessment plan describes the how you will deal with risks that would prevent successful completion of the project. If you anticipate the risks, you'll be more likely to either avoid them or minimize the effect.

Typically, the risk areas teams are likely to encounter include the following:

- Scope: You need to do more than you anticipated
- Budget: You need more funds to get the job done
- Timeline: You can't get everything done fast enough
- Executive support: You can't get executive support to help make decisions.

For each of the four risk areas listed above, we've included a section below to identify and manage risks. For each risk, you'll want to give it a good name, indicate how likely it is to happen, and what steps you can take to prevent it from happening.

1. Scope

Identify factors that could expand or contract the scope of the project as it is defined in the grant proposal. For each factor, list it in the table below and complete the adjoining columns.

Area of Risk or Threat	Likelihood	Mitigation Steps
Buy in, conflicting goals, resistance to change	High	Increase communication about project goals and direction Engage NCR Program Manager for escalation and intervention

2. Budget

The budget for the project is threatened primarily by the availability of resources, the potential for vendor agreements and contract terms that may cause unexpected cash outlays, and the potential for changes in project sponsorship or direction. The chart below summarizes the Team’s assessment of potential risk areas with respect to the project budget. This does not represent a wholly comprehensive list relative to the budget risks – the threat to the budget is also discussed as an element of the other risks areas discussed in this section.

Area of Risk or Threat	Likelihood	Mitigation Steps
Project sponsor	High	Re-sequence tasks or re-scope project based on input Lobby for a sponsor with an understanding of the needs and issues.

3. Timeline

This section provides consideration for events or factors that could most directly affect the time line of the project and the ability of the project manager to meet the grant performance terms. These factors are in addition to the topics presented above which – as discussed – could affect the project time line as well.

Having skilled resources available as defined in the work breakdown structure is critical to achieving success. The absence of necessary skills or delays in each functional area providing a skilled resource will affect the timeline of the project, may threaten the quality of the planned deliverables and may result in cost overruns. This is a significant area of risk for the project manager to manage.

The table below summarizes the impact of resource availability on the project timeline. Resource availability is seen as a primary area of concern.

Area of Risk or Threat	Likelihood	Mitigation Steps

Resource availability	High	Communicate schedule to all functional areas Provide suggestions for functional back ups Engage NCR Program Manager for escalation and intervention
Lack of time, commitment or support from the NCR jurisdictions	High	Escalation to County/City upper management

4. Executive Support

This section assesses the effect a change in leadership or executive direction, or the absence of executive support and sponsorship, could have on the overall project plan – cost, scope, and timeline.

Area of Risk or Threat	Likelihood	Mitigation Steps
Business dynamics – priorities change due to state, local, or federal events	Low	Communicate progress and next steps Balance project progress with definition of outcome
Sponsorship change	High	Lobby for sponsor that has a vested interest in the completion of the project Continue communication around the outcomes relative to the strategic plan via monthly status reports to NCR PMO Include benefits of outcomes in all project communication to management and NCR PMO

C. Communication

This sub-section includes a description of project level communication the team will initiate. One standard project level communication is the monthly status report to the NCR PMO. From a communication standpoint, the project plan should consider how the project team will update the project sponsor and stakeholders regarding progress, or how the project manager will provide input to the Public Information Officers to announce the delivery or availability of new or improved capabilities. (required in sub grant terms and conditions)

Project Communications Guidelines

- *Communicate with all affected parties.*
- *Every message should be audience-specific.*
- *Take advantage of all of the methods of communication available to us – Our chosen method is weekly conference call with monthly face-to-face meetings.*
- *Set appropriate expectations*

- Provide regular, unbiased reporting of project progress.
- Meet frequently and regularly with project managers regarding developments and tactical concerns.
- Offer opportunities for private communication as appropriate.
- Hold project-wide meetings at important milestones.

XII. Communications matrix

XIII. Audience	Message	Method/Channel	Timing/Frequency
Core Project Team	Details; Task-related; Project progress	Team meetings, task-related meetings; Individual meetings; Task/review-specific email	Regularly-scheduled team meetings (1/wk); And as needed
Project Steering Committee	Policy-related issues; Project progress	Groundwork via email; consensus work via team meetings	Regularly-scheduled t (1-hr/wk until RFP award then monthly); And as needed
Governing Boards (SAA)	Project overview (basic understanding, high level timeline)	Face-to-face Project Management Review	As needed.
Architecture Review Committee	Project overview; project progress	Managers meeting (invited speaker)	With each major milestone or at least every 3 mos and within 3 weeks of go-live
IT Partners (after vendor award)	A. Included on core team		

B. Training

This sub-section includes assumptions or plans with respect to training the recipients of the project outcome. For example, if this project includes the implementation of a new or upgraded software application, this sub-section would include a discussion of how the Team expects to prepare the new end users of the application to operate the system 'live' once it is in production.

One of the deliverables of this project is a comprehensive training program to include end-user training manuals, training curriculum and materials, initial training of the end-users and a train-the-trainer program to allow all subsequent training to be done locally and in-house.

C. Project Team

This sub-section describes the resources the Team expects to engage in completing the project. Each resource named on the chart below should be included in the WBS with specifically assigned tasks that show how each

resource will be tasked to complete the project. The chart below includes a sample of roles; the resources for each project will vary based on the project goals, objectives, timeline, and funding.

Role	Name	Description of Activities
Program Manager	Chris Tonjes	Program oversight
Project Manager	Mark Pennington	Overall project management and subject matter expert
Project Coordinator	M. Rice	Business analyst, documentation, schedule coordination, briefing preparation
GIS developer	TBD	Develop the GIS layers necessary, assist with integration of GIS data into the project
Database developer	TBD	Develop to databases, queries and links necessary, assist with the integration of databases into the project.
Integration / Development Contractor	TBD	Perform the bulk of the integration activities, modify selected software as necessary to meet the specific needs of the project, performs beta and full scale testing of the developed system.

Project Plan

Prince George's County Interoperable Radio Communication System

Contact Information

Contact name: Wayne McBride

Title: Program Manager

Organization affiliation: Office of Homeland Security

Jurisdiction: Prince George's County

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Phone number: 301-499-8100

Facsimile number: 301-499-8275

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Project Information: New Interoperability Radio System

Period of Performance: 070106 to 120107

Grant Award: (Fiscal year 06): \$3,000,000

Related Documents: FY 06 Concept Paper

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XIV. Project Summary

Prince George's County, Maryland is located in the heart of the Baltimore/Washington corridor. The county borders Washington, DC and is just 37 miles south of the City of Baltimore. The County's population exceeds 820,000 with a daily work population of well over one million. Covering an area of close to 500 square miles, the County is home to many businesses, as well as state and federal agencies. Some of the Federal agencies include NASA's Goddard Space Flight Center, Andrew's Air Force Base, several Smithsonian support centers, the Census Bureau, U.S. Department of Agriculture's Beltsville facility, a Federal Records Center, and a large Internal Revenue Service office complex. It is also home to the University of Maryland and Bowie State University and the Washington Redskins. The Washington Redskin's FedEx Field stadium holds a game-day population that exceeds 100,000 fans. Additionally, a large portion of the region's Metro transit system, AMTRAK lines, the Capitol Beltway and Interstate 95 pass through Prince George's County.

This proximity to the Nation's Capitol and the need to support many critical federal agencies requires the ability for our first responders to effectively communicate with each other and with the regional partners. While the current communications system of Prince George's County offers virtually no interoperability for regional partners or County first responders, new radio system specifications have been crafted with a focus on intra and inter County interoperability. To support the regional requirements for first responder interoperability, the County's proposed radio system is based upon a state-of-the-art digital trunked system employing the nationwide P-25 interoperability standard adopted by the U.S. Department of Homeland Security.

A. Project Background

The County's lack of interoperability represents a direct threat to the region as the ability of the National Capitol Area emergency response personnel to respond to a critical event is reduced by a lack of command and control communications. Since the terrorist attack of September 11, 2001 in which the County dispatched emergency resources to the Pentagon, there has been no improvement in the ability of Prince George's first responders to interoperate with other regional first responders.

The Washington area jurisdictions have developed regional interoperability fixes to include a cache of "disaster" radios maintained in Montgomery County, Fairfax County, and the District of Columbia. These radios are programmed to operate on the frequencies of the (Motorola) 800 MHz systems used throughout the region. Even if brought to Prince George's County, these radios cannot operate unless their signal is of sufficient strength to reach the network infrastructure of one of the surrounding jurisdictions and that government allocates a "talk-group" to support the users. This suggests that unless the radios are used in an area proximate to the border of the District of Columbia, Fairfax County, or Montgomery County, the radios are likely to be of no use to Prince George's in the management of the emergency. To support the regional requirements for first responder interoperability, the County's proposed radio system is based upon a digital trunked system employing the nationwide P-25 interoperability standard adopted by the U.S. Department of Homeland Security. The implementation of this new radio system will resolve the County's lack of an interoperable first responder radio system and complete the regional communications network with an overall interoperable communications infrastructure. Prince George's County anticipates that the competitive procurement process will allow the County to acquire a state-of-the-art communications system at an optimal cost. At present, the estimated cost for Prince George's County's radio system interoperability solution is \$75,000,000. An aggressive schedule has been established, with testing to begin in the spring of 2008, with a completion date in early 2009.

Like virtually every local government in the United States, Prince George's County faces financial challenges. However, unlike all governments, the County requires a comprehensive and highly expensive new digital trunked land mobile radio communications system to meet the interoperability challenges faced by all of the jurisdictions in the COG. Many of the threat targets in Prince George's relate to our national government and require the expenditure of extraordinary dollars to meet the challenge. Financial assistance from the DHS is both appropriate and needed if the County is going to acquire a system that supports all of the first responders of the region in defending or reacting to threats against portions of vital national and regional infrastructure.

NCR Strategic Initiatives	DHS Target Capabilities & Performance Measures
3.2.2	Enhance regional interoperability, and protection of sensitive and classified information, through technical connectivity and protocols while building upon existing programs
4.2.3	Develop architecture, infrastructure, and concept of operation for regional interoperable communications
4.4.2	Align public, private and NGO resources with identified needs for response and recovery

B. Goals and Outcomes

Describe your project goals and the outcomes for each in the table below. We've added an example; please delete it before you add yours.

Goal	Outcomes
Example: Improve Radio Interoperable Communications	<ul style="list-style-type: none"> ▪ Build new 800 MHz Radio System ▪ Build 21 new towers ▪ Purchase and deliver 5000 new handheld radios

Other discussion you may choose to cover includes relevant portions of your Concept Paper

C. Project Managers

Let us know who contributed on your team to help you achieve your goals. Please list them using the following format:

Wayne McBride Program Manager

D. Project Assumptions

It is appropriate to list assumptions your team is operating under which guide decision making, priorities, resource engagement, etc. The table below provides an example of assumptions a Team may make in the course of planning a project. The Team will periodically revisit the assumptions list to determine if the assumption is still valid and if there are any new items to include on the list.

Item Number	Description	Notes
1	First responders require seamless radio interoperability	Confirmed during project review and needs

Item Number	Description	Notes
		assessment
2	Funding outside of grant money was available to complete the project	Confirmed with Budget Director on 6-1-06
3	Plan is accepted by County Government leaders	Confirmed with Public Safety Director 04-01-05

XV. Project Approach

Now that we know what you want to accomplish, we'd like to understand in greater detail how you'll accomplish the project. Effectively completing this section will likely determine whether you succeed; it's also the section we most closely scrutinize before issuing sub-grants.

A. Activities

Insert a list of the work activities you will perform to complete the project. Here is an example of typical activities:

- Identify the true need for seamless Radio Interoperability
- Hire Radio Consultant
- Perform a Needs Assessment
- Issue a Specification Document
- Review Proposals
- Select Vendor
- Review Proposal with Vendor
- Finalize Contract Negotiations
- Execute a Signed Contract
- Complete CDR
- Build Towers
- Install equipment
- Issue handheld Radios

You may choose to present the material as timeline with work activities, target dates, and expected deliverables. Remember monthly status reports are required by terms and conditions in the award of the funding.

B. Resources

Tell us about the resources you'll need: People, facilities, and equipment. (Budget is included in the next section.) For each resource, complete the adjacent columns in the same row.

Resource Name	Type	Responsibility	Duration
Motorola	Complete Radio System	To build agreed upon radio system	3 years
Consultant	Complete Radio System	Oversee and Guide Project	Duration of Project

Organization charts are an effective way to convey how your project team is organized.

C. Deliverables

Include a list that identifies each deliverable, a description, and the estimated cost. Again, we've included a table to make your life easier:

Preliminary Project Plan (Tasks, Resources, Deliverables, Collaborating Partners, etc.)			
Task(s)	Owner(s) or Collaborating Partners	Deliverable(s)	Target Date(s) or Level of Effort
13. Radio Consultant	RCC/Prince George's Co.	Consulting Services	2005 to conclusion
14. Selection of vendor	RCC/Prince George's Co.	RFP and specification	March 2006
15. Contract Execution	RCC/Selected vendor & County	Radio System	August 2006
16. Plan Implementation	RCC/Selected vendor & County	Radio System	September 2006 to June 2008
17. System Acceptance	RCC/Selected vendor & County	Radio System	June 2008 to September 2008
1. Project Performance Measures		2. Baseline Value	3. Target Value
7. Completed Needs Assessment Report		\$150,000	\$150,000
8. Completed Specification Document		\$200,000	\$200,000
9. Completed Contract		\$40,000	\$40,000
10. Completed System Acceptance		\$75,000,000	\$75,000,000

Monthly status reports are required by terms and conditions in the award of the funding.

D. Next Steps

If appropriate, spell out next steps following the completion of the project. For example, you may want to set expectations for acquiring additional funding, or presenting the findings or outcome of the project to a specific group, or a media campaign to announce the project completion.

XVI. Project Methodology

For complex projects we ask that you complete the sections below.

A. Project Dependencies

Thinking about dependencies, like the examples below, will identify where the availability of resources could affect your success. Example: financial or human assets that support your project.

Question	Yes or No (If yes, please describe how)
Does this project conflict or compete for resources with any other project?	No
Does any other project depend on this project?	Yes RWBN
Are there any other important dependencies that will affect this project?	No

Project Asset - defines the resources – financial and human - required to support the successful execution of the plan, along with a high-level estimate of the resources and costs for implementing the project

B. Project Risk Assessment

Possibly the most challenging portion of the project plan, the risk assessment plan describes the how you will deal with risks that would prevent successful completion of the project. If you anticipate the risks, you'll be more likely to either avoid them or minimize the effect.

Typically, the risk areas teams are likely to encounter include the following:

- Scope: You need to do more than you anticipated
- Budget: You need more funds to get the job done
- Timeline: You can't get everything done fast enough
- Executive support: You can't get executive support to help make decisions.

For each of the four risk areas listed above, we've included a section below to identify and manage risks. For each risk, you'll want to give it a good name, indicate how likely it is to happen, and what steps you can take to prevent it from happening.

1. Scope

Identify factors that could expand or contract the scope of the project as it is defined in the grant proposal. For each factor, list it in the table below and complete the adjoining columns.

Area of Risk or Threat	Likelihood	Mitigation Steps
Example: Lack of Proper Engineering	High	Hired Consulting Firm
Properly Identified Land Quantities for Tower Construction	High	Complete preliminary site acquisitions to include MOU, GEO and Zoning

2. Budget

The budget for the project is threatened primarily by the availability of resources, the potential for vendor agreements and contract terms that may cause unexpected cash outlays, and the potential for changes in project sponsorship or direction. The chart below summarizes the Team's assessment of potential risk areas with respect to the project budget. This does not represent a wholly comprehensive list relative to the budget risks – the threat to the budget is also discussed as an element of the other risks areas discussed in this section.

Area of Risk or Threat	Likelihood	Mitigation Steps
Changes in scope causes increases in cost	High	Consultant reviews all areas of the contract and technical specifications
Need for grant funding to support the critical requirements of the project	HIGH	To ensure the State and Federal agencies are aware of the need for regional interoperability. Back up funding when necessary.

3. Timeline

This section provides consideration for events or factors that could most directly affect the time line of the project and the ability of the project manager to meet the grant performance terms. These factors are in addition to the topics presented above which – as discussed – could affect the project time line as well.

Having skilled resources available as defined in the work breakdown structure is critical to achieving success. The absence of necessary skills or delays in each functional area providing a skilled resource will affect the timeline of the project, may threaten the quality of the planned deliverables and may result in cost overruns. This is a significant area of risk for the project manager to manage.

The table below summarizes the impact of resource availability on the project timeline. Resource availability is seen as a primary area of concern.

Area of Risk or Threat	Likelihood	Mitigation Steps
Unforeseen land issues, such as historical locations discovered at tower site locations	Medium	Perform preliminary site review

Permitting and acquisition	Medium	Establish permitting committee with appropriate agencies
----------------------------	--------	--

4. Executive Support

This section assesses the effect a change in leadership or executive direction, or the absence of executive support and sponsorship, could have on the overall project plan – cost, scope, and timeline.

Area of Risk or Threat	Likelihood	Mitigation Steps
Change in radio system direction	Low	The direction for this project was initiated from the Executive Level

C. Communication

This sub-section includes a description of project level communication the team will initiate. One standard project level communication is the monthly status report to the NCR PMO. From a communication standpoint, the project plan should consider how the project team will update the project sponsor and stakeholders regarding progress, or how the project manager will provide input to the Public Information Officers to announce the delivery or availability of new or improved capabilities. (required in sub grant terms and conditions)

Communication will be achieved in various ways ranging from monthly status reports to the NCR and regular meetings with Public Safety agencies and DCAO for Public Safety and Homeland Security.

D. Training

This sub-section includes assumptions or plans with respect to training the recipients of the project outcome. For example, if this project includes the implementation of a new or upgraded software application, this sub-section would include a discussion of how the Team expects to prepare the new end users of the application to operate the system 'live' once it is in production.

A Motorola Certified Technician will be on site for 1 year to ensure proper training to all staff members and proper configuration. The project timeline also includes daily training for users and technical support staff.

E. Project Team

This sub-section describes the resources the Team expects to engage in completing the project. Each resource named on the chart below should be included in the WBS with specifically assigned tasks that show how each resource will be tasked to complete the project. The chart below includes a sample of roles; the resources for each project will vary based on the project goals, objectives, timeline, and funding.

Role	Name	Description of Activities
Project/Program Manager	Wayne McBride	Manages the Project
Consultants	RCC	Provides specifications and guidance

	Consultants	
Technical Support Staff	Craig Kelso, Dwayne Carter, Mark Davis	Oversee the installation towers, programs and installs mobile and portable radios
Legal Counsel	Tracy Benjamin	Ensures contract compliance and contractual oversight

Project Plan

WMATA Fire Radio Communication Upgrade

Contact Information

Contact name: Dallas Lipp
Title: Lieutenant
Organization affiliation: Montgomery County Fire/Rescue
Jurisdiction: NCR
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Phone number: (240) 777-2401
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Mailing address: Division of Fire and Rescue Services
Montgomery County Fire and Rescue Service
101 Monroe Street, 12th Floor
Rockville, Maryland 20850

Project Information:

Period of Performance: 18 Months
Grant Award: (Fiscal year 06) \$6.1 million
Related Documents: Concept Paper and Initiative Plan

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XVII. Project Summary

Redundancy for Washington D.C.'s Trunked System Infrastructure (\$4,000,000)

The first need concerns the resilience of the manner in which Washington, DC's trunked infrastructure is tied into the PSS. Currently, there is a single fiber optic connection between DC's radio system and the PSS. A break in this connection, whether inadvertent or intentional, disconnects the trunked infrastructure from the PSS which would create a communication outage throughout all the below grade portions of the Metrorail system in DC.

Utilizing funds from the FY05 Grant, a second donor antenna site is being evaluated and selected and an interface to the PSS is being designed.

The FY06 funding will be utilized to implement, integrate and test the redundant system. This Project will provide redundancy for the District's trunked system infrastructure that is tied into the PSS via a fiber optic connection. A Public Safety Radio System above ground antenna will be installed at another donor site. The interface equipment between the new donor site and the WMATA fiber optic network and between the fiber network and the interface head-end amplifier needed to complete the connection will be provided.

Replacement of Existing BDA's (\$2,100,000)

The second need concerns the replacement of the existing Bi-Directional Antennas (BDA's) to eliminate a frequent point of failure and to provide remote monitoring capability for all BDAs in the system. Many of the BDAs currently in the system are nearing the end of their useful life, approximately 15 years, and in addition cannot be economically equipped for remote status monitoring. The absence of remote monitoring capability means that the only way failures are identified is through regular system testing, or when communication failures are experienced during incidents. Given the age of the majority of the BDAs (in excess of 13 years in many cases) frequent failures result in coverage outages until the outages are identified and BDA(s) are repaired. Concurrent with the replacement of the older BDAs, all BDAs in the system need to be connected to the existing WMATA radio system monitoring infrastructure so that their status can be monitored remotely, providing real-time notification of outages so that they can be addressed in a timely manner.

Presently the BDAs are 600' to 1100' apart. Antennae testing will be conducted to determine if we can use a more powerful BDA but spaced further apart. Depending on the results of the antennae test, the type and positioning of the BDAs will then be determined. For example: the results could conclude that if we purchase more powerful BDAs but only need BDAs every 2400 feet, then the unit price of each BDA is higher but we then only need 25% of the BDAs we have now. Spacing the BDA's every 2400 feet will allow them to be relocated out of the track right-of-way, making maintenance easier. FY05 funding will also be used to begin replacement of the BDA's.

Funds from the FY06 Grant will be used to replace the next increment of the aging BDAs with new BDA's. This will eliminate a frequent point of failure and to provide remote monitoring capability for all BDAs in the system once all the old BDAs have been replaced. Once the overall project is complete, the reliability of the system infrastructure will improve dramatically. Remote status monitoring will ensure that system managers will always be aware of system status and provide a means of proactive, rather than reactive, management of the system infrastructure. This will maximize the availability and reliability of the system for first responders. Unanticipated outages greatly increase the risk to the public and first responders during responses.

A. Project Background

Problem Statement/Project Description:

Communication capacity and reliability are critical to the successful management and mitigation of emergency incidents in the Metrorail system. Metrorail, the second largest rail transit system in the United States, carries hundreds of thousands of passengers each day, is a critical regional transportation link and a major response

challenge for first responders. Communication for first responders operating on 800 MHz radio systems in the below ground portions of the Metrorail system is provided by the Public Safety System (PSS), which is a complex distributed antenna system consisting of bi-directional amplifiers (BDAs) and Radiax™ coaxial cable installed throughout the below grade portions of the system.

The FY06 Grant request of \$6,100,000 addresses the Strategic Plan Target Capabilities of Interoperable Communications, Law Enforcement Investigation and Operations, Critical Infrastructure Protection, Onsite Incident Management, Urban Search and Rescue, Public Safety and Response, Firefighting Operations/Support, and Economic & Community Recovery by supporting capacity and reliability of the WMATA PSS to meet the needs of first responders.

NCR Strategic Initiatives	DHS Target Capabilities & Performance Measures
4.2.3	Develop architecture, infrastructure, and concept of operations for regional interoperable communications.

B. Goals and Outcomes

Describe your project goals and the outcomes for each in the table below. We've added an example; please delete it before you add yours.

Goal	Outcomes
Redundancy for DC's Trunk System	<ul style="list-style-type: none"> ▪ 100 percent redundancy
Replace and enhance reliability of BDAs	<ul style="list-style-type: none"> ▪ Achieve 60 percent of total replacements needed

Other discussion you may choose to cover includes relevant portions of your Concept Paper

C. Project Managers

Let us know who contributed on your team to help you achieve your goals. Please list them using the following format:

Beck Pack	Program Manager, WMATA
Sarj Akhund	Project Manager, WMATA
Dallas Lipp	NCR Fire Chiefs Liaison, Montgomery County Fire/Rescue

D. Project Assumptions & Scalability

It is appropriate to list assumptions your team is operating under which guide decision making, priorities, resource engagement, etc. The table below provides an example of assumptions a Team may make in the course of planning a project. The Team will periodically revisit the assumptions list to determine if the assumption is still valid and if there are any new items to include on the list.

1. *Project Assumptions*

Item Number	Description	Notes
1	Staff is available, with the required skill set, to complete all tasks identified in the project schedule	WMATA external and project staff are coordinating directly with Fire Department communications personnel on the project
2	Additional UASI funds in FY07 will be needed to complete the BDA replacement part of the project	

2. Scalability

The project is scalable, please also see the Deliverables table for additional information. The first priority is to continue to make progress on BDA replacement, which is broken down into two parts. The only rationale for the scaling of the BDA replacement is fiscal. If there were no fiscal constraints the total requested funding of \$2.1M would maximize the progress made with the time available during the grant performance period. Given the current fiscal realities, this part of the project has been scaled to provide fiscal relief while trying to maximize the progress made. The danger associated with slowing progress on this portion of the project is that the infrastructure is at risk of regular, and not easily identifiable, system failures on a daily basis. The BDA replacement project affects almost the entire below grade portion of the Metrorail system and thus has the broadest regional impact of the two tasks underway; the BDA replacement and the redundant Washington, DC interface.

Moving from design to procurement to provide a redundancy for the District's trunked radio infrastructure is a close second in terms of priorities for this project and is broken down into two parts. The first part provides for the procurement of the necessary services and hardware to implement the redundant interface. This is a discrete identifiable effort that can be undertaken, making progress on the overall project, without being negatively impacted if additional funding is not immediately available for installation and testing. Trying to reduce the overall scope of the project beyond the two phases provided would almost certainly drive up the overall project cost. Once again, it should be noted that full funding of \$4M would permit this critical task to be completed within a single grant funding cycle. Presently should either an accident or attack occur in the section of tunnel housing the existing link it is likely that there would be no 800 MHz radio coverage in the Metrorail system within Washington, DC. Unfortunately, the current link occupies a highly traveled section of tunnel that is also in an area of the system that could be particularly attractive to potential attackers due to its central location and high passenger loads.

Both tasks, the BDA replacement and the redundant Washington, DC radio interface, are critical strengthening the public safety responders' ability to operate safely and efficiently during incidents occurring in the Metrorail system. As noted in the recently released reports on the 2005 London bombing attacks communications barriers were one of the largest challenges that responders faced. Until these projects are fully implemented the NCR is at risk of having the same challenges confronted by those responding to the London bombings.

XVIII. Project Approach

Now that we know what you want to accomplish, we'd like to understand in greater detail how you'll accomplish the project. Effectively completing this section will likely determine whether you succeed; it's also the section we most closely scrutinize before issuing sub-grants.

A. Activities

Insert a list of the work activities you will perform to complete the project. Here is an example of typical activities:

- Procure, install and test BDA equipment
- Procure, install and test DC Radio interface

You may choose to present the material as timeline with work activities, target dates, and expected deliverables. Remember monthly status reports are required by terms and conditions in the award of the funding.

B. Resources

Tell us about the resources you'll need: People, facilities, and equipment. (Budget is included in the next section.) For each resource, complete the adjacent columns in the same row.

Resource Name	Type	Responsibility	Duration
WMATA	People	Project Management	Full grant period
NCR Fire Departments	People	Guidance and coordination	Full grant period
Consultants	people	Project support	Most of grant
	Equipment		

Organization charts are an effective way to convey how your project team is organized.

C. Deliverables

Include a list that identifies each deliverable, a description, and the estimated cost. Again, we've included a table to make your life easier:

Deliverable	Delivery Date	Estimated Cost
75% of next increment of BDA Replacement: Procurement, installation and testing	18 months after award	\$1.575 million
Redundant DC Radio Interface: Request for Proposals and Procurement	6 months after award	\$2.3 million
25% of next increment of BDA Replacement: Procurement, installation and testing	22 months after award	\$0.525 million
Redundant DC Radio Interface: Installation and Testing	22 months after award	\$1.7 million

Monthly status reports are required by terms and conditions in the award of the funding.

D. Next Steps

If appropriate, spell out next steps following the completion of the project. For example, you may want to set expectations for acquiring additional funding, or presenting the findings or outcome of the project to a specific group, or a media campaign to announce the project completion.

XIX. Project Methodology

For complex projects we ask that you complete the sections below.

A. Project Dependencies

Thinking about dependencies, like the examples below, will identify where the availability of resources could affect your success. Example: financial or human assets that support your project.

Question	Yes or No (If yes, please describe how)
Are there any other important dependencies that will affect this project?	Yes. If project is not fully funded, future year UASI funds will also be needed to complete redundancy for DC's Radio Interface (along with finishing BDA replacement)

Project Asset - defines the resources – financial and human - required to support the successful execution of the plan, along with a high-level estimate of the resources and costs for implementing the project