2007 NSDI Cooperative Agreements Program
Category 4: Geo-Enabled Federal Businesses Initiative

<u>Final Report</u>

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Project title: ***Improving Federal Business: Building the Case for Geospatial Approaches***

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Project Narrative:

Current geospatial and internet technology provide for the creation, distribution, acquisition and utilization of geographic data and mapping functionality with relative ease. Decision making and problem solving at all levels may be enhanced through the consideration of previously excluded, context-relevant geographic information and spatial data. Geographic information systems (GIS) and other geospatial technology facilitate the integration and synthesis of geographic data with non-spatial data. Federal business managers with limited or no experience with geospatial approaches should be educated about the potential benefits possible through effective application of geospatial data and technology.

The core value of this project is the resulting business case framework by which the Federal Geographic Data Commission (FGDC) and its partners can communicate effectively with all Federal program managers and senior leaders. The framework is a means of speaking geographically when geography is not the common language.

Our goal was to ensure that the business case portfolio is understandable to the diverse membership of the Federal audience. We will not assume that the audience is versed in geospatial techniques, but through the introduction to the portfolio, we will ensure that the audience has a basic understanding of the concepts of geographic thinking. The first segment of the audience includes those who have limited understanding of geo-analytics, but know the business management decisions that are critical for program performance. The second segment includes those who generate information through different means to support decision-making. The third segment is those who manage information technology.

In our experience, a solid business case is one that focuses on the desired outcome, identifies who is likely to be interested in the outcome, and how their respective strategies can lead to cooperative capacity for achieving the initiative. We believe this approach allows each agency to control their information and resources while maximizing their ability to cooperate. The business case creates an opportunity for each agency to share their contributions, for example data layers, and see how their view of the situation matches up with the views of their partners. From this approach, we can also speak to the opportunities for sharing other resources. The next step is to emphasize how the geo-analytics provide new insights from the relationship between the shared layers of information.

Summary of Project Activities and Obtained Results:

1. The Team has chosen a set of comprehensive business cases for geo-enabling decision-making processes that are common across Federal programs. The business cases include layman descriptions of the geography and analytics that apply to critical decisions, and supportive technical descriptions for program development of geo-analytic capacity, including the Federal Enterprise Architecture Geospatial Profile.

The main objective of the Cases is to demonstrate that geospatial component can and have to unite the activities across several Federal programs. In spite of the fact that each Federal program has its own goal and objective, it can be optimally united with another program along geospatial and locational program axis (appendix 1).

The business cases have been selected to cover major policy themes that consistently challenge Federal organizations. Each case begins with the National goal and identifies the potential collaboration of geospatial solutions across programs that potentially affect the problem in question. The case is examined in terms of the potential added value of utilizing geospatial techniques. Following the business cases is a more technical description of how to build the capacity and capabilities of geospatial decision-making, in terms of Federal requirements and contemporary technologies.

In their activities the Team relied on Dr. David Paschane's insight knowledge of Federal geo-enabled business practices. There were several meetings between Dr. Paschane and members of the Team. Thorough detailed discussions helped to outline the project priorities, objectives, management plan and ways of analysis, evaluation and reporting.

The Team has presented and discussed the interim results of the project at the 2008 ESRI Federal User Conference in Washington, D.C., and at the GIS Middle Atlantic User Conference in Philadelphia, PA.

The Team has chosen the following business cases that have a strong geospatial component and introduce Federal executives and program managers to the power of geographic information systems (GIS) and the general advantages of spatial information and geographic science. These business cases also address major national issues:

Emergency Preparedness Case

Critical Thinking: Do we understand how America's personal and economic well-being is at risk in different emergencies, and are our intergovernmental systems designed to respond to these events and support subsequent restoration of well-being?

Homeland Security Case

Critical Thinking: Do we have the human and technological capacity for collecting, securing, verifying, and using critical information across all disparate communities, regardless of the level of threat or in the presence of threat incidences?

Transitioning Workforce Case

Critical Thinking: Do we apply best possible preparation and connection solutions to workforces across business sectors, industries, and markets when candidate employees are in critical transitions, such as initial retirement, military separation, or work rehabilitation?

Healthcare Networks Case

Critical Thinking: Do we understand the market factors that lead to citizens using various networks of healthcare options, with or without prepaid private insurance, and how does this health-seeking behavior affect health outcomes?

Education Quality Case

Critical Thinking: Do we know what options in educational funding and administration lead to successful academic outcomes, given differences in contextual factors, and can we identify where communities are in critical need of these options?

Energy Production Case

Critical Thinking: Do we know the long-range capacity and opportunities for developing energy within national boundaries, and the relative advantages of investments towards these opportunities in different locations?

Transportation Infrastructure Case

Critical Thinking: Do we have sufficient strategies for sustaining long-term development of transportation infrastructure, while mitigating the full scope of risks that likely due to natural, technological, and man-made hazards?

Each case was characterized by the Goal and Objectives required to completing. Special focus was made on geospatial component of each business case to demonstrate to the Federal executives and program managers the power of Geographic Information Systems (GIS) and the general advantages of spatial information and geographic science. Utilization of geospatial components, analyzing and bringing in unified geospatial solutions across the federal programs within the business cases demonstrated the ways to leverage, effectively coordinate and utilize geospatial resources to achieve potential collaboration between the programs, save federal business resources, and enhance decision-making and output value of each federal program

Within the Project, the business case "Emergency Preparedness and Response" has been fully exemplified and analyzed. Case challenges, geospatial resources and spatial data have been characterized (appendix 1).

It allows delineating the basic analytical characteristics of each business case to be typified in the future (appendix 1).

2. Another important result of the Project activities is the summated analysis of the importance of the geospatial component in relevance to the policy interests. It provides an organization of geo-enabled business cases and practices for intra- and interagency collaboration (appendix 2).

Policy interests of national concern and their associated Federal programs represent dynamic enterprises continually impacted by the application of emergent technologies. In this way, geospatial thinking, methods, and technology are radically changing the execution of Federal programs at all levels. Appropriately, then, Federal decision makers, here aggregated and referred to as Federal Agency Communities, must understand how geoenabling Federal business may realize significant improvements over aspatial and non-geographic ways of doing things. The table in appendix 2 poses questions for each level of Federal Agency Community to guide thinking and the implementation of the geospatial components of programs as they relate to specific to policy interests. Each policy interest poses a unique set of geographic considerations, concerns, and components that touch on such topics as demographics, resource allocation, and science, among others that involve location. Additionally, each Federal Agency Community must consider how geoenabling Federal business creates opportunities for intra- and interagency collaboration. The table in appendix 2 outlines the geospatial considerations for each Federal Agency Community for the following policy interests:

- Emergency Preparedness
- Homeland Security
- Healthcare Networks
- Asset Management
- Education Quality
- Energy Production

- Transitioning Workforce
- Transportation Infrastructure

3. Geoenabling Federal Business promises many improvements over previous aspatial and non-geographic ways of doing Federal business. In order to guide the practice of geoenabling Federal business, one more framework has been devised. Each Federal Agency Community plays a role from policy drafting and articulation all the way to policy execution. The idea of enabling Federal business takes on a different significance at each of these levels and for each community. Understanding these ways in which "geo-enabilization" manifests itself is critical for successful policy and program articulation, management, and execution (appendix 3).

Actions:

An evaluative framework to structure the business case analysis is being synthesized from the following components:
- The Performance Review Model of the Federal Enterprise Architecture Geospatial Profile: Geospatial Line of Business: Common Solutions and Target Architecture.
- Agency Strategic Plans
- Exhibit 300
- PART documentation

Team members:
- Were involved in several conference call discussions with the Federal Geospatial Line of Business representatives;
- Participated at the Geo-Enabled Business Work Group discussing the Geo-Enabled Business Work Plan as a Work Group Member;
- Attended the meetings of the National Geospatial Advisory Committee;
- Presented and discussed the outcomes at the Geospatial Federal Users Conferences in Washington D.C. and Philadelphia, PA.

Next Steps:

The prospect steps of the Project are to focus on the continuation of thorough analysis of the business cases. The objective is to enable federal employees to improve business decision-making using geospatial methods.

It is proposed that the better understanding of geo-enabled processes can be achieved through a set of training courses. Geospatial Training will equip a Federal participant

and the agency with innovative GIS solutions applicable to many aspects of Executive Decision Making in government operations.

It is projected that Geospatial Line of Business would consider creating a Geo-enabled Training Institute for Federal Managers and professionals.

Feedback on Cooperative Agreements Program

- What are the CAP Program strengths and weaknesses?

CAP Program provides unique opportunity to analyze and research the modern issues of great national significance.

CAP Program strengths also lie in the diversity of project categories and the distribution of award recipients throughout the United States.

Weaknesses include a perceived bias towards applications of technology versus consideration and research into the theoretical underpinnings of GIS-use in government institutions and the effects of such technology on society-at-large.

- Where does it make a difference?

The crucial difference is that the CAP Program motivates the closer partnership between private businesses, academia and Federal Government on current issues. It provides for the private, public and academic sectors to interface with each and across various levels.

- Was the assistance you received sufficient or effective?

Assistance received up front and at the onset of the project was sufficient and effective. However, establishing additional and more diverse links with FGDC personnel could have been helpful.

- What would you recommend that the FGDC do differently?

FGDC could consider requiring the Project Team members present the outcomes at one of the Federal Users Group meetings to check the progress and stimulate the practical outreach.

- Are there factors that are missing or additional needs that should be considered?

Additional meetings and discussion with FGDC members providing advice and support at the interim stage would benefit the Teams' outcomes.

Opportunities to formally interact with and view the results of other CAP awardees would be also welcomed.

- Are there program management concerns that need to be addressed, such as the time frame?

No. All considerations, including time frame, seemed to be adequate.

- If you were to do this again, what would you do differently?

We would establish relationships much sooner with Federal agencies and geospatial contacts within government.

Business Cases Portfolio

The Team has chosen several business cases that have strong geospatial component. These business cases address major national issues and cover key policy themes that consistently challenge Federal agencies.

1. CASE: _Emergency Preparedness and Response_

GLoB Subject Matter Expert: Dat Tran (Veterans Affairs)

1.1.   Overview

In the case of different emergencies as: terrorist attacks, man-made and /or natural disasters an emergency preparedness plan and correspondent activities have to be implemented at all levels within the community to minimize the well-being impact. Several federal agencies are involved in emergency preparedness activities

It is important to have a workable emergency plan to act in a responsible manner to avoid a tragedy in the event of emergency. The Federal, Regional and Local agencies, communities and individuals have to act in unison according to a disaster plan of actions. Everyone needs to know what to do before, during and after emergencies, what appropriate actions to take, How and when to shut off utilities, purify and store water, make first aid kits and earthquake kits, and be prepared for the long term.
Federal Government takes a lead in informing businesses, governments, agencies and individuals in building an emergency preparedness plan and actions.

According to the Department of Homeland Security mission "in the event of a terrorist attack, natural disaster or other large-scale emergency, the Department of Homeland Security will provide a coordinated, comprehensive federal response and mount a swift and effective recovery effort. The department assumes primary responsibility for ensuring that emergency response professionals are prepared for any situation".

1.2.   Goal and Objectives. Related Federal Programs:

The main goal of the emergency preparedness and response activities within federal programs is to provide a preparedness emergency plan and outline the steps of implementation of a set of actions necessary to follow in any emergency situation within certain geographic area, community, and/or agency.

Several Federal departments and programs are involved in emergency preparedness and response activities. There are more than 200 large and small emergency-related federal programs.

Here is a list of the main ones:

- o **Emergency Conservation Program**. It provides emergency assistance for producers to rehabilitate farmland damaged by natural disasters and for carrying out emergency water conservations measures in periods of drought. The program is administered by state and county FSA committees.
- o **Food Aid for Emergencies and Development.** This program administered by USAID provides food for emergencies and for preventing famine. It also provides food for development (non-emergency) uses.
- o **International Disaster and Famine Account.** The program provides relief and rehabilitation to people abroad experiencing man-made and natural disasters and also helps countries respond more quickly and effectively to future disasters
- o **Emergency Management program. Administered by Corps of Engineers.** It prepares for and responds to natural disasters, including floods, storms and hurricanes, by training and equipping personnel to respond to flood and storm events, repairing flood control and storm protection structures damaged by major floods and storms and conducting other emergency response activities.
- o **Commissioned Corps: Readiness and Response Program.** The purpose of this program is to provide a timely, appropriate, and effective response to public health and medical emergencies, and to urgent public health needs.
- o **Emergency Watershed Protection Program.** It undertakes emergency measures to: (1) relieve imminent hazards to life and property created by natural disasters, and (2) alleviate future flood risk
- o **FEMA Readiness Program.** This program serves as the focal point for emergency management training; coordinates agency participation in emergency management exercises; provides readiness guidance and technical assistance to state and local organizations; and maintains the National Incident Management System and National Response Plan.
- o **FEMA Disaster Response Program.** This program is designed to quickly, efficiently and effectively provide support to State, Tribal, and local governments, and Federal response teams in the event of a natural or manmade disaster, emergency or terrorist event.
- o **FEMA Mitigation Program.** It reduces or eliminates long-term risk to people and property from hazards and their effects. This effort includes risk assessments, property elevation and acquisition, strengthening buildings to withstand earthquakes or wind forces, and the flood insurance program.
- o **FEMA Disaster Recovery Program.** This program ensures that individuals and communities affected by disasters of all sizes, including catastrophic and terrorist events, are able to return to normal function with minimal suffering and disruption of services.
- o **FEMA National Security Program.** It provides executive agent leadership to ensure continuity of national operations and enduring Constitutional government in response to all-hazard emergencies.
- o **Highway Emergency Relief Program.** It provides financial assistance to States and federal land management agencies for the reconstruction of qualified highways and bridges that have suffered serious damage as a result of natural disasters or catastrophic failures from an external cause.
- o **Emergency Medical Services for Children**. This program provides grants to States or accredited medical schools to support programs that expand and improve emergency medical services for children.

o **EPA Radiation Protection Program.** It responds to incidents involving nuclear or radiological material, oversees the safe disposal of radioactive waste, and provides standards for protecting human health and the environment from radioactive material
o **Superfund Removal Program.** EPA's Superfund Removal Program is a short term cleanup program that remediates emergency and non-emergency situations in two years or less.
o **Emergency Food Assistance Program.** This program provides food and administrative funds to States for emergency food assistance to needy people.
o **Emergency Pest and Disease Management Program.** This program assists in safeguarding plant and animal health and facilitating safe trade by responding to emergency pest and disease infestations with quick detection, containment and eradication.
o **Disaster Loan Program.** It is administered by SBA and provides low interest loans to businesses and homeowners to cover the uninsured recovery costs resulting from disasters
o **Strategic National Stockpile.** This program ensures the availability and rapid deployment of medical assets and countermeasures to the site of a terrorist attack or other national public health emergency. It is a national repository of antibiotics, chemical antidotes, life-support medications, and medical equipment, placed at strategic locations.
o **Bioterrorism: Biosurveillance Program.** This program is to improve the Federal government's ability to rapidly identify and characterize potential bioterrorist attacks or other public health emergencies through three sub programs, BioSense (collecting data from hospitals), Quarantine Stations, and the Laboratory Response Network
o **Cost Guard Marine Environmental Protection Program.** It prevents oil and hazardous materials from entering navigable waters.

These programs are within different Federal Agencies as:

o Department of Agriculture
o Department of Home Land Security
o Department of Health and Human Services
o Department of State
o Department of Transportation
o Corps of Engineers – Civil Work
o Environmental Protection Agency
o International Assistance Programs
o Small Business Administration

1.3.   Case Challenges

The broad scope of the listed federal programs and a wide geographical range of their possible impact makes notoriously difficult to sense how the federal program and agency affect a certain region and implement the required emergency plan with a set of actions.

The programs are coordinated and managed by different federal agencies that require strong collaboration and interoperability between the objectives and priorities, obtained data and ways of analysis, accepted results and outcomes.

Also, the questions as: "Do we understand how America's personal and economic well-being is at risk in different emergencies, and are our intergovernmental systems designed to respond to these events and support subsequent restoration of well-being?" have to be seriously considered to assess the outcome of these federal programs.

1.4.   Geospatial Resources and Spatial Data

To fulfill the goal and objectives of the "Emergency Preparedness and Response" business case and minimize the impact of outlined challenges, the geospatial inter-program components and resources have to be outlined and further analyzed to provide unified geo-enabled business solution.

The first step is to identify the business activities within each federal program that depend on locational information. Second, the associated spatial layers of information within each business have to be obtained and gathered. Finally, the geospatial analytical functionality has to be incorporated to support optimization and inter-program unification of geospatial information.

Following this framework 1) a series of business activities relying on locational information are occurring within each program as:
- o   Distribution of farmlands,
- o   Geographic risk assessment,
- o   Property elevation,
- o   Buildings location to withstand earthquakes or wind forces,
- o   Geography of flooding areas,
- o   Polluted areas,
- o   Population accumulation and distribution patterns, etc.

2). within this business case several spatial data layers with crucial geospatial information can be identified across different programs.
Here is a list of the most important spatial layers to be analyzed:
- o   Elevation
- o   Parcels
- o   Weather
- o   Population
- o   Hydrography
- o   Vegetation
- o   Land Use
- o   National, Regional, State, Local boundaries
- o   Road network
- o   Points of interest
- o   Strategic targets, etc.

To achieve the inter-program cohesiveness of spatial layers it will be important to focus on data compatibility and geographic unification across the programs as: similar data resolution, projection, scale, level of accuracy, etc.

It is also important to focus on a geographic level of the program's objectives, accumulate and analyze the geospatial layers accordingly as: per state, region, township or locality without mixing the geo level of complexity.

3). Emergency Preparedness and Response business case with the objective to prepare, set a plan, mitigate, respond and restore the effects of all natural or man-made disasters and terrorist attacks can be assessed across the federal programs deploying the following geospatial analytical activities*:
   o Assessing natural resources and/or economic conditions;
   o Tracking deployment of natural resources;
   o Conducting assessment of threat;
   o Assessing of damage to natural and manmade features and resources;
   o Tracking movements of population;
   o Monitoring of pollution and contamination impact of the industries;
   o Geographic planning of transportation facilities;
   o Determining impacts of energy operations and risks due to natural events;
   o Tracking of hazardous and toxic materials;
   o Designing monitoring networks;
   o Analyzing and Predicting air quality levels, etc.

It is important to apply a similar method of spatial analysis and utilize the same geospatial services to achieve the compatibility of the results. For example, while tracking movements of population to use Networking Analysis coupled with Spatial Analytical techniques as Spatial Overlay.

1.5.   Conclusion

Emergency Preparedness and Response Business Case is represented by a set of federal programs that have a common geospatial base. A set of spatial information layers has to be identified and analyzed. It provides a cross-program unified approach and allows saving resources, time and money.

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* Information is based on "Geospatial Profile of the FEA", June 2007.

2. Analytical Templates to evaluate the Business Cases

2.1 Homeland Security Case

Overview
Federal Programs
Goals and Objectives
Geospatial Data and Methods of Analysis
Results
Desired Outcome
Future Opportunities

Business Case Objectives: *Do we have the human and technological capacity for collecting, securing, verifying, and using critical information across all disparate communities, regardless of the level of threat or in the presence of threat incidences?*

2.2. Transitioning Workforce Case

Overview
Goals and Objectives
Geospatial Data and Methods of Analysis
Results
Desired Outcome
Future Opportunities

Business Case Objectives: *Do we apply best possible preparation and connection solutions to workforces across business sectors, industries, and markets when candidate employees are in critical transitions, such as initial retirement, military separation, or work rehabilitation?*

2.3 Healthcare Networks Case

Overview
Federal Programs
Goals and Objectives
Geospatial Data and Methods of Analysis
Results
Desired Outcome
Future Opportunities

Business Case Objectives: *Do we understand the market factors that lead to citizens using various networks of healthcare options, with or without prepaid private insurance, and how does this health-seeking behavior affect health outcomes?*

2.4 Education Quality Case

Overview
Goals and Objectives
Geospatial Data and Methods of Analysis
Results
Desired Outcome

Future Opportunities

Business Case Objectives: *Do we know what options in educational funding and administration lead to successful academic outcomes, given differences in contextual factors, and can we identify where communities are in critical need of these options?*

2.5 Energy Production Case

Overview
Federal Programs
Goals and Objectives
Geospatial Data and Methods of Analysis
Results
Desired Outcome
Future Opportunities

Business Case Objectives: *Do we know the long-range capacity and opportunities for developing energy within national boundaries, and the relative advantages of investments towards these opportunities in different locations?*

2.6 Transportation Infrastructure Case

Overview
Goals and Objectives
Geospatial Data and Methods of Analysis
Results
Desired Outcome
Future Opportunities

Business Case Objectives: *Do we have sufficient strategies for sustaining long-term development of transportation infrastructure, while mitigating the full scope of risks that likely due to natural, technological, and man-made hazards?*

Attachment 2:

A Framework for Linking Policy Interests and Federal Agency Communities with Geospatial Interest

POLICY INTEREST	FEDERAL AGENCY COMMUNITIES					
	Policy Makers (Congress)	**Decision Makers** (Secretaries)	**Program Managers** (Directors)	**Information Officers** (CIOs)	**Data Managers** (Analysts)	**In-the-field Employees** (Action Officers)
Emergency Preparedness	*Are you adequately legislating for and funding government to prepare for, prevent, respond to, and recover from disasters?* *Do you understand the geospatial aspects of emergency prevention, response and recovery?* *Do you understand how America's personal and economic well-being is at risk in different emergencies, and are our intergovernmental systems designed to respond to these events and support subsequent restoration of well-being?*	*Have you identified the critical agencies and programs with which your own agency must be aligned to support emergency preparedness?* *Can the losses (e.g., human, economic, etc) be minimized via geospatial prioritization of emergency response and recovery resources?*	How might explicit consideration of the geographic aspects of your program improve performance? Have you identified opportunities for geoenabling aspects of program management and critical decision-making? Have you identified other agencies or programs with shared interests in policy or geospatial data and/or services?	Have you identified enterprise information needs to maintain performance and ensure program success. Have you identified sites in your business process workflows for integrating geospatial data and services? Are you aware of how other agencies and programs may benefit from sharing your data assets, your lessons learned and your best practices? Are you managing the production of geospatial knowledge in your organization?	Have you identified and can you access suitable geospatial data and services required by your business processes? How might other data managers benefit from your lessons learned as you addressed gaps in your own geospatial data and service needs?	Are you confident in your ability to access and execute the geospatial processes required to do your job? Are you aware of the protocol to follow and the channels to pursue to suggest improvements to existing business processes and practices?
Homeland Security	*Are you adequately legislating for and funding government to ensure the security of the homeland?* *Do you understand how threats to the nation vary*	*Do you understand the needs for information analysis and synthesis as threats emerge across diverse and disparate communities?* *Have threats been assessed according to their geospatial variation?*	How might explicit consideration of the geographic aspects of your program improve performance? Have you identified opportunities for geoenabling	Have you identified enterprise information needs to maintain performance and ensure program success. Have you identified sites in your business process workflows for	Have you identified and can you access suitable geospatial data and services required by your business processes? How might other data managers	Are you confident in your ability to access and execute the geospatial processes required to do your job? Are you aware of the protocol to follow and the channels to

	according to location?		aspects of program management and critical decision-making? Have you identified other agencies or programs with shared interests in policy or geospatial data and/or services?	integrating geospatial data and services? Are you aware of how other agencies and programs may benefit from sharing your data assets, your lessons learned and your best practices? Are you managing the production of geospatial knowledge in your organization?	benefit from your lessons learned as you addressed gaps in your own geospatial data and service needs?	pursue to suggest improvements to existing business processes and practices?
	Do we have the human and technological capacity for collecting, securing, verifying, and using critical information across all disparate communities, regardless of the level of threat or in the presence of threat incidences?					
Healthcare Networks	*Are you adequately legislating for and funding government to maintain and improve national healthcare networks?* *Do you understand how the quality and access to healthcare varies across the nation?*	*How does your program contribute to and what role does it play in the healthcare market?* *Are their recognizable geospatial aspects that contribute to the variation of the quality of healthcare?*	How might explicit consideration of the geographic aspects of your program improve performance? Have you identified opportunities for geoenabling aspects of program management and critical decision-making? Have you identified other agencies or programs with shared interests in policy or geospatial data and/or services?	Have you identified enterprise information needs to maintain performance and ensure program success. Have you identified sites in your business process workflows for integrating geospatial data and services? Are you aware of how other agencies and programs may benefit from sharing your data assets, your lessons learned and your best practices? Are you managing the production of geospatial knowledge in your organization?	Have you identified and can you access suitable geospatial data and services required by your business processes? How might other data managers benefit from your lessons learned as you addressed gaps in your own geospatial data and service needs?	Are you confident in your ability to access and execute the geospatial processes required to do your job? Are you aware of the protocol to follow and the channels to pursue to suggest improvements to existing business processes and practices?
	Do we understand the market factors that lead to citizens using various networks of healthcare options, with or without prepaid private insurance, and how does this health-seeking behavior affect health outcomes?					
Asset Management	*Are you adequately legislating for and funding government to intelligently manage government assets across the nation?*	*How do the locations of assets alternatively enable and limit agency and program performance and success?*	How might explicit consideration of the geographic aspects of your program improve performance?	Have you identified enterprise information needs to maintain performance and ensure program success.	Have you identified and can you access suitable geospatial data and services required by your business processes?	Are you confident in your ability to access and execute the geospatial processes required to do your job?

			Have you identified opportunities for geoenabling aspects of program management and critical decision-making? Have you identified other agencies or programs with shared interests in policy or geospatial data and/or services?	Have you identified sites in your business process workflows for integrating geospatial data and services? Are you aware of how other agencies and programs may benefit from sharing your data assets, your lessons learned and your best practices? Are you managing the production of geospatial knowledge in your organization?	How might other data managers benefit from your lessons learned as you addressed gaps in your own geospatial data and service needs?	Are you aware of the protocol to follow and the channels to pursue to suggest improvements to existing business processes and practices?
Education Quality	*Are you adequately legislating for and funding government to maintain and improve the quality of education across the nation?*	*To what degree, if at all, do geographic aspects account for variation in academic outcomes?* *Is geospatial variation in the allocation of funds and services contributing variation in academic outcomes?*	How might explicit consideration of the geographic aspects of your program improve performance? Have you identified opportunities for geoenabling aspects of program management and critical decision-making? Have you identified other agencies or programs with shared interests in policy or geospatial data and/or services?	Have you identified enterprise information needs to maintain performance and ensure program success. Have you identified sites in your business process workflows for integrating geospatial data and services? Are you aware of how other agencies and programs may benefit from sharing your data assets, your lessons learned and your best practices? Are you managing the production of geospatial knowledge in your organization?	Have you identified and can you access suitable geospatial data and services required by your business processes? How might other data managers benefit from your lessons learned as you addressed gaps in your own geospatial data and service needs?	Are you confident in your ability to access and execute the geospatial processes required to do your job? Are you aware of the protocol to follow and the channels to pursue to suggest improvements to existing business processes and practices?
		Do we know what options in educational funding and administration lead to successful academic outcomes, given differences in contextual factors, and can we identify where communities are in critical need of these options?				

Energy Production	*Are you adequately legislating for and funding government to maintain energy production and effectively plan for the future?* *Do we know the long-range capacity and opportunities for developing energy within national boundaries, and the relative advantages of investments towards these opportunities in different locations?*	*How might a geographically-informed understanding of energy markets, economic growth, and changing demographics enhance energy production and planning?*	How might explicit consideration of the geographic aspects of your program improve performance? Have you identified opportunities for geoenabling aspects of program management and critical decision-making? Have you identified other agencies or programs with shared interests in policy or geospatial data and/or services?	Have you identified enterprise information needs to maintain performance and ensure program success. Have you identified sites in your business process workflows for integrating geospatial data and services? Are you aware of how other agencies and programs may benefit from sharing your data assets, your lessons learned and your best practices? Are you managing the production of geospatial knowledge in your organization?	Have you identified and can you access suitable geospatial data and services required by your business processes? How might other data managers benefit from your lessons learned as you addressed gaps in your own geospatial data and service needs?	Are you confident in your ability to access and execute the geospatial processes required to do your job? Are you aware of the protocol to follow and the channels to pursue to suggest improvements to existing business processes and practices?
Transitioning Workforce	*Are you adequately legislating for and funding government to assist transitioning workforces and facilitate economic growth?* *Do we apply best possible preparation and connection solutions to workforces across business sectors, industries, and markets when candidate employees are in critical transitions, such as initial retirement, military separation, or work rehabilitation?*	*Do transitioning workforce sectors exhibit geographic trends or tendencies that may assist programs to more efficiently and effectively target and deliver services?*	How might explicit consideration of the geographic aspects of your program improve performance? Have you identified opportunities for geoenabling aspects of program management and critical decision-making? Have you identified other agencies or programs with shared interests in policy or geospatial data and/or services?	Have you identified enterprise information needs to maintain performance and ensure program success. Have you identified sites in your business process workflows for integrating geospatial data and services? Are you aware of how other agencies and programs may benefit from sharing your data assets, your lessons learned and your best practices? Are you managing the production of geospatial knowledge in your organization?	Have you identified and can you access suitable geospatial data and services required by your business processes? How might other data managers benefit from your lessons learned as you addressed gaps in your own geospatial data and service needs?	Are you confident in your ability to access and execute the geospatial processes required to do your job? Are you aware of the protocol to follow and the channels to pursue to suggest improvements to existing business processes and practices?

Transportation Infrastructure	*Are you adequately legislating for and funding government to maintain and improve transportation infrastructure across the nation?*	***Have you identified the critical agencies and programs with which your own agency must be aligned to maintain and develop critical transportation infrastructure in the face of evolving demographics, industrial markets and national threats?***	How might explicit consideration of the geographic aspects of your program improve performance? Have you identified opportunities for geoenabling aspects of program management and critical decision-making? Have you identified other agencies or programs with shared interests in policy or geospatial data and/or services?	Have you identified enterprise information needs to maintain performance and ensure program success. Have you identified sites in your business process workflows for integrating geospatial data and services? Are you aware of how other agencies and programs may benefit from sharing your data assets, your lessons learned and your best practices? Are you managing the production of geospatial knowledge in your organization?	Have you identified and can you access suitable geospatial data and services required by your business processes? How might other data managers benefit from your lessons learned as you addressed gaps in your own geospatial data and service needs?	Are you confident in your ability to access and execute the geospatial processes required to do your job? Are you aware of the protocol to follow and the channels to pursue to suggest improvements to existing business processes and practices?
	Do we have sufficient strategies for sustaining long-term development of transportation infrastructure, while mitigating the full scope of risks that are likely to occur, due to natural, technological, and man-made hazards?					

Attachment 3:

A Framework to Guide Geoenabilization for Federal Agency Communities

ASPECT or DIMENSION	FEDERAL AGENCY COMMUNITIES					
	Policy Makers (Congress)	**Decision Makers** (Secretaries)	**Program Managers** (Directors)	**Information Officers** (CIOs)	**Data Managers** (Analysts)	**In-the-field Employees** (Action Officers)
Policy Role	Policy articulation and budget creation	Policy articulation and budget direction	Strategic policy execution	Tactical policy execution	Tactical policy execution and daily business process execution	Daily business process execution
Role in Geospatial Implementation	Articulate policy goals and national priorities and outcomes	Articulate agency and program missions and policy goals	Cultivate an appreciation and understanding of what is geographically relevant relative to agency, program and policy goals	Model enterprise information needs relative to the geographic or spatial aspects of agency and program missions Manage geospatial knowledge Align geospatial information technology to agency/program business strategy	Procure and manage geospatial data and services Design geospatial solutions	Utilize geospatial applications as they manifest themselves in daily business processes
Manifestation of "Geospatial"	Consider geographic/spatial variation Target a geographic unit (e.g., city, state, region) Improve effectiveness and efficiency via geospatially-informed approaches	Consider geographic/spatial variation Target a geographic unit (e.g., city, state, region) Improve effectiveness and efficiency via geospatially-informed approaches	Consider geographic/spatial variation Target a geographic unit (e.g., city, state, region) Improve effectiveness and efficiency via geospatially-informed approaches	Geospatial knowledge, data and services	Geospatial data and services	Geospatial applications