

2008 Innovations Awards Program APPLICATION

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ID # (assigned by CSG): 08-S-05AL

Please provide the following information, adding space as necessary:

State: Alabama

Assign Program Category (applicant): Homeland Security / Public Safety

1. Program Name: Virtual Alabama
2. Administering Agency: Alabama Department of Homeland Security
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9. Please provide a two-sentence description of the program.

The Virtual Alabama program combines leading-edge Google technology with the state's imagery and other data about Alabama's assets to put a useful tool into the hands of Alabama's emergency personnel. This provides a statewide Common Operating Picture which allows the state's emergency responders to make better preparations for safeguarding the general public in times of man-made or natural disasters.

10. How long has this program been operational (month and year)? Note: the program must be between 9 months and 5 years old on March 1, 2008 to be considered.

The system reached initial operational capability (IOC) in August 2006, and as of November 2007, 100% of the states imagery assets and many community asset data layers have been ingested into the system with more being added daily.

11. Why was the program created? What problem[s] or issue[s] was it designed to address?

The lack of a common operating picture in which data and images could be shared and communicated across jurisdictions made it difficult for emergency responders to respond effectively to emergency situations. There are numerous issues that inhibited the establishment of a common operating picture capability across jurisdictions.

- Jurisdictions often view their information as proprietary and are reluctant to share information.
- Jurisdictions often use their own proprietary systems to obtain, store and organize information.
- Concern over security of the information
- Local jurisdictions are hesitant to provide their information to State driven systems due to lack of "ownership" of the system.
- Cost associated with the system/Concern over sustainability of the system.

Virtual Alabama now collects, displays, evaluates and shares data with state, county and municipal governments, emergency responder teams and even the criminal justice system to provide a statewide Common Operating Picture. Since program launch the Virtual Alabama user base has grown to over 2300

users from hundreds of departments across the state. County and municipal governments now supply over 90 percent of the state's geospatial data. In addition, ALDHS is now not only sharing disaster management data on the Google Earth Enterprise platform but data from such areas as the state's education, economic and agricultural segments as well.

12. Describe the specific activities and operations of the program in chronological order.

The Alabama Department of Homeland Security initiated this program in late 2005. The discovery team began its exploration for the program in Nov of 2005. The contract with Google Earth was initiated mid '06. AL DHS invited approximately 23 other State agencies to participate on a voluntary basis and at no cost to them in a meeting that was held late Nov05. Unanimously, the group agreed to participate and to date, 34 State agencies actively participate in the program. Virtual Alabama reached IOC in August 2006.

13. Why is the program a new and creative approach or method?

Since 2006, the Alabama Department of Homeland Security has led the effort to employ new technologies in 3D visualization of geospatial data to create a statewide Common Operating Picture (COP). The requirement leverages existing state asset imagery and infrastructure data into a visualization tool that is affordable, scalable, and maintainable and employs the power of internet based applications. As a result, the program Virtual Alabama emerged utilizing a 3D globe interface to retrieve images from a merged global imagery dataset allowing the geographic and terrain data to be displayed across the state using streaming technology. Alabama is the first state to leverage this technology into a statewide Common Operating Picture.

14. What were the program's start-up costs? (Provide details about specific purchases for this program, staffing needs and other financial expenditures, as well as existing materials, technology and staff already in place.)

The Virtual Alabama solution has provided a tremendous return on investment for the state of Alabama. The total outlay for the initial purchase of the Google Earth application and necessary hardware was approximately \$150,000 -- far less than it would have cost if the state had purchased individual software licenses for all Virtual Alabama users. Furthermore, this does not factor in the aforementioned costs avoided by having different state agencies share the same aerial imagery. The current database is estimated to be valued at over 30 million dollars.

The development team consists of 4 individuals – all are government employees, two are state employees and two Federal government employees on loan from the U.S. Army Space and Missile Defense Command (SMDC) through a memorandum of understanding between ALDHS and SMDC.

15. What are the program's annual operational costs?

ALDHS has supported an annual 2 man-level of effort for the program. This funding is supplied by Federal DHS funds coming through the SAA. The Army has supplied 2 man-level of effort in-kind.

16. How is the program funded?

Alabama Department of Homeland Security

17. Did this program require the passage of legislation, executive order or regulations? If YES, please indicate the citation number.

No. However, as a result of the success of Virtual Alabama, Governor Riley signed Executive Order #38 creating a statewide GIS Council to standardize mapping and imagery procedures in Alabama.

18. What equipment, technology and software are used to operate and administer this program?

The Google Earth Enterprise platform consists of two main servers – 1) Fusion server, running Fusion software is where data managers ingest source data and ready it for the program. Once the data is ingested and completes the QA/QC process, the globe is published to the Earth Server 2) Earth Server, running Earth server software, is where the globe, once published, is served to the users. Earth server software also handles the client authentication, licenses, usernames, passwords etc. Additionally, there is a GE workstation that communicates with the servers and is the GIU for Fusion. All servers run on Linux (Red Hat or SuSe). Storage can be added as needed by the application. We are currently running a 10T Storage Area Network (SAN) and can expand as needed. Our licensing agreement with Google Earth states that we can support up to 250 concurrent users per server. There is no charge for client software.

19. To the best of your knowledge, did this program originate in your state? If YES, please indicate the innovator's name, present address, telephone number and e-mail address.

The Virtual Alabama program has been viewed as a model for other states, several of which have expressed interest in a similar initiative to equip their emergency responders with a similar database of location information and the visualization tools to assist their efforts to safeguard the general public. In July 2007, Google entered into an agreement with the state of Louisiana on a similar project for that state's emergency responders. The State of Louisiana asked Alabama for permission to copy the concept for their State and immediately began the implementation of Virtual Louisiana. To date, the Virtual Alabama team has met with Governor's offices and Departments of Homeland Security in the following states: California, Mississippi, Tennessee, Michigan, Kentucky, Iowa, Hawaii, Oklahoma, Texas, Nebraska, Indiana, Arizona, Florida, Pennsylvania, Nevada and New York City.

20. Are you aware of similar programs in other states? If YES, which ones and how does this program differ?

Currently, there are no other instances of this technology being used as a statewide Common Operating Picture other than Virtual Louisiana as mentioned above.

21. Has the program been fully implemented? If NO, what actions remain to be taken?

Virtual Alabama reached its initial goal by having participation from all 67 counties in November 2007. Further development continues to "test the limits" of the system through integration of additional toolsets, data and methods. Additionally, new audiences are coming online that were not originally anticipated.

22. Briefly evaluate (pro and con) the program's effectiveness in addressing the defined problem[s] or issue[s]. Provide tangible examples.

The system works with a variety of traditional GIS systems and has the ability to publish data stored in these systems by integrating proprietary data sets. These data sets are delivered to the client through the server. Numerous agencies across the state are leveraging their existing departmental GIS data sets to provide a greater level of detail than ever anticipated. Data is shared on a recurring basis, allowing the owner of the data to continually maintain and update the data without disruption of normal business operations. The solution allows Alabama to leverage a secure deployment option where Google Earth technology is used to host the state's own data internally on Alabama's own servers -- rather than on Google's global database of satellite imagery and mapping information. The state's sensitive data is kept behind the firewall, and access is restricted to authorized employees. Other system capabilities include: The ability to track moving objects, monitor sensors, and overlay near-real time data sets delivered to the client software through the server.

In the initial project work plan, the system was designed to include 100 seats of client (or user) software and be expanded over time. However, after selection, further negotiations with the vendor led to an agreement which places no limit on seats of the client software. The agreement provided an immediate means of rapid expansion of the user base, making the Department's desire to encourage participation from all state and local agencies a reality.

23. How has the program grown and/or changed since its inception?

Virtual Alabama serves a wide user base of state and local officials at various levels of technological proficiency. As an information tool, Virtual Alabama reduces technology gaps in economically challenged areas and levels the information "playing field" throughout the state. Additionally, the program provides the ability to integrate and distribute proprietary data securely across the internet.

As the first of its kind, Virtual Alabama has already proven an invaluable tool to the state's emergency personnel. For instance, in March 2007 and again in February 2008 after deadly tornados hit the state, the system provided after-incident imagery and critical information on gas pipelines, infrastructure, and other property within the tornado swath to responders from the National Guard, Federal Emergency Management Agency and other organizations helping with the disaster response and recovery. Today, the system continues to provide up-to-date imagery of the impacted area to track the rate of recovery for the citizens in the community.

24. What limitations or obstacles might other states expect to encounter if they attempt to adopt this program?

Virtual Alabama has provided a highly effective framework in which to manage public sector programs in Alabama. It has helped produce the common operational picture needed to protect lives and safeguard Alabama citizens in times of man-made or natural disasters. Having a secure, dynamic, common information-sharing platform has allowed Alabama to reach the next level in emergency preparedness and disaster management.

Virtual Alabama team is made up of government employees and does not utilize any contractor services. The uniqueness of the team coupled with the ability to leverage partnerships with local, county, state and federal have made Virtual Alabama the success it is today. Other states must realize that the strength of the program is not in the technology platform or even the data; the strength is in building a strong community of users.