



The Council of State Governments
Sharing capitol ideas.

2010 Innovations Awards Application

Deadline: March 1, 2010

ID # (assigned by CSG): **10-S-21VA**

Please provide the following information, adding space as necessary:

State: Commonwealth of Virginia

Assign Program Category (applicant): Emergency Management (Use list at end of application)

1. Program Name **Virginia Interoperability Picture for Emergency Response (VIPER)**
2. Administering Agency Virginia Department of Emergency Management
3. Contact Person (Name and Title) Bobbie Atristain, Chief Technology Officer
4. Address 10501 Trade Ct, Richmond, VA 23236
5. Telephone Number 804-674-2481
6. FAX Number 804-674-2539
7. E-mail Address – bobbie.atristain@vdem.virginia.gov
8. Web site Address – VIPER may be found live at <https://cop.vdem.virginia.gov/viper/>
Also see the video and screenshots at <http://www.youtube.com/watch?v=0l4kH4NwhZU>. VIPER is one of the featured systems in the commercial video by ESRI.
VIPER homepage with briefing and screenshots: <https://cop.vdem.virginia.gov/>
9. Please provide a two-sentence description of the program.

Emergencies require the acquisition, processing, and analysis of extensive and disparate information by decision makers in a time-constrained environment. VIPER, a Crisis Management Data Aggregation project, uses a Web interface to integrate real-time reporting of data from numerous sources with other geospatial information, providing a user-defined operating picture and tool for decision makers to perform “real time” analysis of previously disparate information and facilitating situational awareness at all levels of government.

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, 2010 to be considered.

Since August 2008

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

In an environment that increasingly requires cooperation between local, state, and federal agencies in a crisis, the ability to provide comprehensive, real time situational awareness to multiple entities is critical. The integration of all available resources into a user-defined operating picture is essential to the success of crisis decision-making. VIPER was created to break down the traditional compartmentalization of emergency management information, which severely limited an emergency manager's ability to visualize the scale and scope of a developing situation.

Specific capabilities that VIPER was created to provide include:

- a. Real time incident mapping – The ability to provide the immediate location of a currently occurring incident using Homeland Security Working Group delineated iconography.
- b. Crisis Management System Integration – Data entered by the State Warning Point will be available through the GIS interface to provide situational awareness.
- c. External data feed integration – integration of real time data feeds that are available from many external sources, such as utility outage information, traffic and road status information, and weather information.
- d. Data sharing capability and interoperability with partners at various levels of government, the private sector, and volunteer organizations – use of common data standards for transfer of information creates a means to exchange data from the data owners to a multitude of subscribers in an open architecture.

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

- April 2008 – Development of a “dots on a map” requirement in response to situational awareness needs.
- June 2008 – Integration with Crisis Management System (WebEOC) successfully completed. Hazard specific plan overlays integrated.
- August 2008 – Open source integration identified and commenced.
- September 2008 – Geo-processing analysis tasks identified and integrated. VIPER successfully used in support of Tropical Storm Hanna response.
- November 2008 - VIPER was successfully used in support of the U.S. Presidential Election.
- December 2008 – Virginia Department of Transportation data feeds successfully integrated. January 2009 – VIPER provides multi-jurisdictional situational awareness during the Presidential Inauguration.
- February 2009 –VIPER source code was used to create the state of Florida's FLIPPER application, which was used to provide situational awareness during the Super Bowl.
- November 2009 – VIPER was used to provide situational awareness during a major nor'easter storm.
- December 2009 – VIPER provided mission critical awareness during a major December snowstorm in Virginia. This included helping Rockbridge County safely evacuate over 600 people who were stranded on I-81 during the storm. This is the largest sheltering and evacuation effort in the Commonwealth of Virginia's history.
- February 2010 – VIPER provided awareness during the historic snow storms.
- February 2010 – VIPER source code was used again in FLIPPER to support the Super Bowl.

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

VIPER is an application of real-time information, constantly running analytical tools and operational planning overlays to provide comprehensive situational awareness. Additionally, it provides the ability to utilize previously static planning efforts in a dynamic environment.

The system acquires a multitude of emergency and other information with a geospatial reference and then displays different combinations of this data as defined by the user's requirements. In addition, the system has been endowed with a "brain" so that only information that reaches a certain critical level will automatically notify the user of its existence. This characteristic further leverages the value of the system to sort multiples streams of real-time data and recognize actionable information for decision makers in an emergency.

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.)

Using existing hardware, software, and manpower the project was achieved with no start-up costs other than staff time. Staff involvement included the defining of requirements, developing innovative ways of combining data, establishing data standards, and demonstrating the system's capabilities to numerous potential users.

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

Currently, staff time represents the only annual cost. Operational costs might be incurred through the integration of third-party vendor products, some of which might have individual costs.

16. How is the program funded?

Currently VIPER is supported by grants from the U.S. Department of Homeland Security. Further development will be funded through various grants.

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

No

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

VIPER utilizes ESRI ArcGIS Server 9.3 and Adobe Flex.

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.

Yes, the VIPER concept originated in Virginia. The VIPER team members are Bobbie Atristain, Brian Crumpler, Jack Berberette, and Harry Colestock; all were significant co-contributors. The e-mail address for Ms. Atristain is bobbie.atristain@vdem.virginia.gov; her telephone number is 804-674-2481. The office address for all four members is: 10501 Trade Ct , Richmond, VA 23236

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

Yes. While the original business problem was identified at the Virginia Emergency Operations Center, it became clear as the project moved forward that the solution had a target audience well beyond the Center. In fact, national interest has been generated in Virginia's solution. Additional

users and managers became involved in defining what data would be useful to them in their own operating picture. This process meant that the approximately 400 members of the Virginia Emergency Response team, including federal and state agencies, private and volunteer partners, had opportunities to develop their own requirements and methods of using the system. Localities in Virginia are examining how elements of the VIPER system will benefit emergency management.

The Virginia project team now has worked with numerous states and localities to develop their own user-defined operating picture. The VIPER source code has been given to a few states to help them create their own situational awareness pictures, including the Florida Dept. of Emergency Management (GATOR), the Georgia Dept. of Emergency Management (GoDAWGS), and Miami-Dade Emergency Management (FLIPPER). The team has worked with people as far away as Singapore to help them develop their picture for situational awareness. Both the U.S. Congress and the Virginia General Assembly have requested ideas on how to expand the use of this tool for emergency management and disasters. Finally, Virginia is now part of a nine-state effort under the Department of Homeland Security to demonstrate how well the system portrays situational awareness.

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

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

The original problem identified was the need for timely, accurate situational awareness in a fast developing situation. Understanding what is happening when at what location is critical to determining what must be done.

The VIPER now is used 24 hours a day, seven days a week in the Virginia Emergency Operations Center. The display is always up to provide situational awareness to the Watch Center. The system is now in use for statewide exercises, drills, and actual events. We can anticipate major weather events, monitor transportations systems, detect forest fires, brief senior leaders, and alert decision makers to developing situations. The web-based system is available to emergency partners at the local, state, and federal levels.

This program has been extremely successful in meeting that business need, and is being lauded nationwide for its ability to provide previously unattainable situational awareness to decision makers at all levels of government. It has been successfully fielded in support of statewide response operations for the Presidential Inauguration, the November Nor'easter of 2009, the historic snow storms of February 2010, and numerous smaller events in Virginia. Most importantly, it is being used by multiple levels of decision makers to portray normal patterns and new combinations of data that can then be used as a basis for levels of abnormality in the future.

VIPER has been further developed to incorporate elements of emergency plans which have a geospatial nature. Thus, when there is a particular hazard that arises for which we have a specific plan, we can relate planned actions to the developing situation in order to make sure we take appropriate actions in the places necessary.

Of course, by their nature, emergencies are largely unpredictable, and no planner can anticipate every combination of possibility. VIPER cannot prevent emergencies, but it has and will continue to assist multiple interest groups in speeding appropriate and measured response.

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

The VIPER program is changing into a regional system to facilitate information sharing between localities, states, and the federal government. Originally, planners wanted to ensure the ability to put dots on a map to represent emergency incidents. The platform enabled and inspired further capability including include Web2.0 applications, live camera feeds, analytical capabilities on the fly, modeling and simulation, and mobile applications.

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

The largest obstacle is predicted to be governance for information sharing protocols. The technology is readily available and the funding required is seen as minimal.

CSG reserves the right to use or publish in other CSG products the information provided in this application. If your agency objects to this policy, please advise us in a separate attachment.



The Council of State Governments
Sharing capitol ideas.

2010 Innovations Awards Application Program Categories and Subcategories

Use these as guidelines to determine the appropriate Program Category for your state's submission and list that program category on page one of this application. Choose only one.

Infrastructure and Economic Development

- Business/Commerce
- Economic Development
- Transportation

Government Operations and Technology

- Administration
- Elections
- Information Systems
- Public Information
- Revenue
- Telecommunications

Health & Human Services

- Aging
- Children & Families
- Health Services
- Housing
- Human Services

Human Resources/Education

- Education
- Labor
- Management
- Personnel
- Training and Development
- Workforce Development

Natural Resources

- Agriculture
- Energy
- Environment
- Environmental Protection
- Natural Resources
- Parks & Recreation
- Water Resources

Public Safety/Corrections

- Corrections
- Courts
- Criminal Justice
- Drugs
- Emergency Management
- Public Safety

Save in .doc or rtf. Return completed application electronically to innovations@csg.org or mail to:

CSG Innovations Awards 2010
The Council of State Governments
2760 Research Park Drive, P.O. Box 11910
Lexington, KY 40578-1910

Contact:

Nancy J. Vickers, National Program Administrator
Phone: 859.244.8105
Fax: 859.244.8001 – Attn: Innovations Awards Program
The Council of State Governments
E-mail: nvickers@csg.org

This application is also available at www.csg.org.