



State of Missouri

2017 Governor's Award for Quality and Productivity

Executive Summary

Project or Team Name: SEMA Common Operating Picture and Situational Awareness Portal - SEMA GIS

Nominator: Ron Walker

Nominating Department: (Nominations must include names of all agencies/departments/organizations/businesses, etc.)

Department of Public Safety, nominator on behalf of the State Emergency Management Agency and Missouri National Guard, divisions of DPS; the Missouri Department of Transportation; and the Office of Administration, Information Technology Services Division

Category: Innovation

Executive Summary: (Executive Summary page must be 500 words or less, 12 point, Times New Roman font, and left justified. **Attach the Executive Summary to the front of the nomination.**)

Missouri is one of the states most affected by potentially deadly disasters in the U.S., so disaster response is vitally important. Having a clear understanding of conditions and providing a common operating picture across all emergency response disciplines is key to disaster response, especially when lives are at risk. Near-real-time information can help drive key decisions, including evacuations and the deployment of personnel and essential, life-saving equipment.

Recently, the Federal Emergency Management Agency's implementation of Community Lifelines – methods of categorizing resources and critical infrastructure during disasters – required a new method of visualizing a common operating picture at the State Emergency Management Agency during emergencies.

Working together, within six months, SEMA, the Missouri National Guard, MoDOT and Office of Administration Geographic Information System specialists produced a situational awareness portal that ultimately would be utilized across the region and that FEMA stated had been developed to an extent beyond any other state in the nation.

The SEMA Common Operating Picture and Situational Awareness Portal will improve disaster response by providing a comprehensive common operating picture to state, local and federal response partners during emergencies, and maintaining the situational awareness of decision makers throughout, as well as meeting new guidelines published by FEMA.

The SEMA GIS team developed a first-of-its-kind dashboard displaying near-real-time status of critical infrastructure and resources throughout Missouri, driven by data collected in the field and funneled through the state leaders in the State Emergency Operations Center at SEMA. Among data included in the dashboard are water and sewage treatment systems, hospitals and medical facilities, hazardous materials, and transportation and communications infrastructure. This data, combined with live feeds of weather, traffic, demographics, and field reports provides emergency management leaders with a common operating picture organized in a suite of applications. This system was built in preparation for a multi-state exercise testing the response to a catastrophic New Madrid Seismic Zone earthquake.

Products created by the SEMA GIS team are ordinarily utilized only by partner agencies within the state of Missouri. However, the common operating picture transitioned from being an internal product to a standard for other state and federal partners to follow.

Because of the new portal, SEMA and exercise participants were able to see 33 new data layers on display in real time, containing over 36,000 unique data points that had never before been collected and visualized in one location. The new SEMA portal is able to provide essential information with specific locations in near-real-time to everyone with access to the portal.



State of Missouri – 2019 Governor's Award for Quality and Productivity

NOMINATION FORM

I. GENERAL INFORMATION

Department: Department of Public Safety, MoDOT, Office of Administration

1. **Project or team name:** SEMA Common Operating Picture and Situational Awareness Portal - SEMA GIS
2. **List the name of all team members, job titles, state agency department, and/or other organizations including public, private sector or business:** *(Please list alphabetically by last name – 2 to 20 team members maximum.)*
 1. Mr. Kaleb Bauer, Missouri National Guard, Department of Public Safety
 2. Chris Engelbrecht, MoDOT
 3. Sebestion Gely, WebEOC Administrator, State Emergency Management Agency, DPS
 4. Alexis Giesecker, GIS Specialist, OA ITSD in support of SEMA, DPS
 5. Lieutenant Colonel Shannon Holaday, Joint Operations Center, MONG, DPS
 6. Wiley Howell, GIS Specialist, MONG, DPS
 7. Konrad Hughes, GIS Specialist, OA ITSD in support of SEMA, DPS
 8. Sergeant First Class Justin Knoesel, Joint Operations Center, MONG, DPS
 9. Staff Sergeant Ryan Miller, Joint Operations Center, MONG, DPS
 10. Jeff Rackers, All Hazards Coordinator, SEMA, DPS
 11. Major Tyler Rinehart, Joint Operations Center, MONG, DPS
 12. Sergeant First Class Justin Rollins, Joint Operations Center, MONG, DPS
 13. Chief Warrant Officer 3 Levi Saxe, Joint Operations Center, MONG, DPS
 14. Tim Schulte, MONG, DPS
 15. Nick Young, GIS Analyst, MONG, DPS
 16. Captain Jon Wilson, Joint Operations Center, MONG, DPS
 17. Michael White, Deputy Operations Chief, SEMA, DPS

3. **Nomination Category:** *(Check only one.)*

☒ INNOVATION

☐ CUSTOMER SERVICE

☐ EFFICIENCY / PROCESS IMPROVEMENT

4. **Explain why you selected this category:**

The project was the first of its kind to be implemented among any state government in the United States.

II. BACKGROUND

1. **When did the team begin its work?**

January 2019

2. **What date did the team initiate the implementation phase of the project?**

June 2019

3. **Is the project:**

☐ Time Limited

☐ Completed

☒ Ongoing

III. PROJECT DESCRIPTION

1. **Why was the project necessary?**

Missouri is one of the states most affected by potentially deadly disasters in the U.S. Having a clear understanding of conditions and providing a common operating picture across all response disciplines is key

to responding to disasters, especially when lives are at risk. Recently, the Federal Emergency Management Agency's implementation of Community Lifelines - methods of categorizing resources and critical infrastructure during disasters - required a new method of visualizing a common operating picture at SEMA during emergencies and exercises conducted to prepare for emergencies.

2. What were the primary goals of the project? (150 words or less.)

To improve disaster response by providing a comprehensive common operating picture to state, local and federal response partners during emergencies, and to maintain the situational awareness of decision makers throughout, as well as to meet new guidelines published by FEMA.

3. Describe the project: (200 words or less.)

The SEMA GIS team developed a first-of-its-kind dashboard displaying near-real-time status of critical infrastructure and resources throughout Missouri, driven by data collected in the field and funneled through the state leaders in the State Emergency Operations Center at SEMA. Among data included in the dashboard are water and sewage treatment systems, hospitals and medical facilities, hazardous materials, and transportation and communications infrastructure. This data, combined with live feeds of weather, traffic, demographics, and field reports, provides emergency management leaders with a common operating picture organized in a suite of applications. This system was built in preparation for Exercise Shaken Fury/Ardent Sentry/Vigilant Guard that took place in June 2019. Organized by the Central United States Earthquake Consortium (CUSEC), this was a regional disaster response scenario involving seven state emergency management agencies, FEMA, the Department of Defense, and the National Guard simulating a magnitude 7.7 earthquake in the New Madrid Seismic Zone. The common operating picture was shared not only within Missouri, but with all other exercise participants to enhance the region's situational awareness.

4. What technology, if any, was used in the development, implementation, maintenance or measurement of the project? (150 words or less.)

ArcGIS Online, Operations Dashboard for ArcGIS, Esri Living Atlas and Community Analyst, ESRI Maps for Office, ArcGIS Situational Awareness Solution Toolkit, and Python Notebooks were used to create the environment for the project to function.

5. Explain how the accomplishment of the team exceeds its regular duties and responsibilities. (150 words or less.)

Products created by the SEMA GIS team are ordinarily utilized only by partner agencies within the state of Missouri. However, the common operating picture transitioned from being an internal product to a standard for other state and federal partners to follow. In the recap of the Shaken Fury exercise, CUSEC and federal observers lauded SEMA for the common operating picture, saying that no other state had taken the implementation of FEMA's new Community Lifelines program as far as the state of Missouri had.

6. Which of the following describes the intended benefits of the project? (Check all that apply and provide an explanation. - 150 words or less)

- | | | |
|--|--|---|
| <input type="checkbox"/> Cost Reduction | <input type="checkbox"/> Time Savings | <input checked="" type="checkbox"/> Increased Effectiveness |
| <input checked="" type="checkbox"/> Improved Process | <input type="checkbox"/> Other: Describe | |

Explain the intended benefits: A common operating picture in near-real-time shared among all leaders across disaster response disciplines is tremendously important since the state is regularly affected by natural disasters. The new portal is able to provide essential information with specific locations to everyone with access to the portal. This means decision makers can make response decisions, including where to send responders, position vital resources, etc., with the most up-to-date mapped information.

IV. RESULTS / MEASUREMENT

1. Explain how the success of the project was measured and what outcomes were achieved. (Explanation should not exceed 300-500 words.)

Because of the new portal, SEMA and others were able to see 33 new data layers in real time, containing over 36,000 data points never before collected and visualized in a single location. Previously, emergency response staff utilized WebEOC (a basic online tool for tracking response resource requests and information) but were unable to track critical infrastructure resources in a digital mapping environment.

2. Are the benefits derived from this project: (Check only one.)

☒ Recurring

☐ One-time

3. If recurring, how will the benefits be sustained? (Explain in 150 words or less.)

In the wake of the June 2019 earthquake exercise, emergency management leaders from across all state agencies have realized the power of GIS in implementing a common operating picture. Leaders from each response discipline are now meeting monthly to discuss the continued evolution of the SEMA Common Operating Picture and ways to incorporate new data as it becomes available, as well as new methods for display, visualization, and dissemination.

V. RECOGNITION / AWARDS

1. Has this project previously been nominated for the Governor's Award for Quality and Productivity? If yes, when?

No.

2. If yes, for which category was it nominated?

N/A.

3. Has this project received any other awards or recognition? If yes, describe.

Yes. The project was awarded the Special Achievement in GIS Award at the ESRI International Users Conference in July 2019. This is an international award for which the team was selected from 100,000 GIS users worldwide.

VI. NOMINATOR'S INFORMATION

Nominating Department: DPS

Name: Ron Walker


Signature: 

Telephone Number: 573-694-3529

E-Mail Address: Ron.Walker@sema.dps.mo.gov

VII. DEPARTMENT COORDINATOR'S INFORMATION

Name: Judy Murray


Signature: 

Telephone Number: 573-751-4819

E-Mail Address: judy.murray@dps.mo.gov

VIII. DEPARTMENT DIRECTOR APPROVAL

Department Director's Name:
Sandy Karsten

Signature: 

Nomination must be signed ONLY by the Department Director to be eligible for consideration. Nominations not signed by the Department Director will be returned to the agency coordinator.