AASHTO
AASHTO INNOVATION INITIATIVE

Sponsor

Nominations must be submitted by an AASHTO member DOT willing to help promote the innovation

1. Sponsoring DOT (State): Missouri Department of Transportation
2. Name and Title: Brittany Goetz, Organizational Performance Analyst
   Organization: Missouri Department of Transportation
   Street Address: 105 West Capital Avenue
   City: Jefferson City | State: Missouri | Zip Code: 65102
   E-mail: brittany.goetz@m | Phone: 573-751-2872 | Fax:
3. Is the sponsoring State DOT willing to promote this innovation to other states by participating on a Lead States Team supported by the AASHTO Innovation Initiative? Yes or No: No

Innovation Description (10 points)

The term "innovation" may include processes, products, techniques, procedures, and practices.

4. Name of the innovation:

JAWS (Julie's Automated Waste-Removal System)

5. Please describe the innovation. Describe how this innovation transforms your existing "state of play."

The idea was simple…take a standard equipped Emergency Response (ER) truck and retool it to have an automated dropdown skid-plate that can 'scoop' debris off the roadway onto the shoulder where it can then be removed in a safe manner. This quickly removes the debris and

6. If appropriate, please attach photographs, diagrams, or other images illustrating the appearance or functionality of the innovation (if electronic, please provide a separate file). Please list your attachments here.

JAWS Electronic Document with Photo and Videos
JAWS Electronic Document Addendum

7. Briefly describe the history of its development.

In 2016, Scout's newly hired Incident Management Coordinator, Marcus Slaughter, began discussions on ways to improve debris removal on the roadways. Having served many years as a Maintenance Supervisor, he was aware of the challenges and risks involved with this type of

State of Development (40 points)

Innovations must be successfully deployed in at least one State DOT. The AII selection process will favor innovations that have advanced beyond the research stage, at least to the pilot deployment stage, and preferably into routine use.

8. How ready is this innovation for implementation in an operational environment? Please check of the following options. Please describe

- ☐ Prototype is fully functional and yet to be piloted
- ☐ Prototype demonstrated successfully in a pilot environment
- ☐ Technology has been deployed multiple times in an operational environment
- ☑ Technology is ready for full-scale adoption

The vehicle was ready for deployment after thorough ER Operator training and it performed as designed. Put into service in October of 2017, JAWS has logged over 100,000 miles, removing

9. What additional development is necessary to enable routine deployment of the innovation? What resources—such as technical specifications, training materials, and user guides—are already available to assist with the deployment effort?

Once the basic mechanics of the prototype were resolved, a camera was attached to the front bumper that would activate when the newly adapted skid plate under the vehicle was lowered,

10. Has any other organization used this innovation? Yes or No: No
    If so, please list organization names and contacts. Please identify the source of this information.

Organization	Name	Phone	E-mail

Potential Payoff (30 points)

Payoff is defined as the combination of broad applicability and significant benefit or advantage over other current practice (baseline).

11. How does the innovation meet customer or stakeholder needs in your State DOT or other organizations that have used it?

Improved customer service results when debris can quickly be removed without the need to take out lanes of service, causing added congestion. A JAWS-equipped vehicle can continue with the flow of traffic, using its arrow board to remind motorists to slow down or move over, which is now

12. What type and scale of benefits have your DOT realized from using this innovation? Include cost savings, safety improvements, transportation efficiency or effectiveness, environmental benefits, or any other advantages over other existing baseline practice. Please identify the following benefit types:

Check boxes that apply	Benefit Types	Select a rating from the drop down menu
☐	Cost Savings	Choose an Item
☐	Shortened Project/Service Delivery Schedule	Choose an Item
☑	Improved Customer Service	6-High to Exceptional
☐	Improved Quality	Choose an Item
☐	Environmental Benefits	Choose an Item
☑	Organizational Efficiency	6-High to Exceptional
☑	Improved Safety	7-Exceptional
☑	Improved Operational Performance	5-High
☐	Improved Asset Performance	Choose an Item
☐	Others (please describe)	Choose an Item

Provide an additional description, if necessary:

The most obvious benefit is safety. This innovation keeps workers out of the roadway. Benefits beyond safety include Improved customer service results when debris can quickly be removed without the need to take out lanes of service, causing added congestion. A JAWS-equipped vehicle can continue with the flow of traffic, using its arrow-board to remind motorists to slow

13. Please describe the potential extent of implementation in terms of geography, organization type (including other branches of government and private industry) and size, or other relevant factors. How broadly might the technology be deployed?

Given that JAWS was designed and developed in-house for only $3,000.00 it lends itself to easy duplication by other organizations that are responsible for debris removal on any transportation system.

Market Readiness (20 points)

The AII selection process will favor innovations that can be adopted with a reasonable amount of effort and cost, commensurate with the payoff potential.

14. What specific actions would another organization need to take along each of the following dimensions to adopt this innovation?

Check boxes that apply	Dimensions	Please describe:
☑	Gaining executive leadership support	
☑	Measuring performance (e.g. benefits documentation)	
☐	Improving technology understanding	
☑	Overcoming financial constraints	
☑	Addressing legal issues (if applicable) (e.g., liability and intellectual property)	
☐	Acquiring in-house expertise	
☐	Resolving conflicts with existing regulations and standards	
☐	Other challenges	

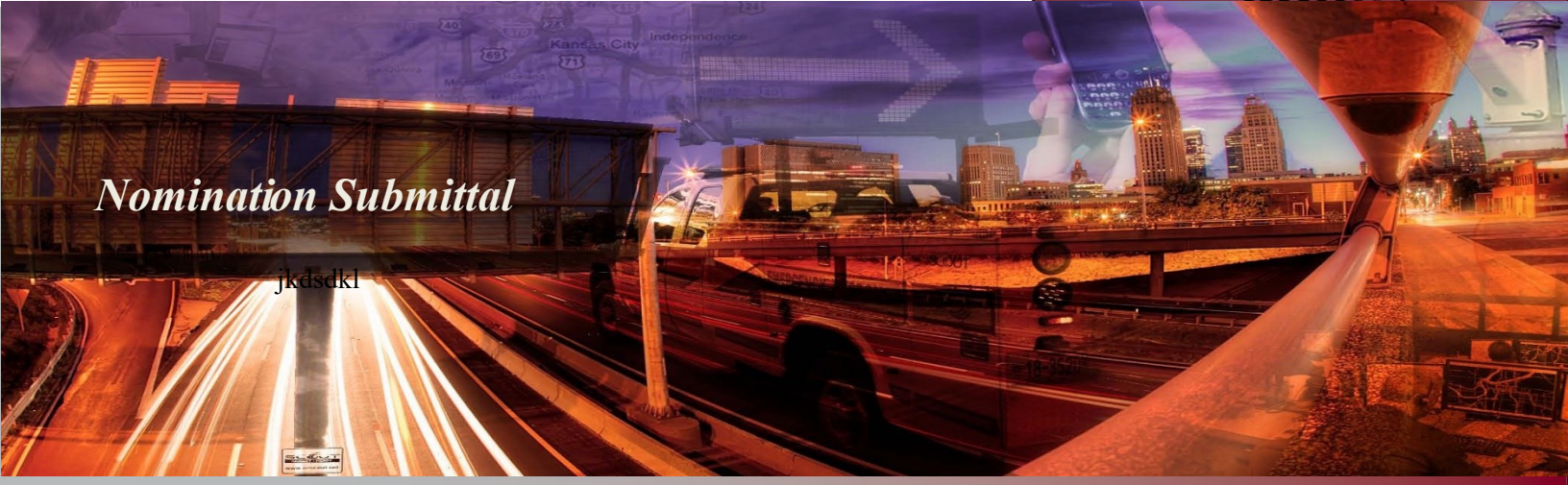
15. What is the estimated cost, effort, and length of time required to deploy the innovation in another organization?

	Please describe:
Cost	Total Material Cost: $2900
Level of Effort	
Time	Time to Develop: 80 Hours

16. To what extent should the implementation of this innovation require the involvement of third parties, including vendors, contractors, and consultants? If so, please describe. List the type of expertise required for implementation.

What makes JAWS such an incredible innovation is the simplicity of its design and fabrication. Through collaboration between Scout's Emergency Response team and MoDOT's Fleet

Submit Completed form to: http://aii.transportation.org/Pages/Solicitation-Submit-Nomination.aspx



Nomination Submittal

jkdsdkl

August 8, 2018

JAWS: Julie's Automated Waste-Removal System

Submitted by:
Marcus Slaughter
KC Scout Incident Management Coordinator
and Randy Johnson, PE
KC Scout

JAWS: Julie's Automated Waste-Removal System

DEMONSTRATED AREAS OF IMPACT

- **JAWS represents all five transportation categories:**
  - Planning – Conceived in house by ER Staff members
  - Design – Fabrication done in house by Fleet Ops
  - Operations – Ease of use without leaving the vehicle
  - Advocacy – Reminds motorists of the risks involved
  - Safety – Eliminates congestion and lane changes

The idea was simple…take a standard equipped Emergency Response (ER) truck and retool it to have an automated dropdown skid-plate that can 'scoop' debris off the roadway onto the shoulder where it can then be removed in a safe manner. This quickly removes the debris and eliminates the need for a back-up vehicle which further delays traffic and causes erratic lane changing behavior.

Note that the push bumper remains in place while the skid plate lowers from underneath the truck, scooping debris with truck continuing in motion.

Kansas City Scout helps today's motorists navigate their way along a safer, smoother and smarter journey.

600 NE Colbern Rd Lee's Summit, Missouri 64086 816-347-2200 office 816-622-6550 fax

getting you there

Front view without skid plate activation

Joy Stick operated from within the cab

600 NE Colbern Rd Lee's Summit, Missouri 64086 816-347-2200 office 816-622-6550 fax

Rear view mirror image without skid plate lowered

A truck mounted camera automatically activates whenever the skid plate is lowered, and displays the debris image on one-half of the vehicle's rearview mirror, giving the Operator view of the debris as well as what's behind them, never having to shift their glance to another viewer elsewhere on the dash.

Rear view mirror image with skid plate lowered

This innovation was the brainchild of a dedicated transportation team working together to achieve a solution without great expense. JAWS was completed and implemented October 2, 2017. Total labor hours incurred to develop and equip the vehicle: 80 hrs. Total material costs: $2,900.00. Any future recurring costs would just be routine maintenance.

The name "JAWS" – Julie's Automated Waste-Removal System was conceived in tribute to Julie Love, an ER Operator who lost her life in the line of duty, while retrieving debris off of I-435 in 2004.

Activate this link to view a short video clip:

Jawzsvideo2018.mp4

Governor's Award for Quality and Productivity Nomination Submittal

jkdsdkl

August 27, 2018

ADDENDUM DOCUMENT

JAWS: Julie's Automated Waste-Removal System

Kansas City SCOUT

MoDOT + KDOT

Submitted by:

Marcus Slaughter

KC Scout Incident Management Coordinator

and Randy Johnson, PE

KC Scout TMC Manager

Kansas City Scout
MoDOT + KDOT
getting you there

JAWS: Julie's Automated Waste-Removal System

ADDITIONAL INFORMATION

➢ Detailed Description of the Innovation:

JAWS - Debris Remover
Julie's Automated Waste Removal System
Kansas City District

MoDOT

ABOUT JAWS

This vehicle debris remover allows employees to safely remove roadway debris without getting out of the truck.

The truck is outfitted with a drop down skid plate that is controlled with a joy stick inside of the truck cab. There is also a camera that automatically activates when the skid plate is lowered, allowing the operator to see the debris or object in the roadway.

BENEFITS

- Improves Safety
- Saves Time
- Saves Money
- Simplifies Work

- IN LOVING MEMORY -

JAWS was created in memory of our fallen co-worker, Julie Love. Julie was removing debris along Interstate 435 when she was struck and killed by a vehicle in 2004.

It is our hope that innovations like these will protect the lives of all MoDOT employees and our customers.

Kansas City Scout helps today's motorists navigate their way along a safer, smoother and smarter journey.

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➢ History behind the development of JAWS

In 2016, Scout's newly hired Incident Management Coordinator, Marcus Slaughter, began discussions on ways to improve debris removal on the roadways. Having served many years as a Maintenance Supervisor, he was aware of the challenges and risks involved with this type of operation. Up to this point, such action required two trucks (one for back up) and the lead truck's driver would have to enter the roadway to physically remove the object(s).

An idea emerged to procure and install a snow plow on an existing Emergency Response truck. However, this proved to be a rather cumbersome process, requiring full disassembly during routine maintenance, and lacked the maneuverability due to its width being larger than the vehicle. Mr. Slaughter then approached MoDOT's General Services Supervisor, Mr. Chris Zurn, about fabricating a device in-house that would overcome the aforementioned barriers of the snow plow.

Thus, utilizing the inherent hydraulics of the plow lowering mechanism, JAWS was designed, built and tested in-house.

The rest is history…

➢ Implementation timeline

Once the basic mechanics of the prototype were resolved, a camera was attached to the front bumper that would activate when the newly adapted skid plate under the vehicle was lowered, thus capturing a clear image of the debris which became viewable to the driver in half of the rear-view mirror:

➢ Implementation timeline (continued)

The vehicle was ready for deployment after thorough ER Operator training and it performed as designed. Put into service in October of 2017, JAWS has logged over 100,000 miles, removing debris, without the operator ever having to leave the vehicle. It was accomplished at a total cost of $3,000.00 which included materials and approximately 80 hours of labor. MoDOT plans to equip 30+ Maintenance vehicles with this new technology going forward.

To date, this is the only vehicle of its kind on the roadway, although there has been much interest on the part of other DOTs, consultants, construction companies as well as local, regional, national and international recognition of the potential it holds for improving efficiency while saving lives in the process.

➢ Benefits beyond safety considerations

Improved customer service results when debris can quickly be removed without the need to take out lanes of service, causing added congestion. A JAWS-equipped vehicle can continue with the flow of traffic, using its arrow-board to remind motorists to slow down or move over, which is now law in Missouri. Scout is now able to specifically track the improved performance measurements resulting from JAWS deployment, both in terms of debris clearance times and the added benefit of only one operator/truck being deployed.

➢ Potential implementation by other agencies

Given that JAWS was designed and developed in-house for only $3,000.00 it lends itself to easy duplication by other organizations that are responsible for debris removal on any transportation system.

- **Expertise needed to replicate JAWS by other agencies**

What makes JAWS such an incredible innovation is the simplicity of its design and fabrication. Through collaboration between Scout's Emergency Response team and MoDOT's Fleet Management organization within the General Services division, all parts, components and enhancements were fabricated without outside assistance.