



2024 INNOVATION CHALLENGE SHOWCASE

Final Summary Report

Innovation Challenge & Showcase Introduction

Innovation programs have become very popular among DOT's throughout the nation. While attending national AASHTO Research Advisory Committee meetings and events, SCDOT Research Engineer, Terry Swygert along with SCDOT Materials and Research Engineer, Merrill Zwanka, were impressed to see how these programs were able to build a strong culture of innovation through tracking and documenting all innovations in their Department and knowing the importance of recognition for those who implement these processes. They also noticed that the majority of these innovative tools and processes were coming from field staff.

After discussion with SCDOT leadership, including SCDOT's Research & Development Executive Committee (RDEC), approval to add an Innovation Program to SCDOT's Research unit was approved in 2022. To oversee this new program, the new position of *Innovation Manager* was created, and Mr. Dan Cook was hired to take on this new role. Among other responsibilities, Mr. Cook's first task was to research other Innovation Programs throughout the country. The timing of this new position was ideal since SCDOT would be joining it's regional members of the Research, Development, and Technology Transfer (RD&T2) Program to facilitate and host a peer exchange in March of 2023. Since SCDOT would be hosting the peer exchange, we had the opportunity to choose the focus areas for the discussion. This opportunity allowed *Innovation* to be one of the focus areas. With the focus of Innovation, we were also able to invite experts in the field of Innovation to share their expertise in developing and managing Innovation Programs within their Departments. The information gained from this peer exchange, and the contacts made afterward steered us into the perfect direction for developing our own program.

Through the peer exchange, the experts had three main suggestions that we followed:

- Develop a fun challenge that recognizes and awards Innovators
- Start small and keep it simple
- Put together a team or council to help with the program

By following these three suggestions we developed our Innovation Program to center around an annual challenge to seek out, recognize, and award individuals who have implemented innovative tools or processes in the field. These tools or processes should help to create a safer work environment for workers and the public, improve efficiency in daily tasks, and save money or resources for SCDOT.



2024 Innovation Challenge & Showcase

To start small and simplify our program for the first year, we opened our Innovation Challenge up to only include SCDOT's Maintenance Department. This allowed us to get our feet wet, and not be overwhelmed or set expectations too high for our inaugural year.

As we continued to develop our Innovation Program, Mr. Jeffrey Ellison, who recently retired from SCDOT Maintenance, contacted us and offered his assistance with the program. The idea of using additional SCDOT retirees would lead to Mr. Huley Shumpert, and Mr. David Cook joining in and forming our **Innovation Council**. To round out the Council, members of SCDOT's Director of Maintenance office, Jeff Terry, Laura Fulmer, and Cruz Wheeler, as well as members of SCDOT's Research and Innovation, Terry Swygert, Dan Cook, and Jade Watford would assist with the Council.

As of January 2024, SCDOT's Research team would become Research and Innovation, and our inaugural Innovation Challenge was kicked off. To spread the word, members of the Innovation Council attended safety meetings at many maintenance offices across the state, and also developed a video to share as well. A total of eighteen (18) *in-use* innovations were submitted from District Field Offices for this year. Each submission included a brief description of the innovation and how it benefits SCDOT. The Council met April 23, 2024 to review and discuss all of the submissions. They then prepared follow-up question to the submitters for clarification and additional information. The Council met again May 14, 2024 to review, discuss and rate each of the submissions. The Council rated each innovation on the following criteria: *Increased Safety, Improved Efficiency, Cost Savings, and Ingenuity*. After lengthy discussion and scoring, the Council selected seven (7) innovations as winners for the 2024 Outstanding Innovation Award.

On July 19, 2024, SCDOT Research and Innovation held it's inaugural Innovation Challenge Showcase at the Columbia Metropolitan Convention Center. The Showcase had 81 attendees and offered the opportunity for each of the Innovations to be displayed through posters, as well as live displays in the parking lot. SCDOT officials were present to give an introduction of the Program and the processes which led to the Challenge and Showcase. Following the opening ceremony, attendees were able to see the innovations up close, and visit with the submitters during a Show and Tell Session. During the Awards Ceremony, each Innovation received a custom sign, and submitters were awarded with an "Outstanding Innovation" plaque and \$500 bonus.

Our inaugural Innovation Challenge & Showcase turned out to be a great success, and we hope this paves the way to many more successes, as well as aid with the promotion and sharing of Innovation throughout the Department.

SCDOT Innovation Council

SCDOT Maintenance Retirees



Jeffrey Ellison



Huley Shumpert



David Cook

SCDOT Director of Maintenance Staff



Jeff Terry



Laura Fulmer



Cruz Wheeler

SCDOT Research & Innovation



Merrill Zwanka



Terry Swygert



Dan Cook



Jade Watford

2024 Innovation Showcase Agenda

July 19, 2024

10:00am – Welcome Ceremony – Richland Room

- Opening Statement:
 - Deputy Secretary for Engineering, Rob Perry
- Background:
 - Research Engineer, Terry Swygert
 - Materials & Research Engineer, Merrill Zwanka
- Presentation of Innovations:
 - Innovation Manager, Dan Cook

10:45am – Innovation Show & Tell – Lexington Room & Parking Lot

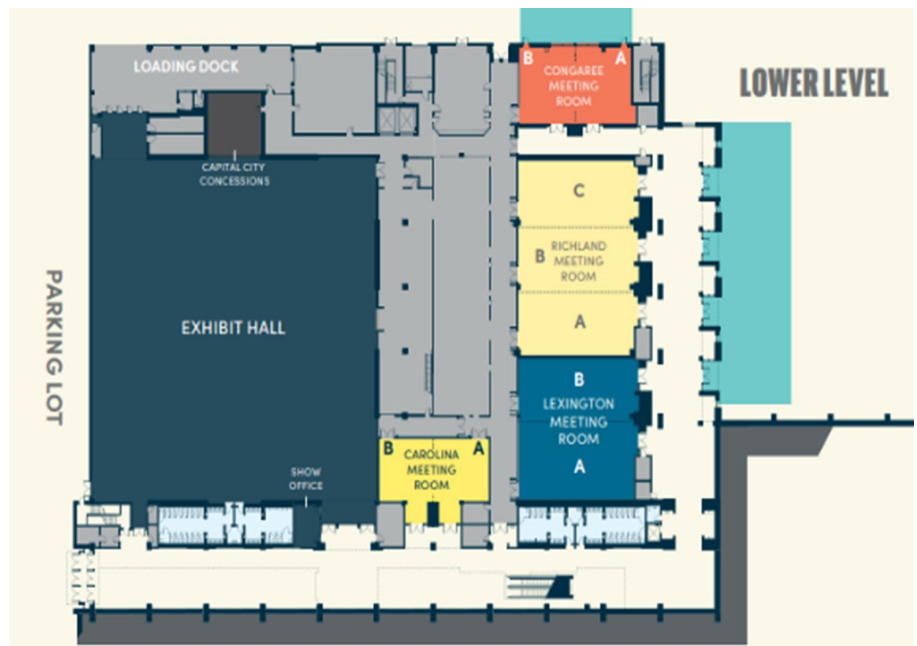
12:00pm – Lunch – Richland Room

12:45pm – Awards Ceremony – Richland Room

- Awards Ceremony Speakers:
 - Chief Engineer for Operations, Andy Leaphart
 - Director of Maintenance, Jeff Terry
 - Laura Fulmer, Assistant State Maintenance Engineer
- Awards Presentation

02:00pm – Adjourn

- Closing Remarks



Opening Ceremony

The Innovation Challenge Showcase began with an opening ceremony which was kicked off by Merrill Zwanka, SCDOT Materials and Research Engineer.



Rob Perry, SCDOT Deputy Secretary for Engineering, shared his opening presentation where he stressed the importance of identifying, recognizing, and sharing innovations. He also mentioned the importance of fostering a *Culture of Innovation* within the SCDOT.

Terry Swygert, SCDOT Research Engineer, shared a presentation that discussed the timeline of events that led to SCDOT's new Innovation Program, which ultimately led to the SCDOT Innovation Challenge and Showcase.



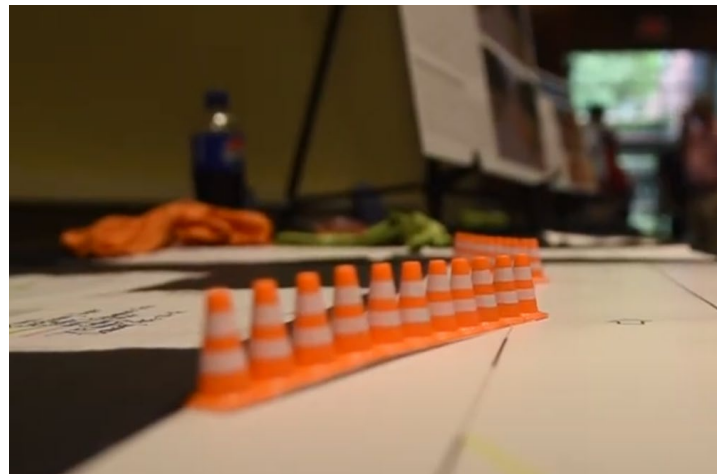
Presentation of Innovations

Following the opening presentations, Dan Cook, SCDOT Innovation Manager, began introducing this year's Innovations submittals. As Mr. Cook discussed each of the submitted Innovations, submitters were asked to stand. They were then met by a member of the Innovation Council where they were presented and recognized with a custom Innovation Challenge coaster.



Innovation Show and Tell

Following the opening ceremony, participants were able to enjoy a “Show and Tell” session. Posters for each innovation were displayed, and several of the submitters were able to bring their tools and equipment to show off in a designated area of the parking lot.



Innovation Show and Tell



Innovation Showcase Awards Ceremony

This year's Innovation Showcase awards ceremony was kicked off by SCDOT's Chief Engineer for Operations, Andy Leaphart along with Director of Maintenance, Jeff Terry. Andy and Jeff shared how proud they are to support a Culture of Innovation within the Department and assisted with presenting awards to this year's winners.



2024 Innovation Challenge & Showcase Awards

Winning innovations were awarded with a custom sign which listed the team members and the name of the innovation. These signs can be proudly displayed at the team's office. Each of the winning team members received a custom "Outstanding Innovation" plaque as well as a \$500 bonus for their winning innovation.



Innovation Showcase Awards Ceremony

While winning Innovations were announced, SCDOT Assistant State Maintenance Engineer, Laura Fulmer shared how each of these winning Innovations benefited the SCDOT through safety, efficiency, and cost savings. Winning teams were greeted by Mr. Terry and Mr. Leaphart where they received their plaques and signs.



2024 Innovation Challenge Showcase Winners

This year, SCDOT's Research and Innovation rewarded seven Innovations as "Outstanding Innovations:

- **Vertical Work Zone Sign Stand Rack – Paul Phillips & Ed Matthews**



- **Hydraulic Equipment Trailer Ramps – Wayne Anderson & Len Stokes**



2024 Innovation Challenge Showcase Winners (Continued)

This year, SCDOT's Research and Innovation rewarded seven Innovations as "Outstanding Innovations:

- **Stake Pocket Step Ladder & Backhoe Door Travel Lock – Bryan Cavanagh**



- **Anderson Rail Clipper – Christopher Barrick & Michael Anders**



2024 Innovation Challenge Showcase Winners (Continued)

This year, SCDOT's Research and Innovation rewarded seven Innovations as "Outstanding Innovations:

- **Guardrail Debris Cleaner – Lenn Gardner, Lee McDaniel, & John Ives**



- **Guardrail High Shoulder Clipper – Hulee Harvey**





2024 Innovation Submissions

Anderson Maintenance Spreader Calibration

Submitted By: Michael Anders and Zach Taylor (District 2 Anderson)

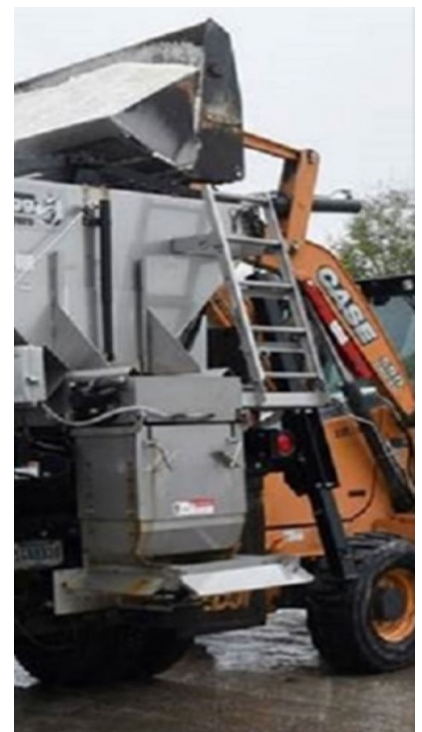
Manager: Dusty Turner

Description:

Anderson's Maintenance Spreader Calibration creates a safer and more efficient way to calibrate salt spreaders for snow and ice preparation. South Carolina is not a big snow state, but there is the potential to have snowy conditions during the colder season. Mr. Zach Taylor having a Bachelor of Science from Clemson University in Agriculture Mechanization and Business was the perfect candidate to spearhead this project. He created a procedure that we use each year to calibrate our snow fighting equipment. The end product is that each truck will have a control setting to refer back to. This method was applied from the Snowfighters Handbook and most of the calibration is performed within the salt shed itself. A few trucks are also tested on the road to verify the calibration and spread widths/patterns. This calibration takes half the time as our original procedure.

How does this Innovation benefit SCDOT?:

This innovation is a safer, more accurate, and more cost effective way to calibrate spreaders. It also increases confidence in knowing how far each truck will be able to apply the recommended amount of salt per lane, per mile. The calibration is performed at the stockpile, which keeps trucks from having to get up to speed in a designated area.



Additional Fill Line on Brine Distributor

Submitted By: Stephen Ellis (District 4 Cherokee)

Manager: Todd Cook

Description:

Brine Distributor trucks at Cherokee Maintenance were only equipped with one of each fill and discharge valves. The larger distributor trucks have a 1000 gallon capacity. By adding a second fill valve they are able to fill one distributor by using two pumps which can reduce the fill time in half. This increases the amount of time that distributors can be on the road applying de-icing materials.

How does this Innovation benefit the SCDOT?

In Cherokee County and many other counties, there are a large number of roadway miles to cover with limited resources and time. By reducing the time it takes to fill trucks on the yard, the time trucks can be on the road is increased, which allows more de-icer to be applied to the roadways. This keeps the traveling public safer during winter weather. By adding the second fill valve to brine distributor trucks, the fill time has been reduced from eight minutes to five minutes on a 1000 gallon truck, and from five minutes to three minutes on a 500 gallon truck.



Stationary Two-Lane Three Flagger Operation

Submitted By: Dennis Buckmon (District 7 Barnwell)

Manager: Joseph W. King

Description:

This innovative flagging process was developed to perform job tasks such as repairing cross line pipes, base repairs, shoulder operations and paving operations on two lane roads with the same mile point, working both lanes, without moving the flaggers or traffic control devices. It is designed to have the tapers, buffers, and work area with the same/equal lengths or as close as possible. When moving from one side to the other, the beginning and ending tapers are simply switched from one side to the other. Once the work zone has been set up, it will stay in place (even during lunch) until the work has been completed. This is accomplished by using what is called: “Stationary Two Lane - Three Flagger Operation”. The flaggers switch positions after 30-minute intervals for breaks, which means that no one flagger is flagging for more than one hour at a time, eliminating flagger fatigue. A pilot vehicle is also used to control the speed of the traffic through the work zone.

How does this Innovation benefit SCDOT?:

This innovation benefits SCDOT in safety and efficiency. The less time you have employees placing and removing signs and/or cones around vehicular traffic, the better. Also, this process only takes five minutes to switch the beginning taper and termination tapers around, and not have to remove traffic control devices or relocate flaggers, which also saves time.



Tree Trash Snatcher

Submitted By: Manley Gaddy (District 4 Fairfield)

Manager: Will Black

Description:

Fairfield Maintenance received a call one day to remove trash on I-77. The trash was hung up in the crown of several trees. A hook was welded to the head of a common bolt and was then threaded into the top of an extendable 25 feet level rod. Most maintenance shops will have a few of these rods on hand.

How does this Innovation benefit SCDOT?:

This tool provides a quick and safe method of removing trash hanging in the crowns of trees. The extended hook can also be used to remove things from roofs, etc.



Backhoe Bumper

Submitted By: Bryan Cavanagh (District 6 Beaufort)

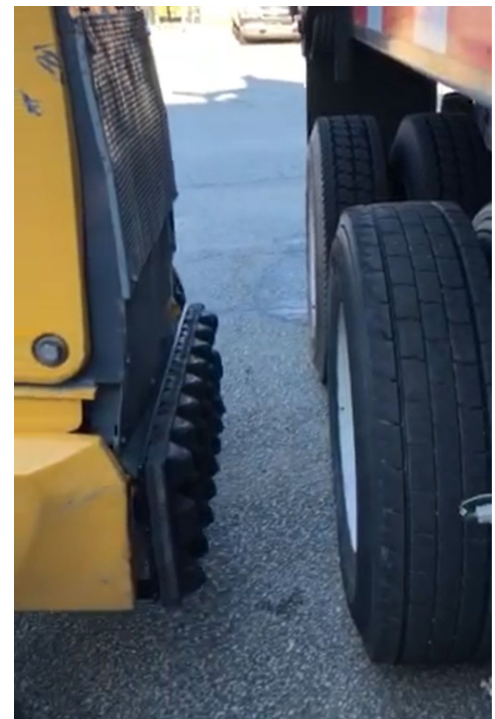
Manager: Joe Baggett

Description:

With the shorter reach of our John Deere 410L backhoe when loading a tandem axle dump truck, the operator would have to get close, sometimes too close, damaging the grille of the backhoe on the tarp pivot pin. After a half dozen times of removing and straightening the grille and making a grille guard, we needed something different. Using 3/8" plate steel, 2" x 2" x 1/4" angle and a section of a discarded skid steer track this is the design we came up with. It mounts with the factory front weight plate bolts and allows enough clearance when up against a tire to allow the grille to remain undamaged.

How does this Innovation benefit SCDOT?:

With minimal supplies and a discarded skid steer track, this prevents damage to the backhoe grille and coolers from the tarp pivot pin when used to load dump trucks. Saving machine down time and money for repairs. Previous to this modification, the grill had been removed, reshaped, and reinstalled probably six or seven times at an estimated two hours each time. It was almost part of our PM routine. The charge air cooler sits within an inch of the grill, so if the grill damaged the cooler, replacement cooler is in the \$1200.00 range, and the grill can only be repaired so many times. A replacement costs around \$600.00, so this modification protects \$2000 or more in parts.



Hitch Mounted Dual Step

Submitted By: Bryan Cavanagh (District 6 Beaufort)

Manager: Joe Baggett

Description:

This is a dual step design that mounts in the hitch of a flatbed 10 or 11 series truck. This was made to help safely access the flatbed of a Ford F-350 w/ flatbed. This design was fabricated by using 2" x 2" square tubing, 3" x 3/8" flat bar, and expanded metal. With the offset design, you are able to use two steps to manage the distance to the bed of the truck. Expanded metal was welded on the tread surface for safety, and reflective tape was added for visibility.

How does this Innovation benefit SCDOT?:

This benefits solely for safety. Periodically, it is required to get onto the flatbed of the truck, and this tool adds a safe way to accomplish this task. As a third point of contact, a sign post rack is within reach at the rear of the truck. To reduce or eliminate the chance of slipping, non-slip material is added to the rack bar and flatbed deck.



Hitch Step

Submitted By: Joe Baggett (District 6 Beaufort)

Manager: Elizabeth Penn-Sanders

Description:

This innovation was designed to assist with gaining access to the bed of a work body pick up. It securely fastens to the trailer hitch mount. It was made using scrap materials around the shop. Expanded metal was added to the top for safety and traction.

How does this Innovation benefit SCDOT?:

This assists in safely gaining access to the bed of a work body pick-up. It lowers the height needed to step up to the bumper. Workers can use the tailgate as a third point of contact, and Rhino Liner was used to protect the bumper and have better traction.



Patch Trailer Plate Tamp Cradle

Submitted By: Bryan Cavanagh (District 6 Beaufort)

Manager: Joe Baggett

Description:

This innovation was made to accommodate the 100 series patch trailers. The KM International patch trailers came with a plate tamp stored at the tongue of the trailer, but did not have anything to secure the tamp. By utilizing 2" x 2" x 1/4" angle iron and some hitch pins, this safely secures the plate tamp in the tongue storage. The hitch pins go through a hole drilled in the angle iron to existing mounts on the tamp to lock the tamp within the square. The angle iron square is laid out to match the dimensions of the footprint of the tamp so it cannot slide around. The hitch pins are secured by chain when not in use.

How does this Innovation benefit SCDOT?:

Safety is the main benefit of this design. It allows the plate tamp to have a secure home, so it can't move, or possibly fall off the trailer. We have not had any issues with the pins shearing. The main culprit was the tamp sliding around so the frame combats that, the hitch pins were added for a worst case scenario and to contain the small bouncing of the expanded metal.



Tack Wagon Spray Bar

Submitted By: Bryan Cavanagh (District 6 Beaufort)

Manager: Joe Baggett

Description:

This innovation was designed to attach to tack wagons and assist with tack application during paving operations. Typically, tack wagons are equipped with a single wand to apply tack by hand. This spray bar mounts to the rear of the tack wagon and is equipped with spray nozzles to spray tack evenly across a lane width. It was plumbed into the system so the wand is still attached, and ball valves are used to send tack through the wand or to the spray bar. Hydraulic quick attach fittings were used so when not in use the spray bar and hose can be removed and stored on the side of the tack wagon. Spray bar storage mounts were designed to hold the bar on the tack wagon, but up out of the way when not in use.

How does this Innovation benefit SCDOT?:

This design helps to save time and tack product by applying tack evenly throughout an entire lane width during a paving operation. In some cases, the hand wand could not evenly apply product. The tack wagon is equipped with a flush solvent and is able to be flushed as well as allow reversal of the pump to clear lines. The valves and fittings do benefit from torch warming before use like the pump itself. This is the same process we use to clear the factory spray wand.



Stake Pocket Railing

Submitted By: Bryan Cavanagh (District 6 Beaufort)

Manager: Joe Baggett

Description:

This innovation was made to help secure loose cargo on the flatbed trucks. Our sign trucks have several areas of flat usable bed space but had no containment. Using square tubing and expanded metal, this can be inserted into a stake pocket to provide 30" of containment. The bottom is padded with a section of a discarded buzz bar belt to prevent metal on metal damage and also aids with noise reduction. It is able to be moved around the bed and inserted into any stake pocket where containment is necessary.

How does this Innovation benefit SCDOT?:

Objects falling into the roadway during transport can create major safety concerns and this design helps to safely contain objects placed on a flatbed truck. It mounts in the stake pocket and acts as a railing to block objects from falling off the truck.



Roller Lift

Submitted By: James Hall (District 2 Newberry)

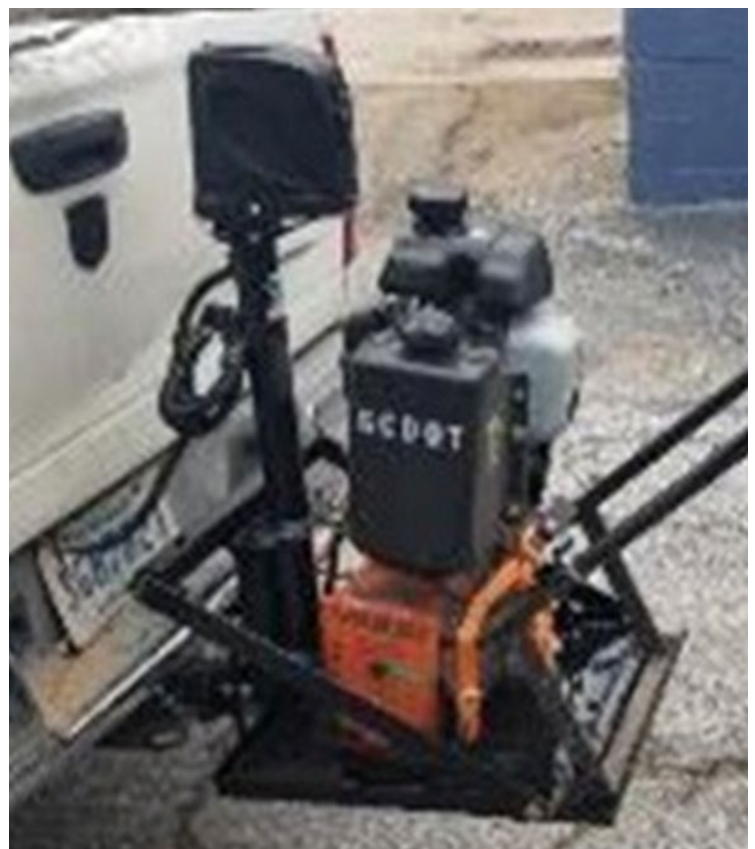
Manager: Jeremy Knight

Description:

This innovation is designed around a 3500lb capacity 12 volt DC electric trailer jack that would commonly be used to raise the tongue of a large pull-behind trailer or camper. This particular lift was designed and built specifically to transport the VIBCO GR-1600H roller, but can be modified to fit just about any roller or tamp setup. This tool can be used with any vehicle that has a 2" receiver and a trailer light plug. This allows it to be used with most trucks and be interchangeable on the fly if needed. As pictured, a safety bar system is used for transport and structural reinforcement. The jack also has a built in ground light for use in low light conditions.

How does this Innovation benefit SCDOT?:

This particular roller weighs in at about 95 lbs. when full of fuel and water, and can be very physically taxing when repetitive loading and unloading is needed. This has been a great way for our crews to avoid repetitive movement injuries and allows for more production due to its ease of use.



Vertical Work Zone Sign Stand Rack

Submitted By: Paul Phillips and Ed Matthews (District 5 Williamsburg)

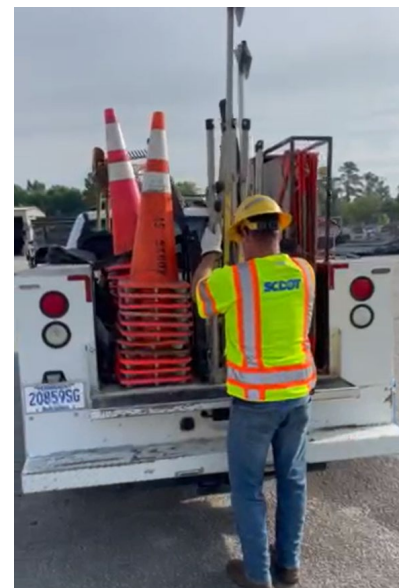
Manager: Kennedy Alston

Description:

The Williamsburg crew has designed a sign stand rack that neatly secures work zone sign stands in a vertical position. By using 3/4" tubing and 2" flat bar, the design is simple and effective with a material cost of less than \$40. Sign stands slide into the rack, and there is a drop arm that is hinged at the proper height to secure the stands in place. The compartments are sized to conform to the base of the sign stands which keeps them isolated and free from damage. This rack also eliminates the chance of injury compared to just stacking them horizontally.

How does this Innovation benefit SCDOT?:

With the new standard sign stands heavier than the previous stands, back injuries could be more prevalent. With the new vertical sign holder mounted flush with the rear edge of the work truck's bed, loading these stands vertically greatly reduces back strain. When sign stands are stored horizontal, they hang on each other and are forced apart causing damage. This new stand rack greatly reduces damage to the sign stands by storing them upright. Since the installment of the sign rack on our crews work truck, the set up time for the placement of advanced warning sign on the roadways has been reduced, and more importantly, less hand injuries. Since this innovation has been so successful we have equipped several other trucks with a vertical sign stand rack. We installed the sign stand rack over a year ago on our heavily used labor truck and there hasn't been any damage to a sign post yet. With little modification if any it can be customized to fit any truck.



Guardrail Debris Cleaner

Submitted By: Lenn Gardner, Lee McDaniel, and John Ives (District 7 Clarendon)

Manager: Coleman Holladay

Description:

Clarendon's version of a guard rail debris cleaner is a design that can be attached to a mini excavator or backhoe to quickly clean debris from between guardrail posts. This helps to remove the built up debris and vegetation which can create drainage issues on the edge of the roadway.

How does this Innovation benefit SCDOT?:

This Innovation cleans debris from under guard rails, allowing water to drain from the roadway more efficiently. This tool can push or pull material beneath the guardrail, and can be used with a single lane closure. This tool can also remain attached to the equipment during transport.



Hydraulic Equipment Trailer Ramps

Submitted By: Wayne Anderson, and Len Stokes (District 7 Bamberg)

Manager: Efrem Dantzer

Description:

This innovation adds hydraulic cylinders to existing SCDOT backhoe trailers. The hydraulic system controlling the ramps is tied in to the existing 12 volt system on the trailer. A control panel with buttons to raise and lower the ramps was added to the side of the trailer. Raising and lowering the trailer ramps can now be done with the push of a button.

How does this Innovation benefit SCDOT?:

Ramps without hydraulic assistance are very hard to raise and lower by one person, and usually requires two people. This innovation will cut down on pinch point and back injuries, as well as workers comp cases. This will allow for many safety related issues to be avoided. Safety chains will still be used for worst case issues. The trailers have an enclosed 12 volt hydraulic power unit mounted in the tongue of the trailer. It is operated from a single 12 volt battery that is charged from the tow vehicle through a standard trailer connector. Hydraulic lines run from the power unit to the cylinders on the ramps. The ramps are modified with cylinder mounts. The cylinders are similar to what is found on snow plows to raise and lower the plow blade(s). With the standalone 12 volt system, the ramps are fully functional at all times, even when a tow vehicle is not connected to the trailer.



Anderson Rail Clipper

Submitted By: Christopher Barrick and Michael Anders (District 2 Anderson)

Manager: Dusty Turner

Description:

The Anderson Rail Clipper (ARC) is an in-house fabricated mini-excavator attachment that is designed to clip high shoulders under guard rails. After seeing a similar design online, this version was fabricated by the Anderson crew to fit their needs. This version is welded to a 1' bucket which allows for quick attachment.

How does this Innovation benefit SCDOT?:

This innovation saves time, manpower, and backs by eliminating the need to hand shovel high shoulders beneath guardrails. Material can be pushed or pulled, and this tool can be used with a single lane closure. A 50' section of guard rail can take an hour or two to shovel by hand. With this tool it would only take about 10 to 20 minutes or less. This innovation also keeps workers out of harms way from traffic.



Backhoe Door Travel Lock

Submitted By: Bryan Cavanagh (District 6 Beaufort)

Manager: Joe Baggett

Description:

Throughout the state/district there were several instances of backhoe doors/windows coming open and shattering while being transported. We were tasked with coming up with a solution to lock the doors and windows while in transport. Rather than secure the doors and windows with a chain or ratchet strap, this design only modifies the door hinge itself. It locks the rear window, door glass and entire door in the closed position by using scrap metal, 3/8" hex nuts, and a chainsaw tool (the pin). In this example, a chainsaw tool was used as the pin. In most cases, most crew or foreman trucks will have a chainsaw tool to utilize. When not in use, the pin is stored in the cab hanging on the hardhat hook.

How does this Innovation benefit SCDOT?:

This design is beneficial in several ways. It secures backhoe doors and glass while being transported, saving time and money on costly glass replacement. It also gets the task completed in a safer manner, since using a chain or a ratchet strap requires someone to climb on the machine that is loaded higher up on a trailer to secure and bind it down. The pin can be removed from the cab when exiting the machine and installed from the deck of the trailer. The replacement glass ranges from \$200-\$500 for each section/piece.



Stake Pocket Step Ladder

Submitted By: Bryan Cavanagh (District 6 Beaufort)

Manager: Joe Baggett

Description:

This innovation was created to aid in gaining safe access to the flat bed of 10 and 11 series trucks. It mounts into stake pockets so it can be moved around the bed of the truck to access different points of the bed and also for storage. The main shaft extends above the bed to be used as a grab bar to maintain three points of contact. In total, a 10' stick of 2" square tubing, expanded metal, and a discarded buzz bar belt were used to complete this project. The belt was attached to protect the bed from metal on metal damage, and to cushion the mounting point. Expanded metal was welded to each tread step for traction.

How does this Innovation benefit SCDOT?:

The main benefit of this design is safety. Some situations require the crews to gain access to the flat bed of the truck. Sign trucks have mounted racks in some areas, so it had to be mobile. This provides access to climb to the bed and maintain three points of contact while doing it. While not in use, the step is placed in a stake pocket on the rear of the truck out of the driver's field of view, and it also sits above the bumper line so it cannot get caught. It goes into the stake pocket approximately 6" so the depth and the belt lining holds it in place very well.



Guardrail High Shoulder Clipper

Submitted By: Hulee Harvey (District 4 Fairfield)

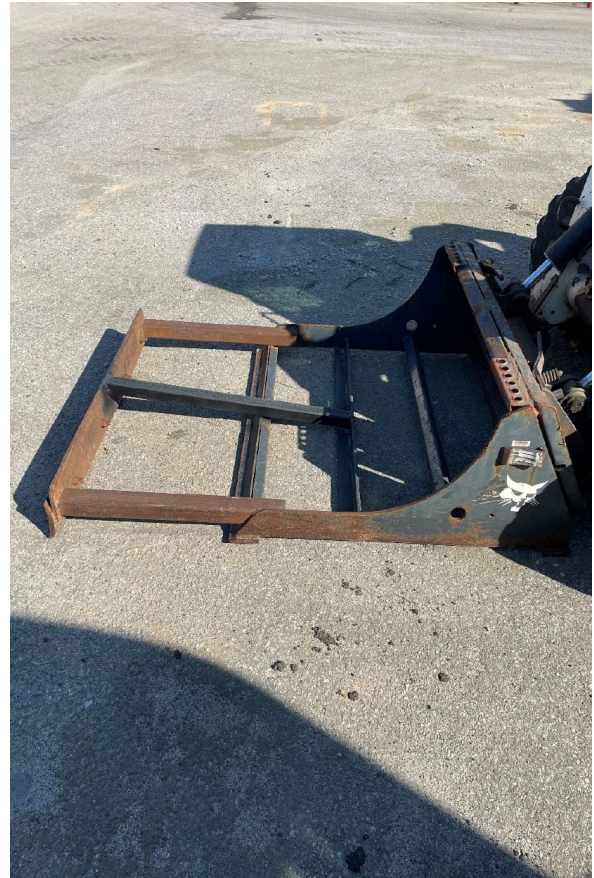
Manager: Bob Little

Description:

Fairfield submitted their skid-steer land planer attachment, which was modified to push and remove high shoulders typically found under guardrail. This removes the built-up material and vegetation which can keep water from draining properly from the edge of the travel lane.

How does this Innovation benefit SCDOT?:

Typically, extensive manpower and a backhoe or motor grader are used to remove high shoulders from under guard rails. This modified attachment eliminates body strain and damage to the guardrail from the equipment. The work also allows water to run off immediately rather than be carried along a high shoulder until a passageway is found. This tool can be removed with the quick connect system that comes stock on the skid steer. This tool is better used to push the material under the guard rail, and can be used with a single lane closure.





2024 Innovation Challenge & Showcase

Thank You!

We would like to thank all of those who helped to develop SCDOT's Innovation Program and make our Innovation Challenge and Showcase possible, as well as those who supported and participated in this years Innovation Challenge!



PUBLIC ENGAGEMENT
South Carolina Department of Transportation



**Research & Development
Executive Committee**



SCDOT RESEARCH & INNOVATION

