



Build a Better Mousetrap National Competition

..... Entries Booklet 2018



Source: FHWA



U.S. Department of Transportation
Federal Highway Administration

OFFICE OF INNOVATIVE
PROGRAM DELIVERY



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Transforming Transportation through Innovation

Build a Better Mousetrap is a Federal Highway Administration (FHWA) sponsored program that annually recognizes innovation among local agencies and tribes. The program shines a spotlight on those frontline workers who use their expertise and creativity to solve everyday problems that increase safety, reduce costs, and improve efficiency.

The FHWA's Office of Innovative Program Delivery's Center for Local Aid Support (CLAS) administers the **Build a Better Mousetrap** national competition. Entrants are winners from competitions throughout the country at the Local Technical Assistance Program (LTAP) and Tribal Technical Assistance Program (TTAP) Centers.

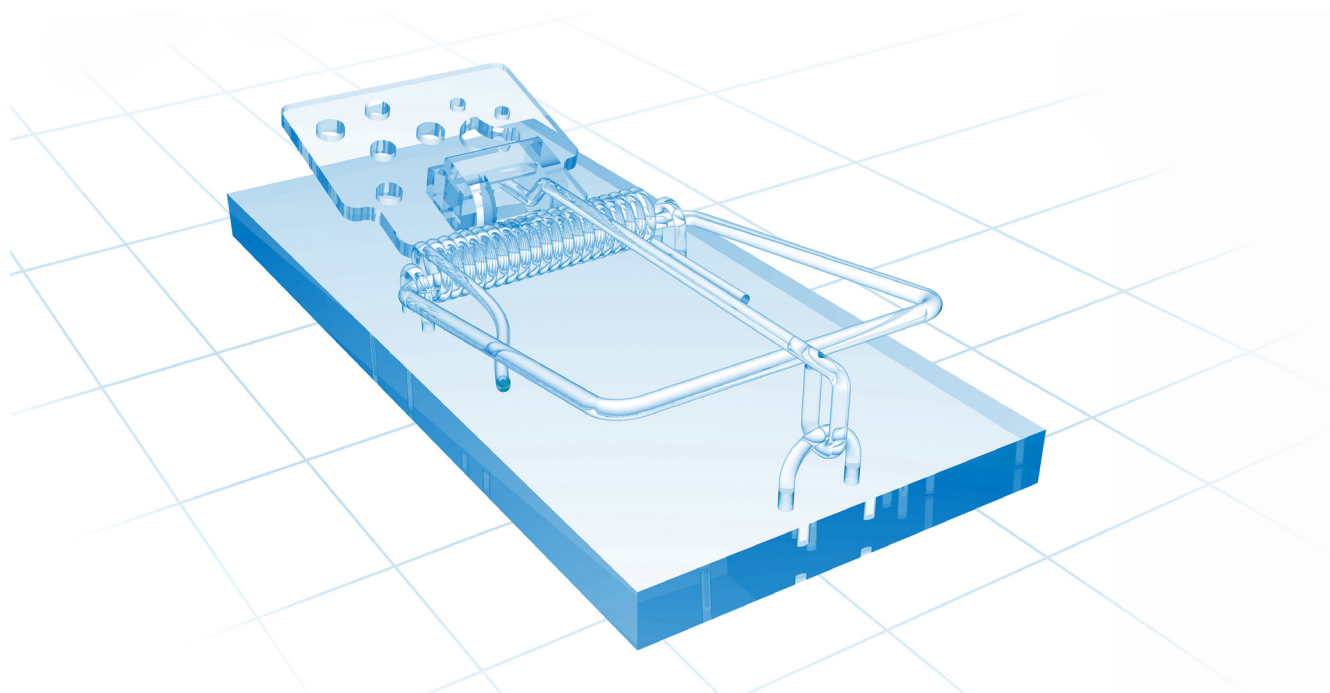
This year's winners were selected based on their innovation's cost savings, benefits to the community or agency, ingenuity, ease of transference to other agencies and effectiveness in four categories: 1) Asset Management Techniques; 2) Facilities Improvements; 3) Inspection and Data Collection; 4) Maintenance Tools and Methods.

About the LTAP and TTAP Centers

FHWA's Local and Tribal Technical Assistance Programs provide information and training to local governments and agencies responsible for more than 3 million miles of roads and over 300,000 bridges in the United States.

Their mission is to foster a safe, efficient, and environmentally sound surface transportation system by improving skills and increasing knowledge of the transportation workforce and decision makers by providing a variety of training programs, technology updates, and personalized technical assistance. Through these core services, the LTAP and TTAP Centers provide local road departments with workforce development services; resources to enhance safety and security; solutions to environmental, congestion, capacity, and other issues; technical publications; and training videos and materials.

For additional information about LTAP and TTAP or the Build a Better Mousetrap National Competition, please visit https://www.fhwa.dot.gov/innovativeprograms/centers/local_aid/





Source: Arapahoe County, CO, Road and Bridge Dept.



WINNER: MOBILE APP TRACKS POTHOLES AND PATCHES

Potholes, cracks, bumps, and icy roads...all complaints that used to inundate the Arapahoe County, CO, Road and Bridge Department. "In winter months, we get as many as 30 calls a day from residents," said Paving Supervisor Keith Runyan. "It was difficult to track." Staying organized and on top of the reports is essential since the county requires workers to respond and take action within 72 hours.

When Runyan joined the Road and Bridge Department 6 years ago, there was limited coordination with the GIS Mapping Department.

That changed once Runyan realized the asset that could be created if the two departments worked together. "I just started exploring other departments and started seeing what technologies they had available," he said. Runyan's curiosity paid off with the creation of the Pavement Repair Tracking Software App that offers access to crucial job information in real time.

"Before this solution, we just had a running list of names and addresses. Now I can see everything on a map. It's so much easier to manage the workloads and put together daily, weekly, and even monthly work plans when you can look at it in a visual way rather than just in a spreadsheet. This powerful tracking system gives me the ability to identify work with status-indicating icons and details about the work. We can even attach photos. I used ASTM D6433 (a standard for assessing pavement defects) and created icons to match up with the type of pavement defect. For example, small alligators



Source: © 1995–2018 Esri

represent alligator cracks. This made it easier. I didn't want to look at a dot on the map and wonder 'what is this?'" said Runyan.

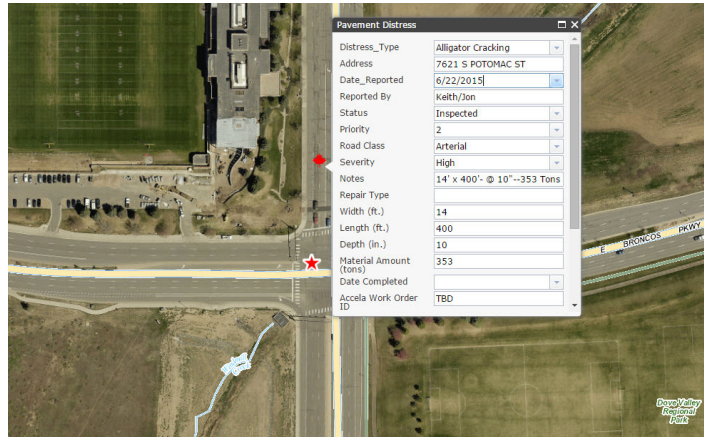
Crews can now monitor upcoming and completed pothole and major patch work on desktop computers and mobile devices. The app provides real-time map data viewing and collection anywhere in the county, while in the office or in the field. Multiple people can edit the system at the same time and data are exportable, so the information can be viewed in a map or a spreadsheet format.

The app gives supervisors the ability to go out in the field, get information for the team, and then easily prioritize projects. That way, crews know what they are going to see before they get there. They can determine the best repair method ahead of time and arrive prepared.

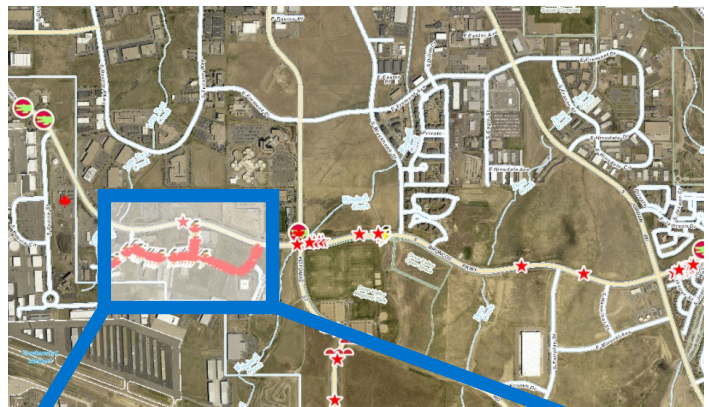
Because the app uses GIS data, there are more than 20 layers that track each category of information and can be turned on or off to simplify viewing or give multiple perspectives. In fact, the app is so beneficial, its use has spread to other departments.

How can another agency create a similar app? "The average GIS person can do whatever you want, but they don't know what you want," said Runyan. "You've got to be able to communicate that to them." Runyan is happy to speak with any transportation personnel who would like to learn from his experience.

"Don't be afraid to try new things," he said. "It helps us stay ahead of the curve."



Source: © 1995–2018 Esri



Source: © 1995–2018 Esri



Source: © 1995–2018 Esri

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Facilities Improvements



WINNER: OLD GUARDRAILS FIND NEW PURPOSE

What is more fitting than to use recycled materials in the construction of a building that houses recyclables? The Clearwater County, ID, Road and Bridge Department did just that, and saved the county thousands of dollars.

“Years ago when we started the recycle program, we didn’t know how it was going to go, but we found that a very large portion of our population wanted to recycle,” said Clearwater County Commissioner Rick Winkel. The recycle program began in a building that quickly became too small. “We needed a barn big enough to put the compactors in and store equipment.”

Road and Bridge Department personnel wanted to build a durable, “forklift-proof” building to store large bales of recyclables, but money was an issue. “We are a very rural, poor county, we didn’t have the money needed to ‘side’ a new building.” The county could afford to build the basic structure and get a roof on it, but that was all. The team evaluated various options to help with the challenges of constructing a new building. Thinking outside the box, the county decided to use aluminum guardrails on the new building. “Our maintenance yard had large amounts of old aluminum guardrail because of a new State requirement to use steel instead of aluminum guardrails on Idaho’s roadways,” said Winkel.

But with this innovative option came a new challenge of using metal and wood construction materials. “We have two different materials expanding and contracting at different rates in wavering climates. Metal tends to expand and contract and wood tends to pick up moisture and become dry. This is an issue because the climate in Clearwater County can range from zero degrees to 120-degrees in a year,” said Winkel. The county hired a local contractor to construct the new building resolving the materials issue while installing maintenance-free aluminum siding on the outside of the structure. “The guardrail is made to handle problems that arise from working machines in close quarters,” said Department Administrator Cassie Bansemer.

To save financial resources, the county used department-furnished equipment and manpower to demolish the old building. The county also used its resources to perform site preparation, and install new power, sewer, and water hook-ups for the new building. The new building cost about \$60,000 and includes a break room, concrete floor, wiring, and lighting. Winkel estimates the guardrails saved the county \$30,000.



Source: Clearwater County, ID, Road and Bridge Dept.

The new building was not only cost effective to build but also makes the recycle program itself more efficient in several ways. People used to have to go inside to drop off recyclables, but now they can just drive through and continue with their day. Personnel were once required to haul recyclables to the compactors but now everything is located under one roof. The recycle program reduces the amount of waste going into the local landfill. This process has reduced tipping costs, which can be as much as \$40,000 a month. "That's not counting the rest of the operations, so any way we can save money or reduce what we haul and put into our landfills, we're all for it," said Winkel.

Bansemer said the building serves its purpose and fulfills a recycling need at the same time. "Make your building with a double wall, meaning you put guardrail all the way up on the inside and outside of the walls." Winkel has additional advice. "I would use a bolt washer and nut and drill all the way through the poles instead of the system we used, which was a 6-inch lag bolt."

County leaders say they have their constituents' best interests at heart, not only what's good for the county immediately, but the long-term effects as well.

"We were very pleased when we got the building completed," said Winkel. "It looks good. It performs well. It turned out very nice and the constituents like it. They were very pleased that we were able to take something and recycle it. The people that visit the building care a lot about recycling, taking care of the environment, and not filling up the landfills any more than we have to."

• **For more information contact:**

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COOL SOLUTION FOR HOT SHOP

Yuma County, CO, was experiencing extreme heat conditions within its maintenance building, causing unbearable working conditions for employees. After shutting the doors to the maintenance shop each night, hot air would get trapped inside, and standard solutions were either too expensive or left the building open to intruders and animals. Instead, County Road and Bridge staff developed shaded guards from salvaged 30-gallon barrels and scrap metal that could be easily installed and removed from the eastern-facing windows. A timer was purchased for the exhaust fan to cycle in cooler night air, lowering the temperature by 20 degrees and keeping the shop cool during the day. Three bolts easily remove the shades to let sunlight in during winter months. Estimated cost in materials and labor was \$850. Savings and benefits from the design include substantially lower temperatures in the shop without the need for an expensive cooling system.



Source: Yuma County, CO, Road and Bridge Dept.

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Source: City of Dover, NH, Community Service Dept.

NEW CATCH BASIN DESIGN TREATS STORMWATER

With the construction of a new, separate municipal storm sewer system, the city of Dover, NH, had limited space to construct rain gardens on some streets requiring stormwater treatment. To solve this problem, the city re-engineered a catch-style basin into a new, two-part system called a media box. One side collects sand and heavy debris, the other side holds media for treating stormwater prior to it entering the drainage system. It is fairly simple to install in the street and both cells can be cleaned out easily. The system cost the city \$3,500 to assemble and install.

For more information contact:

State: New Hampshire

Local Agency: City of Dover-Community Service Department

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Source: Orangetown, NY, Highway Dept.

“WITCH” TAKES RIDE ON FORKLIFT

The Orangetown Highway Department in New York needed a better way to move, rearrange, and transport machines and equipment within its facility. To solve this problem, the department fabricated a removable hitch that can be attached to a forklift, called the Hitch Witch. The device allows one crew member to safely move equipment with ease, and without the need for another employee to assist the mover by standing behind and guiding the reversing vehicle. Total cost in labor and materials was \$120. The Hitch Witch saves the department time and money.

For more information contact:

State: New York

Local Agency: Town of Orangetown-Highway Department

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NEW TRAILER TILES TRENCHES TACTICALLY

Trail County road crews in North Dakota found that renting a tile dispenser came with its share of challenges. For example, when a dispenser is too heavy for the tractor it is mounted on, it creates a rollover hazard. Also, the units must be rented far in advance, leaving the crew with little flexibility to work around inclement weather or to quickly address road sections with unforeseen tiling needs. To solve these issues, employees designed a trailer for transporting a full spool of tile that is capable of unwinding and laying the tile directly into a trench. The final design can be towed by a pickup or dump truck. Total labor and materials cost about \$12,500. The drain tile trailer saves the county time and money by eliminating the need to rent a tractor-mounted unit. It is also safer to use than the tractor-mounted unit and requires fewer employees to operate. Road crews are now able to lay tile on any road project regardless of unforeseen issues.



Source: Traill County, ND

For more information contact:

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Inspection and Data Collection



WINNER: PORTABLE MANHOLE HITS THE ROAD

The Highway Department of Beacon, NY, recently developed a new way to encourage employees to think outside the box, or in this case, the manhole.

There are hundreds of thousands of manholes in municipal streets across the country. They are portals to many vital city systems, and maintenance crews must be able to navigate them safely because these types of confined spaces present special dangers not found in normal work areas.

To provide safer, more flexible training to its maintenance workers, the department created an innovative way to conduct confined space training that reduces travel and downtime. It involves the invention of a portable manhole that can be used indoors, eliminating the unpredictability of Mother Nature.

“We used to go on site to one of our confined spaces, but that’s outdoors,” said Working Supervisor Reuben Simmons. “Having something that is built and can be used indoors makes scheduling the training so much easier. In the past, if we tried to schedule the training and it turned out to be a bad weather day, it would require us to reschedule, which affected a lot of people and their time.”

The city’s highway superintendent, fire inspector, and maintenance mechanic came up with the idea to build a mobile structure that is a mockup of a complete confined space manhole. In addition to avoiding inclement weather, the system also provides safer training for larger groups in one session, which reduces lost time traveling to various training site locations.

A tripod is set up over the simulator and an employee strapped in a harness is hooked up to the tripod. A smell meter is dropped in to ensure there are no odorless gases and it is safe for entry. Additionally, the team developed a confined space checklist to review all hazards and procedures for the trainees to use during the training.

Maintenance Mechanic Dave Way is a carpenter by trade and built the structure in just 5 days.

“We don’t have the room to store it, so it had to be portable,” he said. “We take it apart and put it back together several times a year because people, like the city of Newburgh and the fire department, borrow it from us.” Way also added a window to the simulator to accommodate firefighter “bailout” training.

Materials cost about \$1,500, and the team is already thinking of improvements.

“If I had to do it over again, I’d make it out of aluminum, because wood is a little heavy, especially the staircase,” said Way.

More than 100 people use the simulator annually across multiple agencies.

“Ironically, more people from other agencies have used this than people from our highway department,” said Simmons. “We’re really excited about the difference we’ve been able to make in our community. We’re saving lives, time, and money.”



Source: Beacon, NY, Highway Dept.



Source: Beacon, NY, Highway Dept.

- **For more information contact:**
- **State:** New York
- **Local Agency:** City of Beacon-Highway Department
- **Name:** Reuben Simmons
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PUTTING ASPHALT SEALS TO THE TEST

The city of Greeley, CO, is staying at the forefront of the asphalt maintenance industry by taking advantage of and testing new developments in the construction field. In an effort to evaluate the current seal coating products on the market today, Greeley selected a section of road to test a variety of materials side-by-side. A seal coat is an asphalt maintenance technique in which a layer of oil emulsion and sometimes fine aggregate are applied to the surface



Source: City of Greeley, CO, Public Works and Engineering Dept.

of a roadway. The process slows oxidation, helps to lock in surface oil, and inhibits crack formation. The pilot project used a 1,500-foot strip of subdivided roadway and tested 14 seal treatments over 4 months. Street and Infrastructure Maintenance (SIM) staff reached out to vendors for information on new products. The products and labor were provided at no charge, and the city provided traffic control. The city compared the 14 sections of pavement to nine criteria it developed to evaluate quality and durability. The “Keep Greeley Moving” project website includes a list of the application methods, materials used, construction documentation, and more at <http://keepgreeleymoving.com/2016-seal-coat-test/>. SIM staff have hosted a number of government agencies and private entities to observe the sections and have developed a presentation for the Metropolitan Government Pavement Engineers Council to discuss the findings.

For more information contact:

State: Colorado

Local Agency: City of Greeley-Public Works and Engineering Department

Name: John Wood

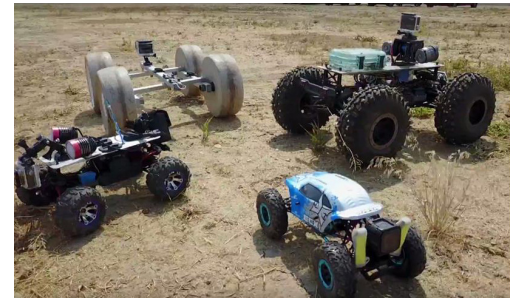
Position: Pavement Infrastructure Management Technician

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REMOTE CONTROL BRIDGE INSPECTION

Ada County, ID, Highway District Bridge Inspectors do not always have access to structures that need inspection. However, the cost to hire a camera inspection team is expensive and may not be the right fit for every situation. The solution to this problem was to develop a floating camera rig to move underneath structures with flowing water, and a remote controlled truck that can move easily over dry or icy ground and around obstacles.



Source: Ada County, ID, Highway District

In addition to these camera vehicles, two smaller trucks were developed that could travel through pipes as small as 8-inches in diameter. Two individuals operate the system, which consists of a tethered remote vehicle fitted with GoPro® cameras and LED lights; a Wi-Fi® repeater; and an iPad® for live video feed. The custom-modified vehicles cost around \$3,500 in total, saving the county \$200 to \$300 per use. This amounts to an annual savings of \$18,750.

For more information contact:

State: Idaho

Local Agency: Ada County Highway District

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MOTOR GRADERS ARRIVE PREPARED

Operating a motor grader for a government agency is a challenging job. The operator needs to be proficient with his or her machine and have knowledge of local conditions. Plus, it is not uncommon for the operator to perform manual tasks such as shoveling ditches, cutting and removing tree limbs and debris from ditch lines that impede safe travel, and raking debris from the road surface. To that end, a motor grader operator requires readily available equipment such as tire chains for inclement weather, shovels, rakes, pole saws, tow chains, and signs, all of which must be onboard the machine. For many years, Douglas County, CO, would purchase motor graders then drill holes and weld hooks in place to safely mount accessory tools. However, when the county began leasing motor graders, the manufacturer stipulated that the equipment could not be altered. The county solved the problem by developing a rack that can be installed or removed by two staff members in less than 30 minutes. The rack provides ease of access, is operator friendly, and does not cause damage to the machine. It can carry six tire chains, three shovels, a rake, a pole saw, four roll-up signs and portable sign stands, dozens of bungee straps, and two tow chains. Materials for the rack cost \$600. The rack allows staff to safely operate the motor grader while carrying the necessary tools and meeting the requirements of the lease agreement.



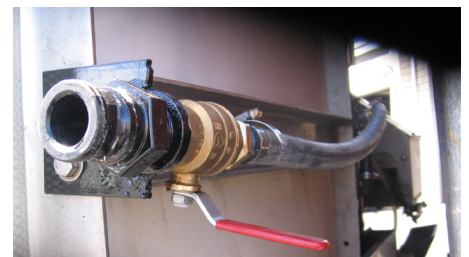
Source: Douglas County, CO, Public Works

For more information contact:

State: Colorado
Local Public Agency: Douglas County Public Works
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DE-CLOGGING THE DE-ICER

It is important to properly flush and clean de-icing equipment. If the de-icing chemicals used on the roads are left in the pumps, gears can deteriorate and ruin the pump beyond repair. The town of Cheshire, CT, recently replaced five pumps at a cost of \$2,500 and 10 hours of labor. Personnel wanted to avoid this time and expense in the future, so they developed a maintenance tool to flush the de-icing equipment on trucks between storms and at the end of each winter season. They installed a valve and coupler on each de-icing system to isolate its pump and filter. This allowed them to flush the de-icing system with water. Additionally, during this process, staff added recreational vehicle antifreeze with lubricant to prepare the de-icing system for seasonal storage and maintenance. Installation of the valve, coupler fitting, and hose can take approximately 1 hour. Materials cost about \$50 per de-icing system.



Source: Town of Cheshire, CT

For more information contact:

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Maintenance Tools and Methods Runners-Up

QUICK FIX FOR SLICK STREETS

The Washington County Secondary Roads Department in Iowa built a brine spray unit that attaches on the back of a flatbed pickup truck. The unit provides an expedited process for maintenance staff to travel within the county to treat slick spots on paved roads, particularly intersections, curves, and bridge decks. It is quicker and cheaper to use a 1-ton pickup truck than to load a tandem truck with salt and material. The spray bar easily attaches to the 2-inch receiver hitch, and the tank is strapped to the bed of the truck. The county found that using pickup trucks at interstate intersections is safer than using tandem plows.



Source: Washington County, IA, Secondary Roads Dept.

For more information contact:

State: Iowa

Local Public Agency: Washington County-Secondary Roads Department

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SIGN SOLUTION HELPS ENSURE ROAD SAFETY

The Appanoose County Roads Department in Iowa began requiring motor grader operators to place “road work ahead” signs on the side of the road when they have a large windrow or when they are performing work that may cause dangerous conditions for the traveling public. The arm brush cutter tractor is also required to put out “mowing ahead signs” when cutting brush. However, the motor grader operators and brush mowers had no good way to hold the sign base or signs on their equipment while driving out to the site. To solve this problem, the county came up with a universal holder that can be created in 30 minutes for just \$50. Now there are no worries that the signs will fall off during transport due to bungee straps coming loose.



Source: Appanoose County, IA, County Roads Dept.

For more information contact:

State: Iowa

Local Public Agency: Appanoose County-Secondary Roads Department

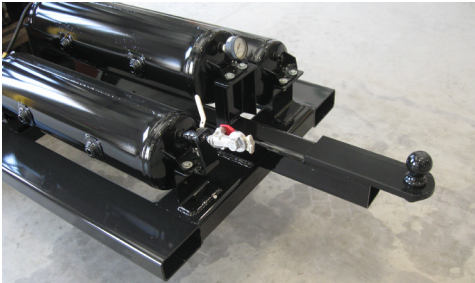
Name: Randall Raskie

Position: Superintendent

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PUTTING THE BRAKES ON WASTED TIME



Source: Webster County, IA, Secondary Roads Dept.

The Webster County Secondary Roads Department in Iowa wanted to find a way to move air brake-equipped trailers in and out of the maintenance shop at times when a truck is unavailable to pull them. Air brakes immobilize the trailer wheels when not connected to a truck. To solve this problem, the department's mechanics built a forklift attachment to pressurize the trailers' air brakes, allowing them to move the trailers without the use of trucks. The forklift attachment frame was built of used steel tubing. The design incorporates a steel plate, ball, and three air tanks. The parts

cost about \$400, and the sand blasting and powder coating cost an additional \$235. Mechanics say the shop is much more efficient now that they can move trailers without waiting for a truck to become available. Also, the trailers are easier to maneuver in tight spaces using a forklift versus using a truck.

For more information contact:

State: Iowa

Local Public Agency: Webster County-Secondary Roads Department

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TRAILER HITCH MAKES FOR BETTER BARRICADING

The Appanoose County Roads Department vehicle fleet in Iowa includes numerous short-bed trucks, which makes transporting type III barricades problematic due to their size and shape. This impaired the crews' ability to barricade roads quickly after severe weather events. With only two trucks that could safely transport the type III barricades, they had to make multiple trips to put out signs. To solve this problem, the department developed a sign holder for moving the barricades that fits in the receiver hitch of any pickup truck. Now, the process of placing barricades on the roads after a severe weather event only requires one person rather than two to safely unload the signs. The holder costs just \$25 per unit. Crews can now respond much faster to roads that need to be barricaded.



Source: Appanoose County, IA, County Roads Dept.

For more information contact:

State: Iowa

Local Public Agency: Appanoose County-Secondary Roads Department

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CAUTION: LARGE TOOLS IN TOW



Source: Ada County, ID, Highway District

The Ada County Highway District vegetation crew in Idaho needed a better way to secure tree-trimming tools to dump trucks, because keeping the tools on the truck took usable space needed for waste material. Bruce Adams, a mechanic lead worker, developed and implemented a plan to modify the dump truck so larger tools could be mounted. He added brackets onto the truck so tools can now be stowed between the dump bed and the pickup body. The innovative mounting bracket allows space for tools to be loaded properly and creates more space for tree trimmings, while keeping the tools secure from potential theft. The county says the total cost to retrofit the truck was \$1,430; but securing the tools from

theft, priceless. Stowing tools under the dump bed rather than with the trimmings also saves time when the truck is filled and unloaded.

For more information contact:

State: Idaho

Local Public Agency: Ada County-Highway District

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SAFER CURB COVER INCREASES EFFICIENCY

Lafayette Consolidated Government (LCG) employees in Louisiana have experienced numerous job injuries relating to removing and reinstalling curb inlet catch basin tops. In an effort to address this problem and make access safer, LCG discussed a solution with East Jordan Iron Works. Together, they designed a cover that is much safer and only slightly higher in price. The new, hinged top is still removable and can be lifted by one person. At just \$200 each, the new covers are easy to use, help reduce workers' compensation claims, and increase efficiency.



Source: Lafayette Consolidated Government

For more information contact:

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ARROW BOARD PUMP TAKES PRESSURE OFF PERSONNEL

Until recently, the infrastructure maintenance crew from the City of Rochester Public Works Department in Minnesota had to climb onto the backs of trucks and physically lift or lower arrow boards into position. The boards had to be lowered before moving to a new worksite to avoid low-hanging trees. Now, the arrow board is raised and lowered by a hydraulic pump operated from inside the vehicle. The new setup also allows for the arrow board to be raised 18 inches higher, making it more visible. Creation of the hydraulic pump system took about 3 days and cost \$4,000. This innovation reduces physical strain on employees and improves safety on the road since the sign is now more visible.



Source: City of Rochester, MN, Public Works Dept.

For more information contact:

State: Minnesota

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NEW CUSHION SOFTENS RIDE FOR SNOW PLOWS



Source: Otter Tail County, MN, Highway Dept.

Winter roads, especially late in the season, can be particularly rough, causing stress on snowplow lift chains and plow lift parts due to heavy bouncing. The jostling often causes plow lift chains to break, shutting vehicles and crews down for hours. Industrious maintenance personnel with the Otter Tail County Highway Department in Minnesota used spare parts to create the Otter Plow Cushion, a device that absorbs the shock of rough roads on the plow assembly and lift chains. When the stock of used parts ran out, the department found they could purchase needed parts for about \$431 per plow. After receiving a local grant, the department perfected the fabrication so the technology can be shared with agencies nationwide. So far, Otter Tail County has successfully outfitted 12 of its 28

plows. This has significantly reduced broken plow lift chains and improved ride quality.

For more information contact:

State: Minnesota

Local Public Agency: Otter Tail County-Highway Department

Name: Rick Hoiium

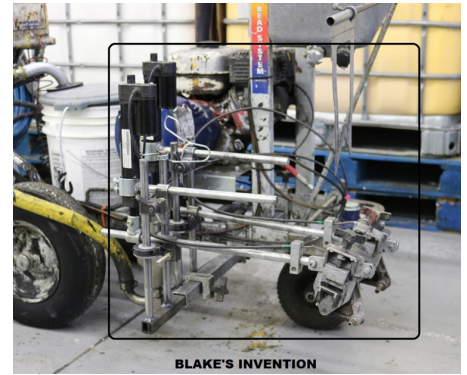
Position: Highway Maintenance Supervisor

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PAINTING AIRFIELDS WITH PRECISION

The Airfield Maintenance paint crew at the Reno-Tahoe Airport in Nevada maintains all runway and taxiway pavement striping to specific Federal Aviation Administration standards using one large paint striper truck and three small, ride-on paint striper trucks. Each truck is equipped with spray guns attached to metal arms, where the width of the paint stripe is manually adjusted. However, due to fluctuations in air, paint temperature, humidity, and wind, the viscosity of the paint is continually changing, causing line widths to vary. The job of adjusting the paint width was labor intensive and time consuming, so maintenance crews needed an innovative solution. Airfield Maintenance Technician Blake McBroom designed a system using an electric actuator that adjusts the height of the spray guns on the stripers. He also reinforced the metal arms to reduce wobbling due to wind or vibration. The design allows adjustments to be made quickly with a click of a toggle switch, saving hundreds of labor hours. Material costs were under \$600 to outfit all three paint striper trucks. The innovation saves an estimated \$5,000 worth of labor costs each year.



Source: Reno-Tahoe Airport Authority

For more information contact:

State: Nevada

Local Public Agency: Reno-Tahoe Airport Authority

Name: Blake McBroom

Position: Airfield Maintenance Technician

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BACK-BREAKING JOB BECOMES AUTOMATED



Source: Town of Ulster, NY, Highway Dept.

Cleaning under the guiderail to remove years of sand, debris, and grass is a labor-intensive job that, if neglected, can prevent stormwater from properly running off the shoulder of the road. Ulster Highway Department staff developed a unique tool to make the job easier in New York. They built an under-the-guardrail cleaner that can be mounted to equipment such as a Bobcat®. They used spare parts from the department's garage and purchased an electric assembly and hydraulic valve box to complete the project. The materials cost \$1,500. The hydraulic attachment eliminates manual labor and the need for several pieces of equipment on the job site.

For more information contact:

State: New York

Local Public Agency: Town of Ulster-Highway Department

Name: Frank Petramale

Position: Superintendent

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Source: Elizabethtown Borough, PA

STUBBORN SIGNS MEET THEIR MATCH

Employees with the Elizabethtown Borough in Pennsylvania created a time-saving, multi-tasking Super Puller for stubborn signs. In the past, they used a snowplow hoist to pull signs. However, newer trucks did not have the plow hoist. To solve this problem, employees designed a truck-mounted sign puller that can be easily removed. The truck can pull alongside the flow of traffic to operate and perform other tasks, such as assisting with cleaning catch basin grates and pulling manholes. It took approximately 16 man-hours for two people to build the puller. Materials cost about \$985. This innovation saved the borough about \$5,000 for a premanufactured truck-mounted sign puller. The Super Puller saves time when maintenance activities are being performed and when additional issues are found while on the road.

For more information contact:

State: Pennsylvania

Local Public Agency: Elizabethtown Borough

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