Build a Better MOUSETRAP

NATIONAL RECOGNITION PROGRAM FOR TRANSPORTATION INNOVATION

2024

U.S. Department of Transportation
Federal Highway Administration

CENTER FOR
LOCAL AID SUPPORT

LTAP
Local & Tribal Technical Assistance Program

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TRANSFORMING TRANSPORTATION THROUGH INNOVATION

FHWA annually recognizes innovation among local agencies and tribes through the Build a Better Mousetrap (BABM) national competition. BABM shines a spotlight on those frontline workers who use their expertise and creativity to solve everyday problems that improve safety, reduce costs, and increase efficiency.

The FHWA Office of Technical Services - Center for Local Aid Support (CLAS) administers the competition to entrants from competitions throughout the country. This year's winners were selected based on an innovation's cost savings, benefits to the community or agency, ingenuity, importance and impact, time savings, and ease of transference to other agencies.

INNOVATION AMONG LOCAL AND TRIBAL AGENCIES

The CLAS provides transportation professionals with a wide range of resources, expert guidance, and innovative technologies. This support fosters collaboration and encourages the adoption of advanced solutions in transportation programs. The CLAS also emphasizes training and workforce development to prepare future practitioners for the field.

Local and tribal agencies oversee over 3 million miles of roadways and approximately 50% of the nation's bridges. These crucial networks are essential to the country's economic health and residents' quality of life. With limited budgets and resources, these agencies frequently rely on innovation to address challenges and improve their services. Practitioners in local and tribal road departments continuously implement incremental changes, integrating cutting-edge technologies and best practices.

The FHWA's 51 Local Technical Assistance Program (LTAP) and seven Tribal Technical Assistance Program (TTAP) centers support this innovation by showcasing creative practices and tools from across the country. These Centers submit their advancements to FHWA for consideration in the Build a Better Mousetrap competition. This competition highlights the most effective and ingenious practices nationwide. By sharing and adopting these innovations, local and tribal road departments can enhance service efficiency, cost-effectiveness, and roadway safety.

For more information on previous Build a Better Mousetrap winners and how to participate, visit https://www.fhwa.dot.gov/clas/babm/.
To find an LTAP Center, visit https://www.fhwa.dot.gov/clas/ltap.
To find a TTAP Center, visit https://www.fhwa.dot.gov/clas/ttap.

NATIONAL BUILD A BETTER MOUSETRAP CATEGORIES

The BABM competition highlights innovative solutions in four key categories: Asset Management Techniques, Maintenance Tools & Methods, Safety Improvements, and Operational Efficiency. Detailed descriptions of these categories are provided below.

INNOVATIVE PROJECT AWARD

Any solution that addresses any or all phase(s) of the "project" life cycle—Planning, Design/Engineering, Construction, Operations, and Maintenance. This project shall introduce new ideas and be locally relevant, original, and creative in thinking.

PIONEER AWARD

A locally relevant, product/tool that is among the first to solve a maintenance problem with a home-grown solution.

SMART TRANSFORMATION AWARD

A locally relevant, significant change in any transportation activity or process that is SMART, "Specific, Measurable, Achievable, Realistic, and Time bound," in nature that results in improved efficiencies.

BOLD STEPS AWARD

Any locally relevant, high-risk project and process showing a breakthrough solution with demonstrated high reward.

WINNER!
INNOVATIVE PROJECT AWARD

Source: City of Moreno Valley

CITY OF MORENO VALLEY, CA (CA LTAP)

Slow and Safe, Save a Life

The City of Moreno Valley, California, faced the challenge of reducing traffic speeds through residential neighborhoods while ensuring emergency vehicles, like fire trucks, could navigate without obstruction. Traffic Engineer, Julien Van Simaeys explains,"*...our goal was to slow down traffic innovatively, without affecting residential parking or disrupting emergency vehicle movement.*"

To address these concerns, the city developed a modified speed cushion designed to deter speeding drivers. Traditional speed humps, authorized by the fire department in Moreno Valley, were problematic because they could cause equipment to shift inside fire trucks, potentially damaging it. The fire department needed a design that allowed trucks to drive straight without being diverted around the cushion.

Van Simaeys built a prototype of the modified speed cushion and invited the fire department to test it and provide feedback. "*...I was pleased that the fire department engaged with our idea. It was crucial for us to get it right,*" says Van Simaeys. The collaboration was successful, as video monitoring of the cushion's performance showed positive results. Van Simaeys was particularly surprised by the minimal number of citizen complaints, noting, "*...I implemented it during the summer before school, and the feedback was overwhelmingly positive.*"

The city is now considering using these speed cushions in other neighborhoods, but careful research is required to ensure proper visibility and address various engineering factors, including site visits, stopping distance, and utility locations. "*...this innovation is not a plug-and-play solution," Van Simaeys notes. "...it involves detailed planning and consideration of many factors.*"

Van Simaeys emphasizes the importance of support from colleagues and managers in implementing innovative solutions. "*...every idea has its pros and cons. Fortunately, this one has proven successful. As a design engineer, seeing your idea come to fruition is incredibly rewarding.*"

Congratulations to the City of Moreno Valley for winning the 2024 Build a Better Mousetrap Innovative Project Award. This award recognizes solutions that enhance any phase of a project's life cycle—planning, design/engineering, construction, operations, and maintenance—through creativity and local relevance.

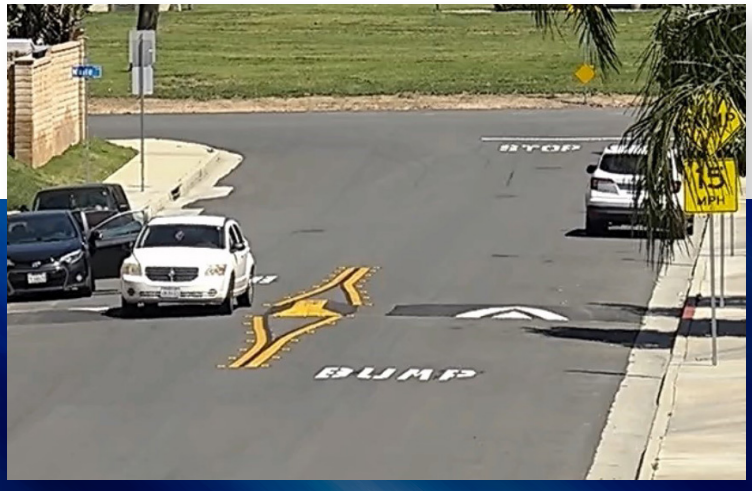
FAST FACTS

INNOVATIVE PROJECT AWARD WINNER

Slow and Safe, Save a Life

Modified speed cushions to address high speeds and increased traffic volumes through residential communities without impacting emergency response.

- Decrease speeds in residential areas
- Cost efficient and a great re-use of materials provided by city staff ($6,000 for materials)
- Does not impede emergency traffic
- Does not impact parking space's along the roadway
- Project was a collaboration with the city fire department



Source: City of Moreno Valley

JULIEN VAN SIMAEYS

CITY OF MORENO VALLEY

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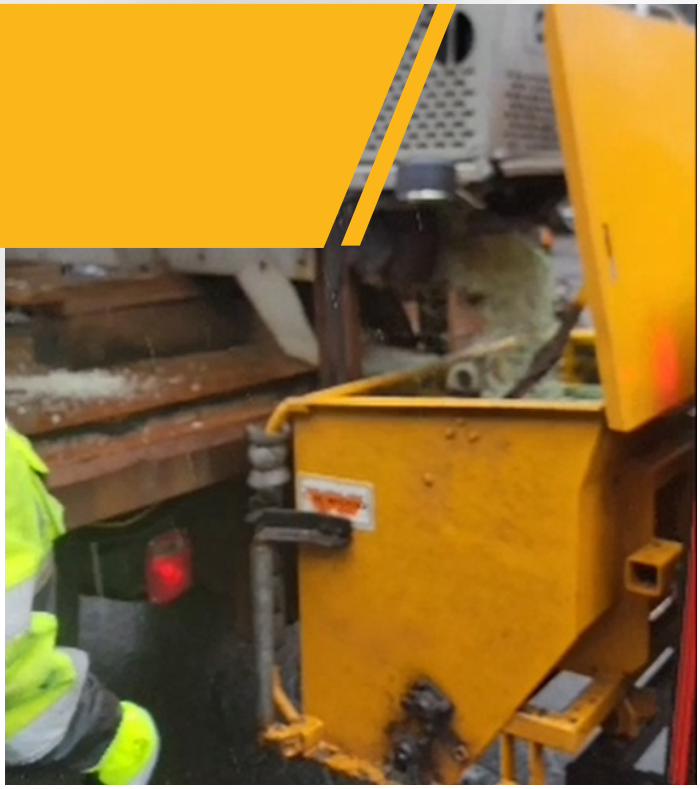
WINNER!

PIONEER AWARD



Source: Town of East Hartford

TOWN OF EAST HARTFORD, CT (CT LTAP)

Trackless Automated Loader

During winter operations, the Town of East Hartford, Connecticut, clears over 19 miles of sidewalks. This process required a small tractor equipped with a plow and sander. However, the sander could only hold about one yard of the sand mix and needed frequent refilling. A dump truck followed the tractor, and an employee would climb into the truck's bed to shovel the sand into the sander, increasing their exposure to chemicals and other risks such as slips, falls, and other injuries.

The idea for the Automated Loader emerged from a brainstorming session among the work crews. "*...we were planning to retire one of our old sanders, but instead, we refurbished it by removing the spinner assembly and creating a chute that automatically dispenses the material in a steady stream,*" says Gary Mckeone of the Town of East Hartford. "*...we were surprised at how quickly it filled up the sander—just 30 seconds!*"

The main challenge was designing the chute to ensure it was secure and at the right height. Repurposing the old sander primarily involved labor, with material costs ranging from $200 to $500.

"*...repurposing old equipment was definitely worth it. The sander was headed for auction, but the motor was still good,*" Gary notes. "*...the idea came from a worker nearing retirement who didn't want to be climbing into the back of a dump truck during a storm to shovel sand.*"

Congratulations to the Town of East Hartford for winning the 2024 Build a Better Mousetrap Pioneer Award. This award recognizes innovative, locally relevant solutions that are among the first to address maintenance challenges with home-grown ideas.

FAST FACTS

PIONEER AWARD WINNER

Trackless Automated Loader

An old sander that was repurposed into a chute for easier load and dispense of sand mixture materials during winter operations.

- Mechanized the process
- Reduced manual effort and exposure to the weather elements
- Cost efficient and a great re-use of the old sander ($200-$500 for materials)
- Reduced material loss due to spillage
- Improved emergency response during wintry conditions

Source: Town of East Hartford

GARY MCKEONE

TOWN OF EAST HARTFORD

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WINNER!
SMART TRANSFORMATION AWARD

Source: McKenzie County Highway Department

MCKENZIE COUNTY HIGHWAY DEPARTMENT, ND (ND LTAP)

Fifth-Wheel Quick Attach Sander

The McKenzie County Highway Department in North Dakota sought to optimize the use of their fleet vehicles. They identified inefficiencies in using dump trucks for sanding roads during the winter and semi-tractors with fifth-wheel connections for hauling gravel in other months.

"*...during the summer, many of our regular plow trucks would sit idle, which felt wasteful. We wanted to find a way to make these trucks more versatile,*" explains Shane Shannon, the Department's Fleet Manager.

Their solution involved adapting their regular fifth-wheel tractors to function as plow trucks during the winter. This innovation would increase the number of trucks available for salting and sanding hazardous roads and allow semi-tractors to be utilized year-round.

The Fifth-Wheel Quick Attach Sander involves mounting a sander frame onto the semi-tractor using a fifth-wheel and king pin connection. The sander's rear cavity ensures a snug fit with the tractor for added stability.

"*...the biggest challenge was balancing the attachment so it wasn't too heavy at the back or front, and ensuring the truck maintained traction while spreading sand,*"says Ralph Bernas, the Department's Shop Foreman.

The transition from sanding and plowing to hauling gravel has been more effective than anticipated. "*...the system is easy to detach and reattach to a gravel hauler. I encourage everyone to try new ideas—you never know when they might prove successful,*" says Shane.

This innovation has led to fewer dump trucks being needed and reduced vehicle maintenance, saving time, manpower, and money. It also allows for larger volumes of sand and salt to be transported. Funds previously allocated for purchasing dump trucks can now be redirected to other needs. The department notes that the fifth-wheel quick-attach concept could also be adapted for water tanks, hydro-seeder boxes, or car carriers.

Congratulations to the McKenzie County Highway Department for winning the 2024 Build a Better Mousetrap Smart Transformation Award. This award recognizes a significant, locally relevant change in transportation activities or processes that is SMART—Specific, Measurable, Achievable, Realistic, and Time-bound—and results in improved efficiencies.

FAST FACTS

SMART TRANSFORMATION AWARD WINNER

Fifth-Wheel Quick Attach Sander

An attachment to modify semi-tractors to assist with salting and sanding hazardous, icy roads during the winter months.

- Fewer dump trucks are required
- Maximizes utilization of the County's trucks year-round
- Improved winter weather response for sanding the roads and sidewalks
- Cost savings to the road department and taxpayers

Source: McKenzie County Highway Department

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WINNER!
BOLD STEPS AWARD

Source: West Lafayette Street & Sanitation Department

WEST LAFAYETTE STREET AND SANITATION DEPARTMENT, IN (IN LTAP)

Street Sweeper Conversion to Leaf Vac Unit

In West Lafayette, Indiana, leaf pickup is a crucial service for residents and a significant task for the city's Street and Sanitation Department. Traditionally, leaf vacuum operations required at least two employees—one to drive the truck and another to operate the vacuum. This setup faced several challenges, including limited staffing, safety concerns for the vacuum operator who had to stand on the trailer, the need for Commercial Drivers License (CDL) Level A certification, and restricted funds for equipment replacement.

To address these issues, the Department devised an innovative solution: converting old street sweeper units into leaf vac units. "*...a new leaf vac unit would cost around $200,000. However, converting an old street sweeper unit averages about $10,000, depending on the cost of the used equipment,*" explains Jeremy Stinson, City Street Commissioner. The street sweeper bodies and chassis are generally in good condition and have similar engine configurations to leaf vacs. With the skills of their in-house mechanics, the department was able to repurpose used street sweepers effectively.

The Street and Sanitation Department team recognized the need for a safer, faster, and more comfortable solution. "*We were handling the job manually and running the tube ourselves. We knew there had to be a better, safer, and more efficient solution,*" says team member Paul Kull. They initially explored other options, like a recycling truck, but found it uncomfortable and unreliable.

Doug Perkins, who worked with Paul on repurposing the street sweeper, notes, "*...we were surprised by how well it worked. The job got done twice as fast without needing an extra person. It felt like a monster garage project, building something that really made a difference.*"

Paul appreciates the support from management for allowing creative problem-solving. "*...it's about having management trust you to make things work. You don't want to let them down,*" he says.

Congratulations to the West Lafayette Street and Sanitation Department for winning the 2024 Build a Better Mousetrap Bold Steps Award. This award honors a locally relevant, high-risk project that demonstrates a breakthrough solution with significant rewards.

FAST FACTS

BOLD STEPS AWARD WINNER

Street Sweeper Conversion to Leaf Vac Unit

Used Street sweepers re-purposed for leaf pickup maintenance operations.

- More economical way of providing leaf vac equipment
- Reduced workforce needs by half
- Increased safety by having employees remain in the vehicle
- Cost efficient ($4,550 for materials and labor)

Source: West Lafayette Street & Sanitation Department

PAUL KULL

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HONORABLE MENTION 2024

Enhancing Intersection Resilience: Mobile Power Trailers for Continuous Traffic Signal Operations

City of Walnut Creek, California

PIONEER AWARD

Source: City of Walnut Creek

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In the event of severe thunderstorms, heavy rain, strong winds, hail, or sleet, the power grid is at risk of damage, potentially leading to widespread power outages. These outages have the potential to disrupt traffic lights, impede traffic flow, and create significant safety hazards for drivers, pedestrians, and cyclists.

Walnut Creek pioneered a proactive strategy by deploying mobile power trailers to energize intersections, ensuring uninterrupted signal operation for up to 72 hours during outages. This innovative approach mitigates the risks associated with relying solely on passive measures like stop signs, which are prone to damage and difficult to maintain during storms. By strategically deploying mobile power trailers, Walnut Creek enhances intersection resilience, prioritizing safety and efficiency in times of crisis. Moreover, these modifications not only maintain traffic signals but also support essential services such as signal communications, allowing for timing changes and Closed-Circuit Television (CCTV) camera viewing. By powering all the devices in the traffic signal cabinet, improved operations can take place in the traffic control center to mitigate the effects of power outages.

Source: San Joaquin County Public Works Road & Traffic Maintenance

HONORABLE MENTION 2024

Traffic Signal Hydrogen Back-Up System

San Joaquin County Public Works Road & Traffic Maintenance, California

INNOVATIVE PROJECT AWARD

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The impact of power outages on traffic signal operations and driver safety cannot be underestimated. Power outages due to storms, public safety power shutoffs, or other natural disasters pose significant challenges for maintaining a traffic management operating system. The limited run time of battery backups during long-lasting events further complicates the situation. In such cases, crews may need to be deployed to change the intersection to an all-way stop location, which, in turn, hinders and delays their ability to respond to other required locations or emergencies.

To tackle this issue head on, San Joaquin County has implemented a new hydrogen-powered back-up technology and advanced communication system capable of handling extended outages. With a hydrogen-powered backup system offering a continuous signal runtime of 4 to 7 days, depending on the location and the ability to refuel hydrogen, the county is now better equipped to address emergency weather or power blackout events. This assertive approach allows them to reassign personnel to other critical needs within the county during such challenging situations.

HONORABLE MENTION 2024

Arapatrack - In-House Street Sweeper Tracking System

Arapahoe County Road & Bridge, Colorado

SMART TRANSFORMATION AWARD

Brandon Hotopp - Arapahoe County Road & Bridge, CO
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Source: Arapahoe County Road & Bridge

The Arapahoe County Road and Bridge Department is responsible for meeting Federal mandates by thoroughly sweeping all county-paved surfaces, including curbs and gutters, a specified number of times annually. This requirement ensures compliance with Federal regulations that demand verifiable proof of complete cleaning across designated areas.

Managing this operation involves overcoming challenges such as ensuring no roads are missed, handling fluctuations in staff levels, which requires regular training for new hires, and accurately logging which roads have been swept. To address these challenges, the department uses GPS technology in each street sweeper to track and confirm the sweeping of every road and paved area. Additionally, ongoing training programs are in place to maintain consistency and efficiency despite changes in staffing. These efforts enable the Arapahoe County Road and Bridge Department to fulfill Federal requirements while effectively managing the complexities of maintaining clean county roads.

Source: City of Monte Vista

HONORABLE MENTION 2024

Low-Deck Equipment Trailer

City of Monte Vista, Colorado

PIONEER AWARD

Robert Vance - City of Monte Vista, CO
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The need for a versatile trailer that could adapt to both ground-level loading for patching and utility operations as well as standard travel height for transport was critical for the City of Monte Vista. Previously, using ad hoc solutions such as loader buckets or manual lifting posed significant risks of equipment damage and potential injury to city crews. Given the small team size, which often includes lone workers handling heavy equipment like jumping jacks and plate compactors, the urgency for a safer and more efficient transport method was clear. Repeated equipment damage and physical strain to city workers underscored the necessity for a dedicated solution that could enhance safety while improving operational efficiency.

In response to these challenges, the City of Monte Vista, repurposed an old variable message board trailer. By integrating an adjustable axle assembly and hydraulic system, the city allowed crews to lower the deck for easy equipment loading and unloading, minimizing the risk of injuries and equipment wear. The trailers have also been adapted for community events like parades, demonstrating their versatility and value to both city operational and civic engagement efforts. This initiative not only addresses the city's immediate operational challenges but also reflects its commitment to fostering a safer, more efficient work environment for its dedicated crew members.

HONORABLE MENTION 2024

Custom GPS & Asset Management

Town of Windsor, Colorado

SMART TRANSFORMATION AWARD

Brian Rowe - Town of Windsor, CO
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Source: Town of Windsor

The Town of Windsor has successfully addressed the challenges posed by its rapid growth through strategic adoption of advanced technology. Recognizing inefficiencies in their existing Automatic Vehicle Locating System (AVL) and the need to streamline operational processes, the town partnered with a local business to implement PlowOps. This decision not only upgraded their AVL capabilities but also integrated seamlessly with their asset management system and geographic information system, enhancing overall efficiency and data management. The deployment of 10-inch Android tablets in all snow and ice removal equipment has revolutionized operations, allowing real-time monitoring of equipment movement, plow-route coverage, and immediate response to emergencies.

Feedback from operators, supervisors, and residents has been overwhelmingly positive, underscoring PlowOps' impact on safety, transparency, and operational effectiveness.

By leveraging PlowOps alongside other local businesses, the Town of Windsor has set a new standard in snow and ice management. The integrated system not only optimizes resource allocation during snowstorms but also empowers personnel with robust tools for decision-making and emergency response. This comprehensive approach reflects the town's commitment to innovation and efficiency, ensuring they can meet the evolving demands of their community while enhancing service delivery and operational resilience in the face of challenging weather conditions.

HONORABLE MENTION 2024

Utility Person Class A "PAID" On-the-Job Training Apprentice Program

Town of Middlebury, Connecticut

PIONEER AWARD

Source: Connecticut Department of Labor

Dan Norton - Town of Middlebury, CT
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In today's challenging labor market, many sectors are struggling to find qualified applicants, including the public works field. The economy's slow recovery has made it difficult to recruit individuals with the necessary experience to meet DOT standards. In other industries, apprenticeship programs have proven to be valuable investments for cultivating skilled labor. As a result, the Town of Middlebury has decided to establish a similar program for their public works department.

The apprenticeship program integrates remunerated on-the-job training with essential safety instruction and certifications, aimed at equipping candidates with the necessary skills for a career in public works. Such apprenticeship programs play a pivotal role by aiding employers in the recruitment process, supplying new hires with a desired skillset, and maintaining retention of highly skilled personnel. Employees stand to benefit significantly from these programs by acquiring fundamental training essential for a career in public works. The Town of Middlebury believes such an initiative has not been previously implemented within a municipal setting in Connecticut.

HONORABLE MENTION 2024

Loader Snowplow Bracket

City of Lewes, Delaware

PIONEER AWARD

Rick Melendez - City of Lewes, DE
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Source: City of Lewes

The City of Lewes faced a dilemma when they sold an aging dump truck with a history of frequent malfunctions. The absence of a replacement vehicle large enough to accommodate the city's 10-foot plow posed a significant challenge, leaving them without a suitable means of plowing. While purchasing a new plow or attachment would be costly, they chose to address the issue by designing and building their own plow attachment. This decision was driven by a combination of financial prudence and a commitment to fostering local talent.

The City of Lewes recognized that creating a custom solution was not only more cost-effective but also an opportunity for hands-on learning and skill development. Employees across various departments, from engineering to maintenance, collaborated on the project, gaining practical experience in design, steel welding, and fabrication. As the team navigated technical challenges and designed a plow that could withstand harsh winter conditions, the team built a robust and functional attachment that met the city's needs. This initiative strengthened teamwork and morale within the workforce, fostering a sense of pride and accomplishment while also enhancing the city's capacity for future projects and repairs.

Source: City of Nampa

HONORABLE MENTION 2024

Weedseeker

City of Nampa Street Division, Idaho

INNOVATIVE PROJECT AWARD

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The City of Nampa faced significant challenges with weed management along its extensive network of streets, exacerbated by limited manpower and outdated equipment. Recognizing the need for innovation, the streets division pursued a solution that would enhance efficiency while reducing labor-intensive tasks. Inspired by successful implementations elsewhere, Assistant Superintendent, Jeff Kasma proposed integrating "weedseeker" technology onto the city's existing fleet of street sweepers. This agricultural technology detects chlorophyll and weeds' color, automating the spraying process without requiring constant operator intervention.

By retrofitting the weedseeker units onto sweepers, Nampa achieved dual functionality—sweeping streets and spraying weeds simultaneously, effectively doubling productivity with each vehicle. This integration not only optimizes operational efficiency by consolidating tasks, but also yields substantial cost savings. Estimates suggest potential savings of up to $11,500 per sweeper annually, stemming from reduced labor costs, minimized equipment wear, and decreased chemical usage. Moreover, the safety benefits are notable, as fewer personnel are required to work alongside active roadways, further underscoring the system's positive impact on operational safety and resource utilization. As a result, Nampa has exemplified proactive resource management and innovative public service, setting a precedent for sustainable urban maintenance practices.

HONORABLE MENTION 2024

Brine Trucks

Crawfordsville Street Department, Indiana

INNOVATIVE PROJECT AWARD

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Source: Crawfordsville Street Department

The Crawfordsville Street Department faced financial constraints in implementing an anti-icing program due to the high cost of equipment like trucks and tanks. To overcome this challenge, the department adopted an innovative and cost-effective solution by repurposing ambulance truck frames. By fitting these frames with liquid tanks equipped with distributor bars, the department achieved a functional anti-icing system at a fraction of the cost of purchasing new equipment.

This repurposing initiative not only enabled the department to acquire the necessary infrastructure within budget constraints, but also freed up funds for crucial aspects like storage and recycling of the anti-icing liquid. This approach underscores the department's commitment to resourcefulness and sustainable practices, demonstrating how creative solutions can effectively address infrastructure needs while optimizing financial resources. As a result, Crawfordsville Street Department has positioned itself for long-term cost savings and operational efficiency in maintaining its roadways during the winter weather conditions.

Source: Munster Street Department

HONORABLE MENTION 2024

Paving Crew Ambulance Conversion

Munster Street Department, Indiana

PIONEER AWARD

Chris Spolnik- Munster Street Department, IN
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The Munster Street Department's initiative to repurpose a retired ambulance from the local fire department has yielded significant benefits for their paving crew operations. Facing long hours in summer heat without adequate breaks, the department seized the opportunity to convert the ambulance into a multi-functional paving crew truck. Equipped with existing emergency lights and ample internal storage, the vehicle now serves as a consolidated hub for transporting traffic control equipment such as signage, cones, and barrels.

This innovative project has not only saved taxpayer money by repurposing existing city resources but has also enhanced worker safety and comfort. The ambulance provides a cool, enclosed environment for crews to take breaks and enjoy fresh lunches prepared on-site with the inclusion of a microwave and mini fridge. Additionally, involving the local elementary school in designing the truck's graphics fostered community engagement and educated youth about the vital services provided by the street department. By transforming a retired ambulance into a functional asset tailored to their specific needs, Munster Street Department exemplifies efficiency, cost-effectiveness, and community involvement in public service initiatives.

HONORABLE MENTION 2024

Blade Jack

Adams County Secondary Roads, Iowa

INNOVATIVE PROJECT AWARD

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Source: Adams County Secondary Roads

Adams County Secondary Roads encountered a significant challenge related to the safety and efficiency of replacing blades on motor graders. The existing process required workers to lift heavy blades in awkward positions, which posed risks of injury and inefficiency. To address these risks, the crew designed and constructed a specialized trolley equipped with jacks and adjustable angles.

This customized trolley has revolutionized the blade replacement process by enabling workers to lift blades safely and adjust their angles precisely during bolt insertion. By eliminating the need for manual lifting in awkward positions, the new system significantly reduces the risk of back injuries and strains associated with repetitive motions. Moreover, it enhances workplace safety by providing a stable platform for handling heavy equipment. The efficiency of blade replacement has also improved, as workers can now perform the task more effectively and with reduced physical strain. This innovative project exemplifies Adams County Secondary Roads' commitment to enhancing worker safety and operational efficiency in their maintenance activities.

Source: Webster County

HONORABLE MENTION 2024

Wing Height Indicator

Webster County, Iowa

INNOVATIVE PROJECT AWARD

Jamie Johil- Webster County, IA
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Webster County Secondary Roads faced a critical need to accurately measure the height of the wing plow on their motor graders to ensure optimal operation and prevent potential damage. Recognizing the importance of precise measurements, they embarked on developing a custom gauge specifically tailored for their machines. This gauge, constructed using materials from their fabrication shop and featuring reflective tape for visibility, was designed to eliminate guesswork and ensure accuracy in measuring the wing plow height.

The implementation of this innovative gauge has yielded significant improvements in operational efficiency and resource management. By providing precise measurements, it has enhanced the overall grading process, reducing the risk of accidental damage to shoulders and minimizing rock wastage. This not only optimizes material use but also contributes to cost savings and improved performance of the motor graders. The success of this project highlights Webster County's commitment to proactive solutions and demonstrates its capability to innovate effectively in enhancing operational processes for road maintenance and management.

HONORABLE MENTION 2024

Mobile Worklight Tower

Wright County Secondary Roads, Iowa

PIONEER AWARD

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Source: Wright County Secondary Roads

Wright County Secondary Roads faced a critical need to improve lighting conditions for vehicle maintenance, particularly for dump and semi trucks. In response, the county engineered a robust light tower using Telespar posts for their structural strength, drawing on their experience with the material from previous signage projects. Careful selection of components such as lights and caster wheels from local suppliers ensured reliability and ease of assembly. This innovative light tower has significantly enhanced visibility during repairs, addressing longstanding issues of inadequate lighting and improving overall operational efficiency and vehicle turnaround times.

By minimizing errors and optimizing workflow, the upgraded lighting solution has had a transformative impact on maintenance procedures. The decision to utilize Telespar posts and source components locally demonstrated practicality and commitment to quality. By showcasing the department's ability to innovate and tailor solutions to meet specific operational challenges. This project sets a precedent for future advancements in infrastructure maintenance within Wright County, emphasizing its dedication to enhancing workplace safety, efficiency, and delivering high standards of service to the community.

Source: Ellis County Public Works

HONORABLE MENTION 2024

Safety Hitch

Ellis County Public Works, Kansas

PIONEER PROJECT AWARD

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Ellis County identified a critical safety concern when attaching large rollers to equipment, requiring employees to work in hazardous "red zones" near moving machinery. To mitigate these risks, the county's skilled welder and fabricator devised a safety device akin to a barrel-bolt lock. This innovation secures the roller's tongue in a fixed position during attachment, allowing the ground-based employee to direct the equipment operator from a safe distance away from pinch points and potential impacts.

By implementing this solution, Ellis County has significantly enhanced workplace safety. The device eliminates the risk of employees being injured by pinch points or collisions with equipment, thus improving overall visibility and communication between ground personnel and operators. This proactive approach not only prevents potential injuries and workers' compensation claims but also ensures that employees can continue their duties without restrictions or the need for recovery from workplace accidents. Ultimately, this safety enhancement underscores Ellis County's commitment to employee well-being and operational efficiency in their equipment handling procedures.

HONORABLE MENTION 2024

Bed Up Indicator

Saline County Road & Bridge, Kansas

SMART TRANSFORMATION AWARD

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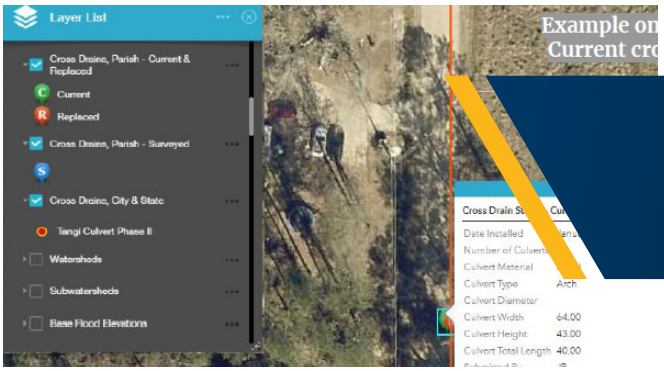
Source: Saline County Road & Bridge

The Saline County Road and Bridge Department faced a critical safety issue where their dump trucks were colliding with overhead wires, trees, and other obstacles due to insufficient indication of the dump truck bed's position or accidental bed raising. These incidents led to expensive repairs and posed significant safety risks to both the vehicles and the surrounding environment. Recognizing the urgency, the department drew on its experience with proximity indicators and microswitches to devise a solution.

Saline County Road and Bridge's innovative approach involved installing a microswitch system that would trigger a warning signal and illuminate a light inside the operator's cab. This system was designed to immediately alert operators when the truck bed began to rise unexpectedly, indicating it was no longer securely positioned against the frame. By integrating this warning system, the department aimed to improve driver awareness and prevent accidents resulting from inadvertent bed raising. This proactive measure addressed immediate safety concerns and underscored its initiative in utilizing technology to reduce risks and ensure the safety of personnel and infrastructure within the region.



Source: Tangipahoa Parish Government

HONORABLE MENTION 2024

Culvert Inventory Program

Tangipahoa Parish Government, Louisiana

INNOVATIVE PROJECT AWARD

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In 2022, the Tangipahoa Parish Government (TPG) collaborated with the U.S. Army Corps of Engineers (USACE) on a comprehensive study of the parish's infrastructure. The primary focus was to gather detailed data on subsurface drainage structures beneath the road network, crucial for supporting both parish needs and aligning with the goals of the Louisiana Watershed Initiative. Prior to beginning the study, TPG faced inquiries from USACE revealing a significant gap in information concerning cross-drain pipes beneath roads. While bridge data was accessible, essential details about these drainage structures were lacking.

To address this gap effectively, TPG enhanced their web-based geographic information system mapping platform. They expanded the application's capabilities to include specific fields for culvert material, type, dimensions, count, condition, length, and notes. This strategic enhancement enabled TPG to systematically gather comprehensive data, covering 4,630 crossings on parish roads and 2,609 crossings on municipal and state roads. This initiative not only filled critical data gaps but also positioned TPG to make informed decisions and undertake proactive infrastructure management and planning efforts across Tangipahoa Parish, demonstrating their commitment to leveraging technology for enhanced resilience and community welfare.

HONORABLE MENTION 2024

Addis' Smart City Initiative

Town of Addis, Louisiana

SMART TRANSFORMATION AWARD

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Source: Town of Addis

The Town of Addis, a vibrant and rapidly expanding community, prides itself on maintaining a small-town atmosphere while capitalizing on its proximity to urban centers, universities, and thriving industries.
To further enhance its development, Addis has embarked on a journey to become a "Smart City," leveraging information and communication technology to bolster operational efficiency, transparency in public communications, and the delivery of government services. A key component of this initiative is the comprehensive assessment of its road infrastructure. Understanding the condition and deterioration rates of each road across the network is pivotal in ensuring sustainable growth and efficient resource allocation.

To achieve this, Addis has deployed Roadway Management Technologies (RMT) RoadRunner system in its fleet vehicles. Equipped with sophisticated sensors, these vehicles collect real-time data as they navigate the town's roadways daily. This continuous data collection effort provides invaluable insights into the condition of roads, enabling Addis to implement proactive maintenance strategies. By leveraging this technology, the city aims not only to extend the lifespan of its infrastructure but also to optimize budgetary decisions and enhance overall road safety and quality for residents and visitors alike. This forward-thinking approach underscores Addis' commitment to fostering a smart and connected community that balances growth with environmental sustainability and improved quality of life.

Source: City of Ann Arbor

HONORABLE MENTION 2024

Quick Builds: Addressing High-Injury Network for Pedestrians and Bicyclists

City of Ann Arbor, Michigan

SMART TRANSFORMATION AWARD

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Between 2018 and 2022, Ann Arbor faced a sobering reality with 13 fatalities and 97 serious injuries resulting from traffic accidents, with pedestrians and cyclists accounting for half of these incidents. This stark statistic prompted the city to embrace the ambitious "Vision Zero" initiative, committing to eliminate all traffic-related deaths by 2025. This commitment underscores Ann Arbor's proactive approach to road safety, aiming for comprehensive changes to protect vulnerable road users and prevent further loss of life.

To tackle the issue of speeding, Ann Arbor has launched "quick build" projects designed to swiftly and effectively adjust road infrastructure. These initiatives involve installing pavement markings, city posts, and rubber speed bumps strategically placed to curb speeding and enhance safety for pedestrians, cyclists, and all road users. Collaborating closely with the city's signs and signals team and PK Contracting, these enhancements reflect Ann Arbor's dedication to creating safer streets and ensuring equitable mobility, especially for residents with mobility challenges.

By prioritizing Vision Zero principles, Ann Arbor aims to optimize road safety and demonstrates its commitment to fostering a community where everyone can travel safely and confidently. These proactive measures underscore the city's dedication to sustainable urban planning and inclusive infrastructure improvements, paving the way towards a future where traffic fatalities are a thing of the past.

HONORABLE MENTION 2024

Belly Scratcher

Oak Lawn Township, Minnesota

SMART TRANSFORMATION AWARD

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Source: Oak Lawn Township

In response to the challenges posed by icy gravel roads, the implementation of scratchers has proven instrumental in improving road safety and efficiency throughout the seasons. These scratchers cut grooves that effectively retain salt and sand within travel lanes during winter, reducing slippage and the risk of accidents caused by poor traction. Moreover, they have significantly decreased salt and sand usage by a third, optimizing resources while enhancing road surface conditions.

During the summer months, the scratchers continue to play a vital role by smoothing gravel road washboarding without compromising the chloride layer applied for stabilization. This dual functionality improves driving comfort and vehicle maintenance while preserving the road's structural integrity. Additionally, the scratchers are adept at clearing sod growth along gravel road edges post-grading, ensuring unimpeded travel lanes and facilitating easier maintenance operations. With adjustable depth of cut and a belly blade that serves as a depth gauge, the scratchers provide a versatile solution for year-round road upkeep, demonstrating their value in maintaining safe and reliable roadways for the community.

Source: Roseau County

HONORABLE MENTION 2024

Belly Plow Safety Access Step

Roseau County, Minnesota

PIONEER AWARD

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Roseau County took a proactive approach to enhance safety for plow truck operators during wintry and damp conditions by welding a custom-designed grip pad onto the upper surface of the belly plow. This simple yet effective modification addresses the significant hazard posed by slippery substances coating the trucks, which can lead to slips and falls when entering or exiting the vehicles. By providing improved traction, the grip pad minimizes the risk of accidents and injuries, thereby ensuring the well-being of workers engaged in critical winter maintenance operations.

Their initiative demonstrates the county's commitment to the safety and productivity of its workforce through practical, hands-on solutions. The addition of the grip pad not only enhances safety measures but also serves as a testament to the impact of innovative thinking and minor adjustments in optimizing day-to-day tasks. By mitigating risks associated with slippery surfaces on plow trucks, Roseau County has exemplified proactive safety measures that prioritize the welfare of employees and contribute to a more efficient and effective operation during challenging weather conditions.

HONORABLE MENTION 2024

Hastings Asphalt Trailer

City of Hastings, Nebraska

PIONEER AWARD

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Source: City of Hastings

The City of Hastings Street Department successfully tackled the challenge of efficient pothole repairs by pioneering a solution: repurposing a trailer chassis into a custom hot box. This transformation included equipping the trailer with a heating unit and integrating hydraulic-powered components for operational ease. These modifications were aimed at maintaining asphalt repair material at a consistent temperature throughout the workday, eliminating the need for frequent trips back to the city shop and securing the safety of the crew handling the hot mix.

By repurposing the trailer chassis into a custom asphalt trailer, the Street Department achieved multiple objectives. The consistent temperature of the repair material allowed crews to work continuously without interruptions, significantly boosting efficiency. Moreover, the hydraulic components reduced physical strain on workers, mitigating the risk of injuries. The result was higher quality, longer lasting pothole repairs across the city, enhancing road safety and reducing maintenance costs over time. This innovative approach not only addressed immediate operational challenges but also exemplified the department's commitment to cost-effective and sustainable infrastructure maintenance practices.

Source: Alton Department of Public Works

HONORABLE MENTION 2024

Crushed Metal Debris Magnet

Alton Department of Public Works, New Hampshire

INNOVATIVE PROJECT AWARD

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The Alton Department of Public Works (DPW) faced a resident complaint regarding metal fragments in crushed stone used on a gravel road, which posed safety and maintenance concerns. In response, the DPW devised an effective solution by modifying a large 6-foot bar magnet. This magnet is strategically mounted and suspended from the plow frame above the road, enabling it to attract and collect metal fragments embedded in the stone as the equipment traverses the road. This innovative approach not only addressed the immediate issue of metal contamination but also proved versatile for potential future incidents, such as spills of roofing nails or other metal debris.

The implementation of the modified bar magnet has demonstrated significant success in practical applications across various road surfaces where the crushed stone was utilized. By efficiently removing metal fragments, the DPW has enhanced road safety and reduced potential damage to vehicles and equipment caused by metal hazards. Moreover, this solution exemplifies the DPW's commitment to proactive problem-solving and ensuring the quality and safety of road materials used in its community.

HONORABLE MENTION 2024

Road Tape Machine

Laconia Department of Public Works, New Hampshire

BOLD STEPS AWARD

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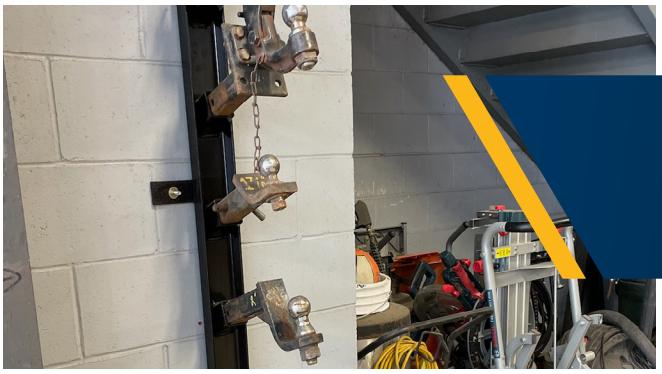
Source: Laconia Department of Public Works

During Laconia's Bike Week, the public works team faced the challenge of efficiently marking Lakeside Avenue for motorcycle parking without the expense of a new tape machine roller. They ingeniously repurposed an old, broken line striping machine by stripping it down and adapting it to their Graco LineDriver HD Ride-On Attachment. With collaboration from mechanics, management, and the line striping crew, they utilized welding and basic tools to transform the machine. Despite initial adjustments, the modified equipment successfully laid down straight traffic tape, ensuring organized parking and emergency vehicle access during the event.

This project exemplifies the team's ability to innovate and collaborate effectively, achieving remarkable results through resourcefulness and teamwork. By leveraging existing resources and skills, they not only solved a specific operational challenge but also enhanced efficiency and safety for Laconia's Bike Week. The success of this initiative underscores the department's commitment to creative problem-solving and maximizing operational capabilities without significant financial outlay.



Source: Strathan Department Public Works

HONORABLE MENTION 2024

Trailer Receiver Hitch Holder

Strathan Public Works, New Hampshire

PIONEER AWARD

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The Stratham Department of Public Works (SPW) faced an organizational challenge with trailer hitches that were previously stored haphazardly, posing safety risks and inefficiencies. Recognizing the need for a solution, the SPW team undertook a systematic approach to improve storage conditions. They measured each hitch and devised a storage rack design that accommodated the various sizes, enabling them to be stored upright on a wall.

By implementing this new storage system, the SPW not only organized the hitches effectively but also eliminated the tripping hazards associated with their previous storage method. This innovation not only enhances safety in the garage but also streamlines operations by allowing quick and easy access to the hitches when needed. Additionally, the vertical storage design freed up valuable floor space, further optimizing the garage environment for efficient vehicle maintenance and equipment handling.

HONORABLE MENTION 2024

Onboard Wash Down System

New Jersey Department of Transportation

PIONEER AWARD

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Source: New Jersey Department of Transportation

To address the hazardous and inefficient process of cleaning concrete testing equipment on job sites, the New Jersey Department of Transportation (NJDOT) recognized the need for a safer and more streamlined solution. Traditionally, workers had to make numerous trips with 5-gallon buckets of clean water across debris-laden job sites, posing risks of accidents and physical strain. Moreover, without adequate water access, equipment and vehicles often accumulated concrete build-up, leading to operational issues and costly repairs. Cleaning and maintaining testing equipment also proved to be excessively time consuming, impacting overall job efficiency during concrete pours.

In response to these challenges, the NJDOT implemented an innovative solution: installing an onboard water tank capable of storing over 30 gallons, complemented by a powerful pump. This setup enables efficient cleaning of concrete from testing equipment and state vehicles directly on site, reducing reliance on external water sources like concrete trucks. By minimizing the number of trips and hazards associated with transporting water, the NJDOT has significantly enhanced worker safety. This solution also contributes to cost savings by extending the lifespan of testing equipment handling.

Source: New Jersey Department of Transportation

HONORABLE MENTION 2024

Replacing Inlet Curb Pieces

New Jersey Department of Transportation

INNOVATIVE PROJECT AWARD

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In addressing the challenges posed by NJDOT standards for inlet curb pieces during roadway resurfacing and preservation projects, the NJDOT focuses on efficiency and minimal disruption. Understanding the need to upgrade inlet curbs to prevent debris entry into water bodies and accommodate snowplows, they have streamlined their methodology to avoid the extensive process of removing and reconstructing entire concrete barrier curbs. Instead, workers strategically replace only the inlet curb pieces while preserving the undamaged barrier curb, minimizing project duration and traffic impacts.

This innovative approach allows workers to complete the necessary upgrades swiftly, typically within overnight shifts, ensuring roads are reopened promptly the next day. By reducing the time and resources required for these upgrades, they not only adhere to NJDOT standards effectively but also enhance safety and convenience for commuters. This streamlined process reflects NJDOT's commitment to efficient project management and sustainable infrastructure practices, benefiting both their operations and the community they serve.

HONORABLE MENTION 2024

Shoulder Cleaner

Town of Genesee, New York

INNOVATIVE PROJECT AWARD

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Source: Town of Genesee

The Town of Genesee Highway Department's innovation in creating a portable shoulder cleaner for guide rails addresses critical challenges efficiently and effectively. By welding together scrap metal to fashion an adjustable head that mounts onto a backhoe bucket, the department has eliminated the need for time-consuming and labor-intensive manual digging. This solution not only saves considerable time and resources but also enhances safety by reducing the risk of accidents caused by debris accumulation under guide rails. It allows the department to allocate personnel more strategically, ensuring more efficient maintenance of road infrastructure across various locations without the need for extensive setup adjustments.

This portable shoulder cleaner not only improves safety and efficiency but also contributes to enhanced infrastructure maintenance. It enables quick and effective debris clearance under guide rails, preventing potential obstructions and maintaining stability. Moreover, its mobility and adaptability facilitate swift deployment along different sections of roads, optimizing maintenance operations and promoting the overall upkeep of roadways. Additionally, by preventing debris buildup that could lead to environmental contamination during precipitation events, the cleaner supports environmental stewardship, aligning with broader sustainability goals of the department. Thus, this innovative solution underscores the Town of Genesee Highway Department's commitment to innovation, safety, and efficient road maintenance practices.

Source: Town of Highland Highway Department

HONORABLE MENTION 2024

Water Diffuser

Town of Highland Highway Department, New York

PIONEER AWARD

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During the process of flushing fire hydrants, the Town of Highland Highway Department identified significant environmental concerns related to erosion of grass, soil, and roadside areas caused by the force of released water. Traditional solutions involving commercial diffusers were deemed prohibitively expensive. In response, the department took on the challenge of designing and building a custom diffuser to address these issues. The resulting diffuser, a 3" wide x 20" long x 14" box equipped with scrap angle iron to redirect water flow, was ingeniously crafted to attach easily to our trucks via a 2" receiver. This design not only facilitated efficient water release but also included features like a swiveling hose connection and integrated tools for hose maintenance, ensuring practicality and ease of use for our team.

The impact of this innovation extends beyond operational efficiency to encompass environmental preservation and cost savings for the Town of Highland Highway Department. By minimizing the disruption and damage caused to natural surroundings during hydrant flushing, their specialized diffuser mitigates erosion and preserves the integrity of local ecosystems. Moreover, the in-house development of this solution represents a significant financial advantage, eliminating ongoing expenses associated with purchasing commercial alternatives. This dual benefit of environmental stewardship and fiscal responsibility underscores the success of our approach, highlighting the importance of adaptive problem-solving and collaboration within the organization.

HONORABLE MENTION 2024

Soil Sifter

Town of Orangetown Highway Department, New York

SMART TRANSFORMATION PROJECT AWARD

James Delo & Peter Bickley - Town of Orangetown Highway Department, NY
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Source: Town of Orangetown Highway Department

The Town of Orangetown Highway Department faces a significant challenge with managing job site spoils, which often contain a mixture of soil, rocks, debris, and other waste materials. These spoils are typically unsuitable for direct use in seeding projects or other applications requiring clean, usable soil. The current method of manually sorting through the spoils is time-consuming and inefficient, leading to increased labor costs and delays in project timelines. Moreover, disposing of unusable materials incurs substantial disposal costs and may contribute to environmental concerns if not managed properly.

To tackle the challenge of managing job site spoils containing soil, rocks, debris, and waste, the Town of Orangetown Highway Department is introducing an automated soil sifter system. This initiative involves acquiring and installing a robust soil sifter machine designed to efficiently separate large materials from usable soil. The system works by mechanically sorting through the spoils, extracting rocks, debris, and other undesired elements, leaving behind clean soil ready for immediate reuse in seeding projects, landscaping, or other applications. This approach not only eliminates the labor-intensive manual sorting process but also cuts down on disposal costs associated with transporting and disposing of unusable materials. This enhances operational efficiency, reduces labor expenditures, and promotes environmental sustainability through effective management of job site spoils.

Source: Town of Salem Highway Department

HONORABLE MENTION 2024

Unroll Road Fabric

Town of Salem Highway Department, New York

SMART TRANSFORMATION PROJECT AWARD

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Developing a solo-friendly method for unrolling road fabric uphill has significantly improved efficiency and safety in installation projects for the Town of Salem. The town has repurposed an old water pipe as a core for the roll, equipped with welded mower cleves to serve as chain attachments. This innovation allows the roll to be maneuvered by various means such as a bucket tooth, skid steer, pickup truck, or manually, enabling a single person to handle the task effectively. This advancement accelerates road fabric installations, reduces dependence on additional labor, and enhances project adaptability to diverse schedules and terrain conditions.

By eliminating the need for extra laborers, the solo-friendly technique not only optimizes operational efficiency but also reduces risks associated with manual handling on steep or challenging terrain. The method's versatility supports flexible project planning and execution, accommodating varying requirements seamlessly. Moreover, by streamlining the installation process, the town achieves potential cost savings, making road fabric installation more economical and sustainable. This innovation highlights the Town of Salem's commitment to enhancing efficiency, safety, and cost-effectiveness in infrastructure development, setting a precedent for future projects.

HONORABLE MENTION 2024

Wing Digging

Town of Salem Highway Department, New York

BOLD STEPS AWARD

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Source: Town of Salem Highway Department

During plowing operations, encountering partially frozen ground poses challenges where the nose of the plow wing can unexpectedly dig into softer, unfrozen areas, disrupting snow removal efficiency and potentially damaging equipment. This issue not only slows down clearing efforts but also risks incomplete snow removal and uneven surfaces. To address this, implementing a visual marker system can significantly enhance safety and operational effectiveness. By placing markers at pavement level, operators gain a clear visual reference to navigate terrain variations, guiding them away from softer ground that could otherwise hinder progress and cause damage.

The use of markers not only improves safety by reducing the risk of accidents but also enhances plowing efficiency by preventing unnecessary interruptions due to ground damage. By maintaining a consistent plowing height above vulnerable areas, such as unfrozen ground, the markers help preserve the integrity of both the plow equipment and the ground surface. This proactive approach minimizes the need for costly repairs or restoration work, ensuring that snow removal operations proceed smoothly and effectively throughout challenging winter conditions.

Source: Village of Warwick Department of Public Works

HONORABLE MENTION 2024

The FIN-ISHER

Village of Warwick Department of Public Works, New York

BOLD STEPS AWARD

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Replacing a broken curb box rod traditionally involves labor-intensive methods like digging large holes with excavators, causing disruption and inefficiency. However, the Village of Warwick Department of Public Works has developed a more efficient solution: "The FIN-ISHER." This innovative tool utilizes an old valve key retrofitted with a small, tapered rod to precisely remove and install split pins without the need for extensive excavation. Using precise cuts and leveraging a micrometer, the tool ensures a secure fit and effective locking mechanism for the new pins, enhancing reliability and ease of maintenance.

With "The FIN-ISHER," Village of Warwick Department of Public Works operations have been revolutionized. The department can now use its vac truck to create a precise hole next to the curb box, insert the tool to swiftly replace the rod and pin, and seamlessly restore the area within minutes. Equipped with features like a flashlight and enhanced grip, the tool not only improves visibility and handling but also optimizes efficiency in our maintenance processes.
This innovative approach saves time and reduces disruptions while also lowering the overall cost, demonstrating their commitment to enhancing operational efficiency and effectiveness in infrastructure maintenance.

HONORABLE MENTION 2024

Asphalt Crevice Blaster

Walsh County Highway Department, North Dakota

PIONEER AWARD

Source: Walsh County Department

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The Walsh County Highway Department faced persistent challenges with debris accumulation in cracks on roads, bike paths, and walking paths, which compromised the effectiveness of sealant applications and posed safety risks. Initially using traditional methods like an air compressor and compressor tip proved insufficient as they left debris behind, leading to incomplete sealant coverage and frequent reapplications. To address these issues, the department developed the "asphalt crevice blaster." This specialized tool, attached to an air compressor wand, effectively removes deep-set debris from asphalt crevices, ensuring thorough cleaning before sealant application.

The asphalt crevice blaster has significantly improved maintenance outcomes by allowing for more comprehensive sealant coverage. With cleaner cracks, sealant durability has been extended up to 5 to 7 years, doubling its lifespan compared to previous methods. Their innovation enhances road safety by reducing the frequency of maintenance and the risk of hazards caused by debris while also delivering substantial cost savings. By minimizing the need for labor-intensive reapplications and reducing material usage, the Walsh County Highway Department has optimized its operational efficiency and resource management. This innovative solution exemplifies proactive infrastructure maintenance practices, demonstrating a commitment to enhancing public safety and maximizing departmental effectiveness in maintaining roadways and pathways.

Source: City of Dublin

HONORABLE MENTION 2024

Dublin's Weather Center

City of Dublin, Ohio

SMART TRANSFORMATION PROJECT AWARD

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The City of Dublin recognized the critical need for localized weather data to enhance their response to winter and heavy rainstorms, which often pose significant challenges to public safety and infrastructure. With the absence of weather stations within city limits, they implemented a forward-thinking solution by deploying four Vue Robotics weather camera stations. These stations have revolutionized their approach to snow and ice removal by providing real-time monitoring of roadway temperatures and weather conditions. This capability allows for precise and efficient allocation of resources, ensuring roads are treated effectively during adverse weather events. By accurately predicting staffing needs and optimizing deployment strategies, the city enhanced safety, minimized disruptions, and reduced costs associated with snow and ice management.

The benefits of this innovative system extend beyond winter weather management. The data collected by the Vue Robotics weather camera stations supports informed decision-making year round, impacting community events, construction projects, and more. It enables the city to make proactive decisions based on localized weather insights, improving resource utilization and overall operational efficiency. Real-time monitoring capabilities allow crews to promptly respond to changing conditions, enhancing road safety and minimizing risks associated with inclement weather, particularly on bridges and critical infrastructure. This initiation exemplifies Dublin's commitment to leveraging technology for effective public service delivery and community resilience in the face of weather-related challenges.

HONORABLE MENTION 2024

Bread Truck Culvert Inspector

Hamilton County Engineer's Office, Ohio

INNOVATIVE PROJECT AWARD

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Source: Hamilton County Engineer's Office

The Hamilton County Engineer's Office encountered a formidable challenge in optimizing infrastructure asset inventory data collection while maintaining safety and efficiency standards. Overcoming budget constraints exacerbated by post-COVID market challenges, the office repurposed a used bread truck into a specialized inspection vehicle, heralding a transformative shift in operational capabilities. This innovative vehicle design includes ergonomic workstations, advanced safety features, and strategic storage solutions, significantly enhancing workflow efficiency and safety protocols. The integration of cutting-edge drone technology further future-proofs our operations, minimizing the need for risky confined space entries.

This initiative underscores Hamilton County's commitment to adaptive problem-solving and excellence in public service. The outcomes have been profound: notable safety improvements with reduced inspection risks and enhanced visibility for safer interactions with the public and colleagues. Efficiency gains are equally impressive, with a remarkable 70 percent increase in inspection rates attributable to enhanced mobility and optimized storage within the vehicle. This project not only streamlines daily operations but also positions the office as a leader in technological integration for infrastructure management. It exemplifies the office's dedication to innovation, efficiency, and superior service delivery, ensuring it continues to meet and exceed community expectations while upholding the highest safety standards.

Source: Lewis Township

HONORABLE MENTION 2024

The Un-Reeler

Lewis Township, Lycoming County, Pennsylvania

PIONEER AWARD

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The Lewis Township staff faced significant challenges when uncoiling underdrain piping for installation on tar and chipped roads. Underdrains are crucial for improving subsurface drainage, protecting the roadway, and extending pavement life. Back injuries are a major concern for employers nationwide and the township is no exception. With a limited staff and an aging workforce in their 50s through 70s, it was imperative to develop a tool that would make unrolling large coils of perforated piping easier and reduce the risk of back injury.

To address this issue, the township took decisive action by leveraging its mechanical expertise. They meticulously measured the typical coil sizes so that the tool could be utilized with 6- and 8-inch underdrain pipes. Following the initial plan, the staff actively scoured the workshop for scrap materials, sketched a plan, and embarked on building the Un-Reeler. This groundbreaking invention drastically reduces installation time by increasing the efficiency of uncoiling the spools to only a minute and diminishes the potential for back injuries. With the new streamlined process due to the Un-Reeler, the staff is empowered to complete more work in a day laying pipe.

HONORABLE MENTION 2024

The Fire Chicken

North Codorus Township, Pennsylvania

PIONEER AWARD

Travis Shearer - North Codorus Township, PA
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Source: Codorus Township

The North Codorus Township faced significant challenges in efficiently and safely managing the removal of tree canopies along its roads, aiming to improve road conditions and enhance safety during winter months. Previously, this task required risky operations with bucket trucks, posing hazards such as falls, injuries from hand-held saws at height, and the danger of falling debris. This method was not only slow and cumbersome but also costly in terms of both time and potential accidents.

In response, the township's road department innovatively designed and implemented the "fire chicken," a ground-based equipment-mounted solution. Built from salvaged materials and surplus components, including steel arms, a hydraulic pump, and saw blades sourced from government surplus, the "fire chicken" revolutionized canopy removal operations. The invention enables operators to safely perform cutting tasks from within a protected cab on the ground, mitigating risks and significantly enhancing operational efficiency. This increased productivity and allowed the crew to cover more road miles in less time, thereby stretching the township's road maintenance budget and ensuring dryer, safer roads with extended pavement life for the community's benefit.

Source: Peters Township

HONORABLE MENTION 2024

Storm Basin Frame Lifter

Peters Township, Pennsylvania

PIONEER AWARD

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Peters Township faced a critical challenge in safely lifting storm water basin frames for repairs, encountering issues with the stability and reliability of existing clamps during the lifting process. These challenges prolonged project timelines posed significant safety risks to crew members. Recognizing the need for a more robust solution, the township's welding shop took proactive steps to overhaul their fabrication capabilities. By utilizing materials readily available and focusing on labor-intensive design, they developed an adjustable lifter capable of securely handling basin frames and adaptable for various other lifting tasks.

This innovative lifter integrates seamlessly with utility trucks' cranes, enhancing operational efficiency and safety across storm basin reconstruction projects.
The implementation of the adjustable lifter has markedly improved the operational landscape for Peters Township. It has minimized the risks associated with lifting tasks, ensuring safer working conditions for crews while streamlining project execution. This solution not only exemplifies the township's commitment to innovation and resourcefulness but also underscores their dedication to enhancing workplace safety and operational efficiency in infrastructure maintenance and repair.

HONORABLE MENTION 2024

Vertical Work Zone Sign Stand Rack

South Carolina Department of Transportation

PIONEER AWARD

Daniel Cook - SC DOT, SC
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Source: South Carolina Department of Transportation

Ensuring the safety and integrity of vertical work zone sign stands during storage and transport is paramount to minimizing risks and costs at the South Carolina Department of Transportation (SCDOT). Historically, stacking these stands horizontally led to frequent hand injuries and damage to the signs themselves, while also posing challenges for workers lifting heavy stands from truck beds. To address these issues, a specialized rack was developed to store the stands vertically within individual compartments. This innovative approach reduces the risk of damage to the stands and significantly diminishes the potential for back injuries during loading and unloading operations.

The implementation of the vertical storage rack has proven highly effective in enhancing operational efficiency by simplifying the storage process, saving time, and reducing the occurrence of hand injuries and stand damage. It has yielded substantial cost savings for the SCDOT. The success of this solution has led to its adoption across numerous service trucks, demonstrating its significant impact on improving safety measures and operational effectiveness within the SCDOT and similar organizations.

Source: South Carolina Department of Transportation

HONORABLE MENTION 2024

Hydraulic Trailer Ramps

South Carolina Department of Transportation

PIONEER AWARD

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803.737.6627 | cookdc@scdot.org

To enhance safety and efficiency at the SCDOT with the handling of heavy equipment trailers, hydraulic cylinders were integrated into the trailer ramps. Previously requiring two workers to manually raise and lower, this task posed significant risks for injuries when a second worker was unavailable. The addition of hydraulic cylinders transformed the operation, allowing ramps to be effortlessly controlled via a push-button switch, akin to those used on snowplows. Leveraging the existing 12-volt power system in the trailers facilitated seamless integration of this hydraulic solution.

The implementation of hydraulic systems has eradicated risks associated with pinch points and back injuries, commonly leading to workers' compensation cases, and streamlined productivity. Workers no longer need to wait for assistance, significantly reducing downtime and enhancing operational efficiency. These advancements not only bolster worker safety but also yield substantial time and cost savings for the SCDOT, underscoring the practical benefits of innovative technological solutions in improving workplace conditions and productivity.

HONORABLE MENTION 2024

Guard Rail Debris Cleaner

South Carolina Department of Transportation

PIONEER AWARD

Daniel Cook - SC DOT, SC
803.737.6627 | cookdc@scdot.org

Source: South Carolina Department of Transportation

Addressing the persistent challenge of maintaining cleanliness and safety under roadside guardrails, the SCDOT introduced an innovative attachment designed for mini excavators or backhoes. This advanced solution revolutionizes the cleaning process by efficiently removing dirt and vegetation buildup that often leads to water pooling on roads, posing safety hazards for drivers. Unlike traditional manual methods that require multiple workers and extensive time commitments using shovels, this attachment streamlines operations dramatically.

By leveraging the capabilities of machinery, this attachment not only accelerates the cleaning process but also enhances safety by keeping workers away from potentially hazardous roadside conditions. It significantly reduces the risk of accidents and injuries associated with manual labor, while also preventing water accumulation that can contribute to road hazards like hydroplaning. This technological advancement underscores SCDOT's commitment to innovation and safety, offering substantial time savings and cost efficiencies for the SCDOT.

APPENDICES

LTAP CENTER LOCATIONS

STATE	CENTER NAME	CONTACT INFORMATION
Alabama	Alabama Transportation Research Institute	**Auburn University Transportation Research Institute** 1301 Shelby Center Auburn, AL 36849 800.446.0382 http://eng.auburn.edu/atap/
Alaska	Alaska DOT & Public Facilities Local Training & Assistance Program	**Alaska DOT & PF-LTAP/T2** 820 East 15th Avenue Anchorage, AK 99501 907.269.7383 https://dot.alaska.gov/ltap/
Arizona	Arizona LTAP	1130 North 22nd Avenue Phoenix, AZ 85009 602.712.4050 https://www.azltap.org/
Arkansas	Arkansas Technology Transfer Center	**University of Arkansas** **Dept. of Civil Engineering** 10324 Interstate 30 Little Rock, AR 72209 501.569.2380 https://cttp.uark.edu/technology-transfer/index.php
California	California LTAP Center	**Center for International Trade & Transportation** **California State University, Long Beach** 6300 State University Drive, Suite 255 Long Beach, CA 90815 916.278.4433 https://www.caltap.org
Colorado	Colorado LTAP	**Front Range Community College** 4616 S. Shields St. LBP 144 Fort Collins, CO 80526 970.204.294 http://www.coloradoltap.org
Connecticut	Connecticut Training and Technical Assistance (T2) Center	**University of Connecticut** 270 Middle Turnpike, Unit 5202 Storrs, CT 06269-5202 860.486.5400 https://t2center.uconn.edu/

APPENDICES - LTAP CENTER LOCATIONS

STATE	CENTER NAME	CONTACT INFORMATION
Delaware	**Delaware T2 Center**	**Delaware Center for Transportation at the University of Delaware** 355A DuPont Hall University of Delaware Newark, DE 19716 302.831.6241 https://sites.udel.edu/dct/t2-center/
Florida	**Florida LTAP**	**Center for Urban Transportation Research (CUTR)** **University of South Florida** 4202 E. Fowler Avenue, CUT100 Tampa, FL 33620 813.974.4450 https://floridaltap.org/
Georgia	**Georgia Department of Transportation LTAP Center**	3993 Aviation Circle Atlanta, GA 30336 404.507.3437 https://www.dot.ga.gov/gdot/pages/ltap.aspx
Hawaii	**Hawaii LTAP**	**University of Hawaii** **Hawaii Department of Transportation** 869 Punchbowl Street #514 Honolulu, HI 96813 808.832.3405 Ext 105 https://hidot.hawaii.gov/highways/other/hawaii-local-technical-assistance-program/
Idaho	**Idaho Technology Transfer (T2) Center – LTAP**	3330 W. Grace Street Boise, ID 83703 208.344.0565 https://lhtac.org/
Illinois	**Illinois Technology Transfer Center**	**Illinois Department of Transportation** 2300 South Dirksen Parkway, Room 208 Springfield, IL 62764 217.720.2300 http://idot.illinois.gov/ transportation-system/local-transportation-partners/county-engineers-and-local-public-agencies/technology-transfer-center/index
Indiana	**Indiana LTAP**	**Purdue University** 1281 Win Hentschel Blvd, Suite 2111 West Lafayette, IN, 47906 765.494.2164 https://www.purdue.edu/inltap/
Iowa	**Iowa LTAP**	**Institute for Transportation** 2711 S. Loop Drive, Suite 4700 Ames, IA 50010 515.294.8103 https://iowaltap.iastate.edu/

APPENDICES - LTAP CENTER LOCATIONS

STATE	CENTER NAME	CONTACT INFORMATION
Kansas	**Kansas LTAP**	**University of Kansas** M2SEC Room G520 1536 W 15th Street Lawrence, KS 66045 785.864.5658 http://kutc.ku.edu/ltap
Kentucky	**Kentucky Transportation Center**	**College of Engineering** 176 Raymond Building Lexington, KY 40506 800.432.0719 https://www.kyt2.com/
Louisiana	**Louisiana LTAP Technology Transfer Center**	4099 Gourrier Avenue Baton Rouge, LA 70808 225.767.9717 http://www.ltrc.lsu.edu/ltap/
Maine	**Maine Local Roads Center**	**Maine Department of Transportation** Sta. 16 Augusta, ME 04333-0016 800.498.9133 https://www.maine.gov/mdot/mlrc/
Maryland	**Maryland T2 Center**	**University of Maryland** **A. James College of Engineering** 5000 College Avenue, Suite 2217 College Park, MD 20742 301.403.4623 http://www.mdt2center.umd.edu/home
Massachusetts	**Massachusetts LTAP - Baystate Roads Program**	**UMass Transportation Center** 214 Marston Hall 130 Natural Resources Way Amherst, MA 01003 413.545.2604 https://www.umasstransportationcenter.org/umtc/baystate_roads.asp
Michigan	**Michigan LTAP**	309 Grover C. Dillman Hall 1400 Townsend Drive Houghton, MI 49931 906.487.2102 http://www.michiganltap.org/
Minnesota	**Minnesota LTAP**	**Center for Transportation Studies** **University of Minnesota** University Office Plaza, Suite 440 2221 University Avenue SE Minneapolis, MN 55414 612.626.1077 https://mnltap.umn.edu

APPENDICES - LTAP CENTER LOCATIONS

STATE	CENTER NAME	CONTACT INFORMATION
Mississippi	**Mississippi LTAP**	**Mississippi Department of Transportation** 401 North West Street 85-01 (PO Box 1850) Jackson, MS 39215 601.359.7685 https://mdot.ms.gov/portal/ltap/
Missouri	**Missouri Local Training & Resource Center (MLTRC)**	**Missouri S&T** 710 University Drive, Suite 121 Rolla, MO 65401 573.341.7200 https://mltrc.mst.edu/moltaphome/
Montana	**Montana LTAP**	**Montana State University** 2327 University Way, Room 340 Bldg. CFT5 Bozeman, MT 59715 406.994.6100 http://www.montana.edu/ltap/
Nebraska	**Nebraska LTAP**	**University of Nebraska – Lincoln** 650 J Street, Suite 215 A Lincoln, NE 68508 402.472.5748 https://www.ltap.unl.edu/neltap/default.asp
Nevada	**Nevada LTAP Center**	**Airport Plaza Office Building** 1755 E. Plumb Lane, Suite 264 Reno, NV 89502 775.420.4811 https://nvltap.com/
New Hampshire	**New Hampshire LTAP**	**UNH Technology Transfer Center** 33 Academic Way, Room W220 Durham, NH 03824 603.862.1362 https://t2.unh.edu
New Jersey	**New Jersey LTAP**	**Center for Advanced Infrastructure and Transportation** **Rutgers, The State University of New Jersey** 100 Brett Road Piscataway, NJ 08854 848.445.2906 https://cait.rutgers.edu/njltap/
New Mexico	**New Mexico LTAP**	**New Mexico Department of Transportation** P.O. Box 1149 Santa Fe, NM 87504 505.277.0767 https://ltap.unm.edu

APPENDICES - LTAP CENTER LOCATIONS

STATE	CENTER NAME	CONTACT INFORMATION
New York	New York State LTAP	**Cornell Local Roads Program** 416 Riley-Robb Hall Ithaca, NY 14853 607.255.8033 www.nysltap.org
North Carolina	North Carolina LTAP	909 Capability Drive Centennial Campus Research Building IV Mailing: Campus Box 8601 Raleigh, NC 27695 919.515.3983 https://itre.ncsu.edu/focus/ltap/
North Dakota	North Dakota LTAP	**Upper Great Plains Transportation Institute** **North Dakota State University** 515 1/2 E. Broadway, Suite 101 Bismarck, ND 58501 701.328.9855 https://www.ndltap.org/
Ohio	Ohio LTAP	1980 W. Broad Street, 2nd Floor Columbus, OH 43223 614.466.7170 https://www.transportation.ohio.gov/programs/ltap/ltap
Oklahoma	Oklahoma LTAP	**Oklahoma State University** 5202 N Richmond Hills Drive Stillwater, OK 74078 405.744.9907 http://ltap.okstate.edu/
Oregon	Oregon Technology Transfer Center	**ODOT Mill Creek Building** 555 13th Street NE, Suite 1 Salem, OR 97301 888.275.6368 https://www.oregon.gov/odot/programs/t2/pages/default.aspx
Pennsylvania	PennDOT LTAP	**PA Department of Transportation Bureau of Planning and Research** 400 North Street, 6th Floor | Harrisburg PA 17120 717.425.5672 https://gis.penndot.gov/ltap/
Puerto Rico	Puerto Rico Transportation Technology Transfer Center	**University of Puerto Rico at Mayaguez** **Civil Engineering and Surveying Department** Call Box 9000 Mayaguez, PR 00681 787.832.4040 https://prltap.org/eng/

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STATE	CENTER NAME	CONTACT INFORMATION
Rhode Island	**Rhode Island LTAP**	**Rhode Island Department of Transportation** Two Capitol Hill Providence, RI 02903 401.463.4144 http://www.dot.ri.gov/about/riltap.php
South Carolina	**South Carolina Transportation Technology Transfer Service**	**Clemson University** **Glenn Department of Civil Engineering** 202 Hugo Drive Clemson, SC 29634 864.656.4183 https://www.scltap.org/
South Dakota	**South Dakota LTAP**	**South Dakota State University** 11104 9th Street Brookings, SD 57007 605.688.4121 https://www.sdstate.edu/jerome-j-lohr-engineering/sd-local-transportation-assistance-program
Tennessee	**Tennessee Transportation Assistance Program**	**University of Tennessee – Knoxville Center for Transportation Research** **Tickle College of Engineering** 309 Conference Center Building 600 Henley Street Knoxville, TN 37996 865.974.5255 https://ttap.utk.edu
Texas	**Texas LTAP**	**The University of Texas Arlington** **Division for Enterprise Development** 140 W. Mitchell Street Arlington, TX 76019 817.272.9617 https://www.txltap.org
Utah	**Utah LTAP Center**	**Utah State University** 4111 Old Main Hill Logan, UT 84322 435.797.2918 https://www.utahltap.org/
Vermont	**Vermont Local Roads Program**	**Barre City Place** 219 North Main Street Barre, VT 05641 802.828.3537 https://localroads.vermont.gov/

APPENDICES - LTAP CENTER LOCATIONS

STATE	CENTER NAME	CONTACT INFORMATION
Virginia	UVA Transportation Training Academy	**University of Virginia** **Center for Transportation Studies** Olsson Hall Room 114 151 Engineers Way P.O. Box 400747 Charlottesville, VA 22904 434.982.2897 http://uva-tta.net/
Washington	Washington State Department of Transportation	310 Maple Park Avenue SE Olympia, WA 98504 360.705.7355 https://wsdot.wa.gov/business-wsdot/support-local-programs/local-programs-training
West Virginia	West Virginia LTAP	395 Evansdale Dr, Rm 651A P.O. Box 6103 Morgantown, WV 26506 304.293.9924 https://www.wvltap.org/
Wisconsin	Wisconsin Transportation Information Center	**University of Wisconsin – Madison** 432 N Lake Street Madison, WI 53706 800.442.4615 https://interpro.wisc.edu/tic/
Wyoming	Wyoming Technology Transfer Center (WyT2/LTAP/TTAP)	**University of Wyoming** 1000 E University Ave, Dept 3295 Laramie, WY 82071 307.766.6743 http://www.uwyo.edu/wyt2

APPENDICES - TTAP CENTER LOCATIONS

REGION	BIA	STATES	RECIPIENT	POINT OF CONTACT
Eastern	**Bureau of Indian Affairs (BIA) Region(s): Eastern and Midwest**	AL, AR, CT, DE, FL, GA, IL, IN, IA, KY, LA, ME, MD, MA, MI, MN, MS, MO, NH, NJ, NY, NC, OH, RI, SC, TN, VT, VA, WV, WI	University of Wisconsin-Madison	Director: David Noyce danoyce@wisc.edu 608.265.1882 Associate Director: Andrea Bill bill@wisc.edu 608.890.3425 – Local Address 2205 Engineering Hall 1415 Engineering Drive Madison, WI 53706 https://ettap.cae.wisc.edu/about/tribes/
Southern	**Eastern Oklahoma and Southern Plains**	KS, OK, TX	Oklahoma State University	Director: Kim Johnson kimberly.ann.johnson@okstate.edu 405.744.9907 – 1201 S Innovation Way Drive Stillwater, OK 74074 https://ceat.okstate.edu/extension/ttap/
Northern	**Great Plains and Rocky Mountain**	MT, NE, ND, SD, WY	North Dakota State University- Upper Great Plains Transportation Institute (NDSU-UGPTI)	Co-Director: Ron Hall ronald.hall@ndsu.edu 970.217.9076 Co-Director: Bryon Fuchs bryon.fuchs@ndsu.edu 701.328.9857 – Bismarck, North Dakota 608 East Boulevard Avenue Bismarck, ND 58505-0700 https://www.northernttap.org/
Western *Awarded May 2024*	**Western and Pacific**	CA, HI, NV, UT	Applied Pavement Technology, Inc.	Director: Carrie Brown cbrown@appliedpavement.com 775.345.1999 – Airport Office Plaza 1755 E. Plumb Lane, Suite 264 Reno, NV 89502

APPENDICES - TTAP CENTER LOCATIONS

REGION	BIA	STATES	RECIPIENT	POINT OF CONTACT
Northwestern	**Northwest**	ID, OR, WA	University of Washington	Director: Yinhai Wang yinhai@uw.edu 206.616.2696 Associate Director: Margo Hill mhill86@ewu.edu _ University of Washington Civil and Environmental Engineering More Hall Room 121F Seattle, WA 98195-2700 https://nwttap.org/
Alaskan	**Alaska**	AK	University of Alaska-Fairbanks	Director: Billy Connor bgconnor@alaska.edu 907.474.5552 Coordinator: Vicky Wolf vgwolf@alaska.edu 907.474.1989 _ 1764 Tanana Loop, ELIF Suite 240 PO Box 755910 Fairbanks, Alaska 99775-5910 https://aidc.uaf.edu/ttap
Southwest	**Navajo and Southwest**	CO, NM, AZ	Lenea Corporation	Director: Todd Macalady 480.738.8989 Associate Director: Tara Chief 928.637.3571 _ 100 Sun Ave NE Suite 650 Albuquerque, NM 87109 https://www.swttap.com/

Build a Better MOUSETRAP

2024

FOR MORE INFORMATION ABOUT BABM AND TO SHARE YOUR INNOVATIONS, PLEASE CONTACT THE CENTER FOR LOCAL AID SUPPORT OR FHWA OFFICE OF TECHNICAL SERVICES.

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LTAP Local & Tribal Technical Assistance Program