BUILD A BETTER MOUSETRAP CONTEST

2019 NATIONAL WINNER: East Brandywine Township, Chester County
WINNING ENTRY: Spreader Storage Rack

by Jason A. Dailey, Director of Public Works, Cranberry Township, Butler County

ABOUT THE CONTEST:

The Build a Better Mousetrap competition, sponsored by PennDOT-LTAP and the national LTAP/TTAP programs, highlights innovative solutions to everyday problems and issues that local and county transportation workers encounter. The solutions can be anything from the development of tools and equipment modifications to processes that increase safety, reduce costs, or improve efficiency or the quality of transportation.

Entries are judged by a committee of municipal road employees on a five-point scale, used at both the state and national levels, based on cost, savings and benefits to the community, ingenuity, ease of transference to others, and effectiveness.

The contest has four categories for submitting entries, with a potential winner in each: 1) inspection and data collection (automated/remote means, testing, time, etc.), 2) asset management techniques (GIS, mapping, decision support systems, etc.), 3) maintenance tools and methods (lifters, reachers, modifications, assembly, etc.), and 4) transportation facilities improvements (storage, access, operations, services, etc.)

From among these winning entries, an overall winner of the contest is chosen annually at the state level. Also, winning entries for each category are submitted to the national competition, where winners are announced at the annual LTAP/TTAP national conference.

East Brandywine Township in Chester County was the 2019 winner of PennDOT’s Build a Better Mousetrap contest with its creation of a portable storage rack for salt spreaders. The township also took highest honors in the “transportation facilities improvements” category at the national level of the competition.

ABOUT THE TOWNSHIP:

East Brandywine Township, which sits between Lancaster and Philadelphia in Chester County, has seen its population grow from just over 6,400 in 2010 to an estimated 8,400 residents. With that growth has come a higher expectation of service delivery and the need for staff to be more creative in their problem-solving strategies. The crew is encouraged to look at everyday challenges and propose solutions.

The township averages 20 inches of snowfall annually, and winter maintenance of its 36-plus miles of road is a high priority. The five-member Public Works Department strives to make the best use of its equipment, including a well-maintained fleet of six trucks (four of which can be outfitted with tailgate spreaders), to get the job done.

THE PROBLEM:

Roadmaster Matt VanLew and his crew sought a way to store four tailgate spreaders in the township’s six-bay, 6,600-square-foot public works garage to get them off the ground, where they were taking up precious floor space and had to be frequently moved to access other pieces of equipment or material. Moving the spreaders was a two-man operation that required a backhoe to help maneuver the spreader either to another temporary location on the floor or onto the intended truck.

Furthermore, the work put employees at risk to injury as they cleared around the spreaders, stepped over and around obstacles, and awkwardly positioned themselves to lift and attach or remove a spreader from a truck. Like all public works crews, East Brandywine’s is always seeking ways to reduce or eliminate its workers’ risk exposure.

THE SOLUTION:

Roadmaster VanLew and his crew “ racked” their brains for a solution to their spreader storage problem.

“We needed to find a solution to the issue,” he said. “Accessing the spreaders when they needed to be
THE BLUEPRINTS:

East Brandywine’s solution can be mirrored by any other municipal operation with scrap lumber, a few nuts and bolts, and a set of wheels. Following is a simple guideline for building the rack yourself. (NOTE: This is only an overview of East Brandywine’s construction process. For more details about how to make the storage rack, contact the township.)

The solution turned out to be a portable wooden storage rack that the crew designed and constructed. Kyle Mortzfield, a carpenter by trade, and Derrick Claas created the contraption using scrap lumber the department had salvaged years ago when demolishing a house. They cut 4x4 Wolmanized posts to make the upright posts and attached them to 2x8 scrap pieces used as braces. The top and bottom bracing was notched to prevent the spreaders, once attached to the contraption, from rolling when moved around.

Aside from nails and some lag bolts, the cost of the gadget was low. The biggest expense was a $50 set of four casters, which were affixed to the bottom so the contraption could be easily rolled around the facility.

The rack all but eliminated the use of the township’s backhoe in installing and removing spreaders from trucks.

“We repurposed a portable hoist that allows us to position the rack closer to the truck so that a spreader can be mounted safely and quickly,” VanLew said. “One man can now chain the spreader to the hoist, raise it up high enough to position it on the tailgate, pin it, and we are done.”

The township estimates the spreader rack reduces the manpower required to install or remove a rack by one full person compared to the previous changeout procedure and cuts the time of the operation from 25 minutes to 10 to 15 minutes. The new procedure also improves the safety of the crew and protects valuable equipment. The ease with which a tailgate spreader can be removed from a truck and stored frees up time and equipment so that the public works crew can quickly and safely switch gears from winter maintenance to construction work, such as performing patching or drainage on warmer winter days.

Tools Required
• Circular saw
• Clamps
• Cordless drill
• Countersink drill bit
• Framing square
• Straightedge
• Table saw
• Hearing protection
• Safety glasses

Materials Used
• 3-inch wood screws
• 6-inch bolts, nuts, and washers (8)
• 5-inch casters (4)
• 4x4 lumber posts (4)
• 2x10 lumber (used for joists)
• 2x4 lumber (as needed)
• Wood glue

The East Brandywine Township public works crew receives the coveted Excellence Award for the Build a Better Mousetrap contest at the Pa. State Association of Township Supervisors 2019 Educational Conference and Exhibit Show. The township went on to win the national award in the “transportation facilities improvements” category.

If you have any questions, you can call LTAP at 1-800-FOR-LTAP for assistance.