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Asphalt Zipper reclaimer attached to wheel loader.

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Resources

<http://www.asphaltzipper.com/>
<http://www.zanetispower.com/>
Vendor sites with information on self-powered reclaimer attachments.

Full-depth reclamation made easy

PULVERIZING rutted, broken or severely cracked asphalt pavement on a short section of road or intersection is an efficient operation for the Sheboygan County Highway Department these days thanks to a reclaimer attachment its crews use on a range of small jobs.

Foreman Dave Teunissen says the compact reclaimer attachment the department purchased two years ago gives the department a cost-effective way to handle those jobs in less time. They can schedule the unit quickly if there's an emergency road repair or prepare a utility trench a day ahead of a storm sewer crew, leaving the pulverized material in place for the crew to use as backfill.

Practical road recycling

Highway and street departments around Wisconsin are learning these portable reclaimers can make practical and easy work of full-depth reclamation (FDR) on smaller local road projects. Operators attach the unit to a wheel loader or backhoe and set it to pulverize the surface asphalt layer along with a portion of underlying base materials. Teunissen reports going as deep as 12 inches with the county's 48-inch reclaimer.

This road recycling technique eliminates the need to saw, remove and haul away chunks of pavement. Besides speeding work on individual projects, the grinding process produces blended materials in gradations that make good backfill and, often, a better base under new pavement. Adding gravel or stabilizers like cement, fly ash or asphalt emulsion also can improve the strength and stability of the base.

Projects where Sheboygan County found the technique and equipment fit the task include stabilizing a 1500-foot section of county road with a bad base. The winter freeze/thaw cycle further weakened the base and accelerated surface deterioration. Crew Operator Pat Campbell says his workers pulverized down through the existing base, put the pulverized material back in place, graded it and repaved the road.

In another scenario, he describes how towns and villages contract with the county to make a low-cost improvement on lightly traveled roads using the reclaimer. They pulverize the old asphalt to a determined depth then simply compact the blended material in place to create a "new" road.

Besides small reconstruction projects on roads and opening utility trenches, the department routinely deploys the unit for FDR on pavement patching jobs or to repair broken shoulders. Here as with other applications, workers can reclaim damaged, deteriorated areas of the asphalt and base layers while leaving adjacent pavement undisturbed.

The process also minimizes the impact on traffic. After they grind out the asphalt for a storm sewer project in advance of the construction crew, Campbell and his operators do not need to erect barricades or place steel plates. They simply post a "loose gravel" sign.

Efficient operation

Campbell and Teunissen estimate the county's reclaimer averages about 42 feet per minute on most projects. Designed for smaller jobs, it runs most efficiently on pavement sections measuring less than one mile.

They report the equipment requires minimal maintenance. A less-than-full-depth milling operation requires a wash of water over the grinder to keep it cool.

Adding the reclaimer attachment to the department's equipment list was expensive up front, Teunissen explains. But after only two years in operation, he sees the potential for savings over time as the department finds more opportunities to make efficient use of FDR on improvement projects.

Equipment specs

Two self-powered reclaiming attachments now on the market are the Asphalt Zipper and the Zanetis RoadHog. The units differ from typical milling attachments because they do not rely on the hydraulics of the loader or backhoe to operate. The reclaimers have their own diesel engine that powers the cutting drum.

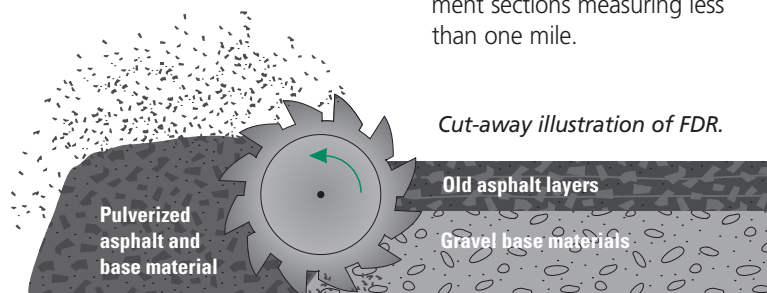
Units range in cutting width from 30 to 72 inches. They attach to backhoes and wheel loaders. Costs range from \$89,000 to \$173,000 depending on cutting width, engine horsepower, and options and accessories. Replacement bits cost between \$8 and \$10 apiece.

Sheboygan County purchased a 48-inch model with hydraulic depth control that is powered by a 173 HP John Deere turbo diesel engine. The reclaiming unit is easy to transport, attach and remove from the loader.

Points for flexibility

Patrol Superintendent Chris Elstran says a major reason the Chippewa County Highway Department purchased a reclaimer attachment last year was the chance to schedule and perform FDR without having to coordinate with an outside contractor. "There are plenty of projects where we need the flexibility to do full-depth grinding on our own."

The department plans to deploy its new 72-inch reclaimer for the first time this spring after on-site training from the equipment vendor. Elstran says they will use FDR on a variety of projects, ►



Make safe work zones a priority

ROAD CONSTRUCTION

and maintenance projects require coordinating workers, equipment, special events and sometimes the weather. Another item on the must-do list for any project that affects the flow of traffic is setting up safe work zones in and around the job site. Like other operations, doing it right takes training.

Local street and highway departments in Wisconsin and contractors that work with them can tap the resources of the Transportation Information Center (TIC) for a choice of training programs that help keep their employees up to date on work zone safety. Besides the one-day workshops TIC presents annually at locations throughout the state, officials responsible for local roads can book work zone or flagger training courses that instructors can customize and present at their location.

Teach uniform approach

TIC instructor Jim Schneider says his goal with these on-site courses is to include everything participants need to know about follow-

including pothole and bump repairs, culvert repair and replacement and work on intersections.

Other projects include milling asphalt overlays on bridges down to the concrete to do repairs. Elstran says he expects to manage precise profiling that does not go to full depth, allowing work crews to remove as little as 2 inches of the road surface without affecting the base layers.

Small-scale solution

Judging from the experience of Sheboygan County and other highway departments, Elstran anticipates making efficient use of his department's equipment and people with this application. The reclamation attachment offers local road officials a good option for integrating FDR as a solution for more small-scale road improvement projects. ■

ing federal standards to lay out temporary traffic control zones and set up a flagging operation. "The course content is based on requirements in the MUTCD, but also on what we hear from participants about specific issues," Schneider explains. "We keep our approach pertinent so the information they take away relates to what they're actually doing."

The programs cover the basics and specify correct procedures on urban or rural roadways.

Where a local government plans to contract with an outside firm on projects, they often include employees of the company in the training so all workers understand the essentials of work zone safety and their role in it. TIC instructors sometimes use actual problem areas identified by the local department in the hands-on portion of the workshop, asking participants to lay out traffic control measures for sites they know.

Schneider says this generates suggestions that provide the framework for a learning give-and-take that helps them consider outcomes in a realistic light. "Our goal is to train supervisors and workers on how to make a work zone safe and efficient, teaching them to adopt the standards uniformly for all projects."

Building confidence

The Marathon County Highway Department plans to bring in the TIC to conduct its day-long workshop on every aspect of work zone safety for about 70 employees this spring. Assistant Operations Supervisor Kris Baguhn is asking Schneider to emphasize use of TIC's *Work Zone Safety* flipbook. He keeps one in every truck so workers have a reliable resource available for scheduled work or emergencies.

"I want a way to get everyone uniform in how they set up a work zone and use the safety precautions for flagging outlined in the book—like wearing the required clothing, using the correct

Media sheds light on work zone crashes

Risks to drivers traveling near or through highway work zones was the subject of a December 2009 *New York Times* article that raised the question of whether there is adequate and uniform enforcement of national safety standards. The story surveyed more than 100 legal cases involving work zone crashes. It described incidents where problems like edge drops or the absence of warning signs led to vehicle fatalities. Highway officials who commented for the article acknowledged work zone crashes are a concern but stopped short of attributing them to deficient work zone traffic controls or lack of oversight. The coverage sheds critical light on the problem, noting that federal standards do address operations in temporary traffic control zones set up for routine maintenance and major road projects. It also draws attention to the public's concern about work zone traffic safety and the liability risk to government agencies when something goes wrong. For local road officials, the story underscores the need to train employees in uniform safe procedures and make work zone inspections a standard of operation to reduce the likelihood of crashes or injuries. Check archives at <http://www.nytimes.com/> for "Efforts Lag to Improve Safety at Work Zones," *New York Times*, December 21, 2009.

signs," Baguhn says. "To me, learning to use the flipbook is the best way to build people's confidence."

As training scenarios, Baguhn concentrates on typical road and utility projects where proper flagging is essential. These include crack filling and paving on state and county roads, ditching and culvert cleaning, brush removal in right-of-ways, minor bridge repairs and shouldering on four-lane highways. And when bigger projects come up he says having workers familiar with the "book of rules" assures him they will know how to create work zones that work—for his project crews and the driving public. Go to the *Calendar* for On-Site Workshop listing. Contact TIC to learn more and book a program. ■

Contact

Transportation Information Center
800-442-4615
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Resource

<http://tic.engr.wisc.edu/workshops/listing.lasso>

Page on TIC site with complete workshop information.