

# Tight-Fisted Road Management

How a fleet of eight motor graders keeps road maintenance costs low for a rural county government.

If you think maintaining county roads would be a snap, think again. A good example comes from Covington County, AL, where last March, parts of the county got 12 in. of rain in a single day. The resulting floods completely washed out nearly 30 miles of dirt roads—and all of them must be rebuilt with imported dirt and aggregates.

It's a big project. And while that's going on, the county engineer must maintain another 640 miles of dirt roads, 630 miles of paved roads, and 300 bridges. To repair the flood damage, the county is getting federal aid from the Federal Emergency Management Agency (FEMA). The total value of the project is \$6.9 million, and FEMA will contribute 75 percent of that, or \$5.17 million. The rest of the money comes from the state and from county matching funds.

"We'll use our existing fleet of eight motor graders to rebuild the dirt roads that were washed away," says Darren Capps, county engineer. "And we're buying three state surplus dump trucks to help haul the dirt and rock required. FEMA has been very cooperative in helping us to replace those roads."

## Graders Save \$37,000

"We had Caterpillar graders when I started here 12 years ago, and then in 2004 we looked at the possibility of getting Volvo graders," says Capps. "We tried them, and we liked the product. We presented the idea to the county commissioners, and they approved."

The acquisition process was not a problem, because Volvo ([www.volvo.com/constructionequipment](http://www.volvo.com/constructionequipment)) had won the statewide county bid for that class of motor graders. "We bought eight Volvo

720B graders," said Capps. "After a year, we turned them all over and bought nine new Volvo G940 graders, which have since been turned over for new Volvo graders. We like to run newer equipment, and we like to stay within warranty if we can."

Operating costs confirm the county's decision to go with Volvo. "Compared to other brands, the Volvo is a good value," says Capps. "Depending on the application, we burn between four and five gallons of fuel per hour in the Volvo graders. That's a savings of about two gallons per hour, compared to non-Volvo machines. If you add that up over a year, running eight graders, that's \$37,000. That's a significant amount of money to us."

## Hard-Working Machines

The eight G940 motor graders are real workhorses for Covington County.

"They maintain our 670 miles of unpaved roads," says Capps. "We use them to pull, or cut new ditches on dirt roads, and to do the grading required for chip seal roads. Recently we've probably built ten different chip seal roads on dirt, ranging from 800 feet to three miles in length."

The county also uses its motor graders to "clip the shoulders" on paved roads. On those, soil and trash can build up at the edge of pavement, and the shoulder must be cut down level to the pavement.

But the lion's share of work for the motor graders consists of pulling ditches on the dirt roads. In the northern part of the county, the dirt roads consist mainly of clay. So they're more stable and the ditches don't need to be cut as often as in the southern half of the county, where the soil is sandy. The sandy roads need their ditches pulled



*County engineer Darren Capps: pulling ditches on nearly 500 miles of unpaved road, year in and year out. Photo by Daniel Brown.*

every year. “We probably pull ditches every year on three-quarters of our 670 miles of unpaved roads,” says Capps.

In an average year, the county pulls ditches from late April, when the roads dry up, through November. This year has been exceptionally wet, so ditch-pulling has been stymied. “It hasn’t really dried out since March,” said Capps in September.

Pine straw frequently gathers in the ditches and must be graded up onto the roads in the first pass with a grader. On the next pass, the grader will cut deeper, pulling soil up onto the pine straw and burying it. “If you don’t bury that straw, it will wash-board the road—create bumps in it,” says Capps.

### Getting Maximum Traction

Mike Hughes, the road superintendent for the southern part of the county, says he likes the variable horsepower feature of Volvo motor graders. “You can get moving better from the start and as your load increases, you can apply more horsepower,” says Hughes.

A motor grader is traction-limited at low speeds, explains Gary Atkinson, regional product manager for Road Products, Volvo Construction Equipment. “You can only take advantage of as much horsepower as you have weight in the machine,” he says. “So you limit the horsepower at lower speeds and in the higher gears you increase the horsepower. That way you reduce tire wear—you’re not slipping—and you don’t waste horsepower that you can’t use efficiently.”

In Covington County, Hughes says he has mounted wider tires on some of the graders, to get better traction. “It’s a real trick to get traction in the sand,” says Hughes. “We’ve had a lot better luck with 17.5R25 radial tires instead of the standard 14.00-24 bias ply tires.”

What’s more, Volvo engines deliver higher torque at lower engine speeds, says Atkinson. “You can run at a higher gear with lower rpm’s, which produces less noise, less fuel consumption, and longer engine life,” says Atkinson. The G940 graders have 11 gears forward and six gears in reverse.

Operator Chris Nelson says he likes

the memory gear feature on the G940. When shifting back and forth between forward and reverse, the grader will remember what forward gear the operator selected and which reverse gear he selected. “If I’m finished grading something in first or second gear forward, then I’ll back up in fifth or sixth gear reverse,” says Nelson. “The grader remembers what gears I’m using, and I don’t have to shift through all of the gears every time.”

### Getting Good Grades

Each year Alabama rates the county’s paved roads on a 100-point scale, with 100 being perfect. A number of factors enter into the rating process, including surface condition of the roads, the edging, the clarity of the centerline stripe, the ditching, and more.

In recent years, says Capps, he and his team of 56 employees in the road department have succeeded in raising Covington County’s rating from 79 to 93. “How did that happen?” we asked Capps.

Five years ago, the county performed a \$4.3-million resurfacing project that helped upgrade the paved roads. And the county bought a pavement striping machine that helps keep the centerline stripes in good shape. The Volvo motor graders clip the shoulders on paved roads, so they have helped. “It’s just managing your roads,” says a modest Capps.

### Minimum Downtime

Capps says the

county seldom has any downtime with the Volvo motor graders. And if something goes wrong, ASC Construction Equipment—the county’s Volvo dealer—is right there to fix the problem. “If we do have a problem we can call ASC and they respond quickly,” says Capps. “Often they have fixed a problem early in the morning, even before the operator gets to work. That means a lot—when you don’t have an operator waiting on service to go to work in the morning.”

In fact, says John Edwards, ASC’s general manager for the Gulf Coast, the success of Covington County’s grading operations is a direct result of cooperation between Volvo, ASC, and the county. “All three of us work together to produce some of the highest-quality roads—for the lowest possible operating costs—in the state of Alabama,” says Edwards.

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*Covington County maintains 670 miles of unpaved roads with nine motor graders, and eight of them are Volvo G940 units.*

Photo by Daniel Brown.