

# ENGINEERS WEEK

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# Through with the Thruway

Two work seasons and many WNY headaches later, the big job is done



More than 120,000 motorists a day had to contend with the "fourth lane project" on 2.5 miles of Thruway between Exits 53 and 54 in West Seneca. Above, work is done during the summer of 2001. Below, workers pour concrete at a bridge section at night, when much of the bridge work was done.

It's done! Coupled with an audible sigh of relief, those words were undoubtedly on the lips of thousands of motorists last December 20 as the last lane barriers, orange "fines doubled in construction areas" signs and other trappings of a massive road project were removed from what became known simply as "the fourth lane project."

For newcomers and the memory-challenged, the project involved the complete reconstruction of 2.5 miles of Thruway mainline between Exits 53 and 54 in West Seneca, building new entrance and exit ramps, and widening the I-90 to four lanes in each direction.

Over 120,000 motorists use the stretch daily, making it one of upstate's most heavily-traveled highways.

The segment links the I-90 mainline with the I-190 into downtown Buffalo and Niagara Falls, with the Aurora Expressway (Route 400) to East Aurora, and with the northern end of the Route 219 (Southern) Expressway to Springville and Pennsylvania. The project had been in the talking and planning stages for a decade.

In addition to the widening, eight bridges in the section were rebuilt or rehabilitated, and 12-foot-high wooden visual/sound barriers were erected along the east (north-

BY DALE ENGLISH



bound) lanes to shield nearby residents from the highway.

#### Historic contract

The \$62.5 million contract awarded by the Thruway Authority to the Oakgrove Construction of Elma made it the largest single Thruway reconstruction project in Western New York history.

"The job was finished the way we like them — on time, on budget, and with no disputed work," said Ken Rawe, an Oak-

grove vice president and partner in the family-owned enterprise that dates to the early 1960s.

Technically, a little work remains. "We left some landscaping and grass-planting for spring," Rawe said, pointing out that all work involving traffic was finished by December 20 — the "drop dead" date before \$1,000-a-day late penalties kicked in.

Even a realistic herd of a dozen grazing bison statues at Exit 53 — a gift from the contractors — was in place.

#### Half then, half now

The project lasted two full construction seasons. In 2001, work included reconstruction and rehabilitation of the eastbound roadway, the addition of the fourth lane between Exits 53 and 54, rebuilding seven bridges, and adding the privacy barrier. This year the westbound lanes were done.

As it was, Rawe noted, completion was tight because of last fall's cold, wet weather, which contrasted with 2001's balmy, snowless November and early December. The latter let Oakgrove and its subcontractors get a leg up on this year's work.

"When this job was let everyone in the industry said it couldn't be done in two years, but we were able to change some traffic (detour) patterns to help us get done on time... I'm sure there was plenty of debate in the design process over whether it would be a two- or three-year project, but I think there was tremendous pressure to get it done in two because it would be much better for all concerned, particularly motorists," Rawe said.

TVGA Engineering & Surveying of Elma was the prime engineering firm on the project, as it had been since the embryonic stages.

"One of the nice things about this job was that the Thruway kept TVGA involved during the entire construction. They were thor-

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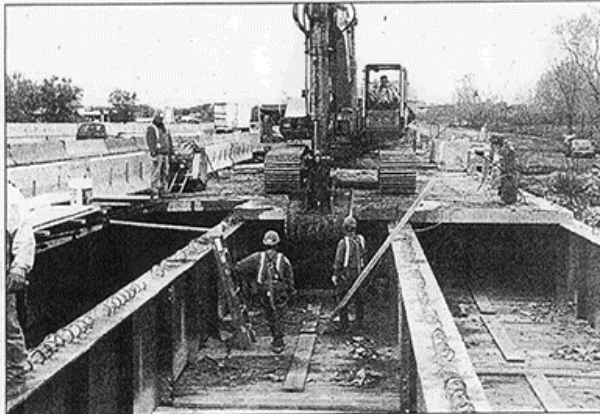
## THRUWAY: Oakgrove Construction of Elma won the \$62.5 million job

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oughly familiar with the project, so when we consulted with them about unforeseen problems they came back to us quickly with answers," Rawe noted.

While TVGA was the lead engineering firm, a number of local firms were involved. IV Engineers and Foit-Albert Associates were on the design team, while the Parsons Transportation Group, Nussbaumer & Clarke Inc., Foit-Albert, and Ed Watts, P.C., served as inspectors/consultants. Jansen-Kiener Consulting Engineers and McMahon & Mann Consulting Engineers provided value engineering and shoring scheme design for Oakgrove.

"Paul Parker, a Thruway Authority engineer, was the driving force to get the project done on time, and to get answers to any questions that developed. He really bird-dogged the job. He was even the driving force behind the buffaloes. He liked the idea, as long as they were donated," Rawe related. It's believed to be the first time the



Workers at left remove old concrete bridge decking from the westbound lane of the Thruway over the Buffalo River. Below left, heavy equipment is used to tackle a job in the northbound lane over the river. Below right, steel bridge support girders are replaced at night. The \$62.5 million contract awarded for the reconstruction between Exits 53 and 54 made it the largest such Thruway project in Western New York history.



Thruway has allowed anything but traffic signs and vegetation to be placed anywhere near a right-of-way.

Rawe noted that a couple of breaks, besides Buffalo's first snowless November in history in '01, that helped complete the project on time in the face of a tight timeline.

One was the ability to do more bridge construction work than called for the first year, enabling three traffic lanes to be maintained each way instead of a projected two. Temporary construction access roads were built outside the job's perimeter so work vehicles could come and go without wading through already-slowed traffic.

"We also ran into a soil formation problem which slowed things down and forced the Thruway to redesign an alternative system, but fortunately it didn't happen at a critical path," Rawe said. That means it didn't interfere with a critical timeline for a par-

ticular operation, such as a concrete pour, he explained.

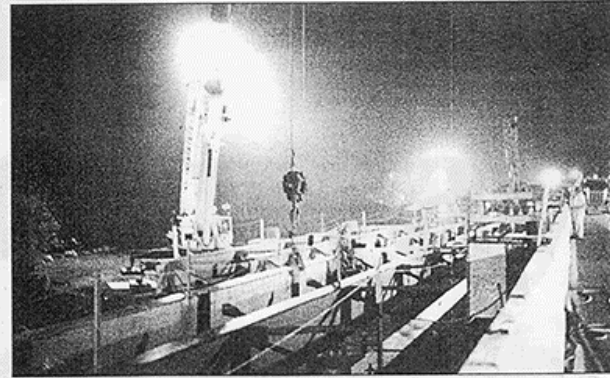
#### Night and weekend work

"We were on a tight schedule, so we ran two shifts five days a week and had some Saturday work. And, we did the bulk of our bridge work at night," he noted.

Emphasis was also placed on a long lifespan for the finished product, and to minimize repair work before the next reconstruction is required. The hope is that the new work will have a 50-year lifetime.

"From an engineering standpoint, this meant using thicker pavement, based on a European design. Normally it is nine inches thick but this is 11 inches. And, underneath the pavement you have a four-inch thick permeable concrete layer" to assist in drainage, Rawe explains.

"The layer looks kind of like popcorn. It's



made of stones one inch in diameter held together with a little concrete between them. The water runs through it and down into buried drains. Before we did that you used 12 inches of crushed stone and the water couldn't permeate it," he explained.

The result is that water that once was trapped and wrecked pavement through winter's freeze-and-thaw cycles now dissipates. That is critical to long pavement life in Buffalo's punishing winters.

"The first time we used this was on the I-190 rehabilitation project between Ontario Street and the Grand Island Bridges a few years ago," Rawe recalled.

Oakgrove subcontracted that paving work to a partnership between Leone Construction of Cheektowaga and Surianello General Concrete Contractors of Buffalo.

Engineered into the finished product was diamond grinding of the pavement's surface to remove imperfections and to provide an extra-smooth ride. "Diamond grinding actually profiles the pavement," Rawe explained.

Those "profiles" amount to very fine scorings of the surface running lengthwise as opposed to the crosswise nature of typical grooved pavement. While such surfaces may even look slippery under some night lighting conditions or when wet, they aren't any more so than other surfaces, he emphasized.

#### Project with a history

Planning for the fourth lane project had been underway for a good decade. As far back as 1987 or 1988 the state realized the old three-lane stretch was over-capacity and that something needed doing.

At the time it hired TVGA to see what should be done. The answer, according to TVGA, was that another lane was needed in each direction, along with a sound-deadening barrier to protect residences.

After two or three years of planning and input by various government agencies TVGA produced a detailed construction plan—what contractors use to bid on a project.

However, the state had no money to do the entire project at the time. Instead, small bits were broken off and done between 1994 and 2001, such as widening piers carrying the road over the Buffalo River, rebuilding the Henry Street Bridge in Cheektowaga, improving Interchange 54, and developing the Buffalo River Recreation Site off Harlem Road in Cheektowaga.

By 1998, when the Thruway Authority felt it finally had the money to go ahead with the big picture, the earlier plans required serious updating to the point where some bridges and ramps originally thought to just need rehabbing now required complete overhauls. That planning work finally came together in late 2000, to produce the now-completed project.

For Oakgrove, the current job isn't the first time it worked on the stretch. "We reconstructed much of it and added an extra lane in 1990, built new shoulders and black-topped the whole thing. It was more of a rehab than a reconstruction," Rawe recalled.

Rawe is one of three partners from separate families who own the company, which was founded by their fathers in the early 1960s. He and Vincent Barbera are vice presidents; Douglas May is president. His father, James May, started the company in association with the senior Vincent Barbera and Ken Rawe.

"They all still come in every once in a while," Rawe noted.

Throughout its history Oakgrove has occupied the same building, at 6900 Seneca St. in Elma.

Dale English is a frequent contributor.

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