

AGGREGATES & ROADBUILDING

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**PAVER OF THE
YEAR AWARDS**



Capital Paving takes Ontario Paver of the Year Award

Excellence in provincial roadbuilding is recognised annually by the Ontario Ministry of Transportation (MTO) Paver of the Year Awards. The 2006 awards were presented at the 80th convention of the Ontario Road Builders Association, held February 5-7, 2007 at the Fairmont Royal York Hotel in Toronto. In a change from previous years, the 2006 awards consisted of Paver of the Year and three finalists.

By Andy Bateman, Engineering Editor

Capital Paving Inc. won the prestigious 2006 Paver of the Year Award for work completed on Highway 403 in Mississauga, including one of the province's first High Occupancy Vehicle (HOV) lanes. MTO Contract 2003-2012 extended from east of Highway 407, easterly to 0.3 km west of Highway 401. Capital was paving subcontractor to the Bot Construction Group on this 15.1 km long project, with main-line paving beginning in August 2004 and completed in August 2006. Asphalt paving included multiple lifts on the new eastbound and westbound HOV Lanes utilising SP25, SP19 and SP12.5 FC2 Superpave mixes, the resurfacing of existing Highway 403 lanes with SP19 and SP 12.5 FC2 lifts, as well as the resurfacing of all interchange ramps with SP12.5 FC2 mix.

The job's location on a heavily trafficked 400 series highway in the Greater Toronto Area inevitably meant numerous operating constraints for the paving operation. All work was scheduled for completion at night due to high daytime traffic volumes, with lane closure restrictions in the east bound lanes allowed from 10:00 pm to 4:00 am and in the west bound lanes from 11:00 pm to 5:00 am. In practice, these six-hour windows at night provided about four hours of actual paving time, with the remaining time consumed by strict lane closure procedures, milling of joints, tack coat, paving, line marking and lane reopening.

All traffic control was under the direction of the general contractor, with standard nighttime paving procedures adopted. As scheduling was also completed through Bot, constant communication was vital for a successful project. A further additional challenge was the distance from the asphalt plant to the jobsite, some 45 km, to ensure "just in time deliveries" as well as a large surcharge of material at the jobsite for the start of paving.

Access to the new HOV lanes became increasingly restricted due to the combination of new centre median wall, ongoing bridge rehabilitation and a temporary concrete barrier (TCB), with the result that trucks delivering asphalt had no choice but to reverse long distances back to the paving



Capital's paving train included a Roadtec SB-2500C Shuttle Buggy feeding a Roadtec RP190 paver. The paver was equipped with a 10-20 Hydraulic Screed, MOBA electronic grade package, non-contacting ski, fully automated feed package, electric screed heater and custom/in-house lighting package.

operation. Cool weather impacted on paving, as contract conditions required temperatures of at least 2°C and rising for the SP25 and SP19 mixes and 12°C and rising for the SP12.5FC2 mix. The job was also Capital's first Superpave job and so required rapid adjustment by all involved to the (then) new mixes. The SP25 mix, for example, was found to be susceptible to segregation and required extra care and attention during manufacturing, transportation and placement. On site, it was also found that mixes containing 70-28 performance grade asphalt cement were sometimes susceptible to "pick up" by the rubber tire rollers.

The team that successfully met all these challenges included Jim Karageorgos, asphalt operations manager; Mark Latyn, quality control manager; John Viveiros, asphalt foreman; Jim Lindhorst and Andre Lavergne, asphalt plant operators; Rodney Alderdice, assistant site manager and Terry McNeil, quality control technician.

Equipment that facilitated a successful project included the company's stationary

CMI STD400 triple drum plant rated at 360 tonnes/h, located at Highways 6 and 401 near Aberfoyle. Asphalt from the plant was delivered to site by live-bottom trucks with payload capacities of 35-40 tonnes. At the job site, Capital's paving train included a Roadtec SB-2500C Shuttle Buggy feeding a Roadtec RP-190 paver equipped with a 10-20 hydraulic screed, MOBA electronic grade package, non-contacting ski, fully-automated feed package, electric screed heater and custom/in-house lighting package. Behind the paver, a Caterpillar CB-534D low-amplitude, high-frequency double drum compactor made two passes, followed by a Caterpillar PS-360B pneumatic roller, ballasted to 17 tonnes and making six passes. Mat finishing was completed by a Caterpillar CB-534D making one pass. This compaction trio achieved average density of 94 per cent.

In addition to the main paving fleet, Capital kept a full set of standby equipment on site in case of breakdown, including a Barber-Greene BG-260 paver, a Caterpil-

lar CB-634B double drum compactor and Dynapac CP21 pneumatic roller.

Overall, a successful project is attributed to personnel involved in the project from supervisory staff right through to the labourers and operators running the equipment. Everyone shared the same goal and worked together to accomplish the project.

On the supply side, equipment was relatively new and well maintained, while superior quality and consistency of raw materials from Dufferin Aggregates aided a good result. A well-maintained and operated asphalt plant was an important factor, as well as excellent communication between plant and field crews. Best paving practices were followed by all members of the team, while well designed job mix formulas were produced by Trow Associates Inc., CTA Lab, and John Emery Geotechnical Engineering Ltd.

Last word goes to Capital president Geoffrey Stephens: "Although Capital Paving is not the biggest construction company in the industry, we are a growing family-owned company and we tackle some of the biggest jobs in Ontario. The fact that Capital Paving is the first company to win Paver of the Year twice is an honour and a testament of the outstanding quality and dedication of our team of employees. Our commitment to quality is embedded in our paving practices, but also in all aspects of the company."

Aecon Construction & Materials received a finalist award for its high quality work on MTO contract 2006-3036. This contract on busy Highway 19 was valued at \$5.7 million and ran from July to October 2006. Highway 19 is a direct route from Highway 3 Tillsonburg to Highway 401 and consequently carries a high ratio of truck traffic. Aecon's work extended from 0.30 km north of rural route 18, Mount Elgin, northerly to 0.4 km north of Highway 401, with the scope of work including grading, drainage, granular base and hot mix paving, together with concrete culvert extension and rehabilitation work.

From the contractor's perspective, the weather and traffic were the two main factors influencing progress on this job. Weather conditions were unfavourable to say the least, with all four months of the project experiencing precipitation above the 30-year average and two months had nearly double the average. Things were much better on the traffic side, thanks to effective work by traffic control personnel (TCP). As the contract had approximately five work zones at any given time, communication from adjacent TCP was paramount to keep traffic flowing and keep the operation moving safely and efficiently. As always, site safety was a top priority and reinforced through weekly tool box talks carried out with every crew on the job site. Aecon's award winning team included senior paving superintendent Glenn Pye, paving supervisor Jeff Pye, senior superintendent Gary Kmith, project super-



Hot mix asphalt for Aecon's award winning contract was supplied by a 360 tonnes/h capacity portable Gencor counter flow drum mix plant set up in the Beachville Quarry of Carmeuse Lime.

intendent Danny DiBenidetto and project estimator John Krasko.

Senior contracts manager Brian Morris reports that the success of this project was very much a team effort and everyone involved should be commended. A special mention also goes to Danny DiBenidetto who "put in countless hours in order to achieve the ultimate goal. Danny has earned the respect of all his peers, and the local residents along the corridor and is to be commended for his hard work and dedication."

On site, operations kicked off with the in-place processing of the existing road base, with subcontractor Roto-Mill Services Ltd. utilizing two pulverisers in tandem to accelerate the process. Hot mix asphalt for the job was supplied by a 360 tonnes/h capacity portable Gencor counterflow drum mix plant set up in the Beachville Quarry of Carmeuse Lime. From there, asphalt was hauled to site by triaxle and flow-boy trucks with payloads of 21 and 38 tonnes, respectively.

On site, the paving train included a Roadtec SB-2500C Shuttle Buggy and Caterpillar AP-1000D paver equipped with a new electric screed. Breakdown compaction was completed by a Caterpillar CB-634D double drum vibratory unit followed by a Caterpillar PS-300B pneumatic roller in the secondary position. The mat was finished by a Dresser 714 static machine. The job required some 25 000 tonnes of Superpave SP19 mix, with coarse and fine aggregates supplied by Oxford Sand & Gravel together with RAP from Highway 19. In addition, some 11 000 tonnes of Superpave 12.5 mm FC2 utilised coarse and fine aggregates from Ontario Trap Rock. Asphalt cement for both mixes was supplied by McAsphalt

Industries, while Oxford Sand & Gravel also supplied 25 000 tonnes of Granular A and 15 000 tonnes of Granular B base material.

Lafarge Paving and Construction (Eastern) Ltd. was another recipient of a finalist award for its performance on MTO contract 2006-4049. This 9.8 km long contract on the eastbound and westbound lanes of Highway 417 extended from Nicholas Ave to Woodroffe Ave. in Ottawa. Valued at \$4.52 million the contract was completed in just ten weeks from August 3 to October 13, 2006.

Project superintendent Rick Seguin reports that the scope of work included paving (paid by the square metre), crack repair, manhole adjustments, partial depth asphalt removal and barrier wall placement. Weather and traffic played their part in this contract as well, with one of the wettest Octobers on record impacting the paving schedule.

High traffic volumes through Ottawa also meant that all work was done at night at this location. Seguin adds that, in an effort to reduce traffic speed, the Ontario Provincial Police (O.P.P.) was employed to remain within the construction zone. Several fines were issued for speeding as well as two for entering the work area. The O.P.P. also assisted in the contract's live traffic switch-overs, with the nightly switch-over of traffic control executed without a complete tear down. Weather and traffic aside, the site team also successfully dealt with night paving under poor lighting conditions, restrictive time restraints as specified in the contract, numerous catch basins throughout the majority of lane one, smoothness specifications applied to the contract and 14 bridge decks in about five kilometres. In addition, contract conditions required full width pav-

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ing to the same station each night, resulting in shorter distances being paved each night and an increase in the number of transverse joints that had to be constructed.

Sequin attributes a successful project to the full commitment from the entire team before the project began, underlining excellent communication between the crews, quality control staff and contract administration. Key site staff included Brad Gooderham who was responsible for quality control and asphalt foreman Dave Alve. Every night before start up, tailgate meetings were conducted to review safety issues, quality concerns and production goals. A positive working relationship was established with the contract administration with everyone striving together to provide a safe work site and deliver a quality product.

Turning to material and methods, hot mix asphalt for the contract was supplied from the Boyce Quarry on Rideau Rd., Ottawa, home to a stationary CMI batch plant with a capacity of 300 tonnes/h. The milling equipment used by subcontractor Roto-Mill Services Ltd. included a Terex PR800-7 with a 2.14m cutting width, while the Lafarge paving fleet included a Roadtec SB -2500C Shuttle Buggy and a Barber-Greene BG-240B paver. The compaction train included a Bomag BW164AD breakdown compactor, a Caterpillar PS-300B pneumatic secondary compactor and a Ferguson 712 finishing

roller. Job quantities and materials included 27 106 tonnes of SP12.5 mm FC2 Level E mix using PG 70-28 asphalt cement from Lafarge Asphalt Engineering's Millhaven terminal. The Lafarge group's Boyce quarry supplied DFC fine aggregate and HL-1 coarse aggregate, while IKO supplied asphalt sand.

Fowler Construction Company Ltd. also received a finalist award for its performance on a 10.7 km long section of Highway 141 between Rosseau and Bent River in Muskoka. This secondary highway intersects with Highway 11 north of Bracebridge and winds west to Parry Sound. Company vice president Tom O'Callaghan reports that the \$7.5 million highway reconstruction contract called for the replacement of 19 centreline culverts as well as 46 000 m³ of rock excavation to widen the right of way. One section of the contract required company forces to construct a granite wall to serve as the new "shore line" of Lake Rosseau and also support a guide rail.

Ironically, given the local availability of granite, the unique dimensional granite stone used for the wall was imported to Muskoka from Vermilion Bay, west of Dryden. Additional work included the full depth reclamation of the existing pavement followed on the majority of the roadway by just 50 mm of Granular A base and a single lift of SP12.5 asphalt. Time was tight, as the

highway had to be pulverized and paved in 15 days. Asphalt from the company's stationary plant in Bracebridge was paved by the site team utilising a Roadtec SB -2500 shuttle buggy and Caterpillar AP-1055B paver, followed by a Bomag BW174AD compactor equipped with Asphalt Manager and a Bomag BW24R rubber tired roller to finish the mat. O'Callaghan adds that Fowler received a bonus for smoothness, also noting that approximately two kilometres of the highway was exempt from asphalt smoothness measurements due to the tight radius of some curves.

"What was quite unique was that we were able to achieve an excellent smoothness index, with only one lift of asphalt on granular grade. Both the grading and paving crews are to be commended in their efforts to achieve smoothness."

Fowler's team included Gilles Truchon, manager of construction; Tim Fawcett, divisional manager of MTO Projects; Doug Buchanan, project superintendent and Roger Brassard, paving superintendent. In O'Callaghan's view, the success of this contract is a good example of teamwork in action: "Doug Buchanan's team would have provided the smooth grade for Roger Brassard's team, responsible to utilize Fowler's "Best Practices" for paving. Collectively those two have over 70 years of experience in highway construction."

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