More Than a Test

Mike Lovins, Central Office

During Bring Your Child to Work day, the Office of Materials Management’s (OMM) tour of the test lab was one of my kids’ favorite events. But the test lab isn’t just for show or to entertain our kids once a year. The work they do is important. And for this time of year, that work involves studying ways to repair and prevent potholes. The impact of this work ranges from saving tires to saving lives.

Potholes develop from a variety of different conditions and causes. For asphalt and especially concrete pavement, potholes can develop from issues with the soil beneath the constructed roadway. Over time, this subgrade can be affected by water seeping into the soil and eroding it, causing it to sink away from the asphalt or concrete. Without support, the asphalt and concrete roadways become stressed and crack under the weight of constant use.

The aggregate section of OMM and the soils section of the Office of Geotechnical Engineering test pavement materials and soils making up subgrades and embankment materials for quality assurance. The suppliers and contractors are responsible for quality control.

Concrete pavements often fail where large slabs of concrete are laid next to other slabs, creating a joint between the sections. Steel rods, or dowel bars, are often placed across these joints to re-enforce the highway. It is the job of the steel section of OMM to test these dowel bars. The cement and concrete section runs a variety of tests on the cements and concrete used in pavement and bridge decks.

For these and other conditions, OMM is constantly trying to improve concrete and asphalt mixes, monitor construction procedures, and improve specifications to get the longest life we can out of our pavements.

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The Diverging Diamond Interchange (DDI) in Perrysburg has received awards for its design and operation. Most recently, it won the America’s Transportation Awards competition for Operations Excellence in the Small Category in the mid-America region. Sponsored by AASHTO, Socrata, AAA, and the U.S. Chamber of Commerce, the 11th annual America’s Transportation Awards competition recognizes transportation projects in three categories: Quality of Life/Community Development, Best Use of Technology and Innovation, and Operations Excellence.

“It’s an honor to have the only Ohio award-winning project in our ODOT District,” said ODOT Deputy Director Patrick McColley.

When planning to improve traffic flow and efficiency while increasing safety for State Route 25 over Interstate 475, the diverging diamond design met those needs. It could also be built on the current bridge, which would drastically reduce costs to the project.

“I travel through the DDI every day,” said ODOT Capital Programs Administrator Michael Gramza. “The ingenuity of the design has led to the greatest traffic flow improvement of any project I have been involved with. The ability to utilize the existing structure to keep the cost of the project economical is truly noteworthy.”

People have commented that once they get used to it, they really appreciate how much easier it is to get onto the interstate,” said Perrysburg Mayor Tom Mackin. “I have received lots of very positive comments about how much better traffic flows in the diverging diamond.”

The Diverging Diamond Interchange also won an American Council of Engineering Companies of Ohio engineering excellence award.

A Dog-Gone Good Painter

Information Technician 2 Elizabeth Kauppila is quite the painter and loves focusing on one of her favorite inspirations: man’s best friend. The recent hire in District 6 has been painting dogs as a hobby for six or seven years. Inspired by her father, she spent many years experimenting with other forms of artistic expression before becoming a self-taught painter. So, why dogs?

“I don’t think there’s any other reason than I just really love dogs,” she said. “There is something so pure and genuine about how a dog interacts with people, and I can’t help but smile every time I see one. I love them all equally.”

Jobs Saved and Created

Carter Hall, Central Office

The little team of five individuals who make up the Division of Jobs and Commerce (J&C) within Central Office do not stand out. But despite their small size, they make a big impact. The J&C team work on economic development, trying to bring businesses and jobs to Ohio’s communities. Their hard work has led to over 500 completed projects, and they make a relatively small budget go a long way.

The team takes their work seriously, focusing on every project that comes across their table, and do their best to not waste a single taxpayer dollar. These ODOT employees award the best projects that come their way, which are measured based on the number of jobs the project impacts or creates.

Perhaps the most impressive statistic J&C can boast is the number of jobs they have impacted. While being less than a decade old, the division has impacted upwards of 144,000 jobs for Ohioans, either by keeping businesses in Ohio, or drawing new ones to the state. Currently the team has around 172 potential projects in the works.

4 • TRANSCRIPT, MARCH 2019
The official transportation map is Ohio’s most important promotional piece. And since 2001, its creative director and caretaker has been Bruce Hull. When Hull assumed control of the map, he thought it should be more than just a navigational tool. “I thought the map could be a teaching tool and it should be something an elementary classroom of kids would enjoy looking at,” said Hull, electronic design specialist with nearly 40 years with ODOT.

He talked with teachers about content, with other agencies and Ohio’s major sporting teams about providing photos and took his own photos on family outings. “I wanted people to look at it and say, ‘Wow. That looks like a really cool place.’” He included Ohio firsts such as Neil Armstrong’s walk on the moon and the flight of the Wright brothers’ flyer. He added a photo of his great-grandmother, Sophia Mitchell, Ohio’s first female African-American mayor, elected in Rendville in 1976. To ensure quality and ease of use, Hull researched paper quality and tinkered with the number and manner of the folds. “I would mock up dummy copies and hand it to people,” he said. “If they fumbled with it too much I’d say, ‘ok, that’s not going to work.’”

A picture of Hull’s daughter, Ashley, is always featured. “I was looking for a stock picture of a kid in a seatbelt, and it was going to cost $160 to use,” he said. Instead, Hull photographed Ashley in her car seat. “She’s made every edition since.”

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The 2011 edition, which displayed the pictures like snapshots pinned to a cork board or refrigerator like you would at home, is Hull’s favorite. But is a printed paper map still needed? “People still ask for them, even though they have GPS,” said Hull.

MAP FACTS
- The first Ohio transportation map was produced in 1912. The first multi-color map was printed in 1914 and the first two-sided map in 1928. Art was used for the first time on an Ohio map in 1935, and the first full-color map appeared in 1942.
- According to Matt Thompson, transportation technician in technical services, Central Office, the early maps were produced by hand scribing each layer, over 40 in all, for each element and color represented on the map. In the 90s, the map was placed on film and then printed. Since 1994, the cartography (the navigational map itself) has been at least, in part, in digital form.
- In 1994 the map was transferred from hand scribes into complete digital form and all data associated with the map verified. “It took all year,” said Thompson. It was then shipped off to Atlanta to be placed on film, shipped back to ODOT for proofing and then taken to the printer.
- Today, the map is printed from high-resolution PDFs.

Photos are compiled and layout begins. A photo of the new governor and message is obtained. A version of the current map is placed within Central Office allowing ODOT employees to comment on additions or changes. Cartography is provided by the ODOT office of technical services.

After the contract is awarded, Hull and a representative from technical services are present during the first-run printing to check color and print quality.

First printing of the new map is ready in time for the Ohio State Fair.
A trailer pulling a large oversized bulldozer slammed into the East Avenue bridge over Interstate 76 eastbound in the city of Akron, closing the highway for over ten hours and causing significant damage to the bridge’s beams.

During the incident, District 4 bridge crews inspected the damage, determining that substantial repairs needed to be made. The two damaged beams are heat straightened; next the remaining damaged portion of beam is removed; and last, a new section is welded in the removed section’s place.

Heat straightening is the process of applying restraining force to the steel and then heating it. The steel is heated in specific patterns to take advantage of the shrinkage of the steel as it cools. During the process, the steel can’t expand in the direction of the restraint while it is being heated but the beam is allowed to contract in the direction of desired movement as it cools.

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The repair process involves repeated cycles of heating and cooling to gradually straighten the beam. During heat straightening, torches heat the steel up to 1,200 degrees.

During the repairs, which took 45 days, I-76 eastbound was reduced to one lane and two nearby ramps were closed as well, to reduce the amount of traffic traveling on I-76.

According to local law enforcement, the driver did not have valid permit for his oversized load and is facing possible charges.