



# Transcript

The Ohio Department of Transportation Employee Newsletter

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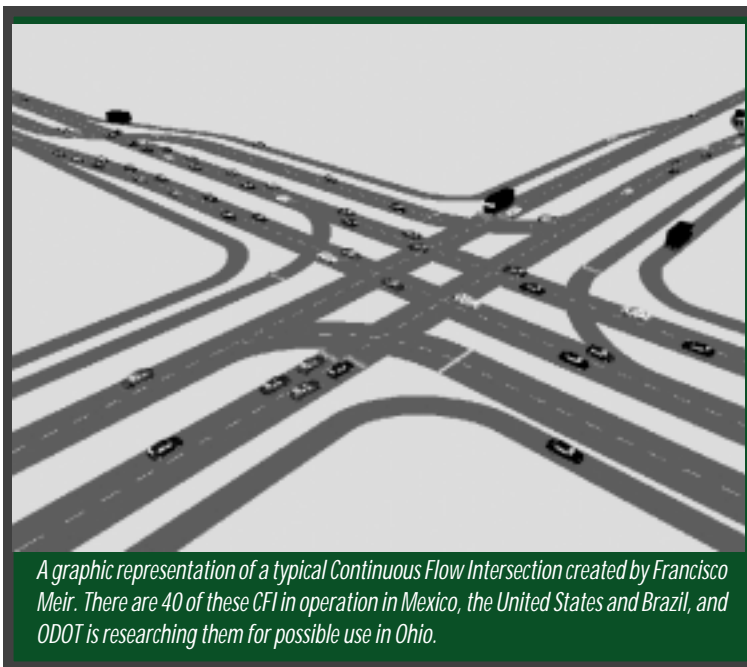
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# Continuous Flow Intersection Reduces Congestion, Increases Safety

**Melissa Cook**  
Central Office

The Ohio Department of Transportation is looking south of the border for ideas to solve congestion problems at high-traffic intersections around Ohio.

When congestion and pedestrian accidents plagued Mexico City 17 years ago, Francisco Meir, took action. Meir, who is currently working with an engineering consulting firm in Louisiana, is not an engineer by trade. However he realized something had to be done to improve the intersections in his country. His solution was to design an intersection without left turns called Continuous Flow Intersections (CFI). His new design concept soon spread and now there are 40



*A graphic representation of a typical Continuous Flow Intersection created by Francisco Meir. There are 40 of these CFI in operation in Mexico, the United States and Brazil, and ODOT is researching them for possible use in Ohio.*

CFIs in operation in Mexico, the United States and Brazil.

CFI is a fully signalized at-grade intersection that allows motorists to make the left hand turn several hundred feet prior to the intersection. Additionally, many times little to no additional right of way is required to install a successful CFI. This makes it a viable solution for urban areas where right of way is often difficult to obtain.

The benefits of CFIs are numerous. The greatest being the reduction of congestion. For example, the CFI in Maryland was constructed two years ago and immediately went from a 108-second delay per car through the intersection to a 16-second delay per car without one traffic accident. The standard CFI has the capacity to allow 14,000 vehicles pass through an intersection per hour. An added benefit to less congestion is lower emissions from idling cars, which results in less fuel consumption, and means less money spent on gas for motorists.

CFIs not only benefit motorists, but also provide a safer cross walk for pedestrians. By removing the left hand turn at the intersection, pedestrians can cross without the fear of being struck by turn lane traffic.

Additionally, a standard CFI can save taxpayers between \$3 million and \$4 million

dollars per intersection.

ODOT is currently studying the possibility of installing CFIs at several intersections around Ohio. According to ODOT engineer, Dirk Gross, "We are running into congested intersections where traditional design methods no longer apply. We must now look at unconventional designs to extend the life of these overstressed intersections."

Not every intersection is right for a CFI, but under the proper conditions CFI's can greatly enhance Ohio's transportation system. The following key intersections are being studied as possible locations for future CFIs, State Route 750 (Powell Road) and State Route 23 in Delaware County, SR 23 and Campusview Boulevard in

Franklin County and State Route 256 at Tussing Road in Fairfield County.

"CFIs have excellent potential for us to better utilize many of our at grade intersections compared to any other design method currently being used," said Gross

In the United States, CFI's have been constructed in New York City and just south of Washington D.C. in Maryland.

Meir will speak at the Ohio Transportation Engineering Conference (OTEC) in November. For more information about OTEC, contact Terri Barnhart at 614-387-3102.

# Saving the Rare

# Sloan's Crayfish

**Brenda S. Bradds**

*District 8*

**J. Brian Cunningham**

*Central Office*

Running along State Route 748 in rural Butler County is Paddy's Run, a small meandering brook which often goes unnoticed by motorists using the route. Similarly, when ODOT began plans to realign SR 748, Paddy's Run played a small role in the project.

However, because the creek is home to one important aquatic inhabitant – the *Orconectes sloanii* this waterway took on a much greater significance. This animal, more commonly known as Sloan's Crayfish is an endangered species. It also happens to be a delicious treat to bass and other sport fish swimming in the creek.

Because the project would impact the Sloan's Crayfish habitat the animal needed to be moved away from the construction area. So, on a humid May morning members of the media, ODOT, and the Ohio Environmental Protection Agency donned heavy waders, scaled the creek's steep embankment and searched the creek for the Sloan's. By the end of the day the group had collected more than 50 of the tiny, threatened Sloan's crayfish and relocated them to an area upstream.

"We found a good number today," said Roger Thoma, a biologist with the OEPA. "We even found females with eggs, which shows they are doing well and reproducing in Paddy's Run."

According to Thoma, who volunteers as curator of a crayfish exhibit at The Ohio State University's Museum Biological Diversity and is considered a crayfish expert, the Sloan's Crayfish is considered threatened in the streams of southwestern Ohio and parts of Indiana – which are its only habitat.

The effects of residential and industrial development such as farm field runoff, oil and grease or wastewater treatment plant discharge in these areas has negatively affected the Sloan's species.

Thoma also noted the Sloan's survival has been impacted by the Rusty Crayfish, a more aggressive species of crayfish, moving into the area due in part to water quality changes. The Rusty Crayfish can severely reduce lake and stream vegetation, depriving native fish and their prey of cover and food.

"Because of an increase in nutrient-rich water environments, the Rusty species is being attracted to the area and the Sloan's crayfish simply can't survive," said Thoma. "It is essential we maintain the stream's water quality, so the Rusty Crayfish won't want to live here. If we can accomplish that, everything from the crayfish to the sport fish will thrive since Sloan's crayfish are a tasty meal for smallmouth and rock bass. The road project and new culvert will definitely benefit the ecosystem in the stream."

I am proud ODOT could participate in helping to preserve one of our endangered species," said Tim Hill, administrator for ODOT's Office of Environmental Services. "We are very conscientious about not negatively impacting our natural resources and this project illustrates how we can make necessary highway improvements while maintaining the integrity of our environment."

Just as motorists will benefit from ODOT's improvement to SR 748, the Sloan's crayfish will benefit from the department's involvement in finding them a new home.



*Representatives from ODOT and OEPA and other volunteers prepare to search Paddy's Run In Butler County for the endangered Sloan's crayfish.*

# New Invention: Dries Asphalt Faster

**Barb Elliston**  
*District 7*

Besides being a Test Lab employee in District 7's Materials Management department, Michael Dicke is also a farmer. And like any good man of the earth, he knows how to use common sense and experience to make any situation better or more effective.

It was Dicke's farming experience that led him to create a new testing device called an asphalt dryer. Built on his own time and with his own materials, the unit uses a process similar to drying harvested grain. In this case, however, asphalt samples are dried for testing. Dicke's device completes the drying more efficiently and without the hassle involved with the previous method.

So why do samples need get wet? Like candy bars, how an asphalt turns out is based on the ingredients in the mix. These natural ingredients define the density of the asphalt and helps determine the material's durability.

Asphalt samples are submerged in water, weighed, and then completely dried and weighed again. The change in weight after the drying stage determines the asphalt's density. The trouble was, the drying process consisted of using a fan to blow air across the sample. If the fan was not closely watched, its vibrations would redirect the air-stream away from the. The fan also had to be stopped to stir the sample. It was an awkward and inefficient process.

With Dicke's invention, the samples can be loaded into an enclosed chamber and subjected to a much more intense drying atmosphere. The material can be stirred within the machine without interrupting the drying action. With the new invention, the asphalt test can be conducted in half the time of the previous approach.

The process has worked well, and the Central Office Test Lab is currently using two of the units. There are plans to build additional machines for the districts, and there



*District 7's Michael Dicke and the dryer he built, shown above, have improved the efficiency of asphalt testing. Additional units are planned for construction for statewide use.*

is a possibility Dicke's machine could be adopted in the private sector.

"It is great that Michael took the time and put forth the effort to be innovative and create this useful and practical device," said Dave Brown, District 7, Transportation Manager 3. "Michael is an asset to District 7's Materials Management Department."

Dicke's use of common sense and experience in upgrading an inefficient process illustrates how creativity can improve departmental services. While necessity may be the mother of invention, common sense and experience play a significant role, too.

# Office of Real Estate Receives National Recognition

**John Hackley**  
*Central Office*

Harboring no fear of change, a team of ODOT professionals have been nationally recognized for bridging a gap in services between different levels of government regarding property acquisitions.

The Office of Real Estate recently won the Federal Highway Administration (FHWA) Excellence in Right of Way Award for Local Public Agency Stewardship for developing a first-of-its-kind contracting process.

Personnel from ODOT partnered with the County Engineers Association of Ohio (CEAO), and FHWA to develop and award four regional contracts to firms to perform land acquisition work for county engineers.

Because many county governments are not equipped to acquire property for their highway projects, ODOT personnel stepped in to develop an innovative resolution to the problem. Although the responsibility for the work falls to the county governments, ODOT employees were able to find an effective solution, albeit one that significantly changes the real estate process for local transportation projects in Ohio.

The contracting solution is not only effective, but unique. "From the feedback I received at the conference, I believe we are the only state that has created a contract for local public agencies to use for labor on their right of way acquisition projects," said ODOT Office of Real Estate Administrator Jim Viau.

The contracts establish a set fee for all

of the labor involved in acquiring right of way. The amount of work involved is significant. It includes searching property titles, having property valued, negotiating with landowners for purchases, and relocating anyone living in the area of the project.

Other necessary acquisition activities covered under the contracts include holding real estate closings and prorating taxes to the date of acquisition. Once the land is acquired various property management responsibilities such as mowing, building maintenance, asbestos testing and abatement come into play. Coordinating building

auctions or demolitions are the final obligations covered by the contracts.

The contracts ensure counties receive the appropriate services for a fair price. "The standard fees make the negotiations much easier for the counties, and we have seen evidence in the past where some counties were sold a Cadillac when a Chevy would have got them where they needed to go on their right of way acquisition projects," said Viau. "This contract calls for a three party scoping – county, district, and consultant – which leads to better fees, and contracting for only that which is absolutely necessary to clear the project."

Separating the consulting firms by region also works to save money because travel



*Contributors to this innovative contracting plan (left to right) are Carla Cefaratti, Dick Henry (FHWA), Tina Potts, Dina Eaton, John Oliveri (CEAO), and Jim Viau. Other contributors not pictured include Rand Howard and Linda Bailiff.*

expenses are the only variable in the contracts.

County governments receive funding to be used for right of way acquisition services through an allocation from ODOT to CEAO. Although there is not a similar funding structure for lower levels of local government, they have been invited to adopt the contract information for their use.

"The entire department earned this award because the new process involved many offices," said Viau. "We would not be this successful if we didn't have so many people inside and outside of the Office of Real Estate involved in supporting the process."

In addition to collecting an award, the Office of Real Estate was instrumental in providing a valuable tool to local governments ensuring federal and state laws and regulations are followed when property is acquired by local governments for needed highway projects.

# High-Tech Recorders Crucial Component of Ohio Roads

**John Hackley**  
Central Office

Most people in Ohio contribute to the development of the state's major roadways without even realizing it. Snapshots that shape decisions about highway locations and designs are captured vehicle by vehicle in split-second intervals.

This information, compiled from modern devices known as Automated Traffic Recorders (ATRs), can include speed, type of vehicle, and weight of freight shipments. It is all collected unknowingly as cars and trucks roll over rectangular plates and sensors in the highway. "Unless you are really paying attention and know what you are looking for, you won't notice an ATR as you drive over it," said Traffic Monitoring Section Manager Dave Gardner.

Ultimately, the information is compiled by ODOT into reports to the Federal Highway Administration (FHWA) and used to make national planning decisions. ODOT also uses the information to create reports for the department's statewide planning efforts.

A push in recent years to increase the number of ATRs in Ohio has been driven by an increased need for traffic information in urban and other high-volume traffic areas. The systems can cost between \$50,000 and \$300,000 depending on the number of lanes covered.

"ODOT had about 80 ATR sites about five years ago, and now there are 203 in operation," said Gardner. "The basic goal is to come up with an accurate estimate of average daily traffic on all of our roads, and ATR sites are determined by this objective." Gardner said the future addition of several automated traffic systems in southern and eastern Ohio will complete the statewide installation effort.

Federal regulations mandate the need to monitor traffic information between the interchanges or intersections of all interstates and major roads that feed the

freeways at least every three years. Traffic information must also be monitored in Ohio on federally designated segments of roadway to support a national highway information system. Although ODOT is not required to collect information from the remainder of the state routes, this is also done in three-year intervals to in-



*Embedded Automated Traffic Recorders, such as this one, capture important information on vehicles using Ohio's roadways.*



*Dave Gardner checks data gathered by the Automated Traffic Recorder.*

crease the effectiveness of the department's planning efforts.

This complete picture of traffic on the state's roads is accomplished by supplementing the information obtained by the permanent ATR sites with data generated through portable traffic counters known as road tubes. The portable counters are used to take short-term counts – usually 24 or 48 hours – primarily on state routes.

"The ATR sites run 24 hours a day 365 days a year and form the backbone of the counting program," said Gardner. "We've set up ATR sites in urban areas around the state because of the difficulty and ineffectiveness of setting up portable counters in multi-lane roadways."

This technology is used to determine optimum times and locations to close lanes of traffic for highway construction and maintenance. ATR information has also contributed to a recently released study of current and projected freight movements in Ohio allowing ODOT to analyze where the transport of manufactured goods will most significantly impact the state's highway network.

# The Price Is Right, According To Estimators

**Joel Hunt**  
Central Office

ODOT's Office of Estimating is a busy place, producing the state's official estimate for 600 construction projects each year. To most of the motoring public this activity may seem mundane. But not to contractors and vendors who rely on the work of the individuals in this office to provide accurate, timely plan packages.

These same workers are also responsible for ensuring Ohio taxpayers are protected from fraudulent bidding practices. So what may seem to many as boring number crunching is essential to maintaining and improving Ohio's transportation network.

The office is tucked away on the first floor of Central Office. Once a part of Location and Design – before the department was restructured in 1996 – the office now stands alone under the umbrella of the Division of Contract Administration.

A typical day for Debbie Wood and the 20 people in her office includes receiving plan packages from the districts, performing analysis, and maintaining a bid history. They also create and maintain item codes and assists district Production and Planning departments with preliminary final estimates.

Still, Wood said the office's core business is producing estimates. "Although districts create their own estimates, they are more for budgeting purposes. Our estimate is used as a benchmark to deter-

mine the validity of the bids."

Wood said plan packages are scrubbed clean by the districts before they come to the Office of Estimating. "But since we're the last stop before they hit the street, we have to make sure everything in the package is right."

Wood said the requirement for filing plans is a 12 to 16-week process, but emergency projects move much faster.

At the helm of the office is Jeff Hisem, known around the country for his work on estimating issues and software. This spring, ODOT nominated Hisem for the American Association of State Highway and Transportation Officials (AASHTO) Alfred E. Johnson Achievement Award for his leadership, which has spanned 18 years.

Hisem and an official from the North Carolina DOT teamed up in 1989 to create the first national Cost Estimation Workshop for DOT estimators. It was attended by more than 100 people from 38 states. This workshop has evolved to an annual event and a formal organization called the Transportation Estimators Association. Currently there are about 34 states that are active in the association.

Hisem's office is busy developing and implementing Strategic Initiative 10, which will provide better estimates, sooner, which is the goal of his department. "To be a good estimator, you have to visualize how things are built," Hisem said. "There are several ways to build a bridge. There is no 'right way' to do it. So I send all our estimators out into the field to enhance their understanding of construction and the associated costs."

Wood said their office's work does not end when a project goes to bid. "We continue to be involved with projects to the very end. We check bids before projects are awarded, we see Value Engineering Change Proposals (VECP) and give our comments, on constructability and actual VECP savings. Also, we are available for assistance with reviewing costs for change orders."

Wood said by far, the most challenging part of her job is keeping up with the industry. "We've seen how much the price of oil fluctuates," she said. "So does asphalt. The cost of oil affects all aspects of construction. We have to make a lot of calls here just to keep up."



# FYI

To commemorate Ohio's 200<sup>th</sup> anniversary, ODOT's state fair booth will celebrate the history of transportation in Ohio.

The booth will display a 150-year-old covered wagon, the Friendship 7 space capsule, ODOT's oldest piece of equipment (on loan from District 7) and a timeline, which illustrates how people moved through Ohio from 1803 to 2003. In addition, volunteers from around the state who specialize in historic re-enactments will live the history of Ohio and teach it to visitors.

Of course, maps, coloring books, temporary tattoos (of the oldest bridge on the National Road) will be available to visitors, compliments of ODOT.

The theme "From Wilderness to World Class" was developed to illustrate how Ohio's transportation system has adapted to changing needs throughout the history of our state.

If you are interested in working at ODOT's fair booth, contact Julie Walcoff at 614-466-3049, or email: [julie.walcoff@dot.state.oh.us](mailto:julie.walcoff@dot.state.oh.us)



Correction: In the May 2003 issue of Transcript, we lead readers to believe only the Office Accounting collected food for Operation Feed when, in fact, the entire Division of Finance participated in the event. We apologize.

*Cover illustration: Bruce Hull*

## Transcript

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Our mission is to provide a world-class transportation system that links Ohio to a global economy while preserving the state's unique character and enhancing its quality of life.