

**THE MUSKINGUM COUNTY ENGINEER'S OFFICE
NEWSLETTER**

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2006/2007 ROADWAY RESURFACING AND MAINTENANCE

ASPHALT RESURFACING (Fall 2006)	MILES
Bagley Road	4.11
Licking Road	1.72
Military Road	0.97
Old Coopermill Road	2.90
Pinkerton Road	2.64
ASPHALT RESURFACING (Spring 2007)	MILES
North Dresden Road	1.80
Dillon Falls Road	1.64
Jackson Road	2.52
North Dietz Road	1.57
Wayne Ridge Road	3.92
East Athens Rd	2.85
Pleasant Valley Rd	6.11
MAINTENANCE (2006)	MILES
Ditching	140.88
Chip - Seal	108.13



MUSKINGUM COUNTY ENGINEER'S OFFICE

THE MCEO WIRE

FROM THE ENGINEER'S DESK

Oil prices are again on the rise, which leads many scurrying to find the lowest price on a gallon of gas. Escalation in oil prices cause a trickle down effect that results in a reduction in travel, delivery surcharges, higher prices on goods and services, and a financial burden for almost everyone. The bottom line is that the cost of doing business is going up! For the Engineer's Office in Muskingum County, this burden forces some tough fiscal decisions to cope with these difficult times and still maintain a level of expected service for county residents and the traveling public.



Highway construction and maintenance is not immune from the ever-increasing oil prices and its impacts can be severe. The county must maintain 530 miles of highways and 420 bridges, which ranks more than all other counties in Ohio. To accomplish this maintenance task, the county must purchase materials and contract services for almost all projects. Asphalt paving and products are among the items experiencing a jump in prices. Asphalt resurfacing has increased by 28% over the last year alone, which is much more significant than the 5% average increase over the previous ten years. Asphalt emulsion, used for chip-seal operations and coldmix production, has increased nearly 50% over the past year, as well. This cost escalation, if not slowed, will result in the reduction of roadway miles that are paved, chip-sealed and repaired. Fuel is another considerable cost of highway maintenance for trucks and equipment. Fuel costs have nearly doubled over the last two years and have placed a heavy burden on our operating budget.

Another impact of the oil increase is the reduction in fuel consumption. The majority of operating dollars for the engineer's office and highway department comes from taxes on gasoline and vehicle license fees. Due to the high price of fuel, motorists have undoubtedly decreased their travel, which causes a direct reduction in the revenues received by the county to maintain the roadways. It is important to understand that the tax on a gallon of fuel does not change whether a gallon of gas is \$2.00 or topping the \$3.00 a gallon mark, and, therefore, if consumption is down, revenues are down.

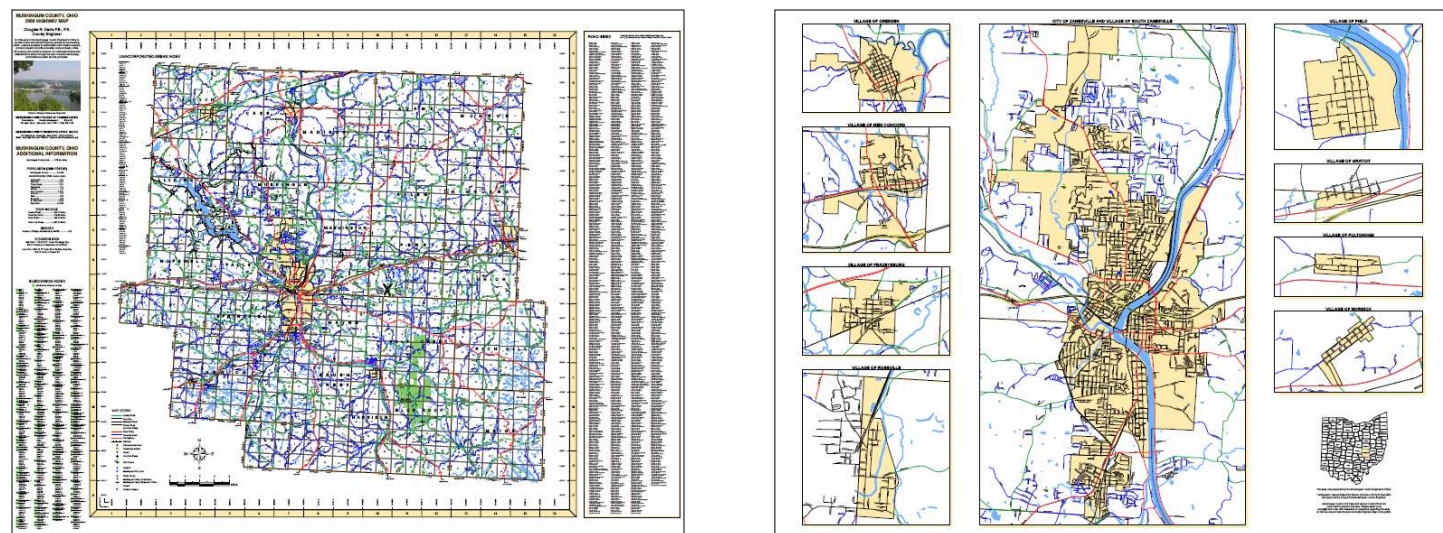
Since we are unable to control the market and the price of oil, we have no choice but to continue our efforts for maximum efficiency. One way to stretch our dollars a little further is to perform more work with county forces. Highway employees are being called upon to accomplish more maintenance and improvement tasks rather than hire outside contractors. We are building and repairing a majority of our bridges with county crews. Instead of hiring contractors, our Highway workers are chip and sealing county roads. We are repairing and maintaining the majority of our vehicles and equipment with our own mechanics, rather than outsourcing.

Another manner to help with rising costs is to discover other funding sources. Since, the beginning of 2005, we have worked hard to secure nearly \$10 million in grant dollars for future road and bridge projects throughout the county. These and other costs saving measures are important tools as we battle higher costs and revenue shortfalls. We will continue our efforts to discover more efficiency in our operations, reduce costs where possible, and strive to secure additional grants to assist in highway improvements.

DOUG DAVIS P.E.,P.S. - MUSKINGUM COUNTY ENGINEER

ALL NEW 2006 HIGHWAY MAP

This year the Engineer's Office decided to completely redesign the old Highway Map utilizing new technology and resources. This year the Highway Map was completely designed in house by MCEO staff, saving taxpayers the cost of outsourcing cartography. Since we also were able to save on the cost of bulk printing, we will be making this map available free of charge to Muskingum County residents. We are excited to showcase the 2006 Highway Map at this year's Muskingum County Fair.



MAP DETAILS AND PRODUCTION METHODS

The new Map is slightly larger than the previous Map, being 36 inches by 46 inches. This was needed for good cartographic display, and to allow new features to be shown on the Map. New features include detailed "Incorporated Areas" on the back side of the map, these are, Dresden, New Concord, Fazeysburg, Philo, Gratiot, Fultonham, Norwich, South Zanesville, and the City of Zanesville. We will be working with these areas to verify or revise the information shown for future publications. New features in the front side of the map include a new approach for indexing subdivisions. The previous map only labeled subdivisions where text would fit, thus many were not labeled. With the new Map, all subdivisions are numbered on the map, and that number corresponds to the number in the Subdivision Index. Also included are common landmarks, such as Hospitals, Interstate Ramps, and Golf Courses. Additional landmarks will be included in the future. The front also has Northing/Easting Coordinates in feet, labeled along the overall Map Grid to aid in global positioning and measuring. The overall color scheme has changed significantly, which we feel provides a better cartographic representation of Muskingum County.

The cartography for the Highway Map was performed using advanced GIS software with the combination of existing GIS data and various County Records. We then sent the Map to our Publishing Company to begin the printing process. This process takes about one month to complete for 5,000 Maps. Our next goal is to begin the design of a Road Atlas. This should be a 8 1/2" x 11" booklet style representation of our Highway System that will be very handy for use out in the field and in the car. We are expecting a completion date for this Atlas sometime in 2007 or 2008.

You can also view or download the 2006 Highway Map at our website

<http://engineer.muskingumcounty.org>

LBR PROJECTS

County Local Bridge Program (LBR) is a Bridge Replacement and Rehabilitation Program administered by the County Engineers Association of Ohio (CEAO). This program allocates federal funding to counties on a first come-first serve basis. County bridges must meet certain requirements in order to receive LBR funds. Our 2006-2008 LBR bridges will receive 90% federal funding, leaving us responsible for the remaining 10% and all design costs. We will be inspecting the construction of these projects thoroughly, and will also design the 2008 projects in house.

2006 LBR PROJECTS - UNDER CONSTRUCTION

Cutler Lake Rd (C45) - Two Bridge Replacement Projects



Bridge (Demolition)



Bridge (Replacement)

The first bridge is well underway and the second will begin as soon as the first bridge is reopened. The expected completion date for both bridges is September 11th.

Both bridges will be Steel Beam on Reinforced Concrete Abutments with a Reinforced Concrete Deck; replacing Steel Truss Bridges with Asphalt Deck.

2007 LBR PROJECTS - FINAL DESIGN

ROAD	SPAN
Arch Hill Rd (C82)	69 FT
Green Valley Rd (C83)	58 FT
Urban Hill Rd (T465)	81 FT

2008 LBR PROJECTS - PRELIMINARY DESIGN

ROAD	SPAN
Licking Rd (414)	70 FT
Coopermill Rd (C71)	82 FT
Old River Rd (C6)	70 FT

2006 MCEO BRIDGE REPLACEMENT PROJECTS

These projects will start early this fall and will be constructed entirely by MCEO crews with County funds. All design for these projects was performed in-house by MCEO staff.

ROAD	SPAN
Clay Pike (C5)	53 FT
Coopermill Rd (C71)	20 FT
Woody Ln (T1646)	20 FT



Existing Coopermill Rd Bridge

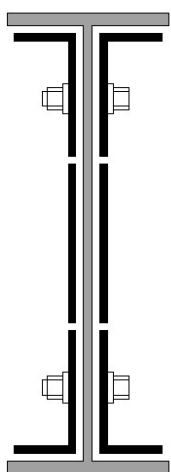


Existing Clay Pike Bridge

PHILO BRIDGE REHABILITATION

March 2, 2006, Muskingum County Highway Department Crews were called to fix a pothole on the Philo Bridge. A short time thereafter, the County Engineer is called and told there is a hole in the bridge and the crews can see the water below. So instead of filling the hole with cold mix, we saw cut the deck to expose the hole. What we found next took nearly six months to fix. The "stringer" the steel beam that holds the deck in place was hanging from one end (barely). The only reason the beam did not fall to the ground was the welds on the corrugated metal deck that were holding the beam up. We called the Emergency Management Agency (EMA) office to assist us with safety equipment while we examined the bridge superstructure for other deficiencies. We found that two other stringers were near failure and the main girder beam that supports the stringers on the Philo side was rated at about 50%. We performed this emergency inspection to determine whether or not the bridge could remain open to one lane of traffic. Worth noting is the fact that every year as required by the Ohio Department of Transportation (ODOT) and Federal Highway Administration (FHWA) we complete an inspection of this structure and all other 419 bridges in our county thru and thru. ODOT was even at our last inspection of the Philo Bridge by request.

With Doug Davis's knowledge of bridge repair from his days with ODOT, he began to layout a repair plan. But another problem developed, our crews had little or no experience with this bridge nor did they have the safety equipment required. We purchased all the safety equipment and the County Engineer told the crews that he was confident in their ability to fix the bridge. The first task in the County Engineers' plan was to open up the deck to expose the girder beam. The beam was repaired using a 3 piece encasement procedure, then bolted and welded **as shown below**.



Once the main girder beam was repaired the crews then began to repair the stringers. The first step was to remove the unsalvageable stringers from the bridge. Then new stringers were installed and painted white to protect the beam from corrosion and so the inspectors could monitor the stringers for rust development. Once the new stringers were installed, the next task was to install the corrugated metal decking. The decking was welded in place with shear studs to add a composite feature to the floor system thus increasing the strength. We then poured a class MS concrete with Fiber for strength and Iponex, a waterproofing and corrosion inhibiting add-mixture. The concrete then cured for 7 days before paving with asphalt and sealing the joints. The process to this point takes us to June, where we contracted with Shelly & Sands to pave the spots we repaired. We also contracted with them to bring in an asphalt milling machine to grind a 4-foot section 500-feet long along the east to west bound wheel lane. We then sounded the concrete exposed by the grinder for "bad spots" and we found many. So our crews jack hammered, power-washed, and sandblasted the concrete deck. With all the "bad spots" found in the deck the County Engineer opted to pour concrete to the surface instead of the porous asphalt which would further deteriorate the existing concrete. The mix design the County Engineer chose was a Class S mix with Fiber and Iponex again for a waterproofing agent. There was approximately 40 cubic yards of concrete poured for this task. The bridge was closed for a couple of hours during each pour for the safety of our crews. The next task for the crews was to seal all the cracks in the asphalt and the joints between the asphalt and concrete transitions. This task was also completed during the one lane closure in July. Finally, a new cross member was installed to replace the member damaged from over-height trucks on the Philo side of the bridge. This was installed and painted on July 28 and July 31, 2006. As of July 31, 2006 the Philo Bridge is now fully open to traffic.



QUESTIONS AND ANSWERS

Some questions still remain unanswered about the bridge. Below are the most Frequently Asked Questions and our responses to them:

Q: Why didn't you fix all the rough spots on the bridge?

A: There are some spots on the bridge we are monitoring for future repairs such as the "speed bumps" on the Philo end. These areas must be watched and surface repairs may prevent visual evidence of underlying deficiencies.

Q: When are you going to paint the bridge?

A: We are looking at funding sources now to hopefully paint the bridge within the next 6 years.

Q: Is the Philo Bridge safe to cross?

A: Yes, if there were any question about the integrity of the bridge we would have closed it. Safety is a top priority for us.

Q: Are you going to build a new bridge, if so where and when?

A: Currently there are no plans to build a new bridge; this bridge should last 30-40 more years with proper care and maintenance. However, we are looking at funding sources for a new structure which may take years to obtain, but it is never too soon to start planning.

Q: Have you hired anyone to give a second opinion about the integrity of the bridge?

A: Yes, URS consultants have provided us with their analysis and report of the swing span, which is the most vulnerable section of the bridge. The truss system checked ok, and should last 30-40 more years with regular maintenance. The final report will be available in late August.

Q: How much would a new bridge cost and how much did you spend on the repairs just completed?

A: Preliminary estimates indicate a new bridge would cost approximately \$15,000,000 Million Dollars. The repairs to the bridge were separated into different projects. To date the costs total approximately \$100,000 Thousand Dollars. Since 1952, when the bridge was built over \$650,000 Thousand Dollars has been spent on maintenance of the Philo Bridge.