



The Orange Brigade



Summer 2016

Logan County Engineer's Office

Volume 49



Coleman's Comments

The sales tax for roads and bridges is vital for the maintenance of local the highway infrastructure in Logan County. The Ohio Legislature has been unwilling to adequately fund local road and bridge maintenance. Ohioans see a shortfall of roughly \$1.8 million per county throughout the state for county road and bridge funding. The Ohio Legislature has made it very clear that they expect each county to fund this shortfall through local tax levies. Our one-half percent sales tax for roads and bridges generated \$3,069,474.83 in 2015. These funds are collected and divided among county (\$1,841,770.63), townships (\$491,138.83), municipalities (\$491,138.80), and land use and economic development (\$245,569.40).

Since the beginning of the sales tax in 1997, we have been able to reconstruct or overlay every county road. We are currently planning to add the final layer of base asphalt to every county road to achieve a minimum of 4.5" of asphalt base. With this minimum standard, we should have adequate pavement structure to maintain the roadways with sealcoats, microsurfacing, thin overlays, or mill and fill overlays.

We plan to apply for federal aid funding for the remaining major collector roadways in 2020 or 2021. This project will total approximately \$3,000,000 and will require \$600,000 in local matching funds which we hope to meet with sales tax funds.

We have experienced deterioration and failure of a few of the roads that were reconstructed during the beginning of the sales tax program. These failures have been due to heavy vehicle use during wet and thawing periods. In these cases, the base asphalt has been damaged beyond repair and full depth reclamation is required. We will plan for these types of repairs over the next five year period.

The estimated annual highway expenditures for the next five years would be \$1,500,000 for sales tax qualifying work. We anticipate using \$1,055,000 of registration fees and motor vehicle fuel user fees to fund chip-sealing, crack sealing, snow and ice control, and repair/maintenance work. At the conclusion of this five year plan, we will still have 141 miles of county roads that will need the final 1.5" surface overlay.

Bridge 21-1.00 is scheduled to be replaced with a new two-lane structure adjacent to the existing historic truss in 2020. Our estimated local cost for this project could be \$1,410,000 and we hope to use sales tax for this local match. Our remaining bridge repair, rehabilitation, and replacement program will be funded with the existing \$347,000 bridge budget from license fees and motor vehicle fuel user fees.

By combining sales tax with motor vehicle fuel user fees, vehicle registration fees, federal grant and state grant funds, the Logan County Engineer's Office has been able to significantly increase the improvements that we have been able to make to the county highway system.

I have asked the County Commissioners to place the sales tax for roads and bridges on the ballot for a five year renewal with the same distribution as the previous renewal.

County Roads and Bridges	60%
Township Roads and Bridges	16%
Municipal Roads and Bridges	16%
Landuse Planning and Economic Development	8%

I sincerely thank everyone in our community for their continued support of this program.

Sincerely,
 Scott C. Coleman, P.E., P.S.
 Logan County Engineer

Logan County Pavement Marking Program

*By: Cale Jacobs, P.E.
Assistant Engineer*

Have you ever wondered how often our county road centerlines and edge lines are repainted?

Well, it mostly depends on the traffic volume of each road. The following sections are so highly traveled that they warrant annual restriping:

CR 1 - State Route 245 to the City of Bellefontaine Corp. Line
CR 10 - City of Bellefontaine Corp. Line to CR 5
CR 18 - Township Road 45 to CR 11
CR 32 - CR 11 to Railroad and the City of Bellefontaine Corp. Line to CR 130
CR 130 - City of Bellefontaine Corp. Line to US Route 33 Overpass
CR 144 - CR 153 to CR 144A
CR 154 - State Route 347 to CR 10
CR 200 - CR 18 to the Fountain Plaza Rear Drive

We have an additional 57 sections of local roadways that are repainted on two year intervals and 55 sections that are repainted every three years. In addition to this schedule any roadway that is repaved or chip sealed in any given year will get restriped after the improvements are made. Not all roads have centerline striping because they don't meet the minimum width requirement for striping.

The paints are fast drying waterbourne traffic paints made with some of the most advanced resin technology on the market today. The yellow centerline striping is 4" wide x 10' long with a 30' space between stripes and our white edgeline striping is 4" wide. These products meet all of the specification and performance requirements of the Ohio Department of Transportation. Both the white and yellow products are formulated without lead containing pigments. Glass beads are added to the wet paint to increase the reflectivity of the lines.

Dura Mark Inc. out of Aurora, Ohio, will be doing our pavement marking for us this year. The commissioners accepted their bid of \$59,530.76 to complete 158.07 miles of centerline striping and 39.76 miles of edgeline striping. This work is scheduled to begin after September 5 and be completed by October 7. In 2015, we completed over 375 miles of centerline striping at a cost of \$160,607.64 of which 80% was paid for with Federal Aid.

Safety Update

*By Todd Bumgardner
Administrative Coordinator*

2016 has breathed new life into our safety program at the Logan County Engineer's Office and Highway Department. Donna Dahlke and Mark Hilty have taken the lead role with our safety committee. Our staff is busy updating plans, writing standard operating procedures and compiling new safety data sheets.

At our request we have had 2 visits by with The Ohio Bureau of Workers Compensation. The Ohio BWC discussions, tour and written report have helped us identify areas where we can improve operational safety. Also, through these visits, the management staff has a better working knowledge of the regulations which will be passed onto the staff. Establishing these and other connections within the safety community will only make for a better informed work force. As of our monthly safety meeting on June 15, 2016 our employees have completed 230 work days without an injury accident requiring more than on-site first aid. Thanks to all in helping create our safety minded work atmosphere.



Highway Update

*By Joel Miracle
Highway Superintendent*

Our crews are gearing up for the summer of 2016, as weather has allowed us to perform road maintenance for this year's upcoming projects.

The Shelly Company will be paving over 14,000 tons of asphalt for our resurfacing program, including the CR 8 widening project from West Mansfield to SR 540. CR 8 will be widened to 20 feet due to the increase of truck and local traffic.



This year's seal program consists of over 436,000 gallon of HFRS-2P that will be purchased from K-Tech Specialty Coatings in Ashley, Indiana. HFRS-2P is a high float, polymer modified, anionic water-based emulsified asphalt designed for use as a bituminous binder for chip seals. High float is accomplished by a special emulsifying chemical that serves not only to emulsify the asphalt in water, but to give a gel structure to the residue on the pavement. The cured high float residue resists flow at high temperature and therefore is less susceptible to temperature fluctuations and bleeding. The polymer gives elasticity, reduced temperature susceptibility and durability to the finished chip seal.

Chip-seal is designed for low volume roadways to provide a new wearing course, eliminate raveling, retard oxidation, reduce the intrusion of water, and improve surface friction for stopping. Deterioration of cracks in the asphalt is slowed to allow less water to permeate into the base that will create failures such as potholes. Loose stone will be swept off the roadway the next scheduled work day.

So when you come up on the seal crew, be patient, as most of our flaggers are college interns and we want to keep them safe. Just keep in mind the crew is working to preserve the investment of the county road system.

College Interns and Promotions

*By Donna Dahlke
Personnel Specialist*

This summer we are pleased that we have six summer interns from 2015 returning. We would like to welcome back Melina Hilty, a student at Urbana University; Kyler Klingler a student at Rhodes State College; Tyler Myers, a student at Ivy Tech Community College; Brett Wisner, a student at Miami University; Brooke Zarnosky, a student at University of Mount Union; and Rose Yoder, a student at Hesston College.

Joining our summer intern program this summer is Aaron Wisner, a student at University of North Georgia; Caleb Mitchell, a student at Urbana University; Jarret Mathews, a student at Bowling Green State University; Cole Craig, a student at Hocking College; and Adam Preston, a student at Ohio State University.

We also welcome back our seasonal workers Sam Ragland, Denny Stryker and Mel Roberts.

Promotions include Greg Dappert to Survey Technician 3 and Kip Jenkins to Highway Technician III in April 2016.

Congratulations ! Job well done!

Map Room

*By Suzie Cochran
Map Room Supervisor*

Recently the Map Room has updated the map photos and the 2015 aerial photos can now be found on both the Auditor's and Engineer's websites. In addition to the photos, the house numbers/addresses can also be found on the Auditor's interactive map. If you are in need of the property dimensions, those can be found on the maps on the Engineer's website. The Engineer's website contains scans of all of the Map Room surveys and records, therefore doing survey and property research is now at your fingertips. Monthly updates are completed by the Map Room to keep the maps, the surveys and the new house numbers as current as possible. Visit our website at www.loganco.co.logan.oh.us/engineer to find all of our information.

Ditch Maintenance & Traffic Department

*By Steve Tracey
Ditch/Traffic Superintendent*

The Ditch Department has performed maintenance throughout the County which began by fixing tiles on the Emery, Liggett and McColloch maintenance ditches. Ditch techs also re-set and dipped the outlet of the Badger Ditch to allow it to function properly. A full center dip was completed on the outlet of the Rowand, which included removing a fence (thank you to the property owner) so we could re-shape banks for easier maintenance. The Ditch Department also pulled numerous logs, trees, limbs, etc. from the South Fork.

The Leach Ditch was dipped to remove accumulated sediments and lower the water level for the field tile to properly function and provide the level of drainage intended by its original design.

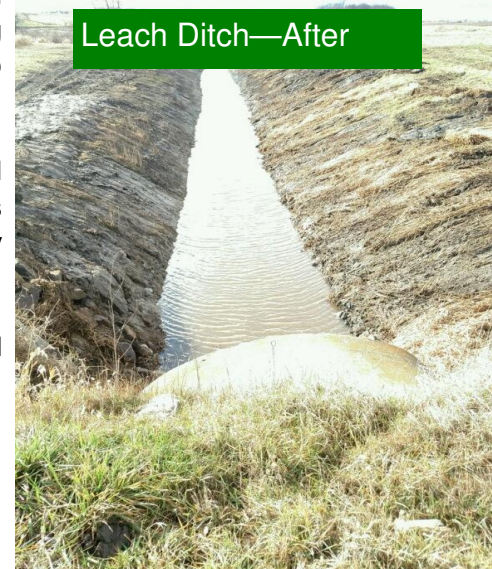
We have finished roadside and guardrail spraying for 2016. With the help of Arbor-Chem Products we have tried a new herbicide this year on select roads. The product used on roadsides is Opensight® which combines two active ingredients aminopyralid and metsulfuron-methyl. The combination of these two active herbicide ingredients provides broader season-long noxious weed control, with growth regulators, seed head suppression, and residual properties in one application. For weed control on guardrail we are using EsplAnade, a bare ground treatment with season long residual and no leaching properties.

The Traffic Department has been busy as well and have completed replacement of all the Top of Ohio Bikeway and Cardinal Trail bike route signs to high intensity. Total sign replacements for Jefferson, Miami, and Perry township have been completed as well.

We are currently performing a county wide traffic study which is completed every three years. The traffic data collected is used to support planning, engineering and operation activities for future projects in the county.

The Traffic Department also maintains over 6,800 signs countywide.

Thank you to **ALL** the guys for their hard work and safe work practices.



County's Two Historic Covered Bridges Undergo Rehabilitation

*By: Michael Kerns,
Assistant Engineer*

McColly Covered Bridge (LOG 13-1.56) and Bickham Covered Bridge (LOG 38-0.29) have been used for a litany of things over many, many years – from an impromptu storm shelter, to a wedding venue, and, yes, to transfer horse-drawn and automotive vehicles from one side of the Great Miami River to the other. To ensure the continued benefits of local residents and tourists and to help deter vandalism, these historically significant structures underwent a rehabilitation and restoration process that began last summer and finished in the fall.

Working in that time frame meant the contractor dealt with a range of weather conditions including high water that slightly delayed the rehab process on McColly, sweltering summer heat on both projects and temperatures dropping below freezing while finishing Bickham. Those bridges are quite familiar with Ohio weather as McColly was built in 1876 (the same year Alexander Graham Bell invented the telephone) and Bickham was built in 1877- combined they have been standing for an astounding 279 years!

On McColly, a single 135-foot span Howe through truss structure that is listed on the National Register of Historic Places, the renovation work included restaining the outside of the structure, application of a fire retardant paint to interior members, and installing interior aesthetic lighting. The total cost of the McColly project was \$168,533.75.

Bickham is a single span Howe through truss structure with a length of 106 feet and its rehabilitation included restaining the outside of the structure, application of a fire retardant paint to interior members, replacing several exterior siding pieces, installing interior aesthetic lighting, refurbishing the existing steel beams and installing a new timber deck. The total cost of this project was \$274,500.00.



As mentioned, both bridges are Howe through trusses, which was a truss design that allowed wooden structures to have longer spans at a time when steel was much more expensive - thus making the design a very popular choice for railroad bridges.

With a desire to preserve these bridges for the public to continue to use and enjoy, the Logan County Engineer's Office sought out and was awarded funding help through the National Historic Covered Bridge Program. This program funded 80 percent of the rehabilitation costs and the Logan County Engineer funded the other 20 percent. Please help keep these vital pieces of local history protected by being aware of these height restrictions on each bridge: 12'2" for Bickham and 12'8" for McColly. Unfortunately some drivers have repeatedly damaged each bridge by driving large vehicles (i.e. big box trucks) through the portal and hitting various sections of it, most notably the upper bracing members. When this happens, the County is forced to use valuable manpower and equipment to repair these unnecessary and disrespectful damages.

The primary contractor for the project was Brian Brother's Painting and Restoration out of Piqua and Thompson Electric of Bellefontaine performed the electrical and lighting work.

Pictures and more details of these projects will be available in the near future under the link 'Virtual Ribbon Cutting Ceremony for Covered Bridges' on the Logan County Engineer's website.



Sales Tax Funding Updates

By Todd Bumgardner
Administrative Coordinator

The Logan County Engineer's office continues to look for and receive both federal and state aid to supplement the local sales tax funding. Our road and bridge programs are fortunate that the taxpayers of Logan County have stood with us since 1998 in adopting a local sales tax. This local sales tax not only allows the county, townships and municipalities to maximize both federal and state funding but it also keeps the infrastructure projects going when federal and state sources are not as available. A year like 2016 illustrates how influential the local sales tax is for our roads and bridges. The 2016 projects listed below are possible because of Logan County residence through the local sales tax program:

1. \$66,638.85—Sign Upgrade—20% Logan Sales Tax Funded
2. \$5,912.46—Curve Sign Upgrade—20% Sales Tax Funded
3. \$2,000.00—Safety Study Software—20% Sales Tax Funded
4. \$493,855.60—2016 Township Chipseal—100% Sales Tax Funded
5. \$304,575.00—2016 Township Highway Resurfacing—100% Sales Tax Funded
6. \$1,276,637.45—2016 County Highway Resurfacing—100% Sales Tax Funded
7. \$41,254.20—2016 County Highway Preservation Treatment—100% Sales Tax Funded
8. \$113,892.25—2016 County Highway Preservation Treatment—100% Sales Tax Funded

With continued community support of the local sales tax the Logan County Highway Department and local Township governments to date in 2016 have committed \$2,245,124.76 in sales tax funds toward Logan County's transportation infrastructure.



Hazards of Hot Weather

Hot weather can lead to heat stress, heat exhaustion, or heat stroke. Heat illness can be caused by a combination of: Heat Exposure, High Humidity, Non-Breathing Synthetic Clothing, Not Drinking Enough Fluids to Replace Sweat, Body Heat, Not Being Acclimatized.

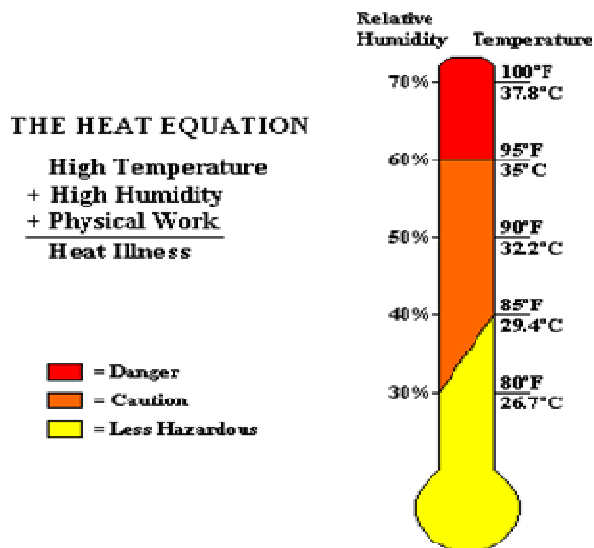
Heat Exhaustion is a dangerous illness.

Symptoms include:

- Extreme weakness or fatigue
- Dizziness confusion
- Nausea
- Clammy moist skin
- Pale or flushed complexion
- Slightly elevated body temperature

Heat exhaustion treatment includes resting in a cool, shaded place and drinking plenty of water.

Heat Stroke can cause hallucinations and death. Symptoms are red or spotted hot dry skin, no sweat, chills, high body temperature, mental confusion, and slurred speech. Call 911. Remove the victim to cool shaded area. Soak clothes with cool water. Fan the body and apply ice to bring down temperature.



Bridge Crew Update

*By: Dan McMillen
Bridge Superintendent*

The Bridge Crew have been busy this Spring with a major culvert replacement on C.R. 11-1.34, a project that began by tearing out a deteriorated concrete arch structure built in 1909. Due to the structure being so deep, extensive excavation was required and was one of the main challenges of the project. Excavation included digging a temporary channel to reroute the water to keep the installation site dry until the new structure, a precast concrete box that has a 9'-6" span by 9'-0" rise, was installed and its concrete aprons poured. Money was saved on fill by using asphalt grindings to cap the last foot to foot and a half with those grindings.

The crew has also removed log jams and sandbars on six (6) different structures on county roads. These road locations include: C.R. 117, C.R. 5, two areas on C.R. 101, C.R. 40 and Twp. Rd. 295.

In addition, ten bridges, along with their approaches, have been crack sealed to prevent moisture intrusion. This is done in an effort to protect the deck beyond its normal wear surface life cycle.

A small culvert on CR 153 (just east of Zanesfield) was rehabilitated by removing the crumbling concrete on the outlet side and then, on the same outlet side, a cast-in-place deck was installed on top of precast blocks that the County Highway Garage casted. These blocks were also used as the wing walls of the structure. The area was then regraded to ensure proper drainage and a safer roadway. Due to efficiency and good weather the project was completed two days ahead of schedule.

The Bridge Crew has also milled and waterproofed the following three box beam structures: T.R. 107-0.94, Twp Rd. 33-5.59, and T.R. 198-2.33. The material we used was PavePrep SA, which is a heavy duty, high strength geo composite self adhesive membrane used to waterproof pavement cracks and joints. This makes it an ideal material to use as we try to minimize bridge deck leakage in order to preserve the life of the structures.



C.R. 11-1.34