



The Orange Brigade



Winter 2013

Logan County Engineer's Office

Volume 41



Coleman's Comments

Greetings from your County Engineer:

2012 has been a very busy year and construction season for us. We have completed our largest resurfacing project ever covering 31 miles and costing over \$3 million dollars. 14,633 tons of this resurfacing included recycled ground tire rubber in the asphalt. We completed the construction of the first recycled thermoplastic bridge in Ohio this fall on the north side of the Lions Park in West Liberty. This is the longest span ever built for a thermoplastic bridge and it is only the second the second thermoplastic bridge built on a public road.

We continue to improve our efficiency by making changes to our processes during our chip-sealing program, adding to our treatment options for snow and ice control, and continuing to share services and resources with other agencies. We are combining resources and sharing services with many of the local governments. Our crews have performed roadside mowing, roadside spraying, sign inspections, painting railroad crossing warnings, setting back mailboxes, and culvert replacements for a few townships and saved them money while offsetting our costs. We painted parking lot striping for the temporary court building this fall. We continue to share our bucket truck and other equipment resources with the City of Bellefontaine as needed. We store and supply asphalt for the city of Bellefontaine and they store and supply us with salt brine and Beet Heet, beet molasses deicer

(http://www.ktechcoatings.com/winter_products). We are also able to obtain salt brine from the Ohio Department of Transportation garage in Bellefontaine and share equipment resources as needed. We continue to seek mutually beneficial opportunities to share services with local agencies. If you have an idea for additional shared services, please contact me at 937-592-2791.

Winter has certainly started significantly different from how last winter ended. During this fall through the end of 2012, we experienced 4 storm events totaling 13 days of snow and ice treatment. Through these events, we have

already used 468 tons of salt, 1,736 gallons of salt brine and 379 gallons of Beet Heet. We have had 758 hours of regular time and 697 hours of overtime during these snow events with a total labor, material, and equipment cost of \$165,838. Our first event was October 30 with 3 to 5 inches of snow as hurricane Sandy swept through Ohio. We experienced significant snow fall events, drifting snow, and cold weather from just before Christmas through the New Year. Please be cautious as you travel during winter weather. Changing temperatures can cause road conditions to rapidly change from wet to icy without warning. If you encounter icy road conditions, please report them to the Logan County Sheriff at 592-5731 so that they can notify the proper agency to respond.

We also continue to maximize our use of federal and state grant funds to leverage the local tax dollars. In 2012, we received a total of \$524,208 in grant funds. The grants funded sign upgrades, county paving, bridge 174-0.56, TR 201 widening, and bridge load ratings.

Sales tax revenue increased 15.6 percent in 2012 to a total revenue of \$2,722,568.23, which is the highest collection ever. Auto registration fee revenue increased almost 1.7% and state motor vehicle fuel tax revenue decreased by 0.8% in 2012. Both of these revenue sources had seen slight declines in 2011, so we will continue to monitor these revenues as fuel prices continue to fluctuate and we struggle to turn around our U.S. economy.

Sincerely,

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

Onion Ditch Bridge
AKA The Plastic Bridge
By Bryan Dhume
Assistant Engineer

Bridge 174-0.56 or more affectionately known as the Onion Ditch Bridge is located on Township Road 174 over Onion Ditch, next to Lions Park in West Liberty. This bridge is only the second recycled thermoplastic bridge to be built on a public road in the U.S. In 2010 we applied for a federal grant called the Innovative Bridge Research and Deployment Program (IBRD) to build this unique bridge. Among other things, the purpose of this program was to promote and evaluate the use of innovative construction materials and techniques in the construction of bridges. The Logan County Engineer's Office was successful in obtaining the grant funds, having submitted one of 16 successful applications in the U.S. in 2010, and the only one in Ohio. The amount of the grant was for 100% funding for engineering and materials up to a maximum of \$229,700. Engineering was done by Parsons Brinckerhoff, Inc. and the recycled thermoplastic material was manufactured and provided by Axion International, Inc.

To say that this was a challenging project would be the understatement of the year. Due to this being a new technology, proven construction techniques have not been developed. The bridge presented challenges to us every step of the way. While as a whole, the bridge is similar to timber construction, there are specific tools and techniques that are required due to the material properties. For example, because the thermoplastic comes from recycled material, there are random bits of aluminum and steel distributed throughout each structural piece. A special carbide tipped chain saw chain is needed to cut the material, and cobalt high speed drill bits were required to drill through the material. The saw chain we were prepared for, but the drill bits took a significant amount of trial and error before we found something that worked. Also, because this material is injected into molds at a high temperature, each structural piece, be it a board, pile, or beam was not a uniform shape due to shrinkage from the cooling process. This resulted in a significant amount of trimming and shimming required to fit everything together properly. Our crews successfully worked through these challenges and I believe the finished product is something that they and the residents of Logan County should be proud of. I sincerely appreciate the hard work and resourcefulness of our crews during this project. We started construction of the bridge in mid-October last year and it was opened to traffic in late December. Our crews will be back this winter to put the finishing touches on the guard-rail system and then again in the spring to lay the final course of asphalt.

One of the primary benefits of thermoplastic in this application is that it will not corrode, rot, or otherwise deteriorate. This combined with the hot-dipped galvanized and stainless steel fasteners that were used, should result in a bridge that will last much longer than a standard concrete or steel structure. We will continue to monitor and evaluate this bridge long term. Hopefully this technology progresses to the point where it becomes economical to use on a wider scale in the future.



Plastic Bridge Part II

By Dan McMillen
Bridge Superintendent

The Township Road 174 Bridge which everyone is now calling the Plastic Bridge has been completed and is open to traffic. This is the second thermoplastic bridge constructed in the United States and is the largest single span. This bridge is made of 100% recycle plastic. The use of recycled plastic kept over 100 tons of plastic material from going into landfills. The # 2 plastic milk jug, laundry detergent bottle, or plastic soda bottle that you recycled could possible have been used in the construction of this bridge. This bridge will require very little maintenance and will be around for many years to come. I am proud to have taken a part in this unique cutting edge materials project and to have the opportunity to work with a talented group of people. Without the team work of the bridge crew and other employees who assisted we would not have been able to successfully complete this world class project.

Scrap Tire Grant

By Harvey Grimes
Administrative Coordinator

The Logan County Commissioners signed a resolution in 2007 to become a Zero Waste community by 2020. As part of this plan, the Engineer's Office has placed a priority on recycling, reducing waste, reusing products and rethinking the way they purchase materials for projects. Logan County completed a grant project in 2008 using a scrap tire rubber asphalt mix and results are very good. We are committed to recycling scrap tires into a raw material based upon the evidence that it will provide improved rut and crack resistance and increase the longevity of our resurfacing and paving programs.

In 2012, we applied for and received another Scrap Tire Grant in the amount of \$150,000. This grant money was used to cover the \$14/ton added cost to pave using asphalt containing ground tire rubber. Approximately 22,000 scrap tires were used in the mix to pave portions of CR142, 26 and 20 using this enhanced asphalt. We will closely monitor the performance of this material to determine the value and benefits of the product.

Traffic Department Update

By Mark Hilty
Ditch/Traffic Superintendent

The Traffic Department had a very productive year in 2012 replacing 2,013 road signs as a part of our routine maintenance. We also replaced 71 signs due to vandalism or theft. A night-time sign reflectivity study was conducted on all of our signs in the county. Crews painted rail-road crossing and stop bar warnings on various county roads using the newly refurbished paint striper. The equipment was used to paint temporary traffic patterns on the CR 10 and CR 29 bridge projects which allowed work to be performed without closing the road to the public. This enabled us to significantly reduce paint which saved taxpayer's money. I want to thank the Traffic crew for all they did this year in making our roads safer.

Ditch Department Update

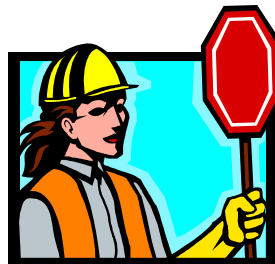
By Mark Hilty
Ditch/Traffic Superintendent

The Ditch Department in 2012 purchased two brand new John Deere Tractors for use in the mowing operations. In addition to mowing roadside and maintenance ditches this purchase allowed us to have a dedicated spray tractor with dual spray tanks. The spray tractor also is used to store Beet Heet which is used to pre-treat highways for winter snow and ice removal. In 2012 our crews performed roadside mowing and spraying for Lake Township and roadside spraying Bokescreek Township. I want to thank Brad Carnes for his fabrication work to prepare the new tractor for service and the Ditch crew for all of their hard work this year.

Signs R Us

By Todd Bumgardner
General Superintendent

The Logan County Highway Department has purchased a new sign truck. In recent years the sign maintenance program has been designated as a two person operation. With the purchase of the new truck it has become a one person program. The new 2012 Ford F550 truck is equipped with a crane, sign storage, power inverter, computer, and working platform which allows for a safe one person operation. The truck was designed by Mark Hilty (Traffic Superintendent) and Mark Dearwester (Routemarker) and was a year in the making. The truck allows Mark Dearwester to maintain the county's inventory of over 6000 signs with little assistance. Thanks to Mark and Mark for the forethought of streamlining the Logan County sign operation. GREAT WORK!!!



Winter Maintenance
By Joel Miracle
Highway Superintendent

During the December 2012 snowfall, the road crews battling the elements used a performance deicer called "Beet Heet". This deicer is a precisely formulated blend of sugar, from the beet plants, and chlorides mixed together to make a pre-wetting agent that is applied to the highways prior to the snowfall. This deicing agent helps prevent hard packing of snow and ice on the roadways. In addition to using this material to pre-treat the roads it is sprayed over the mixed grit that comes out of the spreaders on the snow plows. The beet heet mixture activates the salt melting procedure more quickly and works in colder temperatures. This combination allows us to use smaller amounts of stone grit which reduces costs. Everyone is reminded for your safety and the truck driver's safety to please stay back at least 500 feet from a snow plow that is working on snow removal.

Employee Safety
By Todd Bumgardner
General Superintendent

Late summer brought an end to our record of over three (3) years without a work related injury. The first was a hand laceration and the second was a slip, trip, and fall. Both accidents were preventable and remind us that basic safety can never be overlooked. We have started toward what we hope is a new record which currently stands at 81 days. A special thanks to Jeremy Burrey, Mark Hilty, Dan McMillen, Scott Coleman, and the Logan County Cooperative who have presented at our monthly safety meetings since our last newsletter. Even though our Safety Days record has ended, I want to thank all of our employees who have recommitted themselves and are continuing to be more involved with the safety program each month.

Christmas Giving

Employees of the Logan County Engineer's Office "adopted" two families to help them have a Merry Christmas. Through the generosity of our employees two families with a total of four children ages 3-15 were given gifts ranging from toys to clothes. Each family was also presented food for a meal.

Employee Update

In December the following employees were presented certificates recognizing their outstanding attendance **Kip Jenkins, Greg Kennaw, Mark Dearwester, Mark Hilty, and Suzie Yoesting**

Service awards were presented to **Shirley Brunke 30 years, Jon Hines 25 years, Brian Coleman 15 years, Mark Hilty 15 years, Keith Price 15 years, Mark Dearwester 10 years, and Greg Swonguer 10 years.**

CONGRADULATIONS!

Retirements

John Berry, Head Mechanic, retired on July 31, 2012 after 30 years of service with the Engineer's office. All of us at the LCEO want to thank John for his many years of dedicated service. His ability to keep the equipment running enabled us to better serve the public.

On December 31 two long service employees of the LCEO elected to retire **Shirley Brunke**, Accounting Clerk II, with 30 years of service and **Curt Dill**, Chief Deputy Surveyor, with 33 years of service. Their retirements were of a very short duration as they both have been rehired by the LCEO. Congratulations on your retirements and welcome back.

