2014 AUGLAIZE COUNTY ENGINEER'S ANNUAL REPORT

By: Douglas Reinhart, P.E., P.S., Auglaize County Engineer

To the Board of Auglaize County Commissioners

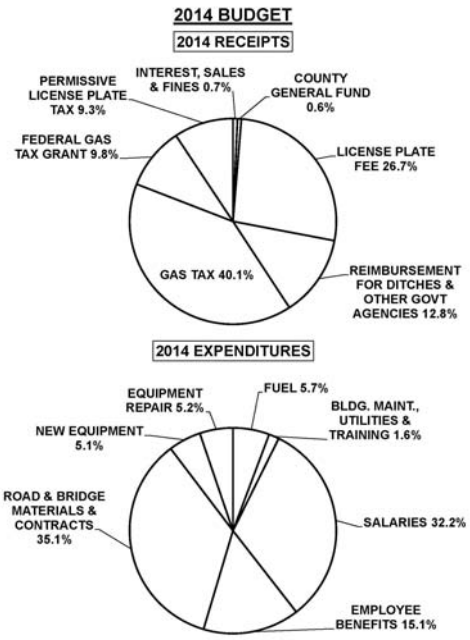
One of the numerous mandates within the Ohio Revised code is for the County Engineer to provide to the County Commissioners a status of the infrastructure under the Engineer's jurisdiction. This is my 31st annual report and I have never felt as though it was a mandate, but instead, a duty of the County Engineer to report to the Commissioners and citizens of Auglaize County what was accomplished over the past year with those tax dollars dedicated to this department. 2014 was a struggle considering the costly winter and limited funds. However you will find in this report the multitude of projects completed by the Highway Department and the costs associated with those improvements.

A special "Thank You" goes out to the employees who completed not only a large quantity of work, but quality of work also. As in year's past, their efforts made me look good yet again. A second "Thank You" goes to the citizens in this county who have provided full cooperation and faith in letting us complete projects along their front yards and in and along their farm fields. That truly makes our job easier with the final product being a much safer roadway for the traveling public.

The winter of 2013/2014 was one of those "good old winters" and I hope we don't experience another for quite some time. The first event where trucks were dispatched was November 12th with the last being March 29th. For the entire month of January we didn't have a day that exceeded 32°. We had to dispatch trucks almost every weekend resulting in having the total number of overtime hours exceeding time spent during regular hours. Compounding the higher than normal costs of salt/beet juice, diesel fuel, overtime resulted in a record low paving program. Because income has lagged far behind construction inflation the department completed several projects for other governmental agencies to create extra income in an attempt to fill the funding gap. The budget was supplemented with federal grants for a guardrail project and the St. Marys River Bridge over Old Mill Road north of St. Marys near the Con-Ag quarry. Even with limited funding, 2014 was a very busy and successful year.

The end of 2014 saw the retirement of three employees with a combined 114 years of service. (L to R in the photo: Bill Piehl, Bridge Supt.; Dan Bennett, Bridge Engineer; Richard Miller, Road Supt. These three gentlemen were vital to the success of this department over the past several decades. They were one of the first to show up to work and one of the last to leave. Their work ethic was impeccable and they strove not only to produce a quantity of work, but quality also. Special thanks to each of them for their efforts and the best of luck in their retirement. Bill Piehl began his service with the highway department in 1984 and was assigned to the bridge crew. He became bridge superintendent in 1987 and held that position until his retirement. Bill was instrumental in the modernization and quality control of the county's manufacturing of bridge components and three-sided concrete boxes. During his tenure over 200 structures were replaced or rehabilitated. Dan Bennett retired with 41 ½ years of services and was named County Bridge Engineer in 1973 after his graduation from Ohio Northern University. Dan is just one of 900 persons in the State of the Ohio who has both a Professional Engineering and Professional surveying license. Dan has surveyed, designed and overseen the replacement or rehabilitation of 289 bridges in Auglaize County. He also annually inspected and rated all 350 bridges and performed a very laborious federally mandated analysis of each structure. Just a few of Dan's other duties include the updating of the County's highway map, digitizing the road right-of-way records and was considered by the staff as this office's "historian". Richard Miller began his service with the department in 1973 and was assigned to the road crew. He became the road superintendent in 1988 and held that position since that time. During his tenure has seen all the county roadways resurfaced at least twice and oversaw the application of over 3.2 million gallons of liquid asphalt and 110,000 tons of stone in the sealing program. The number of roadway safety improvements he has been involved in are too numerous to mention. As Superintendent, he would not only schedule and coordinate projects, but be seen wielding a shovel or running a piece of equipment in order to complete the project properly and on time.

On Sunday afternoon, March 23rd an open house was held at the county garage to show the public our facilities, equipment, bridge component manufacturing, sign making capabilities and snow/ice control operations. The event was well attended with children, parents and grandparents all getting a chance to set in the seat of the construction equipment and snow plow trucks.



BUDGET ITEMS TO NOTE

RECEIPTS

A. Federal Gas Tax grants were obtained in 2014 and paid for 95% of the St. Marys River Bridge near the Con Ag quarry and 100% of a 1.2 mile guardrail project.

B. To help overcome the funding shortfall, 12.8% of the income was derived from work completed on 300+ miles maintenance ditches and construction projects completed for townships and villages.

C. According to the US Dept. of Labor CPI Inflation calculator for construction, this departments income from license plate fees and gasoline taxes for 2014, had $ 766,000 less buying power than what was received in 2006.

EXPENDITURES

A. One dump truck per year is planned for replacement out of the fleet of 18. A tandem truck, equipped with a snow plow and salt spreader now cost $142,000.

B. The last time an engineering consultant was hired for a roadway, bridge or drainage project was 1976.

C. Versus 30 years ago, the department is now working with 15% less employees.

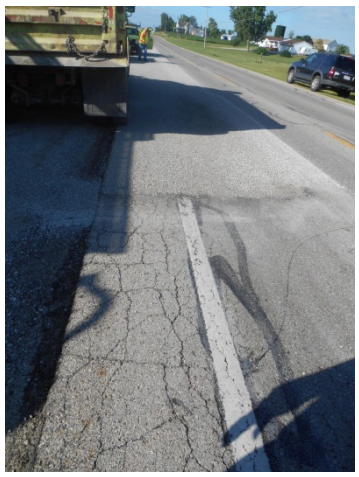
D. The price of hotmix asphalt from 2006 to 2014 escalated from $ 47.50/ton to $80.50/ton, a 70% increase.

2014 ROADWAY IMPROVEMENTS

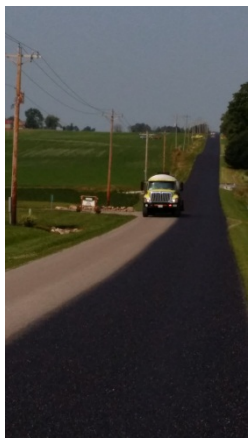
With the increase in construction inflation and snow/ice control costs combined with the decrease of funding, only two miles of the County's 350 mile system was resurfaced with hotmix in 2014. When the fees, dedicated for road and bridge improvements, were increased on license plates in 1990, the price of hotmix in place was $22.50 per ton. As a result, this department resurfaced an average of 36 miles per year during the decade of the 90's. This year's bid was $80.50/ton for the two mile Glynwood Road project resulting in a price tag of $191,625. Special thanks to the City of Wapakoneta for paying 35% of the bill due to the fact portions of the project was within the city limits.

To dedicate all of our resources into a hotmix program would have resulted in possibly 10 miles being resurfaced (a 35 year rotation) and then $0.00 left to maintain the other 340 miles of county maintained roads. Such a mindset would result in an overall degradation of the entire road system. A multi-facetted program of maintenance practices is detailed in this report in an attempt to keep our roadways "pothole free" until funding can be found to jumpstart the hotmix resurfacing program again.

SNOW AND ICE CONTROL: Trucks were dispatched for 45 different snow and ice events and applied 3,500 tons of a 1:1 mix of salt and #9 limestone. Added to the mix was 17,100 gallons of beet juice used to assist in cutting packed snow and ice at temperatures well below freezing (which was experienced throughout the winter). By the fact we were plowing almost every weekend, overtime hours (2,712) exceeded regular working hours (2,635). The 15 dump trucks consumed 24,070 gallons of diesel fuel bringing the total cost for snow/ice control for the winter to $ 293,100.



The photo to the left shows an excellent example of how the chip-seal program seals the alligator type cracking in the pavement and provides a new wearing surface thus extending life of the pavement for several years. The photo to the right is an additional "fog seal" applied to all the roads that were chip sealed with liquid asphalt and #8 limestone. The fog seal is a diluted solution of liquid asphalt that provides an additional sealant to the surface which assists in preventing the penetration of water into the sub-base.



CHIP AND SEAL PROGRAM: This maintenance practice can extend the life of a pavement 8-10 years by applying a layer of liquid asphalt followed by a layer of #8 limestone A total of 23 miles were full sealed with an additional 22.5 miles strip sealed. A total of 164,300 gallons of liquid asphalt and 5,525 tons of stone were applied in the program with a material cost of $360,845. The follow up fog seal application with 28,700 gallons of liquid asphalt had a material cost of $41,627.

CRACK-SEALING: Another tool to the prevention of water entering the asphalt surface is the application of a polymerized asphalt that is heated to over 300° and squeegeed into the cracks after they have been blow clean of debris with an air compressor (right photo) . This is a very labor intensive program but yields outstanding long term benefits. During 2014 crews applied a total of 17,650# at a material cost of $ 8,110.

ROADSIDE DRAINAGE: In the ongoing effort to replace century old deteriorated storm sewers, crews in 2014 installed 390 feet of reinforced concrete pipe through the roadway, 8,305 feet of smooth walled polyethylene plastic pipe within the road right-of-way along with placement of 75 new catch basins to provide for surface water inlets to the pipe.

PAVEMENT STABILIZATION: A "dura-patcher" is a unit that has a 250 gallon tank that heats liquid asphalt to 150° and then adds #8 limestone as it is sprayed out of the wand. It is best on areas of severely deteriorated pavements and potholes. In 2014 a total of 8,700 gallons of liquid asphalt and 218 tons of stone were applied throughout the county.

TRASH PICKUP: For the past 40+ years, this department has hired the services of youth groups to clean up our roadsides in the spring. Special thanks to the following groups who picked up 3.68 tons of trash: Wapak Redskins Youth Baseball; Boy Scout Troop #9; Git-R-Done 4-H Club; Boy Scout Troop #44; Pilgrim Holiness Church Youth; Fryburg Happy Farmers 4-H Club; Kossuth Gleaners 4-H Club; Unleashed Youth Ministries.

County crews installed storm sewers in the sideditches of Amsterdam Road east of SR# 66 (above photo) and then placed several hundred yards of dirt in order to build safety shoulders and eliminate the steep sideditch slopes. Special THANKS to Crown Control for purchasing the piping necessary to enclose the ditch along their property.

The above photo shows our crews placing hotmix over the 25A box culvert replacement. Having the paver and rollers allows us to open the roadways soon after the bridge/culvert installation and not wait for scheduling with independent contractors. In 2014 our employees placed 832 tons of hotmix on numerous bridge/culvert and safety improvements.

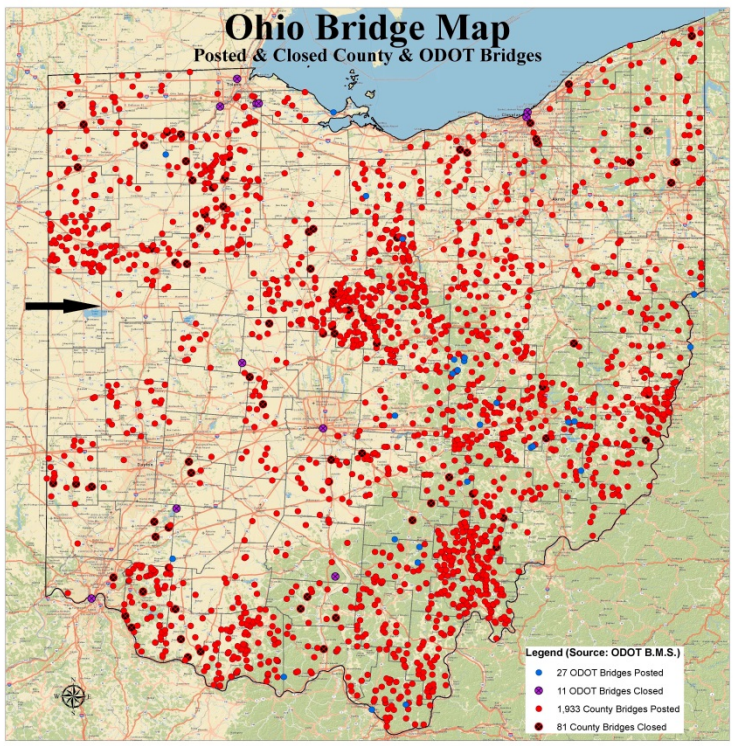
In order to fill some of the funding gap, our staff was "hired" by the Village of New Bremen in 2014 to install storm sewers at two different locations along with the placement of 1006 tons of rip-rap for erosion control of the drainage channel. The above photo shows the replacing of 530' of a substandard storm sewer just west of SR#66. The below photo is the installation of 528' of storm sewer with manholes in the Bunker Hill Industrial Park west of town.

2014 BRIDGE AND CULVERT IMPROVEMENTS

As we end 2014, none of the 350 bridges under this department's jurisdiction have posted load limit restrictions. The reason for our success is the aggressive program of casting our own concrete boxes and bridge beams, and constructing all the bridges with our own forces and equipment as allowed by the Ohio General Assembly. All of the bridge design and inspection (including federal aid projects) has also been completed with our staff. The last time an outside consultant was hired to design a bridge for this department was 1976. The dollars saved by not hiring contractors or engineers, have been kept in the budget to build additional bridges. Contractors have accused us of having far too many expensive pieces of equipment for a county agency. With that I completed a 30 year study of all equipment purchased and used in our bridge/culvert program, (including trucks, pumps, forms, etc.) and divided that total by the number of bridges and large culverts replaced over that same period of time. The cost per structure to own that equipment was under $3,000.

One unique project this year was the installation of a three-sided concrete box on CR25A that had the ability to safely support a 250 ton load. The G. A. Wintzer rendering plant south of Wapak has in the past the need for a superload "cooker" to be delivered from a rail site in Shelby County. In order to allow a safe and timely delivery for future needs, the engineering staff and bridge crew accepted the challenge and designed, manufactured and installed such a structure (above and below photos) replacing a 60+ year old bridge that had recently been exhibiting poor evaluations. A specially designed reinforcing cage plus 7,000 psi concrete achieved the needed strength to carry the next half million pound transport. A second such box is planned for 2015 on CR 25A just south of the City of Wapakoneta's Industrial Park.

In a cooperative agreement with Mike Smith, Hardin County Engineer, our crews replaced a two span structure on the Auglaize/Hardin County line over the Scioto River. 14" deep floor beams cast earlier in February at our garage were used (see photo below) on both spans. In order to achieve the needed design capacity, a 6" monolithic concrete top was then poured over the entire deck. The Ohio General Assembly has mandated a limit on the amount of work ($100,000) a county can perform on building a bridge. This particular structure stayed just under that threshold. Any larger structures have to be bid, regardless of our ability to construct such a bridge.



County Engineer's across Ohio are responsible for 26,836 bridges. The adjacent map was developed to show the need for additional funding for bridges statewide. Based upon the size of this report, this photo is rather small. The red dots represent 1,933 bridges maintained by counties that have load limit restrictions and the black dots represent 81 county bridges that are closed. The black arrow points out the location of Auglaize County. We have one "red dot" which is the structure on the St. Marys Kossuth Road. This map was developed two years ago and since then this bridge has been replaced. Auglaize County now has no "red dots".

2014 STRUCTURES REPLACED

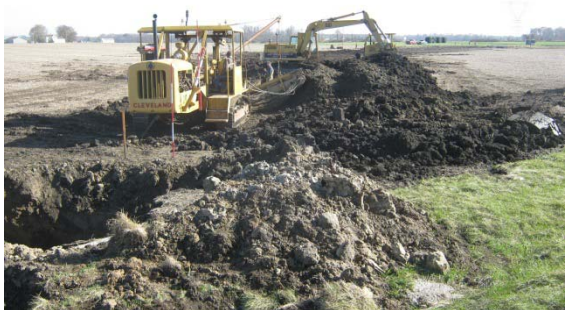
Location/Road	Description/Span/Length	Cost
COUNTY MANUFACTURED FLOOR BEAMS		
Deep Cut Road	Replace 31' span with 20" deep beams, floor only	$ 39,867
Campbell Road	Replace 15' span, rehab. Abutments	$ 34,472
Hardin County Line	Complete Replacement of 47' Two span	$ 98,443
Lock Two Road	Replace 31' span with 20" deep beams, floor only	$ 51,951
COUNTY MANUFACTURED 3-SIDED BOX CULVERTS		
CR 25A South	80 lin. ft. of 16' x 7' OPENING (Superload)	$ 98,517
Santa Fe Knoxville E/25A	48 lin. ft. of 14' x 7' OPENING	$ 50,762
Santa Fe Knoxville @ Pusheta Creek	60' OF 10' x 7' OPENING	$ 52,582
CONTRACT PROJECT WITH FEDERAL AID FUNDING		
Old Mill Road over St. Marys River	107' span deck replacement and pier rehab.	$471,729
BRIDGE DECK REHABILITATION		
Deep Cut over Canal	Complete replacement of steel truss deck(OPWC Loan)	$158,648
Five other bridges had decks rehabilitated and waterproofed and resurfaced		$ 64,500

The above left photo shows the county bridge crew placing concrete within the corrugations of the galvanized bridge decking prior to the paving overlay on the Deep Cut Bridge over the Miami and Erie Canal. The rehabilitation of this truss consisted of complete removal of the deck, floor beams and stringers which were replaced with galvanized members. Upper right photo depicts what the "yard" at the garage looks like prior to the beginning of a construction season.

FEDERAL AID PROJECTS

In an attempt to fill the funding gap, federal gas tax grants for road/bridge/safety projects are continually applied for. Due to the statewide need for extra infrastructure funding, there is major competition between other governmental agencies for these limited funds. A road or bridge projects often times takes five to six years from the initial programming to construction. Upper left photo is the $99,588 guardrail project (100% funded) where 1 ¼ mile was installed along Glynwood Road adjacent to the Auglaize River and along CR66A where the road runs parallel to the St. Marys River. Top right photo shows a new superstructure being placed on Old Mill Road Bridge over the St. Marys River at the Con Ag Stone Quarry. The $471,729 project received a 95% federal gas tax grant.

2014 PETITIONED DRAINAGE IMPROVEMENTS



The engineering staff experienced a very busy year with the installation of six petitioned ditch projects. The prior year was spent holding the public hearings, completing the survey and design, assessment determination and bidding. A total of 20,400' (3.9 miles) of large diameter subsurface tile mains were installed for an assessed total of $ 472,959. Upper left photo is the Cummins Ditch located in Goshen Township near the intersection of Campbell Road and SR# 385. The Huebner Ditch (upper right) is located four miles southeast of Wapakoneta. The photo shows the extra excavation needed for that installation due to tile depths in excess of nine feet.

NAME	LOCATION	LENGTH/DIAMETER	COST
Cummins	Goshen Twp. @ Campbell Rd.	5,200' of 8"-18" tile	$ 101,303
Dearbaugh	Clay Twp. 3 miles south/SR#33	2,600' of 24" tile	$ 80,350
Huebner	4 miles SE of Wapak	5,700' of 18"-24" tile	$ 179,853
Mackenbaugh	½ mile North of St. Marys on 66A	800' of 8" tile	$ 13,555
Wheeler	North side Grand Lake St. Marys	1,900' of 12"-15" tile	$ 33,222
Gutman#3	Clay Twp. Crossing SR#65	4,200' of 10"-15" tile	$ 64,976

Upper left photo is Cy Schwieterman Inc. installing a 24" subsurface polyethylene tile on the Dearbaugh Ditch replacing a deteriorated century old 18" diameter clay tile. The Auglaize River logjam removal project moved forward in 2014 (upper right photo). By the end of the year the contractor had cleaned 38 miles of channel from the Allen/Putnam County line upstream and through the City of Wapakoneta. Due to an excellent bid received for the jams, the Joint Board of County Commissioners let a second bid for the removal of an estimated 8,000 dead ash trees lining the banks of the river which will create potentially new jams.

EMPLOYEE ACHIEVEMENTS

In February, Fred Wierwille (above) retired from the Sanitary Department with over 36 years of service to Auglaize County. Fred's duty was to oversee the daily operations of 11 sewer districts, seven treatment plants and assisting homeowners with questions and concerns. Special "Thanks" to Fred for all his efforts and best wishes for a happy and long retirement.

(Above photo L to R: Scott Sidener, Nick Piehl, Chad Kohlrieser, Mike Bowersock, Mike Schmerge) Annually a snow plow rodeo is held with several counties participating. As in the past, several awards were brought home in recognition of their skills. Sidener took 1st in the skid loader competition, Schmerge received 1st place individual and Kohlrieser garnered 2nd. Kohlrieser won 1st place in the backhoe competition and a 2nd place was won in the snow plow team event by Schmerge, Kohlrieser, Bowersock and Piehl.

Past annual reports have failed to recognize the efforts of the men in the "shop". Howard Bair, chief mechanic is just one in particular. The hoppers used to blend our salt and stone for snow control has had over 89,000 tons of material ran through them since 1996 and the salt hopper finally rusted through. Instead of purchasing a new hopper, Howard built one out of stainless steel for $16,000 less than what the manufacturer wanted for a mild steel bin.