

2016 AUGLAIZE COUNTY ENGINEER'S ANNUAL REPORT

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Auglaize County Engineer

One of the many mandates of the Ohio Revised Code that an Ohio County Engineer has to adhere to is the publishing of an annual report to the Commissioners outlining the general condition of the roads and bridges in their county. I feel it's important this report be compiled regardless of the mandate for the following reasons: The taxpayers of Auglaize County need to see where and how their tax dollars are being spent; they can associate a cost to the improvements they have witnessed as they travel the county roadways; each report sets a benchmark for this department's achievements so we can strive to be more efficient and statistically outperform prior years performances.

Special "THANKS" to all my employees for their efforts during 2016 and making me look good once again. We have a very skilled workforce with an excellent work ethic. Thanks also to all the landowners who owned ground adjacent to our projects. Their cooperation allowed us to use their property (many times outside the road right-of-way), aided in completing of our goals safely and efficiently.

MILD WINTER AIDS CONTRUCTION PROJECTS

The winter of 2015/16 was the mildest since I have been in office. We did not dispatch our first truck of the season until January 4th of 2016. Normally snow events in mid-November require plows to be sent out and our records show even a few times in late October. We ended that winter by using just 48 % of our estimated salt and were able to store the excess in the old ODOT salt shed which is now within our complex. Savings were realized also in sand used in the 1:1 salt/sand blend, fuel, overtime and wear on the equipment. The dollars saved were then moved into purchasing additional materials for the much needed sealing and paving programs.

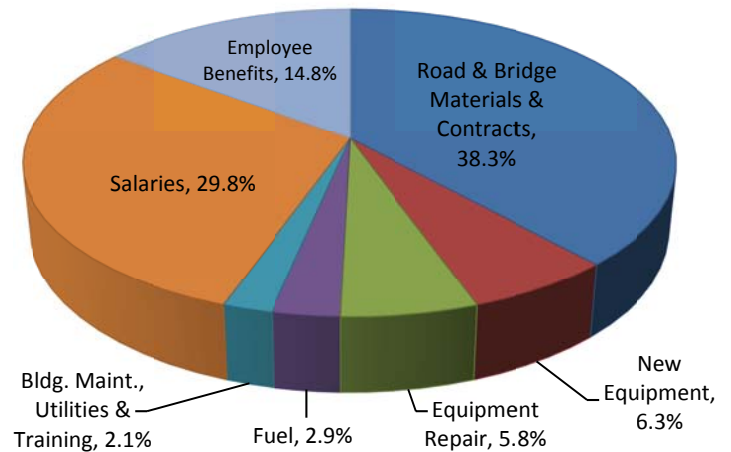
However, the ice storm of December 17-18, 2016 created one of the most challenging and costliest events during my tenure. Rainfall on top of the frozen pavement created a very thick layer of ice that virtually immobilized our fleet of 15 trucks. The only way our drivers could move through a banked curve or climb even the slightest hill, was to drive backwards and spread sand/salt so they could get traction. Every truck at some point still slid off the roadway. It took as long as 6-7 hours for a truck to make one pass on their route when normally a complete round on both sides of the road takes 2 ½ hours. A total of 940 tons of salt/sand was applied that day which represents 58% of the total used the entire prior winter.



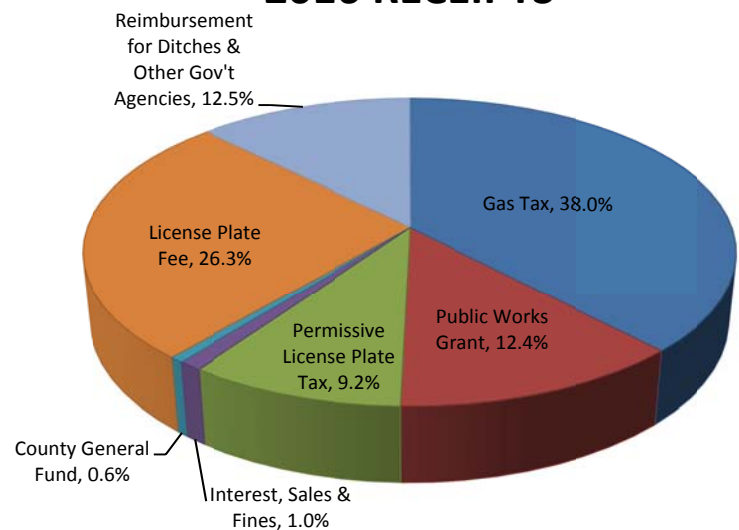
Andrew Baumer, P.E., S.I. has been appointed to the position of Assistant County Engineer for Auglaize County. Andrew is a 2012 graduate of Ohio Northern University with a degree in Civil Engineering and has

been employed by the Auglaize County Engineer's Office since that time. He has been holding the position of Bridge Engineer since 2015. Andrew recently passed his second Ohio Professional Engineer's board exam and has obtained his Ohio Professional Engineer's License. He has passed one state board exam in surveying and is currently in an apprenticeship for his Professional Surveying license. Andrew and his wife Ellen, reside in Minster.

2016 BUDGET 2016 EXPENDITURES



2016 RECEIPTS



2016 BUDGET ITEMS TO NOTE

Expenditures

- Due to a mild winter and diesel fuel hovering around \$2.00/gallon, fuel costs amounted to only 2.9% of the budget which is approximately half of what was experienced just a few years ago.
- In order to maintain a fleet of 17 trucks for snow and ice control along with the construction equipment needed to perform all the projects listed in this report 12.1% of the budget was expended for new equipment (6.3%) and repairs (5.8%). Purchasing just one new dump truck a year (with snow plow and salt spreader) impacts the budget by over \$170,000.
- While income has remained stagnated over the past 10 years, hotmix asphalt has increased 64% and concrete 26%, aggregate 87%, and salt 26%.

Receipts

- The 2016 road and bridge improvements outlined in this report were greatly impacted by the savings made over the prior winter and a \$760,000 grant from the Ohio Public Works Commission (OPWC) dedicated towards the paving program. Unfortunately, because of the competition for the OPWC funding, these grants are only available every four years ±.
- Since 2006, license plate revenues have increased 5.2%. The last time plate fees were increased for road/bridge improvements in Auglaize County was 1991. Gasoline tax income has increased less than 1% (0.7%) since 2006.
- The added 12.5% income from work performed on permanent maintenance ditches and road construction projects for townships has been essential in attempting to keep up with the inflation costs of materials. Without those extra dollars, this department's road/bridge programs and snow/ice removal efforts would suffer.

2016 ROADWAY IMPROVEMENTS

The quantity of 2016's roadway improvements were greatly enhanced due to the \$760,000 Ohio Public Works Grant helping fund the hotmix resurfacing program along with the savings realized from the mild winter of 2015/16. This grant allowed funds to be shifted to much needed maintenance needs such as chip/seal, dura-patching, crack sealing and roadway drainage improvements. However, because of the construction inflation seen over the past decade the \$1,014,244 paving program was only able to resurface just 15.6 miles of county roads with hotmix. This may appear to be a very adequate number but this department is responsible for 350 miles, The 15.6 miles paved this year equates to a 22 year cycle (350/15.6) and that which is far from the 12-15 year paving rotation necessary to maintain the integrity of a roadway. Without grant dollars, I am anticipating the 2017 paving program to be just a handful of miles. Without increased funding to overcome recent construction inflation, the condition of Auglaize County's roadways will continue to deteriorate even with an aggressive maintenance program.

2016 RESURFACING PROGRAM

Road Name	Length	Location	Tons/Hotmix	Cost
Buckland Holden	3.23	SR# 196 to SR#117	2,590	\$ 202,088
Quellhorst	0.20	Aqueduct to SR# 66	174	\$ 13,615
CR#66A	1.0	Southland to Clover Four	822	\$ 63,689
Minster Ft. Recovery	3.54	Minster to Mercer Line	2,761	\$ 216,759
Infirmery	0.8	Wapak Cridersville to 25A	641	\$ 51,744
Glynwood Road	2.07	Buckland River to Main St.	1,738	\$ 137,918
Glynwood Road	1.0	Moulton Ft. Amanda West	818	\$ 63,719
Moulton Ft. Amanda	1.5	CR#33A to Glynwood	1,478	\$ 124,706
Glynwood Knoxville	2.25	Glynwood to Rapp	1,787	\$ 140,006
	15.6 Miles		12,809 Tons	\$1,014,244

CHIP AND SEAL PROGRAM: County Crews applied a total of 160,464 gallons of liquid asphalt emulsion and 4,371 tons of cover aggregate on 45.1 miles of county roadways. 24.1 miles were full sealed and 20.4 miles were then strip sealed where only the pavement edge was treated. The chip seal application was then followed up by 23,650 gallons of black fog seal which enhances the sealing of the cracks, eliminates any loose stone and dust. Total program material cost was \$314,458 with a mile of full seal impacting the budget by \$10,050. One mile of resurfacing with hotmix is over \$63,000.



ROADWAY DRAINAGE: During 2016, 48 roadway crossings were made by county crews along with numerous parallel storm sewer replacements using a total of 760 feet of reinforced concrete pipe and 5,995 feet of plastic pipe replacing century old storm sewers. 55 catch basin receivers were also installed to allow the stormwater to enter the subsurface sewers. Prior to the resurfacing of Minster Ft. Recovery Road, a total of 13 road crossings (left photo) were completed using 600' of new storm sewer along with the installation of 15 new catch basins.

PAVEMENT REPAIR: As the miles of roadway resurfacing declines, locations for pavement repair are on the increase. 23,650# of crack sealant was applied at various locations throughout the county. This material is heated to 300° and then squeegeed into the cracks. Another type of pavement repair heavily utilized was the application of a combination of liquid asphalt and aggregate with a machine called a "dura-patcher" (right photo). A total of 11,700 gallons of liquid asphalt and 292 tons of aggregate were applied in making repairs.



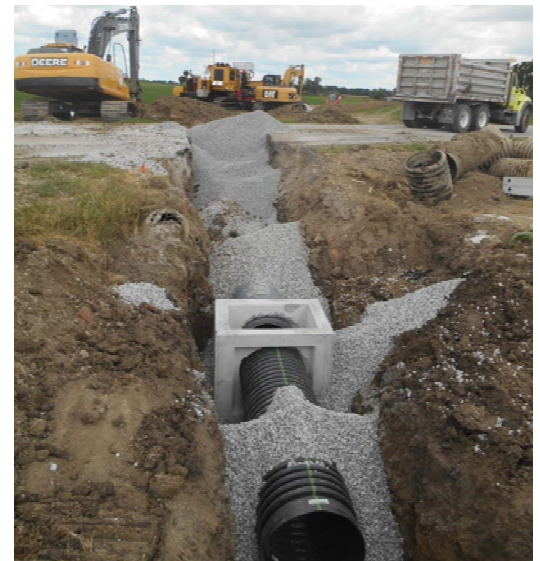
ASH TREE REMOVAL: With the cooperation of adjacent landowners this department has aggressively removed dead ash trees that are within or near the road right-of-ways when there is a window between road projects and snow/ice control. 350 miles of roadways equates to 700 lineal miles of right-of-way with the possibility of dead ash existing. Hundreds of trees have been removed and I'm sure more will need addressed.



At several locations throughout the county where heavy truck traffic is prevalent, near intersections "slides" occur when the top layer of pavement releases and moves. The repairs are not simple and are expensive to make. First step is to mill off the first layer plus part way into the second layer of asphalt (above photo). Second step is to place a woven fabric in the milled area, "tack" the fabric down with a liquid asphalt (below photo) and then fill the trench with a special asphalt mix for heavy loadings. Four intersection repairs on Glynwood and Buckland Holden roads cost over \$ 28,500.



When a petitioned tile line passes through a county maintained roadway, this department completes the road crossing with catch basins as a part of the "County's" contribution to the project. Shown below is a 24" diameter tile where the Doenges #2 Ditch crosses the Southland Road south of St. Marys.



County Crews placed 3,026 tons of berm stone (below photo) following this year's hotmix program.





In preparation for the 2016 construction season, at the county garage over 400 cubic yards of concrete was used to cast concrete bridge beams up to 33' in length along with 3-sided boxes. The above photo shows the beams being poured for the East Shelby bridge. This deck replacement was the 178th set of bridge beams manufactured by this department since the program began in 1967. The photo below is the paving crew placing the asphalt over the waterproofing membrane prior to opening the roadway.

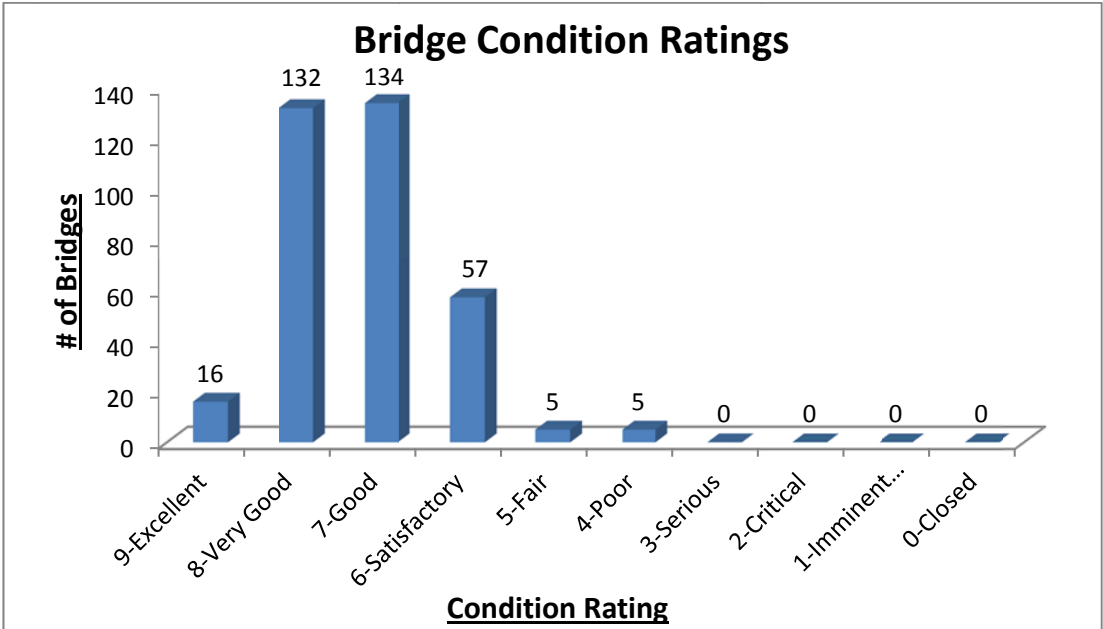


“H” piling is driven (above photo) approximately 28' deep to provide the support for the Greenville Road bridge. Below photo shows the county beams being set on the finished abutment walls. A concrete floor was poured to maintain the openings for the subsurface tile draining the adjacent fields.



BRIDGES AND CULVERTS

County Engineers across Ohio are responsible for 26,900 bridges located on county and township roadways. Currently 5,729 (21% or one in every five) of these bridges are rated either Functionally Obsolete (FO) or Structurally Deficient (SD). Many of these are posted with load limit restrictions. By the end of 2016 Auglaize County has a total of 349 bridges with just nine structures (2.6%) falling into these categories. None of those nine currently have load carrying restrictions with six being either rehabilitated or replaced in the next few years. The chart below depicts the condition rating for Auglaize County bridges. Federal gas tax funding has been used for the large \$ 1+ million dollar river bridge replacements but that funding is very competitive across Ohio with the fact that 21% of County bridges statewide have issues. Once an application for federal funding has been accepted, it then takes six years to survey, design and program according to strict federal regulations before the bridge finally goes to construction. Ohio Public Works grants/loans also provide much needed funding but those dollars are not only in competition with the other 87 counties, but every city, village and township in the State of Ohio are also vying for those dollars. Construction inflation has far outpaced income with the last gas tax increase occurring over 10 years ago and license plate increases for road/bridge improvements last happened a quarter century ago (1991). As stated before, there are currently no bridges with load restrictions in Auglaize County but without increased funds to keep pace with construction inflation, postings may become common place.



2016 BRIDGE AND CULVERT REPLACEMENTS

Location (Road)	Description/Span/Length	Cost*
COUNTY MANUFACTURED CONCRETE BEAMS		
East Shelby	23' Span – replaced deck and rehab walls	\$ 32,133
Bremen Knoxville	24' Span – replace one outside beam (accident)	\$ 8,200
Greenville Road	25' Span – Entire bridge with headwall & floor	\$ 78,368
COUNTY MANUFACTURED 3-SIDED BOXES		
Townline Lima North of Sellers	44' of 10' x 7' Box	\$ 38,922
Moulton Ft. Amanda North of Kelly	44' of 10' x 3' Box with floor	\$ 35,225
Moulton Ft. Amanda North of Rapp	40' of 10' x 3' Box with floor	\$ 36,995
PURCHASED PRETRESSED CONCRETE BEAMS		
Glynwood East of Glynwood Knox.	49' beams and rehab walls	\$118,972
Gutman Rd. East of Ashburn	37' beams and rehab walls	\$ 78,475
Southland West of Bay	36' beams – replaced outside beams only	\$ 40,331
LARGE DIAMETER CULVERTS		
Greenville Rd. over Canal	112' of 72" diameter concrete pipe	\$ 67,916
Southland East/Hardin Pike	72" diameter pipe – reset and added 16'	\$ 18,592
Meadowbrook Lane/Pleasantview Sub.	80' of 42" dia. concrete pipe	\$ 22,405
Moulton Ft. Amanda North/Kruse	56' of 48" dia. concrete pipe	\$ 18,781
Glywood West of Bay	48' of 29" x 45" elliptical concrete pipe	\$ 17,168
Bridge Decks Waterproofed on 25A, Ritchie, Blackhoof Creek, Kohler		\$ 39,607
2016 TOTAL COST FOR BRIDGE IMPROVEMENTS		\$ 652,090*

*Cost include materials, labor, equipment plus contracts let for purchased bridge beams

DRAINAGE PETITIONS **DITCH MAINTENANCE IMPROVEMENTS**

Along with the many road and bridge improvements surveyed and designed by the engineering department, multiple drainage petitions were completed by our staff. During a ditch petition process the staff completes the following: preparing the petition; verifying the watershed and landowners; set up hearing dates with the commissioners; surveying; design; drafting plans; determining project estimates; preparing assessments to all those in the watershed; run the public hearings; prepare bid forms and notify contractors; prepare contract documents; inspect the construction and certify contractor payments.



The Adams Ditch (above), located 4 miles NE of Wapakoneta was completed in 2016 at a cost of \$199,600. The 4,000' of newly constructed open ditch abandoned a century old tile and drained a 1416 acre watershed. The contractor for this project was Liebrecht Excavating from Delphos.



Six miles east of Wapakoneta, the Meier Ditch (above) was constructed for \$59,873 and consisted of 650' of open channel and the installation of 4,265' of subsurface tile ranging in diameters from 15" down to 4" and a road crossing. Crooks Excavating of Forest, Ohio was the contractor.



E.B. Land Improvement of Middle Point completed the Doenges #2 project just south of Grand Lake St. Marys which was the largest and most expensive petition completed during 2016. The \$257,000 project included the construction of 500' of open channel and the installation of 19,550' (3.7 miles) of subsurface tile ranging in diameter from 30" down to 4". The new polyethylene piping (above photo) tile replaced an existing deteriorated clay tile installed in 1910.



In conjunction with the Culliton tile petition through the Auglaize SWCD, county crews installed a county manufactured low profile 3-sided box through Moulton Ft. Amanda where the roadway had experienced numerous closures from flooding. Due to the low profile, a concrete floor was cast to enhance flow characteristics and provide easier maintenance. This is the 80th location these boxes have been installed since the county began casting this particular structure in 1997. The width and depth of the opening can be varied to accommodate the needed capacity and fit the height requirements to match the surrounding terrain.



The \$ 38,795 Doorley #2 Ditch, located 4 miles west of Wapakoneta was partially completed in 2016 with the installation of 2,420' of 12" and 4" subsurface tile (above photo). 360' of surface drain was also constructed with another 2,190' of grassed waterway yet to be built in 2017. The tile and waterway drains a 67 acre watershed. Gene Topp Drainage Service of New Bremen is the contractor for this improvement.

EMPLOYEE ACHIEVEMENTS

Annually several counties come together in late fall for a snow plow rodeo, equipment competition and OSHA training. Clint Moon placed 1st in the individual plowing competition and the team of Nick Piehl, Jeremy Rostorfer, Jesse Hein and Jamey Turner won the 1st Place Team event. (photo below).



Bottom Row (L to R): Jamie Turner and Jesse Hein
Top Row (L to R); Jeremy Rostorfer; Nick Piehl; Clint Moon