

2008 AUGLAIZE COUNTY ENGINEER'S ANNUAL REPORT

By: Douglas Reinhart, P.E., P.S., Auglaize County Engineer
To the Board of Auglaize County Commissioners:

Anyone who watched the stock market or presidential polls knows that 2008 was a year of highs and lows. Politics, the automobile industry, and the stock market, dominated both the News and the Internet, but wild weather, military setbacks, and medical miracles also set the world abuzz. You may ask whether all of these things affect the local county highway department and the resounding answer is "yes".

In our industry, "wild weather" is never a phrase you want to hear, especially with the economy in a "transitional" phase. As many of you well know, the weather plays a key role in determining the number of projects we can complete with our dedicated funding. To begin the year, Ohio provided us with some of the "best" weather Ohio has to offer – rain, snow, wind, a wild range of temperatures, and a drought. The photo to the right shows a portion of the 15 truck fleet used to clear and treat the 350 mile county highway system. A record 6,400 tons of pure salt/limestone was applied to the county roadway system on 45 different occasions for snow and ice control. This tonnage amounted to a 30% total increase over the previous two winters combined. If you add in the increased fuel costs as well as those costs associated with overtime and material usage – not to mention the wear and tear on the trucks and employees – we have not experienced a greater impact to our budget since the winter of 1977-78 (January 1978 Blizzard).



As if the snow and ice wasn't enough, a major February flood damaged numerous residential and commercial buildings throughout the county. During this event, the highway department closed 22 different roads and spent several weeks cleaning up debris. In the spring of 2008, it seemed as though precipitation was going to be the theme for the year. Rainfall seemed constant throughout the spring causing numerous project delays and scheduling problems. These massive amounts of rainfall were followed by a drought during the last half of the summer and into early fall. The increased dry weather allowed us to "catch up" on projects, but prevented us from establishing grass seed on our roadway and drainage projects.

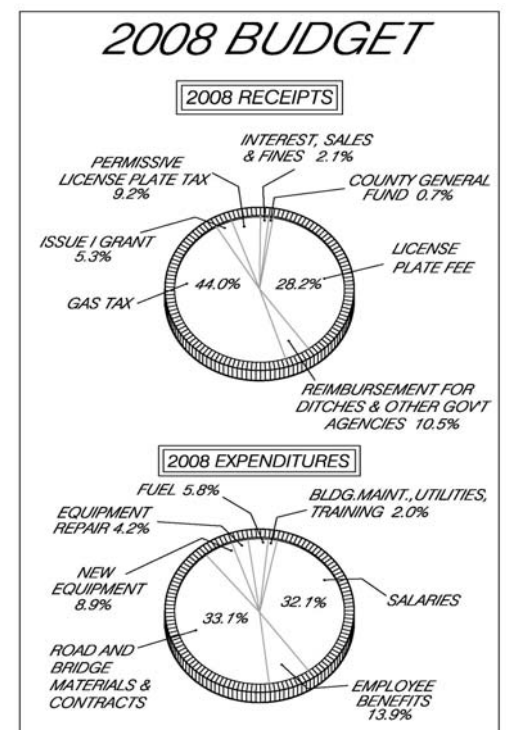
When we talk about how obstacles – mainly weather and budget – affect our industry, it is imperative to mention the efforts of the Auglaize County Highway and Engineering Department and their ability to continue to move forward despite these obstacles. In 1998, I was fortunate to receive the "Ohio County Engineer of the Year" award from the County Engineers Association of Ohio. This past spring, I was honored by the National Association of County Engineers as the "National Rural County Engineer of the Year". I feel it is important to note that this is not an individual award, but an award to the citizens of this county for their continued cooperation to make many improvements. Furthermore, I would like to extend a special "THANK YOU" to the 32 employees who put the obstacles aside, and work very hard to make Auglaize County a safer, more enjoyable place to live and travel.



The Ohio Revised Code mandates that each Ohio County Engineer annually report to the Board of County Commissioners the status of the roads and bridges under their jurisdiction. During my tenure as Auglaize County Engineer, I have compiled 25 annual reports. At no point in time has the task felt like another code mandate, but rather a chance to outline to the citizens of Auglaize County the accomplishments of this organization. Although "wild weather/economy" seemed to be the theme for 2008, the Auglaize County Highway department continued to work through obstacles to make 2008 one of our best years.



Plattner Pike, near the intersection of Poppe Road, has been the scene of constant highway flooding for many years. After studying 100 year old watershed boundaries and performing an extensive field survey, this area was found to be a natural "pocket" where surface water was impounded, relying only on subsurface drainage for relief. During heavy rainfall events, water crossing over Plattner Pike would get deep enough to actually cross watershed boundaries. A plan was developed to improve the drainage along the roadway by installing 24" diameter concrete pipe (above photo) through the front yard of the Lauth property and to re-grade 800' of sideditch. In addition, a new waterway across the Fledderjohann property was formed to provide an adequate outlet. Now completed, the stormwater in that location will stay within its proper watersheds and the roadway flooding across Plattner Pike has been eliminated. Special thanks to all the adjacent landowners allowing our crews to construct the needed drainage on and off the public's right-of-way.



BUDGET NOTES: Due to the economy and 2008 fuel prices, income from License Plates and Gasoline Taxes stagnated in 2008. Anticipating this scenario, our office looked elsewhere to earn dollars to maintain our staffing and construct the numerous projects listed in this report. In order to earn these extra dollars, we dramatically increased our workload outside the county road/bridge responsibilities. County crews performed the entire township seal program in 2008, and our ditch maintenance repairs now cover 265 miles of open ditches and subsurface tile. We also performed safety improvements for the trustees and replaced culverts for ODNR. All of these projects brought in additional income to help subsidize the budget. This plan will continue until the economy rebounds. Our income vs. needs is not what it should be to combat the 70% construction inflation we have experienced over the past five years. With all this being said – this department is not in a crisis mode and does not plan to cut services.

2008 ROAD IMPROVEMENTS

Due to the economy and heavily inflated gas prices, the income from license plates and gasoline tax (which represents 81.4% of the 2008 revenues) stagnated during 2008. The stagnated revenues were doubly exposed by the fact that the cost for resurfacing one mile of roadway (20' wide average by 1.25" thick) with asphalt is now \$45,900. This price represents an increase of 106% since 2003. Due to the increased prices and stagnated revenues, only 16.62 miles of County maintained roads were resurfaced in 2008 – the lowest total since 1988. You may think 16.62 miles appears to be a very aggressive program, but with a 348 mile roadway system, each mile of roadway will only be paved every 21 years. Unless gas tax and license plate revenues increase, or the price of asphalt drastically declines, the roadways listed below (which may be in front of your home) will not be able to be paved again until 2029. Our department has realized that we will have to keep a watchful eye on our roadway infrastructure to keep the integrity of our roadways in excellent condition. As we move forward into future years, our department will be in a "maintenance mode" making sure that constant attention of the entire 348 mile system will keep us free from potholes and potential base failures.



The most cost effective maintenance treatment to an asphalt roadway is the chip & seal program (left photo). The roadway is swept, 170° liquid asphalt is sprayed on the pavement (0.40 gallon/sq.yd.), the asphalt is then covered with a limestone aggregate (22#/sq.yd.), immediately rolled to "seat" the stone, and then swept the next day to remove any loose aggregate. During 2008, County crews treated 105 miles of County and Township roadways applying 206,000 gallons of liquid asphalt and 6,700 tons of aggregate. The option of the chip and seal program is becoming a more valued option due to the decreased material costs. To full seal a 20' wide pavement, the cost is \$8,300 which is less than 1/5th the price of paving the same mile of roadway.

2008 ROADWAY MAINTENANCE COMPLETED BY COUNTY PERSONNEL

1. 470 miles of county and township roadsides, along with 160 miles of open maintenance ditches were treated for broadleaf weeds and woody plants.
2. 3,100 tons of berm stone was placed in conjunction with the resurfacing program
3. 21,488 lbs. of polymerized sealant and 3,920 gallons of liquid asphalt mixed with a small limestone aggregate was applied throughout the county to control pavement cracking.
4. 2,060' of reinforced concrete pipe was used to replace 34 deteriorated stormwater culverts under 36" in diameter through the roadway. Most of these replacements were on roads about to be resurfaced.
5. 11,630 ft. (2.2 miles) of smooth-wall polyethylene pipe was installed within the road right-of-way to replace century-old storm sewers. The culverts reduced roadway flooding and provided for the construction of safety shoulders. Right-of-way drainage during 2008 was also improved by installing 72 new stormwater collection basins.
6. 6,180 regulatory and warning traffic signs were maintained on the 672 mile County and Township Road system within Auglaize County.
7. 175 miles (50% of the entire system) of centerline and 39 miles of edgeline striping was contracted for a price of \$ 41,440.

2008 RESURFACING PROGRAM

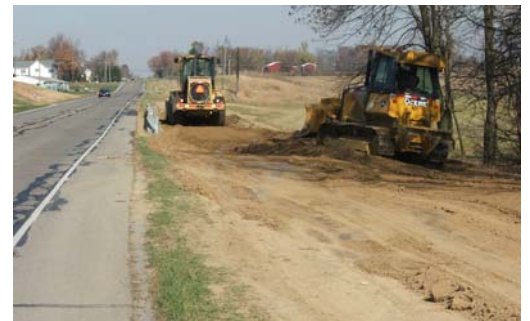
Road Name	Length	Location	Tons/Hotmix	Cost
Middle Pike	5.1	Boundary to SR# 196	3,971	\$ 234,044.
Moulton Ft. Amanda	1.0	Burnfield – Deep Cut	794	\$ 46,865.
Barber Werner	2.55	SR197 – SR66	2,048	\$ 120,964.
66A	2.76	SR# 66 – North	2,600	\$ 167,757.
Knoxville Ave.	0.11	All	113	\$ 6,686.
Glynwood Knoxville	3.3	SR 29 – CR33A	2,625	\$ 154,941.
Heitkamp	1.1	All	1,050	\$ 62,142.
Quellhorst	0.3	Lock Two – SR66	234	\$ 13,722.
Bremen Knoxville	0.45	Lock Two – SR66	367	\$ 21,414
TOTALS	16.62 MILES		13,979 TONS	\$ 830,897



Heitkamp Road in Jackson Township has experienced numerous road closures throughout the last several years due to an increased amount of flooding. The hazard was eliminated by installing a large diameter storm drain, and by utilizing 440 tons of recycled asphalt grindings to elevate the roadway by three feet in the flood prone area. Special thanks to the five adjacent property owners who contributed to the project by paying for the up-sizing of the subsurface storm sewer (photo left) and putting up with the construction site for several months.



Throughout the construction season 2,000 tons of used asphalt was "collected" from various road and bridge improvements and stored at the County Garage. A grinder was brought in to the garage (above photo) to mill/grind the asphalt into smaller and re-useable material at a cost of \$1.60/ton (vs. \$6/ton stone). 1,374 tons of the grindings were placed on Aqueduct Road to raise the profile of the roadway by three feet (photo below) to eliminate the constant high water/roadway closures caused by the flooding from the nearby St. Marys River.



Our office is continually looking to provide safer shoulders along our roadways. A wider and safer shoulder helps to prevent a roll-over when a vehicle leaves the pavement. On 25A north of Wapakoneta, our (above photo) crews moved dirt from an adjacent hill, and used that material for the building safety shoulder along the roadway. In addition, we improved the storm drainage by extending an existing culvert, and cutting a waterway. The project eliminated the need for a lengthy section of guard rail that constantly needed to be maintained. Thanks to the Duchouquet Township Trustees and Bob Keller for their cooperation on this improvement.

Along the south side of Minster Egypt Pike, property owners donated several feet of right-of-way in order to provide safety shoulders and improved surface and subsurface drainage. County crews (shown below) replaced several hundred feet of a century old clay tile along the roadway and created a new waterway and ditch. Special thanks to Chris Dahlinghaus and Tony Heitbrink for their assistance and donation of the needed ground.





Our bridge crew poured over 500 cubic yards of concrete throughout the winter of 07-08. The concrete was used to cast bridge beams, 3-sided boxes, headwalls and footers (above) in preparation for the upcoming construction season.



The bridge over Wallace Fork Creek on May Road (Wayne Township) was widened with 27' county precast beams (above) to replace a deteriorated 20' wide deck. The existing abutments were extended, new wing walls constructed, and rock was placed for erosion control.



To provide a safer access to the new St. Marys School facilities on Shipman Road, crews extended an existing 48" diameter culvert (above) under the roadway by 64 feet. In addition, a junction box was added to align the pipe with an existing open ditch and to accept storm water from the proposed street widening.



County crews installed 280 feet of elliptical concrete pipe in order to properly drain Parkway Drive and a portion of the Villa Nova Subdivision along the north side of Grand Lake St. Marys (above). Special "Thanks" to ODNR for their continued cooperation by purchasing the pipe.

2008 BRIDGE AND CULVERT IMPROVEMENTS

As seen by the extensive list of projects below, 2008 was one of the busiest and most productive years experienced by this department. We can proudly state in this report that there are still no posted bridges on county or township roads in Auglaize County. Due to the fact there are no posted bridges - school buses, fire and rescue vehicles, and farm-to-market traffic can travel freely without interruptions or detours.

Fortunately, none of the 2008 bridges included full reconstruction of the abutments and piers. In 2008, we were able to replace 30+ year old decks, damaged by years of salt intrusion, with county-manufactured concrete beams. In addition to rehabbing old bridge decks, we also continued to implement our three 3-sided box program. To date, we have cast and replaced 51 structures with 3-sided boxes since we began this program in 1997.

Several of the large diameter culverts on this year's bridge program were replaced in conjunction with other infrastructure improvements within Auglaize County. Culverts were replaced on Reichelderfer and Shipman Road in order to provide safer access to the new schools being built. In addition, the Infirmary Road, St. Marys Kossuth Road, and Washington Pike culvert replacements were completed in conjunction with petitioned drainage ditch projects.

FORCE ACCOUNT LIMITS NEED ADJUSTED

As I outlined in last year's report, the Ohio General Assembly has set limits on the size of bridge and road projects that this department can undertake with our own forces and equipment. That limit was set in 2003 without any construction inflationary provisions. Since that time, the cost of building a bridge has risen 70% and the size of a project we can undertake has been drastically reduced. As 2008 ends, our calculations show that if a bridge requires full replacement (abutments and deck), we cannot attempt to construct any bridge with a span greater than 38', which amounts to 40% of our entire inventory. **Unless these limits are raised, Auglaize County residents will once again see posted bridges on our County and Township roadways!**



The bridge on Infirmary Road, at the terminus of the Shearer Ditch (petitioned through the SWCD), presented one of the most challenging projects encountered by our crews in 2008. The above right photo shows how a series of pipes were used to transport subsurface water under an existing 10" high pressure gas main. The series of pipes were capped with a concrete lid to protect the integrity of the gas main as surface water flows over the line during heavy rainfall events. Only the floor (photo upper left) of the three-sided box culvert was poured at the site, while a total of 35 individual pieces (14' x 7' box sections, headwalls, and footers) were pre-cast at the county garage. The pre-cast pieces were hauled to the site where they were assembled and grouted together. This type of pre-cast construction greatly minimizes the time needed for road closure.

2008 STRUCTURES REPLACED

<u>Location</u>	<u>Description/Span/Length</u>	<u>Cost</u>
Monroe Road	40 feet of 14' x 7' three sided concrete box	\$ 26,911
Moulton Ft. Amanda	44 feet of 14' x 7' three sided concrete box	\$ 34,263
Infirmary Road	48 feet of 14' x 7' concrete Box (Shearer Ditch)	\$ 43,271
Hardin Pike	9 - 31' County Beams (Rehab Abutments)	\$ 28,147
66A over Canal	8 - 23' County Beams (Rehab Abutments)	\$ 15,534
May Road	9- 26.5' County Beams (Rehab Abutments)	\$ 40,066
Foght Road	9 - 31' County Beams (Rehab Abutments)	\$ 32,811
Lock Two Road	9- 31' County Beams (Rehab Abutments)	\$ 27,842
St. Marys Kossuth	54' of 42" elliptical concrete pipe (Stoner Ditch)	\$ 15,795
Reichelderfer Road	64' of 54" elliptical concrete pipe (Wapak School)	\$ 16,833
Goshen Road	40' of 54" elliptical concrete pipe	\$ 12,908
Washington Pike	80' of 48" elliptical concrete pipe (Luedeke Ditch)	\$ 27,647
Shipman	64' of 48" concrete pipe (St. Marys School)	\$ 12,166
66A	56' of 48" concrete pipe	\$ 9,441
Middle Pike	40' of 36" elliptical concrete pipe	\$ 7,684
Southland	56' of 36" elliptical concrete pipe	\$ 11,428
Villa Nova ODNR	280' of 24" ellip. Conc. Pipe (Labor & Equip. only)	\$ 8,366
Shipman Road	48' of 36" concrete pipe	\$ 9,545

TOTAL PROGRAM COST = \$ 380,658

2008 DRAINAGE PETITIONS



The above photo shows a backhoe replacing a structurally deficient culvert through a county roadway. This culvert is one of 34 road crossings completed during 2008. These pipes are not just “thrown” in but require the following steps for a proper installation:

1. Engineering design using the watershed area and gradient available to determine the size of the culvert. Note that the above pipe installed was elliptical to provide the needed capacity and still have adequate roadway cover.
2. Precast headwalls (either full or half) and footers are made at the county garage in advance of the installation.
3. The pavement is sawed perpendicular to the roadway to keep the asphalt removal at a minimum.
4. The pipe is installed at a specific depth using a laser guided control system (background of the photo). The pipe is then bedded with stone aggregate to maintain the specific depth and to protect against settling.
5. The backfill is then compacted using a hydraulic compactor attached to the backhoe or a “jumping-jack”.
6. Based upon availability, the trench is filled and compacted with either hotmix or cold mix.



The above photo was taken of Doug Crawford (3rd from left) and his family at his retirement party in August. Doug is a licensed Professional Surveyor in the State of Ohio and has spent the past 32 years working in the Tax Map Office.

In 1976, when Doug began working in the office, the tax maps were no more than simple black line drawings on white paper. In the mid 1980's, we obtained our first aerial photos and Doug's task was to transfer the property line and parcel ownership onto those photos. In the 1990's this information was then transferred to computer generated mapping.

During this transformation, the Engineering Department, with Doug's constant assistance, was in the process of relocating, monumenting and taking satellite readings on over 1,800 section corners. Finally, as his career with the County came to an end, all the mapping, superimposed on extremely accurate aerial photos, can now be found published on the County's internet site. Special “Thanks” to Doug for all his efforts and the best of luck in his retirement. He will be missed by the general public, other office holders, attorneys, and realtors who often frequent the Tax Map Office.

During this past year, a total of seven petitioned ditches were constructed in various locations throughout the county. The Engineering Department spent months surveying, preparing storm-water design calculations, preparing assessment determinations, holding public hearings, and then executing the bidding and contract documents. 3.28 miles of new subsurface tile mains were installed along with 3.29 miles of open ditch reconstruction. Once completed the projects were then placed under the permanent maintenance system. The total assessed cost for these improvements was \$ 428,380. Adding in the several SWCD petitions completed in 2008, our end-of-the year totals now show that this department is now responsible for maintaining 251 separate projects totaling : 161.8 miles of open channels; 83.5 miles of subsurface tile mains; 5.8 miles of waterways; and annual logjam removal on 24.1 miles of open channels for a total of 275.2 miles. Each of the 251 ditches has an individual account that is tracked for expenses when crews perform maintenance and when collections are needed and recommended to the Board of Commissioners.



Stoner Open Ditch (above) Noble Township
Waynesfield Tile Ditch (below) Wayne Twp.



Zink Open Ditch (above) Pusheta Township
Spencer Tile Ditch (below) Wayne Twp.



2008 Petitioned Ditch Drainage Improvement Facts

Waynesfield Northeast: Provided an outlet for the detention facility at the new Waynesfield Goshen School and numerous residential homes and agricultural ground; 292 Acre watershed; 7,234 feet of subsurface tile ranging from 8”- 18” in diameter; Total Cost = \$ 123,740.

Stoner: 1,100 feet of open channel along the east side of the Maimi & Erie Canal providing an outlet for a subsurface drainage tile and overflow culvert under the St. Marys Kossuth Road; 102 Acre Watershed; Total Cost = \$ 19,192

Zink: 7,500’ of open channel located two miles south of Wapakoneta draining acres of mostly agricultural ground. Petition solved serious bank erosion by installing 1,350 tons of rip-rap. 2,333 Acre watershed; Total cost = \$ 43,920.

Sims Run: 7,180 feet of open channel south of Buckland that needed minor realignment, bank erosion was controlled by placing 1250 tons of rip-rap; 1,571 Acre watershed of agricultural ground; Total Cost = \$ 57,963.

Spencer: 9,135 feet of subsurface tile ranging from 8” to 18” was installed replacing a century-old clay tile. Located in the NE corner of Auglaize County; 446 Acre watershed that was mostly agricultural; Total Cost = \$ 138,009.

Cartwright: Project was located in the Oakwood Hills Subdivision west of Wapakoneta; 530’ of 8” sealed tile replaced an open jointed clay tile plugged with tree roots; Project drained ten residential homes; Total Cost = \$ 15,087.

Luedeke: Project crosses Washington Pike SE of St. Marys; Installation included 320’ of 24” diameter subsurface tile; 1,000’ of open channel and the removal of logjams from another 580’ of open channel; Watershed of 650 acres of agricultural and residential parcels; Total Cost = \$ 30,469.