

39th Annual DARKE COUNTY ENGINEER'S ANNUAL REPORT FOR 2016

By: James P. Surber P.E., P.S. Darke County Engineer

This report shows money received for the year, all expenditures made, and what was maintained, constructed, purchased, or improved.

2016 began with a relatively mild winter, and continued with a nice summer, and an excellent fall and early winter. It was one of the best years for construction in recent memory.

While state funding increased \$18,622 over 2015, our total receipts were down by \$8,280.86. By closely watching expenditures, we were able to finish the year in the black by \$61,508.30 which is just over one per cent of the total expenditures.

Accomplishments for the year, in addition to the normal activities of road and bridge maintenance, included new surfaces on 48.6 miles of road, sealing of cracks on 27.9 miles, six new bridges constructed, and six bridges rehabilitated or repaired.

In August, the Darke County Commissioners enacted a controversial \$10 permissive fee on vehicle licenses that will begin in 2018. In addition to the County, this will also provide greatly needed road and street funding for townships, villages and the City of Greenville. By mutual agreement of the Commissioners and I, the additional money for County roads and bridges will be delayed until possibly 2020; but additional funds delayed are, of course, far better than none. It is definitely a positive step for local infrastructure, which has been severely neglected by our state and federal lawmakers.

Our employees continue to do a great job with road maintenance and bridge construction responsibilities. We are surface-sealing roads with County personnel and equipment and plan to upgrade the machinery for this process which has become much more prevalent due to high paving costs and static revenue.

The challenges faced on local roads are shared by Township Trustees, villages and cities.

Readers may contact us with any questions or comments. Phone: 937-547-7375 or email: dce@earthlink.net

2016 RECEIPTS

Motor License Fees	\$2,049,156.04
Gas Tax	\$2,714,703.19
Recycling & Sales	\$ 53,246.71
Reimbursements*	\$ 427,833.18
Interest	<u>\$ 70,125.22</u>
	\$5,315,064.34
 *Fuel =	 \$ 73,527.79
Grants =	\$ 59,512.00
Equip. Sales:	\$210,126.25
Misc.	\$ 84,667.14

2016 EXPENDITURES

Resurfacing & Surface treatment	\$ 1,801,640.28
Bridge Construction & Maint.	\$ 213,512.37
Wages & Salary	\$ 1,352,720.12
Fringe Benefits	\$ 561,590.82
Equipment & Repairs	\$ 630,163.20
Fuel (All Co. Departments)	\$ 119,349.19
Utilities/Office/Bldgs.	\$ 34,711.12
Road Maintenance Materials	\$ 539,868.94

Total Receipts: \$5,315,064.34

(2016 Gas Tax & License Receipts:	\$4,763,859)
(2015 Gas Tax & License Receipts:	\$4,745,237)
(2014 Gas Tax & License Receipts:	\$4,665,557)
(2013 Gas Tax & License Receipts:	\$4,641,694)
(2012 Gas Tax & License Receipts:	\$4,615,002)

Total Expenditures: \$5,253,556.04

(2015 Expenditures:	\$5,285,094)
(2014 Expenditures:	\$5,454,650)
(2013 Expenditures:	\$5,033,532)
(2012 Expenditures:	\$5,316,297)

IMPROVEMENTS

Miles of Road Resurfaced:	18.41
Miles of Road Chip-sealed:	30.19
New Bridges Constructed:	6
Bridges Rehab. Or Repaired:	6
Large culvert replaced:	1

MAINTENANCE IMPROVEMENTS

Centerline Striping:	165.9 c/l miles
Edge line Striping:	237.0 lane-miles
Roads Crack-Sealed:	27.9 miles

EQUIPMENT PURCHASES

Dump Truck (equipped):	\$ 129,475.00	Backhoe (less trade-in):	\$ 15,191.50
Durapatcher:	\$ 55,791.00	5-JD mowing tractors:	<u>\$ 211,026.59</u>
Dodge Ram 5500 sign truck:	\$ 45,737.00	Total	\$ 457,221.09
Used equipment sold:	(\$ 210,126.25)	Total net purchase prices:	\$247,094.84

MAINTENANCE DATA

Subsurface crossing installed: One location using 50 feet of 8" conduit.	Diesel used: Gallons- 48,741
No surface culverts were replaced.	Gasoline used: Gallons- 7,986
Signs & posts purchased: \$34,536.00	Salt & ice grits purchased: \$224,512.73
Sign repair/replacement: 281 locations	Township Road culverts and tile replaced: 24
Tons of sealant applied to cracks: 84.65	

MAINTENANCE RESPONSIBILITY

County Roads: 521.097 miles	County and Township Bridges (over 10' span): 531
Large culverts: (30"-10 ft.): 365	Roadway culverts (12"-30"): 1750 (Est.)
Right-of-way: 3324 acres	Stop signs: 802
Warning signs: 2332	Road name signs: 1921

2016 ROAD IMPROVEMENTS

We contracted asphalt resurfacing with Walls Brothers Asphalt on eight different roads totaling 18.41 miles, which was just over 3% of the total Darke County road mileage (521.097). Due to economic necessity, we are now forced to use surface sealing in order to prevent degradation of pavements by age and freeze-thaw. While never popular, this process does cover over five times the surface area per unit cost compared to paving. Chip-seal was applied to 14.04 miles in cooperation with the Mercer County Engineer, and on 12.28 miles through contracts with Wagner Paving and Ray Hensley, Inc. County workers and equipment completed 3.87 miles. Without additional funding, surface sealing, in addition to paving, must be used to periodically preserve all the road surfaces. We again appreciate the cooperative effort extended by the Mercer County Engineer and his staff.

ROAD NAME	LENGTH (Miles)	ASPHALT RESURFACING		TOTAL COST
		ASPHALT (Tons)	AGGREGATE (Cu. Yd.)	
Jaysville-St. Johns	4.23	4320.34	461.78	\$300,256.07
Beanblosson	1.52	1334.02	150.06	\$108,965.07
Daly	0.77	845.87	-0-	\$ 70,546.14
Hillgrove-Ft. Recovery	4.00	4263.58	407.38	\$304,280.28
Brock-Cosmos	0.22	234.48	22.40	\$ 16,733.59
Rosburg-Lightsville	3.90	3877.66	427.37	\$284,854.48
Arnold	0.50	314.10	5.50	\$ 19,906.12
North Star-Ft. Loramie	<u>3.27</u>	<u>3317.11</u>	<u>348.72</u>	<u>\$245,024.53</u>
Totals	18.41	18,193.06	1823.21	\$1,350,566.28

The average cost per mile for resurfacing was: \$73,360

SURFACE SEAL					
ROAD NAME	MILES	COST	ROAD NAME	MILES	COST
Red River-West Grove	2.00	\$40,014.83	Young	1.01	\$19,708.69
Heller	1.18	\$24,729.58	Dull	2.48	\$48,440.97
Grubbs-Rex	1.46	\$28,518.42	Schnorf-Jones	1.00	\$ 19,057.81
York	1.90	\$35,252.42	St. Peter	1.25	\$ 22,890.42
Ohio-Indiana Line	4.84	\$59,307.64	Ellis	5.10	\$ 62,432.35
McFeely-Petry	4.10	\$50,210.47	McFeely-Petry	1.47	\$ 15,217.00
Stocksdale	1.02	\$ 9,645.60	Worth	<u>0.87</u>	<u>\$ 9,260.30</u>
Houschilt	0.51	\$ 6,387.50	Total	30.19	\$451,074.00

The average cost per mile for surface sealing was: \$14,941

A total of 48.6 miles of road were improved or preserved which is about 9% of the total mileage (521.097). At this rate, the average road will have its surface renewed or replaced about every 11 years.

TOTAL PAVING AND SEALING COSTS WERE \$1,801,640.28, ALL PAID BY LOCAL REVENUE

PAVEMENT MARKINGS

We contracted the application of 165.9 miles of new centerline and no-passing markings and 237.0 lane miles of white edge lines with A & A Safety Co. at a cost of \$98,972.00

The average cost was \$260.62 per road mile for yellow markings and \$470.36 per road mile for white edge lines.

CRACKSEALING OF ROADS

County employees sealed pavement cracks on 27.9 miles of roads during the year, using 84.65 tons of sealant at an average rate of 6,068 pounds per mile. The material cost averaged \$2,791 per mile.

TOWNSHIP COOPERATIVE WORK

In 2016, we provided \$29,177 worth of labor and equipment to fifteen different Townships at no charge, and \$48,523 to nine Townships that was reimbursed. County employees and equipment replaced 22 roadway culverts and 2 subsurface tile crossings on 13 roads in seven different Townships. The Trustees of three Townships (Monroe, York and Brown) furnished the asphalt surfaces for four new or rehabilitated bridges on their roads during the year.

OTHER PROJECTS

In early spring, a guardrail replacement project was completed, reconstructing 10,680 feet of guardrail at 8 different locations on six different roads: Greenville-St. Marys, Medford, Staudt, Hollansburg-Sampson, Hollansburg-Richmond and County Home. The total project cost was \$199,662.39 with the work contracted by PDK Construction of Pomeroy. The project was five years in the making, and totally paid with federal funds.

We received a grant through the state to upgrade warning signs throughout the county. The grant provided signs and posts with the County furnishing all labor and equipment to remove, replace and add new signs. Total monetary amount received was \$22,000.00.

Our office continued to donate engineering, design and inspection services to the County Park District for the construction of the Tecumseh shared-use trail in 2016 between State Route 571 and US Route 127.

2016 BRIDGE CONSTRUCTION AND REHABILITATION

The two Darke County bridge crews built five new bridges, one large culvert, rehabilitated five bridges, and performed repairs and maintenance on one bridge. One new bridge was constructed by contract. All design and construction was by County personnel, and all funding for these projects was 100% local. *(Except for the new Center Street Bridge as shown below)*

NEW BRIDGES (5)

We built five new bridges on two County and three Township Roads. Four were galvanized steel beam superstructures with timber decks on new abutments and one (Graw) was a precast concrete box. All work on bridges, including steel fabrication and erection was completed by Darke County personnel. The new asphalt surfaces on the Shaffer, Brown, and Graw bridges were furnished by the Township Trustees of York and Monroe Townships.

The costs shown include additions for overhead on labor and materials as mandated by Ohio law and the State Auditor's policies for force account bridges built after 07/01/03.

Road Name	Bridge No.	Span x Width	Costs		
			Materials & Equip.	Labor & Fringe	Total
Jaysville-St. Johns	C106-0024	18' x 28'	\$46,081.83	\$33,320.86	\$79,402.69
Braffetsville-North	C111-0328	37' x 28'	\$65,372.91	\$25,438.47	\$90,811.38
Shaffer	T159-0243	28' x 24'	\$34,694.76	\$18,742.56	\$53,437.32
Brown	T094-0594	31' x 24'	\$42,924.69	\$16,751.03	\$59,675.72
Graw	T144-0246	10' x 5' x 40'	\$29,687.35	\$ 9,234.05	\$38,921.41

BRIDGE REHABILITATION AND REPAIR (6)

We rehabilitated and/or repaired six bridges with various work performed as shown below. On the Ansonia-Elroy bridge, the new asphalt surface was furnished by the Trustees of Brown Township.

McFeely-Petry	C176-0150	18' x 24'	\$ 9,855.02	\$11,780.00	\$20,349.58 (1)
Schnorf-Jones	C156-0139	60' x 24'	\$21,882.88	\$12,174.08	\$34,056.97 (2)
Ansonia-Elroy	T066-0284	60' x 24'	\$15,336.86	\$11,342.83	\$26,679.69 (3)
Versailles-SE	C068-0035	202' x 28'	\$ 5,321.82	\$ 5,114.51	\$10,436.33 (4)
Gordon-Landis	C042-0618	52' x 24'	\$ 2,243.27	\$ 7,523.68	\$ 9,766.94 (5)
Gettysburg-Pitsburg	C020-0373	100' x 32'	\$12,492.66	\$ 1,163.95	\$13,656.61 (6)

(1) Paint superstructure, new timber deck, waterproofing and asphalt. (2) & (3) Clean superstructure, new timber deck, waterproofing and asphalt. (4) Encased forward pier piles, clean and paint SIP forms on deck edges. (5) Reconstruct deteriorated deck edges (6) Removed excess asphalt, applied waterproofing and new asphalt surface.

LARGE CULVERT REPLACEMENT (1)

A new 8' x 5' x 44' precast concrete box-culvert was built on Palestine-Union City Road, replacing the narrow, deficient old structure. C030-0768

\$27,535.21	\$6,869.09	\$34,404.30
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Grand Total \$ 471,598.94

416 new bridges have been built on Darke County and Township Roads since 1977.

ACTUAL FORCE ACCOUNT BRIDGE WORK COSTS

Reported 2016 force-account costs for five new bridges, six rehabilitations and large culvert: \$471,598.94

Total materials and services purchased: \$213,512.37 Actual labor and fringe: \$110,150.98

Total Actual County Cost: \$323,663.35

NEW CENTER STREET BRIDGE BUILT BY CONTRACT

A new 80 foot, 3-span concrete slab bridge with a 40 foot width, built by Brumbaugh Construction, replaced the 86 year-old, deficient structure on Center Street in the Village of Versailles. This was an LBR (local bridge replacement) project begun five years ago through cooperation with the Ohio County Engineers Association and the Ohio Department of Transportation. Our office provided the bridge design, right-of-way acquisition, and part of the local funding share along with the Village of Versailles. Project construction lasted from July-September with inspection by ODOT. Costs: construction-\$590,352.00, inspection and admin.-\$65,579.

Center Street M650-1814 80' (3) x 40' Project Cost: \$655,931 Local Cost: \$134,200*

*County portion (\$60,082) of local cost paid from Road and Bridge fund

BRIDGES ON DARKE COUNTY AND TOWNSHIP ROADS BY STATE SUFFICIENCY RATING

(Each bridge is rated from 0-100 based upon condition and annual inspection)

The average sufficiency rating of all 531 bridges is 92.6%

Number of bridges	% of total bridges	Sufficiency Rating
383	72.1%	EXCELLENT (90-100)
128	24.1%	GOOD (70-90)
16	3.0%	FAIR (50-70)
4	0.8%	POOR (0-50)

(Of the four bridges in poor condition; one is an historic arch structure on a township road, one is limited to bicycle and pedestrian traffic, one is a closed bridge in an incorporated village, and one is owned by CSX railroad.)

The average age of the 531 bridges on County and Township roads is 35 years.

With its large number of bridges, Darke County ranks first in Ohio and tenth in the entire nation for bridge responsibilities. Our bridge program is more restricted by state law limiting construction by County workers, than by funding. We continue to maintain and preserve older bridges to extend their service life, and replace deficient bridges under forty foot spans to stay in compliance with the \$100,000 County bridge force account limitation.

DETAILED EXPENDITURES FOR 2016

WAGES & FRINGE 36.4 % +0.2% from 2015
 (Engineer, 29 fulltime, 1 part-time)
 WAGES \$1,352,720.12
 PERS \$ 188,546.80
 HEALTH INS. \$ 291,843.65
 UNIFORMS \$ 12,928.99
 MEDICARE \$ 17,775.79
 WKRS. COMP. \$ 31,566.13
 DRUG TESTS \$ 1,371.00
 ADM. FEES \$ 3,445.64
 SEVERENCE \$ 14,112.82
TOTAL \$ 1,914,310.94

IMPROVEMENTS 38.4% +0.1% from 2015
 (Road paving, sealing, and bridge costs)
 PAVING/CONST. \$ 1,801,640.28
 BRIDGES \$ 213,512.37
 ASPHALT \$ 1,309.27
TOTAL \$ 2,016,461.92

OVERHEAD 5.7% (1.4%) from 2015
 UTILITIES/BLDG. MAINT. \$ 34,711.12
 PARTS & SUPPLIES \$ 101,282.87
 FUEL (all County Depts.) \$ 119,349.19
 TIRES \$ 8,235.28
 LUBRICANTS / FILTERS \$ 9,101.55
 REPAIRS (BY OTHERS) \$ 9,204.34
 DUES, TOOLS, MISC. \$ 15,311.92
TOTAL \$ 297,196.27

ROAD MAINTENANCE MTLs. 10.3 % (0.1%)
 SALT & ICE GRITS \$ 224,512.73 from 2015
 SIGNS & POSTS \$ 34,536.00
 CRACK-SEAL MTL. \$ 73,552.30
 GRAVEL \$ 16,690.45
 PAV'T MARKING \$ 98,972.00
 DRAINAGE \$ 22,402.80
 ASPHALT EMULS. \$ 9,484.50
 MISC. \$ 59,718.16
TOTAL \$ 539,868.94

NEW EQUIPMENT; \$485,717.97 9.2% +1.2% from 2015 (\$210,126.25 reimbursed)

TOTAL EXPENDITURES: \$5,253,556.04

Taking care of roads and bridges involves many different tasks and responsibilities. While the most obvious are snow plowing and roadside mowing; the maintenance and repair of signs, the drainage along and through the roads, and the pruning and removal of trees and brush along roads are all constant obligations. Sealing of cracked road pavement surfaces to prevent water intrusion is a never-ending task in all but the winter months. Our employees chip-seal roads, build new bridges and culverts, maintain and repair bridges, maintain and repair all County equipment, and perform all types of road and bridge work with the exceptions of asphalt paving and the painting of yellow and white lines on the pavement.

Employee numbers in the Engineer's Office and Highway Department (3.6 and 26) are much less than most Ohio counties and we have always worked to maximize the amount of funding spent on road and bridge improvements. For 2016, the amount was \$2,016,461.92, or 38.4% of total expenditures.

Our most difficult challenge is maintaining 521 miles of asphalt pavement surfaces. With stagnant revenue for the past ten years, we must constantly deal with ever-rising prices of road materials and equipment. While sometimes unpopular, our decisions and actions must always be in the best interest of the roads and bridges.

SOME FACTS ABOUT OUR FUNDING:

AVERAGE OHIO COUNTY: 329 MILES 297 BRIDGES \$5.1 MILLION in STATE FUNDING
DARKE COUNTY: 521 MILES 531 BRIDGES \$4.7 MILLION in STATE FUNDING

WE ARE RESPONSIBLE FOR 68% MORE INFRASTRUCTURE WITH 8% LESS STATE FUNDING THAN THE AVERAGE COUNTY, AND WITH NO LOCAL FUNDING

WE ARE FUNDED BY THE DISTRIBUTION OF STATE TAXES ON FUEL AND VEHICLE LICENSING (PLATES).

NO MONEY FROM LOCAL REAL ESTATE TAXES, SALES TAXES, OR THE COUNTY GENERAL FUND IS USED FOR DARKE COUNTY ROADS AND TOWNSHIP BRIDGES.

THE DARKE COUNTY ENGINEER HAS NO DEBT AND OWNS 100% OF ALL VEHICLES AND EQUIPMENT.

Darke County Engineer's Office
 County Courthouse
 504 South Broadway
 Greenville, Ohio 45331-1994

TO: _____
