

42nd Annual DARKE COUNTY ENGINEER'S ANNUAL REPORT FOR 2019

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

This report always shows money received for the year, how it was spent, and what it maintained, constructed, purchased, or improved. We always try to maximize total funds spent on road and bridge improvements. Including grants, for 2019 this was \$2,881,753.95, or an amount equal to 45.4 percent of our total annual receipts.

Heavy spring rains delayed many tasks until June, but during the remaining year we resurfaced 28.95 miles of County roads by contract, applied chip-seal surfaces to 19.99 miles with County personnel and equipment, and completed six bridge replacement and rehabilitation projects. We also performed extensive shoulder widening on Gettysburg-Pittsburg Road in preparation for the resurfacing of its 8.78 miles next year, in 2020.

Our employees continued their great job of performing all types of road and bridge construction and maintenance work. In addition to surface sealing, our crews performed all snow/ice control, roadside mowing, and normal maintenance on 522.575 road miles. They also performed tree trimming and removal, replaced 16 culverts on County and Township roads, and made numerous ditch and drainage improvements.

Darke County road revenue had remained stagnant from 2006 through 2017, but was increased 7 percent in 2018 by a local license fee increase. In early 2019, the Governor and Legislature dealt with the combination of rising prices and static revenue by increasing the Ohio tax on fuel, which will ultimately be a great help to Counties, Townships, Cities and Villages. This additional monthly funding was first realized in September of 2019 and should continue thereafter.

Total spending for 2019 was \$172,115.89 (3%) greater than 2018, but \$481,734.18 (8%) less than the total receipts.

This was done in preparation for a larger paving year planned for 2020.

Readers may contact us with any questions or comments. Phone: 937-547-7375 or email: engineerdarke@gmail.com

2019 RECEIPTS

Fuel Tax	\$ 2,946,111.24
Motor License Fees	\$ 2,509,817.61
Motor License-Permissive	\$ 427,519.23
Sales	\$ 40,091.50
Recycling	\$ 2,936.68
Grants/Reimbursements*	\$ 316,255.88
Interest	<u>\$ 105,080.73</u>
	\$ 6,347,812.87
*Grants	\$ 46,272.00
Sale of Assets	\$ 4,214.20
Fuel	\$ 80,989.15
Other	<u>\$184,780.53</u>
Total	\$316,255.88

2019 EXPENDITURES

Resurfacing & Chip-Seal	\$2,087,201.30
Bridge Construction & Maint.	\$ 340,206.37
Wages and Salaries	\$1,501,736.58
Fringe Benefits	\$ 565,933.30
Equipment & Repairs	\$ 540,105.89
Fuel (All Co. Departments)	\$ 254,430.13
Utilities/Bldg. Maintenance	\$ 26,526.66
Road Maintenance Materials	\$ 304,170.58
Pavement Marking	\$ 186,432.27
Capital Improvements	\$ 48,751.57
Miscellaneous	<u>\$ 10,584.04</u>
Total	\$5,866,078.69

Total 2019 Receipts: \$6,347,812.87
(2018 Receipts: \$6,072,167.18)

Total 2019 Expenditures: \$5,866,078.69
(2018 Expenditures: \$5,693,962.80)

IMPROVEMENTS

Miles of Road Resurfaced:	28.95	Centerline Striping:	295	road miles
Miles of Road Chip-sealed:	19.99	Edge line Striping:	375	lane-miles
New Bridges Constructed:	3			
Bridges Rehabilitated:	3			

EQUIPMENT PURCHASES

Backhoe (net trade-in):	\$ 14,277.80	2-Dump Trucks-equipped:	\$ 284,168.00
3-Road Mowers:	\$ 35,985.00	Rubber-Tire Roller (used)	\$ 8,400.00
Pickup truck:	\$ 32,257.00	Miscellaneous road & shop:	\$ 19,199.10
		Total purchases:	\$ 394,286.90

ANNUAL MAINTENANCE DATA

County road culverts replaced: 9	Diesel used: Gallons- 62,180.8
Signs & posts purchased: \$29,582.97	Gasoline used: Gallons- 9,398.5
Sign repair/replacement: 515 locations	Salt & ice grits purchased: \$179,027.74
Township Road culverts and tile replaced: 7 locations	Crackseal material applied: 42,000 lbs.

MAINTENANCE RESPONSIBILITY

County Roads: 522.575 miles	County and Township Bridges (over 10' span): 517
Large culverts: (30"-10 ft.): 365	Roadway culverts (12"-30"): 1703
Right-of-way: 3335 acres	Stop signs: 819
Warning signs: 2228	Road name signs: 1326

2019 ROAD IMPROVEMENTS

We contracted asphalt resurfacing with Walls Brothers Asphalt on thirteen different roads totaling 28.95 miles for \$2,279,235.02. We also applied chip seal to 19.99 miles with a material cost of \$213,560, using 100% County personnel and equipment. The per-mile cost difference between the two applications is over 7 to 1. Both methods are used to preserve the surfaces of 40-50 miles of road per year with available revenues.

ASPHALT RESURFACING BY CONTRACT

ROAD NAME	LENGTH	ASPHALT	AGGREGATE	TOTAL COST
	(Miles)	(Tons)	(Cu. Yd.)	
New Madison-Coletown	1.92	1,875.05	190.98	\$ 148,059.18
Wagner	0.23	239.20	37.54	\$ 19,549.36
Brock-Cosmos	3.60	3,259.59	344.98	\$ 266,714.31
Greenville-St. Marys	0.25	381.96	11.80	\$ 32,700.13
Reed	2.38	2,383.93	285.36	\$ 197,836.58
Palestine-Union City	2.63	2,464.59	230.43	\$ 194,153.75
Strieb/Pitsenbarger	0.93	899.35	82.81	\$ 73,535.50
Eidson	0.75	770.93	35.11	\$ 62,903.26
Totals	12.69	12,274.60	1,219.01	\$ 995,452.07

An additional 16.26 miles was contracted in a joint paving project with ten Darke County Townships. An OPWC grant of \$405,593.70 funded 31.6% of the project which provided additional resurfacing.

ROAD NAME	LENGTH	ASPHALT	AGGREGATE (CY)	TOTAL COST
Stingley	7.78	7459.57	835.52	\$ 581,072.10
Reed	2.34	2607.27	282.23	\$ 218,168.84
Reed	0.78	746.67	36.54	\$ 60,262.77
Beamsville-Webster	2.41	2285.20	173.55	\$ 182,945.71
Yorkshire-Osgood	2.46	2327.45	293.11	\$ 195,883.42
Yorkshire-Osgood	0.49	558.16	36.45	\$ 45,450.11
Totals	16.26	15,984.32	1,657.40	\$ 1,283,782.95

Average application: 975 tons per mile (1-1/2 inches thick in two courses) Average cost per mile: \$ 78,730
Of the cost per mile, \$74,955 was for asphalt, with \$3,775 for gravel berm.

SURFACE SEAL BY COUNTY PERSONNEL & EQUIPMENT

(cost of materials shown) + denotes roads with fog-seal applied

ROAD NAME	MILES	COST	ROAD NAME	MILES	COST
Hursch	3.72	\$43,086	Springhill	4.96	\$49,187
Grubbs-Rex +	0.69	\$ 8,781	Weavers-Ft. Jefferson	1.98	\$17,789
Greenville-St. Marys +	0.34	\$ 3,774	N. Star-Ft. Loramie	5.13	\$51,085
Arcanum-Bears Mill +	0.84	\$ 9,050	Otterbein-Ithaca	1.98 +	\$23,182
Gregory St. +	0.09	\$1,469	Michele St.	0.06 +	\$ 1,137
Education Dr. +	0.06	\$1,137	Ross-Medford	0.14	\$ 3,883
			Total	19.99 miles	\$ 213,560

Average cost per mile: \$10,683

A total of 48.94 miles of road received new surfaces in 2019, which is just over 9% of the total mileage (522.575). If this rate is continued, the County roads will have surfaces renewed every 11-12 years.

Total County paving and sealing costs: \$2,492,795 (all but \$405,593.70 paid with local revenue).

PAVEMENT MARKINGS

We contracted the painting of new centerline/no-passing markings on 295 miles of County road, and white edge lines on 375 lane miles (187.5 road miles) through A & A Safety Inc. The total cost was \$186,432.27, using 12,127 gallons of paint and 52 tons of reflective glass beads. The average cost was \$284 per road mile for yellow markings and \$547 per road mile for white edge lines. We also coordinated the application of 75 miles of centerline and edge-line markings for ten different Townships and the Village of Versailles at a contracted cost of \$24,412.87.

TOWNSHIP COOPERATIVE WORK

During 2019, the highway department provided \$24,700 of free labor and equipment to 15 Boards of Township Trustees, and \$37,130 to 6 Townships that was reimbursed. This work included the replacement of 7 roadway culverts (12"-54" diameter) on 7 different roads in 5 different Townships, and ditch reconstructions. The Trustees of two Townships (Allen and Brown) furnished asphalt surfaces for one new and one rehabilitated bridge on their roads during the year.

We also coordinated the asphalt paving of twelve different Township roads in ten different Townships, totaling 13.446 miles. The total cost was \$1,042,026.79 and was supplemented by a \$394,406.30 grant from the Ohio Public Works Commission. The grant provided the Trustees a savings of 38% from present road resurfacing costs.

OTHER PROJECTS

We applied and received a grant of \$21,000.00 to upgrade selected warning and road name signs throughout the county, which were erected by County labor and equipment. We also received a \$25,272.00 grant for the study, inventory and sign recommendations on all curves on county roads in Darke County.

Our office continued to donate engineering, design and inspection services to the Darke County Park District for the construction of the Tecumseh Shared-Use Trail-Phase V-Part 2.

620 lineal feet of 24 inch diameter "County" tile was relocated off road right-of-way at a cost of \$7,929.80.

2019 BRIDGE CONSTRUCTION AND REHABILITATION

In addition to maintenance and repair, we built three new bridges on County and Township roads, and rehabilitated three more with data shown below. All design and construction for the bridge projects shown below was by County personnel, and all funding for these projects was 100% local.

NEW BRIDGES (3)

Two bridges were replaced by our bridge crew on County roads, and one on a Township road in Allen Township. One was a galvanized steel beam superstructure with timber deck on new abutments, one was a 62' non-composite pre-stressed concrete beam superstructure on new abutments, and one was a 12'x6'x72' precast concrete box. All bridge work, including steel fabrication was done by Darke County personnel. The asphalt on the new Rhynard-Fink Road bridge was furnished by the Allen Township Trustees, with the asphalt for the rehabilitated bridge on Michael Road furnished by Brown Township.

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 07/01/2003.

Road Name	Bridge No.	Span x Width	Costs		
			Materials & Equip.	Labor & Fringe	Total
Cox	C090-0399	13' x 28'	\$ 30,636.98	\$25,054.02	\$ 55,691.00
Rhynard-Fink	T072-0215	62' x 24'	\$ 119,769.33	\$30,712.65	\$150,481.98
Ellis	C073-0509	12' x 6' x 72'	\$ 99,707.70	\$17,805.90	\$117,513.60

BRIDGE REHABILITATIONS (3)

The bridge crew also rehabilitated three bridges as shown below.

Hillgrove-Southern	C052-0702	75' x 24'	\$64,212.26	\$19,190.96	\$ 83,403.22 (1)
Michael	T158-0136	54' x 24'	\$17,402.42	\$11,462.05	\$ 28,864.47 (2)
Rosburg-Lightsville	C050-0611	68' x 24'	\$ 5,754.62	\$14,805.34	\$ 20,559.96 (3)

- (1) Replaced center and forward spans with new galvanized superstructures, new timber deck, waterproofing and new asphalt on entire bridge. (2) Clean "Corten" steel superstructure, new timber deck, waterproofing and new asphalt. (3) Remove and reconstruct concrete slab deck edges.

Grand Total \$456,514.23

Design is ongoing to replace the deficient bridge on Fisher-Dangler Road (T092-01.91) with a 100' span structure in 2021. \$12,528 was spent for subsurface investigations and \$5,428 for foundation design.

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

ACTUAL BRIDGE WORK COSTS

Reported costs for three new bridges, and three rehabilitations of bridges: \$456,514.23

Materials and services purchased for them: \$274,117.22 Actual labor, fringe and equipment: \$123,550.93

Total Actual County Cost: \$397,668.15

Our bridge count increased from 516 to 517 due to the new bridge on Cox Road over 10' span.

STATE SUFFICIENCY RATINGS OF BRIDGES ON DARKE COUNTY AND TOWNSHIP ROADS

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

The average sufficiency rating of all 517 bridges is 90.6%

Number of bridges	% of total bridges	Sufficiency Rating
297	57.4 %	EXCELLENT (90-100)
199	38.5 %	GOOD (70-90)
17	3.3 %	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 the CSX railroad.)

The average age of the 517 bridges on County and Township roads is 34.8 years.

As mandated by both States, Darke and the three adjoining Indiana counties have recorded bridge responsibilities on the nine bridges (over 20 foot span) on the Ohio-Indiana State Line Road. While the responsibility for major repairs and replacement of these bridges remain equal between the two counties; Darke County will retain annual inspection obligation of seven of the bridges, (which includes one with Wayne County, one with Jay County and five with Randolph County) with Randolph County assuming the responsibility for two.

DETAILED EXPENDITURES FOR 2019

(Amount per category, percentage of total expenditures, and change from 2018)

WAGES & FRINGE	35.2%	-0.3%	from 2018
<i>(Engineer, 30 fulltime, 1 part-time)</i>			
WAGES	\$1,501,736.58		
PERS	\$ 208,866.32		
HEALTH INS.	\$ 299,300.88		
UNIFORMS	\$ 15,959.90		
MEDICARE	\$ 19,522.97		
WKRS. COMP.	\$ 17,252.02		
DRUG TESTS	\$ 1,491.00		
ADM. FEES	\$ 3,540.21		
<u>SEVERANCE</u>	<u>\$ 0.00</u>		

TOTAL \$ 2,067,669.88 (38% fringe)

OVERHEAD	7.5%	+0.4%	from 2018
UTILITIES/BLDG. MAINT.	\$ 26,526.66		
PARTS & SUPPLIES	\$101,848.75		
FUEL (all County Depts.)	\$254,430.13		
TIRES	\$ 19,353.45		
LUBE/FILTERS	\$ 14,424.55		
REPAIRS BY OTHERS	\$ 10,192.24		
<u>DUES, TOOLS, MISC.</u>	<u>\$ 10,583.03</u>		

TOTAL \$437,358.81

IMPROVEMENTS	38.6%	-2.3%	from 2018
<i>(Road paving, sealing, construction and bridge costs)</i>			
PAVING (28.95 Mi.)	\$ 1,873,642.31		(\$2,279,236)*
CHIP/SEAL (19.99 Mi.)	\$ **		
BRIDGE WORK	\$ 340,206.37		
<u>CAPITAL IMPROVE.</u>	<u>\$ 48,751.57</u>		
TOTAL	\$ 2,262,600.25		

* + \$405,593.70 furnished by OPWC grant, paid to contractor
 ** Chip-seal costs carried in road maintenance below

ROAD MAINTENANCE MTLs.	12.0%	+5.8%	from 2018
SALT & ICE GRITS	\$ 179,027.74		
SIGNS & POSTS	\$ 29,582.97***		
CRACK-SEAL MTL.	\$ 22,646.75		
GRAVEL	\$ 49,365.62		
PAV'T MARKING	\$ 186,432.27		(by contract)
DRAINAGE	\$ 20,947.75		
ASPHALT	\$ 11,180.83		
CURVE STUDY	\$ 28,080.00****		
ASP. EMULSION	\$ 171,118.68		
<u>MISC.</u>	<u>\$ 5,780.54</u>		

TOTAL \$ 704,163.15

*** \$21,000.00 furnished by sign grant
 **** \$25,272.00 furnished by fed. grant

EQUIPMENT PURCHASE; \$394,286.90 6.7% -3.6% from 2018 (\$4,214.20 reimbursed)

TOTAL EXPENDITURES: \$5,866,078.69

Maintaining roads and bridges involves many different tasks and responsibilities. The most visible are snow plowing and roadside mowing; but the continual repair and replacement of signs, maintaining drainage along and through the roads, repairs due to weather and vehicular accidents, and the trimming and removal of trees and brush along roads are never-ending tasks. Sealing cracks in asphalt pavement surfaces to prevent water intrusion is done in all but the winter months. Our team chip-seals roads, builds new bridges, maintains and repairs existing bridges and culverts, inspects all bridges, maintains and repairs roads, and maintains and repairs all County equipment. They perform all road and bridge work with the exceptions of asphalt road resurfacing and the painting of the yellow and white lines on the pavement.

The department includes the County Engineer and thirty-one personnel, with twenty-seven at the Highway Department and four at the Courthouse Office. The office performs surveying and design, all bridge inspections, contract management, clerical and payroll, maintains tax maps, and checks and approves all deed transfers and new surveys.

Our most difficult challenge continues to be the maintenance of 522.575 miles of asphalt road surfaces, the integrity of 517 bridges, and to improve the system with available revenue in the face of ever-rising costs.

2019 AT A GLANCE

28.95 miles of County road asphalt resurfacing:	\$2,279,236 (\$78,730 per mile-contracted)
19.99 miles of County road chip-sealed:	\$ 213,560 (\$10,683 per mile-Co. performed)
3 new bridges constructed, 3 rehabilitated & misc. repairs	\$ 340,206 (materials & services only)
482.5 miles of new pavement markings applied:	\$ 186,432 (contracted)

522.509 miles of County road maintained including mowing, snow removal, patching, culvert replacement, crack-sealing, signs and drainage maintenance; and the inspection and maintenance of 517 bridges on County and Township roads.

Revenue Received	Revenue Spent
Ohio fuel tax:	Wages and fringes:
\$2,946,111.24	\$2,067,669.88 (35.2%)
Ohio license tax:	Overhead
\$2,509,817.61	\$ 437,358.81 (7.5%)
Local permissive license tax:	Road/ Bridge Improvements:
\$ 427,519.23	\$2,262,599.95 (38.6%)
Grants/Reimbursements	Road maintenance materials:
\$ 316,255.88	\$ 704,163.15 (12.0%)
Interest	Equipment purchase:
\$ 105,080.73	\$ 394,286.90 (6.7%)
Recycling & Sales	
\$ 43,028.18	
Total \$ 6,347,812.87	Total \$ 5,866,078.69