

43rd Annual DARKE COUNTY ENGINEER'S ANNUAL REPORT FOR 2020

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

This report shows money received for the year, where it was spent, and what it maintained, constructed, purchased, or improved. We always try to maximize the funds spent on road and bridge improvements. For 2020, not including a paving grant, this was \$3,111,934.56, or an amount equal to 42.1 percent of our total annual receipts. The recent Ohio fuel tax increase has greatly helped our cause, as the receipts increased 23% over 2019, while our annual cost of diesel fuel and gasoline was down 38% from that of 2019.

In spite of the challenges and limitations forced by the pandemic, we managed to resurface 30.92 miles of County roads by contract, applied chip-seal/fog seal surfaces to 25.25 miles with County personnel and equipment, construct two new bridges, complete eleven bridge rehabilitation and repair projects, and all of the many tasks necessary to maintain our large inventory of roads and bridges. We also never missed a work day.

Later in the year we began construction of a new truck storage/office facility which will be completed before mid-2021. This was imperative since we have simply outgrown our building constructed in 1977-78.

Our employees continue to perform all road and bridge construction and maintenance work, with the only exceptions being asphalt paving and road striping. Crews perform all surface sealing, snow/ice control, roadside mowing, and sign erection and maintenance, on 522.575 road miles. They also performed tree trimming and removal, replaced 31 culverts on County and Township roads, and made numerous ditch and drainage improvements.

Total spending for 2020 was \$1,235,899.04 (21%) greater than 2019, but \$288,463.59 (4%) less than the total year's receipts.

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

2020 RECEIPTS

Fuel Tax	\$ 3,626,131.63
Motor License Fees	\$ 2,490,232.93
Motor License-Permissive	\$ 422,842.19
Sales	\$ 49,851.64
Recycling	\$ 2,579.79
Grants/Reimbursements*	\$ 668,820.46
Interest	<u>\$ 129,982.68</u>
	\$ 7,390,441.32
*Grants	\$ 51,595.00
Sale of Assets	\$ 306,596.00
Fuel Reimb.	\$ 57,777.23
Other	<u>\$252,852.23</u>
Total	\$668,820.46

2020 EXPENDITURES

Resurfacing & Chip-Seal	\$2,218,816.74
Bridge Construction & Maint.	\$ 116,090.84
Wages and Salaries	\$1,549,363.94
Fringe Benefits	\$ 631,841.23
Equipment & Repairs	\$ 977,573.22
Fuel (All Co. Departments)	\$ 156,548.70
Utilities/Bldg. Maintenance	\$ 33,547.36
Road Maintenance Materials	\$ 641,168.74
New Building	<u>\$ 777,026.96</u>
Total	\$7,101,977.73

Total 2020 Receipts: \$7,390,441.32
(2019 Receipts: \$6,347,812.87)

Total 2020 Expenditures: \$7,101,977.73
(2019 Expenditures: \$5,866,078.69)

IMPROVEMENTS

Miles of Road Resurfaced:	33.00	Centerline Striping:	295	road miles
Miles of Road Chip-sealed:	25.25	Edge line Striping:	375	lane-miles
New Bridges Constructed:	2			
Bridges Rehabilitated:	2			
Bridges Repaired:	9			

EQUIPMENT PURCHASES

8 mowing tractors (net trade-in):	\$231,158.74	2-Dump Trucks-equipped:	\$ 261,444.00
Power road broom:	\$ 12,940.00	2-Material Spreaders:	\$ 9,836.00
		Total net purchases:	\$ 515,378.74

ANNUAL MAINTENANCE DATA

County road culverts replaced: 4	Diesel used: 56,496 Gallons
Signs & posts purchased: \$54,973.64	Gasoline used: 8,679 Gallons
Sign repair/replacement: 713 locations	Salt & ice grits purchased: \$ 182,193.88
Township Road culverts and tile replaced: 27 locations	Crackseal material applied: 10,030 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

2020 ROAD IMPROVEMENTS

We contracted asphalt resurfacing with Walls Brothers Asphalt on eleven different roads totaling 22.14 miles for \$1,771,562.93. Also, using County personnel and equipment, we applied chip seal and fog seal to 25.25 miles of fifteen different roads with a material cost of \$262,719.22. The per-mile cost difference between the two applications is over 7 to 1, and both methods are used to preserve and improve 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.)	
Gordon-Landis	5.30	5,018.81	529.86	\$ 396,018.10
Greenville-St. Marys	4.19	4,182.30	498.15	\$ 347,153.43
Hollansburg-Sampson	2.96	2,956.22	306.87	\$ 227,040.59
Grubbs-Rex	2.46	2,361.35	237.97	\$ 187,875.42
Auld	2.22	2,184.24	285.11	\$ 178,822.63
Pittsburg-Laura	1.26	1,272.63	96.74	\$ 100,342.02
Weavers-Ft. Jefferson	1.21	1,139.79	102.64	\$ 93,602.88
County Home	0.84	1,043.92	69.78	\$ 83,005.02
Grubbs-Rex	0.76	772.38	81.68	\$ 64,232.94
Demming	0.32	320.22	35.58	\$ 32,964.14
Greenville-St. Marys (2)	0.62	627.32	0.0	\$ 60,505.76
Totals	22.14	21,879.18	2,244.38	\$1,771,562.93

Avg. application: 988 tons per mile (1-1/2 inches thick in two courses) Avg. cost per mile: \$80,016.39
Of the cost per mile, \$75,391.84 was for asphalt, with \$4,624.55 for gravel berm.

An additional 8.78 miles was resurfaced of the entire Gettysburg-Pittsburg Road through a CSTP project with 80% federal participation in the costs. This was after extensive shoulder widening performed in 2019, and replacing a deficient bridge in early 2020, all with County forces.

Gettysburg-Pittsburg	8.78	10,325.74	1,056.55	\$922,672.96
Avg. application: 1176 tons per mile Local Cost: \$184,534.59 Avg. cost per mile: \$105,088.04				

Total Resurfacing: 30.92 miles Total Cost: 2,694,235.89 (Local Cost = \$1,956,097.52)

SURFACE SEAL BY COUNTY PERSONNEL & EQUIPMENT (material costs shown)

Chip Seal: 0.45 gal. emulsion and 26 lb. stone per sq. yd.			Fog Seal: 0.09 gal./sq. yd. = 1000 gal./ mile		
ROAD NAME	MILES	COST	ROAD NAME	MILES	COST
Peters	3.48	\$37,255.89	Schnorf-Jones	1.53	\$15,000.76
Weavers-Ft. Jeff.	1.17	\$13,069.94	Weavers-Ft. Jeff.	3.54	\$ 37,695.87
Greenville-St. Marys	0.30	\$ 2,953.32	Kester-Byard	0.37	\$ 4,230.21
Weavers Station	0.33	\$ 3,804.15	Cochran	0.98	\$10,333.65
Boyer	2.01	\$19,771.14	Coble	3.28	\$33,957.18
Demming	0.80	\$ 9,361.94	Duncan	1.71	\$15,534.34
Medford	1.98	\$19,766.70	York	0.16	\$ 2,073.16
Houk	1.98	\$20,395.80	Hillgrove-Woodington	<u>1.63</u>	<u>\$17,515.15</u>
			Total	25.25 miles	\$262,719.22

Average cost per mile: \$10,404.72

A total of 56.17 miles of County road received new surfaces in 2020, which is 11% of the total mileage (522.575). If this rate can be continued, all roads could have surfaces renewed every 9-10 years.

Total County paving and sealing costs: \$2,956,955.11 (with \$738,138.37 paid by federal funds).

PAVEMENT MARKINGS

We contracted the painting of new centerline/no-passing markings on 203 miles of County road, and white edge lines on 603 lane miles (301.5 road miles) through Aero-mark Inc. The total cost was \$257,291.72, using 13,263 gallons of paint and 53 tons of reflective glass beads. The average cost was \$340 per road mile for yellow markings and \$625 per road mile for white edge lines. We also coordinated the application of 69.7 miles of centerline and edge-line markings for ten different Townships and the Village of Rossburg at a contracted cost of \$27,294.97.

TOWNSHIP COOPERATIVE WORK

During 2020, the highway department provided \$24,385 of free labor and equipment to 15 Boards of Township Trustees, and \$18,500 to 4 Townships that was reimbursed. This work included the replacement of 27 roadway culverts (12"-48" diameter) on 7 different roads in 6 different Townships. The Trustees of two Townships (Neave and Wabash) each furnished new asphalt surfaces for a rehabilitated bridge on their roads during the year.

We also supplied the specifications and bidding process for the asphalt paving of seven different Township roads in seven different Townships, totaling 7.723 miles.

OTHER PROJECTS

We applied and received grants of \$51,595.00 to upgrade and improve selected warning, curve, and road name signs throughout the county, which were all erected by County labor and equipment. Also, 2346 feet of 18 inch diameter "County" tile was relocated off County road right-of-way at a cost of \$19,424.88.

2020 BRIDGE CONSTRUCTION AND REHABILITATION

In addition to maintenance and repair, we built two new bridges on County roads, and rehabilitated two 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 (2)

Both new bridges were galvanized steel beam superstructures with timber decks on new concrete abutments. All bridge work, including steel fabrication was done by Darke County personnel.

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
Gettysburg-Pitsburg	C650-0428	25' x 32'	\$ 56,831.72	\$28,612.51	\$ 85,444.23
Coble	C129-0044	16' x 28'	\$ 48,807.26	\$29,307.50	\$ 78,114.76

BRIDGE REHABILITATIONS AND REPAIR (11)

On the two rehabilitated bridges on Cohn and Byrket Roads, the steel was reconditioned and new timber decks were installed with waterproofing and new asphalt surfaces furnished by the Township Trustees.

Cohn	T184-0108	28' x 20'	\$ 7,381.79	\$ 7,277.00	\$ 14,658.79 (1)
Byrket	T158-0136	54' x 24'	\$17,402.42	\$11,462.05	\$ 28,864.47 (1)
Beamsville-Webster	C075-0185	174' x 32'	\$ 2,548.13	\$ 5,611.09	\$ 8,159.22 (2)
Rosburg-Lightsville	C050-0611	68' x 24'	\$ 5,754.62	\$14,805.34	\$ 20,559.96 (3)
Mangen	C054-0286	44' x 24'	\$ 1,059.44	\$ 5,152.55	\$ 6,211.99 (4)
Young	C065-0380	68' x 28'	\$ 2,398.94	\$ 8,347.48	\$ 10,746.42 (4)
Miller	T146-0110	18' x 24'	\$ 2,007.90	\$ 5,636.30	\$ 7,644.20 (5)
Ohio-Indiana Line	C011-0513	85' x 24'	\$ 316.33	\$ 1,559.70	\$ 1,876.03 (6)
Murphy	T300-0084	64' x 24'	\$ 1,338.99	\$ 2,079.60	\$ 3,418.59 (6)
Springhill	C091-0229	101' x 28'	\$ 2,294.11	\$ 5,928.27	\$ 8,222.38 (6)
Hillgrove-Ft. Recovery	C022-0410	48' x 28'	\$ 1,811.86	\$ 415.76	\$ 2,227.62 (6)

- (1) Clean and paint superstructures, install new timber deck, waterproofing and new asphalt on entire bridge.
- (2) Extensive reconstruction and reinforcement of deteriorated portions of pier piles.
- (3) Remove and reconstruct concrete slab deck edges.
- (4) Fascia repair
- (5) Abutment repair
- (6) Guardrail Upgrade and improvements

Grand Total \$276,148.66

A contract was awarded in December to Brumbaugh Construction Inc. for the 2021 construction of a new replacement bridge on Fisher-Dangler Road (T092-01.91) over Greenville Creek, with a 100' span and 28' width truss structure. The expected cost will be \$882,592.00 with 80% of funding coming from federal bridge funds. Also in 2019, \$12,528 was spent for subsurface investigations and \$5,428 for foundation design for this new bridge.

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

ACTUAL BRIDGE WORK COSTS

*Reported costs for two new bridges, two rehabilitations and nine repairs of bridges: \$276,148.66
Materials and services purchased for them: \$116,090.84 Actual labor, fringe and equipment: \$103,565.10
Total Actual County Cost: \$219,655.94*

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 90.9%

Number of bridges	% of total bridges	Sufficiency Rating
301	58.2 %	EXCELLENT (90-100)
200	38.7 %	GOOD (70-90)
12	2.3 %	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 35.5 years.

DETAILED EXPENDITURES FOR 2020

(Amount per category, percentage of total expenditures, and change from 2019)

WAGES & FRINGE 30.7% -4.8% from 2019
 (Engineer, 31 fulltime, 1 part-time)
 WAGES \$1,549,363.94
 PERS \$ 215,509.37
 HEALTH INS. \$ 347,428.60
 UNIFORMS \$ 14,549.53
 MEDICARE \$ 20,842.11
 WKRS. COMP. \$ 14,088.72
 DRUG TESTS \$ 1,806.00
 ADM. FEES \$ 3,346.42
SEVERANCE \$ 14,270.48

IMPROVEMENTS 43.9% +3.0% from 2019
 (Road paving, sealing, construction and bridge costs)
 PAVING (30.92 Mi.) \$ 1,956,097.52 (\$2,694,235.89)*
 CHIP/SEAL (25.25 Mi.) \$ 262,719.22
 BRIDGE WORK \$ 116,090.84
CAPITAL IMPROVE. \$ 777,026.96 **
TOTAL \$ 3,111,934.54

* \$738,138.37 furnished by CSTP grant, paid to contractor
 ** Amount paid on new truck storage building

TOTAL \$ 2,181,205.17 (40.8% fringe)

OVERHEAD 5.0% -2.1% from 2019
 UTILITIES/BLDG. MAINT. \$ 33,547.36
 PARTS & SUPPLIES \$132,666.44
 FUEL (all County Depts.) \$156,548.70
 LUBE/FILTERS \$ 13,610.99
 REPAIRS BY OTHERS \$ 16,248.10
DUES, ADVERTISING \$ 5,168.95

TOTAL \$ 357,790.54

ROAD MAINTENANCE MTLs. 9.0% +2.8% from 2019
 SALT & ICE GRITS \$ 182,193.88
 SIGNS & POSTS \$ 54,973.64***
 GRAVEL \$ 31,149.15
 PAV'T MARKING \$ 257,269.05 (by contract)
 DRAINAGE \$ 108,392.75
ASPHALT \$ 7,190.27

TOTAL \$ 641,168.74
 *** \$ 51,595.00 furnished by sign grant

EQUIPMENT PURCHASE; \$809,878.74 11.4% +1.1% from 2019 (\$294,500.00 reimbursed)

TOTAL EXPENDITURES: \$7,101,977.73

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 from weather events and vehicular accidents, and the trimming and removal of trees and brush along roads are never-ending tasks. Repairing and sealing cracks in asphalt pavement surfaces to prevent water intrusion is continuous. 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 types of 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.

2020 AT A GLANCE

30.92 miles of County road asphalt resurfacing:	\$2,694,235.91 (\$87,136 per mile-contracted)
25.25 miles of County road chip-sealed:	\$ 262,719.22 (\$10,405 per mile-Co. performed)
2 new bridges constructed, 11 rehabilitated & misc. repairs:	\$ 116,090.84 (materials & services only)
504.5 miles of new pavement markings applied:	\$ 257,269.05 (\$510 per mile contracted)

522.575 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	Change from 2019	Revenue Spent
Ohio fuel tax:	\$3,626,131.63 +23%	Wages and fringes: \$ 2,181,205.17 (30.7%)
Ohio license tax:	\$2,490,232.93 - 1%	Overhead \$ 357,790.54 (5.0%)
Local permissive license tax:	\$ 422,842.19 - 1%	Road/ Bridge Improvements: \$ 3,111,934.56 (43.9%)
Grants/Reimbursements	\$ 668,820.46 +111%	Road maintenance materials: \$ 641,168.72 (9.0%)
Interest	\$ 129,982.68 +24%	Equipment purchase: <u>\$ 809,878.74 (11.4%)</u>
Recycling & Sales	<u>\$ 52,431.43 +22%</u>	
Total	\$ 7,390,441.32 +16%	Total \$ 7,101,977.73