

Athens County Engineer's 2019 Annual Report



This is my seventh annual report on the condition of the county roads, bridges, and culverts as required by Section 5543.02 of the Ohio Revised Code.

THE GREATEST YEAR OF ALL TIME

It was truly an outstanding year! The 2019 annual sales for the Athens County Engineer's Office (ACEO) was an incredible \$ 13,182,999! We started the year with a projected budget of \$ 4,414,422. The ACEO staff produced more work than any year in modern history:

- Built more bridge projects than any year so far and saved taxpayers at least \$ 965,000 by designing and building them ourselves. (pages 2-3)
- Resurfaced 36.2 miles of county road by asphalt paving, chip & seal, or asphalt leveling to radically improve 10% of our road inventory in one year. (pages 5-7)
- Constructed 23 landslide repair projects in 2019, the equivalent of six years of slip repair work in one year (under normal conditions). (pages 8-9)

OHIO SEVERE STORMS, FLOODING, AND LANDSLIDES (DR-4424)

On April 8, 2019, President Trump declared Athens County, along with 20 other counties in southeastern Ohio, eligible for federal disaster relief from the Federal Emergency Management Agency (FEMA). This disaster was not as destructive in Athens County as the 2018 FEMA event. I met with FEMA site inspectors and identified 7 new landslide projects that will be constructed in 2020.

GAS TAX INCREASE TOOK EFFECT JULY 1, 2019

In 2019, The Ohio legislature passed House Bill 62 that increased Ohio's motor fuel tax on gasoline by 10.7 cents and diesel fuel by 20 cents. The gas tax increase is projected to yield an additional **\$1.5 million dollars** for the Athens County Engineer's Office, a 35% increase in the annual budget.

LOST REVENUE DUE TO THE CORONAVIRUS PANDEMIC

As this report is being finalized, we are in the midst of the COVID-19 Pandemic. The State of Ohio has been in lockdown and people are staying home and not driving. The best advice from ODOT is that gas tax revenues may drop by 35% this year. Revenue from Motor Vehicle License Plates dropped 63% in May 2020. I am currently allowing for a **\$1.4 million dollar loss** in revenue in 2020, effectively negating the Gas Tax Increase of 2019.

I appreciate the opportunity to serve the people of Athens County.

Sincerely,

Jeff Maiden, P.E., P.S.
Athens County Engineer

Jeff Maiden, P.E., P.S. Athens County Engineer

The mission of the Athens County Engineer's Office (ACEO) is to serve the citizens of Athens County by building and maintaining a safe and modern county highway system; to respond promptly to reasonable road complaints; to process land surveys and property records accurately; and to be good stewards of taxpayer dollars by developing cost effective solutions for road and bridge maintenance problems.

TABLE OF CONTENTS

Commentary	1
Bridge Conditions	2
Bridge Projects	3
Road Conditions.....	4-5
Resurfacing.....	5-7
Slip Repairs	8-9
Revenue.....	10
Expenses	11
The Team	12

THE CONDITION OF ATHENS COUNTY BRIDGES

The Athens County Engineer's Office is responsible for the maintenance, repair, and replacement of a total of 335 bridges. There are 192 bridges on county roads and 143 bridges on township roads (i.e., bridges 10' span or longer on township roads). These bridges are inspected in November and December each year.

The general appraisal rating (GA) is the bridge's overall Condition State. The GA is subjective and presented with a rating scale of 9 to 0, according to AASHTO and DOT, where 9 = excellent and 0 = failure.

The number of "GOOD" bridges stayed the same at 105 (in 2018 and 2019).

The "General Appraisal Ratings" of the 6 new bridges were raised to GA=9 for each of those bridges, raising them into the "GOOD"

category. This means that there were 6 bridges that dropped below GA = 7, which is the minimum threshold to be rated in the "GOOD" category. We just can't rebuild them fast enough!

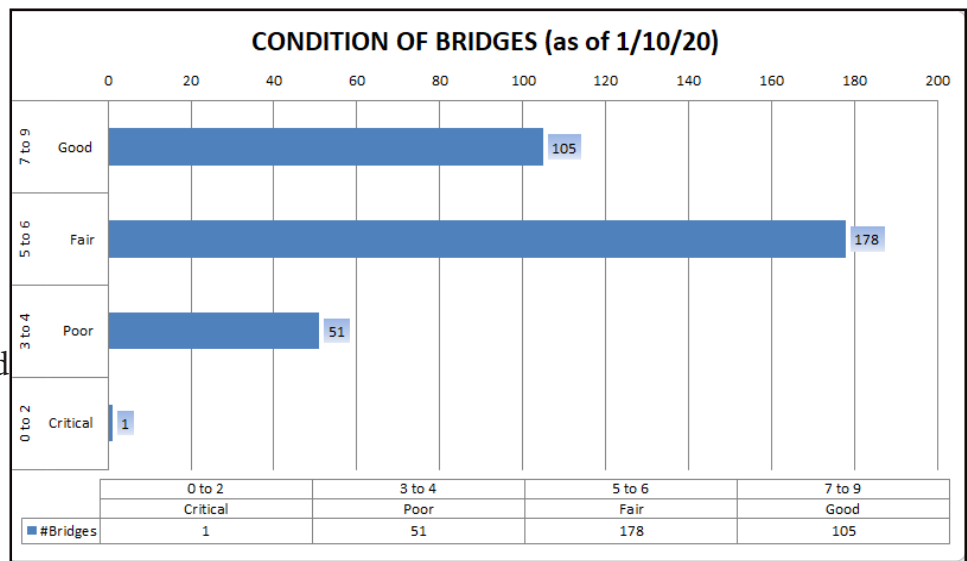
The number of "FAIR" bridges increased from 173 (in 2018) to 178 (in 2019). We did one major bridge superstructure reconstruction project; two superstructure repair projects; and one abutment repair project that moved four bridges up to "FAIR" status.

The number of "POOR" bridges decreased from 54 (in 2018) to 51 (in 2019). The six new bridges that moved to "GOOD" status were in either "POOR" or "CRITICAL" condition and they were chosen to be replaced for that reason.

The number of "CRITICAL" bridges decreased from 3 (in 2018) to 1 (in 2019). The Dover T325- 2.00 Bridge on Mill Creek Road will be replaced in 2020.

The number of bridges posted with load limits dropped from 106 (in 2018) to 100 (in 2019).

There are 95 bridges that carry the label "functionally obsolete", which generally means they are too narrow to accommodate two lane traffic.



Troy Township Wildman Road Bridge Replacement- January 2019



2019 BRIDGE PROJECTS

We made great strides in our bridge program in 2019, our best year to date. Our strategy has been to buy equipment and train county workers to do bridge repair and replacement projects. We have an excellent bridge crew that can compete with the best in the industry. The Athens County bridge crew completed twelve bridge projects in 2019:

- (1) six (6) new bridge projects (all precast box culverts)
- (2) two (2) steel beam and wood deck bridge superstructures
- (3) three (3) bridge deck replacement projects
- (4) one (1) abutment repair project

Donnie Stevens, Assistant Engineer, surveyed and designed six (6) precast concrete box culverts and two (2) steel beam and wood deck bridge superstructure projects. Since we are building these projects with our own crews, we do not have to prepare drawings to the level of detail required to accept competitive bids. The minimum cost to contract with an engineering consultant to design these six box culverts would be \$ 35,000 per structure, or \$210,000. The actual cost to have Mr. Stevens do the surveying and design work was less than \$ 24,000. **We saved taxpayers \$186,000 by doing this work ourselves.**

John Brunton, bridge foreman, was in charge of building these 12 bridge projects. We took competitive bids for the precast box culverts, paving, and guardrail at a cost of \$ 332,575. The “FORCE ACCOUNT” costs in the chart below were \$ 519,381, and that is the part of the work that was done by county workers. I would estimate that our FORCE ACCOUNT cost is about forty percent (40%) of the cost to hire a contractor to do the work. **We saved taxpayers \$ 779,000 by doing this work ourselves.**



CR 9 Bridge- Before Construction



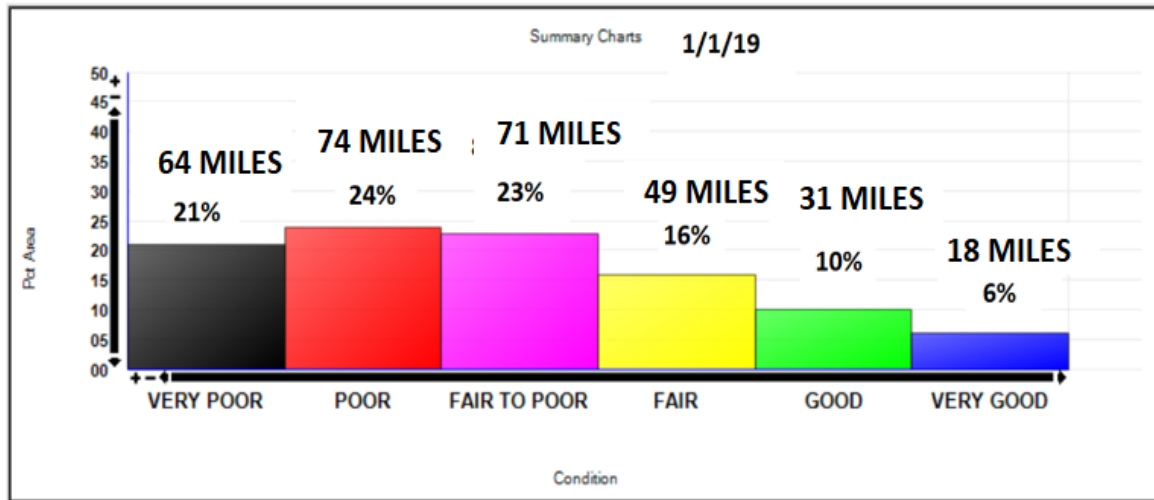
CR 9 Bridge- After Construction

County Rd	Log Point	Road Name	Project Description	TOTAL Construction	FORCE ACCOUNT County Costs	CONTRACTOR COST	OPWC Grant	OPWC Loan
CR 9	2.55	Salem Rd	Precast Box Culvert	\$ 94,288	\$ 37,143	\$ 57,146	\$ -	\$ 69,773
CR 15	0.67	Wood Rd	Precast Box Culvert	\$ 120,357	\$ 49,283	\$ 71,074	\$ 89,065	\$ -
CR 34	7.26	Mush Run Rd	Precast Box Culvert	\$ 117,543	\$ 69,225	\$ 48,318	\$ -	\$ 86,982
CR 73	3.42	Wolfe Bennett Rd	Precast Box Culvert	\$ 110,471	\$ 42,731	\$ 67,740	\$ -	\$ 81,749
TR 27	2.10	Gun Club Rd	Precast Box Culvert	\$ 93,083	\$ 51,227	\$ 41,856	\$ -	\$ 68,881
TR 181	0.25	Wildman Rd	Precast Box Culvert	\$ 94,526	\$ 51,444	\$ 43,082	\$ -	\$ 69,949
TR 181	1.00	Wildman Rd	Superstructure Replacement	\$ 89,003	\$ 89,003	\$ -	\$ -	\$ -
CR 29	0.60	Big Bailey Run Rd	Superstructure Replacement	\$ 82,036	\$ 78,678	\$ 3,359	\$ -	\$ -
CR 67	1.67	Goose Run	Deck Replacement	\$ 10,070	\$ 10,070	\$ -	\$ -	\$ -
CR 67	1.85	Goose Run	Beam/Deck Replacement	\$ 22,504	\$ 22,504	\$ -	\$ -	\$ -
TR 227	0.13	Parmitter Rd	Deck Replacement	\$ 7,923	\$ 7,923	\$ -	\$ -	\$ -
TR 196	2.00	Marietta Run Rd	Abutment Repair	\$ 10,151	\$ 10,151	\$ -	\$ -	\$ -
TOTALS =				\$ 851,956	\$ 519,381	\$ 332,575	\$ 89,065	\$ 377,334

Bridges with 20' spans (or longer) are eligible for federal grant funding. Since we used local and state money to build three bridge projects that were federal bridges (>20' span), we received \$ 231,574 in CREDIT BRIDGE funds. The Local Bridge (LBR) Grant Program will fund 80% of the construction cost of a federal bridge project. We can use the \$231,574 in CREDITS for the local match portion, thereby effectively using that money twice!

THE CONDITION OF ATHENS COUNTY ROADS

I contracted with Kindler and Associates, LLC to develop a pavement management system for Athens county roads. The PAVER PMS (Pavement Management System) is the most widely used PMS in the world. Mr. Kindler began the road inspections in November 2019 and they were completed by the end of the year. The pavement conditions at the beginning of 2019 were estimated in the chart below:



The field inspection method used was based on the criteria outlined in ASTM D6433:

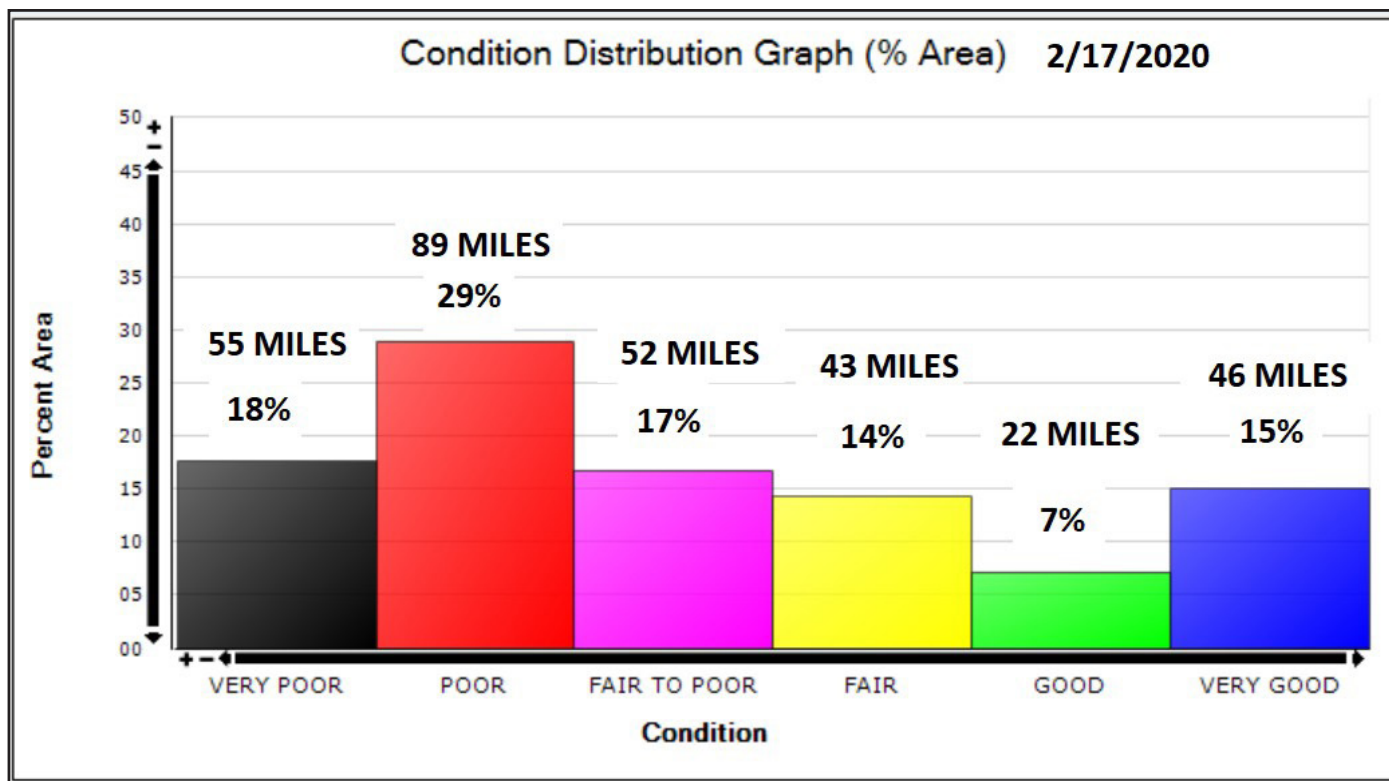
- The goal was to inspect about 4 sample areas per mile.
- Each sample area was about 2,500 square feet
- The distresses that were found in each sample area were listed.
- Their severity (high, medium, low) were determined.
- The distress data was input into PAVER, which determined the Pavement Condition Index (PCI) rating for each section.

The CONDITION RATING in the charts (from very poor to VERY GOOD) are based on the following Pavement Condition Index (PCI) rating ranges:

PCI Rating	Low Value	High Value	Color
VERY GOOD	91.00	100.00	Blue
GOOD	76.00	90.00	Green
FAIR	66.00	75.00	Yellow
FAIR TO POOR	56.00	65.00	Magenta
POOR	41.00	55.00	Red
VERY POOR	0.00	40.00	Black

Although all 362 miles of county roads were driven, the PCI ratings only apply to county roads with impervious surfaces only (i.e., asphalt, “chip and seal”, and concrete). After spending approximately \$3,700,000 on asphalt paving, chip and seal resurfacing, and asphalt leveling work in 2019; the field inspections in November and December of 2019 produced an average PCI of 60 and the Condition Distribution Chart on the following PAGE 5:

CONDITION OF ATHENS COUNTY ROADS (CONT.)



The “VERY GOOD” roads improved from just 18 miles at the beginning of 2019 to 46 miles of “VERY GOOD” roads at the beginning of 2020.

2019 RESURFACING PROJECTS

2019 CHIP AND SEAL PROJECT

The Shelly Company of Thornville, Ohio constructed the first major chip and seal contract that we’ve put out to bid in the past 7 years. We’ve done several chip and seal projects in the past with county crews. The total cost to chip and seal 11.4 miles of road, including fog sealing the surface and a double layer of chip seal for about half of that length, was \$ 306,568.



Project	Road No.	Road Name	Project Limits	Length (miles)	Surface Treatment	Construction Cost
ATH-Chip Seal 2019	CR22	Vore Ridge Rd	SR 682 to SR 691	5.18	Chip Seal / Fog Seal	\$ 306,568
	CR25	Long Run Rd	CR75 to CR90	2.93	Chip Seal / Fog Seal	
	CR75	Coolville Ridge Rd	TR90 to CR25	1.32	Chip Seal	
	CR87	Antle Orchard Rd	CR31 to SR13	1.98	Chip Seal	
Total Chip Seal =				11.41 miles		\$ 306,568

2019 RESURFACING PROJECTS (CONT.)

CR 33A / CR 110 / CR 71 PAVING PROJECT

It takes about six years (2019) to receive the actual funds for a federal paving grant after it is awarded (2013). We paved 17.5 miles of hot mix asphalt in 2019 because the grant money was received for one federal paving grant (CSTP) and two state paving grants (2017/2018 OPWC).

The Old State Route 33 (CR 33A) Paving Project was the largest paving project ever done by the Athens County Engineer's Office. The project consisted of the 2.25" asphalt overlay of three Athens County roads classified as "federal aid routes":

- 8.71 miles of Old State Route 33 (CR 33A) from the City of Athens to the Meigs Co. Line.
- 1.34 miles of Columbia Road (CR 71)- from US 32 to the Meigs Co. Line
- 3.12 miles of Poston Station Road (CR 110)- from SR691 to SR682



Poston Station Road (CR 110) is the primary access road to the Bill Theisen Industrial Park and was badly in need of base rehabilitation prior to the planned resurfacing. A planned expansion by Global Cooling, Inc. at the industrial park created an opportunity to receive a grant to do some base repair. Donnie Stevens, Assistant Engineer, worked with Tom Poorman from the Jobs Ohio program to receive a \$ 221,291 grant to grind, pave, and chip & seal the base prior to paving.

This \$ 2,261,509 project was completed in the summer of 2019 and funded by:

- A County Surface Transportation (CSTP) grant for \$1,382,280 (Federal)
- An Ohio Public Works Commission (OPWC) grant for \$ 400,000 (State)
- An Ohio Public Works Commission (OPWC) loan for \$ 159,400 (State)
- A Jobs Ohio grant for \$ 221,291 (State)
- Local Funds from the Athens Co. Engineer's budget of \$ 98,538 (Local)



2019 RESURFACING PROJECTS (CONT.)

CR 10 / CR 17 PAVING PROJECT

The Baker Road (CR 10) and Fisher Road (CR 17) Paving Project consisted of the 2.25" asphalt overlay of sections of two important collector roads:

- 2.4 miles of Fisher Road (CR 17)- from University Heights Drive to Ladd Ridge Road (CR 76)
- 1.87 miles of Baker Road (CR 10)- from Radford Road to Enlow Road

This \$ 578,002 project was completed in the fall of 2019 and funded by:

- An Ohio Public Works Commission (OPWC) grant for \$ 231,201 (State)
- Local Funds from the Athens Co. Engineer's budget of \$ 346,801 (Local)

The CR 10/CR 17 paving project would not have happened if Ohio HB62 (gas tax increase) had not passed on April 2, 2019. I attended an OPWC-District 18 executive committee meeting on April 3, 2019. The OPWC grant funds were cut from \$400,000 to \$ 231,201- and I used the additional gas tax revenues from HB62 to meet the local match for this project.

ASPHALT LEVELING (VARIOUS ROADS)

Many of our chip and seal roads have swales in the "wheel track" locations from settlement over the years. Some have deteriorated to the point where the surface has reverted back to gravel. We made a focused effort in 2019 to continue with the repair of these deteriorated sections by "asphalt leveling" with a motor grader and steel wheel roller. County crews applied 1,993 tons of cold mix asphalt on chip & seal surfaces and 3,105 tons of hot mix asphalt on asphalt roads.

To put this into perspective, 5100 tons of asphalt is the equivalent of 340 tandem dump truck loads of asphalt. If the asphalt were placed continuously at 18' wide and 1.25" thick, you could overlay 7.3 miles of county road.



Shorty Hawk running the grader

2019 POTHOLE PATCHING

We started manufacturing asphalt "cold mix" in January 2018 and use that material during the cold weather months to patch asphalt and chip and seal pavements. As the weather warms in the spring, we sometimes use hot mix asphalt for patching potholes on asphalt pavements. Patching potholes is hard work and an important part of the road maintenance work we do. In 2019, county crews spent 4,582 man hours patching using 1,017 tons of cold mix and 343 tons of hot mix at a total cost of \$ 298,008 in labor, equipment, and materials.

2019 PAVEMENT MARKING PROJECT

Aero-Mark Inc. applied center line striping to 142 miles of county roads with 61 of those miles also receiving edge line striping. The total cost of construction was \$ 156,271. We received a grant for \$ 150,000 from the CEO to fund this project. This project was designed by the CEO and managed / inspected by ODOT.

2019 LANDSLIDE REPAIR PROJECTS

During my first six (6) years serving as the Athens County Engineer (2013-2018), we designed and built 22 slip repair projects. We completed 23 landslide repair projects in 2019 at a total cost of \$ 3,000,550 (the equivalent to 6 years of work in just one year). Most of the landslides occurred in 2018, but the funding did not become available until early 2019.

- 17 - FEMA Funded Projects- Drilled Shaft Walls = \$ 1,934,847
- 3- FHWA Funded Projects- Drilled Shaft Walls = \$ 916,763
- 2- OEMA Funded Projects- Slope Reconstruction w/ Rock / Drilled Shaft Repair = \$ 107,149
- 1- Local Funds- Slope Reconstruction w/ Rock = \$ 41,791

Landslide Site	Road No.	Road Name	Funding Source	Contractor	Construction Cost
CR30-0.78	CR30	Hocking Parkway	FEMA	Alan Stone Company	\$ 116,652
CR34-2.54	CR34	Dutch Creek Road	FEMA	Alan Stone Company	\$ 122,193
CR34-2.66	CR34	Dutch Creek Road	FEMA	Alan Stone Company	\$ 53,394
CR36-3.63	CR36	Hooper Ridge Road	FEMA	Alan Stone Company	\$ 82,070
CR36-4.89	CR36	Hooper Ridge Road	FEMA	Alan Stone Company	\$ 57,940
CR39-0.94	CR39	Wrightstown Road	FEMA	Alan Stone Company	\$ 97,050
CR48-6.17	CR48	New England Road	FEMA	Alan Stone Company	\$ 94,122
CR48-8.21	CR48	New England Road	FEMA	Alan Stone Company	\$ 75,509
CR57-0.93	CR57	S Rodehaver Road	FEMA	Alan Stone Company	\$ 147,039
CR75-5.29	CR75	Coolville Ridge Road	FEMA	Alan Stone Company	\$ 102,629
CR87-0.09	CR87	Antle Orchard Road	FEMA	Alan Stone Company	\$ 104,900
CR87-1.53	CR87	Antle Orchard Road	FEMA	Alan Stone Company	\$ 130,602
CR89-2.14	CR89	Rainbow Lake Road	FEMA	Alan Stone Company	\$ 163,117
CR94-0.29	CR94	Swett Hollow Road	FEMA	Alan Stone Company	\$ 64,499
CR99-1.68	CR99	Robinson Road	FEMA	Alan Stone Company	\$ 82,045
CR109-0.13	CR109	Beebe Road	FEMA	Shelly & Sands	\$ 203,540
CR109-0.24	CR109	Beebe Road	FEMA	Shelly & Sands	\$ 237,547
CR20-2.62	CR20	Strouds Run Road	FHWA	Shelly & Sands	\$ 466,881
CR20-2.82	CR20	Strouds Run Road	FHWA	George J. Igel	\$ 150,553
CR42-4.48	CR42	Mill School Road	FHWA	George J. Igel	\$ 299,329
CR42-1.87	CR42	Fossil Rock Road	LOCAL	Athens County Engineer	\$ 41,791
CR57-1.29	CR57	S Rodehaver Road	OEMA	Alan Stone Company/ACEO	\$ 79,926
CR94-3.94	CR94	Kuhns Road	OEMA	Athens County Engineer	\$ 27,223
TOTALS =					\$ 3,000,550

I realized early on that volume of engineering and surveying work was too much to try to design ourselves. We contracted out the surveying and engineering design work to The Buckley Group of Athens, Ohio. The soil borings and drilled shaft wall designs were split between Terracon Consultants (Columbus, Ohio office) and CTL Engineering (Columbus, Ohio office). The construction inspection was split between True Inspection Services (Urbana, Ohio) and TRC (Cleveland, Ohio office).

2019 LANDSLIDE REPAIR PROJECTS (CONT.)

ATH CR 36-3.63 MM - Drilled Shaft Wall Repair

This slip on Hooper Ridge Road (CR 36) at the 3.63 milemarker was caused by the storms in February 2018 that resulted in the FEMA DR 4360 disaster funding declaration in April 2018. The photos below show the progressive nature of these landslides. The first photo was taken in March 2018. The shoulder is completely gone in the 2nd photo (April 2018). The slip continues into the road surface (3rd photo, January 2019).



FEMA obligated funding on January 16, 2019, about 11 months after the disaster began. We combined this repair with three other drilled shaft wall repair projects and accepted bids on May 7, 2019. Alan Stone Company of Cutler, Ohio, was the low bidder at a cost of \$ 80,460 for this slip repair, and a total cost of \$ 315,470 for all four drilled shaft repairs (CR 36-4.89, CR 99-1.68, CR 39-0.94). The wall construction on CR 36-3.63 was completed on July 30, 2019 and paving was completed on September 4, 2019.

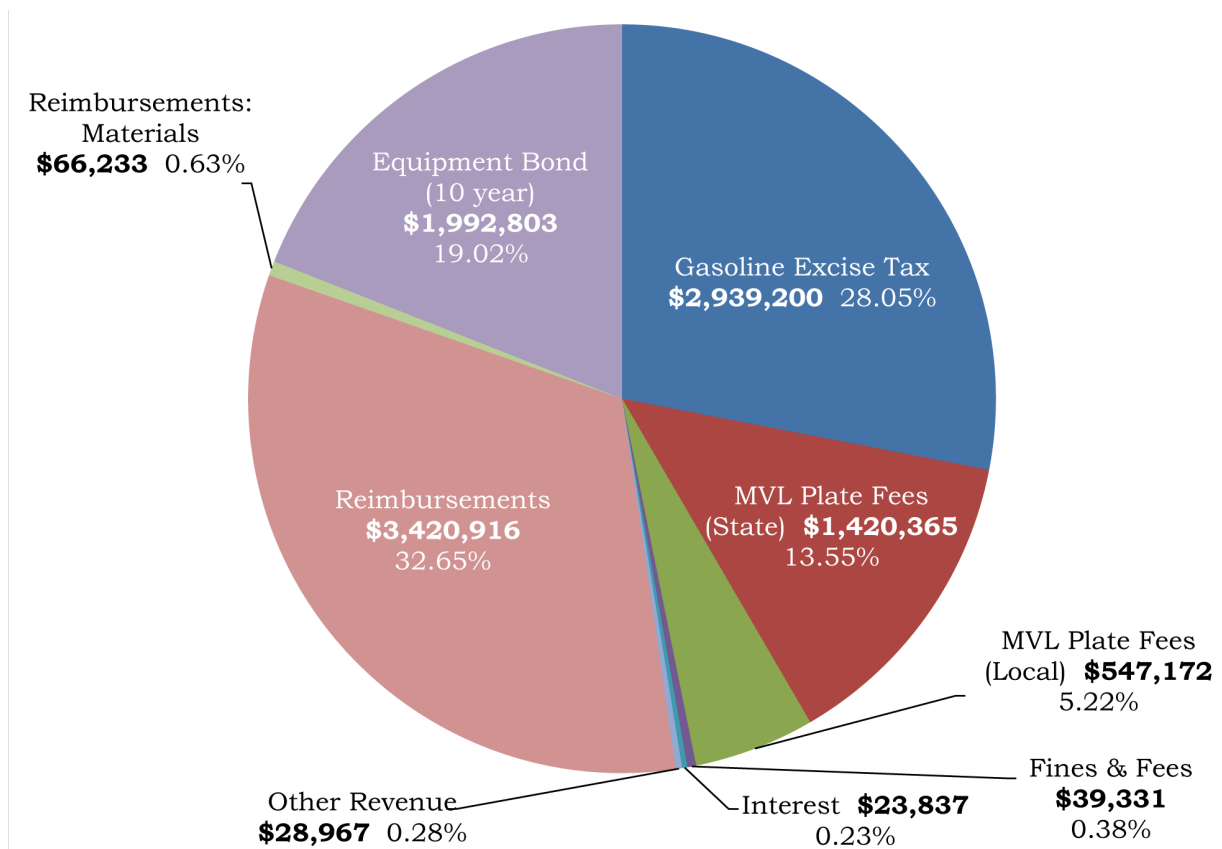
- CR 36-3.63: Drilled Shaft Wall (64 ft long) with concrete lagging panels (\$ 80,460)
- CR 36-4.89: Drilled Shaft Wall (48 ft long) with plug pile lagging (\$ 55,970)
- CR 99-1.68: Drilled Shaft Wall (80 ft long) with plug pile lagging (\$ 82,970)
- CR 39-0.94: Drilled Shaft Wall (72 ft long) with plug pile lagging (\$ 96,250)

This project was 75% funded by the Federal Emergency Management Agency (Federal) and 25% funded by the Ohio Emergency Management Agency (state).



FINANCIALS: REVENUE

2019 REVENUE: \$10,478,824



Revenues

The revenue received from “fixed sources” in 2019 was \$4,969,904. The original budget for 2019 was \$ 4,414,422. The “fixed sources” revenue consists of the Gasoline Excise Taxes; Motor Vehicle License (MVL) Plate fees; Interest; and Fines & Fees. Most of the increase in revenue came from an extra \$ 522,000 in Gasoline Excise Taxes during the last four months of the year. The revenue received from variable sources in 2019 was \$ 5,508,919. Variable sources consisted of grant reimbursements (FEMA); an equipment bond; and material sales to townships and villages. The total revenue received in 2019 was \$ 10,478,824.

Pass Through Revenues and Expenses

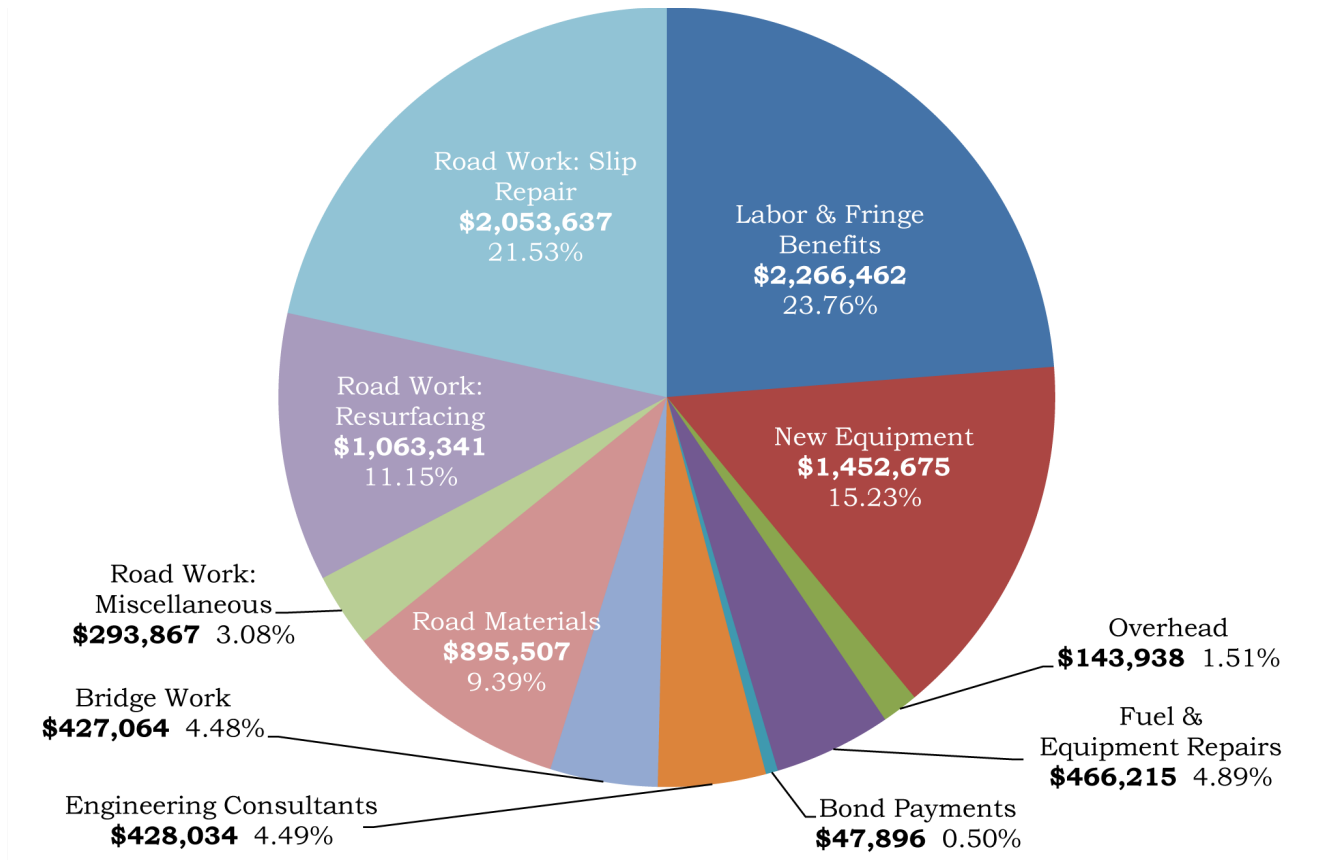
Some project costs are paid directly by the State of Ohio to Contractors that build our projects. Although we plan and manage these projects, the revenue and expenses do not appear in our financials. The project costs that “pass through” as both revenue and expenses was \$ 2,704,175. Technically, the 2019 annual sales for the Athens County Engineer’s Office was \$ 13,182,999.

10 Year Equipment Bond

In 2019, the engineer bought 4 tractors and mowers; 4 tandem dump trucks; 1 Gradall; 1 Wheel Loader; 1 Road Widener; 4 dump beds; and other miscellaneous equipment for \$ 1,992,802. The \$ 225,349 payments will be made over a 10 year period at 2.3% interest to the Hocking Valley Bank of Athens, Ohio.

FINANCIALS: EXPENSES

2019 EXPENSES: \$9,538,637



Expenses

The largest expenditure in 2019 was \$2,266,462 for Labor and Fringe Benefits. Note that “Labor and Fringes” were about 46% of the fixed revenues. New equipment expenditures equaled \$ 1,452,675 and was part of the new bond equipment that was delivered in 2019. The bridge work (\$427,064) is the cost for materials and contractors (i.e., bridge labor and equipment not included). Other items on the pie chart are self-explanatory. The total expenses in 2019 were \$ 9,538,637.

Carryover

The balance in the Road Fund on January 1, 2019 was \$ 842,038. If you add 2019 annual revenues and subtract 2019 annual expenses, you arrive at a year-end balance of \$ 1,782,225. New equipment purchases that had not yet been delivered accounted for \$ 691,475 of the carryover. Therefore, the true carryover for operating capital and emergencies was \$ 1,090,750.



ATHENS COUNTY ENGINEER 2019

Front Row (bottom) L to R: Travis Brooks, Mike Sheets, Billy Gould, Brian Baker, Mark Meili, Donnie Stevens, Brandon Williams, Jeff Maiden
 Middle Row L to R: Justin Carder, Cindi Lucas, Trisha Gail, Matt Booth, Tracy Bobo, Dave Harvey, Lyle Fuller, Kenny Coen
 Back Row (top) L to R: Brent Kasler, Jeremy Hayes, Craig Scott, Kenny Waggoner, Bill Mellinger, Shorty Hawk, Geoff Moore, Cory Russell, Dave Holmes
 Missing: Dick Eraw, John Brunton, Justin Williams

2019 ATHENS COUNTY ENGINEER'S MANAGEMENT TEAM:

Jeff Maiden, P.E., P.S.

County Engineer

Donnie Stevens, P.E., P.S.

Assistant Engineer

Michael Sheets

Road Superintendent

Kenny Waggoner

Assistant Road Superintendent

Lyle Fuller

Garage Supervisor

John Brunton

Bridge Superintendent

Brandon Williams

CAD/GIS Technician

Cindi Lucas

Business Manager

Andrea Friendscho

Assistant Business Manager

Contact the Athens County Engineer's Office:

Address:

16000 Canaanville Road
 Athens, Ohio 45701

Office Hours:

Monday to Friday
 7:00am to 3:30pm

Phone: 740-593-5514

Email: engineer@athensoh.org

Website: athenscountyengineer.org

Twitter: @jeffmaiden1