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**Paul E. Sherry, P.E., P.S.**  
Guernsey County Engineer  
Annual Report of 2021

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Thank you for giving me the opportunity to report on our activities over the last 12 months. The goal of this report is to provide transparency and an explanation of our past operations and future need.

As the 2020 revenue numbers were finalized, we could see the full impact of the COVID shut down. The reduction in people traveling, commuting, and trucking as the economy slowed reduced fuel consumption across the state, which impacts our revenue. This was to the tune of more than \$850k in 2020 and likely to be over 600k in 2021. This has had an impact of -15% of our overall budget. This reduction has negated any hopeful impacts of the gas tax increase back in July 2019 and reduced our year-to-year carry over to very low levels. Without relief or additional support, we will be forced to further limit our level of service. However, I am optimistic that our County Commissioners will come through for our citizens.

I would be remiss if I did not take this opportunity to point out the typical contributions our residents and taxpayers pay for the maintenance of our roads and bridges. Looking at this with a broad revenue to population average cost, without the impact of grants and capital improvement loans. Based on the latest count from the 2020 census, Guernsey County has a total population of 38,438. In 2021 we had total non-grant revenue totaling \$5,947,277. This helps us realize that the average resident pays \$154.72 each year for the care of 420 miles of highway and 315 bridges. The typical household has about 2.5 people, which means the average ANNUAL contribution towards roads and bridge is only \$388. Please take the time to review and compare this to other tax burdens with the cost of road and bridge maintenance as described below.

Despite the impacts of COVID we were still able to make many accomplishments. Since we combined some postponed projects from 2020 and added work planned for 2021, we were able to tackle a large number of projects and improve many miles of road.

Major projects:

We had traditional resurfacing with a 2" hot mix overlay on Fairground, Plainfield, and High Hill Roads (phase 1) for a total of 10.2 miles.

- Total cost: \$2.25 million Grant funds: \$894,906
- Ave unit cost per mile: \$220,519 net cost \$132,697

The unit cost is higher than a typical overlay because of the extensive amount of repairs performed. This small quantity of work is very low production so it is relatively expensive. It was very important to make these repairs as they help extend the life of the surface and keep it in a maintainable condition for a longer period of time. Also, we included a rejuvenator coating on the Fairgrounds Road project. This material adds phenols to the surface that help slow the oxidation which eventually leads to the pavement becoming brittle.

Also, it physically seals the fine pores remaining on the asphalt surface coat to better shed water.

Bridge replacement: Pigeon Gap, Cambridge Twp

- Removal of a truss bridge, replaced with prestressed concrete beams
- Important due to upcoming bridge rehabilitation on 8<sup>th</sup> street in '24
- Total cost: \$613,557 Grant funds: \$490,846

New Technique: We are working towards finding a level of sustainability with our roads system that will provide the best road possible. Our biggest challenge are the roads that have both old chip/seal and gravel. These roads have the worst of both types: potholes in and around the hard surface and dust from the gravel. These roads are really not maintainable because any repairs done last only a few weeks at best.

So, one of the new treatments we have done is a type of light duty partial depth reclamation. This was performed by a contractor from Holmes County called Melway Paving. Overall, this was a very impressive process that moved relatively quickly. With this process, the entire road is covered with new stone and milled at a depth of 6". Water is added and heavy compaction equipment is used to work the material and create a new base and profile. Then depending on the expected traffic volumes, the road will be finished in 2 different ways.

For the heavier traffic, a cold pave product, sometimes called pug-paving, is used and then capped with a chip/seal. The cold pave uses a different binder that provides a more flexible intermediate layer but is very coarse, so a chip/seal with #9 stone is used for a choke and wearing course. What is also unique about the cold pave is, that it is mixed on site or at a nearby stock pile which allows the contractor to have more flexibility with timing and shorter haul.

For roads with less traffic, the roads are reclaimed and finished with a double chip/seal. The chip/seal in this case, uses both #57 and #9 stone.

The exact unit cost will vary as some roads need 2" of #57 spread over the entire road prior to reclaiming while others just need material added in a few locations. With that said, here are some typical costs:

Reclaim and cold pave:	Happy Dale, Patch, and Sampson (6.2 miles) Ave unit cost per mile: \$107,211
Reclaim and chip/seal:	Range Rd, Frankfort, Greendale, Christian Hill, and Sugar Grove (11.9 miles) Ave unit cost per mile: \$66,147

Our goal with these 18 miles of roadway is to have 3-5 years of very low maintenance while providing a very high level of service to motorists. When major maintenance is needed, we can follow up with a single or double chip/seal.

Some of the other lower volume roads have a different fate. In these cases, the remaining chip/seal was so poor there is nothing else that could be done to salvage the existing surface. When funding becomes available, the next step is to provide a better profile and stronger base. These roads were reclaimed in a similar fashion as the others, except the wearing course is to remain as gravel. We are pleased with this as it leaves the road in an easily maintainable condition. Examples of where we improved the failed chip/seal to gravel: Cubbison, Northstar, Marlatt, and portions of New Gottengen roads (7.7 miles).

#### Preventative maintenance processes:

Microsurfacing on Byesville Road (2.2 miles) unit cost per mile: \$45,000 for both crack seal and resurfacing. Microsurfacing is a type of slurry seal that is used before the existing surface asphalt deteriorates to the point of needing milled. It goes down at about 1/8" thick, so no adjustments at driveways is needed. For a relative cost example: to replace this with a thin, 3/4" surface asphalt, it would cost close to \$90,000 per mile. This slurry material initially has a coarse feel or may not look as good as new AC paving but still provides a cost-effective method to extend the life of the road. One last item of maintenance, we completed crack sealing on roads that were paved 5-6 years ago. This was at a cost of \$5k per mile on Larrick Ridge, Skyline, Fairdale, and Prophecy (6.8 miles).

In regular maintenance we made an emphasis on grader ditching. We pulled the entire crew together and managed to improve over 40 miles of roadway ditches. By keeping the drainage in good condition, the roads stay in better condition in both the spring and winter seasons. Unfortunately, this was interrupted by storms that required us to jump to tree clean up mode.

Speaking of trees, with the help of the GCC we were able to purchase equipment to help trim and remove trees. These cutting loppers fit on our Gradall and can cut a tree trunk up to 12" in diameter. Having this equipment helps our operations by taking some of the need for our track-hoe to be everywhere at once. It also makes a very mobile and responsive tool.

#### Future projects and needs:

2022 will be a relatively quiet year with respect to contract work. We will complete the resurfacing of High Hill Road (2.2 miles) and perform preventative maintenance work as our budget allows. We also hope to finally complete our FEMA recoupment process and have our projects approved for construction. Until then, we will be continuing the grader ditching and roadside clearing will be the major work that is normally outside our day-to-day operations.

#### Equipment and Funding Needs:

In 2020 we leased 4 new tandem dump trucks; this brought our average age of truck to about 2007 or 15 years old. Our goal would be to get our fleet of dump trucks to an average age of 5 years. The tandem dump trucks are the backbone of our operation, serving the

community during all four seasons for every aspect of our operation. In the first year of operation, the cost of the lease was offset by a reduction in maintenance and repair. It further improves our operation by minimizing crew downtime or lost effort when engaged in a project. We expect a fully dressed tandem truck to cost between \$200,000 and \$250,000 in 2024.

Additionally, we need to replace 2 boom mowers. Currently one has over 19,000 hours of running time. We would like to follow ODOT and incorporate a Mower Max style apparatus. What is unique about this type of machine, is that the mower head can be swapped with several different tools for clearing roadside debris.

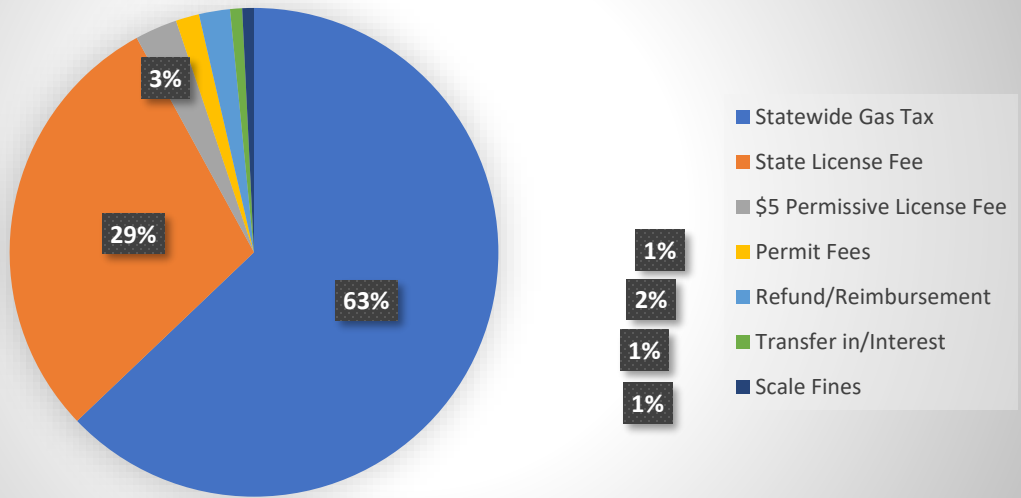
2021 Finances:

The County received a total of \$5,947,277 from the sources listed below. COVID had a negative impact on our Gas tax revenue and scale fines have been lost due to a recalculation of the distribution. Compared to surrounding counties, we are very low in our permissive license plate fee; many Counties have utilized the allowable \$5 from each of the 2005, 2011, and 2018 increases, thereby increasing county road revenue at a low cost to the users. We have been able to direct almost a quarter of our budget towards the continual improvement of our infrastructure. Our goal would be to get this up to a third in addition to the grant funding we have been able to attain.

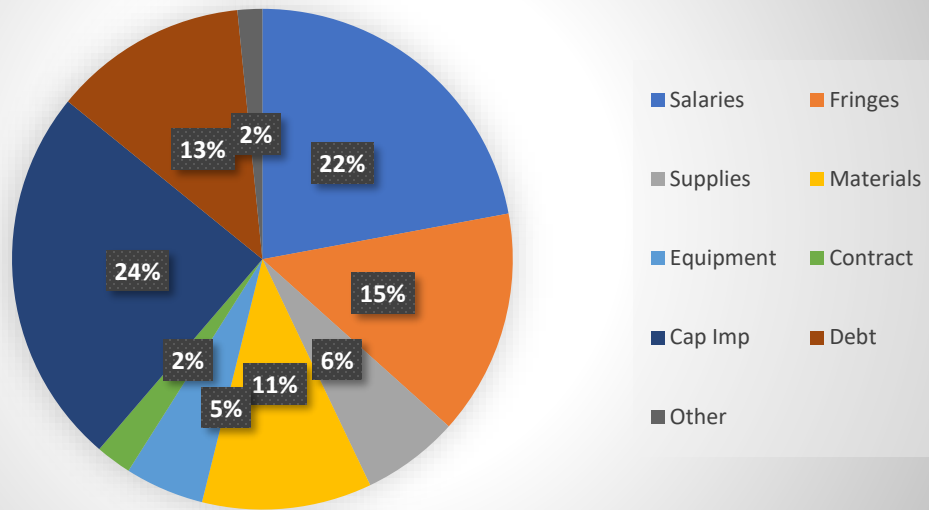
The following is a summary of our normal operating revenue and expenses:

Revenue		Expenses	
Statewide Gas Tax	\$ 3,739,694.00	Salaries	\$ 1,485,438.00
State License Fee	\$ 1,733,768.00	Fringes	\$ 979,559.00
\$5 Permissive License Fee	\$ 166,285.00	Supplies	\$ 422,270.00
Permit Fees	\$ 92,197.00	Materials	\$ 737,997.00
Refund/Reimbursement	\$ 122,041.00	Equipment	\$ 343,336.00
Transfer in/Interest	\$ 47,372.00	Contract	\$ 155,407.00
Scale Fines	\$ 45,920.00	Cap Imp	\$ 1,651,757.00
TOTAL	\$ 5,947,277.00	Debt	\$ 844,845.00
		Other	\$ 107,466.00
		TOTAL	\$ 6,728,075.00

## Revenue



## Expenses



The following is a summary of the typical costs associated with our annual resurfacing and bridge replacement. The grant revenue can be either paid directly to the contractor or pass through our office as a reimbursement. Grants vary and are not guaranteed; therefore, we do not include the grant monies as a revenue source.

	Miles	Bid	Grant	Net Cost	Unit Cost	Net Unit Cost
Fairgrounds	6.33	\$ 1,315,955.00	\$ 500,000.00	\$ 815,955.00	\$ 207,891.79	
Plainfield	0.4	\$ 166,438.00	\$ -	\$ 166,438.00	\$ 416,095.00	
High Hill	3.46	\$ 764,696.00	\$ 394,906.00	\$ 369,790.00	\$ 221,010.40	
<b>Subtotal</b>	<b>10.19</b>	<b>\$ 2,247,089.00</b>	<b>\$ 894,906.00</b>	<b>\$ 1,352,183.00</b>	<b>\$ 220,519.04</b>	<b>\$ 132,697.06</b>
High Hill 2022	2.21	\$ 483,786.00	\$ 199,475.00	\$ 284,311.00	\$ 218,907.69	\$ 128,647.51
	Sq Yds					
Pigeon Gap	264	\$ 613,557.00	\$ 490,846.00	\$ 122,711.00	\$ 2,324.08	\$ 464.81

## **2021 Year End Report – Tony Warden, Superintendent**

The Highway Department had a very productive year for road projects. There were quite a few large projects let this year for bid. Jeff has a list of these jobs with details to where and what was done. As we close out 2021, the Covid virus is ramping up again, but as last year, we will do whatever it takes to get past it.

Last winter was mild with some snow, but nothing too bad. So far ending this year we have had good weather to complete projects and start some new ones. Our main goal for this year end is to clean up a lot of down trees and brush from roadsides while the weather is still good. We will close out the year doing this as the weather allows.

Last spring was the same as always; trying to get the roads in shape from the winter. Crews spent time patching holes and grading roads to try to shape things up. One improvement we made to the spring grader work was to buy a couple of rear 3-point hitch land planes for the rear of our newest tractors. These tools work very well in the spring when roads are still soft but drying out on top. We can cover a lot of ground with these land planes in a short amount of time. They pull up the stone without making a lot of mud. Once the roads got solid, we graded them with the graders to reshape and crown them. The land planes let us get on these county roads much sooner to start the repair process.

Roadsides were mowed three times by a contractor this past year. They did a decent job of this as they use different types of mowers than we do. Our brush hog type of mowers chew the weeds up to mulch. The contractor that mowed used disc type mowers that cut off and lay down the weeds. The public had some negative comments, but they did knock down the weeds on all roads three times, where we were not getting done. We did mow a few roads early on and our boom mowers continue to cut the road banks and trees all year long. I do believe that the roads looked better when the contractor made two passes on our roads.

We also contracted 368,892 lineal feet of guardrail spraying. We did not do major grader patching this year due to all the other projects that were bid out.

County crews installed new pipe under various county roads. The following is a list of pipes installed:

- 510' of 12"
- 240' of 18"
- 165' of 24"
- 180' of 36"

Surface water is one of our biggest challenges in keeping county roads and ditches in good shape. Ditching is by far where we get our biggest bang for our buck. Good ditches and drainage are key to having good roads. It is the most important part of our maintaining roads. We put together a ditch crew last summer to address our secondary roads. The following is a list of grader ditching completed:

- |                               |                                    |
|-------------------------------|------------------------------------|
| Seminary Rd – 1.99 miles      | Oxford Rd – 3.72 miles             |
| Perry's Den Rd - 4.85 miles   | Putney Ridge to SR 513 – 3.2 miles |
| Conner Rd – 1.1 miles         | Greenlawn Rd – 3.78 miles          |
| Salt Rd – 2.27 miles          | Johnsons Mill Rd 0.86 mile         |
| Chestnut Hill Rd – 2.52 miles | Pisgah Rd – 6.56 miles             |
| Earley Rd – 3.9 miles         | Hoover Rd – 2.77 miles             |
| Soggy Run Rd – 2.5 miles      |                                    |

Total grader ditching: 40.02 miles

The county office also responded to 90 calls from the public and dealt with them in the appropriate manner.

Finally, I believe our department did a good job of meeting an ever-changing environment of challenges with budget, the amount of traffic, and an aging infrastructure and equipment. All things considered; our people did a good job getting us through another successful year.

As for goals for next year, I believe making ditches will help us the most. I would like to grader ditch every secondary road in the county. It is not a terribly expensive project, but it is a very beneficial and effective process for road maintenance.

## **2021 Year End Report – Ed Glasgow, Bridge Foreman**

- All new bridges were replaced with heavier painted beams and treated decks. Decks were sealed with Petro-tec and asphalt paving. Stainless steel drip Edge installed to protect ends of the deck. New guardrail and outriggers were also installed.
  1. Jefferson Township- T871 (Gunn Road) #3034445:
    - Removed and replaced the entire structure.
  2. Millwood Township- T942 (Millstreet Road) #3031136:
    - Removed and replaced the entire structure.
  3. Oxford Township- T9496 (Waggoner Lane) #3035565:
    - Removed and replaced the entire structure.
  4. Cambridge Township- T367 (Broom Road) #3030938
    - Replaced East Side Guardrail and Outriggers. (Crash Damage)
  5. Millwood Township-T0095 (Wine Road) #3030733
    - Replaced West Side Guardrail and outriggers. (Crash Damage)
  
- Completed 25 Minor Repairs to Bridges
  - Replacing Oak plank as needed
  - Replacing Damage Guardrail or Rail ends
  - Filling Potholes
  - Cleaning Creek Channel
  - Repaired and Replaced Guardrail at 32 locations.

## **Staffing Changes**

In 2021 we had one retirement. After 30 years of service Richie Doult parked his truck for the last time. Richie was a skilled equipment operator and bridge builder that served our community well. Early in 2022, Delmas Ball hung up his keys after almost 26 years of being a reliable truck driver and snow plow operator. We wish both of these men the very best.

In closing, I would like to thank the citizens of Guernsey County for allowing me to serve as County Engineer. We are making some progress despite the long-term lag in funding and the short-term impacts of COVID. We will continue to investigate and experiment with new tools and techniques to find better ways to provide you the best service possible.

In your service,

Paul E. Sherry, PE, PS  
Guernsey County Engineer