

2021 ANNUAL REPORT



Brian J. Wise, P.E., P.S.
Carroll County Engineer



Carroll County Engineer's 2021 Annual Report

Brian J. Wise, P.E., P.S.
Carroll County Engineer

To the BOARD OF COMMISSIONERS and CITIZENS OF CARROLL COUNTY:

This document is not only prepared to comply with the requirements of the Ohio Revised Code as an annual report to the Carroll County Commissioners on the status of our roads, bridges and culverts, it also serves to keep the public informed of how your highway tax dollars are used for road and bridge construction and maintenance. I will continue to update this report to provide useful information in an easy-to-use format.

I would like to take this opportunity to thank all the employees of the County Engineer's Office, the Highway Department and the Tax Map Department for their hard work and dedication over the past year. Without their determined efforts, the volume of work completed in this report would not have been possible. I would also like to thank the County Commissioners, Township Trustees and Township Road Crews for their continued cooperation over the past year.

The year 2021 brought with it the lingering effects of the COVID-19 pandemic. In an effort to benefit from the economic uncertainty associated with the pandemic, we bid out a larger than normal paving program. Our strategy paid off in excellent bid pricing for asphalt materials which allowed us to pave almost twenty miles of County highway. Our forces chip and sealed an additional sixty miles of County highway which is a substantial increase over previous years. This combined eighty miles of resurfacing represents improvement to over 25% of our total road mileage.

We are starting to see some results from our sustained approach to preventative maintenance. The benefits show up in a reduced amount of pothole patching needing done. This is a direct result of keeping water away from the pavement subgrade by the proactive cleaning of roadside ditches and the timely application of surface chip and seal. This preventative maintenance strategy will serve us well as we confront the rapid rise in construction material price inflation anticipated next construction season.

I would like to take this occasion to thank the residents of Carroll County for the opportunity to serve you. This department will continue to manage your tax dollars as efficiently as possible while providing a safe road and bridge system for the traveling public.

I respectfully submit this annual report for the year 2021 as required by Ohio Revised Code §5543.02,

Brian J. Wise, P.E., P.S.
Carroll County Engineer

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County crews: Cleaning a channel on Bramble Rd., C.R. 37 in Perry Township (left); Excavating an embankment to improve sight distance on Aurora Rd., C.R. 18 in East Township (right)



County crews replacing a culvert on Autumn Rd., C.R. 19 near Algonquin Mill in Union Township (above) providing assistance to the County Fair Board during construction of the new show arena (below).



On the Cover:

County crew replaced bridge backwalls on three separate bridges: Reef Rd, T.R. 411 in Augusta Township and at two locations on Bellflower Rd, C.R. 30 in Brown Township.

The Carroll County Engineer Maintains:

- **307 Miles of Road** (ADT = Average Daily Traffic)
 - 6 miles > 2,000 ADT (High = 2,282)
 - 27 miles between 1,000 and 2,000 ADT
 - 74 miles between 400 and 1,000 ADT
 - 157 miles between 100 and 400 ADT
 - 43 miles < 100 ADT (Low = 11)
- **144 Bridges**
 - 32 span from 10' to 20'
 - 106 span from 20' to 100'
 - 6 span from 100' to 134'



Department Staff

County Engineer
Brian J. Wise, P.E., P.S.



Deputy Administrator
Chris Kiehl

Superintendent
Mike Bryan

Deputy Surveyor
Rodney Yoder, P.S.

Administrative Assistant
Janice Leggett

Administrative Secretary
Tracy Flanagan

Inspector
Bob Grigsby

Map Office Supervisor
Diane Wirkner

Map Office Assistant
Cindy Arbogast

Roadway / Bridge / Culvert / Maintenance Supervisors

Harvey Mountz

Rodney Days

Allan Furbie

Scott Randal

Sign Department Manager
Mark Brannon

Night Watchperson
Darl Walton

Highway Workers

Zeph Casper
Larry Granger
Tom Jones
Pete McIntire
Jim Ujcich

Corey Clark
Lane Hartong
Mike Kruprzack
Dave Seck
Mark Watts

Kyle Foltz
Chris Hawk
Wayne Lippincott
Jason Tennant

Dale George
Tim Hawk, Jr.
Calvin Logan
Dale Tinlin



(Above) County Crew Chip & Sealing Apollo Rd., C.R.12.

Sheckler Excavating reclaiming Chalon Rd., C.R.61 (left); Northstar Asphalt paving Autumn Rd., C.R.19 (right)



2021 REVENUE

Our total revenue received for 2021 was \$5,925,341.62 which shows an increase over last year. Proceeds from the State Motor Fuel Tax and Vehicle License Fees are the primary revenue sources for the operation of the Carroll County Engineer's Office and Highway Department.

Our largest source of revenue is the State Motor Fuel Tax. Counties statewide share an equal amount of the per gallon tax the State collects on motor vehicle fuel. The State Legislature began to address the declining revenues in 2019 by adjusting motor fuel taxes and hybrid vehicle registration fees. In 2021 we received \$3,739,694.30 in fuel tax revenue, which is comparable to 2020 but is a significant improvement over years prior.

Vehicle License Plate Fees are the second largest source of revenue. This revenue is generated only from vehicles that are registered in Carroll County. In 2021 we received \$1,418,679.27 from vehicle registrations, which is slightly higher than previous years.

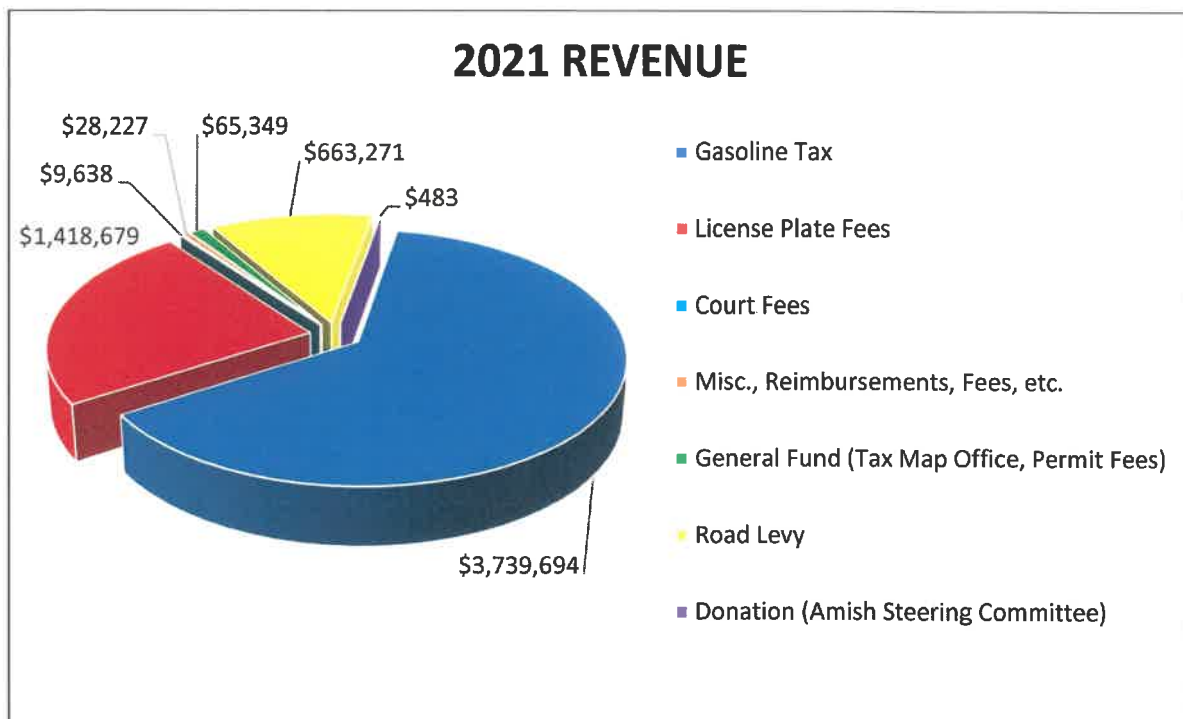
Court Fees, Reimbursements and Miscellaneous income contributed \$37,864.91 in revenue in 2021.

County Road Levy funds collected have fluctuated considerably over the years since its inception. The County Engineer's Office continued this year to grant financial assistance to the 14 townships of Carroll County in the amount of \$150,000.00 as well as a grant for \$50,000.00 to the Carroll County Sheriff's Office for patrol car fuel. In 2021, the Highway Department collected \$663,271.14 in road levy funds.

The General Fund contributes to the operation of the Tax Map Office as well as a portion of right of way permit fees collected. In 2021, \$65,349.00 in revenue was received from the General Fund.

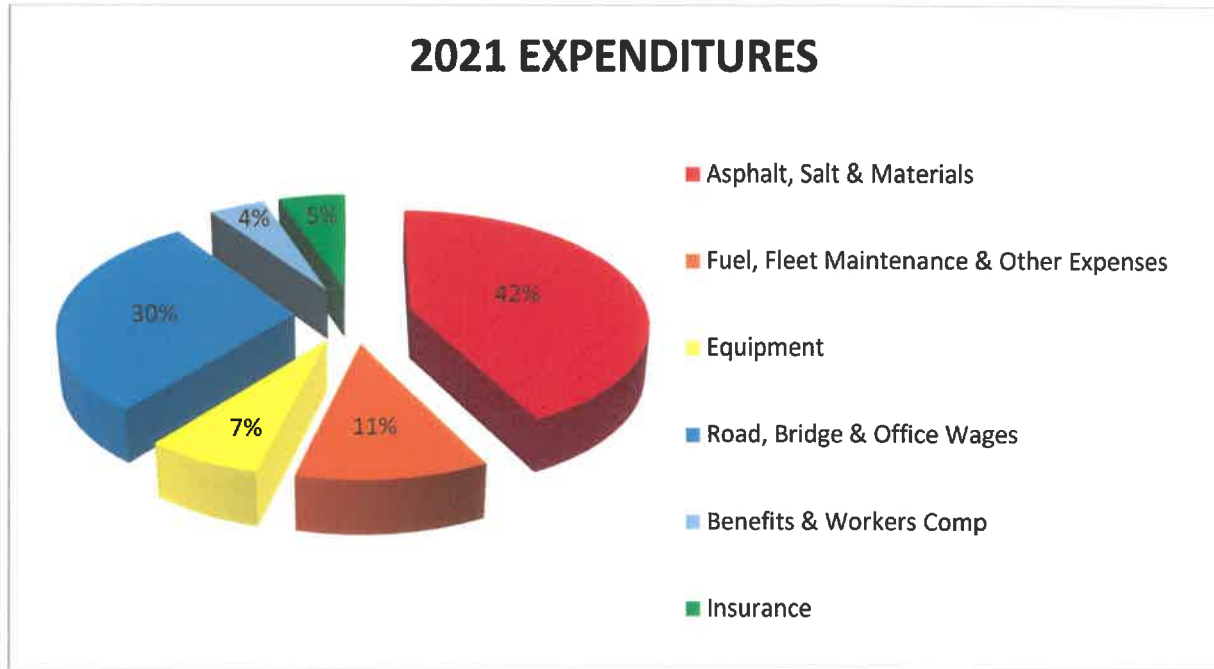
The Amish Steering Committee donated \$483.00 toward road maintenance costs in 2021 bringing the balance in that fund to \$6,183.00. These funds will be put toward a future project.

In an effort to inform the public about a common misconception: Property taxes do not contribute toward road maintenance revenues.



2021 EXPENDITURES

Our total expenditures in 2021 were \$5,814,497.59.



Not shown in the above graph are grant monies received and paid directly to contractors.

We received grants from the Ohio Public Works Commission totaling \$450,425. These grants allowed us to pave 4.4 miles of County highways and replace 1 culvert.



We also received a grant from the Ohio Department of Transportation's Local Roads Oil and Shale Program totaling \$339,589. This grant allowed us to pave 1.99 miles of Autumn Rd., C.R. 19, at no cost to the County.

The Local Roads Oil and Shale Program provides economic support for infrastructure repairs in counties, townships, cities and villages impacted by increased vehicular truck traffic from oil and gas production.



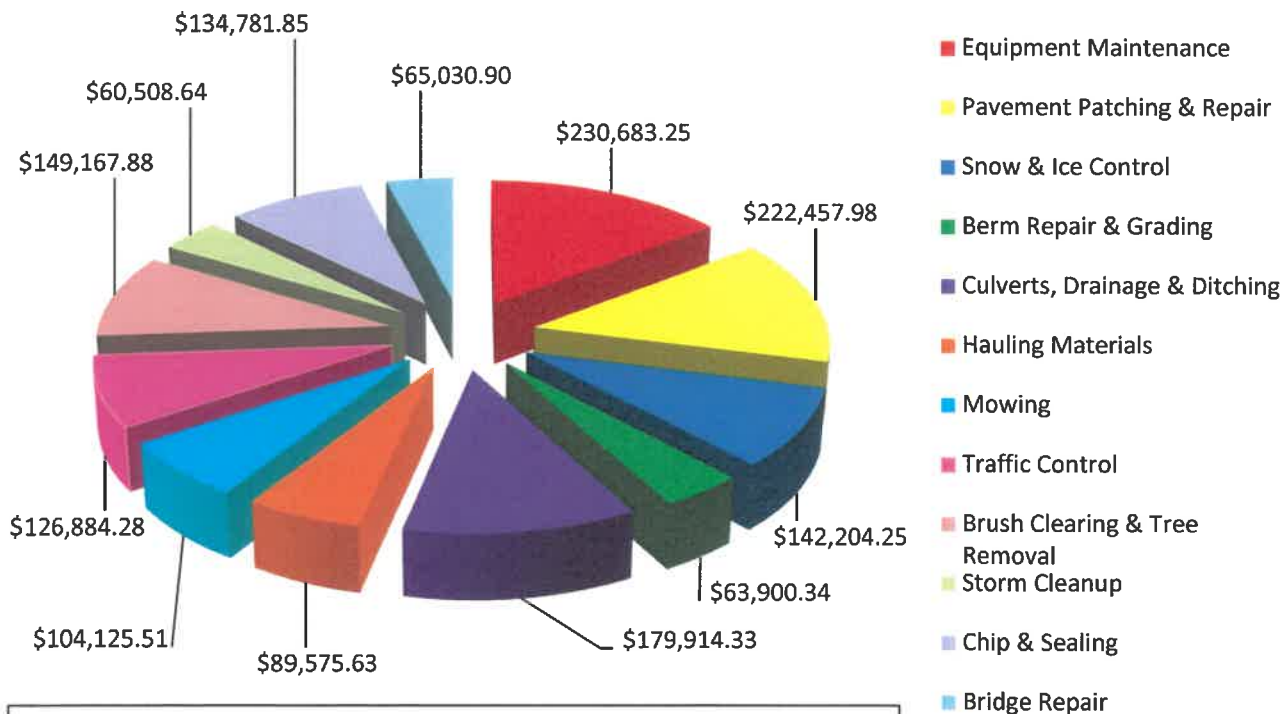
ROAD & BRIDGE MAINTENANCE

It is a pleasure to report the amount of work our forces were able to accomplish this year notwithstanding the continued COVID-19 restrictions. Maintenance work is the primary service the highway department provides for the public.

The winter of 2020-2021 was fortunately very mild. Our forces treated the roads with 5,789 tons of winter mix over 36 separate callouts. Due to the light winter, we still had to purchase 80% of our projected salt contract.

In 1990, there were 34 employees at the highway department. In 2021 the number of employees was 25. That represents a 26% reduction in work force over a 31-year period. The following chart highlights the amount of work that we were able to accomplish with departmental forces.

Maintenance Activity Expense*



*This chart only breaks down labor & supervision costs of department personnel. Equipment operation costs and materials costs are shown on the expenditures page.

The above chart represents over 47,000 labor hours of maintenance work performed by highway department personnel on County roads. At a total cost of over \$1,569,234.83, we were able to provide a substantial cost savings to the County over contracting this work out. We estimate the savings to be well over \$250,000.00. Performing road & bridge repair and maintenance work with our own personnel is one of the most cost-effective ways we can manage our resources more efficiently.

STATUS OF CARROLL COUNTY ROADS

The Carroll County Engineer has responsibility for maintaining approximately 307 miles of county roads. Road conditions are rated by in house staff and receive a rating on a 100 point scale. The Pavement Condition Rating System (PCR) employed by ODOT is used to develop this rating. The data represented in the chart below was gathered in 2015 and it is our intent to periodically update this information in the future. Defects in the roadway are given certain values and the sum of those defects is subtracted from 100 to reveal the pavement condition rating of the road. A PCR of 100 represents a perfect new pavement, a PCR of 0 represents a pavement with distress present at the highest or most extensive level of severity. A rating of 65 or less indicates that rehabilitation work should be considered. Please keep in mind that the rating calculations were designed around the State Highway system and result in conditions skewed toward the low end of the scale when applied to rural low volume County highways like ours. Rehabilitation projects will continue to be selected based on an in depth engineering analysis of the particular highway section in need of repair. We have chosen to utilize this rating method merely as a tool for monitoring pavement condition variations over a period of time.

CONDITION DESCRIPTION	PCR	TOTAL MILES	PERCENTAGE OF TOTAL MILES	ACCUMULATING PERCENT OF TOTAL MILES
EXCELLENT	>90	5.73	1.87%	
GOOD	>80	105.97	34.52%	36.38%
FAIR	>65	42.27	13.77%	50.15%
POOR	<65	149.67	48.75%	98.91%
NOT RATED	-	3.36	1.09%	100.00%
	TOTAL	307		

This system only addresses the pavement surface condition as it exists on the day of evaluation and does not attempt to evaluate whether a particular road should be surfaced with a particular type of pavement.

County road mileage is classified by three surface types. Currently, approximately one third of the County mileage has an asphalt surface course, approximately one third of the County mileage has received a profile or leveling coat of asphalt and the remaining one third of the County mileage is a surface built up from years of chip and seal application. This last group contains a few miles that are still classified as a stone surfaced road and were not rated as part of this process.

The average life span of an asphalt surface course is 12 years under minimal truck traffic. For the County's 307 miles of road, that means that almost 26 miles needs to be paved every year just to keep up with normal wear and tear on our system. It currently costs around \$85,000.00 per mile to pave a 1½" overlay on a 20' wide portion of road. To pave 26 miles per year we would need an additional \$2,210,000.00 adjusted to the construction price index to keep up with material cost inflation.

STATUS OF CARROLL COUNTY BRIDGES

The Carroll County Engineer has responsibility for maintaining 144 bridges on County and Township roads. Bridges are classified as any structure with a span greater than 10 feet. Bridge conditions are rated every year by an independent engineering consultant and receive a rating on a scale of 1 to 9. A rating of 9 indicates excellent condition while a 1 indicates that the bridge is closed and out of service.

Based on the annual inspection of bridges, the following table indicates the condition of the 144 bridges in Carroll County.

CONDITION DESCRIPTION	GENERAL APPRAISAL RATING	NUMBER OF BRIDGES	PERCENTAGE OF TOTAL BRIDGES	ACCUMULATING PERCENT OF TOTAL BRIDGES
EXCELLENT	9	3	2.08%	
VERY GOOD	8	10	6.94%	9.03%
GOOD	7	47	32.64%	41.67%
SATISFACTORY	6	54	37.50%	79.17%
FAIR	5	27	18.75%	97.92%
POOR	4	2	1.39%	99.31%
SERIOUS	3	1	0.69%	100.00%
CRITICAL	2	0		
OUT OF SERVICE	1	0		
	TOTAL	144		

It is a goal of this department to keep 90% of our bridge inventory at an appraisal rating of 5 or higher. As you can see from the chart above, we have accomplished that goal. Unfortunately, we are in a continuing battle with both time and weather to keep our inventory maintained at that level.

In 2015 the Federal Highway Administration revised the way that Ohio was load rating bridges. Special Hauling Vehicles (SHVs) and Emergency Vehicles (EVs) are now included in the load rating calculations. This change has increased our number of bridges requiring reduced load postings to a total of 5; 3 are posted due to SHVs and 2 for EVs only.

The average useful life of a bridge is 50 years. For the County's 144 bridges, that means that 3 bridges need to be replaced every year just to keep up with normal wear and tear. The bridges on the Carroll County highway system range in size from a 10' span to 134' span. Replacement costs for that span range vary from \$100,000.00 to over half a million dollars. Using our average bridge size for calculation purposes it currently costs around \$250,000.00 to replace an entire bridge. At 3 bridges per year we would need an additional \$750,000.00 adjusted to the construction price index to keep up with material cost inflation.

STATUS OF CARROLL COUNTY CULVERTS

The Carroll County Engineer has responsibility for maintaining 185 large diameter culverts and about 2,000 small diameter culverts on County roads. Culverts of 3' diameter and larger on County roads are rated every two years by our in-house staff. Ratings are issued from excellent to critical. The 185 large diameter culverts range in size from 3' diameter to 10' span, the 2,000 smaller culverts include anything less than 3' diameter and are not rated on a regular basis due to their smaller size.

Based on the latest inspection of culverts, the following table indicates the condition of the 185 large diameter culverts on Carroll County roads.

CONDITION DESCRIPTION	CONDITION RATING	NUMBER OF CULVERTS >3'	PERCENTAGE OF TOTAL CULVERTS >3'	ACCUMULATING PERCENTAGE
EXCELLENT	9	0	0.00%	0.00%
VERY GOOD	8	9	4.86%	4.86%
GOOD	7	141	76.22%	81.08%
SATISFACTORY	6	2	1.08%	82.16%
FAIR	5	29	15.68%	97.84%
POOR	4	4	2.16%	100.00%
SERIOUS	3	0	0.00%	100.00%
CRITICAL	2	0	0.00%	100.00%
OUT OF SERVICE	1	0	0.00%	100.00%
	TOTAL	185		

It is a goal of this department to keep 90% of our large diameter culvert inventory at a condition rating of 5 or higher. As you can see from the chart above, we have accomplished that goal. Unfortunately, we have 21 metal culverts in the fair to poor rating category that are nearing the end of their useful life span and will require replacing over the next several years.

The average useful life of a culvert is 50 years. For the County's 185 large diameter culverts, that means that 4 culverts need to be replaced every year to keep up with normal wear and tear. The large diameter culverts on the Carroll County highway system range in size from a 3' diameter to a 10' span. Replacement costs for that size range vary from \$10,000.00 to \$100,000.00. Using an average current cost for calculation purposes of \$50,000.00 to replace a large culvert, at 4 culverts per year we would need an additional \$200,000.00 adjusted to the construction price index to keep up with material cost inflation.

EQUIPMENT

We added another Western Star plow truck to our fleet of 11 primary plow trucks and 4 spare plow trucks in 2021. While the useful life of a plow truck in main line service is typically 12 years, we need to purchase at least one new truck per year to keep up with our 11 snow routes.

In 2021 we purchased a new Volvo wheel loader, 2 used asphalt distributors, a new tilt deck trailer, a new hotbox, and a new pickup truck.



(Photos courtesy of Gingrich Trailer Sales, KMI International, Volvo, respectively)

To report in compliance with §5549 of the Ohio Revised Code, other equipment that will need replaced in the near future includes:

One Plow Truck per year, \$200,000

Road Grader, \$300,000

2- Pickups, \$35,000 each

Road Broom, \$85,000

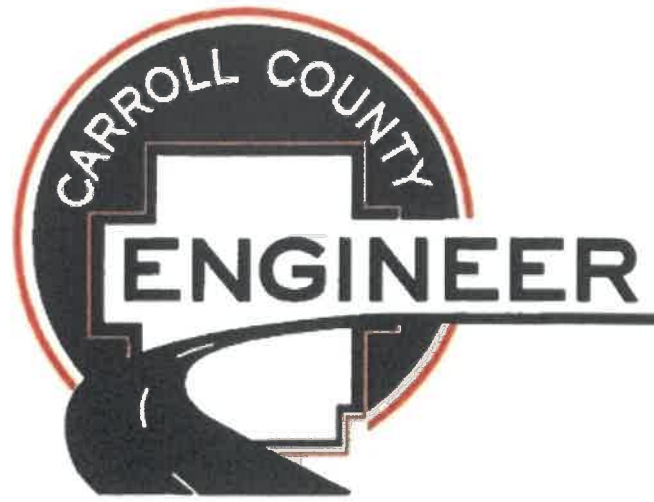
Used Gradall, \$100,000

Distributor Truck, \$150,000

Hydraulic Excavator, \$200,000

50 T Lowboy Trailer, \$50,000

Various hand tools, misc. small equipment and attachments, approx. \$20,000 per year



2021

**RESOURCE
ALLOCATION
REPORT**

HIGHWAY DEPARTMENT

The 25 full-time employees of the Carroll County Highway Department performed the following road and bridge work in 2021.

PAVEMENT

180 tons of permacoat asphalt for pothole patching.
60 miles of roadway chip & sealed using
5,919 tons of #8 gravel and
269,902 gallons of liquid asphalt.
3,954 tons of permacoat and
797 tons of hotmix asphalt for road leveling totaling
87 miles.
46 miles of berm work totaling
894 labor hours.

ROADWAY

2,508 labor hours for spot ditch cleaning and re-shaping.
576 labor hours for roadway storm cleanup.

ROADSIDE

2,481 labor hours of roadway mowed by County employees.
535 labor hours of arm mower work to clear brush on steep banks.
3,396 hours manually removing brush and trees from road banks.
1,643 gallons of herbicide spray by others for brush control on the right-of-way.
355 gallons of herbicide spray by others for brush control at guardrails.
74,603 linear feet of guardrail sprayed with herbicide by others.

CULVERT

744 labor hours to clean and check pipes.
33 culvert pipes replaced

BRIDGES

144 bridges inspected.

TRAFFIC OPERATION

951 traffic signs replaced or newly erected.
47 road name signs replaced due to theft.
145 gallons of herbicide for weed control at intersections and sign posts.

WINTER EMERGENCY

- 36 days of snow and ice control performed.
- 5,789 tons of snow & ice control mix.
- 3,184 labor hours.
- 2,485 equipment hours.
- 459 labor hours expended for winter emergency preparation.

EQUIPMENT MAINTENANCE

- 4,437 labor hours.
- 57 licensed trucks, cars and trailers.
- 39 non-licensed construction equipment and other miscellaneous equipment such as chainsaws, compactors, welders and generators.

HAULING/STOCKPILING ROAD MATERIALS

- 1,554 labor hours to haul and stock pile road materials.

ROAD WORK FOR OTHERS

The Highway Department provided 384 labor hours for other county, township and village agencies which include:

Hours

- | | |
|-----|-------------------------------------|
| 9 | Fox Twp. |
| 3 | Rose Twp. |
| 183 | Carroll County Agricultural Society |
| 26 | Carroll Golden Age Retreat |
| 42 | Carroll County Historical Society |
| 13 | Solid Waste District |
| 2 | Carroll County Health Dept. |
| 106 | Fox Twp Fire Dept. |

ENGINEER'S OFFICE

The Engineer's Office consists of 4 full-time staff personnel in addition to the Engineer. Highlights achieved in 2021 include:

- The administration of 44 right-of-way permits and 56 driveway permits.
- 19 special hauling permits were required.
- The preparation of payroll, statements for payment, billings and associated administrative work for our \$5.6 million dollar budget was performed on a daily basis.
- Applications for \$450,425 from the State Issue I program for road, culvert and bridge projects.
- Application for \$339,589 from the Ohio Department of Transportation for road projects.
- The preparation of specifications and bid documents for a variety of projects. These included: (a) paving totaling 19.67 miles consisting of 4.4 miles on CR 23, 1.99 miles on CR 19, 4.95 miles on CR 10, 0.75 miles on CR 11, 1.42 miles on CR 16, 1.29 miles on CR 22, 1.20 on CR 34, 1.14 miles on CR 47 and 2.53 miles on CR 69; (b) approximately 95 miles of centerline striping on various county roads; (c) culvert replacement on CR 37.
- The performance of daily inspection and inspection reports on all contract work.
- Administration of the Wheeler Bill for ODOT, which includes all township & county roads.
- Daily coordination of highway improvements on County and Township roadways for oil and gas production.
- In addition to the day-to-day requirements of meeting County objectives, the Engineer's Office provided professional services for numerous townships, villages and the Carroll County Commissioners, including:

Assisted Regional Planning Commission with lot split reviews

Assisted ODOT with Location Based Response Highway Centerline Updates

Assisted Sheriff's Office with 911 mapping updates

Harrison Township Trustees Ruby Road Right of Way Staking

Fox Township Trustees Mechanicstown Alley Survey

Monroe Township Trustees Falls Road Right of Way

MAP OFFICE

The 2 full-time employees of the Tax Map Office record deed transfers and surveys. They maintain the tax plat information by lot, parcel or acreage on a daily basis in support of the County Auditor. In 2021 this office processed 1,896 deeds, 2,030 transfers and 130 surveys.

The Map Office provides advice, copies of maps and answers questions in support of many Carroll County Government offices. These include the Auditor's Office, the Board of Commissioners, Regional Planning Commission, Economic Development, Health Department, Title Office and many of the villages and townships. Services are also provided to the public which include attorneys, surveyors, appraisers, and private citizens.

PERSONNEL TRAINING

Random drug testing was performed on 14 employees in addition to 4 pre-employment DOT drug tests and 6 pre-employment non-DOT drug tests. Safety films/instructors were limited in 2021 due to COVID-19 recommendations. However, we utilized the employee bulletin board to provide employees with safety tips, reminders and precautions when performing their assigned tasks. These bulletins and training seminars completed by various employees included:

- 2021 CEAO Conferences
- Nine Basic Construction Safety Rules
- Carbon Monoxide Safety
- New employee trainings, including Snow & Ice Control, Flagging, and Bandit Brush Chipper
- Chainsaw Safety
- Walk Like a Penguin (safely walking on ice)
- Excavator Pipeline Safety Program
- Major Hazards of Heavy Equipment
- Pesticide Recertification
- ODOT Traffic Control in Work Zones
- Statewide Tornado Drill
- Distracted Driving
- Handling Emulsified Asphalt
- Spray Applied Pipe Liners
- FMCSA Clearinghouse annual queries conducted
- Lyme Disease
- Lightning Safety
- Kidde Smoke Alarm Recalls
- Contractor & Excavator Pipeline Safety Program
- Flagging Basics
- Chip & Seal Process
- Chainsaw and Tree Felling
- Superintendents & Mechanics Conference & Trade Show
- Forklift Certification
- Brush Chipper
- Dry Run
- Intro to Snow Removal, Truck Inspection, Proper Clothing, Plowing Techniques

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