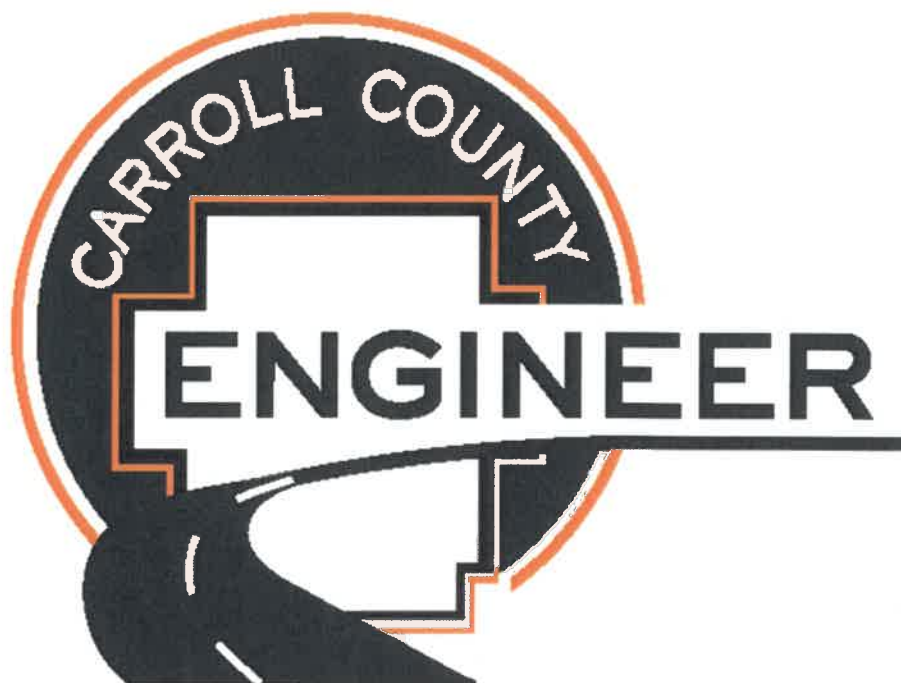


# 2018 ANNUAL REPORT



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





# Carroll County Engineer's 2018 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.

Funding issues continue to be the primary topic of importance to local road maintenance agencies. Revenues from the State Motor Vehicle Fuel Tax (M.V.F.T.) which have been steadily declining continued to re-bounded a bit this year. The State M.V.F.T. has been in place since 1925. Fuel tax rates are not currently indexed to inflation and remain fixed as fuel prices escalate. It is the responsibility of the State legislature to adjust motor fuel taxes to keep up with inflation. The last time fuel taxes were adjusted for inflation was 2005, fourteen years ago. Construction costs have increased by 42% since 2005. Governor DeWine has made it a priority to identify the needs of Ohio's transportation system by establishing a Transportation Advisory Committee to develop a report to aid in policy making. In an effort to better preserve our investment in road and bridge infrastructure, we have shifted the focus of our operations more toward preventative maintenance and repair. This strategy will hopefully extend the useful life of our assets until something can be done at the legislative level to adjust for declining revenues and inflation. Please encourage our Ohio Representatives and Senators to address this responsibility of the State Legislature to provide adequate highway infrastructure funding for local jurisdictions.

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 2018 as required by Ohio Revised Code §5543.02,

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

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Road damage from pond dam failure on Brass Rd., CR 36.  
Repaired by County forces and re-opened to traffic in one day.



Guardrail damage from tractor trailer on Chapel Rd., CR 63.  
Repaired by County forces and re-opened to traffic in under 4 hours.

## **On the Cover:**

Contractor Northstar Asphalt, Inc.  
installing a 14 foot box culvert on Aster  
Rd., CR 17 in Perry Township.

## **The Carroll County Engineer Maintains:**

- **307 Miles of Road** (ADT = Average Daily Traffic)
  - 6 miles > 2,000 ADT (High = 2,184)
  - 26 miles between 1,000 and 2,000 ADT
  - 70 miles between 400 and 1,000 ADT
  - 167 miles between 100 and 400 ADT
  - 38 miles < 100 ADT (Low = 9)
- **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.

## **Superintendent**

Mike Bryan

## **Deputy Administrator**

Chris Kiehl

## **Deputy Surveyor**

Rodney Yoder, P.S.

## **Administrative Secretary**

Tracy Flanagan

## **Assistant Administrator**

Kathy Cook

## **Part Time Inspector**

Bob Grigsby

## **Map Office Supervisor**

Diane Wirkner

## **Map Office Assistant**

Cindy Arbogast

## **Roadway / Bridge / Culvert / Maintenance Supervisors**

Harvey Mountz

Rodney Days

Allan Furbee

Tim Cubberley

## **Sign Department Manager**

Mark Brannon

## **Night Watchperson**

Darl Walton

## **Highway Workers**

Clint Casper

Chris Hawk

Mike Kruprzack

Jeff Riegle

Dale Tinlin

Corey Clark

Bruce Hilliard

Calvin Logan

Dave Seck

Scott Randal

Dale George

Tom Jones

Matt Manfull

Jonathan Stenger

Jim Ujcich

Larry Granger

Jeff Kohler

Pete McIntire

Harold Taggart

John DaLonzo



*Camille Rd.,  
CR 53 level  
coat paving  
(left); Carroll  
County  
Fairgrounds  
entrance road  
rehabilitation,  
(right).*





## **2018 REVENUE**

Our total revenue received for 2018 was \$4,485,931.87 which shows an increase due to road levy revenues collected being higher than anticipated. 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 4 cents out of every 28 cents in tax the State collects per gallon on motor vehicle fuel. State Motor Fuel Tax revenues have been steadily declining due to an increased number of higher fuel efficiency vehicles on the road and vehicles using alternative fuel sources, such as electricity and CNG (compressed natural gas), neither of which are taxed by the State Motor Fuel Tax. In 2018 we received \$2,417,403.95 in fuel tax revenue, which shows a slight rebound.

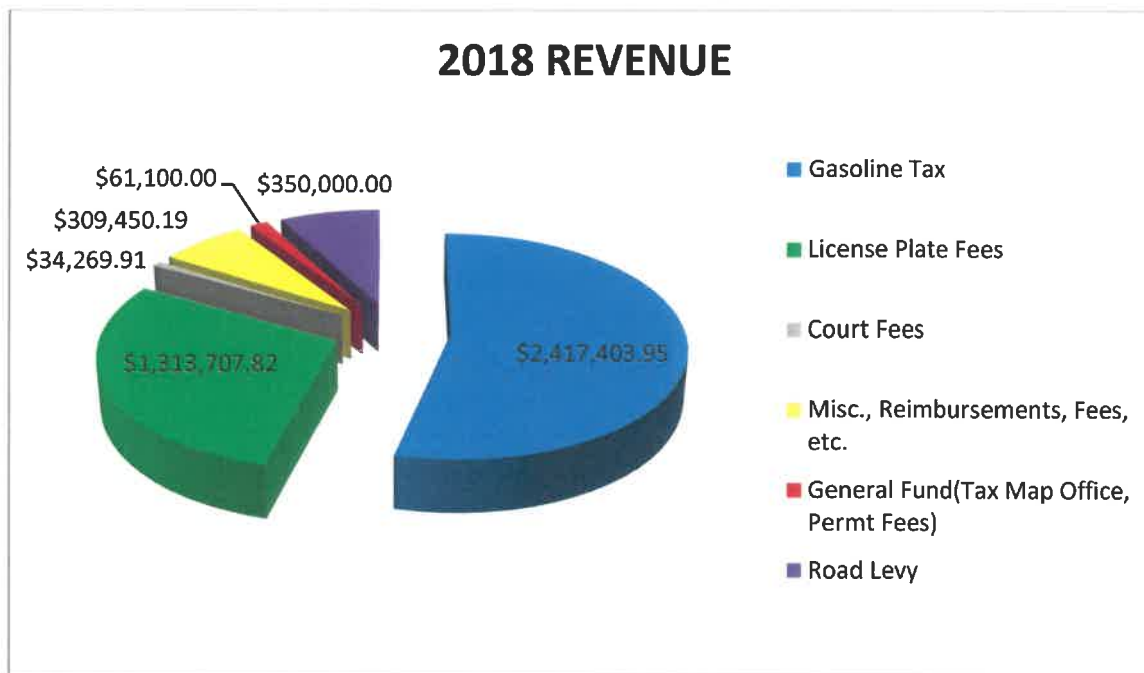
Vehicle License Plate Fees are the second largest source of revenue. This revenue is generated only from vehicles that are registered in Carroll County. In 2018 we received \$1,313,707.82 from vehicle registrations, which is slightly more than previous years.

Court Fees, Reimbursements and Miscellaneous income contributed \$343,720.10 in revenue in 2018. This amount was higher than previous years due to grant reimbursement.

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 2018, the Highway Department collected \$350,000.00 in road levy funds.

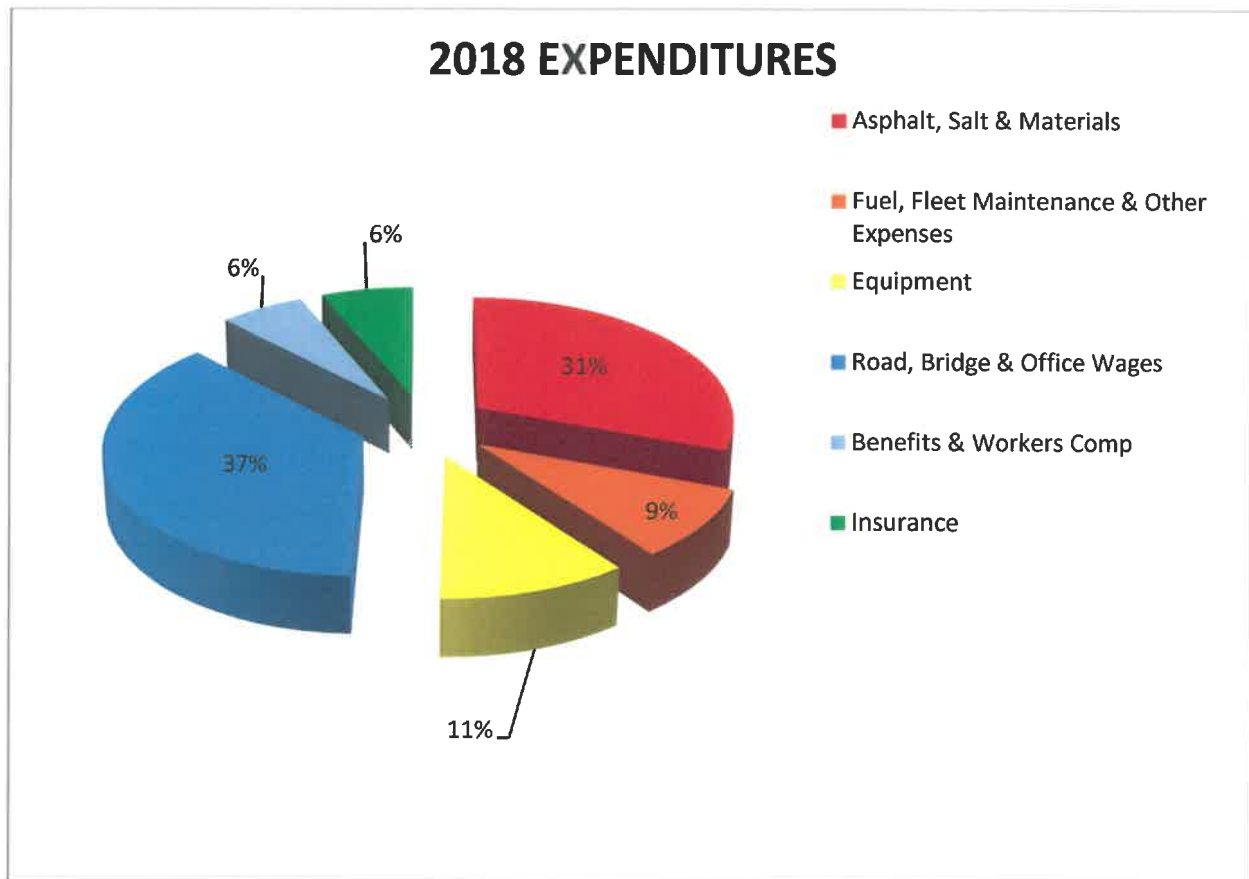
The General Fund contributes to the operation of the Tax Map Office as well as a portion of right of way permit fees collected. In 2018, \$61,100.00 in revenue was received from the General Fund.

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



## 2018 EXPENDITURES

Our total expenditures in 2018 were \$4,282,857.12. This amount is slightly higher than the previous year's expenditures due to improved road levy revenues.



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 \$512,950.00. This grant will allow us to pave 8 miles of County highway.

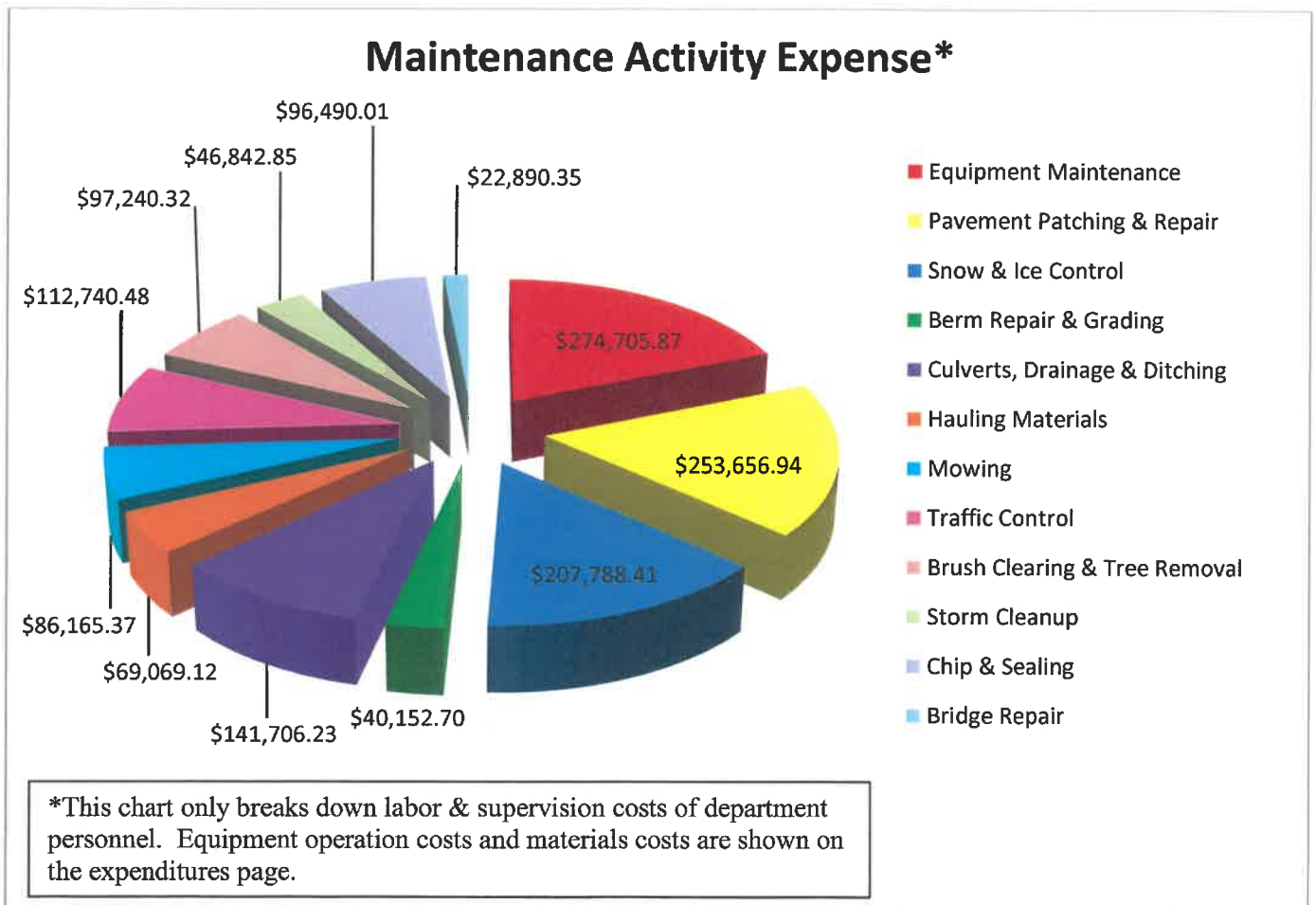


## Road & Bridge Maintenance

It is a pleasure to report the amount of work our forces were able to accomplish this year. Maintenance work is the primary service that the highway department provides for the public.

The winter of 2017-2018 was another harsh winter. Our forces treated the roads with 9,411 tons of winter mix over 46 separate callouts. Harsh winters not only increase the time and material costs to the budget but, equipment repair and the cost to repair spring thaw damage to roads also increase proportionately. These increased costs decrease the amount of funds remaining to pave roads and replace bridges.

In 1990, there were 34 employees at the highway department. In 2018 the number of employees at one point was down to 23. That represents a 32% reduction in work force over a 28 year period. The following chart highlights the amount of work that we were able to accomplish with departmental forces.



The above chart represents almost 45,000 labor hours of maintenance work performed by highway department personnel on County roads. At a total cost of over \$1,449,448.63, 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.

| <b>CONDITION DESCRIPTION</b> | <b>GENERAL APPRAISAL RATING</b> | <b>NUMBER OF BRIDGES</b> | <b>PERCENTAGE OF TOTAL BRIDGES</b> | <b>ACCUMULATING PERCENT OF TOTAL BRIDGES</b> |
|------------------------------|---------------------------------|--------------------------|------------------------------------|----------------------------------------------|
| EXCELLENT                    | 9                               | 3                        | 2.08%                              |                                              |
| VERY GOOD                    | 8                               | 10                       | 6.94%                              | 9.03%                                        |
| GOOD                         | 7                               | 46                       | 31.94%                             | 40.97%                                       |
| SATISFACTORY                 | 6                               | 56                       | 38.89%                             | 79.86%                                       |
| FAIR                         | 5                               | 28                       | 19.44%                             | 99.31%                                       |
| POOR                         | 4                               | 0                        | 0.00%                              | 99.31%                                       |
| SERIOUS                      | 3                               | 1                        | 0.69%                              | 100.00%                                      |
| CRITICAL                     | 2                               | 0                        |                                    |                                              |
| OUT OF SERVICE               | 1                               | 0                        |                                    |                                              |
|                              |                                 |                          |                                    |                                              |
|                              | <b>TOTAL</b>                    | <b>144</b>               |                                    |                                              |

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 2013 the County had 9 load restricted bridges. After the 2018 construction season, I am proud to report, we have reduced that number to 1 load restricted bridge county wide.

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 68 large diameter culverts and over 3,000 small diameter culverts on County roads. Culverts on County roads are rated every two years by our in house staff. Ratings are issued from excellent to critical. The 68 large diameter culverts range in size from 4' diameter to 10' span, the 3,000+ smaller culverts include anything less than 4' diameter and are not rated on a regular basis due to their smaller size. Only culverts of 4' diameter and larger are rated every two years.

Based on the latest inspection of culverts, the following table indicates the condition of the 68 large diameter culverts on Carroll County roads.

| CONDITION DESCRIPTION | CONDITION RATING | NUMBER OF CULVERTS >4' | PERCENTAGE OF TOTAL CULVERTS >4' | ACCUMULATING PERCENTAGE |
|-----------------------|------------------|------------------------|----------------------------------|-------------------------|
| EXCELLENT             | 5                | 16                     | 23.53%                           |                         |
| GOOD                  | 4                | 41                     | 60.29%                           | 83.82%                  |
| FAIR                  | 3                | 9                      | 13.24%                           | 97.06%                  |
| POOR                  | 2                | 2                      | 2.94%                            | 100.00%                 |
| CRITICAL              | 1                | 0                      | 0.00%                            |                         |
|                       |                  |                        |                                  |                         |
|                       | TOTAL            | 68                     |                                  |                         |

It is a goal of this department to keep 90% of our large diameter culvert inventory at a condition rating of 3 or higher. As you can see from the chart above, we have accomplished that goal. Unfortunately, we have 11 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 68 large diameter culverts, that means that 2 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 4' diameter to a 10' span. Replacement costs for that size range vary from \$12,000.00 to \$100,000.00. Using an average current cost for calculation purposes of \$50,000.00 to replace a large culvert, at 2 culverts per year we would need an additional \$100,000.00 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 2018. We have been quite pleased with the initial results of the change to the Western Star chassis and will continue in that direction in the future. 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 2018 we began the year preparing to buy a new wheel loader. In order to keep costs down, we elected to make several repairs to the existing machine in order to extend its service life a few more years. This savings allowed us to update our mower fleet which was put into service twenty years ago. We purchased two John Deere 6110 tractors with Tiger mowers off of the State Bid contract to replace our two existing mowers.**



*Representative Image*

*(Photo courtesy of John Deere)*

**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, \$185,000**

**Wheel Loader, \$280,000**

**4- Pickups, \$25,000 each**

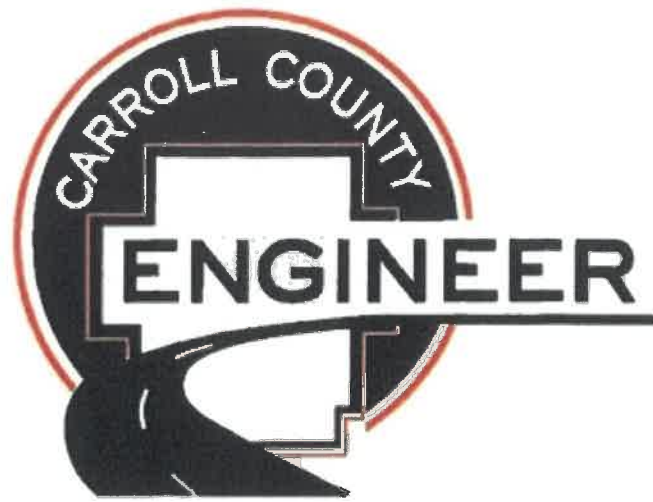
**Road Broom, \$85,000**

**Mechanic Service Truck, \$35,000**

**Distributor Truck, \$150,000**

**Vibratory Roller, \$35,000**

**Various hand tools, misc. small equipment and attachments, approx. \$15,000 per year**



**2018**

**RESOURCE  
ALLOCATION  
REPORT**

## HIGHWAY DEPARTMENT

The 24 full-time employees of the Carroll County Highway Department performed the following road and bridge work in 2018.

### Pavement

- 58 tons of permacoat asphalt for pothole patching.
- 44.24 miles of roadway chip & sealed using 5,474 tons of #8 gravel and 199,233 gallons of liquid asphalt.
- 4 miles of road milled using 3,000 tons of reclaimed stone, 424 tons of #67 limestone, 480 tons of #8 limestone and 37,250 of liquid asphalt.
- 1,838 tons of permacoat and 237 tons of hotmix asphalt for road leveling.

### Roadway

- 2,623 labor hours for spot ditch cleaning and re-shaping.
- 396 labor hours for roadway storm cleanup.

### Roadside

- 1,520 labor hours of roadway mowed by County employees.
- 370 labor hours of arm mower work to clear brush on steep banks.
- 2,224 hours manually removing brush and trees from road banks.

### Culvert

- 371 labor hours to clean and check pipes.
- 21 culvert pipes replaced.

### Bridges

- 144 bridges inspected.



### Traffic Operation

825 traffic signs replaced or newly erected. We had two grants to replace signs.  
21 road name signs replaced due to theft.  
128 gallons of herbicide for weed control at intersections and sign posts.

### Winter Emergency

46 days of snow and ice control performed.  
9,411 tons of snow & ice control mix.  
5,309 labor hours.  
3,993 equipment hours.  
793 labor hours expended for winter emergency preparation.

### Equipment Maintenance

5,480 labor hours.  
50 licensed trucks, cars and trailers.  
43 non-licensed construction equipment and other miscellaneous equipment such as chainsaws, compactors, welders and generators.

### Hauling/Stockpiling Road Materials

1,359 labor hours to haul and stock pile road materials.

### Road Work for Others

The Highway Department provided 539 labor hours for other county, township and village agencies which include:

|      |                                                   |
|------|---------------------------------------------------|
| 1    | Augusta Twp.                                      |
| 1    | Center Twp.                                       |
| 1    | T200 (June) and CR 68 Resurfaced                  |
| 1.5  | Carroll County Commissioners                      |
| 2    | Union Twp.                                        |
| 2.5  | East Twp.                                         |
| 4    | Carroll County Health Dept.                       |
| 10   | Carroll Water & Sewer Dept.                       |
| 17   | Carroll County Historical Society                 |
| 43   | Factor Rd. (T139) Culvert -Monroe Twp.            |
| 47.5 | Carroll Golden Age Retreat                        |
| 56.5 | Ivory Rd. Pipe - Harrison Twp.                    |
| 250  | T-200 and CR 68 Resurfaced                        |
| 315  | Carroll County Agricultural Society (Fairgrounds) |

## **ENGINEER'S OFFICE**

The Engineer's Office consists of 5 full-time staff personnel in addition to the Engineer. Highlights achieved in 2018 include:

- The administration of 34 right-of-way permits and 14 driveway permits.
- 25 special hauling permits were required.
- The preparation of payroll, statements for payment, billings and associated administrative work for and our \$4,605,600.00 million dollar budget was performed on a daily basis.
- Application for \$394,000.000 from the State Issue I program for road projects and bridge projects.
- The preparation of specifications and bid documents for a variety of projects. These include 9 miles of paving on 3 county roads, 5 grant funded paving projects for 4 municipalities.
- The performance of daily inspection and inspection reports on all contract work.
- Administer 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:

Scanned recorded Plat Books for Carroll County Recorder's web site.

Survey of Proposed Orange Township Garage Site

Loudon Township Breezewood Lane Right of Way Staking

Fox Township Olive Road Right of Way Establishment

Community Improvement Transfer Survey to Solid Waste District

East Twp. Trustees Property Location

Assisted Regional Planning Commission with lot split reviews

Assisted Sheriff's Office with Location Based Response System Data

## **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 2018 this office processed 1,742 deeds, 1,634 transfers and 110 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**

Safety films/instructors are presented once a month to provide employees safety tips, reminders and precautions when performing their assigned tasks.

Random drug testing performed on 5 employees.

Training seminars attended by various employees included:

2018 CEAO Conferences

2018 Training Seminar for Softworks

Ohio LTap Snow & Ice Control

2018 Ohio Pesticide Commercial and Safety Training

2018 Professional Land Surveyors Ohio Fall Conference

2018 Superintendents & Mechanics Conference

Contractor Damage Prevention & Pipeline Safety

Comprehensive Training for HR Managers

Bridge Rating Training

Trenching Safety Conference

Spotting & Backing Safety

Heat Exhaustion and Stroke Safety

Fork Lift Recertification

"The Reason for Safety Meetings", "Protecting Eyes, Ears & Hands", "Using the 3 Point Method when Climbing" and the "Importance of Getting enough Sleep".

Lyme Disease Safety

Asphalt Materials Chip & Seal Program

Slips Trips & Falls and "It wasn't Me" video on employee responsibility in the workplace.

Winter Prep and Dry Run

Wood Chipper Safety

Work Zone Safety and Flagging Procedures

Sexual Harassment Seminar

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Brian J Wise, P.E., P.S.  
Carroll County Engineer  
February 2019