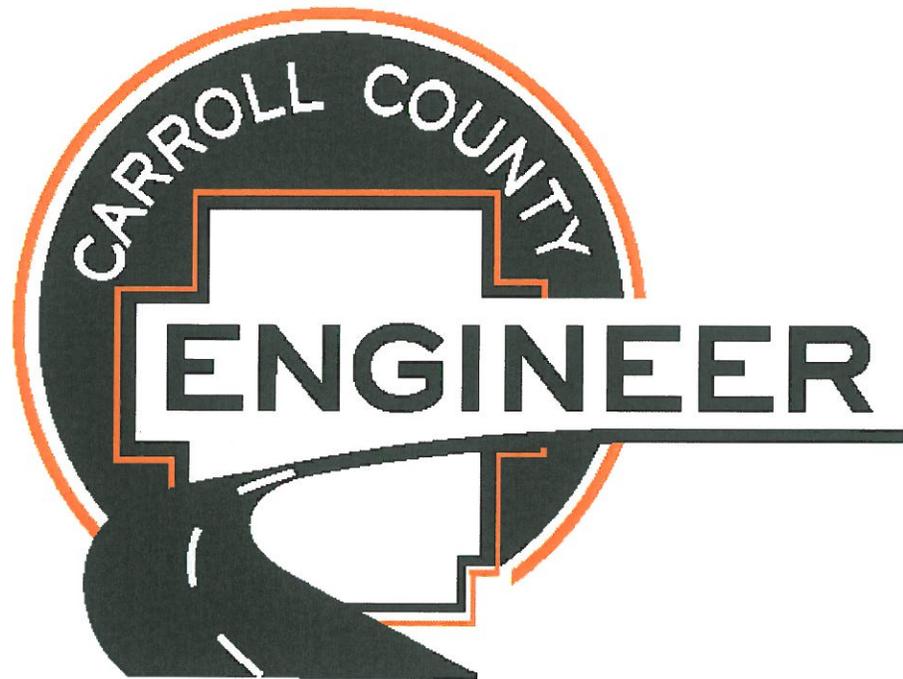
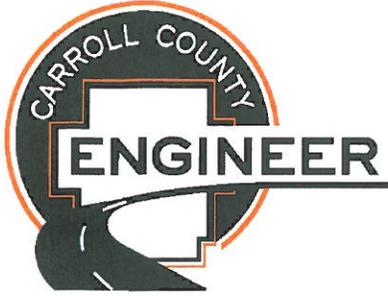


# 2015 ANNUAL REPORT



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





# Carroll County Engineer's 2015 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. You will note some changes to the way the information is presented in this updated layout.

First, 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.

Secondly, I would like to address an issue that local road maintenance agencies across the state are facing. Funding for road and bridge operations continues to lag significantly behind what we need to address our infrastructure conditions. The primary source of revenue for the highway department continues to be the State Gasoline Tax and Motor Vehicle License Plate Fees. Revenue has continued to remain stagnant while the cost of construction materials continues to increase dramatically. From 2000 to 2014 the cost of asphalt per ton had increased over 190%. On the other hand, County Highway Department Revenue had declined from a high of \$3,954,452.85 in 2008, to a low of \$3,649,852.54 in 2012, a decrease of almost 8%. While revenues have slowly regained some ground in the last four years, 2015 revenue came in at \$3,863,150.27, still 2.31% below the 2008 funding levels.

To proceed with paving, bridge replacement and other capital improvement projects, we have been fortunate to secure Ohio Public Works Commission grants over the past several years to supplement our revenue sources. The cost of construction inflation and age related deterioration of the road and bridge system however, has outpaced available funds from that program as well. We have been working with our state legislators for the past several years to develop a long term funding source for Ohio's local roads and bridges. Please encourage our Ohio Representatives and Senators to address this responsibility of the State Legislature to provide adequate highway infrastructure funding for local jurisdictions.

Lastly, 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 2015 as required by Ohio Revised Code §5543.02,

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

# TABLE OF CONTENTS

Table of Contents

Department Staff

Revenue

Expenditures

Road & Bridge Maintenance Operations

Status of County Roads

Status of County Bridges

Status of County Culverts

Equipment

Resource Allocation



Bridge deck replacement on Andora Rd., CR 10.



County forces replacing a bridge backwall on Channel Rd., CR 62.

**On the Cover:**

County crews replacing a culvert on Apollo Rd., CR 12.

**The Carroll County Engineer Maintains:**

- **307 Miles of Road** (ADT = Average Daily Traffic)
  - 9 miles > 2,000 ADT (High = 2,355)
  - 22 miles between 1,000 and 2,000 ADT
  - 92 miles between 400 and 1,000 ADT
  - 145 miles between 100 and 400 ADT
  - 39 miles < 100 ADT (Low = 18)
  
- **143 Bridges**
  - 31 span from 10' to 20'
  - 106 span from 20' to 100'
  - 6 span from 100' to 134'

# Department Staff

**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**

Paul Simmons

**Night Watchperson**

Jeff Tipton

**Highway Workers**

Jim Brackin

Mark Brannon

Clint Casper

Dale George

Larry Granger

Christopher Hawk

George Hendrickson

Bruce Hilliard

Thomas Jones

Jeffrey Kohler

Calvin Logan

Matt Manfull

Duane McIntire

Jeff Riegle

Jonathan Stenger

Harold Taggart

Dale Tinlin



*County crews performing Full Depth Pavement Repair on Autumn Rd., CR 19*



# 2015 REVENUE

Our total revenue received for 2015 was \$3,863,150.27. Proceeds from the State Gasoline 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 Gasoline Tax. Counties statewide share an equal amount of the 4.4 cents out of every 28 cents in tax the State collects per gallon on motor vehicle fuel. State Gasoline 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 Gasoline Tax. In 2015 we received \$2,356,712.91 in gas tax revenue.

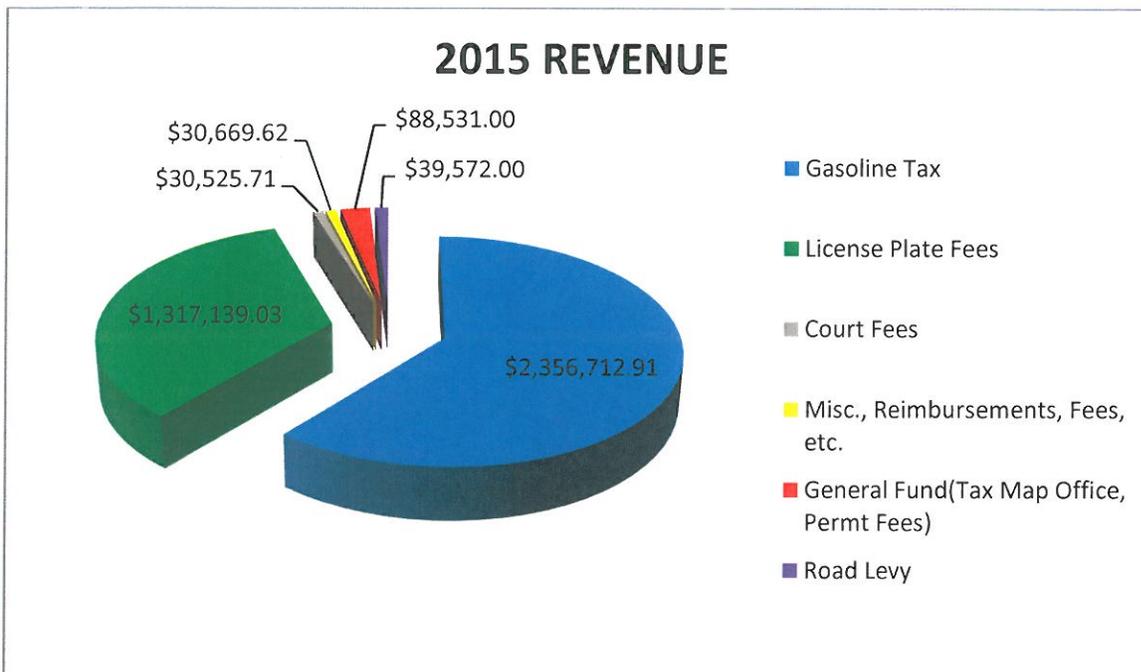
Vehicle License Plate Fees are the second largest source of revenue. This revenue is generated only from vehicles that are registered in Carroll County. In 2015 we received \$1,317,139.03 from vehicle registrations.

Court Fees, Reimbursements and Miscellaneous income contributed \$61,195.33 in revenue in 2015.

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. The remainder of the funds collected from the road levy comes to the Highway Department. In 2015, the Highway Department collected \$39,572.00 in road levy funds.

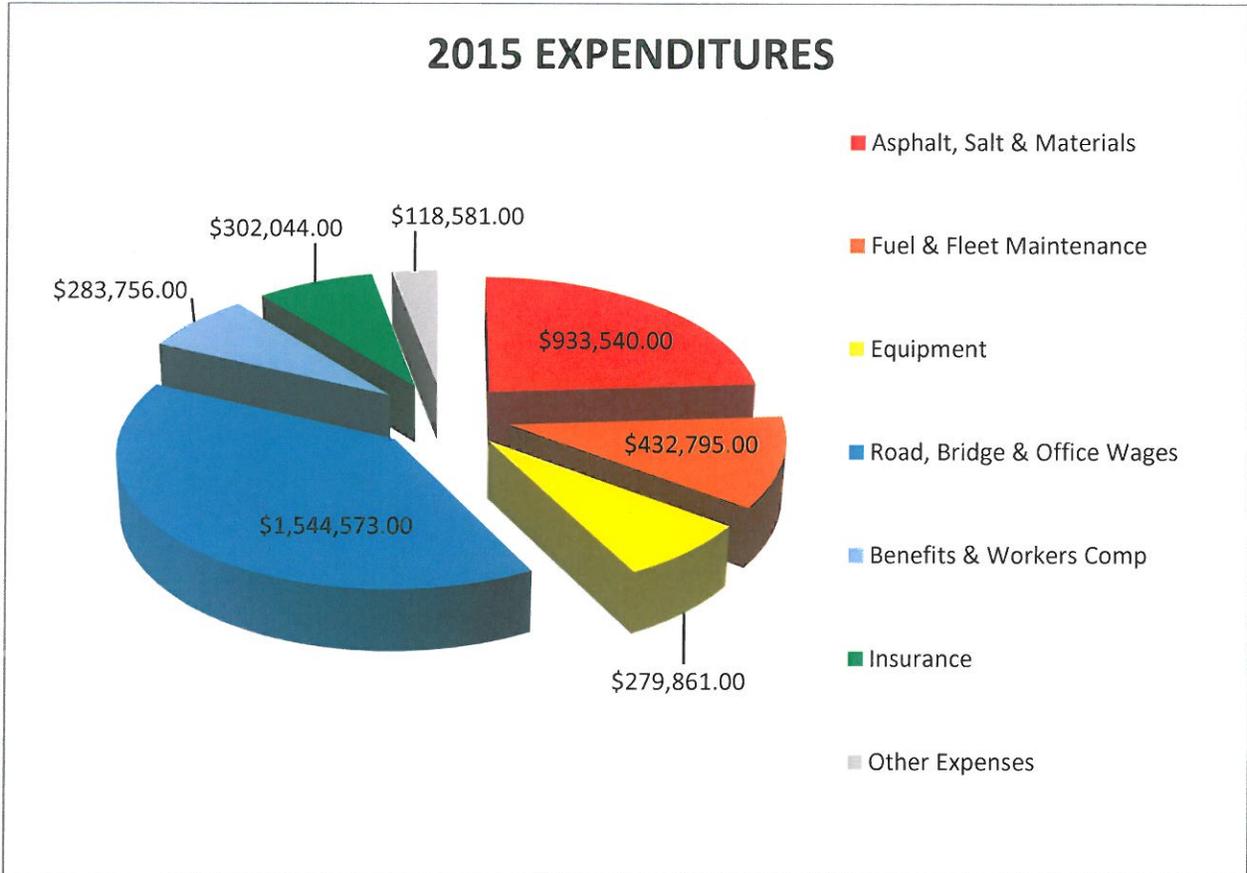
The General Fund contributes to the operation of the Tax Map Office as well as a portion of right of way permit fees collected. In 2015, \$88,531.00 in revenue was received from the General Fund.

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



## 2015 EXPENDITURES

Our total expenditures in 2015 were \$3,895,150.01. This amount is \$57,329.30 higher than actual 2015 expenditures due to a carryover payment for the new chip spreader from 2014. Actual expenditures for 2015 were \$3,837,820.71, or \$25,329.56 under total revenue.



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 **\$389,387.00**. This grant was used to pave 3.14 miles of road and perform major repairs to 4 bridges and 2 large culverts.



In addition, over 10,000 linear feet of guardrail was installed by contract from a Federal Highway Safety Improvement Program Grant through the County Engineers Association of Ohio in the amount of **\$259,564.95**.



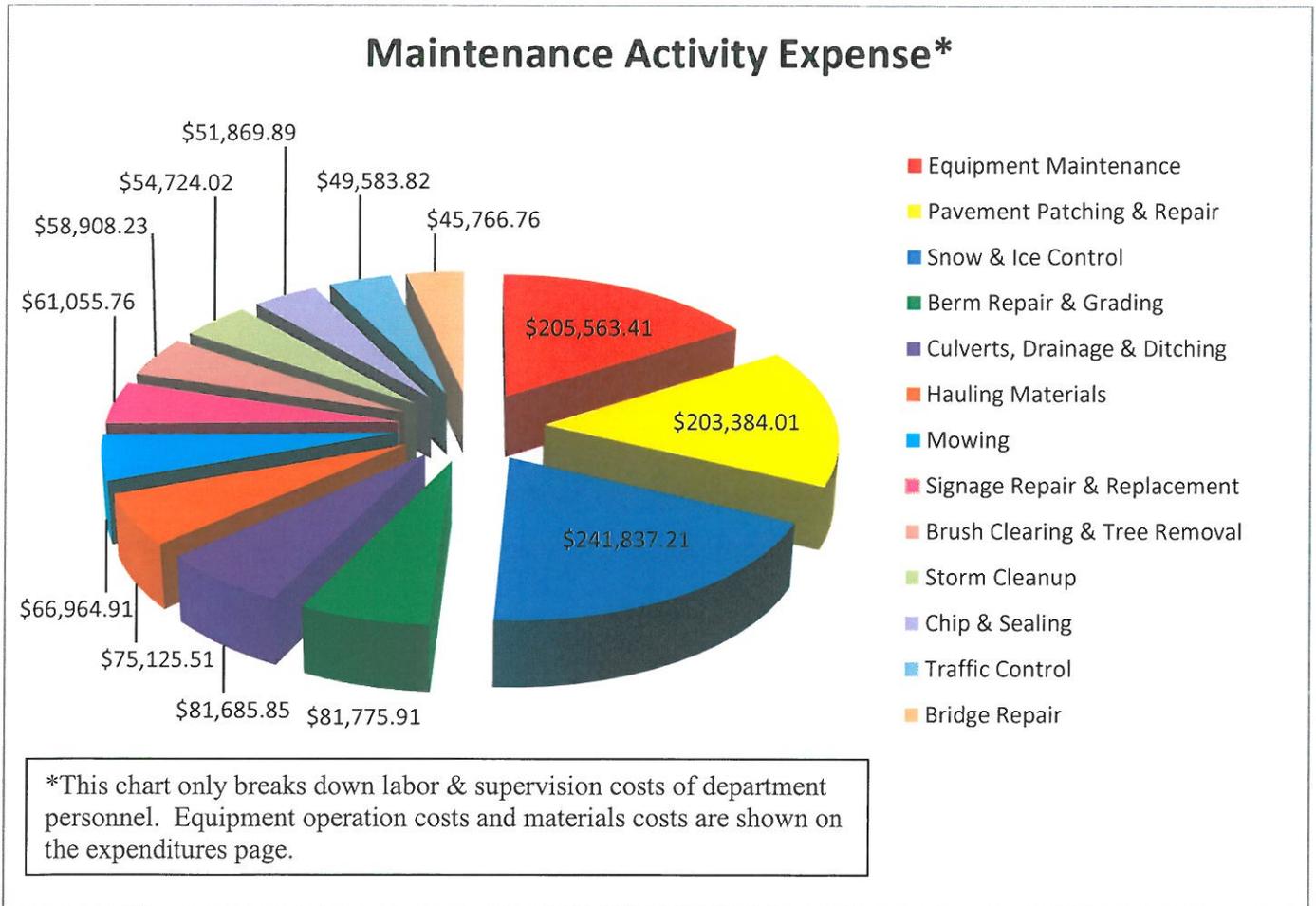
**COUNTY ENGINEERS  
ASSOCIATION OF OHIO**  
"ALL TRAVEL STARTS AND ENDS ON A LOCAL ROAD"

## Road & Bridge Maintenance

It is a real 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 2014-2015 was another severe one. Our forces treated the roads with 9,554 tons of winter mix over 60 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 2015 the number of employees was down to 24. That represents a 30% reduction in work force over a 25 year period. The following chart highlights the amount of work that we were able to accomplish with departmental forces.



The above chart represents over 41,000 labor hours of maintenance work performed by highway department personnel on County roads. At a total cost of over \$1,278,000.00, 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 as well as the Pavement Condition Rating System for Rural Low Volume Roads created by the Asphalt Institute are both compared to develop this rating. 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.

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.

Currently we are in the process of evaluating data and tabulating our condition ratings after our initial review which we performed in 2015. Those ratings will be published in next years' annual report.

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.

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 143 bridges on County and Township roads. 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 143 bridges in Carroll County.

CONDITION DESCRIPTION	GENERAL APPRAISAL RATING	NUMBER OF BRIDGES	PERCENTAGE OF TOTAL BRIDGES	ACCUMULATING PERCENT OF TOTAL BRIDGES
EXCELLENT	9	3	2.10%	
VERY GOOD	8	4	2.80%	4.90%
GOOD	7	48	33.57%	38.46%
SATISFACTORY	6	58	40.56%	79.02%
FAIR	5	27	18.88%	97.90%
POOR	4	2	1.40%	99.30%
SERIOUS	3	1	0.70%	100.00%
CRITICAL	2	0		
OUT OF SERVICE	1	0		
	<b>TOTAL</b>	143		

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 2015 construction season, I am proud to report, we have reduced that number to 4 load restricted bridges county wide.

The average useful life of a bridge is 50 years. For the County's 143 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	10	14.71%	
GOOD	4	40	58.82%	73.53%
FAIR	3	14	20.59%	94.12%
POOR	2	4	5.88%	100.00%
CRITICAL	1	0	0.00%	
		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 18 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

Our fleet of 11 primary plow trucks and 4 spare plow trucks saw a new addition in 2015. 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. Last winter was especially rough on our trucks and at one point during a large storm, 6 of our 11 trucks were down with electrical issues forcing us to rely on our spare trucks to keep up. As more and more federal environmental regulations continue to be mandated on new vehicles, there are an ever increasing amount of electrical issues that plague those vehicles. This convinced us that we needed to look in a different direction when specifying plow trucks. Our research led us to look at the Western Star truck chassis. Western Star uses a traditional point to point wiring scheme instead of the more complex multi-plex wiring system that is common on trucks today. With the harsh salt and ice environment that plow trucks work in, the Western Star wiring should prove to be more reliable and easier to repair. This will provide us less down time and less costly repairs.



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, \$180,000

Gradall Wheeled Excavator, \$300,000

Front Loader, \$200,000

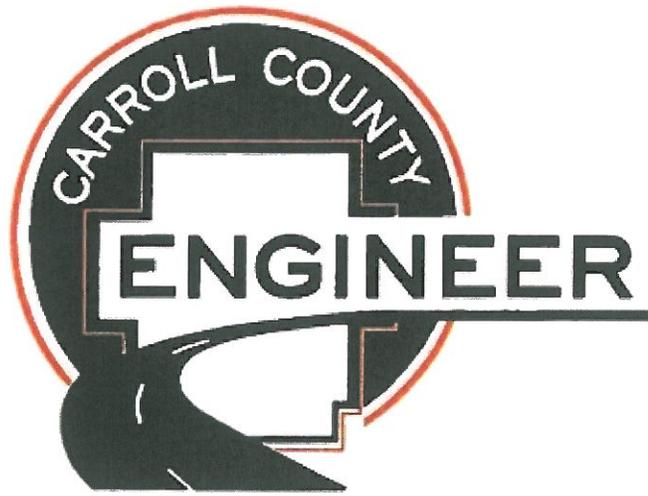
2- Tractor Mowers, \$75,000 each

2- Pickups, \$25,000 each

Mechanic Service Truck, \$35,000

Distributor Truck, \$150,000

Various handheld tools and equipment, approx. \$5,000 per year



**2015**

**RESOURCE  
ALLOCATION  
REPORT**

## HIGHWAY DEPARTMENT

The 24 full-time employees of the Carroll County Highway Department performed the following road and bridge work in 2015.

### Pavement

- 551 tons of permacoat and coldmix asphalt for pothole patching.
- 23.24 miles of roadway chip & sealed using 3,505 tons of #8 gravel and 111,250 gallons of liquid asphalt.
- 1607 tons of permacoat and 443 tons of hotmix asphalt for road leveling.

### Material used for Dura-Patchers

- 1,625 gallons of CRS2 liquid asphalt.
- 57.25 tons of #8 gravel.

### Roadway

- 48 tons of #411 limestone to repair storm damaged culvert.
- 893 labor hours for spot ditch cleaning and re-shaping.
- 590 labor hours for roadway storm cleanup.

### Roadside

- 1,804 labor hours of roadway mowed by County employees.
- 441 labor hours of arm mower work to clear brush on steep banks.
- 925 hours manually removing brush and trees from road banks.
- 64,352 linear feet of guardrail sprayed with herbicide by others.

### Culvert

- 287 labor hours to clean and check pipes.
- 14 culvert pipes replaced.

### Bridges

- 143 bridges inspected.

### Traffic Operation

- 282 traffic signs replaced or newly erected.
- 42 road name signs replaced due to theft.
- 273 gallons of herbicide for weed control at intersections and sign posts.

### Winter Emergency

- 60 days of snow and ice control performed.
- 9,554 tons of snow & ice control mix.
- 4,888 labor hours.
- 3,697 equipment hours.
- 795 labor hours expended for winter emergency preparation.

### Equipment Maintenance

- 7,260 labor hours.
- 44 licensed trucks, cars and trailers.
- 20 non-licensed construction equipment and other miscellaneous equipment such as chainsaws, compactors, welders and generators.

### Hauling/Stockpiling Road Materials

1430 labor hours to haul and stock pile road materials.

### Road Work for Others

The Highway Department provided 340 labor hours for other county, township and village agencies which include:

<u>Hours</u>	<u>Agency</u>
87	Carroll County Commissioners
65	Carroll County Agricultural Society
41	Pipe, Fargo Rd. Rose Twp.
33	Gallo Rd Intersection Pipe Repair
33	Pipe, Doral Rd. Union Twp
24	Railroad Repair - Arbor Rd.
19	Carroll Golden Age Retreat
11	Channel Cleaning, Legend Rd. Brown Twp
11	Solid Waste District
9	Carroll County Historical Society
7	Culvert for Lee Township

## ENGINEER'S OFFICE

The Engineer's Office consists of 5 full-time staff personnel in addition to the Engineer. Highlights achieved in 2015 include:

- The administration of 83 right-of-way permits and 45 driveway permits.
- 8 special hauling permits were required.
- The preparation of payroll, statements for payment, billings and associated administrative work for and our \$3.7 million dollar budget was performed on a daily basis.
- Application for \$408,250.00 from the State Issue I program for road projects and bridge projects.
- The preparation of specifications and bid documents for a variety of projects, including the replacement of 4 bridges, 3.14 miles of paving, two large diameter culverts and one culvert invert paving project.  
Reviewed all bids submitted to the commissioners and made recommendations as to the most qualified bidder.
- 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:

Brown Township Bethlehem Cemetery Survey  
Center Township Ima Road Right of Way Survey  
Loudon Township Troy Road Right of Way Survey  
Assisted Village of Carrollton with waterline easements on SR 9  
Assisted CIC with waterline easements on SR 9  
Assisted County Commissioners with gas and oil lease areas  
Assisted Regional Planning Commission with lot split reviews  
Construction Administration for Commissioners CDBG Program

## **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 2015 this office processed 1,033 deeds, 1,571 transfers and 94 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 7 employees.

Training seminars attended by various employees included:

2015 Bridge Workers, Supervisors & Engineers Conference & Trade Show  
2015 CEAO Conferences  
2015 Land Records Modernization Conference  
2015 Superintendents & Mechanics Conference & Trade Show  
2015 Transportation Engineering Conference  
Compressed Natural Gas Seminar  
Backing, Parking and Intersections Training  
Guardrail Installation Training  
OUPS Excavator Seminar  
Ohio Pesticide Commercial and Safety Training  
Slips, Trips and Falls Training by CORSA  
First Aid, AED and CPR Training by Kent State University  
Asphalt Pavement Technical Seminar  
Emergency Response and Damage Prevention Pipeline Safety Program  
Fire Extinguisher Safety Presentation  
Backhoe Safety and Walk Around Training  
Pavement Condition Rating/Transportation Asset Management

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Brian J Wise, P.E., P.S.  
Carroll County Engineer  
February 2016