

**2016 WASHINGTON COUNTY
REPORT ON ROAD AND BRIDGE CONDITIONS**

Roger E. Wright PE, PS, Washington County Engineer

In accordance with Ohio Revised Code 5543.02, I hereby submit the annual report of the condition of the roads, bridges and culverts on the Washington County Highway System for 2016.

The Washington County Engineer and Highway Department has responsibility for 341 miles of 2-lane County roads and 379 bridges within one of the largest geographic area counties in Ohio. Maintaining them to the condition level described herein is a tribute to the hard work and dedication of our supervisors and employees.

REVENUE AND EXPENDITURE SUMMARY

PERMANENT REVENUE SOURCES

The Washington County Engineer has two sources of “permanent” revenue. The first “Motor Vehicle Registration Fees” and the second “Gasoline Tax”; together known as MVGT. Washington County has also enacted all three of the permissive vehicle registration fees available by Ohio Revised Code (ORC). No additional ORC permanent revenue source is available at this time. Additional miscellaneous revenue below combine to create a yearly total.

2016 MVGT REVENUE RECEIVED:

LICENSES TAX	\$2,326,866.50
GASOLINE TAX	\$2,338,615.75
PERMISSIVE TAX ORC 4504.02	\$276,689.51
\$5 - PERMISSIVE TAX ORC 4504.15 & 4504.16	Enacted 2009 \$562,542.36
FINES	\$43,160.68
SALES	\$44,431.08
INVESTMENT INCOME	\$7,967.34
TRANSFERS – IN	\$4,800.00
REIMBURSEMENTS	\$17,554.62
OTHER RECEIPTS	\$7,009.04
TOTAL MVGT REVENUE	\$5,629,637

VARIABLE REVENUE SOURCES

The following revenue sources vary year to year, as grant funding is competitive.

1% Permissive Sales Tax - total revenue varying by year based on percentage granted and total collected.

2016 1% PERMISSIVE SALES TAX REVENUE - 4% of 2015 TOTAL COLLECTION

SALES TAX – 2016 Allocation - 4% of 2015 Total Collected	\$368,423
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2016 CAPITAL PROJECTS – FEDERAL FUNDS REVENUE

In order to leverage and maximize our MVGT funds as County Engineer I pursue Federal grant funding for capital improvement projects, normally 80% Federal Funds with 20% MVGT. We were fortunate to receive Federal Funding.

CAPITAL PROJECTS FEDERAL FUNDS REVENUE	\$271,947
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2016 OHIO PUBLIC WORKS COMMISSION – OPWC REVENUE

In order to leverage and maximize our MVGT funds as County Engineer I also pursue OPWC State grant and loan funding for projects, again allowing our MVGT funds to act as matching funds. We were fortunate to receive funding.

OPWC STATE GRANT FUNDS	\$373,271
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OPWC LOAN FUNDS

OPWC Loans are available at 0% interest, for a project specific number of years.

OPWC STATE LOAN FUNDS, 0% INTEREST FOR 10 YEARS	\$131,149
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Together all funds generate and provide the revenue for road and bridge repair, replacement, and highway operations.

TOTAL REVENUE - (Permanent + Variable)	\$6,774,427
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*** For comparison 2015 TOTAL REVENUE: \$7,002,347

2016 MVGT EXPENSES:

PERSONNEL COSTS	\$2,124,392.88
CONTRACT SERVICES	\$101,926.30
SUPPLIES AND MATERIALS	\$1,196,324.01
CAPITAL EQUIPMENT	\$406,026.28
CAPITAL PROJECTS	\$2,217,692.76
OTHER	\$41,245.98
TOTAL EXPENSES	\$6,087,608.21

1% SALES TAX FUNDING FOR COUNTY ENGINEER IN 2016

SALES TAX – 2016 Allocation - 4% of 2015 Total Collected	\$368,423
SALES TAX – 2015 Total Collected	\$9,210,566

The 1% Sales Tax fund was originally established by vote of the Board of County Commissioners in 1983, stating that 85% of the total collected would be used for roads and bridges and 15% for the County General Fund. The County Engineer and all 22 townships were to divide the 85% allocation per an agreed-upon formula.

However, 4 years later in 1987 the Commissioners allocated 35% of the total collected to the General Fund and thus began a steady erosion of the 1% Sales Tax money away from the County Engineer and Townships for road and bridge projects. The following is a summary of this erosion of funds, the end result being predictable; rising construction costs coupled with lost funding result in a lack of funding for needed road and bridge repair projects.

1987 - 2003

For a period of 17 years (1987-2003), the Board of Commissioners increased the percentage of 1% Sales Tax dollars for the County's General Fund, at the expense of roads and bridges, in the approximate amount of 35%-50% of the total collected. For the initial 17 year period (1987-2003) roads and bridges lost a total of over \$23,000,000.

2004 - 2012

Then, in 2004 the Commissioners increased the percentage of total collected to 64% going to the General Fund, which began another acceleration of funding away from roads and bridges. Ultimately in 2010 a high of 88% of the total 1% Sales Tax collected was allocated solely to the General Fund. From 2004 to 2012, this nine year period saw over \$34,000,000 lost from roads and bridges to the General Fund.

1% Sales Tax revenue allocated for roads and bridges from 1984 – 2008 averaged approximately 1.4 million per year. As the percentage allocated towards road and bridge steadily decreased the County Engineer requested more funding, which led to the 2009 adoption by the Commissioners of two additional \$5 permissive license plate fees. Unfortunately, this has only generated a yearly average of \$550,000 – leaving roads and bridges with less than half of their previous funding amounts.

In 2012 the Engineer's Office and Township Trustees Association negotiated with the Commissioners to increase 1% Permissive Sales Tax funds to the County Engineer and the townships. Working together, a compromise was reached, and in 2013 the infamous "cap" was removed from the 1% Sales Tax funds and all parties received a portion of the total sales tax collected.

2013 – Present

In 2013 the 1% Sales Tax collected approximately \$7.8 million, and was allocated in 2014 per a new formula; the County Commissioners received 74% - \$5.7 million, the Township Trustees received 22% - \$1.7 million, and the County Engineer received 4% - \$313,036. This established a new formula of 74%, 22% and 4%

In 2016 the amount of 1% Sales Tax received (\$368,423) combined with the two additional \$5 Permissive Tax fees (\$562,542) resulted in a total of \$930,965. Unfortunately, this total again falls short of the average of \$1.4 million received for roads and bridges from 1984-2008, without taking into account inflation or the yearly construction cost index.

Expenses for basic commodities such as limestone, fuel, asphalt and asphalt emulsions, road salt, etc. have risen steadily since 2008. Additionally as cars become more fuel efficient, less gas is purchased and gasoline tax revenue (MVGT) continues to fall, adding to the decline of revenue. This results in a loss of buying power with fewer dollars available for maintenance, improvement, or replacement. In order to counter these effects the number of employees has been reduced through attrition via retirement, resulting in a reduction of work force over the last 10 years, leaving manpower currently at the minimum.

With staffing now at minimum numbers and the budget remaining flat, the level of service of the County roadways will now have to be reduced to accommodate the current economic situation. In the very near future it may be necessary to take roads that are currently chip seal back to gravel, as gravel is cheaper to maintain. This year, like the past few years, I have made the decision to forego re-paving some existing asphalt roadways, and instead apply a cheaper chip seal surface.

Additionally, the number of bridges that are load posted for weight reduction will increase. Instead of replacing deteriorating bridges in a timely fashion as they age, the service life of these bridges will be extended via load posting. Commercial vehicles will not be able to travel as easily throughout the County as legal loads will be reduced on more bridges in more areas, as the condition of the deteriorating bridge dictates. In the past these bridges would be replaced in a timelier manner allowing the County infrastructure to accommodate legal loads, a positive for business and development.

As reference the table below shows the cost of some basic materials used by the county highway department and how those costs have risen over the past ten years, along with the decrease in number of employees.

	2016	2011	2006
TOTAL MVGT REVENUE (without carryover)	\$5,629,636.88	\$6,210,549.91	\$5,290,286.25
1% Permissive Sales Tax Received	\$368,423.00	0	\$2,487,103.81
TOTAL EXPENDITURES	\$6,087,608.21	\$7,287,822.54	\$4,452,671.54
Salt per ton	\$77.36	\$64.87	\$41.25
Asphalt Material Hot Mix per ton	\$65.00	\$65.00	\$35.00
#617 Limestone per ton	\$21.50	\$19.50	\$19.00
NUMBER OF EMPLOYEES	36	40	41

SAFETY

We did not have a lost time accident in 2016.

ROAD CONDITION

The Washington County Engineer has responsibility for approximately 341 miles of County roads. The Micro Paver pavement management system is used to rate the surface condition of our roads. This system only addresses the pavement surface condition as it exists on the day of the bi-yearly evaluation and does not attempt to evaluate whether a particular road should be surfaced with a particular type of pavement.

The road condition goal is to maintain the county road system such that 90% of the roads are in at least fair condition. The table below indicates that this goal was met with nearly all of our roads rated fair or better.

Summary Road Condition Table as of December 31, 2016

CONDITION	PCI RANGE	AVG. PCI CONDITION	LENGTH (Miles)	PAVEMENT AREA (Sq. Ft.)	PERCENT of TOTAL ROAD MILES by CONDITION	ACCUMULATING PERCENT OF TOTAL ROAD MILES
EXCELLENT	≥92	94.3	96.17	9,905,670	28.2%	
VERY GOOD	91 - 82	85.8	72.91	7,826,785	21.4%	49.6%
GOOD	81 - 68	74.4	125.43	12,866,383	36.8%	86.5%
FAIR	67 - 50	60.9	43.89	4,377,095	12.9%	99.4%
POOR	49 - 31	49.0	2.19	230,940	0.6%	100.0%
FAILED	≤30	0.0	0.00	0	0.0%	
			340.58			

Road Miles by Surface Type

SURFACE TYPE	AVERAGE CONDITION (PCI)	LENGTH (Miles)
ASPHALT	77.9	182.46
CHIP SEAL	81.9	141.15
CONCRETE	84.0	0.32
GRAVEL	67.6	16.64
		340.58

BRIDGE CONDITION

Based on the annual inspection of bridges, the following table indicates the condition of the 379 bridges in Washington County.

The bridge condition goal is to have 90% of all bridges at or above a general appraisal of 5, Fair Condition. As the table below indicates, this goal was met with 98.16% of our bridges rated with a general appraisal of 5 or higher.

Currently Washington County has sixteen (16) load restricted bridges. Three (3) load posted bridges are wooden covered bridges built around 1900. They are still open to traffic but were not designed for current legal loads and must be load posted.

BRIDGE GENERAL CONDITION TABLE

2016 ANNUAL BRIDGE SUMMARY				
CONDITION DESCRIPTION	Bridge General Appraisal	NUMBER OF BRIDGES	PERCENT OF TOTAL BRIDGES	ACCUMULATING PERCENT OF TOTAL BRIDGES
EXCELLENT	9	14	3.69%	3.69%
VERY GOOD	8	57	15.04%	18.73%
GOOD	7	141	37.20%	55.94%
SATISFACTORY	6	118	31.13%	87.07%
FAIR	5	38	10.03%	97.10%
POOR	4	9	2.37%	99.47%
SERIOUS	3	1	0.26%	99.74%
CRITICAL	2	1	0.26%	100.00%
OUT OF SERVICE	1	0	0.00%	
	TOTALS	379		

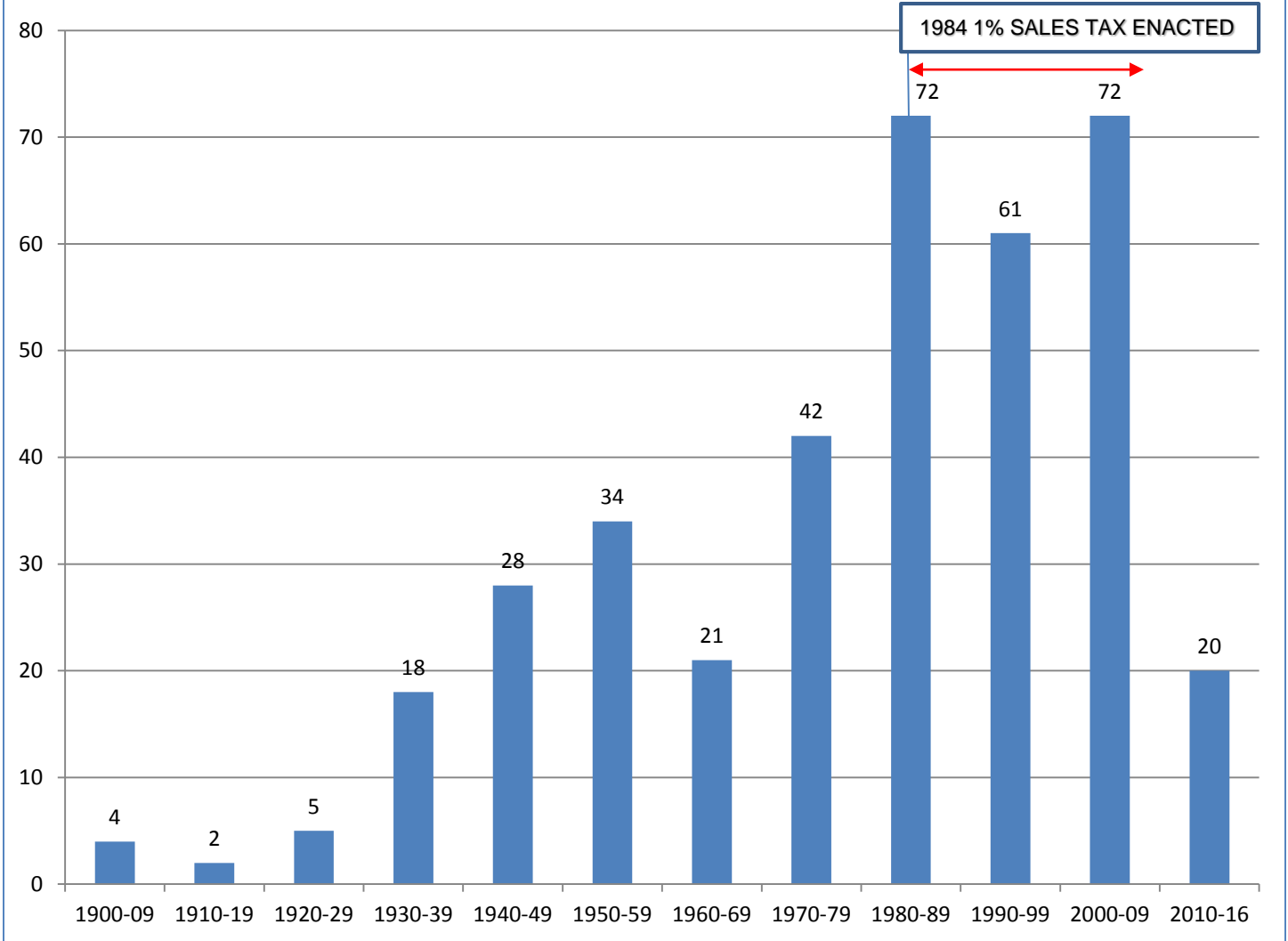
Bridge Rating 3 – Serious

T-75-0001, Aurelius Township, Elba Truss Bridge	This bridge is scheduled for replacement in 2022, currently Load Restricted with load posting signs.
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Bridge Rating 2 – Critical

C-333-0095, Newport Township, Hills Covered Bridge	This bridge is a pedestrian bridge and is now CLOSED to all pedestrian traffic
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Washington County Bridges Built by Decade



From 1984 to 2009 \$36,677,968 was allocated from the 1% Sales Tax fund to the County Engineer’s Office for road and bridge maintenance. This allowed for replacement and improvement to the county infrastructure and the results can be seen by the current condition of the county roads and bridges. The rate of replacement for 2010 to 2019 is projected to be less than 30 as rising costs and limited funds, along with preventative maintenance to extend the life of existing structures, slows the rate of replacement.

ROAD MAINTANENCE HIGHLIGHTS:

The Washington County Engineer’s Office utilizes Softworks cost tracking software. This software allows the County to document and track associated costs by work type, labor cost, equipment cost (billed at FEMA hourly rental rates), and material cost for the particular work.

All totals listed below include labor, equipment and materials for in-house maintenance work.

Snow and Ice Control 2016 Winter Season – A Very Light Winter!!

The Snow and Ice control season for 2016 begins in October 2016 and continues into April 2017 to determine a true cost for the 2016 winter season. The snow and ice control cost includes labor, materials, and equipment for road application, as well as work in the stock yards mixing materials and re-stocking the County satellite stockpiles. The cost of diesel fuel is not included in this total, as gallons used are not tracked by work type, but the majority of the fuel costs during this time frame are directly related to winter operations.

Like all counties in Ohio, Washington County saw a sharp increase in the price of salt in 2014 and hoped the price would fall in future years. Washington County typically purchases 2,000 tons of salt per year with delivery during the winter season. In order to be better prepared for winter and ensure the volatility in salt price did not leave us compromised budget wise, our large salt dome was converted from stockpiling winter mix to stockpiling pure salt. Converting the dome required a new dormer and loading belts, but increased the amount of salt we can stockpile from 2,000 ton to almost 4,000 ton. This additional capacity now allows us to purchase salt both in the Summer Fill program and the Winter Fill program, taking advantage of any cost savings. Doubling the amount of salt on hand will also ensure that even during the harshest of winters Washington County should have enough salt on hand to combat Mother Nature without worry of running out of product, while also allowing us the option to purchase more or less salt depending on the price each year.

In 2016 Washington County participated in the Winter Fill program
Summer fill: No program offered
Winter fill: Salt price \$52.74 per ton, purchased 1,800 ton, final cost \$94,932

Price comparison of salt per ton by year

2010	2011	2012	2013	2014	2015	2016
\$64.87	\$64.87	\$58.31	\$56.66	\$86.38	\$80.27 & \$77.36	\$52.74

The total cost of the 2016 winter season was \$293,573.38.

Winter Season cost comparison by year

2012	2013	2014	2015	2016
\$466,677	\$933,810	\$718,125	\$603,565.73	\$293,573.38

Diesel fuel costs from October 2015 to April 2016 were \$44,227.76.

Total Approximate Cost for the 2016 Winter Season for labor, materials, equipment and diesel fuel: \$337,801.14.

Chip Seal Maintenance Program

Due to the number of weather emergencies and harsh weather the County had incurred over the last few years a large amount of road maintenance work required completing in 2016. In order to allow the Highway Crew the opportunity to perform this much needed maintenance without falling behind on other items I decided to contract out a portion of the yearly Chip Seal program.

By contract United Sealing chip sealed 24.79 miles in 2016, using over 3,600 tons of stone and over 101,800 gallons of asphalt emulsion.

United Sealing Contract MVGT \$316,664.48

County forces chip sealed 14.48 miles in 2016, using over 2,100 tons of stone and over 59,800 gallons of asphalt emulsion.

The cost of County Chip Seal surfacing in 2016: \$177,514.47

The County Roads chip sealed in 2016 were:

Road Number	Name	From	To	Length (Mi)
56	BIG RUN RD	SR 60	LYNCH HILL RD	1.71
56	BIG RUN RD	LYNCH HILL RD	COUNTY LINE	1.36
76	CATS CREEK RD	LOWELL LOOP RD	COUNTY LINE	4.35
76	CATS CREEK RD	COUNTY LINE	HIGHLAND RIDGE RD	0.84
8	HIGHLAND RIDGE RD	SR 530	CATS CREEK RD	5.26
8	HIGHLAND RIDGE RD	CATS CREEK RD	SR 821	0.60
760	LOWELL LOOP RD	SR 60	CATS CREEK RD	0.35
354	BODE RD	GERMANTOWN RD	COUNTY LINE	0.70
15	GERMANTOWN RD	BODE RD	DALZELL RD	2.47
358	WITTEN RUN RD	DALZELL RD	COUNTY LINE	0.38
360	LIBERTY UB CHURCH RD	DALZELL RD	COUNTY LINE	0.61
11	DALZELL RD	FIFTEEN MILE CREEK RD	LIBERTY UB CHURCH RD	3.40
11	DALZELL RD	LIBERTY UB CHURCH RD	COUNTY LINE	0.90
42	STANLEYVILLE RD	WEPLER DR	MOSS RUN RD	5.03
42	STANLEYVILLE RD	MOSS RUN RD	DALZELL RD	3.08
133	MOSS RUN RD	SR 26	PLEASANTVILLE RD	2.66
133	MOSS RUN RD	PLEASANTVILLE RD	STANLEYVILLE RD	0.48
12	FIFTEEN MILE CREEK RD	SR 26	MILL FORK RD	2.25
12	FIFTEEN MILE CREEK RD	MILL FORK RD	DALZELL RD	1.10
9	COUNTY ROAD NINE - C	ARCHERS FORK RD	VARIOUS DUST STRIPS	
365	HELDMAN RD	PAV'T CHANGE	SR-26	0.73

Flushing / Bleeding Road Control

In late spring and summer many of our chip seal roads exhibit a property known as flushing (commonly called bleeding) which is the oozing of the liquid asphalt up through the aggregate, causing some of our residents to get tar on their vehicles and tires. This is a common problem with most road agencies that have built-up chip seal road surfaces and is counteracted by applying cover aggregate over the bleeding surface. In areas in which bleeding was very common we have applied overlays and this has been very effective in lowering the cost of bleeding control.

The cost of bleeding road maintenance in 2016 was \$6,494.49

Culverts

The county crews replace deteriorated road culverts on roads that will be paved or chip sealed, along with any other deteriorated culverts that require immediate replacement. Driveway culverts are also installed via a permit system in which the landowner pays for the required materials and County forces provide installation.

The cost of County road culvert replacement in 2016 was \$145,854.49 and \$36,651.25 for driveway culvert replacement.

County crews also repaired headwalls on existing culverts along with various other repairs, as well as cleaning out existing culverts to ensure drainage was maintained.

The cost of County road culvert repair and cleaning in 2016 was \$102,654.21.

Ditch and Shoulder Maintenance:

One of the most important maintenance items performed by County forces is ditching, shoulder grading, and shoulder repair. Ditch maintenance reduces water damage to our pavements preventing soft spots in the roadway. Repairing road shoulders maintains a wider and safer roadway.

In 2016 \$463,330.35 was spent on ditching and shoulder maintenance.

Road Patching and Spot Base Repair

The county maintenance crews utilize cold mix asphalt for pot hole patching by hand during winter months and hot mix asphalt utilizing a grader for patching and preparing roads for chip seal, along with performing spot base repair as needed on our 341 miles of county roads. Hot mix grader patching increased significantly in 2016, as County forces focused on patching many miles of roadway and a large chip seal program required patching prior to sealing.

The cost of patching and spot base repair on County roadways in 2016 was \$738,818.73.

Traffic Control Signs

Sign maintenance is ongoing, as we replace faded, stolen or damaged signs. In years past almost all of Washington County's road signs have been replaced to meet new federal retro-reflectivity guidelines.

The cost of sign work in 2016 was \$32,710.08.

Brush Cutting and Roadside Mowing

County forces remove limbs overhanging the pavement and trees that could potentially fall across the road. Removing trees and brush along the roadway creates sight distance which makes for a safer roadway.

The cost of brush cutting in 2016 was \$82,299.21.

County forces utilize 4 tractors to mow three rounds on both sides of our 341 miles of roadway, mowing over 2,000 lane miles each year.

The cost of roadside mowing in 2016 was \$107,049.23.

Fuel

The cost of fuel, both diesel and gasoline, in 2016 was \$104,043.47.

BRIDGE MAINTANENCE HIGHLIGHTS:

Bridge Repair

The County Bridge Crew provided a variety of maintenance items on our 379 County bridges, everything from repair or replacement of structural members, washing and cleaning every bridge to prolong service life, and installing dump rock to mitigate stream scour. In 2016 County forces focused on repairing the large amount of stream scour and bank erosion caused by the numerous large rains and flood events over the past few years.

The total cost of in-house bridge maintenance and repair in 2016 was \$267,564.33.

Bridge Replacement

The County Bridge Crew coordinated with Contract forces to assist in replacing a bridge by force account: T-920-0001. This bridge experienced storm and flood damage that worsened existing bridge deterioration. County forces took on the challenge of performing portions of the bridge replacement and did an excellent job.

The total cost of in-house Force Account work for T-920-0001 was \$62,594.96.

Large Culvert Replacement

The County Bridge Crew was also tasked with making a variety of repairs and improvements on County bridges and large culverts. A large culvert required replacement on County Road 85 and the Bridge Crew did another excellent job, finding solutions to a challenging project.

The cost for the large culvert replacement on County Road 85 was \$24,400.13.

Emergency Storm Clean Up

Mother Nature was once again relentless and our maintenance crews were busy cleaning up debris and repairing roadways. I was proud of the response and service to the community that the county highway department provided, many times dispatched at night to clear blocked roadways.

The cost for emergency storm clean-up for 2016 was \$23,660.80.

PARTNERSHIP PROJECT

I was contacted by Warren Local Schools about a safety concern near Little Hocking Elementary school, in regards to traffic backing up onto County Road 124 while waiting to pick up school children. Two possible choices were evident to fix this issue and I was happy that Warren Local elected to partner with the County to fix the problem, ultimately allowing the less expensive option to be put in place and saving taxpayer dollars. Rather than create an asphalt turning lane adjacent to the existing lane for traffic to queue into, County forces widened the existing single lane gravel entrance road on school property to a two lane gravel entrance road. The length of the entrance road then allowed cars to queue side by side, doubling the queue capacity on the entrance road and solving the safety concern.

County forces improved the drainage of the existing entrance road, performed site work and grading for the additional lane, excavated and compacted the existing sub-base, and hauled gravel required to complete the additional lane and upgrade the entire existing road. Warren Local paid for materials required to complete the upgrade, while the County donated equipment and labor.

Thanks to Kyle Newton, Warren Local Schools Superintendent, and Staff for partnering with us!

The total cost of the improvement was \$9,090.35, with Warren Local providing \$2,995.96 for the cost of materials.

ROAD AND BRIDGE MAINTENANCE EQUIPMENT:

A major challenge facing the Highway Department is aging and deteriorating equipment. In planning for equipment that would need to be replaced it became apparent that a number of dump trucks were experiencing cab decay, with a total of 4 existing dump trucks requiring cab replacement with these 4 dump trucks ranging in age of 15 to 20 years. Used truck cabs from a salvage yard were purchased and our excellent mechanic staff went to work, saving the County valuable tax dollars and extending the service life of these trucks. I am very proud of the work that was done in-house by Head Mechanic Dave Garvin and his staff.

2 – New Single Axle Fyda Freightliner Dump Trucks

In response to the corrosive environment that our dump trucks face during winter Highway Department operations and the limited dollars available for dump truck replacement now and into the future, Brian Bailey, Highway Superintendent, began researching multiple dump truck manufacturers and the pros and cons of each. Brian looked at every aspect of our existing dump trucks, corrosion and wear issues that we experienced, and overall yearly and life cycle cost. In the end it was decided to purchase 2 new Fyda Freightliner single axle dump trucks with stainless steel beds. This particular truck is manufactured with an aluminum cab that will not corrode, coupled with a Cummins diesel engine and Allison automatic transmission. Many improvements, big and small, were made and I feel these dump trucks will provide many years of service, with less breakdown and corrosion issues. My thanks to Brian and all his staff for all the hours of research and going the extra mile to purchase the best truck at the best price we could get!

When possible the County utilized the State of Ohio cooperative purchasing program that provides cost savings through State-wide bulk purchasing. Even with these discounts the price of a single axle dump truck with a stainless steel dump body was: \$128,062. The need for a longer lasting dump truck being evident with the County fleet having 19 single axle dump trucks, with most over 10 years old.

The following major equipment was purchased in 2016:

4 – Used Dump Truck Cabs	\$7,250
Bobcat Track Loader	\$73,732.81
2 – Fyda Freightliner Cab & Chasis	\$164,996
2 – Stainless Steel Dump Bodies	\$91,128
2016 Chevy Pickup Truck	\$25,000



2016 CAPITAL PROJECT IMPROVEMENTS

ROADS

Hot Mix Paving

In 2016 a little over 16 miles of Washington County roadways were re-paved, with C-341 Masonic Park Road widening and paving receiving Federal money with County funds leveraged as matching funds. Washington County was very fortunate to have this amount of federal assistance though it will now be several years before another federal project is scheduled due to the competitive nature of the funding.

The entire 1% Sales Tax received in 2016 was applied to the in-house hot mix paving program. The remaining balance utilized MVGT funds.

Washington County was also fortunate to be awarded an OPWC project. This OPWC project consisted of grant funding and loan funding, with a loan period of 10 years at 0% interest. County Roads 59 & 98 were base stabilized with cement to a depth of 12 inches and chip sealed. This project creates a long lasting base material, re-profiles the road surface to create a uniform and smoother riding road, and ultimately creates a long lasting chip seal road that will not require as much maintenance long term.

The following table shows the roads resurfaced during 2016.

Road Number	Name	From	To	Length (Mi)		Funding %	Final Total
2	Braun Rd.	Belpre NCL	Veto Rd.	4.51			
42	Stanleyville Rd.	Glendale Rd.	Caywood Rd.	1.60			
42	Stanleyville Rd.	Caywood Rd.	Weppeler Dr.	3.47	1% Sales Tax		\$368,423
341	Masonic Park Road	Devols Dam Rd	Masonic Park Lane	0.68	MVGT		\$280,025
341	Masonic Park Road	SR 60	Devols Dam Rd	1.01	FEDERAL	80%	\$179,715
	Widening & Paving				COUNTY	20%	\$44,928
59 & 98	BASE STABILIZATION & CHIP SEAL	SR 555	CR 3	5.44	OPWC GRANT	53%	\$373,270
					OPWC LOAN	18%	\$131,149
					MVGT	29%	\$206,030
						TOTAL	\$1,583,540

A number of County Roads were also centerline striped by contract.

The total cost for centerline striping was \$59,896

Landslip Repairs:

Landslips occurred on County Roads 2,3,8,9,16,42,46,60,79,85 and 406, with some roads experiencing multiple landslips miles apart. Landslips are typically repaired with driven pipe pile.

Landslips are extremely difficult to budget for and we were fortunate that the hot mix paving program was supported with a large amount of federal funds and OPWC funds. This allowed the paving and bridge program to be completed in full while County funds supported landslip repair. Landslip repairs are an emergency repair and in future years if grant funding is not available the road or bridge program will be cut to meet this financial need.

In 2016 \$230,628.15 was spent on landslip repair.

BRIDGES

Bridge Replacement Projects

The following table shows the major bridge work accomplished during 2016. The Lowell T Bridge was scheduled for pier repair and rehabilitation but extremely high bid prices led to the project being postponed until 2017 so that funds could be saved to meet the financial need. This resulted in a somewhat smaller than normal bridge program, with the savings carried over to be used for the Lowell T project.

BRIDGE DESCRIPTION	EXISTING BRIDGE	WORK		Funding Percentages	Final Total
C-3-1151	Existing steel culvert built in	Replace entire structure with pre-cast concrete arch structure	MVGT	100%	\$201,955
C-33-0004	Existing steel beam built in	Replace entire structure with pre-cast concrete box	MVGT	100%	\$92,582
T-509-0170	Existing low water multiple culvert fording	Replace entire structure with single aluminized culvert and fill. No longer classified as a bridge after replacement.	MVGT	100%	\$25,000
Various Bridge Deck Milling and Paving		Remove and replace the existing wearing course	MVGT	100%	\$67,608
					\$387,145

2017 PLANNED IMPROVEMENTS - A LOOK AT THE FUTURE

The following is a summary of our goals for road and bridge capital improvements for 2017. While the program is planned, as the year progresses changes may be necessary.

ROAD PROGRAM - 2017

The following is a list of tentative hot mix asphalt road paving projects for 2017.

In years past the budget would tentatively allow for \$1.2 – \$1.4 million in county funds. However, this is no longer the case. A priority towards bridge repair required an adjustment to approximately \$500 thousand in county funds. This amount is supplemented via any carryover funds from the previous year, but bridge repair listed below is also supplemented by these limited funds.

Washington County was fortunate to receive federal and state assistance through grants and loans that allowed us to expand the paving program supplementing the County funds available.

Paving is dependent on the number of landslips and other major road repairs that will take priority.

Road Number	Name	From	To	Length (Mi)		Funding Percentages	Estimate
60	LOWELL HILL RD	HUCK RD	SR 60	1.33	FEDERAL	80%	\$185,600
					MVGT	20%	\$46,400
27	SECOND ST	BRACKENRIDGE RD	SR 339	0.39			
805	SWEETAPPLE RD	SECOND ST	SR 339	0.40			
805	BRACKENRIDGE RD	SR 339	SPENCE LN	0.51			
805	BRACKENRIDGE RD	SPENCE LN	BARRETT-SOUTH RD	1.32			
805	HIGH ST	BARRETT-SOUTH RD	SECOND ST	0.15			
806	SPENCE LN	BRACKENRIDGE RD	SR 339	0.07			
804	WARRIOR RD	SR 339	SR 550	0.92			
804	WARRIOR RD	SR 550	SR 339 N	0.40	OPWC GRANT		\$399,905
3	VETO RD	SR 555	MCGILL RD	2.90	MVGT		\$346,520
344	COUNTY HOUSE LN	MARIETTA CORP	SR 26	1.48	MVGT		\$150,000
					TOTAL		\$1,128,425

2017 OPWC BASE STABILIZATION PROJECT

In an effort to help qualify for another OPWC project I partnered with the Townships below and was successful in receiving an additional OPWC project for base stabilization. This project will repair a highly traveled roadway in the township that is experiencing base failure, with the goal to repair the roadway and create a long lasting road base that will require less maintenance over time while providing an improved driving surface for the residents. The entire road surface and sub-base will be pulverized, cement added to provide additional strength, compacted, and re-profiled.

In partnering with the Townships my office is providing the engineering design and project management.

Entity	Road(s)	Length	Total Cost per Entity	% of Total Project		Funding
Watertown	Lang Farm Road	1.02	\$ 132,458	18%	OPWC GRANT	\$399,883
Dunham	Calder Ridge & Way	2.16	\$ 268,857	36%	OPWC LOAN	\$140,500
Barlow	Smith & Bell	1.89	\$ 229,473	31%	LOCAL	\$206,003
County	Spence Lane	0.71	\$ 115,598	15%	TOTAL PROJECT	\$746,386

IN HOUSE CHIP SEAL PROGRAM

The following is a list of tentative roads that will be chip sealed in house for 2017. The current budget tentatively allows for \$200 - \$300 thousand for materials only. Chip seal costs are tracked and calculated at the end of the year with material, equipment and labor. The number of miles chip sealed is dependent on the number of landslips, other major road repairs, or natural disasters that will take priority for County forces.

14	ARCHERS FORK RD	SR 26	COUNTRY RD 9	5.04
14	ARCHERS FORK RD	COUNTY RD 9	SR 7	2.34
341	MASONIC PARK RD	MASONIC PARK LN	FERNCHCLIFF DR	0.50
138	RINARD MILLS RD	SR 260	COUNTY LINE	4.76
9	COUNTY ROAD NINE	LEITH RUN RD	SR 260	3.03
9	COUNTY ROAD NINE	ARCHERS FORK RD	LEITH RUN RD	1.5 DS
21	LEITH RUN RD	SR 7	COUNTY RD 9	3.85
406	TICE RUN RD	SR 26	SR 260	2.53
197	SHEETS RD	SR 676	COUNTY LINE	0.39
206	PATTEN MILLS RD	SR 555	SHEETS RD	2.13
206	PATTEN MILLS RD	SHEETS RD	SR 676	3.66
96	MAYLE RIDGE RD	COUNTY LINE	SR 555	2.11
6	BURNETT RD	SR 555	MORRIS RD	1.70
6	BURNETT RD	MORRIS RD	SR 550	4.60
				38.15

The estimated cost for materials only for the 2017 chip seal is \$345,443.

BRIDGE PROGRAM – 2017

We plan to do major rehabilitation or replacement of the bridges in the following table. Priority was given to repair of the Lowell T Bridge, and as can be seen, it is now under contract.

In years past at least \$1 to almost \$2 million was budgeted for bridge replacement. With a decline in revenue this is no longer the case, with approximately 1.0 million budgeted for repair and replacement in 2017. Carryover funds from 2016 were split among Capital Road and Bridge to supplement the 2017 budget.

Bridge replacement is dependent on the number of landslips and other major road repairs or weather emergencies that will take priority.

Route	Log Pt	Bridge Name	General Appraisal	Remarks	Funding Percentages	Estimate
C0060	0625	LOWELL T	4A	Repair of cracking on concrete pier at the T intersection	MVGT 100% UNDER CONTRACT	\$495,590.00
C0012	0404	HADLEY	6A	Bridge Deck Replacement	MVGT 100%	\$128,008.00
T0313	0012	GOULD RD	6A	Bridge and Approach Paving	MVGT 100%	\$12,776.00
					TOTAL	\$636,374

ENGINEER'S REMARKS

2016 was again a year of change...

Deputy Engineer Amy Zwick moved on to new challenges as she was elected Monroe County Engineer. Congratulations, Amy! Monroe County will benefit from her leadership, energy, and experience as Washington County did during her time. I look forward to working with Amy and finding ways in which Washington and Monroe can partner to better serve all.

2016 also saw Account Clerk Raelene Malster, retire. Rae was a valuable member of my team and I appreciate her help over many years. Rae was tasked with ensuring that as the budget tightened and costs continued to rise we find ways to make the budget meet these demands. I will miss working with her and finding solutions to difficult financial problems.

Road Superintendent Brian Bailey and Foreman Kenny Newlon also retired at the close of 2016 and beginning of 2017. I can only say Thank You for the leadership they provided for many years, all other words fall short. Both are individuals I could count on at any time, no matter the circumstance. They leave behind a large hole to be filled, but as a credit to the character of these men they ensured those behind them were fully trained and ready to lead. I am happy for both that they can look forward to a new chapter in life, and hope they will stop by from time to time.

All told over the last two years Washington County has lost over 140 years of experience...a complete turnover of road foreman and superintendent, but with change comes opportunity, as we had planned for this day to happen.

I am excited and looking forward to the future with the new leadership in place at the Highway Department. I am confident the high level of service and production of our highway crews will continue under our new management team. Coordination and team work continue to be essential and I am confident we will meet all the challenges ahead. As always, maintaining and improving Washington County roads and bridges is our number one priority, with funding our biggest challenge.

In 1999 paving 1 mile of road cost approximately \$32,000; in 2014 the cost was approximately \$70,000 per mile. As the price of raw materials and fuel continue to rise, budgeting and maintaining our county highway system at its current level continues to be a challenge. The continuing State-wide decline of MVGT funds as cars become more fuel efficient or switch to alternative fuels increases this challenge. With the ever increasing costs of the raw materials that are used in highway construction, the current budgetary constraints simply will not allow for as many projects as in years past, while the need for such projects continues to grow. As County Engineer I will also continue to advocate for the return of a larger percentage of 1% Sales Tax Funds as originally intended, while continuing to seek alternative funding.

With all of the challenges and demands, 2016 went by very quickly, but I would like to thank the residents of Washington County for the opportunity to serve. It was a very exciting and fast paced year, and I enjoyed the challenges throughout the year and look forward to an even better year in 2017.

Roger Wright

Roger E. Wright, PE, PS
Washington County Engineer