



# KNOX COUNTY ENGINEER

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## Annual Report for 2018

The Knox County Engineer's Office compiles this report for the Board of Knox County Commissioners, as required by section 5543.02 of the Ohio Revised Code.

In 2018 the Knox County Board of Commissioners graciously enact a new \$5.00 permissive license rate fee, in which 100% of the revenue collected goes toward County road and bridge maintenance. Based on estimated figures received from the Ohio Department of Public Safety Bureau of Motor Vehicles, this additional \$5 fee may result in a revenue increase of \$350,000 per year.

This additional revenue will come in handy, as the price for road salt has risen 80%. The new salt price for the 2018-2019 winter is \$83.42/ton, up from \$46.41/ton last year. Ultimately the 4,500 tons of salt we bid for this winter will cost us \$375,390, or an increase of \$166,545 over last year's prices.

This past year, Knox County highway employees worked on two major projects: Sycamore Road resurfacing and Pike Township critical infrastructure. Our crews worked together to cut trees, improve ditches, and replace culverts along the 8.2 miles of Sycamore Road before resurfacing. County crews also trimmed trees, ditched, and replaced culverts in the beginning phases of the Pike Township project. The Pike Township project is scheduled to be completed summer of 2019.

We continue to utilize our electronic response logs for identified areas of concern and appreciate the public interaction. Citizens finding roadway hazards can call in and report them to our county garage, where we put them into our database and create a work order for county crews. This system has sped up response times and help to track maintenance concerns.

We anticipate another great year in 2019.

Sincerely,

Cameron Keaton, P.E., P.S.



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### Contents

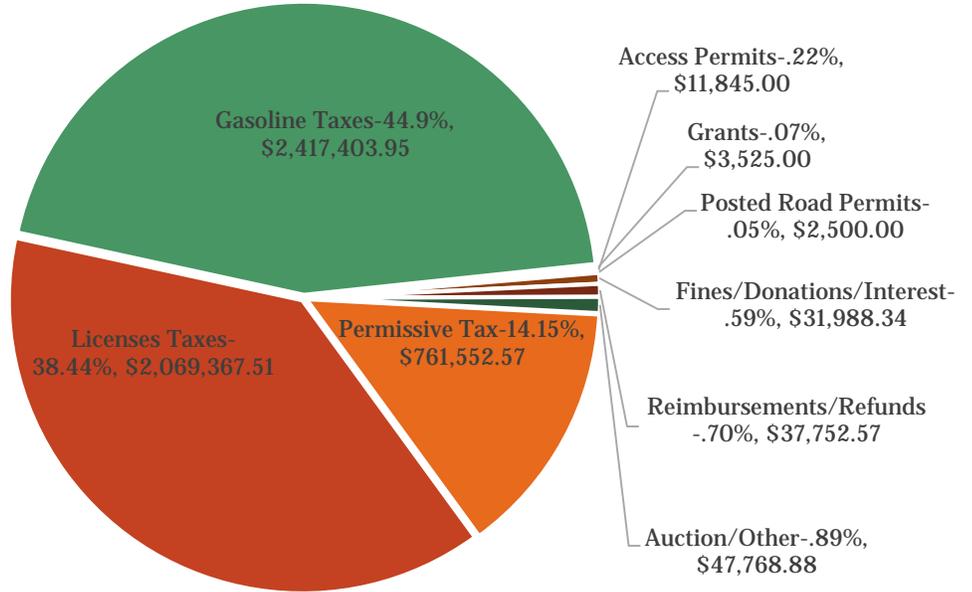
Introduction	Page 1
Revenue/Expenses	Page 2
Road Projects 2018	Page 3
Bridge Projects 2018	Page 4
Staff/Equipment	Page 5
Tax Map/Winter Recap	Page 6
2019 Proposed Projects	Page 7

# Financials

## 2018 Revenues

Permissive Tax- \$761,552.57  
 Licenses Taxes- \$2,069,367.51  
 Gasoline Taxes- \$2,417,403.95  
 Grants- \$3,525.00  
 Access Permits- \$11,845.00  
 Posted Road Permits- \$2,500.00  
 Fines- \$17,663.73  
 Auctions/Other-\$47,768.88  
 Donations- \$13,542.00  
 Depository/Investments- \$782.61  
 Reimbursements- \$9,258.04  
 Refunds- \$28,494.53  
**Total Revenues- \$ 5,383,703.82**

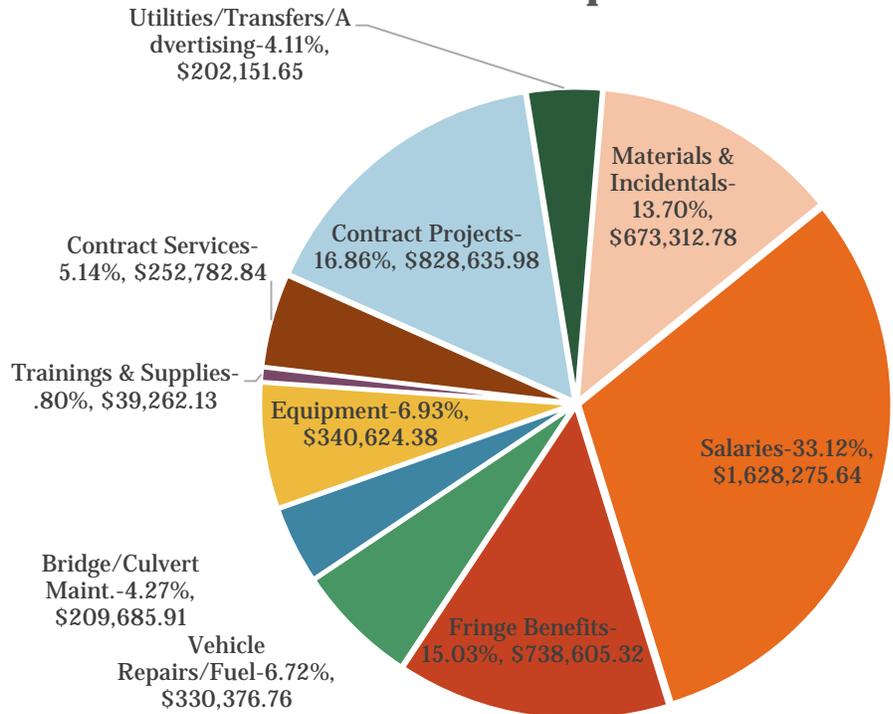
## 2018 Revenues



## 2018 Expenses

Salaries- \$1,628,275.64  
 Fringe Benefits- \$ 738,605.32  
 Vehicle Repairs/Fuel- \$330,376.76  
 Bridge/Culvert Maint.- \$209,685.91  
 Equipment- \$340,624.38  
 Trainings/Supplies- \$39,262.13  
 Contract Services-\$252,782.84  
 Contract Projects-\$828,635.98  
 Utilities/Transfers/Ads-\$202,151.65  
 Materials & Incidentals-\$673,312.78  
**Total Expenses- \$5,243,713.39**

## 2018 Expenses



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## *2018 Road Projects*

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### **Ball Bank Study**

The County Engineer contracted with MasterMind, LLC. to conduct a Ball Bank Study (A.K.A. Horizontal Curve Safe Speed Study) on all major collector roads and any county roads with an average daily traffic count greater than 1,000 vehicles. This study covered 136 miles of roadway and a total of 431 curves. The contractor traveled the roads and used an inclinometer and GPS to determine the safest speed for curves, then compared that speed to the existing signage. The report from this study will be used for the 2019 Sign Upgrade Grant. The total cost of this study was \$13,600, of which 90% was paid through the Federal Highway Safety Improvement Program.

### **Sycamore Road Resurfacing**

This project entailed replacing 15 cross culverts, replacement of a damaged WPA bridge, milling 2 inches of existing asphalt, resurfacing 8.2 miles with 2.5 inches of new asphalt, and applying a new centerline. County crews handled the replacement of culverts, removal of trees, and repairs to the bridge. Small's Asphalt Paving was contracted to mill, pave, and restripe the roadway. The total project cost was **\$1,544,597.54**; \$550,000 was paid through an Ohio Public Works Commission (OPWC) grant, \$450,000 in a 0% interest, 10-year, OPWC loan, and \$544,597.54 in motor vehicle gas tax funds and in-kind contributions.

### **Annual Resurfacing Program 2018**

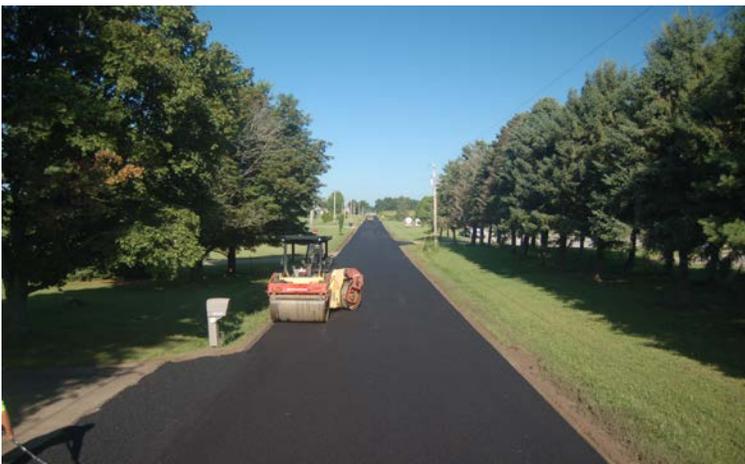
For 2018 the annual chip seal program covered 32.88 miles of county highways at a cost of \$597,097.51. This is a cost of \$18,159.90 per mile and a 13.05% increase in cost per mile from 2017.

### **Annual Mowing Program**

The County Engineer's Office executed the third and final year of the existing mowing contract. Quickmow LLC completed three rounds of mowing on 400 centerline miles of roadway for a total cost of \$136,956 annually. County highway crews also mowed back at intersections and used boom mowers to cut back brush along the roadways.

### **Asphalt Patching and Repairs**

Highway crews patched/repaired over 262 miles of roadway. Patching material costs this year were as follows:



■ Hot mix asphalt-	\$393,738.06
■ Cold mix asphalt-	<u>\$ 26,974.55</u>
<b>Total-</b>	<b>\$891,211.24</b>

# 2018 Bridge Projects

## Culverts

The bridge crew primarily cleans, repairs, and replaces bridges and culverts. Throughout 2018 the bridge crew replaced 70 culverts with an estimated material cost of \$193,000. Typical culverts less than 60” in diameter can be replaced with high density polyethylene (HDPE) pipe. Engineered precast concrete box culverts, or reinforced concrete pipe can replace larger structures. The bridge crew installed one concrete box culvert this year:

#166-Hilliar on Dill Road was a 15’x5’ concrete box structure with an estimated material cost of \$37,000.

### Historical Bridge Conditions

2018	Good	Fair	Poor	Total
	146	124	51	321
	45%	39%	16%	
2017	Good	Fair	Poor	Total
	147	131	48	326
	45%	40%	15%	
2016	Good	Fair	Poor	Total
	147	131	47	325
	45%	40%	14%	
2015	Good	Fair	Poor	Total
	139	132	46	317
	44%	42%	15%	
2014	Good	Fair	Poor	Total
	140	141	51	332
	42%	42%	15%	
2013	Good	Fair	Poor	Total
	136	132	48	316
	43%	42%	15%	
2012	Good	Fair	Poor	Total
	146	140	46	332
	44%	42%	14%	
2011	Good	Fair	Poor	Total
	94	102	37	233
	40%	44%	16%	
2010	Good	Fair	Poor	Total
	113	132	47	292
	39%	45%	16%	
2009	Good	Fair	Poor	Total
	97	93	30	220
	44%	42%	14%	



### Special Haul Vehicle (SHV) Load Ratings

In 2017, ODOT implemented new requirements for the Special Haul Vehicle Load Rating, and we continued with these in 2018. In 2018 five bridges were SHV load rated. The Engineer’s Office spent \$12,236.50 between three consultants to perform SHV Load Ratings, with \$6,118.25 being reimbursed through ODOT. These load ratings will continue into 2019 and 2020 with 47 more bridges needing SHV load rating and new signage as required.

### Pike Twp. Critical Infrastructure

This is a Community Development Block Grant (CDBG) project replacing 4 bridges and 11 culverts in Pike Township. Of the 15, six were built in the 1930’s, two in the 1960’s, six in the 1970’s, and one in 1986.

County forces installed the new culvert pipe, as well as trimmed trees and brush from existing structures. Total estimated project cost is \$436,425.82 with \$221,264.93 in grant dollars and \$215,160.89 in in-kind contributions. Box culverts and crane service will be bid out in early 2019 with work continuing in spring 2019.



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## *Staff Update*

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The Knox County Engineer's Office operates with five in-office employees. The tax map office has two employees. The highway garage consists of two superintendents, and 24 highway employees. In 2018, two employees left the county highway garage to pursue other employment. The County Highway Garage welcomed two new employees, Charles Wallace and Billy Cherrington as Highway Worker II's.

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## *Equipment Update*

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In 2018, our Highway Department received their new Western Star Bridge Truck. Originally ordered in 2017, the bridge truck was received in early 2018 and cost \$166,545. This new truck allows our bridge crew to handle more bridge tasks directly from their vehicle instead of bringing multiple trucks or pieces of equipment to the job site.

We also added a new 2018 Eagle Lowboy Trailer to our inventory at a cost of \$49,950. This replaced our old lowboy trailer that was 20 years old and having frame issues. This trailer is used almost daily to haul heavy construction equipment across the county.

Finally, we also acquired a new KM-8000TEDD Hot Box. This new hot box gives us the ability to send more crews around the county to address potholes. The KM hot box heats more evenly than our 13-year-old unit, and dumps material out of chutes, which makes it easier for our crews to shovel.



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## *Tax Map Update*

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The Knox County Tax Map Office is under the direction of the Knox County Engineer. Our tax map office handles legal descriptions of property, updates to the county GIS database, boundary survey verification, parcel ownership information, custom mapping, and the assigning of property addresses.

### 2018 Tax Map Facts:

- 2018 generated \$2,650 in map sales
- Approved 3,838 transfers
- Assigned 2,658 new addresses
- Reviewed and approved 238 new boundary surveys
- Created new printable pdf tax maps
- Updated voting precinct maps
- Worked with Eagle View Technologies, Inc. to update county aerial photos and oblique imagery
- Updated county transfer standards (in coordination with the Auditor and County Engineer)
- Added two-foot contours to county GIS webpage
- Added cemetery map scans to county website
- Coordinated with the Knox County Sheriff's Office to update their Offender Watch Software

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## *Winter Recap 2017-2018*

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The 2017-2018 Winter Season was once again milder than normal. Salt prices remained low at \$46.41/ton. We used less salt than normal due to delivery issues with the salt supplier and their shipping company. Over the winter season we used 3,210 tons of salt, and ordered 4,333 tons. The remainder was delivered towards the end of the season and left us with completely full salt storage. Along with many other counties, we faced several storms where salt supplies were drastically low, so we had to rely on a salt/grit mix to hold us over until more salt was delivered. The delivery issues affected a number of counties in the State of Ohio.

Our crews used 342 tons of cold mix asphalt to patch holes during the winter months.

We ended the 2017-2018 winter season with full salt storage buildings. The 2018-2019 state bid for salt was awarded to a new salt supplier. Adversely, the salt price for the 2018-2019 season almost doubled to \$83.42/ton. Our estimated usage for the upcoming season is 4600 tons.

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## *Upcoming 2019 Projects*

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Following are projects and estimated costs for 2019:

- **Parrott Street Bridge Construction**- \$1,000,000- replacing a pony truss structure with a three span reinforced concrete slab. \$450,000 in CDBG grant & \$450,000 in OPWC grant.
- **Apple Valley Drive Resurfacing**- \$1,268,047- mill & fill resurfacing project Phase 1-south half. OPWC has awarded a \$620,000 grant and \$80,000 loan for this project.
- **Blue Road Repairs**- \$16,664.80- Repair road damage by utility crews under the Road Use Management Agreement (RUMA).
- **CEAO Safety Study**- \$48,000- CR# 14 traffic safety study, \$43,200 reimbursed through the County Surface Transportation Program (CSTP).
- **Curve Sign Upgrade**- \$15,083- based on Ball Bank Study 2018, \$12,066 reimbursed through CSTP.
- **Grange Road Bridge Deck Replacement**- \$15,000- Remove and replace existing timber deck with new timber, water proofing, and asphalt surface. Paid for with local funds.
- **Pike Township Critical Infrastructure Replacement**- \$436,425.82- Replacing 4 bridges and 11 culverts in Pike Township. CDBG grant covers \$221,264.93.
- **Lower Gambier Road Bridge Replacement**- \$300,000- Remove existing structure, rehab existing abutments, and replace steel I-beams, and steel pan with a concrete and asphalt surface. 100% local funds.
- **Annual Resurfacing**- \$600,000- Annual program, consists of resurfacing approximately 40 miles of roadway per year with hot mix asphalt and/or chip and seal.

