

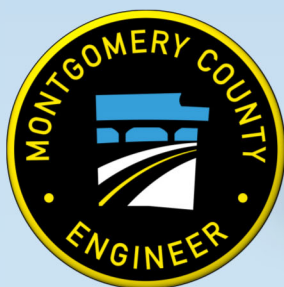
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2020

ENGINEER'S OFFICE
ANNUAL REVIEW



A MESSAGE FROM PAUL W. GRUNER



2020 – WHAT A YEAR! As I started a new term in January, I, like everyone, had no idea the year would be totally disrupted by COVID-19. We had heard obscure stories about this virus, but it wasn't until a few weeks later we started to hear about it being a world-wide pandemic. At the end of February – beginning of March, I attended what was to be the only live conference of the year, the National Association of Counties Legislative Conference in Washington, DC. It was also the last time in the year I would speak with any state or federal legislators unmasked. Within a month it had hit us hard, and on March 20, the Montgomery County Emergency Operations Center was activated to round up as much Personal Protective Equipment (PPE, which we would hear about frequently during the year) as possible, coordinate testing sites, coordinate transportation to the testing sites for people who needed it, etc. After that first meeting, the EOC quickly went virtual, and a software application was developed to keep track of all the activities. Those meetings went on almost daily until the end of April. We had learned how to function virtually, which was a great help when the virtual EOC was again activated on May 30th for a week in anticipation of violence downtown resulting from demonstrations. The anticipated activities were centered around the Reibold Building where the physical EOC is located, so virtual was essential. Fortunately, most of the activities in Dayton were peaceful, and there were no serious incidents, partially because of the EOC preparations.

The Commissioners had declared a state of emergency on March 17th, and most county engineer office employees started telecommuting at that time. Operations employees continued working in the field, but at one point, we shut down operations for 2 weeks to establish protocols, arrange for sanitizing facilities and vehicles, and make arrangements so that field employees could avoid traveling 2 or more in a vehicle. In July, downtown employees began working half their time in the office with staggered shifts, a practice which continues today.

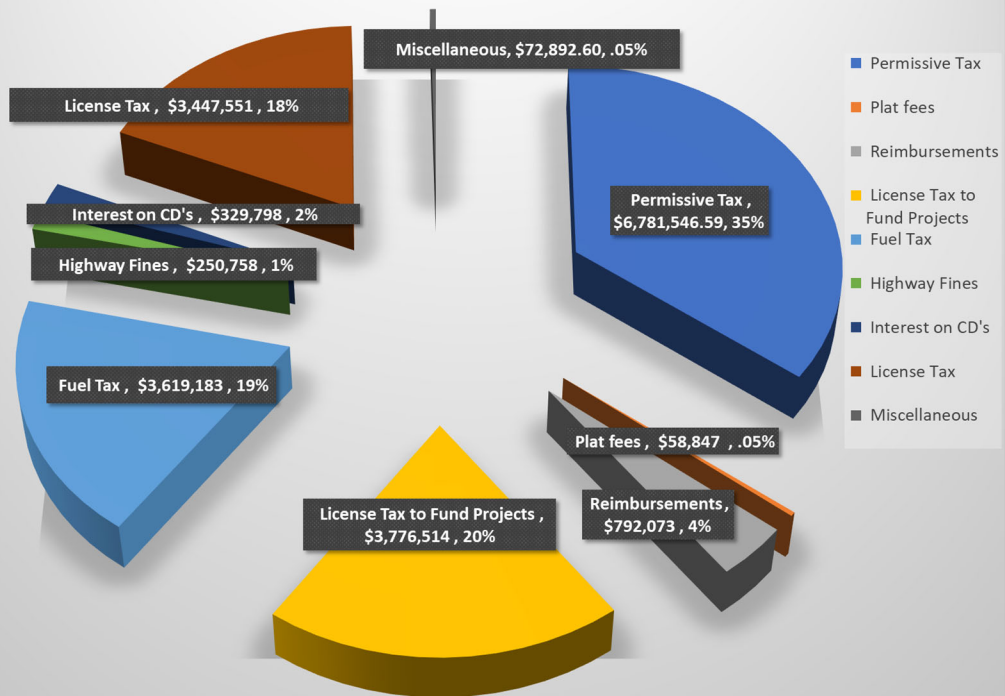
Through all of this, we managed to accomplish a significant amount of work. By force account, we maintained the pavements and ditches and replaced 27 culverts. By contract, we replaced or did major rehabilitation on 10 bridges and accomplished an aggressive paving program. Construction on the Third Street bridge continued and will be completed in 2021. Our engineers and support personnel were busy preparing projects for construction in 2021 and beyond. We worked hard to get funding for our Patterson Blvd bridge, which will be our next big one, but were unsuccessful. We also continued working to complete our reimbursement request to FEMA for the 2019 tornado work.

2021 will also be an active year for bridge construction and another vigorous paving year. We look forward to working with all of our partner agencies to complete this work.

A handwritten signature in blue ink that reads "Paul W. Gruner". The signature is fluid and cursive, with a long, sweeping underline.

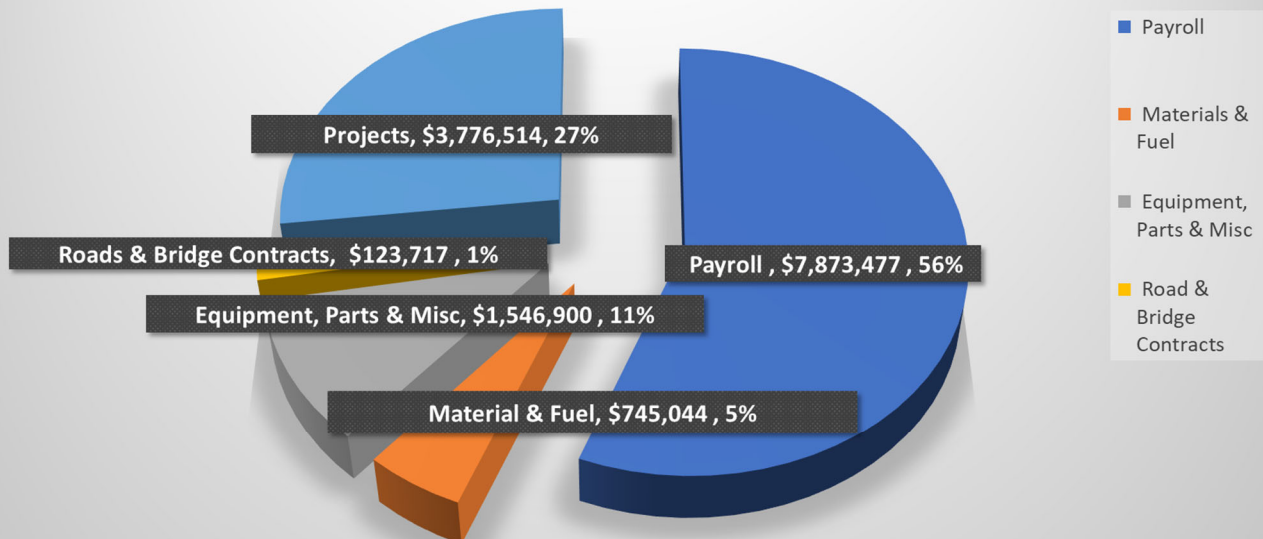
COVER PHOTO: Alex Bell Rd, Diamond Mill Rd, Frederick Pike and Woodman Dr

2020 Revenue \$19,129,162.26*



\$19,129,162.26 is a projected amount due to estimated December figures

2020 Expense \$14,065,391*



\$14,065,391 is a projected amount due to estimated December figures

PLATS & SITE PLANS

Completed Projects in 2020

Plats

Aberdeen Subdivision-Medlar Road Improvements	Miami Township
Trails of Saddle Creek Section 11	Washington Township
Washington Glen Section 1	Washington Township
Washington Glen Section 2	Washington Township
Wynstone Section 5	Washington Township

Site Plans

3663 Maxton Rd-Woodspring Suites	Butler Township
Vandalia Redemption Christian Tabernacle	Butler Township
Ahava Tree Ministries	Clay Township
Northridge School Board Offices Parking Expansion	Harrison Township
Connor Group Hangar 2	Miami Township
Renegade	Miami Township
Southview Medical Center	Miami Township
Terre Retail Building	Miami Township
DP&L Gebhart Substation	Washington Township
Hospice Center Congress Park	Washington Township
Islamic Center	Washington Township
Larkspur Yankee Station, LLC. Site Improvements	Washington Township

Routine Preservation Contract 2020

Striping	0 Miles Center line 0 Miles Edge Line	No Striping was done in 2020
Crack Seal	10.6 Miles County 7 Miles Township	\$111,897.55
Asphalt	20.3 Miles County 2.9 Miles Township	\$3,178,026.79

MONTGOMERY COUNTY ENGINEER

Force Account 2020

ROADWAY NAME	CULVERT/ BRIDGE #	DATE COMPLETED	ESTIMATED COST	ACTUAL COST
Hemple Rd.	Jac.46-2.02	4/10/20	\$9,301.94	\$8,615.82
Dechant Rd.	Jac.140-1.42	4/14/20	\$5,223.89	\$4,913.88
Dechant Rd.	Jac.140-0.40	4/16/20	\$5,007.78	\$4,636.30
Dechant Rd.	Jac.140-0.50	4/16/20	\$4,813.53	\$4,740.29
Dechant Rd.	Jac.140-0.10	4/21/20	\$6,233.97	\$5,762.12
Dechant Rd.	Jac.140-1.30	4/22/20	\$2,998.74	\$2,267.49
Bull Rd.	Jac. 5-1.95	4/28/20	\$10,514.77	\$11,290.35
Bull Rd.	Jac. 5-0.92	5/5/20	\$4,662.54	\$4,358.76
Little Richmond Rd.	Per.36.0-.20+0.21	5/11/20	\$12,860.74	\$13,155.17
Little Richmond Rd.	Per. 36-0.31	5/13/20	\$5,350.90	\$4,994.44
Little Richmond Rd.	Per. 36-0.42	5/27/20	\$4,710.75	\$4,451.86
Little Richmond Rd.	Per. 36-1.00	6/2/20	\$5,625.20	\$6,129.72
Little Richmond Rd.	Per. 36-1.19	6/4/20	\$5,642.97	\$5,530.82
Little Richmond Rd.	Per. 36-1.21	6/10/20	\$4,718.52	\$4,359.94
Lutheran Church Rd.	Jef. 19-2.43	6/15/20	\$3,905.74	\$3,533.38
Union Rd.	Jef.125-4.86	7/16/20	\$10,969.53	\$11,282.87
Germantown Middletown Pk.	Ger. 526-0.54	7/21/20	\$6,452.50	\$6,008.13
Browns Run Rd.	Ger. 95-3.60	7/28/20	\$6,358.89	\$6,159.57
Browns Run Rd.	Ger. 95-3.75	7/30/20	\$4,659.63	\$4,506.76
Little Richmond Rd.	Per. 36-2.16	8/3/20	\$16,365.61	\$16,300.14
Browns Run Rd.	Ger. 95-4.01	8/6/20	\$7,234.05	\$6,862.35
Browns Run Rd.	Ger. 95-4.00	8/12/20	\$12,071.14	\$11,421.18
Lutheran Church Rd.	Jef.19-1.23	8/14/20	\$13,827.86	\$13,028.72
Sulphur Springs Rd.	Jac. 3-0.18	8/26/20	\$6,436.62	\$5,863.05
Number Nine Rd.	Cly. 3-5.00	9/1/20	\$7,905.09	\$7,773.92
Number Nine Rd.	Cly. 3-3.65	9/16/20	\$8,624.52	\$8,874.26
Frederick Pk.	But. 165-4.42	7/13/20	\$62,717.78	\$61,663.98
		Total Bridges/Culverts =	\$ 255,195.20	\$ 248,485.27

FREDERICK PIKE CULVERT REPLACEMENT

In June 2020, the Montgomery County Engineer's Bridge Department replaced a 72" diameter 40' long corrugated metal pipe (CMP) with a 72" diameter 60' long CMP culvert on Frederick Pike. Care was given to the aesthetic value on the inlet side with the installation of precast end walls, grading, and site restoration because the culvert directly abutted the property owner's front yard.



Demolition of old headwall on inlet and box culvert.



New culvert inlet graded.



Setting new precast headwalls.



New culvert inlet with pre-cast headwalls.



Delivery of new precast headwalls.



New headwall on inlet.

DIAMOND MILL ROAD BRIDGE RECONSTRUCTION



The Montgomery County Engineer's Office planned the reconstruction of the existing Diamond Mill Road Bridge GRT-217-0.03 over Little Twin Creek. The existing 3-span bridge had deteriorated beams which placed the inspection rating of this bridge in fair condition. This bridge was built in 1984 and lasted 36 years.

The proposed superstructure replacement aimed to extend the life of this bridge and improve the current ODOT Bridge Inspection Rating. This improvement consisted of installing new composite prestressed concrete box beams, new approach slabs, and new safety railing meeting today's standards.

Brumbaugh Construction was the contractor and they started construction on July 21, 2020. The job was substantially completed and open to traffic on October 9, 2020. This project was funded by the Ohio Public Works Commission in the amount of \$200,000, and by the Montgomery County Road A and G funds in the remaining amount of \$608,218.50 for a contract cost of \$808,218.50.



2020 DEFICIENT BRIDGES

The Montgomery County Engineer owns and maintains 523 bridges with 499 in fair or better condition. Our office has an aggressive bridge program for repair and replacement with a focus on safety of the traveling public. In 2020, twelve bridges rated poor or less, were repaired or replaced, and currently we have five scheduled to be repaired or replace in 2021.

There are 24 bridges in Montgomery County rated poor or less which is ~5% of our total inventory. The average of total bridges in the State of Ohio in poor condition is 6%.

1.	5770165	MOT-C0101-0358 (5770165)	HUB	Drylick Run	Bellefontaine Rd	2	K	1 - SD
2.	5736080	MOT-SHOUN-0000 (5736080)	HAR	Storm Sewer	Shoup Mill Rd.	2	A	1 - SD
3.	5752825	MOT-C0084-00.80 (5752825)		Woodbourne Spring	Whipp Road	3	A	1 - SD
4.	5766494	MOT-C0009-0075 (5766494)	BKV	Trib to Wolf Creek Trib to Little Bear	Arlington	4	A	1 - SD
5.	5740193	MOT-C0019-0383 (5740193)	JEF	Creek	Lutheran Church	4	A	1 - SD
6.	5765714	MOT-C0032-0142 (5765714)	TRT	Dry Run	Free Pike	4	A	1 - SD
7.	5740096	MOT-C0042-0439 (5740096)	JEF	Opossum Creek Stillwater Rvr.	Dayton Liberty	4	A	1 - SD
8.	5730007	MOT-C0059-0000 (5730007)	BUT	(scenic)	Philadelphia	4	A	1 - SD
9.	5734401	MOT-C0062-00.29 (5734401)		Trib. to Brown's Run	Astoria Road	4	A	1 - SD
10.	5734231	MOT-C0062-0267 (5734231)	GER	Twin Creek	Astoria Road	4	A	1 - SD
11.	5736013	MOT-C0074-0083 (5736013)	HAR	Ditch	Shoup Mill	4	A	1 - SD
12.	5770653	MOT-C0074-0159 (5770653)	RVS	Lilly Creek	Woodman	4	A	1 - SD
13.	5746477	MOT-C0078-0117 (5746477)	MIA	Drainage Ditch	Alex Bell	4	A	1 - SD
14.	5770807	MOT-C0122-0096 (5770807)	RVS	Creek	Burkhardt Rd	4	A	1 - SD
15.	5746450	MOT-C0175-0137 (5746450)	MIA	Holes Creek	Lamme Road	4	A	1 - SD
16.	5770602	MOT-C0194-0088 (5770602)	RVS	Lilly Creek	Airway Road	4	A	1 - SD
17.	5740088	MOT-C0217-0566 (5740088)	JEF	Bear Creek	Diamond Mill	4	A	1 - SD
18.	5740509	MOT-C46HS-0259 (5740509)	JEF	Bear Creek	Hemple Historic TR	4	K	1 - SD
19.	5760577	MOT-RIPRP-0013 (5760577)	DAY	Great Miami River	spur of Grt Miami	4	K	1 - SD
20.	5765439	MOT-T0019-0437 (5765439)	TRT	Poplar Run	Seybold Rd	4	A	1 - SD
21.	5748143	MOT-T0026-0189 (5748143)	PER	Wolf Creek	Airhill Rd	4	A	1 - SD
22.	5740460	MOT-T0042-0182 (5740460)	JEF	Trib. to Bear Creek	Huffman Road	4	A	1 - SD
23.	5766737	MOT-T0044-0480 (5766737)	MOR	Opossum Creek	Shank Road	4	A	1 - SD
24.	5752590	MOT-T0150-0384 (5752590)	WHG	Holes Creek	Lyons Road	4	P	1 - SD

2020 DEFICIENT BRIDGES (CONT.)



DECHANT ROAD BRIDGE RECONSTRUCTION



The Montgomery County Engineer's Office planned the reconstruction of the existing Dechant Road Bridge JAC-140-1.10 over Tom's Run. The bridge had deteriorated beams which placed the inspection rating of this bridge in poor condition. This bridge was built in 1962 and had well exceeded its life.

The proposed superstructure replacement consisted of removing the old 27" noncomposite beams and installing new 27" composite beams. This project also included replacement of the safety rail to meet the current State standards. New rock channel protection was also provided. All of the necessary improvements enhanced the inspection rating of this structure and added to the scenic nature of Dechant Road.

The project was contracted to Brumbaugh Construction, who began work in March 2, 2020, with completion on May 21, 2020. The final contract amount was \$320,672.25 with funding by Montgomery County (50% Road A & G funds) and the Ohio Public Works Commission (50% OPWC Grant).



WOLF CREEK PIKE BRIDGE RECONSTRUCTION PROJECT



The Montgomery County Engineer's Office planned the reconstruction of the existing Wolf Creek Pike Bridge PER-230-3.45 over Wolf Creek. The existing bridge had deteriorated beams which placed the inspection rating of this bridge in poor condition with the bridge being posted at 15 tons. This bridge was built in 1984 and has exceeded its life.

The proposed superstructure replacement consisted of removing the old 27" non-composite box beams and installing new 27" composite box beams. This project also included replacement of the safety rail to meet the current State standards, a new 4" curb and rock channel protection. The structure and road profile was built with a 4% superelevation curve allowing for drainage to run to the northside corners beyond the bridge limits. All of the necessary improvements enhanced the inspection rating of this structure.

The project was contracted to Brumbaugh Construction. The project began in late March 2020 with substantial completion of the project on, May 18, 2020. The final contract amount was \$413,705.40, and the project was funded by the Ohio Public Works Commission (42% Grant) and Montgomery County (58% road A & G sources).



SNYDER ROAD BRIDGE RECONSTRUCTION



The Montgomery County Engineer's Office planned the reconstruction of the existing Snyder Road Bridge JEF-27-5.40 over Little Bear Creek. The existing bridge had deteriorated beams which placed the inspection rating of this bridge in poor condition. This bridge was built in 1962 and has well exceeded its life.

The proposed superstructure replacement consisted of removing the old 27" noncomposite beams and installing new 27" composite beams. The new beams helped to provide a safer roadway profile designed to meet the speed limit of this township low volume road. In addition to the bridge and roadway improvement, rock channel protection was installed to improve stream flow while protecting the foundation. All enhancements improved the inspection rating of this structure, and the welfare of the traveling public.

Eagle Construction was the contractor and they started construction on July 1, 2020. The job was substantially complete and open to traffic on September 1, 2020. This project was funded by the Ohio Public Works Commission (50%) and the Montgomery County Road A and G funds (50%). The final contract amount was \$434,805.63.



NORTH DIXIE DRIVE WALL & RAILING

In continuing to make repairs as a result of the 2019 Memorial Day tornadoes, the County repaired about 100 linear feet of damaged retaining wall and pedestrian

railing. This wall, which is located along North Dixie Drive, immediately north of Benchwood Road in Butler Township, was repaired by Grissom Construction at their bid of \$19,501.



ALEX-BELL BRIDGE REHABILITATION

This project replaced the superstructure of the bridge on Alex-Bell Road over Holes Creek, just 200 feet east of Mad River Road. New prestressed concrete box beams were installed and a 6" concrete deck placed on top.

The rehabilitation was needed because the bridge was posted for a 15 ton load limit, with a sufficiency rating of 21.1. The problem was advanced deterioration of the prestressed concrete box beams.

The construction contract was awarded to Eagle Bridge Company in August, 2020. The bridge was opened to traffic on November 24, 2020. The final construction cost was \$750,473.83. This project received OPWC funding.



CHICKEN BRISTLE ROAD BRIDGE RECONSTRUCTION PROJECT

The Montgomery County Engineer's Office planned the reconstruction of the existing Chicken Bristle Road Bridge, JAC-60A-3.92, which crosses a tributary to Little Twin Creek. Whereas the substructure was in good condition, the superstructure (beams) were deteriorating. Therefore, the proposed project consisted of removing the existing bridge beams and replacing them with new. The project also included replacement of the safety rail to meet the current standards, adding rock channel protection and safety grading.

The project was contracted to Brumbaugh Construction and began in November 10, 2020 with substantial completion on December 21, 2020. The final contract amount was \$298,529, and the project was funded by the Ohio Public Works Commission (45% Grant) and Montgomery County (55% Road A&G sources).



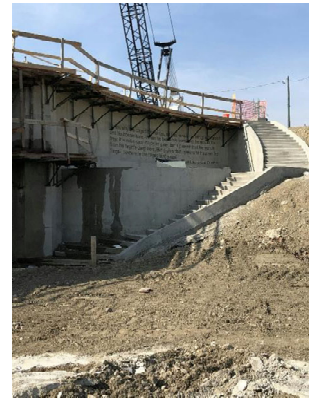
THIRD STREET BRIDGE REPLACEMENT PROJECT

The construction contract for this project was awarded to Eagle Bridge Company on July 30, 2019, for their low bid price of \$16,995,137.11. Eagle closed the bridge on January 5, 2020. The contract completion date remains October 15, 2021.

In 2020, Eagle Bridge demolished the old bridge, installed substructure units, and set all of the new beams. Remaining work for 2021 is to finish



the deck, install bridge railing and lighting, and complete approach roadway work. Once the bridge is complete, the Great Miami River Trail bikeway, which runs along both sides of the river at this point, can be restored under the bridge and re-opened to cyclists and pedestrians.



WOODMAN DRIVE BRIDGE REPLACEMENT



In the early spring of 2020, the Montgomery County Engineer's Office awarded R.B. Jergens Contractors, Inc. the Woodman Drive Bridge Replacement Project. The existing bridge was a single span concrete box beam bridge (KET-M74-0.70) built in 1975. This superstructure was in fair condition with heavy efflorescence (calcium deposits) hanging underneath the existing bridge beams. There was delamination that ran 100% of the length of several beams with exposed steel strands. Several bearing pads on the beams wore thin.

After 45+ years, the old structure well exceeded its life expectancy.

The old structure was replaced with a precast concrete box culvert (12 ft. span by 4 ft. rise). The new culvert was installed and connected to the existing concrete channel on the west side of the road. Sections of storm pipe conduits were fitted into the new constructed wingwalls. The old pedestrian handrails were replaced with new pedestrian handrails per ODOT specifications with City of Kettering modifications. Woodman Drive is a major traveling route, especially for motorists heading to WPAFB. Considering this travel demand, this bridge project was built in 2 Phases while maintaining one lane of traffic in both directions.

R.B. Jergens began construction on April 6, 2020. This project was funded through the Ohio Public Works Commission and the Montgomery County's Road A and G funds in the final contract amount of \$410,189.08. Woodman Drive was substantially complete on June 24, 2020 with a socially distant final inspection completed by July 1, 2020.



DAYTON-FARMERSVILLE ROAD BRIDGE

This bridge was posted for a reduction to legal load limits because of deterioration of the non-composite prestressed concrete box beams. The existing substructures were in good condition and could be reused with minor repairs. Existing beams were replaced with composite prestressed concrete box beams. A concrete deck

with monolithic wearing surface instead of asphalt replaced the existing deck.



The contract was awarded to Eagle Bridge Co. with the final cost of \$319,817.47.



SNYDER ROAD BRIDGE

This project was necessary because of deterioration of the concrete piers. Concrete around the steel piles and loose concrete on the pier caps was removed. The piers were re-cast as wall-type piers and the pier caps were encased in new concrete. The existing beams, which replaced the original beams, were installed in 1991 and remain in very good condition. A new asphalt wearing surface and waterproofing were also installed as a part of this project.

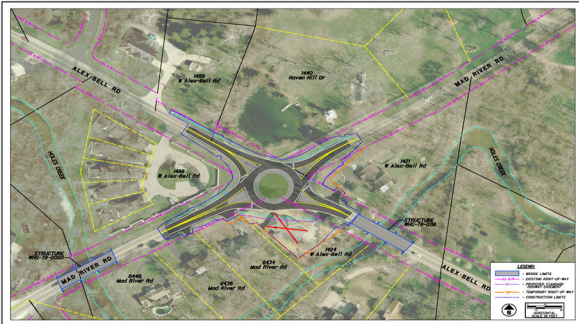


The contract was awarded to Brumbaugh Construction, Inc. with the final cost of \$222,744.98



LOOKING AHEAD

ROUNABOUT TO BE CONSTRUCTED AT INTERSECTION OF MAD RIVER ROAD AND ALEX-BELL ROAD



A modern one-lane roundabout will replace the 4-way stop intersection at Mad River Road and Alex-Bell Road in 2022. This will be the first roundabout on the county road system in Montgomery County. Construction is tentatively scheduled to start in May 2022 and be completed in August 2022. Tree removals and utility relocation work will occur during early 2022, prior to the construction contract.

This intersection has consistently ranked at or near the top of crash locations on the County road system. And, the level of traffic congestion is one of the highest on the county system, measuring at Level of Service F. The project was approved for use of Highway Safety Funds through ODOT. The federal safety funds will pay for 90% of design and construction costs, and 70% of right-of-way costs.

Roundabouts have been proven to reduce crashes at similar intersections by about 35%, and reduce injuries by about 76%. The roundabout will also operate much more efficiently in moving traffic through the intersection, improving the operation to Level of Service A.



Oxford Road Bridge Reconstruction

The County Engineer's Office is in the final planning stages of the Oxford Road Bridge Reconstruction Project. The Oxford Road Bridge #GER-60-4.75 is located in Germantown OH west of Astoria Road. This single span structure carries Oxford Road over Mudlick Branch. The existing bridge is in fair condition approaching poor condition because of the deterioration in the prestressed beams. The old beams will be



replaced with new beams to resolve this problem. There is also scour and erosion of the foundation walls. New large rock channel protection will be installed to alleviate scour concerns. Also, the existing road is on a superelevated curve. This curve will be slightly modified for the safety of the traveling motorists and safe adjacent property driveway egress. This project is scheduled for spring 2022 and is estimated to cost \$600,000.



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