

Funding Local Road Improvements in Washtenaw County

Winter/Spring 2022



Questions? Contact Us!

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Introduction

Each year, the Washtenaw County Board of County Road Commissioners (the WCRC Board) and township boards partner to provide local road improvements to the residents of Washtenaw County. While road funding is limited, these parties work hard to spend this precious limited funding efficiently and effectively. The following packet was assembled for both seasoned officials who are very familiar with the process and for officials new to their positions to help them better under the intricacies of local road funding.

Bridgewater Township Summary

The following is a summary of the roads, bridges and culverts located in Bridgewater Township.

Primary Roads

- 12.24 miles of paved primary roads
- 9.16 miles unpaved primary roads
- 1 bridge (more than 20' span)
- 6 culverts, greater than 5' in diameter

Local Roads

- 0 miles of local paved roads
- 40.23 miles of local unpaved roads
- 3 bridges (more than 20' span)
- 6 culverts on local collector roads, greater than 5' in diameter

2022 Local Road Matching Program Allocation

The chart below shows the 2022 allocation made by the WCRC Board for local roads in Bridgewater Township. Notification of the intent to use matching funds is due to WCRC by **Friday, May 20, 2022.**

Township	Allocation
Bridgewater	\$41,217

Local Road Needs

The chart below highlights an estimated need of the local road system in the township based on the current condition of the road and the recommended treatment for that condition.

Township	Paved Local Road Needs (\$)	Unpaved Local Road Needs (\$)	Total Needs (\$)	Average 10-year Annual Expenditure Needed (\$)
Bridgewater	164,100	3,244,000	3,408,100	340,810

Local Road Bridges and/or Culverts of Concern

The chart below shows local road bridges and/or culverts in the township that are in poor or failing condition. Additional load restrictions, up to road closure, may be put in place as the bridge or culvert's condition deteriorates.

Township	Road	Type	Condition Rating (1- failed, 10 – good)	Approx Span (feet)	Approx Length (feet)	Material Type	Legal Posting
On the border of Bridgewater and Freedom	Bemis Rd	Culvert	3	5	50	Corrugated Steel Pipe	Load Rating 29/44/52
On the border of Bridgewater and Freedom	Bemis Rd	Culvert	4	7	50	Corrugated Steel Pipe	
On the border of Bridgewater and Manchester	Sheridan Rd	Culvert	4	6	35	Pre-Cast Concrete Pipe	Load Rating 36T/55T/65T
On the border of Bridgewater and Manchester	Sheridan Rd	Bridge	2	26		Wood/Timber	

Historic Township Road Contributions 2018 – 2021

The chart below includes all contributions made by the township to WCRC including local road investments, non-motorized improvements, bond payments, primary road investments by a township, etc.

Township	2018 (\$)	2019 (\$)	2020 (\$)	2021 (\$)	4 -Year Annual Average (\$)
Bridgewater	12,543	64,606	16,831	59,417	38,349

Contact Information

District Foreman	Director of Operations	WCRC's Customer Service
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Funding for Local Roads

Overview

Roads in Michigan have been chronically underfunded for decades. There are numerous reasons behind this fact but no matter the cause, Michiganders see the results – many, many miles of poor roads.

This is especially true for local roads, which connect people from the primary road system to their homes and businesses. Local roads can be further divided into local collector roads and subdivision roads. Local collector roads are those that connect residential and business areas to the primary road system. Local subdivision roads mostly service residents or businesses within subdivisions and business parks.

Washtenaw County has more than 1,060 centerline miles of local roads. See Appendix A for a chart breaking down mileage by township.

Primary and local designations are determined by MDOT. These designations are critical since they play an important role in how much WCRC receives from the Michigan Transportation Fund (MTF)¹. In 2021, WCRC received \$2,772 for each mile of rural primary road and \$3,047 for each mile of rural local road. In the urban areas, the amount increases to reflect additional traffic and lanes. The urban primary roads receive \$15,858 per mile and urban local roads receive \$2,643 per mile.

In addition to this part of the formula, WCRC receives funds from vehicle registration fees collected through the Secretary of State. Vehicle registration fees are distributed to county road agencies based the number of vehicles registered in each county.

¹ Michigan Transportation Fund (MTF) is WCRC's primary source of funding. It is made up of revenue from state fuel tax and vehicle registration fees which are allocated through a formula to MDOT, county road commissions and cities/villages. WCRC is expecting to receive \$33,000,000 from MTF in 2022.

Local Road Matching Program

Unfortunately, the MTF allocated for local roads barely covers WCRC's costs for routine maintenance such as snow plowing, pothole patching and grading. In addition, under current state law, any improvements to a local road (for example resurfacing) must have at least 50% of its funding come from a source other than the road commission, often the township.

In 2021, Congress passed a massive federal infrastructure funding package. While this funding is very much appreciated, it will likely not go to any local roads in Washtenaw County since most local roads are ineligible for federal funding of any kind.

Knowing that local road funding is a challenge, the WCRC Board has historically transferred funds from the Primary Road Fund to the Local Road Fund, even though this transfer limits maintenance activity on the primary road system. These monies are used to fund WCRC's Local Road Matching Program.

WCRC's Local Road Matching Program is made up of two programs.

1. Local Road Matching Program
2. Regulated Local Road Culverts and Bridges Matching Program

The full conditions of the Local Road Matching Program can be found in Appendix B.

Local Road Matching

The WCRC Board made two changes to the 2022 Local Road Match. First, the WCRC Board simplified the program, combining the conventional and drainage categories into one allocation that can be used for any type of local road improvement. Second, the WCRC Board increased the overall fund by \$200,000, resulting in a total of \$1.5 million assigned to the Local Road Matching Program this year. These funds are allocated to each township based on the distribution formula used by MDOT to distribute local road funds to the 83 counties of Michigan.

See Appendix C for a listing of each township's matching fund allocation. See Appendix D for a listing of each township's contribution from 2018 – 2021. See Appendix E for a map showing Bridgewater Township's investment over the past 5 years.

Regulated Local Road Culvert and Bridges Matching

In addition, the WCRC Board remains committed to covering 50% of the cost to replace or rehabilitate (when appropriate) local road culverts and bridges that require permits from the Michigan Department of Environment, Great Lakes, and Energy (EGLE) and/or the Washtenaw County Water Resources Commissioner's Office.

These types of structures are usually larger and more expensive to fix or replace. This funding source is in addition to the Local Road Matching Program and is applied on a case-by-case basis, as resources allow, and in partnership with interested townships.

Planning Your Investments

Roads and the entire roadway, like any other public infrastructure, require a lot of investment. Unfortunately, in Michigan, the needs far outweigh the funds available in any given year. So, how do WCRC and townships in Washtenaw County decide the best way to invest limited funds?

WCRC utilizes the principals of asset management when planning investments. According to Michigan's Transportation Asset Management Council, asset management is the "Ongoing process of maintaining, preserving, upgrading and operating physical assets cost-effectively, based on a continuous physical inventory and condition assessment and investment to achieve established performance goals."

While this may be a daunting definition, the overall concept is simple and similar to vehicle maintenance – you want to make the right fix at the right time in the right place. Most of us change the oil, rotate tires, replace batteries and make other small repairs to keep our vehicles in good shape. We know if we do nothing that we will be replacing that vehicle sooner than if we keep up good maintenance practices. We also know that it makes little sense to make minor repairs to a vehicle that no longer runs. Staying on top of low-cost maintenance items is more cost-effective in the long run.

The WCRC Board adopted a [Transportation Asset Management Plan 2021-2023](#) for the primary road system last fall. Visit wcroads.org to read the full report.

Inventory and Condition Assessment

For asset management to be effective, an agency must first understand what assets are under its jurisdiction and the current conditions of these assets. This is done through an inventory or physical inspection of each asset. The inventory and condition assessment process is different for paved road and unpaved roads.

Paved Roads

For paved roads, WCRC uses the Pavement Surface Evaluation and Rating (PASER) system. The PASER system rates paved roadways on a scale of 1 to 10. Roads are then designated into three groups: Good (10-8 rating), Fair (7-5 rating) and Poor (4-1 rating). All paved roads in Washtenaw County are evaluated every two years.

The latest PASER for the roads in Bridgewater Township are shown in the following map.

Bridgewater Township

Primary & Local Paved Roads

PASER RATINGS






PASER stands for Pavement Surface Evaluation and Rating. The PASER rating ranges from 1- failed conditions, to 10 - brand new pavement. A pavement will only be a 10 the first year of its life, the second year it will automatically become a 9. Any condition of 8 or greater is considered to be a good condition; 7, 6 or 5 are fair; 4 or lower is poor.

- PASER based on current ratings and project improvements
- Private and Gravel roads not rated.




THE RIGHT FIX AT THE RIGHT TIME

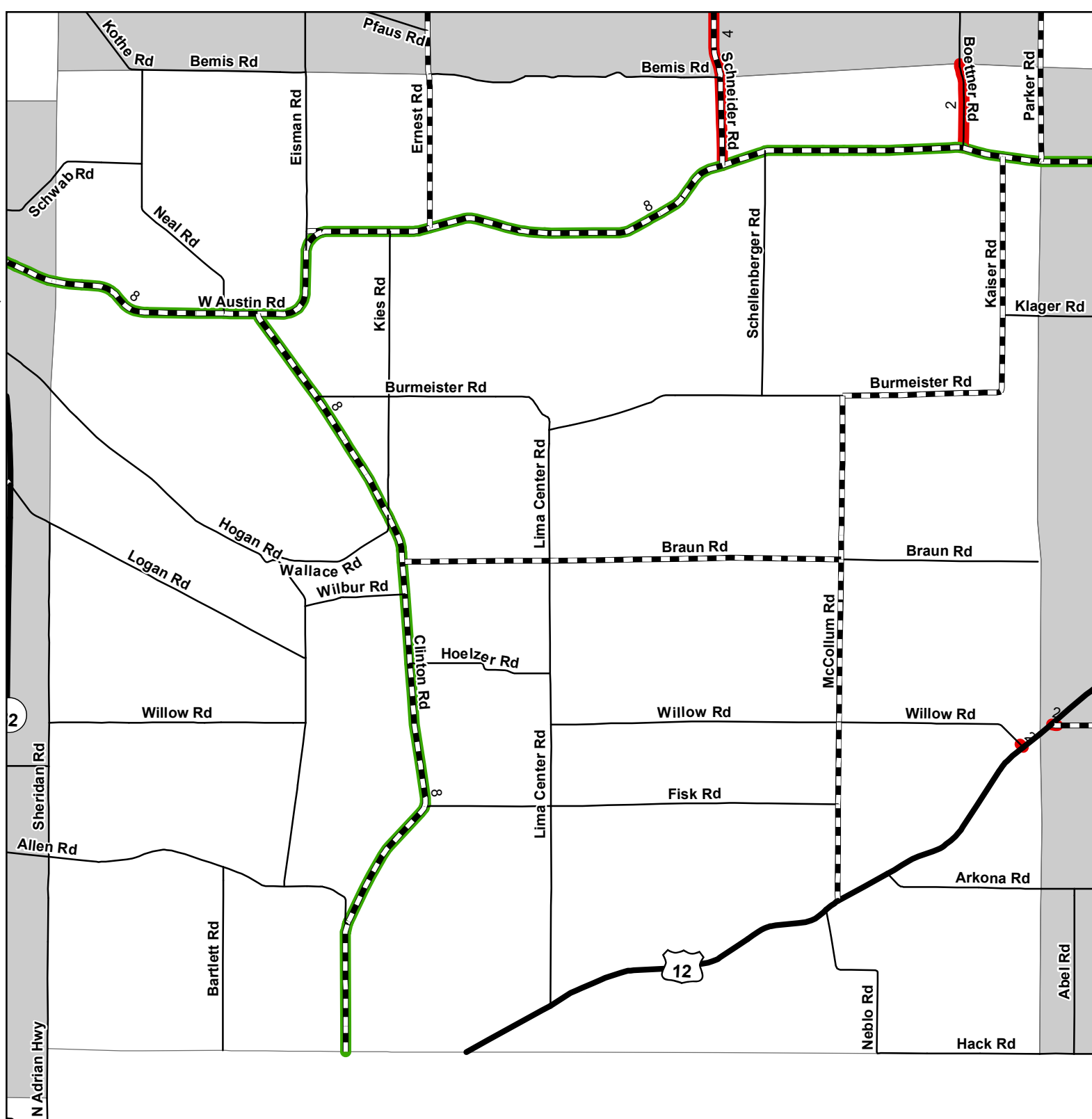
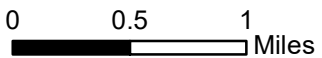
The WCRC determines the best fix to optimize service life for each of our projects. Good pavement management involves less expensive treatments earlier in the life of the pavement in order to take full advantage of infrastructural investments.

Road Classification

-  State Trunkline
-  County Primary
-  County Local
-  City
-  City/Village Boundary

Road Ratings

-  Good (10, 9, 8)
-  Fair (7, 6, 5)
-  Poor (4, 3, 2, 1)



Unpaved Roads

Michigan has thousands of miles of unpaved roads, including more than 700 miles in Washtenaw County. There is not an official condition rating scale for unpaved roads since surface conditions depend so much on the weather. In Washtenaw County, unpaved roads are surfaced with limestone or gravel.

While subjective, each district foreman is highly familiar with the roads in his area and can provide an informal condition rating for each of them based upon the type of material present, drainage facilities and last date of improvements.

Bridges and Culverts

Bridges are structures that span 20' or more. There are 126 bridges on Washtenaw County roads. By law, WCRC inspects bridges at least every two years. Bridges are rated Good, Fair or Poor.

Culverts are structures with less than 20' span and vary in design, from a corrugated metal pipe (CMP) to an old-fashioned short-span bridge. There are not any state requirements to inspect culverts but in 2014 WCRC implemented an inspection program for culverts.

These inspections help WCRC staff and townships identify problems and plan for replacement costs, minimizing surprises. Inspections have also resulted in structure weight restrictions or closures on primary and local roads for the safety of the traveling public.

WCRC bears all the cost to replace failed structures on primary roads but must partner with the respective township on local roads. To help, the WCRC Board committed to covering 50% of the cost to replace certain bridge and culverts on local roads as budget allows (see page 5 for more information).

See Appendix F for a map showing the latest bridge and culvert condition ratings on local collector roads across the county.

Mix of Fixes

Paved Roads

PASER can and should be used to make investment decisions on the paved road system. Before any decisions can be made, it is important to understand the various treatments available for paved road maintenance depending on the road condition. The trick is applying the right fix at the right time on the right road. See Appendix G for a flyer summarizing these road treatments.

Pavement Condition (PASER)	Possible Treatment	Estimated Cost per Mile for Two-Lane Road	Estimated Life Expectancy	Who can conduct the work?
Good (10-8 rating)	Crack sealing	\$10,000	Can last up to 3 years	WCRC crews
	Seal coat (chip seal, fog seal)	\$37,000	Can extend the life of a road by 3-5 years	WCRC crews
Fair (7-5 rating)	Seal coat (chip seal, fog seal)	\$37,000	Can extend the life of a road by 3-5 years	WCRC crews
	Mill and resurface	\$200,000	Can extend the life of a road for 5-7+ years (with proper maintenance)	Contractor with WCRC inspection
Poor (4-1 rating)	Pulverize and resurface	\$400,000	Can extend the life of a road for 10-15+ years (with proper maintenance)	Contractor with WCRC inspection
	Reconstruct	\$1,000,000+	Can last up to 15 to 20 years (with proper maintenance)	Contractor with WCRC inspection

On the primary road system, WCRC's strategy is to focus most of the investment on keeping roads already in good condition good and bringing roads up from fair to good. In addition, WCRC strives to fix a few miles of poor roads each year, depending on funding.

Example: Primary Road X was rated a 5 in the last round of PASER. This year, WCRC elects to mill and resurface it for \$200,000 per mile bringing it up to a 10 rating. Next year, WCRC plans to apply a seal coat to it (both chip seal and fog seal) for \$37,000 per mile. WCRC will need to seal coat it again in approximately 5 years to keep it in good condition.

On the local road system, the strategy depends on the funding partner, usually the township. WCRC staff are happy to work with each township to develop the best strategy for the local paved road system and the township's budget.

Unpaved Roads

Similar to paved roads, there is a range of treatment options for unpaved roads and it is important to apply the right fix at the right time.

As a part of WCRC's routine maintenance, every unpaved road in Washtenaw County will be graded a couple times per year and WCRC crews will do limestone/gravel patching as needed.

Just like paved roads, unpaved roads require more than just routine maintenance including ongoing drainage improvements to keep water from standing on the roadway which leads to deterioration of the road. Unpaved roads also require resurfacing which will be gravel or limestone depending upon the type of road.

Any work beyond routine maintenance on local roads comes at the direction of and is funded by the township. Funds from the Local Road Matching Program, described on page 5, can be used for any of the following treatments.

Possible Treatment	Estimated Cost	Recommended Frequency	Who can conduct the work?
Dust Control (includes a road grading prior to application)	\$.199 per gallon, 1,000 gallons per lane mile	2-3 times per season (May – October)	WCRC crews
Drainage improvements (ditching, berming, tree trimming)	Varies significantly by project		WCRC crews
Resurfacing (with either limestone or gravel)	Typically, \$65-\$85k per mile	Should be done every 8 – 10 years	WCRC crews
Paving an unpaved road ²	\$1.5 million+ per mile		Contractor with WCRC inspection

² It should be noted, especially when considering whether to pave local unpaved roads, many residents have expressed strong feelings against paving the road they live on, while other residents and drivers expect the road to be paved.

Bridges and Culverts

There are fewer options available on bridges and culverts to help extend the life of the structure. On primary roads, WCRC will often invest money to rehabilitate or preserve a bridge deck or substructure. Some culverts can be lined to help extend their life. Most often, investments in culverts, especially those on local roads, are for a full replacement after the condition has deteriorated significantly.

Any work beyond routine maintenance on bridges or culverts located on local roads comes at the direction of and is funded by the township.

Preventative Maintenance: Preventative maintenance work is typically done on bridges rated fair in order to slow the rate of deterioration and keep the bridge in fair or good condition. Treatments range from concrete deck repairs, joint repairs, epoxy overlays, painting and repaving of the road approaches leading to the structure.

Rehabilitation: Rehabilitation involves repairs that improve the existing condition and extend the service life of the structure and the riding surface. Most often, rehabilitation options are associated with bridges that have degraded beyond what can be fixed with preventative maintenance. Rehabilitation is typically performed on poor-rated elements to improve them to fair or good condition. Rehabilitation can include superstructure replacement (removal and replacement of beams and deck) or deck replacement. While typically more expensive than preventative maintenance, rehabilitation treatments may be more cost-effective than replacing the entire structure.

Replacement: Replacement work is typically performed when a bridge or culvert is in poor condition and will improve the structure to good condition. Replacement means the entire bridge (superstructure, deck and substructure) or culvert is removed before re-building a structure at the same location. The decision to perform a total replacement over rehabilitation (see above) is made based on a life-cycle cost analysis. Generally, replacement is selected if rehabilitation costs more than two-thirds of the cost of replacement. Replacement is generally the most expensive of the treatment options.

Project Selection

As shown in the charts above, there are more options for investing in the local road system than the funding available. To help prioritize where to invest each year, WCRC staff work with township officials to create an annual proposed local road improvement program with project estimates. These discussions typically start in late-fall and carry on throughout the winter. Final project agreements are created in mid to late spring. The full conditions of the Local Road Matching Program can be found in Appendix B.

See Appendix H for a summary of needs on local paved and unpaved roads, by township.

Funding Options for Townships

Townships are not legally required to contribute to the maintenance, construction or reconstruction of county roads. However, Act 51 does restrict how much state funding a road commission can spend on local county road construction. In addition, road commissions do not have taxing authority, so their funding sources are limited.

WCRC is limited to no more than 50% of the local road project's total cost. The other 50% of a project's cost must come from a "local source" – which usually takes the form of a township contribution. In addition, WCRC has a limited budget, just like most organizations, so the amount WCRC contributes to local road projects is capped at the amounts set forth in the Local Road Matching Program.

Washtenaw County is not alone in its challenges securing much needed local road funding. Looking beyond county lines, we see townships throughout Michigan turning to other taxing mechanisms to generate the revenue necessary to repair and maintain local roads.

Whereas WCRC does not have any legal taxing authority, townships have three options to help raise revenue to fund road improvements: a millage through Act 51, a township-wide millage or a special assessment district.

Act 51 Millage

Act 51 of 1951 outlines two options for townships to raise revenue for the maintenance and improvement of local roads.

1. Township boards can levy a property tax of no more than three mills in any year, without a vote of the people, for the maintenance or improvement of county roads within the township.
2. With voter approval, township boards may levy a property tax of no more than 6 mills in any year for the maintenance or improvement of county roads within the township.

Township-Wide Millage

Section 6 of Article IX of the Constitution of Michigan of 1963 authorizes townships to levy millages with a majority vote of the people.

In 2021, Ypsilanti Charter Township used this option to place Proposition C on the ballot to fund recreation, bike paths, sidewalks, roads, parks and general operating purposes. The measure passed with 76% of the vote.

See Appendix I for taxable values with various millage scenarios, by township.

Special Assessment Districts (Township-wide or Neighborhood-to-Neighborhood)

Public Act 188 of 1954 allows townships to pay for road improvements through a special assessment district (SAD). A SAD is an area where the majority of property owners agree to allow a government agency to levy a property tax in exchange for a specific service such as road improvements. The area can be limited to a neighborhood or can be township wide. Act 188 outlines the process for levying a township SAD.

In 2013, Scio Township's Board approved a township-wide SAD which raises approximately \$500,000 annually for ten years and funds improvements on local roads in the township. Several other townships in Michigan have taken this approach for township-wide improvements.

In Washtenaw County, Dexter, York, Lodi and Scio Townships have also approved neighborhood SAD projects, which are generally initiated by neighbors in a specific subdivision requesting road improvements within their neighborhood.

See Appendix J for a summary of revenue that could be generated through various rates of a township-wide SAD, by township.

Appendix A: Public Road Miles Chart, By Township

Townships	Primary Paved	Primary Unpaved	Primary Bridges	Primary Culverts	Local Paved	Local Unpaved	Local Bridges	Local Culverts
Ann Arbor	22.56	0.00	2	8	5.68	13.99	3	7
Augusta	28.98	2.49	2	19	9.24	48.33	13	22
Bridgewater	12.24	9.16	1	6	0.00	40.23	3	6
Dexter	25.85	3.75	0	2	13.14	25.99	3	2
Freedom	11.92	4.47	0	2	1.68	46.27	0	5
Lima	18.94	5.75	3	6	5.45	40.45	13	7
Lodi	18.85	2.53	0	8	13.36	42.35	5	18
Lyndon	14.42	3.62	0	0	0.58	37.35	1	1
Manchester	10.80	8.81	1	1	1.20	46.41	1	8
Northfield	25.81	4.64	2	8	11.45	47.33	2	8
Pittsfield	42.80	0.00	0	11	81.82	14.73	0	8
Salem	34.25	0.94	0	11	7.5	33.6	1	17
Saline	12.21	11.65	1	9	1.97	27.96	3	11
Scio	48.98	0.00	12	9	28.30	30.96	8	10
Sharon	10.18	11.00	2	1	0.25	34.69	3	2
Superior	32.90	0.00	5	14	32.33	29.13	2	12
Sylvan	16.5	0.44	1	7	15.00	26.5	3	6
Webster	22.81	4.70	2	4	1.27	41.82	1	11
York	41.96	3.89	6	20	28.44	27.17	4	15
Ypsilanti	60.21	0.00	8	8	135.36	9.93	2	9
Totals	514.74	77.84	48	154	393.87	665.31	71	185

Appendix B: Local Road Matching Program Conditions

Township Assistance

In order to allow local road improvements to proceed in a timely manner, townships are asked to assist WCRC staff in acquiring necessary tree removal and grading permits, holding public meetings and coordinating any necessary property owner contacts.

Project Overruns

WCRC staff will provide an estimated cost for each individual project to be included within the agreement between the township and WCRC. If, prior to beginning an individual project, it is determined that the original cost estimate will not cover project costs, WCRC will notify the township to determine if the township desires to proceed with the project with a reduced scope of work or an additional funding commitment.

Budgets are closely monitored on each project and every effort is made to avoid overruns. Any unexpected project cost overrun shall be taken from any unexpended funds remaining in that township's total township agreement. If the overrun exceeds the total township agreement, WCRC may bill the township up to an additional 10% of the total agreement amount with the township. At the township's option, such overruns can be taken from the following years' matching funds.

Billing Procedures

The following billing methods apply only to those projects considered to be construction and heavy maintenance. Dust control will be billed at cost-to-date at time of billing. Standard fringe and overhead rates will be applied as defined by PA 51 of 1951, as amended.

- First Billing: The first 40% of the total matching program for construction and heavy maintenance projects will be due in June or 30 days from receipt of the first invoice.
- Second Billing: The second 40% will be due in August or 30 days from receipt of the second invoice.
- Final Billing: A final billing will be due in December or 30 days from receipt of final invoice.

Any credits due to townships will be returned at the time of final billing or credited to the following year, as determined by the township.

Primary Road Matching

Any township board may, at its option, request that a part or all of its allocated matching WCRC funds, along with an equal amount of township funds, be used on a primary road project within the township boundaries.

Reallocation of Funds

Any township that has not notified WCRC of its intent to use matching funds on or before Friday, May 20, 2022 will forfeit the allocated matching money. WCRC will determine the amount of unused matching funds and reallocate these funds to primary road maintenance.

Dust Control

Conventional matching funds can be used for dust control only for solid applications (spot or skip spraying is ineligible). Application rates and frequency will be subject to limits established by EGLE rules (Reference: State of Michigan EGLE Groundwater Discharge Permit, General Permit No. GW1550000, Rule 2215, effective April 1, 2020, expiration April 1, 2023)

Local Matching Fund Carryover

If a township determines that it desires to carry over the funds allocated for a given year into the following year, the township must provide written notification to WCRC that it is requesting this carryover and identify an eligible project for which the funds will be held.

The carryover fund will be preserved by WCRC for one year. Beyond this point, the funds will be reallocated to primary road maintenance. The carryover option allows the township to accumulate the funds that are allocated with the previous year allocation; in other words, the carryover funds cannot exceed the previous year's allocation.

Appendix C: 2022 Local Road Matching Funds, By Township

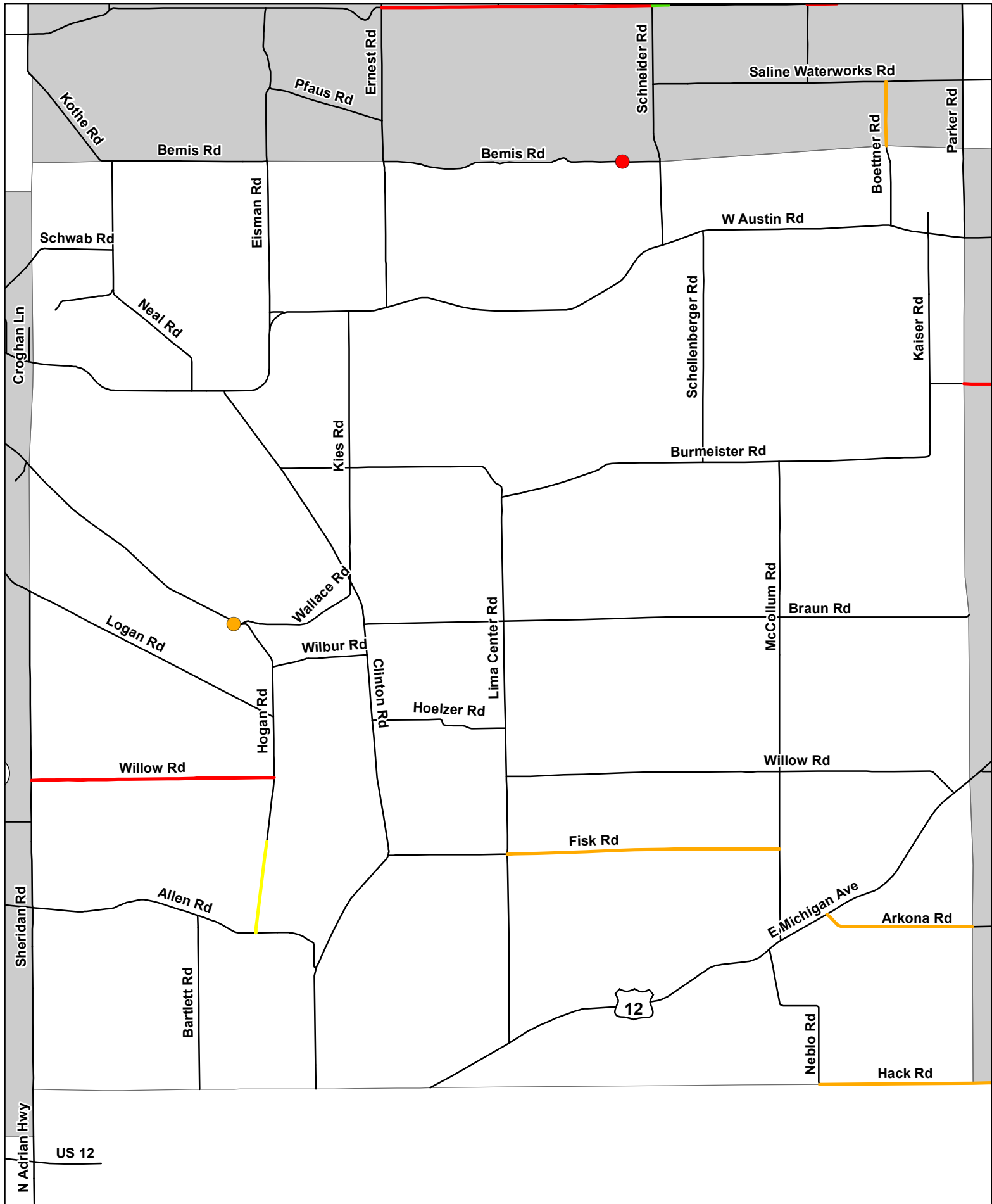
Township	2022 Local Matching Program	2021 Conventional Local Road Matching Program	2021 Drainage Matching Program
Ann Arbor	\$29,478	\$23,270	\$3,782
Augusta	71,346	48,679	14,652
Bridgewater	41,217	25,889	11,526
Dexter	53,369	35,250	7,008
Freedom	47,590	29,871	13,618
Lima	52,678	33,985	12,804
Lodi	67,909	49,762	12,664
Lyndon	41,797	26,393	10,629
Manchester	50,534	31,501	13,091
Northfield	76,197	54,999	13,847
Pittsfield	190,306	151,176	4,894
Salem	55,971	36,129	10,535
Saline	33,451	21,203	8,217
Scio	100,027	82,305	7,131
Sharon	36,871	22,976	9,939
Superior	95,005	69,111	9,753
Sylvan	46,780	29,236	11,096
Webster	56,701	38,665	11,787
York	74,789	60,022	8,615
Ypsilanti	277,983	229,578	4,412
Totals	\$1,500,000	\$1,100,000	\$200,000

Appendix D: Township Contribution Summary, 2018 – 2021

This chart includes all contributions made by a township to WCRC including local road investments, non-motorized improvements, bond payments, primary road investments by a township, etc.

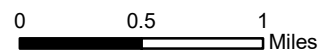
Township	2018	2019	2020	2021	4-Year Average
Ann Arbor	\$92,109	\$232,862	\$240,137	\$601,919	\$291,757
Augusta	161,503	145,470	277,080	174,157	189,553
Bridgewater	12,543	64,606	16,831	59,417	38,349
Dexter	197,973	150,361	96,797	75,393	130,131
Freedom	44,258	39,090	44,743	70,463	49,639
Lima	236,477	171,533	206,634	199,727	203,593
Lodi	231,286	196,082	117,308	511,702	264,095
Lyndon	22,550	32,872	17,424	76,395	37,310
Manchester	105,580	38,747	31,502	67,212	60,760
Northfield	96,714	91,657	74,283	106,071	92,181
Pittsfield	659,425	2,601,981	994,362	1,798,975	1,513,686
Salem	483,407	3,283,602	1,740,718	235,209	1,435,734
Saline	133,371	149,038	557,529	145,983	246,480
Scio	14,957	20,383	501,479	230,744	191,891
Sharon	49,782	98,669	54,138	109,206	77,949
Superior	141,438	168,491	65,626	450,374	206,482
Sylvan	72,370	26,115	114,611	96,908	77,501
Webster	150,531	198,297	38,428	487,377	218,658
York	465,358	205,542	375,053	843,327	472,320
Ypsilanti	1,214,181	1,147,958	809,371	978,513	1,037,506
Totals	\$4,585,814	\$9,063,358	\$6,374,053	\$7,319,072	\$6,835,574

Appendix E: Township Local Road Investment Map

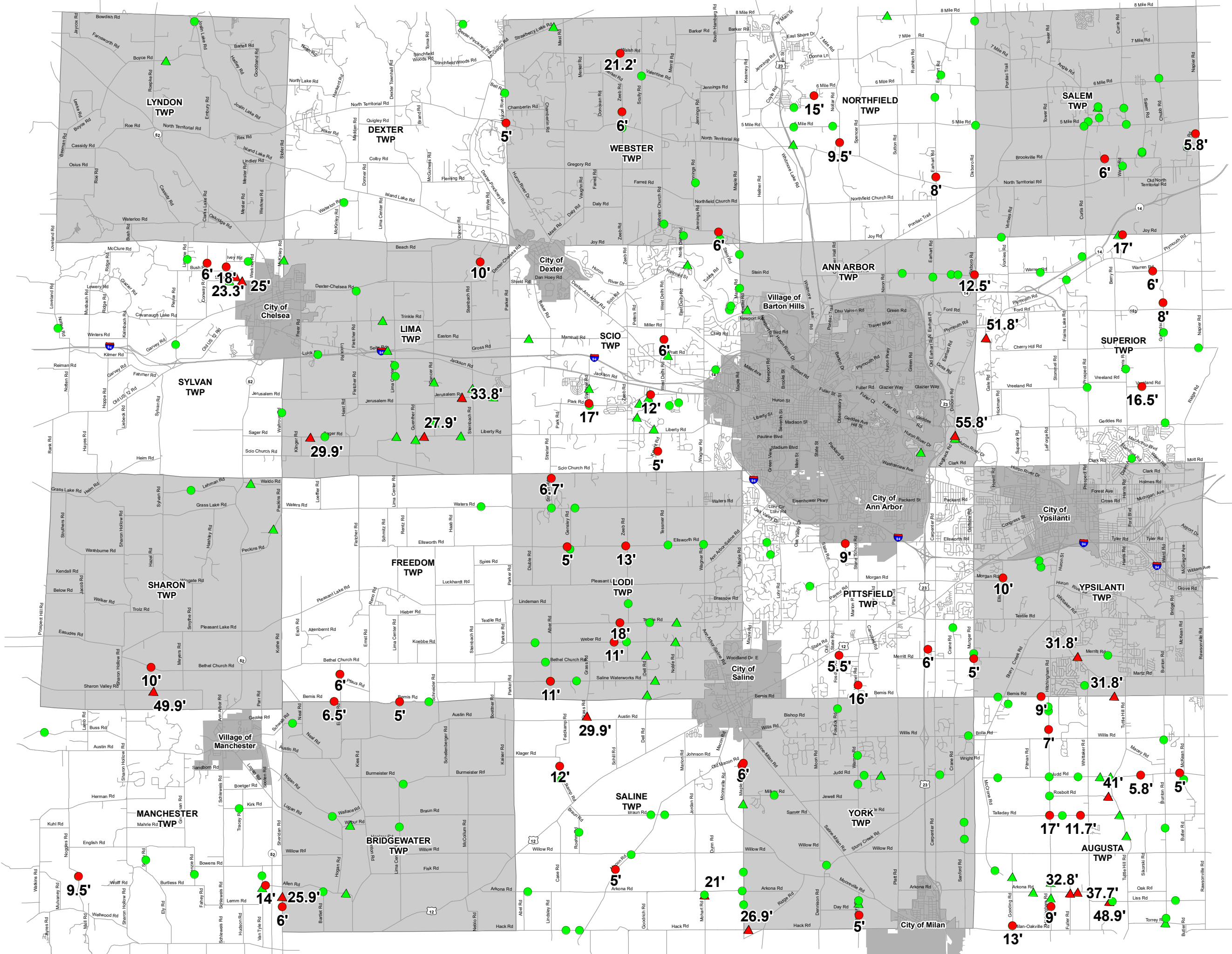


- 2017 — 2020 —
- 2018 — 2021 —
- 2019 —

Bridgewater Township
 Locally Funded
 Road Improvement Projects
 2017 - 2021



**Appendix F: Local Collector Road Bridges/Culverts – County-wide
Map**



Local Collector Road Culverts
5' to 20'

- Fair to Good Condition
- Poor Condition

Local Collector Road Bridges
20' and Greater

- ▲ Fair to Good Condition
- ▲ Poor Condition

Appendix G: Life of a Road Flyer

The Life of a Road

Preserving our investments with preventative maintenance



Road work is an expensive endeavor. The Washtenaw County Road Commission (WCRC) works very hard to apply the principles of asset management with the available preventative maintenance tools to maintain the more than 1,600 miles of road under WCRC's jurisdiction. Check out the graphic below to get an idea of when each tool is the best option, depending on the road condition and budget constraints.

Crack Seal

Estimated Cost*: \$10,000 per mile

Impact: Can last up to 3 years

What: Fills cracks (less than 3/4" wide) with asphalt sealant. Seals pavement from water and debris.

When: The best time to crack seal is when cracks start to develop and are still relatively small.

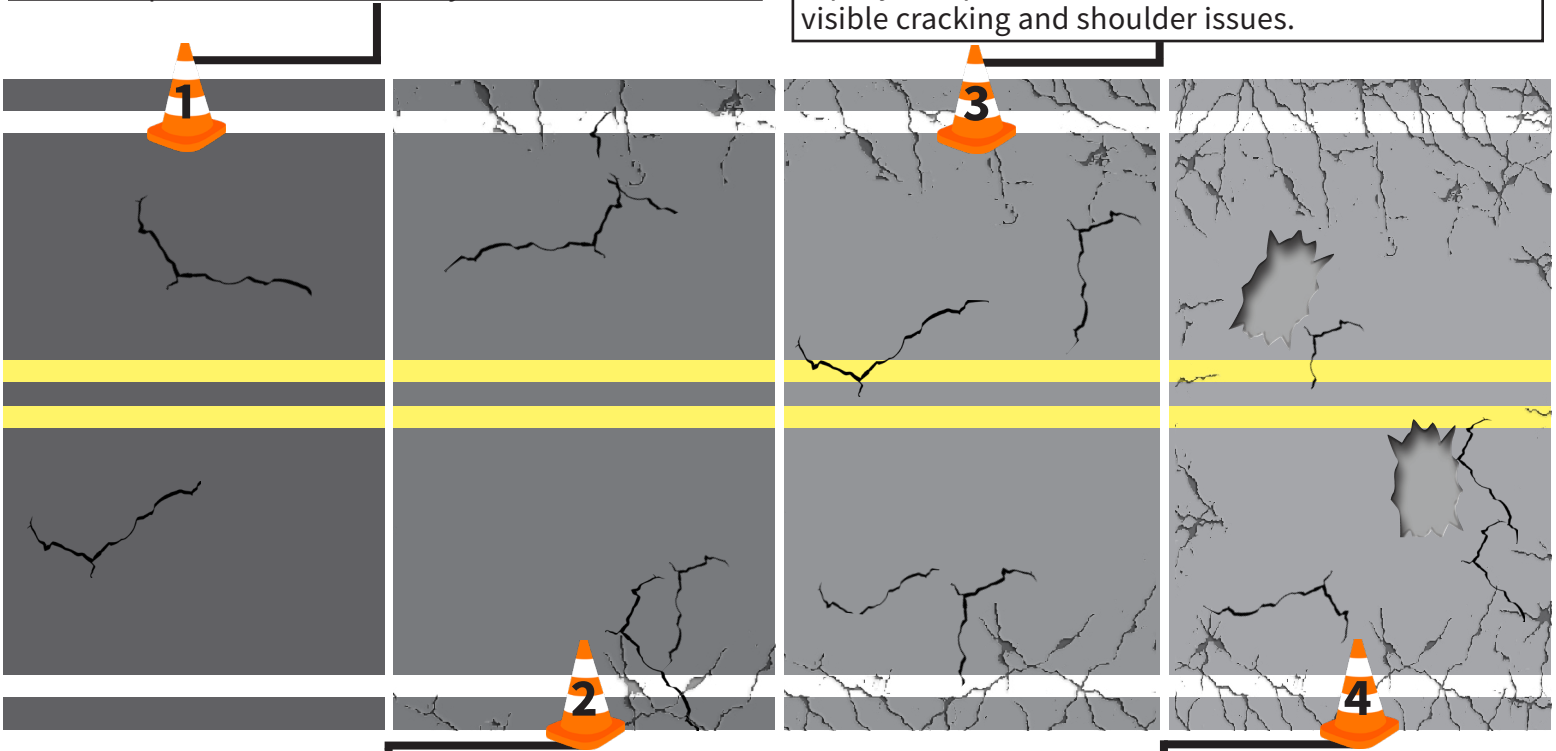
Mill and Resurface

Estimated Cost*: \$200,000 per mile

Impact: Can extend the road life by 5 to 7+ years

What: One layer of existing asphalt is removed and the road is resurfaced with a new layer of asphalt.

When: The best time to mill and resurface is when the top layer of pavement has started to deteriorate with visible cracking and shoulder issues.



Seal Coat (Chip Seal and Fog Seal)

Estimated Cost*: \$23,000 - \$37,000 per mile

Impact: Can extend the road life by 3 to 5 years

What: Thin layer of liquid asphalt that seals pavement from water, sunshine and debris.

When: The best time for seal coat is when the road is still in good or fair condition with slight cracking starting to show. WCRC is working to seal coat new pavement within a year or two after it has been placed to extend the pavement life.

Pulverize and Resurface

Estimated Cost*: \$400,000 per mile

Impact: Can extend the road life by 10 to 15+ years

What: A pulverizer, capable of breaking up 6 to 10" of existing asphalt and aggregate base, recycles and compacts the pulverized asphalt to create a new road base, and then covers it with two layers of new asphalt.

When: This is one of the last options due to cost. It is used when the road is in very poor condition with large potholes and heavy cracking.

**Estimated costs are based on 2021 prices for two-lane roads*

Questions? Contact WCRC

(734) 761-1500

wcroads.org

Facebook/Twitter @WashtenawRoads

Appendix H: Summary of Local Road Needs, By Township

Township	Total Needs for Local Paved Roads	Total Needs for Local Unpaved Roads	Total Needs for Local Roads	Average 10-year Annual Expenditure Needed for Local Roads
Ann Arbor	\$1,243,020	\$1,050,200	\$2,293,220	\$229,322
Augusta	1,330,925	3,830,000	5,160,925	516,093
Bridgewater	164,100	3,244,000	3,408,100	340,810
Dexter	2,230,537	2,040,000	4,270,537	427,054
Freedom	31,800	3,701,600	3,733,400	373,340
Lima	923,980	3,236,000	4,159,980	415,998
Lodi	1,851,472	3,376,000	5,227,472	522,747
Lyndon	41,040	2,946,200	2,987,240	298,724
Manchester	103,020	3,695,200	3,798,220	379,822
Northfield	2,123,773	3,728,200	5,851,973	585,197
Pittsfield	11,312,583	1,133,600	12,446,183	1,244,618
Salem	595,755	2,671,000	3,266,755	326,676
Saline	47,100	2,231,200	2,278,300	227,830
Scio	3,667,244	2,323,200	5,990,444	599,044
Sharon	-	2,775,200	2,775,200	277,520
Superior	4,856,748	2,321,000	7,177,748	717,775
Sylvan	3,110,287	2,091,800	5,202,087	520,209
Webster	336,000	3,302,400	3,638,400	363,840
York	4,271,450	2,139,400	6,410,850	641,085
Ypsilanti	19,754,478	785,000	20,539,478	2,053,948
Totals	\$57,995,312	\$52,621,200	\$110,616,512	\$27,654,128

Appendix I: Summary of Revenue Generated with Various Millage Amounts, By Township

Township	2021 Taxable Value	Millage Amount			
		0.50	1.00	2.00	3.00
Ann Arbor ³	\$549,069,393	\$274,535	\$549,069	\$1,098,139	\$1,647,208
Augusta	\$274,855,657	\$137,428	\$274,856	\$549,711	\$824,567
Bridgewater	\$103,532,583	\$51,766	\$103,533	\$207,065	\$310,598
Dexter	\$441,895,751	\$220,948	\$441,896	\$883,792	\$1,325,687
Freedom	\$195,481,565	\$97,741	\$195,482	\$390,963	\$586,445
Lima	\$266,735,680	\$133,368	\$266,736	\$533,471	\$800,207
Lodi	\$489,806,665	\$244,903	\$489,807	\$979,613	\$1,469,420
Lyndon	\$178,679,056	\$89,340	\$178,679	\$357,358	\$536,037
Manchester ⁴	\$148,811,139	\$74,406	\$148,811	\$297,622	\$446,433
Northfield	\$395,849,527	\$197,925	\$395,850	\$791,699	\$1,187,549
Pittsfield	\$2,212,951,587	\$1,106,476	\$2,212,952	\$4,425,903	\$6,638,855
Salem	\$424,791,548	\$212,396	\$424,792	\$849,583	\$1,274,375
Saline	\$116,742,768	\$58,371	\$116,743	\$233,486	\$350,228
Scio	\$1,465,862,936	\$732,931	\$1,465,863	\$2,931,726	\$4,397,589
Sharon	\$108,285,026	\$54,143	\$108,285	\$216,570	\$324,855
Superior	\$728,538,131	\$364,269	\$728,538	\$1,457,076	\$2,185,614
Sylvan	\$225,738,120	\$112,869	\$225,738	\$451,476	\$677,214
Webster	\$475,249,413	\$237,625	\$475,249	\$950,499	\$1,425,748
York	\$510,067,331	\$255,034	\$510,067	\$1,020,135	\$1,530,202
Ypsilanti	\$1,509,216,773	\$754,608	\$1,509,217	\$3,018,434	\$4,527,650
Totals	\$10,822,160,649	\$5,411,080	\$10,822,161	\$21,644,321	\$32,466,482

³ The taxable value for parcels within the Village of Barton Hills is not included in these numbers.

⁴ The taxable value for parcels within the Village of Manchester is not included in these numbers.

Appendix J: Summary of Revenue Generated with a Township-Wide Special Assessment District (SAD), By Township

Township	Parcel Count (2021)	Revenue at \$60/parcel	Revenue at \$70/parcel	Revenue at \$80/parcel	Revenue at \$90/parcel
Ann Arbor ⁵	1,889	\$113,340	\$132,230	\$151,120	\$170,010
Augusta	3,578	214,680	250,460	286,240	322,020
Bridgewater	1,153	69,180	80,710	92,240	103,770
Dexter	3,610	216,600	252,700	288,800	324,900
Freedom	1,223	73,380	85,610	97,840	110,070
Lima	1,941	116,460	135,870	155,280	174,690
Lodi	2,684	161,040	187,880	214,720	241,560
Lyndon	1,671	100,260	116,970	133,680	150,390
Manchester ⁶	1,803	108,180	126,210	144,240	162,270
Northfield	4,608	276,480	322,560	368,640	414,720
Pittsfield	12,926	775,560	904,820	1,034,080	1,163,340
Salem	3,478	208,680	243,460	278,240	313,020
Saline	1,501	90,060	105,070	120,080	135,090
Scio	7,634	458,040	534,380	610,720	687,060
Sharon	1,174	70,440	82,180	93,920	105,660
Superior	5,978	358,680	418,460	478,240	538,020
Sylvan	1,938	116,280	135,660	155,040	174,420
Webster	3,073	184,380	215,110	245,840	276,570
York	3,227	193,620	225,890	258,160	290,430
Ypsilanti	19,830	1,189,800	1,388,100	1,586,400	1,784,700
Totals	84,919	\$5,095,140	\$5,944,330	\$6,793,520	\$7,642,719

⁵ Parcels within Village of Barton Hills are not included in these numbers.

⁶ Parcels within Village of Manchester are not included in these numbers.