Lapeer County Road Commission
2025 Pavement
Asset Management Plan

A plan describing the Lapeer County Road Commission's roadway assets and conditions

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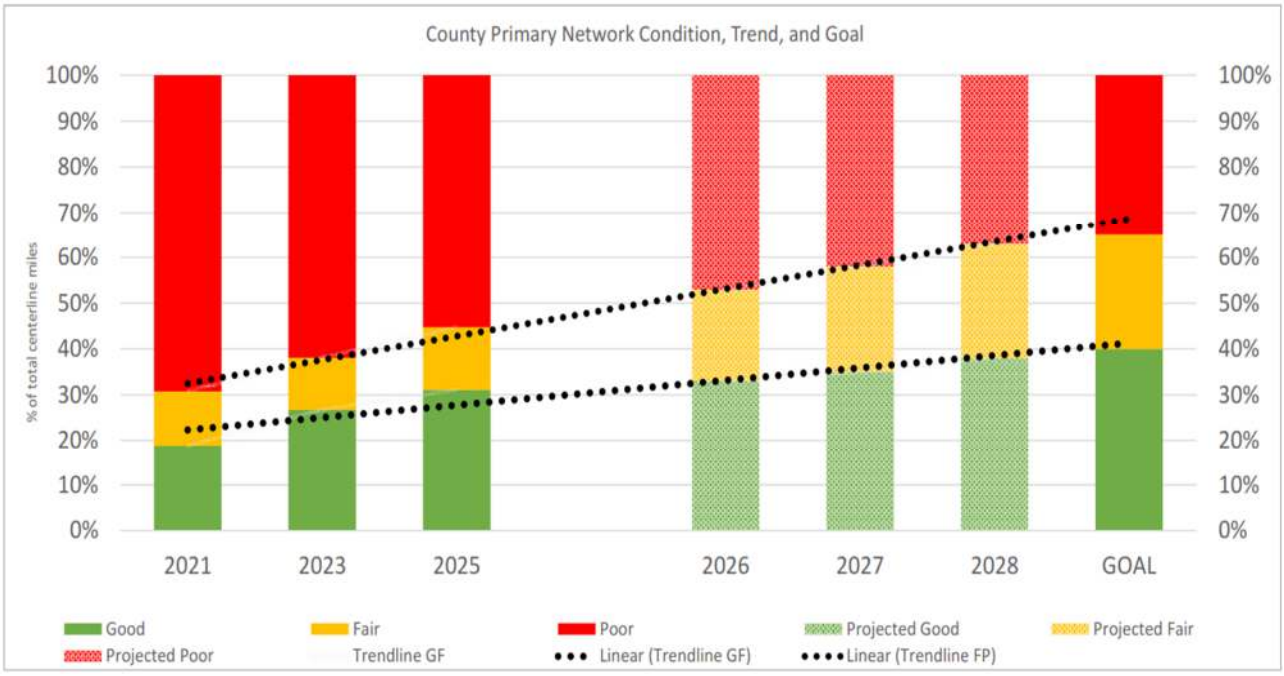
EXECUTIVE SUMMARY

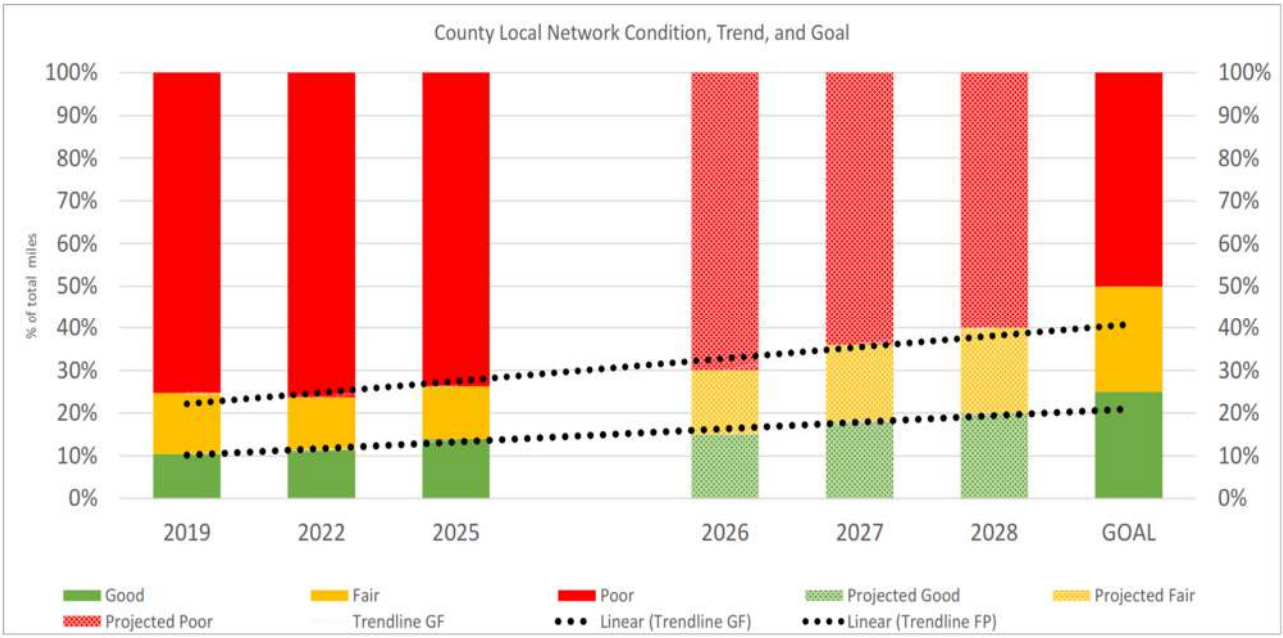
As conduits for commerce and connections to vital services, roads are among the most important assets in any community along with other assets like bridges, culverts, traffic signs, traffic signals, and utilities that support and affect roads. The Lapeer County Road Commission's (Lapeer CRC) roads, other transportation assets, and support systems are also some of the most valuable and extensive public assets, all of which are paid for with taxes collected from ordinary citizens and businesses. The cost of building and maintaining roads, their importance to society, and the investment made by taxpayers all place a high level of responsibility on local agencies to plan, build, and maintain the road network in an efficient and effective manner. This asset management plan is intended to report on how Lapeer CRC is meeting its obligations to maintain the public assets for which it is responsible.

This plan overviews Lapeer CRC's Road assets and condition, and explains how Lapeer CRC works to maintain and improve the overall condition of those assets. These explanations can help answer the following questions:

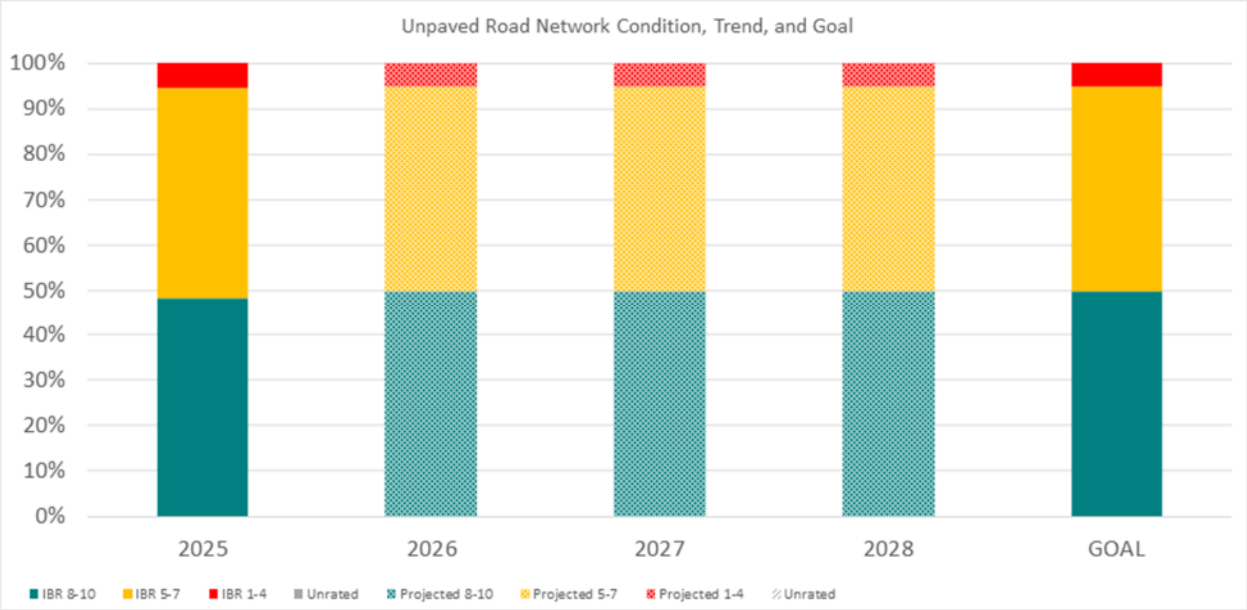
- What kinds of road assets Lapeer CRC has in its jurisdiction, who owns them, and the different options for maintaining these assets.
- What tools and processes Lapeer CRC uses to track and manage road assets and funds.
- What condition Lapeer CRC's Road assets are in compared to statewide averages.
- Why some road assets are in better condition than others and the path to maintaining and improving road asset conditions through proper planning and maintenance.
- How agency transportation assets are funded and where those funds come from.
- How funds are used and the costs incurred during Lapeer CRC's Road assets' normal life cycle.
- What condition Lapeer CRC can expect its road assets if those assets continue to be funded at the current funding levels
- How changes in funding levels can affect the overall condition of all of Lapeer CRC's Road assets.

Lapeer CRC owns and/or manages 1300.34 centerline of roads. This road network can be divided into the county primary network, the county local network, the unpaved road network, and the National Highway System (NHS) network based on the different factors these roads have that influence asset management decisions. A summary of Lapeer CRC historical and current network conditions, projected trends, and goals for county primary network and county local network can be seen in the two figures, below.


County Primary Network Condition, Trend, and Goal
% of total centerline miles
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
2021
2023
2025
2026
2027
2028
GOAL
Good
Fair
Poor
Projected Good
Projected Fair
Projected Poor
Trendline GF
Linear (Trendline GF)
Linear (Trendline FP)


County Local Network Condition, Trend, and Goal
% of total miles
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
2019
2022
2025
2026
2027
2028
GOAL
Good
Fair
Poor
Projected Good
Projected Fair
Projected Poor
Trendline GF
Linear (Trendline GF)
Linear (Trendline FP)

A summary of Lapeer CRC historical and current network conditions, projected trend and goal for the unpaved road network can be seen in the figure, below:



An asset management plan is required by Michigan Public Act 325 of 2018, and this document represents fulfillment of some of Lapeer CRC's obligations towards meeting these requirements. This asset management plan also helps demonstrate Lapeer CRC's responsible use of public funds by providing elected and appointed officials as well as the general public with inventory and condition information of Lapeer CRC's Road assets, and gives taxpayers the information they need to make informed decisions about investing in its essential transportation infrastructure.

INTRODUCTION

Asset management is defined by Public Act 325 of 2018 as "an 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". In other words, asset management is a process that uses data to manage and track assets, like roads and bridges, in a cost-effective manner using a combination of engineering and business principles. This process is endorsed by leaders in municipal planning and transportation infrastructure, including the Michigan Municipal League, County Road Association of Michigan, the Michigan Department of Transportation (MDOT), and the Federal Highway Administration (FHWA). Lapeer CRC is supported in its use of asset management principles and processes by the Michigan Transportation Asset Management Council (TAMC), formed by the State of Michigan.

Asset management, in the context of this plan, ensures that public funds are spent as effectively as possible to maximize the condition of the road network. Asset management also provides a transparent decision-making process that allows the public to understand the technical and financial challenges of managing road infrastructure with a limited budget.

The Lapeer County Road Commission (Lapeer CRC) has adopted an "asset management" business process to overcome the challenges presented by having limited financial, staffing, and other resources while needing to meet road users' expectations. Lapeer CRC is responsible for maintaining and operating over 1300.34 centerline of roads.

This plan outlines how Lapeer CRC determines its strategy to maintain and upgrade road asset condition given agency goals, priorities of its road users, and resources provided. An updated plan is to be released approximately every three years to reflect changes in road conditions, finances, and priorities.

Questions regarding the use or content of this plan should be directed to Destain Gingell, PE, Managing Director at 820 Davis Lake Road, Lapeer, Michigan 48446 or at Phone (810) 664-6272 or Email dgingell@lapeercrc.org. Copies of the plan are found on the Lapeer CRC website at the following address: www.lcrconline.com/resources/assetplans/

Key terms used in this plan are defined in Lapeer CRC's comprehensive transportation asset management plan (also known as the "compliance plan") used for compliance with PA 325 or 2018.

Knowing the basic features of the asset classes themselves is a crucial starting point to understanding the rationale behind an asset management approach. The following primer provides an introduction to pavements.

Pavement Primer

Roads come in two basic forms—paved and unpaved. Paved roads have hard surfaces. These hard surfaces can be constructed from asphalt, concrete, composite (asphalt and concrete), sealcoat, and brick and block materials. On the other hand, unpaved roads have no hard surfaces. Examples of these surfaces are gravel and unimproved earth.

The decision to pave with a particular material as well as the decision to leave a road unpaved allows road-owning agencies to tailor a road to a particular purpose, environment, and budget. Thus, selecting a pavement type or leaving a road unpaved depends upon purpose, materials available, and budget. Each choice represents a trade-off between budget and costs for construction and maintenance.

Maintenance enables the road to fulfill its particular purpose. To achieve the maximum service for a pavement or an unpaved road, continual monitoring of a road's pavement condition is essential for choosing the right time to apply the right fix in the right place.

Here is a brief overview of the different types of pavements, how condition is assessed, and treatment options that can lengthen a road's service life.

Surfacing

Pavement type is influenced by several different factors, such as cost of construction, cost of maintenance, frequency of maintenance, and type of maintenance. These factors can have benefits affecting asset life and road user experience.

Paved Surfacing

Typical benefits and tradeoffs for hard surface types include:

- **Concrete pavement:** Concrete pavement, which is sometimes called a rigid pavement, is durable and lasts a long time when properly constructed and maintained. Concrete pavement can have longer service periods between maintenance activities, which can help reduce maintenance-related traffic disruptions. However, concrete pavements have a high initial cost and can be challenging to rehabilitate and maintain at the end of their service life. A typical concrete pavement design life will provide service for 30 years before major rehabilitation is necessary.
- **Hot-mix asphalt pavement (HMA):** HMA pavement, sometimes known as asphalt or flexible pavement, is currently less expensive to construct than concrete pavement (this is, in some part, due to the closer link between HMA material costs and oil prices that HMA pavements have in comparison with other pavement types). However, they require frequent maintenance activities to

maximize their service life. A typical HMA pavement design life will provide service for 18 years before major rehabilitation is necessary. The vast majority of local-agency-owned pavements are HMA pavements.

- **Composite pavements:** Composite pavement is a combination of concrete and asphalt layers. Typically, composite pavements are old concrete pavements exhibiting ride-related issues that were overlaid by several inches of HMA in order to gain more service life from the pavement before it would need reconstruction. Converting a concrete pavement to a composite pavement is typically used as a "holding pattern" treatment to maintain the road in usable condition until reconstruction funds become available.

- **Sealcoat pavement:** Sealcoat pavement is a gravel road that have been sealed with a thin asphalt binder coating that has stone chips spread on top (not to be confused with a chip seal treatment over HMA pavement). This type of a pavement relies on the gravel layer to provide structure to support traffic, and the asphalt binder coating and stone chips shed water and eliminate the need for maintenance grading. Nonetheless, sealcoat pavement does require additional maintenance steps that asphalt and gravel do not require and does not last as long as HMA pavement, but it provides a low-cost alternative for lightly-trafficked areas and competes with asphalt for ride quality when properly constructed and maintained. Sealcoat pavement can provide service for ten or more years before the surface layer deteriorates and needs to be replaced.

Unpaved Surfacing

Typical benefits and tradeoffs for non-hard surfacing include:

- **Gravel:** Gravel is a low-cost, easy-to-maintain road surface made from layers of soil and aggregate (gravel). However, there are several potential drawbacks such as dust, mud, and ride smoothness when maintenance is delayed or traffic volume exceeds design expectations. Gravel roads require frequent low-cost maintenance activities. Gravel can be very cost effective for lower-volume, lower-speed roads. In the right conditions, a properly constructed and maintained gravel road can provide a service life comparable to an HMA pavement and can be significantly less expensive than the other pavement types.

Pavement Condition

Besides traffic congestion, pavement condition is what road users typically notice most about the quality of the roads that they regularly use—the better the pavement condition, the more satisfied users are with the service provided by the roadwork performed by road-owning agencies. Pavement condition is also a major factor in determining the most cost-effective treatment—that is, routine maintenance, capital preventive maintenance, or structural improvement—for a given section of pavement. As pavements age, they transition between "windows" of opportunity when a specific type of treatment can be applied to gain an increase in quality and extension of service life. Routine maintenance is day-to-day, regularly-scheduled, low-cost activity applied to "good" roads to prevent water or debris intrusion. Capital preventive maintenance (CPM) is a planned set of cost-effective treatments for "fair" roads that corrects pavement defects, slows further deterioration, and maintains the functional condition without increasing

structural capacity. Lapeer CRC uses pavement condition and age to anticipate when a specific section of pavement will be a potential candidate for preventive maintenance. More detail on this topic is included in the *Pavement Treatment* section of this primer.

Pavement condition data is also important because it allows road owners to evaluate the benefits of preventive maintenance projects. This data helps road owners to identify the most cost-effective use of road construction and maintenance dollars. Further, historic pavement condition data can enable road owners to predict future road conditions based on budget constraints and to determine if a road network's condition will improve, stay the same, or degrade at the current or planned investment level. This analysis can help determine how much additional funding is necessary to meet a network's condition improvement goals.

Paved Road Condition Rating System

Lapeer CRC is committed to monitoring the condition of its road network and using pavement condition data to drive cost-effective decision-making and preservation of valuable road assets. Lapeer CRC uses the Pavement Surface Evaluation and Rating (PASER) system to assess its paved roads. PASER was developed by the University of Wisconsin Transportation Information Center to provide a simple, efficient, and consistent method for evaluating road condition through visual inspection. The widely-used PASER system has specific criteria for assessing asphalt, concrete, sealcoat, and brick and block pavements. Information regarding the PASER system and PASER manuals may be found on the TAMC website at: http://www.michigan.gov/tamc/0,7308,7-356-82158_82627---,00.html.

The TAMC has adopted the PASER system for measuring statewide pavement conditions in Michigan for asphalt, concrete, composite, sealcoat, and brick-and-block paved roads. Broad use of the PASER system means that data collected at Lapeer CRC is consistent with data collected statewide. PASER data is collected using trained inspectors in a slow-moving vehicle using GPS-enabled data collection software provided to road-owning agencies at no cost to them. The method does not require extensive training or specialized equipment, and data can be collected rapidly, which minimizes the expense for collecting and maintaining this data.

The PASER system rates surface condition using a 1-10 scale where 10 is a brand-new road with no defects that can be treated with routine maintenance, 5 is a road with distresses but is structurally sound that can be treated with preventive maintenance, and 1 is a road with extensive surface and structural distresses that is in need of total reconstruction.

Roads with lower PASER scores generally require costlier treatments to restore their quality than roads with higher PASER scores. The cost effectiveness of treatments generally decreases the as the PASER number decreases. In other words, as a road deteriorates, it costs more dollars per mile to fix it, and the dollars spent are less efficient in increasing the road's service life. Nationwide experience and asset management principles tell us that a road that has deteriorated to a PASER 4 or less will cost more to improve and the dollars spent are less efficient. Understanding this cost principle helps to draw meaning from the current PASER condition assessment.

The TAMC has developed statewide definitions of road condition by creating three simplified condition categories— "good", "fair", and "poor"—that represent bin ranges of PASER scores having similar contexts with regard to maintenance and/or reconstruction. The definitions of these rating conditions are:

- "Good" roads, according to the TAMC, have PASER scores of 8, 9, or 10. Roads in this category have very few, if any, defects and only require minimal maintenance; they may be kept in this category longer using PPM. These roads may include those that have been recently seal coated or newly constructed. Figure 1 illustrates an example of a road in this category.
- "Fair" roads, according to the TAMC, have PASER scores of 5, 6, or 7. Roads in this category still show good structural support, but their surface is starting to deteriorate. Figure 1 illustrates two road examples in this category. CPM can be cost effective for maintaining the road's "fair" condition or even raising it to "good" condition before the structural integrity of the pavement has been severely impacted. CPM treatments can be likened to shingles on a roof of a house: while the shingles add no structural value, they protect the house from structural damage by maintaining the protective function of a roof covering.
- "Poor" roads, according to the TAMC, have PASER scores of 1, 2, 3, or 4. These roads exhibit evidence that the underlying structure is failing, such as alligator cracking and rutting. These roads must be rehabilitated with treatments like a heavy overlay, crush and shape, or total reconstruction. Figure 1 illustrates a road in this category.

Figure 1: *Top image, right*– PASER 8 road that is considered "good" by the TAMC exhibit only minor defects. *Second image, right*– PASER 5 road that is considered "fair" by the TAMC. Exhibiting structural soundness but could benefit from CPM. *Third image, right*– PASER 6 road that is considered "fair" by the TAMC. *Bottom image, right*– PASER 2 road that is considered "poor" by the TAMC exhibiting significant structural distress.

The TAMC's good, fair, and poor categories are based solely on the definitions, above. Therefore, caution should be exercised when comparing other condition assessments with these categories because other

condition assessments may have “good”, “fair”, or “poor” designations similar to the TAMC condition categories but may not share the same definition. Often, other condition assessment systems define the “good”, “fair”, and “poor” categories differently, thus rendering the data of little use for cross-system comparison. The TAMC’s definitions provide a statewide standard for all of Michigan’s road-owning agencies to use for comparison purposes.

PASER data is collected 100 percent every two years on all federal-aid-eligible roads in Michigan. The TAMC dictates and funds the required training and the format for this collection, and it shares the data regionally and statewide. In addition, Lapeer CRC collects one-hundred (100%) percent of its paved non-federal-aid-eligible network using its own staff and resources every two years, during odd years.

Unpaved Road Condition Rating System (IBR System™)

The condition of unpaved roads can be rapidly changing, which makes it difficult to obtain a consistent surface condition rating over the course of weeks or even days. The PASER system works well on most paved roads, which have a relatively-stable surface condition over several months, but it is difficult to adapt to unpaved roads. To address the need for a reliable condition assessment system for unpaved roads, the TAMC adopted the Inventory Based Rating (IBR) System™, and Lapeer CRC also uses the IBR System™ for rating its unpaved roads. Information about the IBR System™ can be found at http://ctt.mtu.edu/inventory-based-rating-system.

Figure 2: *Top*– Road with IBR number of 1 road that has poor surface width, poor drainage adequacy, and poor structural adequacy. *Middle*– Road IBR number of 7 that has fair surface width, fair drainage adequacy, and fair structural adequacy. *Bottom*– Road with IBR number of 9 road that has good surface width, good drainage adequacy, and good structural adequacy.

The IBR System™ gathers reliable condition assessment data for unpaved road by evaluating three features—surface width, drainage adequacy, and structural adequacy—in comparison to a baseline, or generally considered “good”, road. These three assessments come together to generate an overall 1-10 IBR number. A high IBR number reflects a road with wide surface width, good drainage, and a well-designed and well-constructed base, whereas a low IBR number reflects a narrow road with no ditches and little gravel. A good, fair, or poor assessment of each feature is not an endorsement or indictment of a road’s suitability for use but simply provides context on how these road elements compare to a baseline condition.

Figure 2 illustrates the range over which features may be assessed. The top example in Figure 2 shows an unpaved road with a narrow surface width, little or no drainage, and very little gravel thickness. Using the IBR System™, these assessments would yield an IBR number of “1” for this road. The middle example in Figure 2 shows a

road with fair surface width, fair drainage adequacy, and fair structural adequacy. These assessments would yield an IBR number of "7" for this road. The bottom example in Figure 2 shows a road with good surface width, good drainage adequacy, and good structural adequacy. These assessments would yield an IBR number of "9" for this road.

Unpaved roads are constructed and used differently throughout Michigan. A narrow, unpaved road with no ditches and very little gravel (low IBR number) may be perfectly acceptable in a short, terminal end of the road network, for example, on a road segment that ends at a lake or serves a limited number of unoccupied private properties. However, high-volume unpaved roads that serve agricultural or other industrial activities with heavy trucks and equipment will require wide surface width, good drainage, and a well-designed and well-constructed base structure (high IBR number). Where the unpaved road is and how it is used determines how the road must be constructed and maintained: just because a road has a low IBR number does not necessarily mean that it needs to be upgraded. The IBR number are not an endorsement or indictment of the road's suitability for use but rather, an indication of a road's capabilities to support different traffic volumes and types in all weather.

Pavement Treatments

Selection of repair treatments for roads aims to balance costs, benefits, and road life expectancy. All pavements are damaged by water, traffic weight, freeze/thaw cycles, and sunlight. Each of the following treatments and strategies—reconstruction, structural improvements, capital preventive maintenance, and others used by Lapeer CRC—counters at least one of these pavement-damaging forces.

Reconstruction

Pavement reconstruction treats failing or failed pavements by completely removing the old pavement and base and constructing an entirely new road (Figure 3). Every pavement has to eventually be reconstructed and it is usually done as a last resort after more cost-effective treatments are done, or if the road requires significant changes to road geometry, base, or buried utilities. Compared to the other treatments, which are all improvements of the existing road, reconstruction is the most extensive rehabilitation of the roadway and therefore, also the most expensive per mile and most disruptive to regular traffic patterns. Reconstructed pavement will subsequently require one or more of the previous maintenance treatments to maximize service life and performance. A reconstructed road lasts approximately 20 years and costs

Figure 3: Examples of reconstruction treatments—(left) reconstructing a road and (right) road prepared for full-depth repair.

$450,000 per lane mile. The following descriptions outline the main reconstruction treatments used by Lapeer CRC.

Full-depth Concrete Repair

A full-depth concrete repair removes sections of damaged concrete pavement and replaces it with new concrete of the same dimensions (Figure 3). It is usually performed on isolated deteriorated joint locations or entire slabs that are much further deteriorated than adjacent slabs. The purpose is to restore the riding surface, delay water infiltration, restore load transfer from one slab to the next, and eliminate the need to perform costly temporary patching. This repair lasts approximately twelve years and typically costs $150,000 per mile.

Ditching (for Unpaved Roads)

Water needs to drain away from any roadway to delay softening of the pavement structure, and proper drainage is critical for unpaved roads where there is no hard surface on top to stop water infiltration into the road surface and base. To improve drainage, new ditches are dug or old ones are cleaned out. Unpaved roads typically need to be re-ditched every 15 years at a cost of $50,000 per mile.

Gravel Overlay (for Unpaved Roads)

Unpaved roads will exhibit gravel loss over time due to traffic, wind, and rain. Gravel on an unpaved road provides a wear surface and contributes to the structure of the entire road. Unpaved roads typically need to be overlaid with four inches of new gravel every 15 years at a cost of $50,000 per mile.

Structural Improvement

Roads requiring structural improvements exhibit alligator cracking and rutting and rated poor in the TAMC scale. Road rutting is evidence that the underlying structure is beginning to fail and it must be either rehabilitated with a structural treatment. Examples of structural improvement treatments include HMA overlay with or without milling, and crush and shape (Figure 4). The following descriptions outline the main structural improvement treatments used by Lapeer CRC.

Figure 4: Examples of structural improvement treatments— (from left) HMA overlay on an unmilled pavement, milling asphalt pavement, and pulverization of a road during a crush-and-shape project.

Hot-mix Asphalt (HMA) Overlay with/without Milling

An HMA overlay is a layer of new asphalt (liquid asphalt and stones) placed on an existing pavement (Figure 4). Depending on the overlay thickness, this treatment can add significant structural strength. This

treatment also creates a new wearing surface for traffic and seals the pavement from water, debris, and sunlight damage. An HMA overlay lasts approximately twelve years and costs $150,000 per lane mile. The top layer of severely damaged pavement can be removed by the milling, a technique that helps prevent structural problems from being quickly reflected up to the new surface. Milling is also done to keep roads at the same height of curb and gutter that is not being raised or reinstalled in the project. Milling adds $10,000 per lane mile to the HMA overlay cost.

Crush and Shape

During a crush and shape treatment, the existing pavement and base are pulverized and then the road surface is reshaped to correct imperfections in the road's profile (Figure 4). An additional layer of gravel is often added along with a new wearing surface such as an HMA overlay or chip seal. Additional gravel and an HMA overlay give an increase in the pavement's structural capacity. This treatment is usually done on rural roads with severe structural distress; Adding gravel and a wearing surface makes it more prohibitive for urban roads if the curb and gutter is not raised up. Crush and shape treatments last approximately 18 years and cost $300,000 per lane mile.

Capital Preventive Maintenance

Capital preventive maintenance (CPM) addresses pavement problems of fair-rated roads before the structural integrity of the pavement has been severely impacted. CPM is a planned set of cost-effective treatments applied to an existing roadway that slows further deterioration and that maintains or improves the functional condition of the system without significantly increasing the structural capacity. Examples of such treatments include crack seal, fog seal, chip seal, slurry seal, and microsurface (Figure 5). The purpose of the following CPM treatments is to protect the pavement structure, slow the rate of deterioration, and/or correct pavement surface deficiencies. The following descriptions outline the main CPM treatments used by Lapeer CRC.

Figure 5: Examples of capital preventive maintenance treatments— (from left) crack seal, fog seal, chip seal, and slurry seal/microsurface.

Crack Seal

Water that infiltrates the pavement surface softens the pavement structure and allows traffic loads to cause more damage to the pavement than in normal dry conditions. Crack sealing helps prevent water infiltration by sealing cracks in the pavement with asphalt sealant (Figure 5). Lapeer CRC seals pavement cracks early in the life of the pavement to keep it functioning as strong as it can and for as long as it can.

Crack sealing lasts approximately two years and costs $4,000 per lane mile. Even though it does not last very long compared to other treatments, it does not cost very much compared to other treatments. This makes it a very cost -effective treatment when Lapeer CRC looks at what crack filling costs per year of the treatment's life.

Fog Seal

Fog sealing sprays a liquid asphalt coating onto the entire pavement surface to fill hairline cracks and prevent damage from sunlight (Figure 5). Fog seals are best for good to very good pavements and last approximately two years at a cost of $15,000 per lane mile.

Chip Seal

A chip seal, also known as a sealcoat, is a two-part treatment that starts with liquid asphalt sprayed onto the old pavement surface followed by a single layer of small stone chips spread onto the wet liquid asphalt layer (Figure 5). The liquid asphalt seals the pavement from water and debris and holds the stone chips in place, providing a new wearing surface for traffic that can correct friction problems and helping to prevent further surface deterioration. Chip seals are best applied to pavements that are not exhibiting problems with strength, and their purpose is to help preserve that strength. These treatments last approximately eight years and cost $20,000 per lane mile.

Slurry Seal / Microsurface

A slurry seal or microsurface's purpose is to protect existing pavement from being damaged by water and sunlight. The primary ingredients are liquid asphalt (slurry seal) or modified liquid asphalt (microsurface), small stones, water and portland cement applied in a very thin (less than a half an inch) layer (Figure 5). The main difference between a slurry seal and a microsurface is the modified liquid asphalt used in microsurfacing provides different curing and durability properties, which allows microsurfacing to be used for filling pavement ruts. Since the application is very thin, these treatments do not add any strength to the pavement and only serves to protect the pavement's existing strength by sealing the pavement from sunlight and water damage. These treatments work best when applied before cracks are too wide and too numerous. A slurry seal treatment lasts approximately four years and costs $30,000 per lane mile, while a microsurface treatment tends to last for seven years and costs $35,000 per lane mile.

Partial-Depth Concrete Repair

A partial-depth concrete repair involves removing spalled (i.e., fragmented) or delaminated (i.e., separated into layers) areas of concrete pavement, usually near joints and cracks and replacing with new concrete (Figure 6). This is done to provide a new wearing surface in isolated areas, to slow down water infiltration, and to help delay further freeze/thaw damage. This repair lasts approximately five years and typically costs $20,000 per mile.

Maintenance Grading (for Unpaved Roads)

Maintenance grading involves regrading an unpaved road to remove isolated potholes, washboarding, and ruts then restoring the compacted crust layer (Figure 6). Crust on an unpaved road is a very tightly compacted surface that sheds water with ease but takes time to be created, so destroying a crusted surface with maintenance grading requires a plan to restore the crust. Maintenance grading often needs to be performed three to five times per year and each grading costs $500 per mile.

Dust Control (for Unpaved Roads)

Dust control typically involves spraying chloride or other chemicals on a gravel surface to reduce dust loss, aggregate loss, and maintenance (Figure 6). This is a relatively short-term fix that helps create a crusted surface. Chlorides work by attracting moisture from the air and existing gravel. This fix is not effective if the surface is too dry or heavy rain is imminent, so timing is very important. Dust control is done two to four times per year and each application costs $500 per mile.

Figure 6: Examples of capital preventive maintenance treatments, cont'd— (from left) concrete road prepared for partial-depth repair, gravel road undergoing maintenance grading, and gravel road receiving dust control application (dust control photo courtesy of Weld County, Colorado, weldgov.com).

Maintenance

Maintenance is the most cost-effective strategy for managing road infrastructure and prevents good and fair roads from reaching the poor category, which require costly rehabilitation and reconstruction treatments to create a year of service life. It is most effective to spend money on routine maintenance and CPM treatments, first; then, when all maintenance project candidates are treated, reconstruction and rehabilitation can be performed as money is available. This strategy is called a "mix-of-fixes" approach to managing pavements.

1. PAVEMENT ASSETS

Building a mile of new road can cost over $1 million due to the large volume of materials and equipment that are necessary. The high cost of constructing road assets underlines the critical nature of properly managing and maintaining the investments made in this vital infrastructure. The specific needs of every mile of road within an agency's overall road network is a complex assessment, especially when considering rapidly changing conditions and the varying requisites of road users; understanding each road-mile's needs is an essential duty of the road-owning agency.

In Michigan, many different governmental units (or agencies) own and maintain roads, so it can be difficult for the public to understand who is responsible for items such as planning and funding construction projects, [patching] repairs, traffic control, safety, and winter maintenance for any given road. MDOT is responsible for state trunkline roads, which are typically named with "M", "I", or "US" designations regardless of their geographic location in Michigan. Cities and villages are typically responsible for all public roads within their geographic boundary with the exception of the previously mentioned state trunkline roads managed by MDOT. County road commissions (or departments) are typically responsible for all public roads within the county's geographic boundary, with the exception of those managed by cities, villages, and MDOT.

In cases where non-trunkline roads fall along jurisdictional borders, local and intergovernmental agreements dictate ownership and maintenance responsibility. Quite frequently, roads owned by one agency may be maintained by another agency because of geographic features that make it more cost effective for a neighboring agency to maintain the road instead of the actual road owner. Other times, road-owning agencies may mutually agree to coordinate maintenance activities in order to create economies of scale and take advantage of those efficiencies.

The Lapeer CRC is responsible for a total of 1300.34 centerline of public roads, as shown in Figure 7.

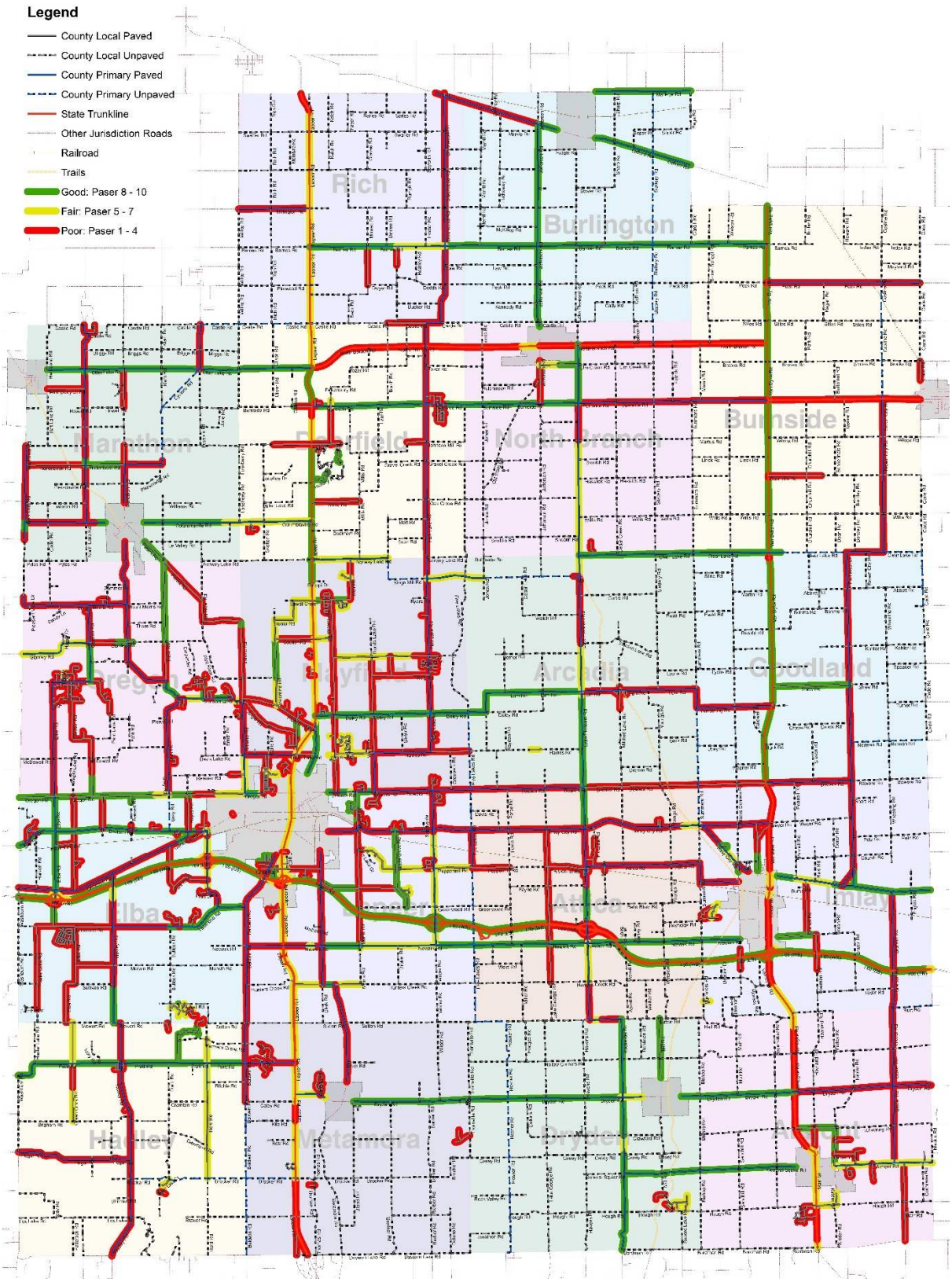


Figure 7: Map showing location of Lapeer CRC's paved roads (i.e., those managed by Lapeer CRC) and their current condition for paved roads with green for good (i.e., PASER 10, 9, 8), yellow for fair (i.e., PASER 7, 6, 5), and red for poor (i.e., PASER 4, 3, 2, 1), as well as the location of Lapeer CRC's unpaved roads in blue

Inventory

Michigan Public Act 51 of 1951 (PA 51), which defines how funds from the Michigan Transportation Fund (MTF) are distributed to and spent by road-owning agencies, classifies roads owned by Lapeer CRC as either county primary or county local roads. State statute prioritizes expenditures on the county primary road network.

Of the 1300.34 centerline of public roads owned and/or managed by Lapeer CRC, approximately 82% of all County Primary roads are classified as federal aid eligible, which allows them to receive federal funding for their maintenance and construction. Only 1% of County Local roads are considered federal aid eligible, which means state and local funds must be used to manage these roads.

Figure 8 illustrates the percentage of roads owned by Lapeer CRC that are classified as county primary and county local roads.

Figure 9 illustrates this breakdown of these road networks by township boundary within Lapeer CRC's jurisdiction.

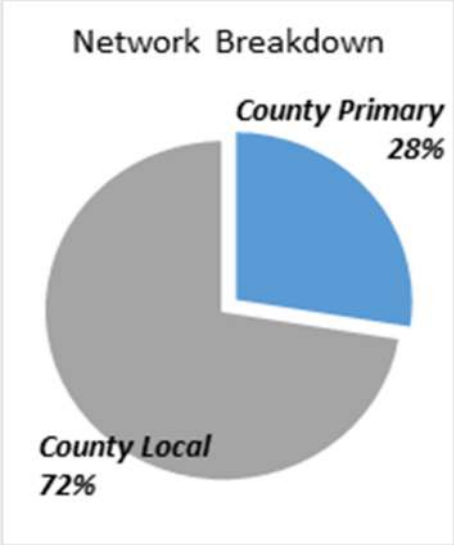


Figure 8: Percentage of county primary and county local roads for Lapeer CRC.

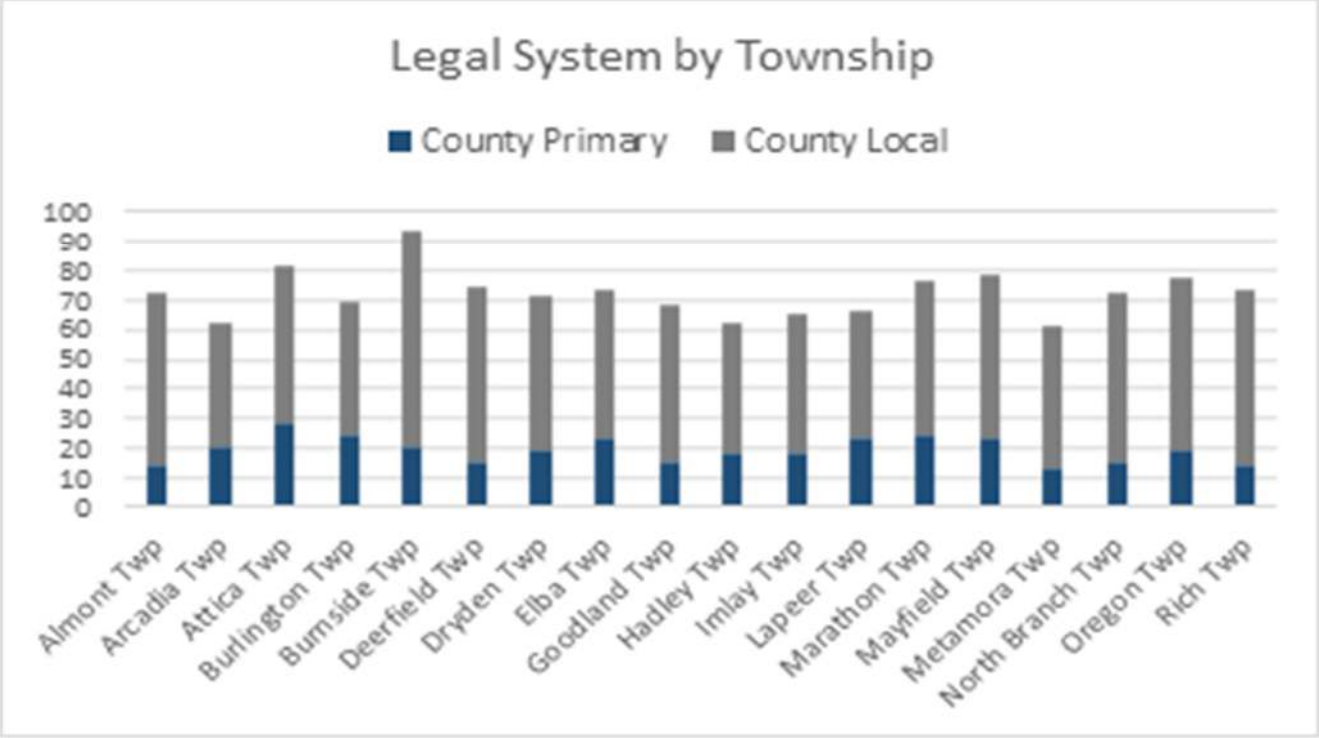


Figure 9: county primary and county local roads by township for Lapeer CRC's jurisdiction.

Lapeer CRC manages 0 miles of roads that are part of the National Highway System (NHS)—in other words, those roads that are critical to the nation's economy, defense, and mobility—and monitors and maintains their condition. The NHS is subject to special rules and regulations and has its own performance metrics dictated by the FHWA. While most NHS roads in Michigan are managed by MDOT, Lapeer CRC manages a percentage of those roads located in its jurisdiction, as shown in Figure 10.

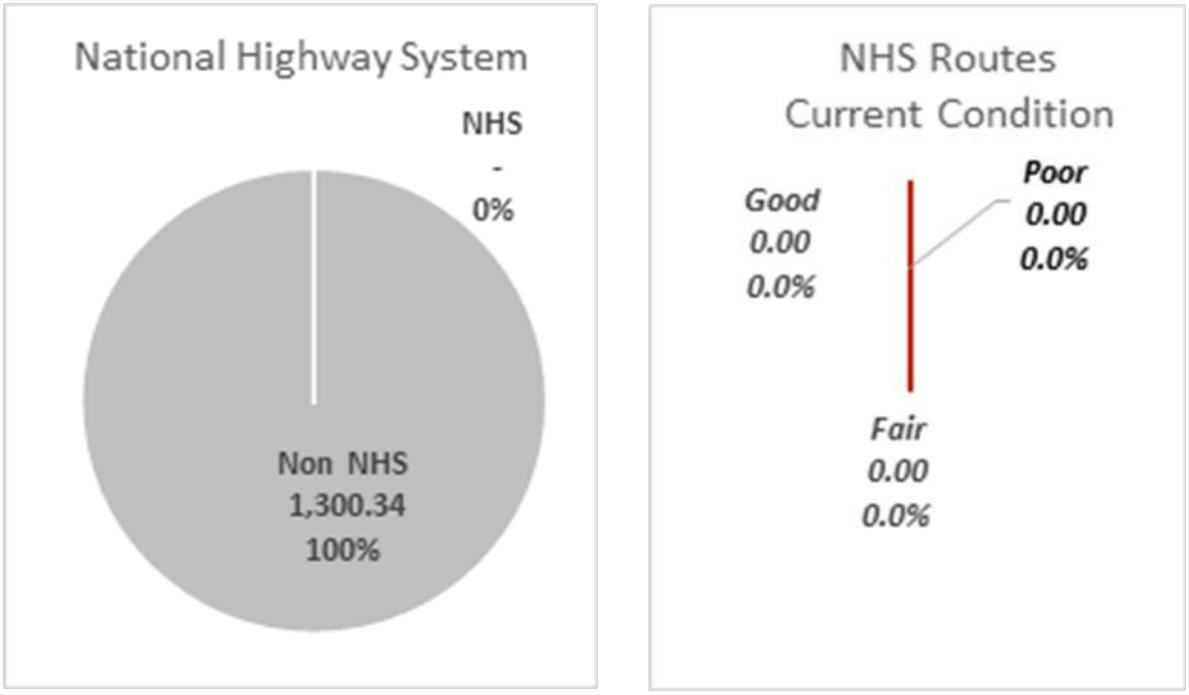


Figure 10: Miles of roads managed by Lapeer CRC that are part of the National Highway System and condition.

Lapeer CRC also owns and manages 798.842 miles of unpaved roads.

Types

Lapeer CRC has multiple types of pavements in its jurisdiction, including: asphalt, concrete; it also has unpaved roads (i.e., gravel and/or earth). Factors influencing pavement type include cost of construction, cost of maintenance, frequency of maintenance, type of maintenance, asset life, and road user experience. More information on pavement types is available in the Introduction's Pavement Primer.

Figure 11 illustrates the percentage of various pavement types that Lapeer CRC has in its network. Figure 12 shows the pavement type by Township boundary for Lapeer CRC's jurisdiction.

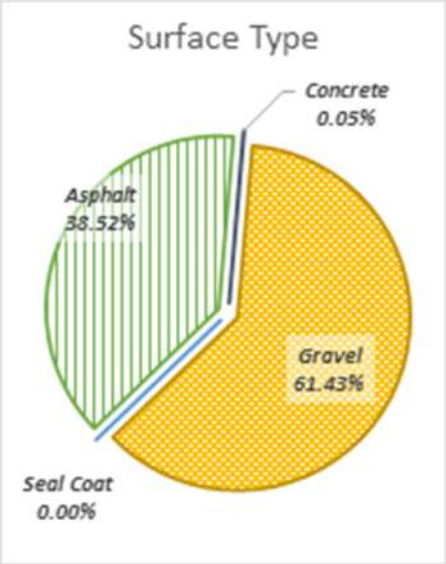


Figure 11: Pavement type by percentage maintained by Lapeer CRC Undefined pavements have not been inventoried in Lapeer CRC's asset management system to date, but will be included as data becomes available.

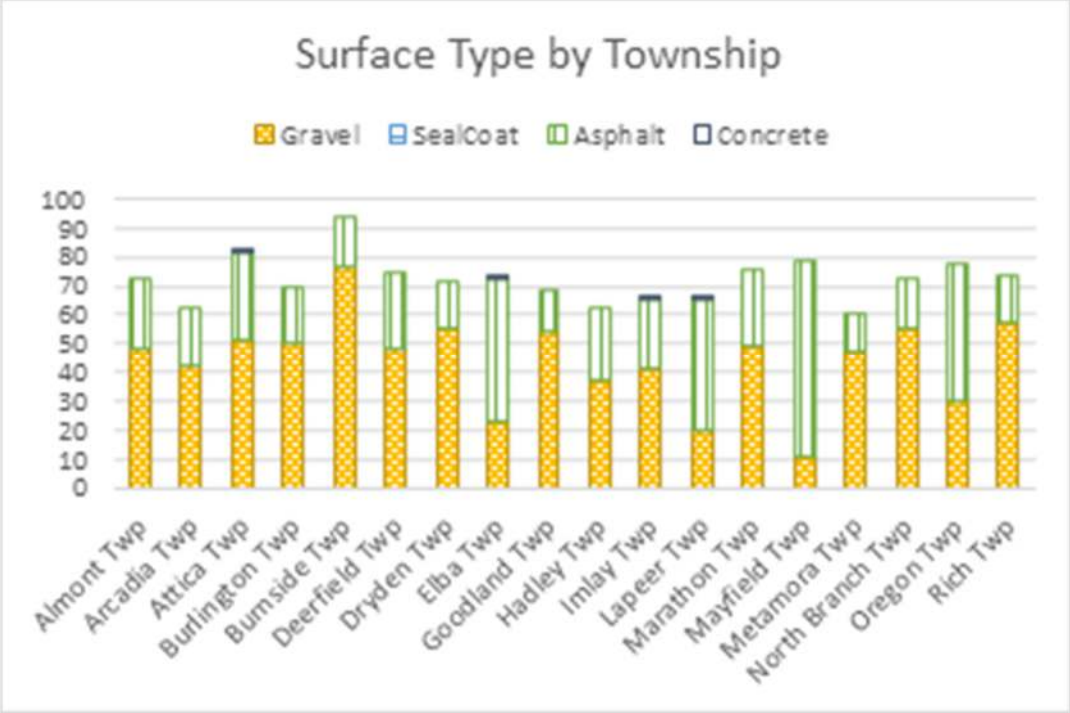


Figure 12: Pavement type by township within Lapeer CRC's jurisdiction. Undefined pavements have not been inventoried in Lapeer CRC's asset management system to date, but will be included as data becomes available.

Locations

Locations and sizes of each asset can be found in Lapeer CRC's Roadsoft database or on the Lapeer CRC's Paser Rating dashboard at https://www.lcrconline.com/resources/paser-maps/. For more detail, please refer to the agency contact listed in the *Introduction* of this pavement asset management plan.

Condition

The road characteristic that road users most readily notice is pavement condition. Pavement condition is a major factor in determining the most cost-effective treatment—that is, routine maintenance, capital preventive maintenance, or structural improvement—for a given section of pavement. Lapeer CRC uses pavement condition and age to anticipate when a specific section of pavement will be a potential candidate for preventive maintenance. Pavement condition data enables Lapeer CRC to evaluate the benefits of preventive maintenance projects and to identify the most cost-effective use of road construction and maintenance dollars. Historic pavement condition data can be used to predict future road conditions based on budget constraints and to determine if a road network's condition will improve, stay the same, or degrade at the current or planned investment level. This analysis helps to determine how much additional funding is necessary to meet a network's condition improvement goals. More detail on this topic is included in the Introduction's *Pavement Primer*.

Paved Roads

Lapeer CRC is committed to monitoring the condition of its road network and using pavement condition data to drive cost-effective decision-making and preservation of valuable road assets. Lapeer CRC uses the Pavement Surface Evaluation and Rating (PASER) system, which has been adopted by the TAMC for measuring statewide pavement conditions, to assess its paved roads. The PASER system provides a simple, efficient, and consistent method for evaluating road condition through visual inspection. More information regarding the PASER system can be found in the Introduction's Pavement Primer.

Lapeer CRC collects 100 percent of its PASER data every two years on all federal-aid-eligible roads in Michigan. In addition, Lapeer CRC collects one hundred (100%) percent of its paved non-federal-aid-eligible network using its own staff and resources every two years during odd years.

Lapeer CRC's 2025 paved county primary road network has 36.9% of roads in the TAMC good condition category, 10.5% in fair, and 52.6% in poor (Figure 13A). The paved county local road network has 15.1% in good, 13.4% in fair, and 71.5% in poor (Figure 13B).

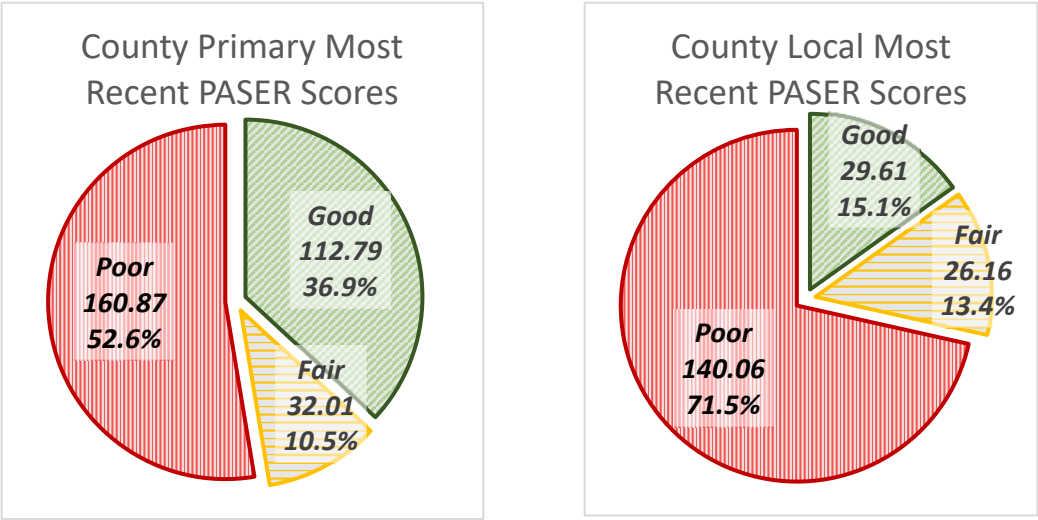


Figure 13: (A) Left: Lapeer CRC paved county primary road network conditions by percentage of good, fair, or poor, and (B) Right: paved county local road network conditions by percentage of good, fair, or poor

In comparison, the statewide paved county primary road network has 28 percent of roads in the TAMC good condition category, 40 percent in fair, and 32 percent in poor (Figure 14A). The statewide paved county local road network has 21 percent in good, 37 percent in fair, and 42 percent in poor (Figure 14B).

Figures 13A and 14A show that Lapeer CRC's paved county primary road network is in significantly worse condition than comparable roads statewide. Currently, 52.6% of Lapeer's paved primary roads are rated poor, compared to 32% statewide. As outlined in the Gap Analysis later in this report, this gap will be very difficult to close without additional funding.

Similarly, Figures 13B and 14B show that Lapeer CRC's paved county local road network is also performing below statewide averages, with 71.5% of roads rated poor, compared to 42% statewide. Addressing these poor-rated local roads will be especially challenging, since repairs at this stage are far more costly per mile than preventative maintenance.

Other road condition graphs can be viewed on the TAMC pavement condition dashboard at: http://www.mcgi.state.mi.us/mitrp/Data/PaserDashboard.aspx.

Figure 14: (A) Left: Statewide paved county primary road network conditions by percentage of good, fair, or poor, and (B) Right: paved county local road network conditions by percentage of good, fair, or poor

The increase in the number of roadways classified as Poor, compared to statewide results, can be attributed in part to the historical emphasis on roadway reconstruction rather than preventative maintenance. Reconstruction efforts were not able to keep pace with the rate of deterioration among roadways in Fair condition. Compounding this issue, construction costs have risen significantly due to inflation, while funding levels have remained relatively constant—creating a growing gap in the miles of roadway being addressed each year. In addition, Lapeer County has experienced a substantial increase in traffic volumes over the past decade. Urban development extending north from the Greater Detroit area has brought heavier commercial traffic to the region, accelerating roadway deterioration and contributing to declining pavement condition ratings.

Figure 15 and Figure 16 show the number of miles for Lapeer CRC's roads with PASER scores expressed in TAMC definition categories for the paved county primary road network (Figure 15) and the paved county local road network (Figure 16). Lapeer CRC considers road miles on the transition line between good and fair (PASER 8) and the transition line between fair and poor (PASER 5) as representing parts of the road network where there is a risk of losing the opportunity to apply less expensive treatments that gain significant improvements in service life.

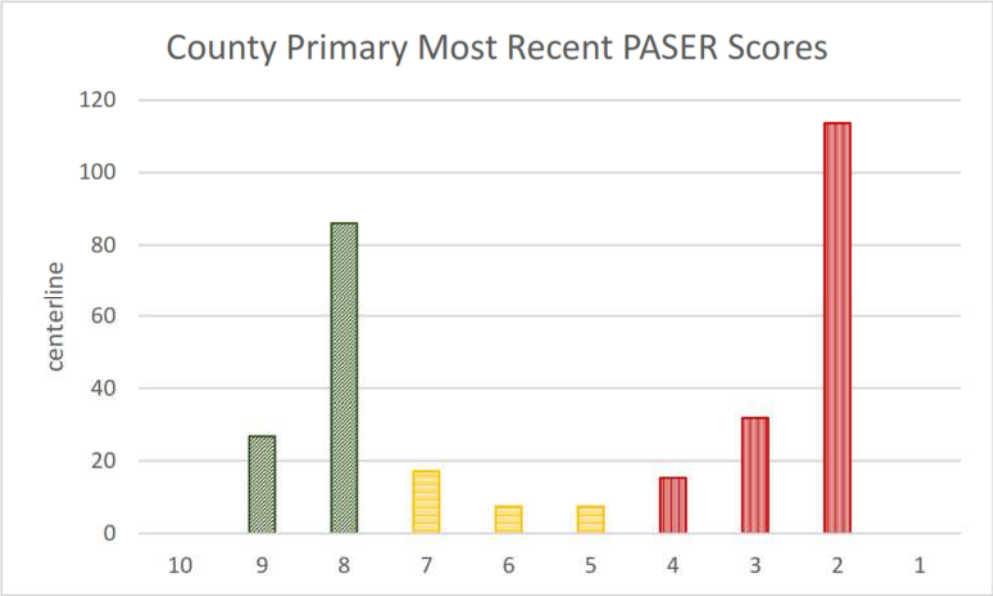


Figure 15: Lapeer CRC paved county primary road network conditions. Bar graph colors correspond to good/fair/poor TAMC designations.

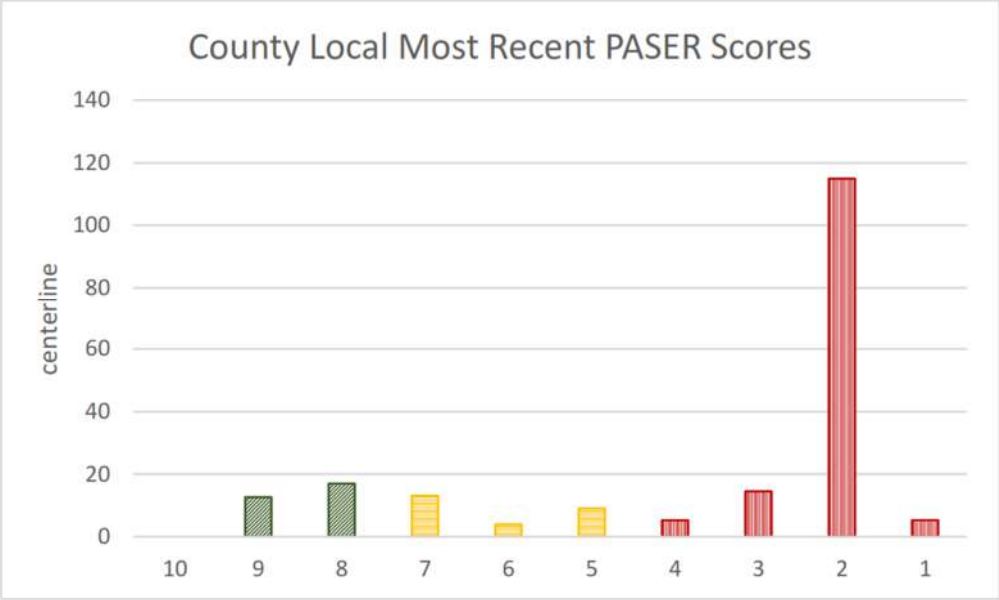


Figure 16: Lapeer CRC paved county local network condition by PASER rating. Bar graph colors correspond to good/fair/poor TAMC designations.

Figure 17 illustrates Lapeer CRC's entire paved road network divided by township into the TAMC good/fair/poor designations.

Figure 18 provides a map illustrating the geographic location of paved roads and their respective PASER condition. An online version of the most recent PASER data is located at https://www.mcgi.state.mi.us/tamcMap/.

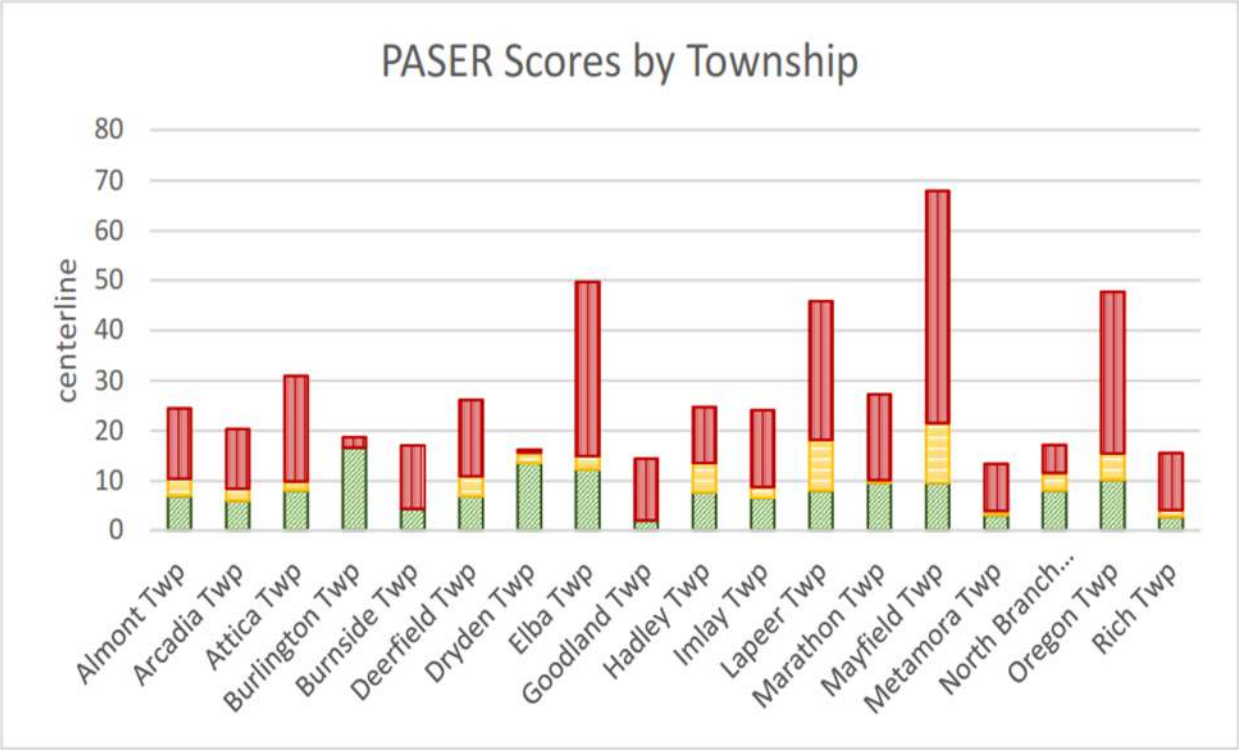


Figure 17: Number of miles of paved road in each township divided in categories of good (PASER 10, 9, 8), fair (PASER 7, 6, 5), and poor (PASER 4, 3, 2, 1).

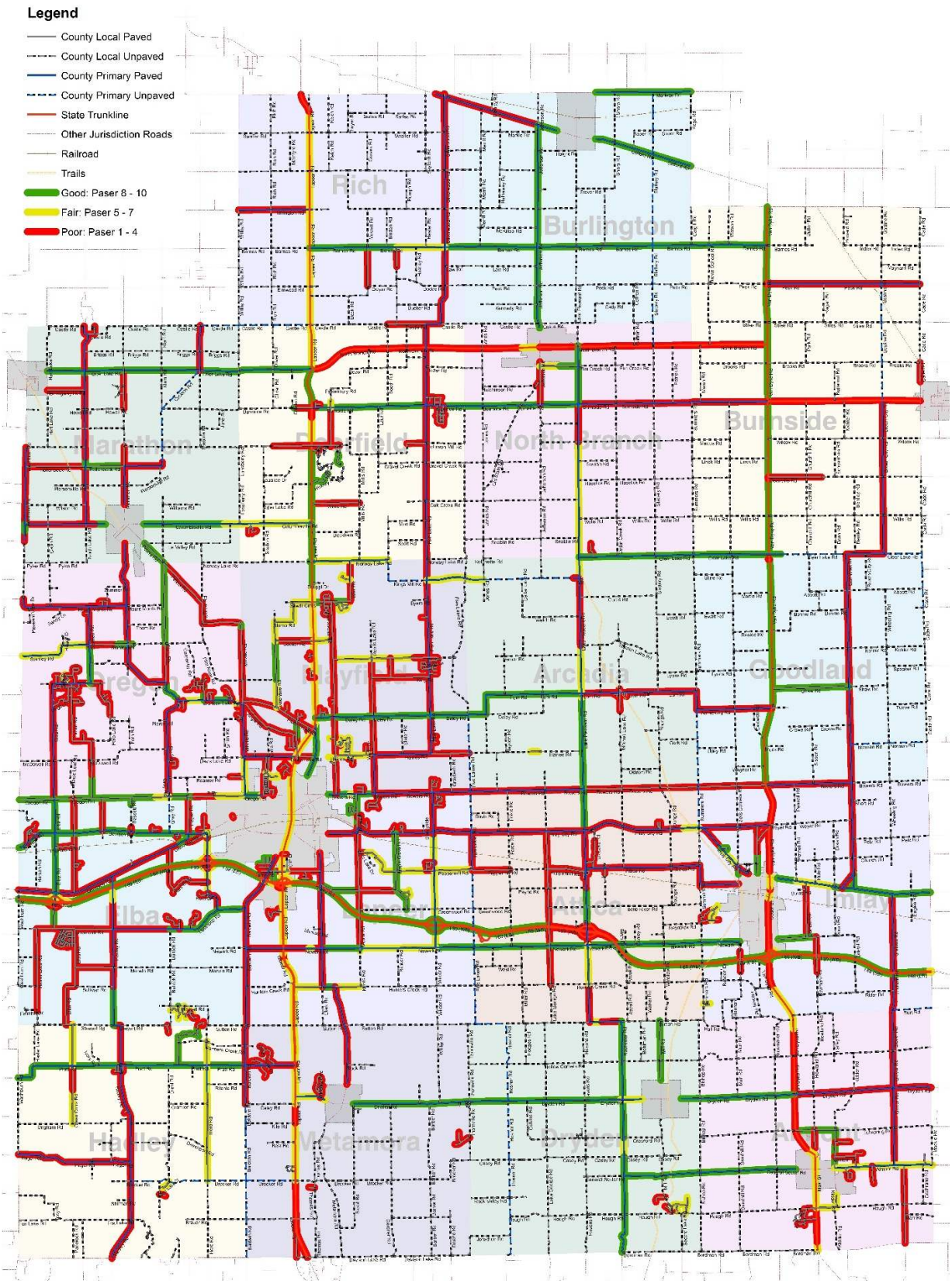


Figure 18: Map of the current paved road condition in good (PASER 10, 9, 8) shown in green, fair (PASER 7, 6, 5) shown in yellow, and poor (PASER 4, 3, 2, 1) shown in red. Only Roads owned by Lapeer CRC are shown.

Before 2016, the Lapeer CRC's approach to road improvements was to focus on the "worst first"—repairing the roads in the poorest condition (PASER ratings of 1, 2, or 3). The challenge with this approach was that, while the worst roads were being rebuilt, the roads in Fair and Good condition were steadily getting worse and slipping into the Poor category.

In 2017, the Lapeer CRC updated its strategy to place greater emphasis on preventative maintenance—taking care of roads that are still in Good or Fair condition—while still completing some larger rehabilitation projects each year. This approach allows us to extend the life of more roads overall, making the most of the available funding and getting the "biggest bang for the buck." Looking ahead over the next three years, we expect this strategy will result in more roads moving into the Good category and fewer falling into the Poor category.

Historically, the overall condition of Lapeer CRC's paved county primary roads declined steadily until 2016. At that point, the Commission shifted its focus toward more preventative maintenance projects. This change in strategy is expected to gradually improve the overall condition of the road network, as shown in Figure 19.

When comparing Lapeer CRC's Road condition trends (Figure 19) to statewide trends for similar roads (Figure 20), the data shows that Lapeer County has experienced a pattern similar to the rest of Michigan. Since the new strategy was implemented in 2017, prioritizing preventative maintenance projects, such as asphalt overlays, to slow deterioration and extend pavement life, the road system has shown steady improvement in recent years.

It is also worth noting that the percentage of roads in "Fair" condition has remained relatively stable. This reflects the effectiveness of timely, lower-cost treatments such as crack sealing, which have helped prevent these roads from slipping into the "Poor" category.

Looking ahead, based on the next three years of planned projects, we expect the percentage of roads in poor condition to continue declining—following the positive trend that began in 2017.

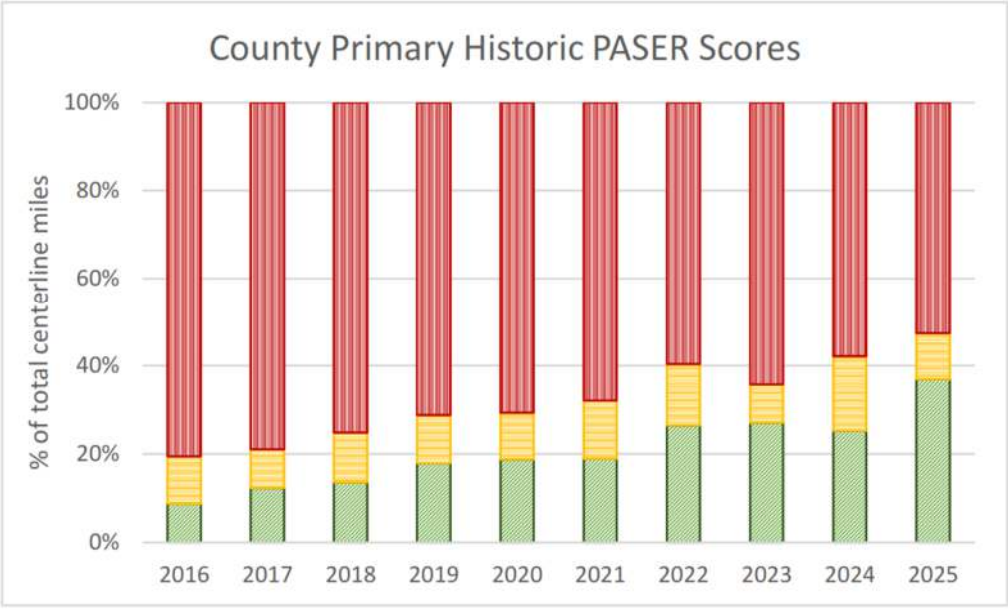


Figure 19: Historical Lapeer CRC paved county primary road network condition trend

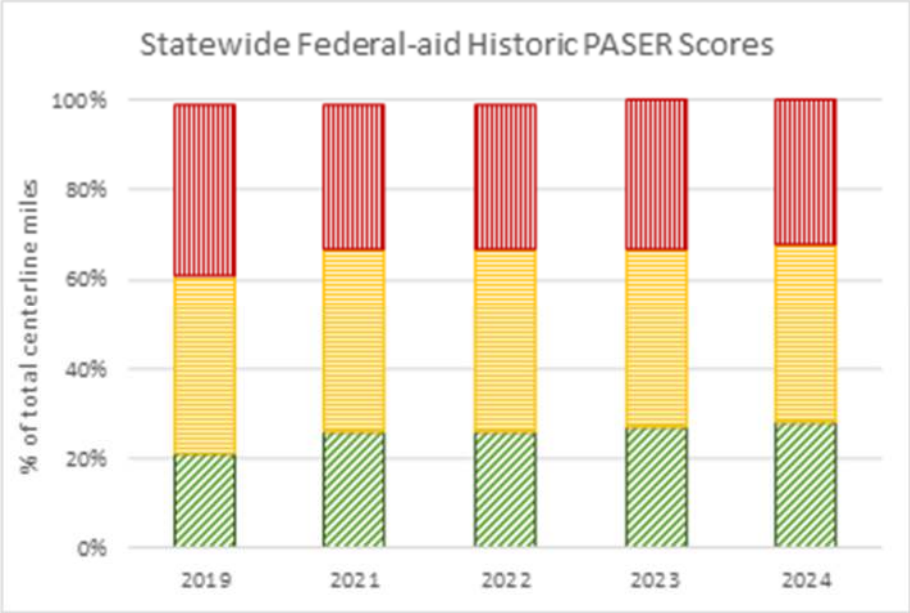


Figure 20: Historical statewide county primary road network condition trend

Historically, Lapeer CRC's paved county local roads have been in worse condition overall than the county primary road network. This is because local roads do not receive the same state and federal funding support and must instead rely primarily on local township funding. Figure 21 shows the condition of Lapeer CRC's local paved road system, while Figure 22 shows the statewide conditions for comparison.

When comparing the local road condition trends in Lapeer County (Figure 21) with statewide trends (Figure 22), the data shows a similar overall pattern. However, the condition of local roads has generally remained steady at lower levels over the review years.

A key factor in this is the limited funding available to townships. Because townships must often wait many years between projects, the road network continues to degrade during those gaps. This lack of consistent investment prevents timely improvements and keeps overall conditions from getting better.

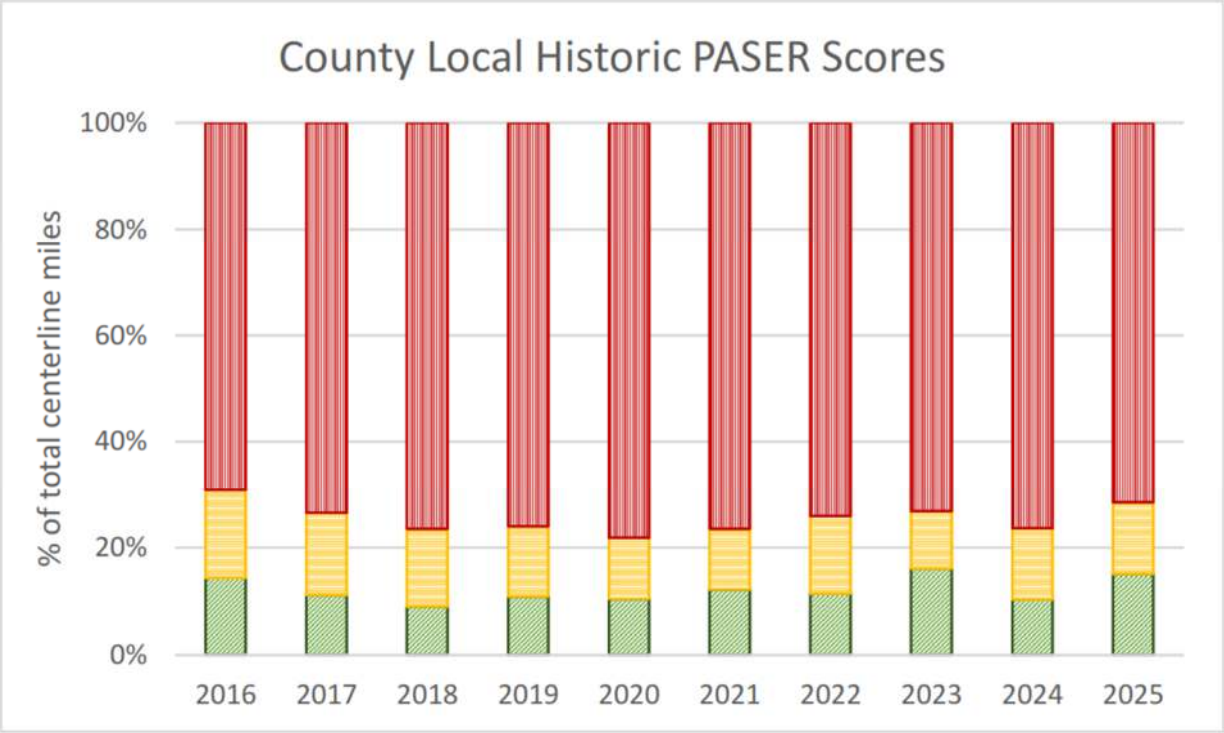


Figure 21: Historical Lapeer CRC paved county local road network condition trend

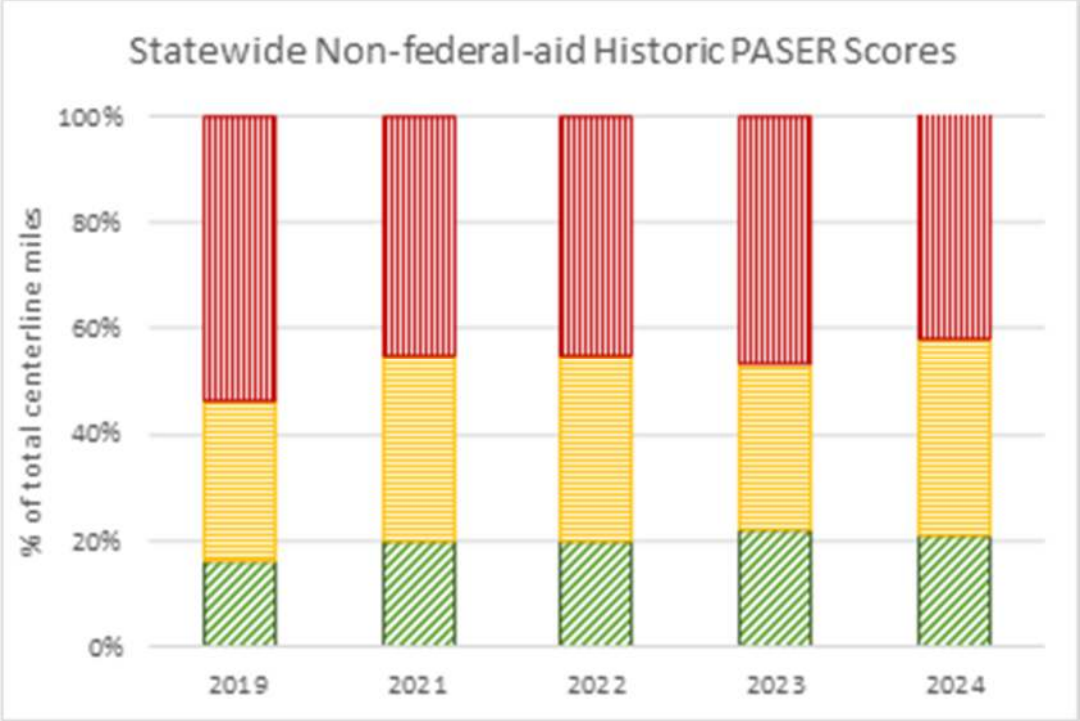


Figure 22: Historical statewide paved county local road network condition trend

Unpaved Roads

The condition of unpaved roads can be rapidly changing, which makes it difficult to obtain a consistent surface condition rating over the course of weeks or even days. The TAMC adopted the Inventory Based Rating (IBR) System™ for rating unpaved roads, and Lapeer CRC uses the IBR System™ for rating its unpaved roads. More information regarding the IBR System™ can be found in Introduction's Pavement Primer.

The majority of roads within the Lapeer CRC network are unpaved roadways. As shown in Figure 11, 61.4% of the network are unpaved. They form the local grid network that serves as access to residential and agricultural industries throughout the county. The maintenance focus on these roads includes 3 – 4 gradings per year, plus dust control. Due to the overall shortage of available funding assistance from the State and Federal level, at local levels, these roads will most likely continue to be unpaved. There are no plans in the near future to add hard surface roads within the Lapeer CRC network.

Figure 23 shows the percentage of unpaved roads in each IBR number ranges of 10, 9, and 8; 7, 6, and 5; and 4, 3, 2, and 1, for all roads. Figure 24 illustrates the miles of unpaved roads in IBR number ranges of 10, 9, and 8; 7, 6, and 5; and 4, 3, 2, and 1, for each township.

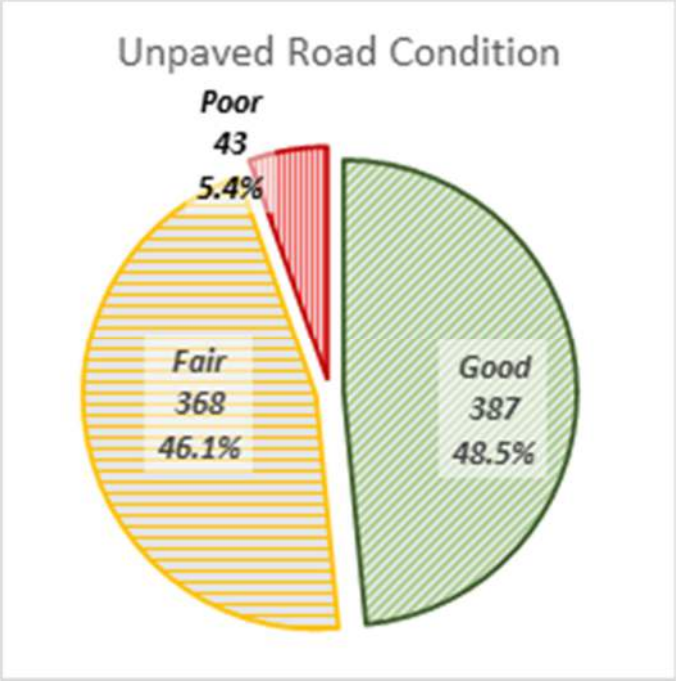


Figure 23: Lapeer CRC's unpaved road network condition by percentage of roads with IBR numbers of 10, 9, and 8; roads with IBR numbers of 7, 6, and 5; and IBR numbers of 4, 3, 2, and 1.

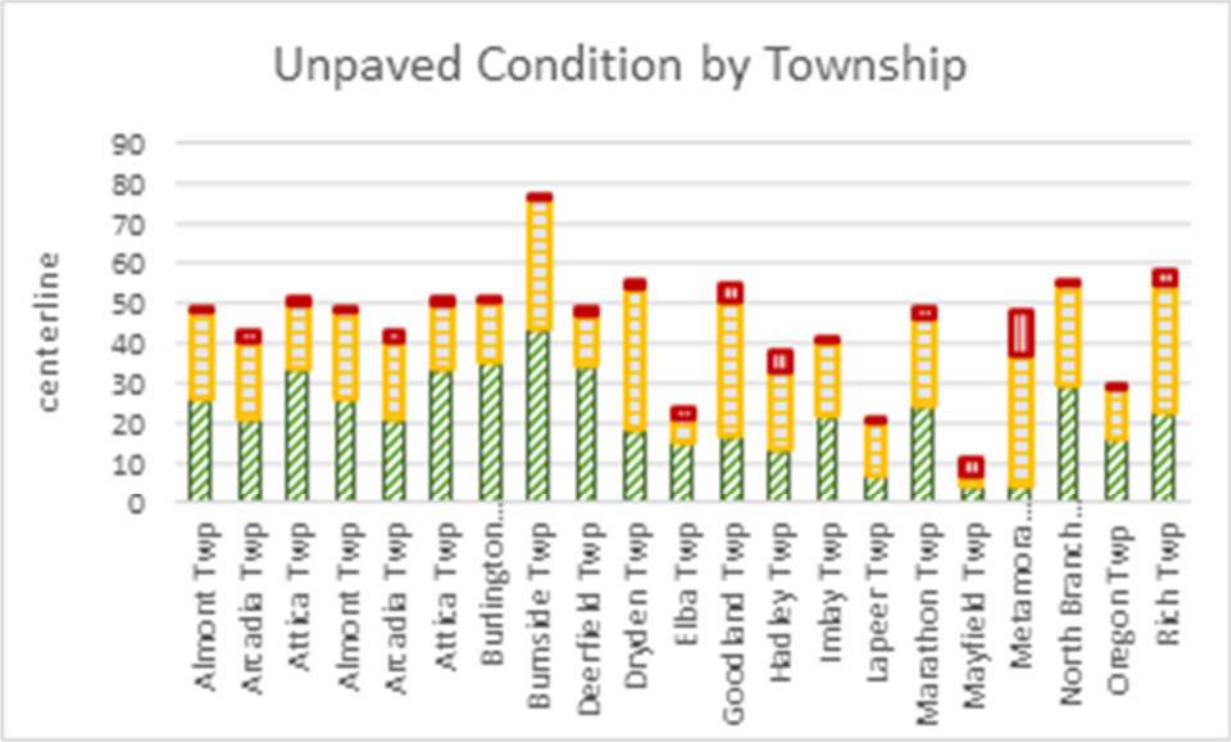


Figure 24: Number of miles of unpaved road in each township divided in categories of roads with IBR numbers of 10, 9, and 8; IBR numbers of 7, 6, and 5; and IBR numbers of 4, 3, 2, and 1.

Figure 25, Figure 26, and Figure 27 are maps illustrating the geographic location of unpaved roads and the assessment of the IBR elements, respectively: surface width, drainage adequecy, and structural adequecy.

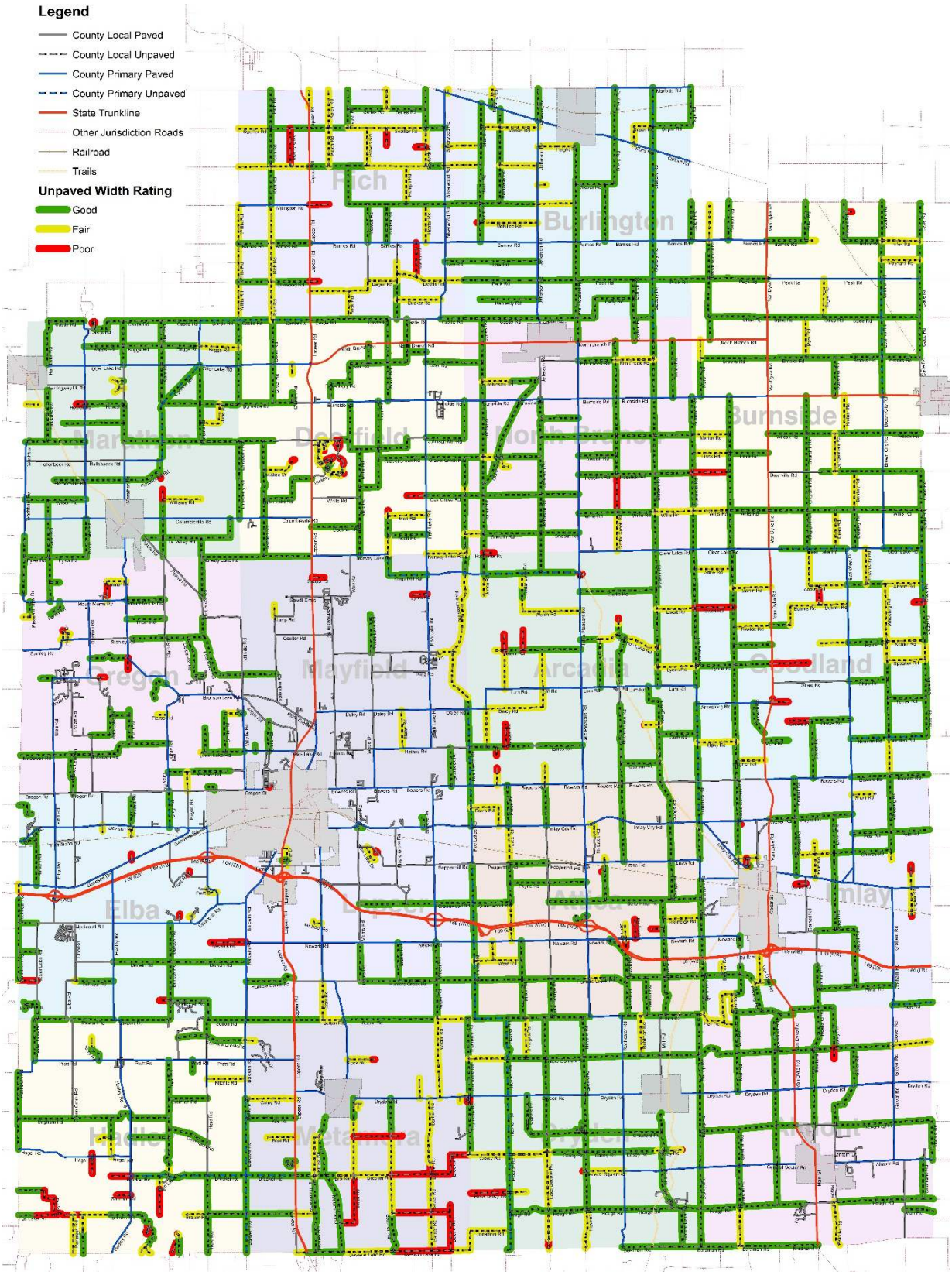


Figure 25: Map of the current IBR for surface width with good (22' and greater) shown in green, fair (16' to 21') shown in orange, and poor (15' or less) shown in red. Only unpaved roads owned by Lapeer CRC are shown.

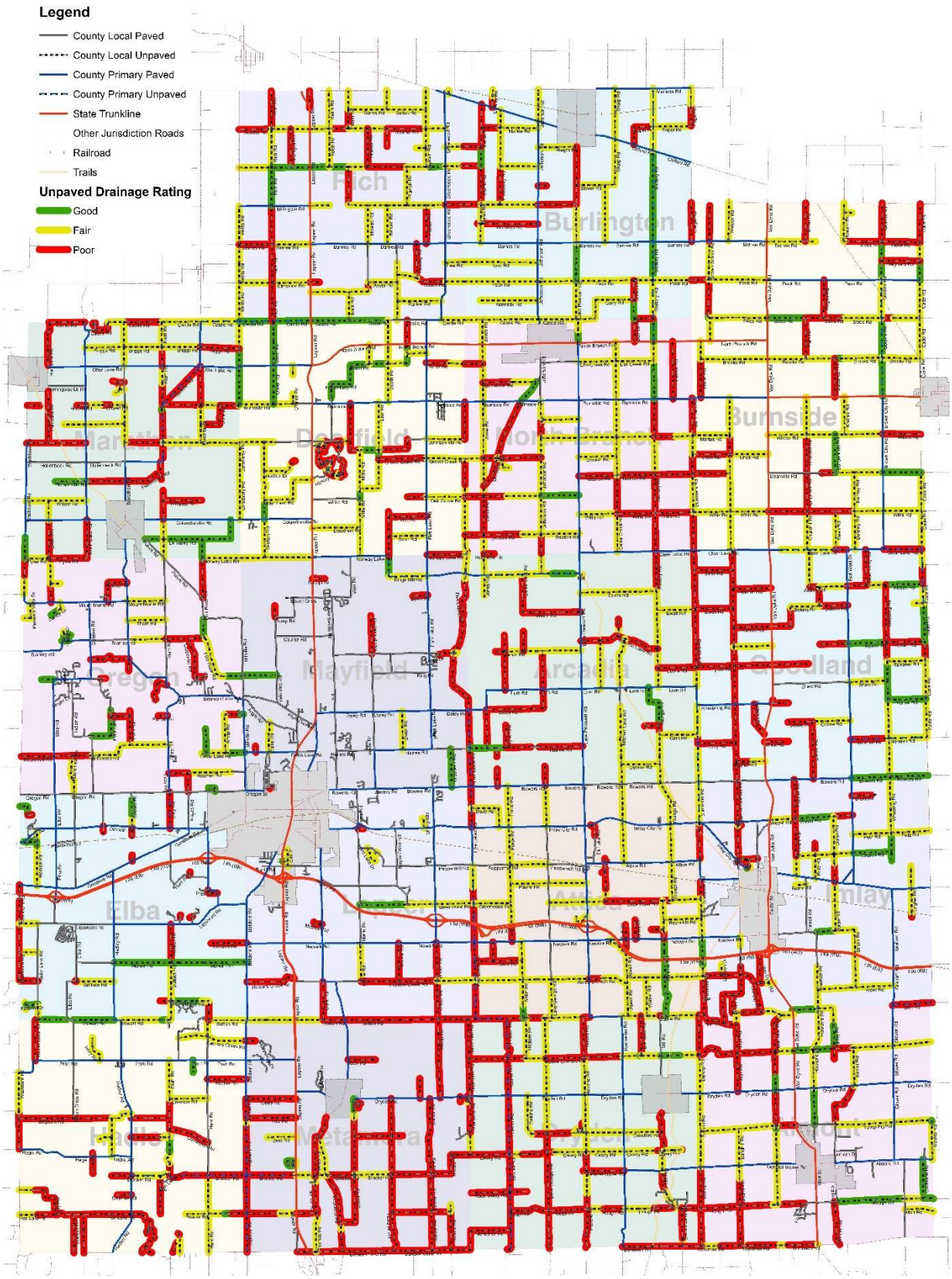


Figure 26: Map of the current IBR for drainage adequacy with good (2' or more) shown in green, fair (0.5' to less than 2') shown in orange, and poor (less than 0.5') shown in red. Only unpaved roads owned by Lapeer CRC are shown.

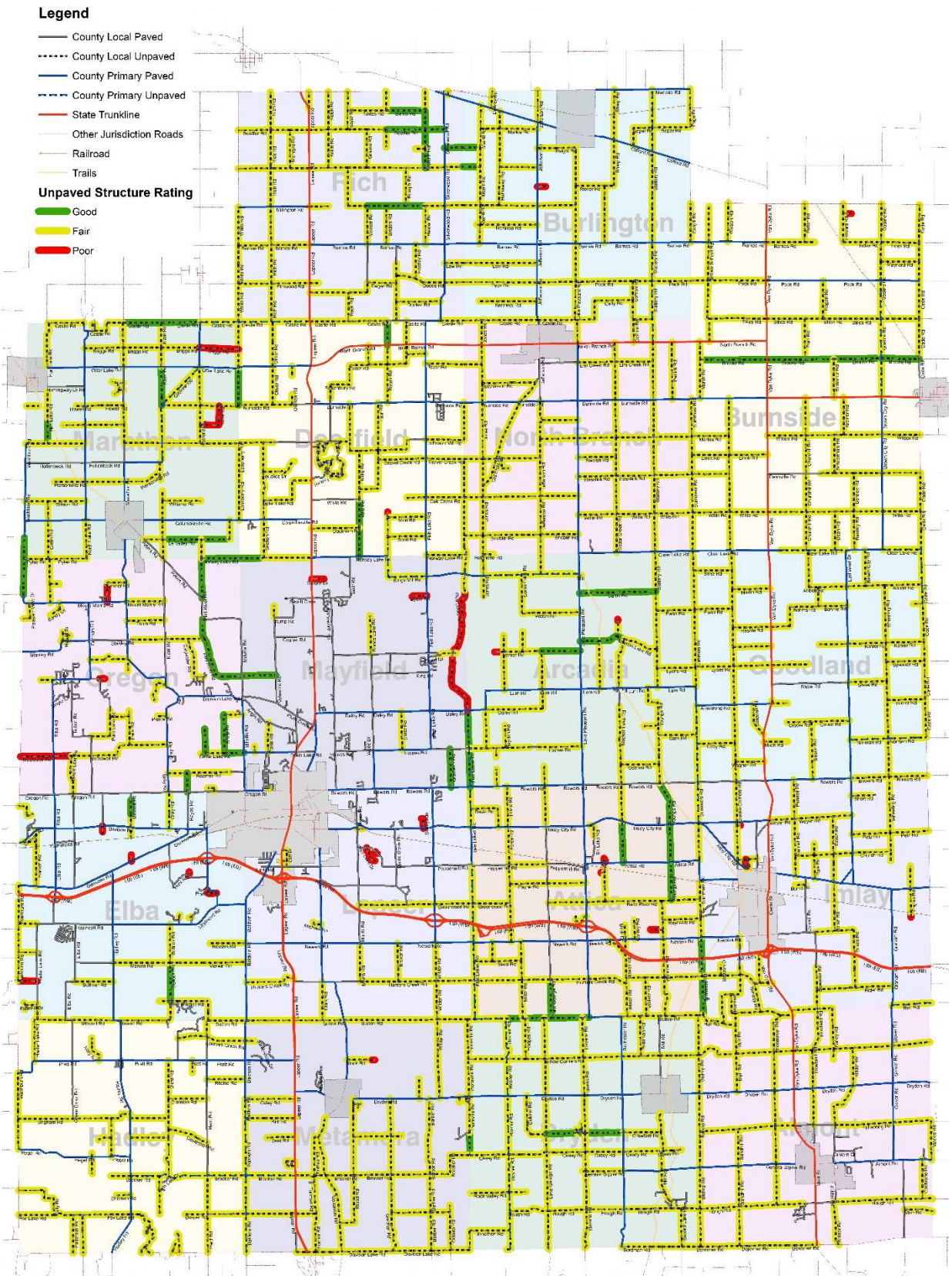


Figure 27: Map of the current IBR structural adequacy good (greater than 7") shown in green, fair (4" to 7") shown in orange, and poor (less than 4") shown in red. Only unpaved roads owned by Lapeer CRC are shown.

The overall width of Lapeer CRC's unpaved road network is in good condition. Many of these roads were widened in the 1930s and 1940s, and ongoing maintenance practices — such as selective tree removal and brush cutting — have helped preserve those widths to adequately serve today's traffic levels.

In terms of structure, the Lapeer CRC Maintenance Department works with townships to maintain a gravel resurfacing program that rotates across all local roads on an 8 – 10-year cycle. This program helps ensure that road surfaces remain stable and safe for travel.

The area needing the most attention going forward is drainage. Overall drainage conditions are poor, largely due to limited funding. In addition, priority has historically been placed on maintaining the traveled surface of the road, since this directly affects drivers and helps minimize complaints. However, without improved drainage, roads will continue to deteriorate more quickly, increasing long-term maintenance needs.

Goals

Goals help set expectations to how pavement conditions will change in the future. Pavement condition changes are influenced by water infiltration, soil conditions, sunlight exposure, traffic loading, and repair work performed. Lapeer CRC is not able to control any of these factors fully due to seasonal weather changes, traffic pattern changes, and its limited budget. In spite of the uncontrollable variables, it is still important to set realistic network condition goals that efficiently use budget resources to build and maintain roads meeting taxpayer expectations. An assessment of the progress toward these goals is provided in the *1. Pavement Assets*: *Gap Analysis* section of this plan.

Goals for Paved County Primary Roads

The overall goal for Lapeer CRC's paved county primary road network is to maintain or improve road conditions network-wide at 2025 levels. The baseline condition for this goal is illustrated in Figure 28.

Lapeer CRC's network-level pavement condition strategy for paved county primary roads is:

1. Prevent its good and fair (PASER 10 - 5) paved county primary from becoming poor (PASER 4 - 1).
2. Move eighteen (18%) percent of paved county primary roads out of the poor category. This goal will be accomplished by focusing on Preventative Maintenance projects over the next three (3) years to get the biggest impact with the available funding.

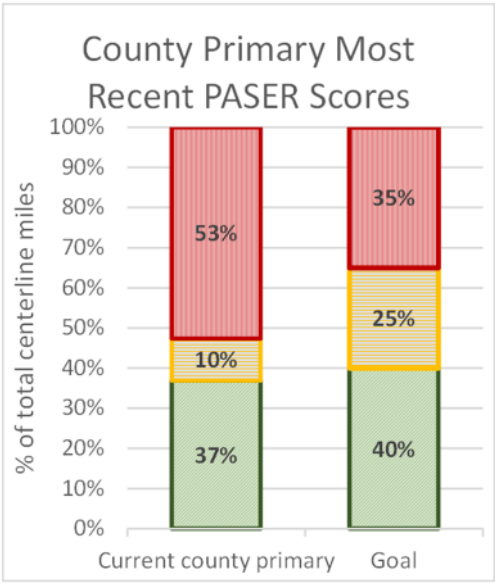


Figure 28: Lapeer CRC's 2022 county primary road network condition by percentage of good/fair/poor

Goals for Paved County Local Roads

The overall goal for Lapeer CRC's paved county local road network is to maintain or improve road conditions network-wide at 2025 levels. The baseline condition for this goal is illustrated in Figure 29.

Lapeer CRC's network-level pavement condition strategy for paved county local roads is:

1. Prevent its good and fair (PASER 10 - 5) paved county local roads from becoming poor (PASER 4 - 1).
2. Move twenty-two (22%) percent of paved county local roads out of the poor category. This goal will be accomplished by focusing on Preventative Maintenance projects over the next three (3) years to get the biggest impact with the available funding.

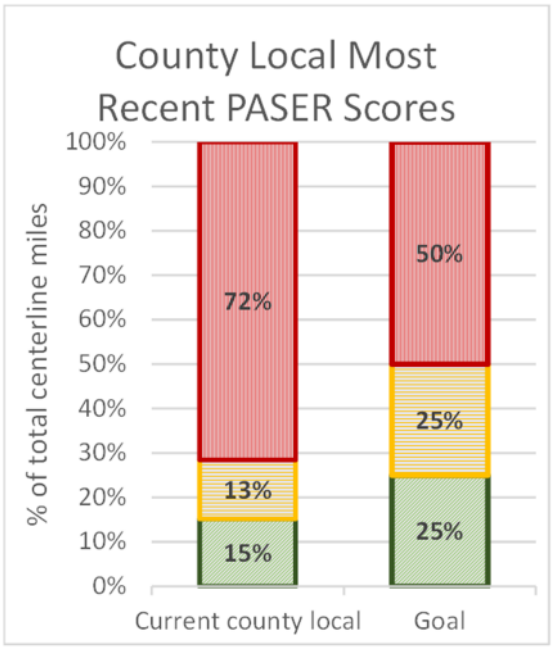


Figure 29: Lapeer CRC 2025 paved county local road network condition by percentage of good/fair/poor

Goals for Unpaved Roads

The overall goal for Lapeer CRC's unpaved road network is to maintain or improve road conditions network-wide at 2025 levels. The baseline condition for this goal is illustrated in Figure 30.

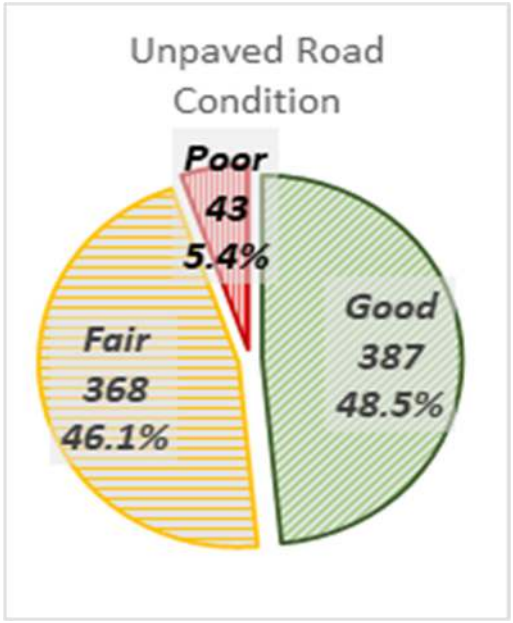


Figure 30: Lapeer CRC's 2025 unpaved road network condition by percentage of good/fair/poor

Our year-round unpaved roads will continue to be maintained at their current levels of Width, Structural Adequacy, and Drainage in cases where these elements are rated as *Good* or *Fair*.

- Width Adequacy: 95.4% of year-round unpaved roads are rated *Good* or *Fair*.
- Structural Adequacy: 98.5% are rated *Good* or *Fair*.
- Drainage Adequacy: Only 55.9% are rated *Good* or *Fair*.

Overall, just 5.4% of unpaved roads have a combined IBR rating of *Poor (1–4)*. Roads with individual elements rated *Poor* will be upgraded as funding allows—first focusing on drainage improvements, followed by structural upgrades. Road widths will be improved as needed to maintain safety and service.

Seasonal roads will continue to be maintained for basic passability and safety, but no specific performance goals are set for them.

Modelled Trends

Roads age and deteriorate just like any other asset. All pavements are damaged by water, traffic weight, freeze/thaw cycles, sunlight, and traffic weight. To offset natural deterioration and normal wear-and-tear on the road, Lapeer CRC must complete treatment projects that either protect and/or add life to its pavements. The year-end condition of the whole network depends upon changes or preservation of individual road section condition that preservation treatments have affected.

Lapeer CRC uses many types of repair treatments for its roads, each selected to balance costs, benefits, and road life expectancy. When agency trends are modelled, any gap between goals and accomplishable work becomes evident. Financial resources influence how much work can be accomplished across the network within agency budget and what treatments and strategies can be afforded; a full discussion of Lapeer CRC's financial resources can be found in the *5. Financial Resources* section.

Treatments and strategies that counter pavement-damaging forces include reconstruction, structural improvement, capital preventive maintenance, innovative treatments, and maintenance. For a complete discussion on the pavement treatment tools, refer to the *1. Introduction*'s *Pavement Primer*.

Correlating with each PASER score are specific types of treatments best performed either to protect the pavement (CPM) or to add strength back into the pavement (structural improvement) (Table 1). MDOT provides guidance regarding when a specific pavement may be a candidate for a particular treatment. These identified PASER scores "trigger" the timing of projects appropriately to direct the right pavement fix at the right time, thereby providing the best chance for a successful project. The information provided in Table 1 is a guide for identifying potential projects; however, this table should not be the sole criteria for pavement treatment selection. Other information such as future development, traffic volume, utility projects, and budget play a role in project selection. This table should not be a substitute for engineering judgement.

Table 1: Service Life Extension (in Years) for Pavement Types Gained by Fix Type[1]

Fix Type	Life Extension (in years)*			PASER
	Flexible	Composite	Rigid	
HMA crack treatment	1-3	1-3	N/A	6-7
Overband crack filling	1-2	1-2	N/A	6-7
One course non-structural HMA overlay	5-7	4-7	N/A	4-5****
Mill and one course non-structural HMA overlay	5-7	4-7	N/A	3-5
Single course chip seal	3-6	N/A	N/A	5-7†
Double chip seal	4-7	3-6	N/A	5-7†
Single course microsurface	3-5	**	N/A	5-6
Multiple course microsurface	4-6	**	N/A	4-6****
Ultra-thin HMA overlay	3-6	3-6	N/A	4-6****
Paver placed surface seal	4-6	**	N/A	5-7
Full-depth concrete repair	N/A	N/A	3-10	4-5***
Concrete joint resealing	N/A	N/A	1-3	5-8
Concrete spall repair	N/A	N/A	1-3	5-7
Concrete crack sealing	N/A	N/A	1-3	4-7
Diamond grinding	N/A	N/A	3-5	4-6
Dowel bar retrofit	N/A	N/A	2-3	3-5***
Longitudinal HMA wedge/scratch coat with surface treatment	3-7	N/A	N/A	3-5****
Flexible patching	**	**	N/A	N/A
Mastic joint repair	1-3	1-3	N/A	4-7
Cape seal	4-7	4-7	N/A	4-7
Flexible interlayer “A”	4-7	4-7	N/A	4-7
Flexible interlayer “B” (SAMI)	4-7	4-7	N/A	3-7
Flexible interlayer “C”	4-7	4-7	N/A	3-7
Fiber reinforced flexible membrane	4-7	4-7	N/A	3-7
Fog seal	**	**	N/A	7-10
GSB 88	**	**	N/A	7-10
Mastic surface treatment	**	**	N/A	7-10
Scrub seal	**	**	N/A	4-8

* The time range is the expected life extending benefit given to the pavement, not the anticipated longevity of the treatment.

** Data is not available to quantify the life extension.

*** The concrete slabs must be in fair to good condition.

**** Can be used on a pavement with a PASER equal to 3 when the sole reason for rating is rutting or severe raveling of the surface asphalt layer.

† For PASER 4 or less providing structural soundness exists and that additional pre-treatment will be required for example, wedging, bar seals, spot double chip seals, injection spray patching or other pre-treatments.

[1] Part of Appendix D-1 from *MDOT Local Agency Programs Guidelines for Geometrics on Local Agency Projects* 2017 Edition Approved Preventive Maintenance Treatments

Roadsoft Pavement Condition Forecast to Forecast Future Trends

Lapeer CRC uses Roadsoft, an asset management software suite, to manage road- and bridge-related infrastructure. Roadsoft is developed by Michigan Technological University and is available for Michigan local agencies at no cost to them. Roadsoft uses pavement condition data to drive network-level deterioration models that forecast future road conditions based on planned construction and maintenance work. An example screenshot of Roadsoft's pavement condition model and the associated output is shown in Figure 31.

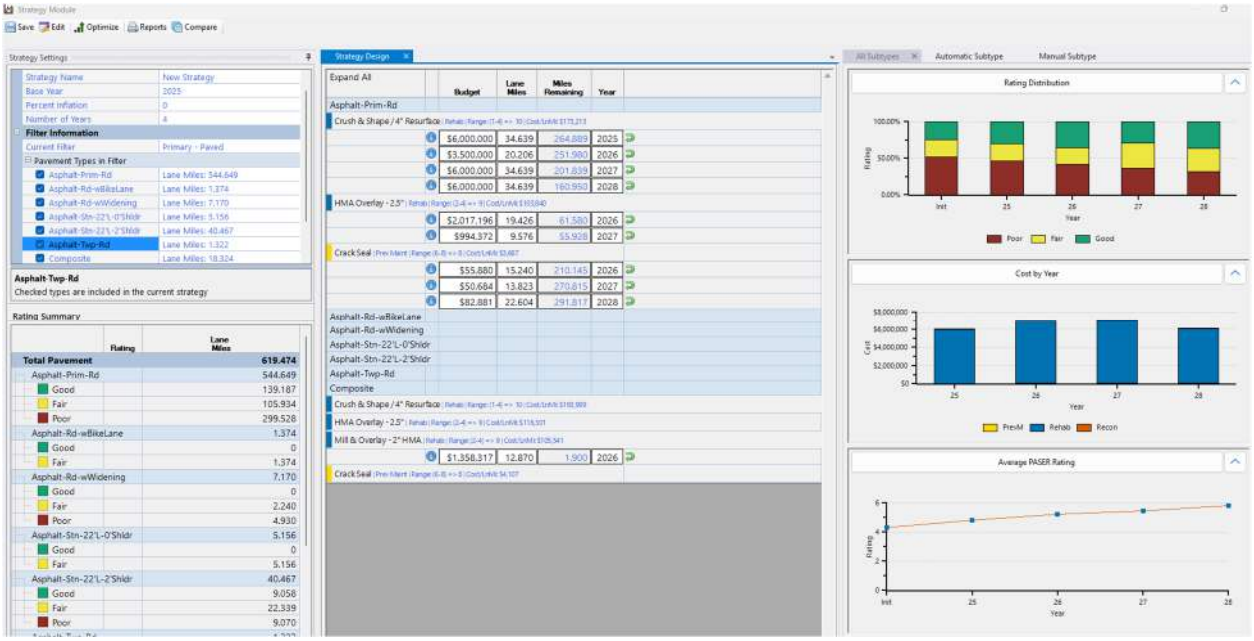


Figure 31: Primary Pavement condition forecast model in the software program Roadsoft.

Paved County Primary Roads

Table 2 illustrates the network-level model inputs for Roadsoft on the paved county primary road network. Other pavement types in this network were neglected due to their small numbers relative to HMA pavements. The treatments outlined in Table 2 are the average treatment volume of planned projects scheduled to be completed in 2026 - 2028. See Appendix A of this plan for details on planned projects. Full model inputs and outputs are included in Appendix B.

Table 2: Roadsoft Modelled Trends, Planned Projects, and Gap Analysis for 's Road Assets—Modelled Trends: Roadsoft Annual Work Program for the Paved County Primary Road Network Forecast

Treatment Name	Annual Miles of Treatment Needed	Miles Proposed 2026-2028	Years of Life	Trigger-Reset
Crack Seal	103	15	3	7 : 8
Seal Coat	15	0	5	5 : 8
HMA Overlay	47	10 *	12	3 : 9
Crush, Shape and Resurface	113	10 *	18	1,2 : 9

Results from the Roadsoft network condition model for the county primary roads are shown in Figure 32. The Roadsoft network analysis of Lapeer CRC's planned projects from its currently-available budget does allow Lapeer CRC to reach its pavement condition goals given the projects planned for the next three years.

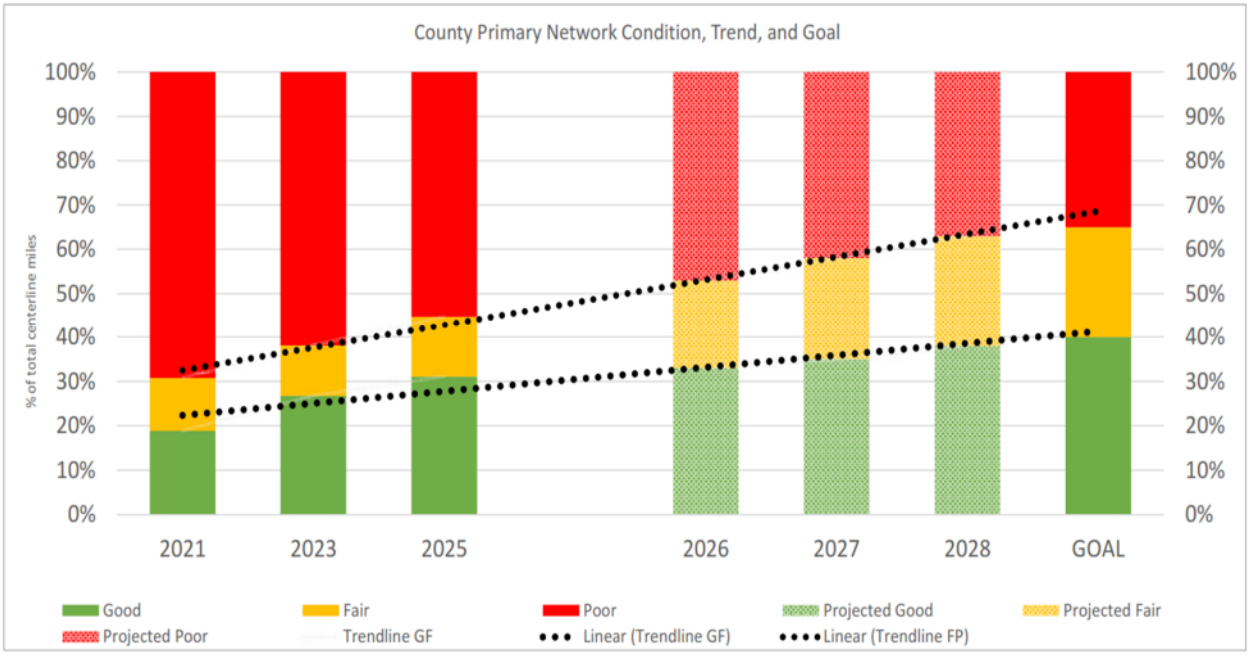
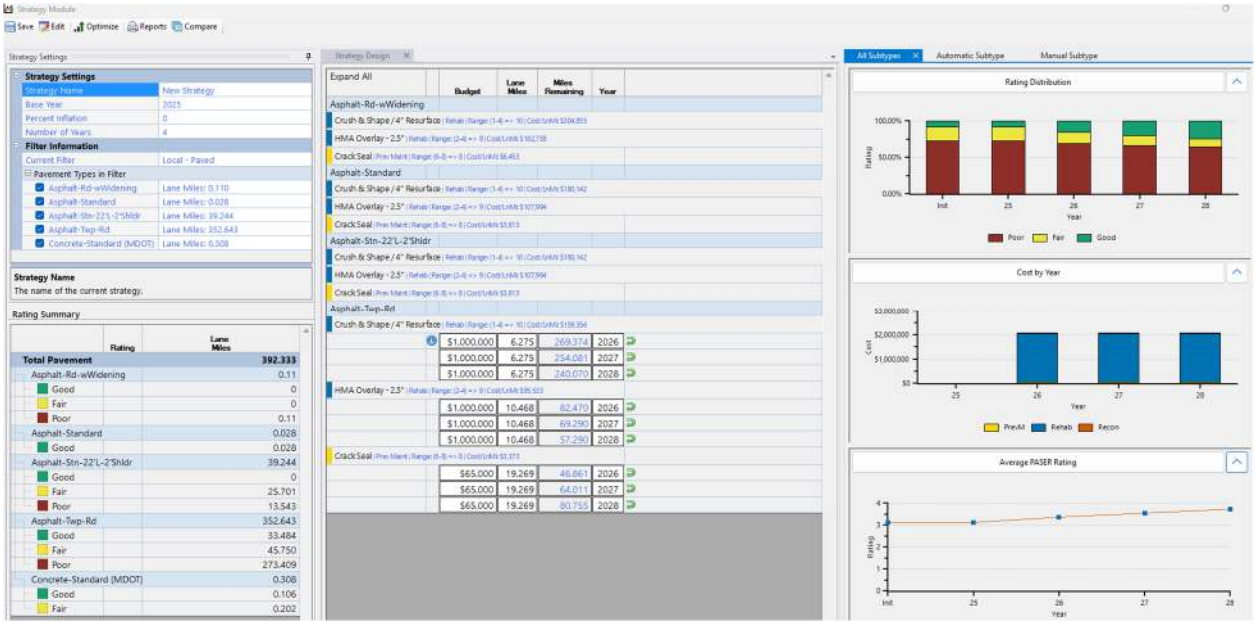


Figure 32: Forecast good/fair/poor changes to Lapeer CRC Primary network condition from planned projects on the county primary road network.

Over the next three (3) years, Lapeer CRC will prioritize rehabilitation projects in order to make the most of available funding. This approach means that roads already deteriorated beyond the point where an overlay or other preventative maintenance would be effective will be placed lower in priority. Instead, resources will first be directed toward roads that can be improved at a lower cost, allowing more miles to be addressed within the same budget.



Paved County Local Road

A screenshot of Roadsoft's pavement condition model and the associated output is shown in Figure 33.

Figure 33: Local Pavement condition forecast model in the software program Roadsoft.

Table 3 illustrates the network-level model inputs for Roadsoft on the paved county local road network. Other pavement types in this network were neglected due to their small numbers relative to HMA pavements.

The treatments shown in Table 3 represent the average volume of planned projects scheduled for completion between 2026 and 2028. Each year, Lapeer CRC partners with Townships to identify and prioritize capital road improvements. The projected treatment levels in Table 3 are based on historical budget trends.

Table 3: Roadsoft Modelled Trends, Planned Projects, and Gap Analysis for 's Road Assets—Modelled Trends: Roadsoft Annual Work Program for the Paved County Local Road Network Forecast

Treatment Name	Annual Miles of Treatment Needed	Miles Proposed 2026-2028	Years of Life	Trigger-Reset
Crack Seal	30	20	3	7 : 8
Seal Coat	13	0	5	5 : 8
HMA Overlay	20	8 *	12	3 : 9
Crush, Shape and Resurface	120	4 *	18	1,2 : 9

Figure 34 shows the anticipated results from the Roadsoft network condition model for paved county local roads. Based on Lapeer CRC's planned projects and the currently available budget, the Roadsoft

analysis indicates that the agency can meet its pavement condition goals over the next three (3) years — provided there is continued funding participation from local Townships.

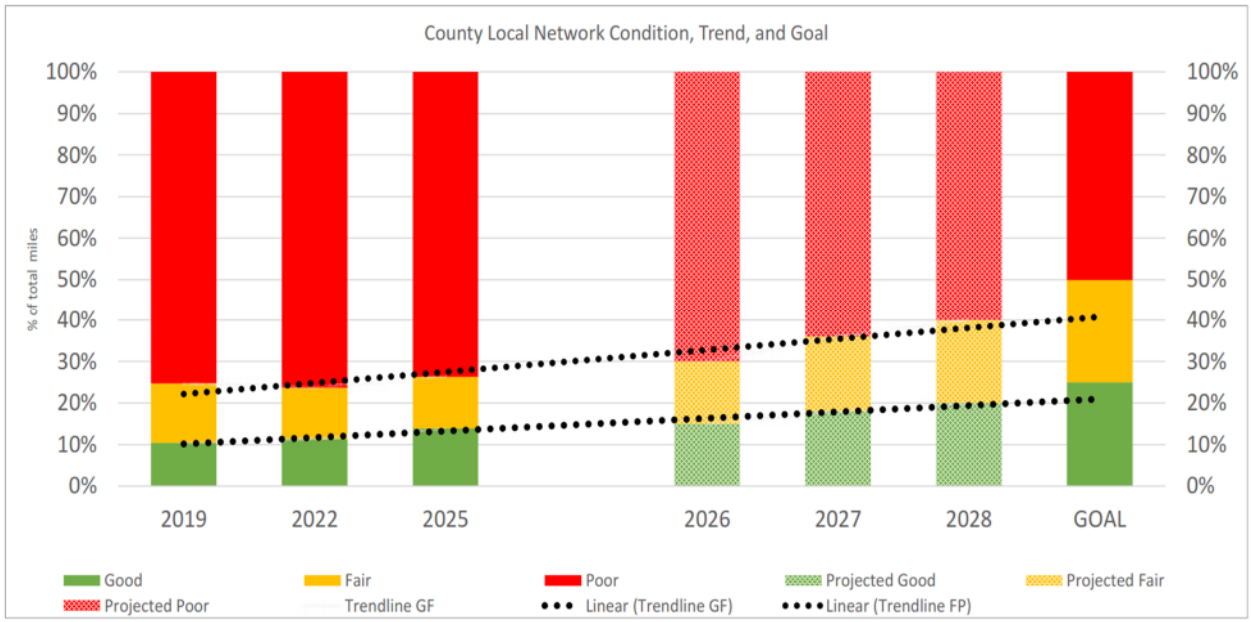


Figure 34: Forecast good/fair/poor changes to Lapeer CRC network condition from planned projects on the paved county local road network.

Townships within Lapeer County contribute funding toward road projects each year. On average, 8 to 10 miles of local roads are paved annually. However, most of the allocated funds, along with supplemental Township contributions, are directed toward the unpaved road network, which makes up 61.4% of the system.

If local communities continue paving at the current pace, many roads in fair condition will be resurfaced utilizing an HMA overlay. Still, additional funding will be needed to address the numerous roads in poor condition, which continue to deteriorate without major investment.

Planned Projects

Lapeer CRC plans construction and maintenance projects several years in advance. A multi-year planning threshold is required due to the time necessary to plan, design, and finance construction and maintenance projects on the paved county primary road network. This includes planning and programming requirements from state and federal agencies that must be met prior to starting a project and can include studies on environmental and archeological impacts, review of construction and design documents and plans, documentation of rights-of-way ownership, planning and permitting for storm water discharges, and other regulatory and administrative requirements.

Per PA 499 of 2002 (later amended by PA 199 of 2007), road projects for the upcoming three years are required to be reported annually to the TAMC. Planned projects represent the best estimate of future activity; however, changes in design, funding, and permitting may require Lapeer CRC to alter initial plans. Project planning information is used to predict the future condition of the road networks that Lapeer CRC maintains. The *1. Pavement Assets*: *Modelled Trends* section of this plan provides a detailed analysis of the impact of the proposed projects on their respective road networks.

For 2026 - 2028, Lapeer CRC plans to do the following projects:

Paved County Primary Projects

Lapeer CRC is currently planning the construction and maintenance projects listed in Appendix A for the paved county primary road network. The locations of the obligated projects are shown in Figure 35. The total cost of these projects shown is approximately $1,000,000, however, the Lapeer CRC typically spends $6,000,000 per year on road improvements.

Paved County Local Projects

Lapeer CRC is currently planning the construction and maintenance projects as coordinated with the Townships for the paved county local road network. The locations of these projects will be selected with the Townships during planning meetings over the next three years. The total cost of these projects is approximately $2,250,000 each year, total with paved and unpaved projects. Figure 36 outlines the anticipated Township's investments, based on historical spending.

Unpaved Road Projects

Lapeer CRC is currently planning the construction and maintenance projects as coordinated with the Townships for the unpaved road network. The location of these projects will be selected with the Township during the planning meetings over the next three years. The total cost of the local projects, with paved and unpaved roads, is approximately $2,250,000 each year.

2026 - 2028 Primary Road Resurface Projects

Selected Roads for HMA Resurface Program in 2026-28 are subject to available funding. This scope of work may vary depending on project cost projections.

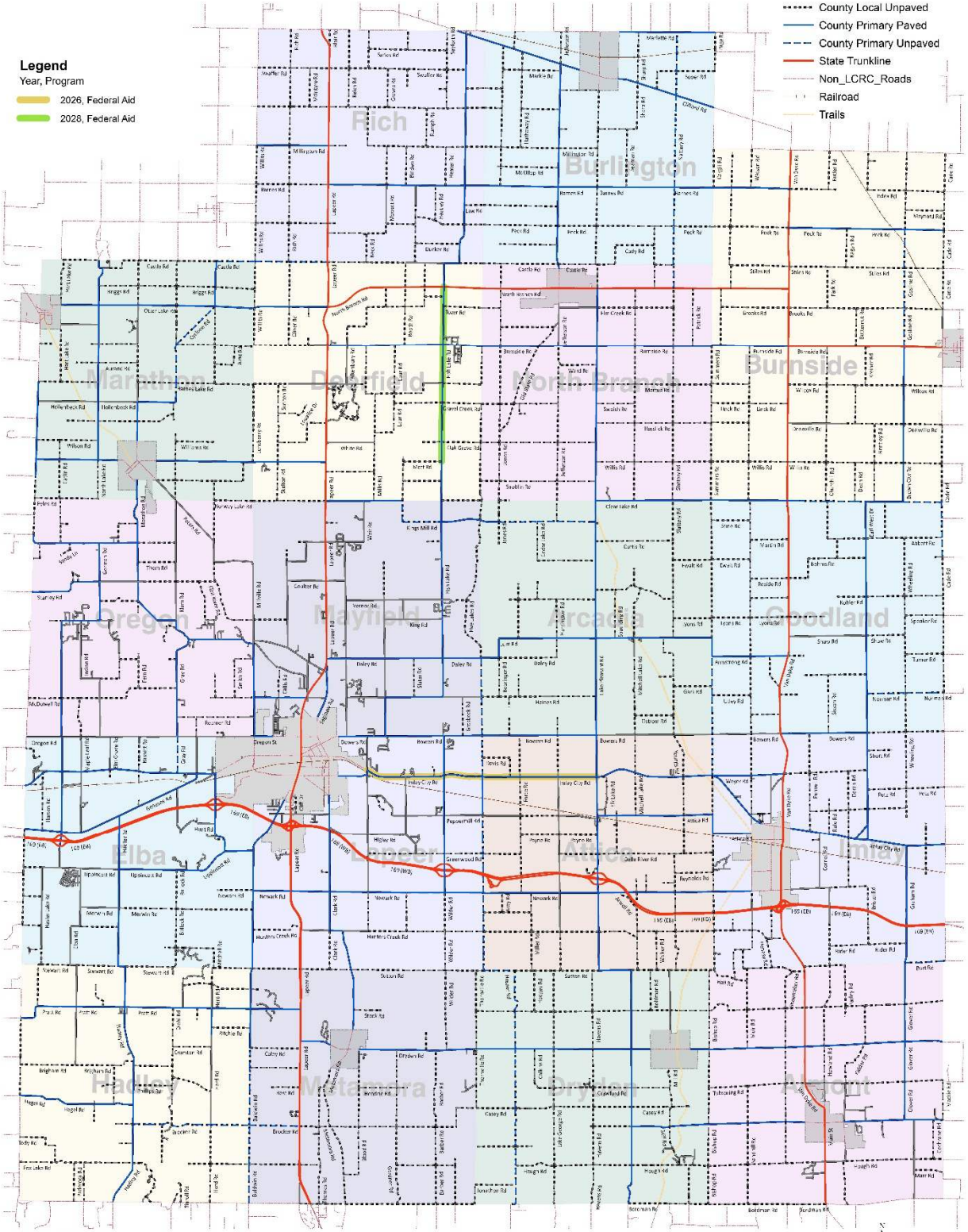


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Figure 35: Map showing paved county primary road projects planned for 2026 - 2028.

Township	Estimated Road Funding per Year		
Almont Twp	$175,000	Hadley Twp	$200,000
Arcadia Twp	$70,000	Imlay Twp	$125,000
Attica Twp	$175,000	Lapeer Twp	$100,000
Burlington Twp	$100,000	Marathon Twp	$100,000
Burnside Twp	$100,000	Mayfield Twp	$125,000
Deerfield Twp	$100,000	Metamora Twp	$125,000
Dryden Twp	$150,000	North Branch Twp	$100,000
Elba Twp	$150,000	Oregon Twp	$175,000
Goodland Twp	$100,000	Rich Twp	$80,000
			$2,250,000

Figure 36: Chart depicting county local road estimated budgets for 2026 - 2028.

More detailed information on these projects can be found in Appendix A-B.

Gap Analysis

The current funding levels that Lapeer CRC receives are not sufficient to meet an optimized goal for the paved county primary road network, the paved county local road network, and the unpaved road network. The *1. Pavement Assets*: *Goals* section of this plan provides further detail about the goals and the *1. Pavement Assets*: *Modelled Trends* section provides further detail on the shortfall given the current budget.

Lapeer CRC believes the overall condition of the road network can be improved with additional funding for construction and maintenance. To address the current shortfall and reduce the number of roads rated in poor condition—across the paved county primary network, paved county local network, and unpaved network—an alternate strategy with higher funding levels would be required.

Roadsoft Pavement Condition Forecast for the Paved County Primary and County Local Network

Lapeer CRC used Roadsoft to forecast the necessary additional construction and maintenance work for meeting agency goals on the paved county primary and county local road networks. Table 4 and Table 5 illustrate the network-level model inputs used for this simulation. Full model inputs and outputs are included in Appendix B.

Table 4: Roadsoft Modelled Trends, Planned Projects, and Gap Analysis for 's Road Assets—Pavement Condition Forecast and Gap Analysis: Roadsoft Annual Work Program for Paved County Primary Road Network Forecast

Pavement Condition Forecast

Treatment Name	Annual Miles of Treatment	Years of Life	Trigger-Reset
Crack Seal	15	3	7 : 8
Seal Coat	0	5	5 : 8
HMA Overlay	10	12	3 : 9
Crush, Shape and Resurface	10	18	1,2 : 9

Additional Work Necessary to Overcome Deficit

Treatment	Annual Miles of Treatment	Years of Life	Trigger-Reset
Crack Seal	88	3	7 : 8
Seal Coat	15	5	5 : 8
HMA Overlay	37	12	3 : 9
Crush, Shape and Resurface	**103 ***	18	1,2 : 9

Table 5: Roadsoft Modelled Trends, Planned Projects, and Gap Analysis for 's Road Assets—Pavement Condition Forecast and Gap Analysis: Roadsoft Annual Work Program for Paved County Local Road Network Forecast

Pavement Condition Forecast

Treatment Name	Annual Miles of Treatment	Years of Life	Trigger-Reset
Crack Seal	20	3	7 : 8
Seal Coat	0	5	5 : 8
HMA Overlay	8	12	3 : 9
Crush, Shape and Resurface	4	18	1,2 : 9

Additional Work Necessary to Overcome Deficit

Treatment	Annual Miles of Treatment	Years of Life	Trigger-Reset
Crack Seal	10	3	7 : 8
Seal Coat	13	5	5 : 8
HMA Overlay	12	12	3 : 9
Crush, Shape and Resurface	**116 ***	18	1,2 : 9

If Lapeer CRC were to stop investing in primary paved road improvements, projections show that by 2028, over 58% of these roads would be rated poor, with only 3.5% rated good. This is unacceptable.

Lapeer CRC is committed to preventing this outcome by implementing a strategy to maintain—or improve—the current condition of the primary road network over the next three (3) years. With 160.8 miles (52.6%) of primary roads already rated poor, the strategy must include a mix of Crush, Shape, and Resurface projects along with HMA Overlays.

At current funding levels of approximately $6 million per year, it is projected that by the end of 2028, about 31.5% of primary roads will remain in poor condition. However, with increased funding:

- At $10 million per year, only 17% of roads would remain poor.
- To eliminate all poor roads within three years, an estimated $15 million per year, minimum, would be required, not including cost of inflation.

Results for the paved county primary road network from the Roadsoft network condition model given the inputs in Table 4 are shown in Figure 37 and 38 below.

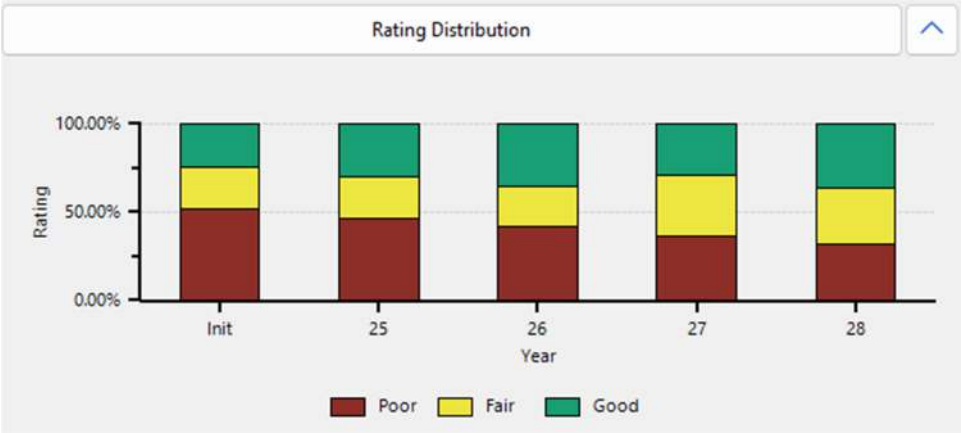


Figure 37: Forecast good/fair/poor Changes to Lapeer CRC Primary System at current funding.

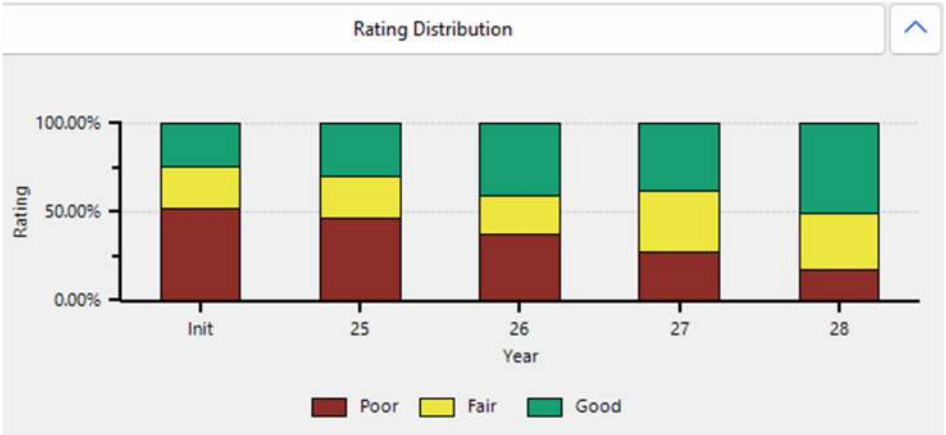


Figure 38: Forecast good/fair/poor Changes to Lapeer CRC Primary System with increased funding

Similarly, if Townships within Lapeer County were to stop investing in local paved road improvements, projections show that by 2028, over 77% of these roads would be rated poor, with only 2.4% rated good.

In discussions with the local Townships, Lapeer CRC is confident that all entities are committed to preventing this outcome by implementing a strategy to maintain—or improve—the current condition of the local road network over the next three (3) years. With 140.0 miles (71.5%) of local roads already rated poor, the strategy must include a mix of Crush, Shape, and Resurface projects along with HMA Overlays.

At current local funding levels of approximately $2 million per year, it is projected that by the end of 2028, about 64.3% of local roads will remain in poor condition. However, if additional funding sources were available:

- At $4 million per year, only 51.5% of roads would remain poor.
- To eliminate all poor roads within three years, an estimated $15 million per year, minimum, would be required, not including cost of inflation.

Results for the paved county local road network from the Roadsoft network condition model given the inputs in Table 5 are shown in Figure 39 and 40 below.

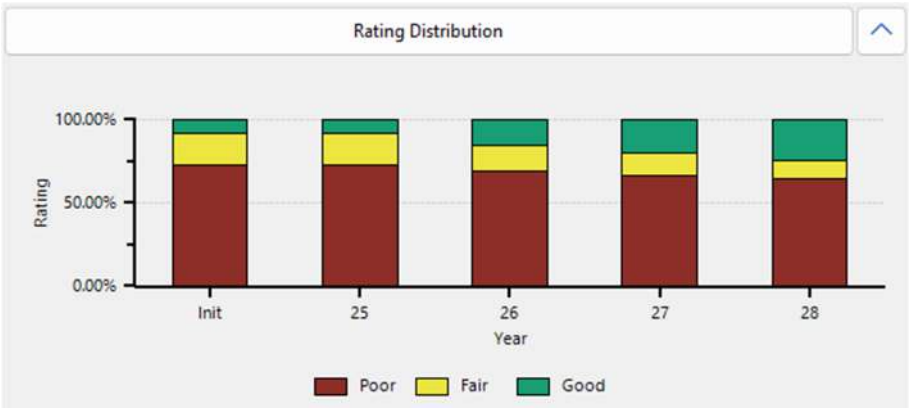


Figure 39: Forecast good/fair/poor Changes to Lapeer CRC Local System at current funding.

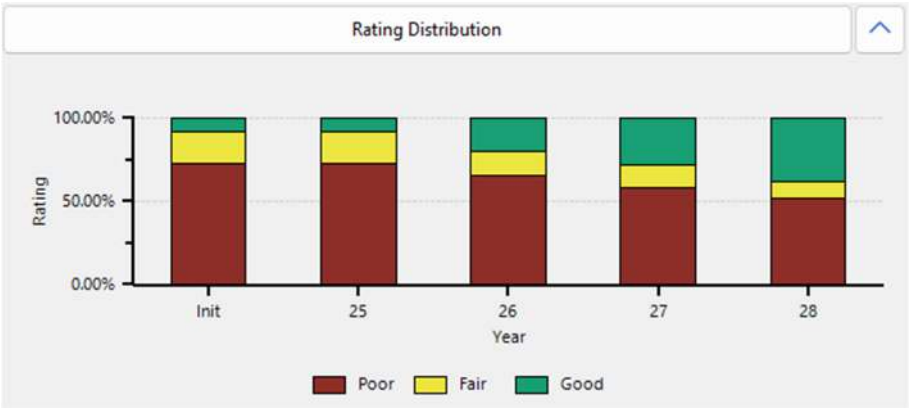


Figure 40: Forecast good/fair/poor Changes to Lapeer CRC Local System with increased funding.

2. FINANCIAL RESOURCES

Public entities must balance the quality and extent of services they can provide with the tax resources provided by citizens and businesses, all while maximizing how efficiently funds are used. Lapeer CRC will overview its general expenditures and financial resources currently devoted to pavement maintenance and construction. This financial information is not intended to be a full financial disclosure or a formal report. Michigan agencies are required to submit an Act 51 Report to the Michigan Department of Transportation each year; this is a full financial report that outlines revenues and expenditures. This report can be obtained on our website at www.lcrconline.com/about/dashboard/.

Lapeer CRC has a total budget for pavement asset management of $7,000,000.

County Primary Network

Lapeer CRC has historically spent $6,000,000 annually on pavement-related projects. Over the next three years, Lapeer CRC plans to spend $6,000,000 on county primary-network projects consisting of, but not limited to, reconstruction, overlay, culvert replacement, and preventive maintenance. Spending on projects depends on revenue from Michigan Transportation Fund (MTF), and federal/state programs.

Lapeer CRC does not have tax millages in its primary road-funding budget.

County Local Network

Lapeer CRC has historically spent $2,000,000 annually on pavement-related projects. Over the next three years, Lapeer CRC plans to spend $2,000,000 on county local-network projects consisting of, but not limited to, reconstruction, overlay, culvert replacement, and preventive maintenance. Spending on projects depends on revenue from Michigan Transportation Fund (MTF), millages, township contributions, and federal/state programs.

3. RISK OF FAILURE ANALYSIS

Transportation infrastructure is designed to be resilient. The system of interconnecting roads and bridges maintained by Lapeer CRC provides road users with multiple alternate options in the event of an unplanned disruption of one part of the system. There are, however, key links in the transportation system that may cause significant inconvenience to users if they are unexpectedly closed to traffic. Figure 41 illustrates the key transportation links in Lapeer CRC's road network, including those that meet the following types of situations:

- **Geographic divides:** Areas where a geographic feature (river, lake, mountain or limited access road) limits crossing points of the feature
- **Emergency alternate routes for high-volume roads:** Roads which are routinely used as alternate routes for high volume roads or roads that are included in an emergency response plan
- **Limited access areas:** Roads that serve remote or limited access areas that result in long detours if closed
- **Main access to key commercial districts:** Areas where large number or large size business will be significantly impacted if a road is unavailable.

- Railroad Crossings – The CN Railroad runs through Elba, Lapeer, Attica, and Imlay Townships, creating twelve (12) at-grade crossings. These crossings are critical for allowing north–south traffic to reach the County's only expressway, I-69.
- Holloway Reservoir – This 1,975-acre reservoir was created in 1955 to meet Flint's growing demand for drinking water. The project involved damming the river, flooding eight miles of land. In 1968, Flint switched to the Detroit water system, and the area was converted into a recreational site managed by the Genesee County Parks Department. Within Lapeer County, only two Lapeer CRC bridges—Stanley Road Bridge and Mt. Morris Road Bridge—cross the reservoir. If both bridges were closed, traffic would face a 30-mile primary road detour to maintain connectivity.

Overall, the Lapeer CRC Road Network is set with 1-mile segments creating a grid pattern. Our road network includes the following critical assets (see Figure 41).

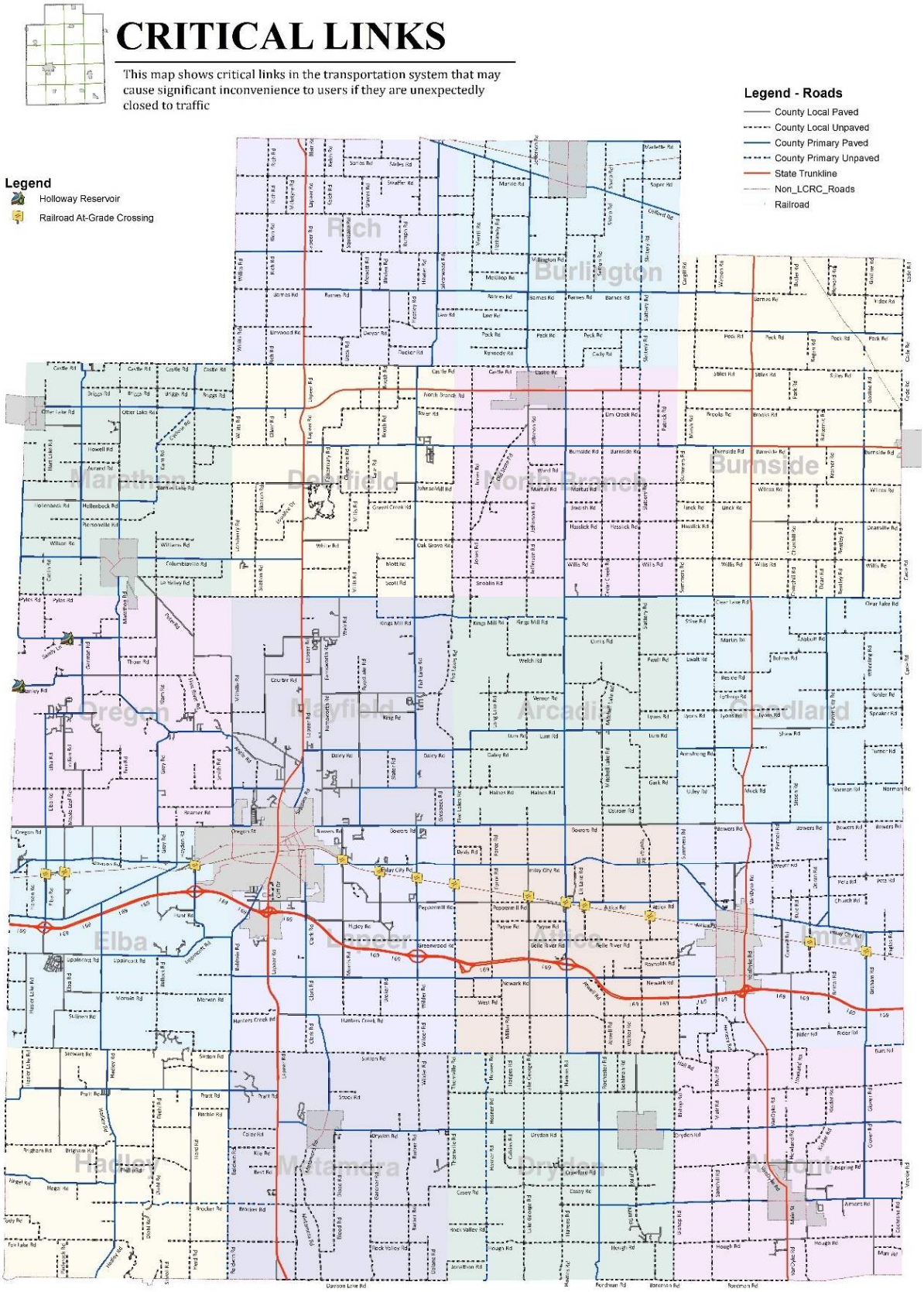


Figure 41: Key transportation links in Lapeer CRC's road network

4. COORDINATION WITH OTHER ENTITIES

An asset management plan provides significant value to infrastructure owners by serving as a platform for coordination among agencies and utilities that share the public right-of-way. Lapeer CRC actively communicates with both public and private infrastructure owners to coordinate work in the following ways:

- Utility Coordination – Utilities are encouraged to follow Lapeer CRC's Utility Policy for facility placement:
    - Gas, telephone, and fiber: 29–33 ft from road centerline
    - Water and sanitary sewer: 25–29 ft from road centerline
    - Poles, hydrants, and pedestals: 33 ft from road centerline
- Project Notifications – Projected primary road improvements are provided to utilities and Townships at least one year in advance, allowing underground facility work to be addressed before surface improvements are made.

In addition to transportation infrastructure, Lapeer CRC also maintains storm sewers, cross-culverts, manholes, catch basins, traffic signs, pavement markings, and guardrail assets. All major assets are managed through a coordinated asset management process to guide upgrades, maintenance, and operations.

To maximize value and reduce costs, Lapeer CRC applies the following policies:

- Roads in poor condition impacted by subsurface projects that disturb more than half the lane will be rehabilitated or reconstructed full width.

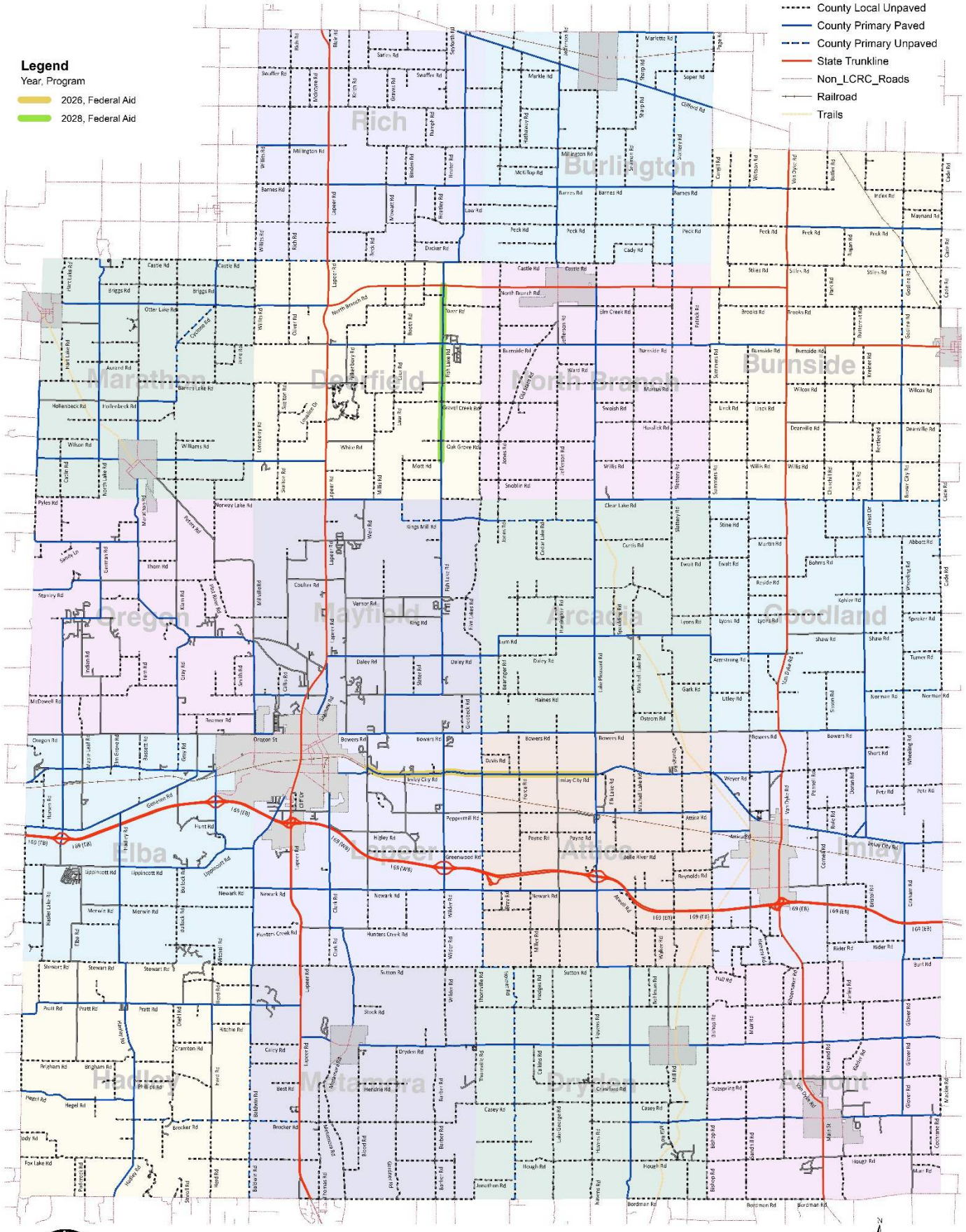
- Subsurface projects that would damage pavements in good condition will be delayed whenever possible or completed with methods that avoid pavement cuts.
- Subsurface utility projects are coordinated across all owners so that under-pavement assets are upgraded together in a single project.
- Road reconstruction projects will not be undertaken until agency-owned subsurface utilities are upgraded to provide at least 40 years of remaining service life.

APPENDIX A: 2026 - 2028 PAVED COUNTY PRIMARY ROAD PLANNED PROJECTS

Project with obligated funding

2026 - 2028 Primary Road Resurface Projects

Selected Roads for HMA Resurface Program in 2026-28 are subject to available funding. This scope of work may vary depending on project cost projections.



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APPENDIX B: 2026 - 2028 ROADSOFT NETWORK MODEL INPUT AND OUTPUTS

Project Planner Summarized Projects By Year Report

Lapeer (County)

Report Module: Planner Evaluation
Today's Date: Thursday, September 4, 2025

Planner-2026-28

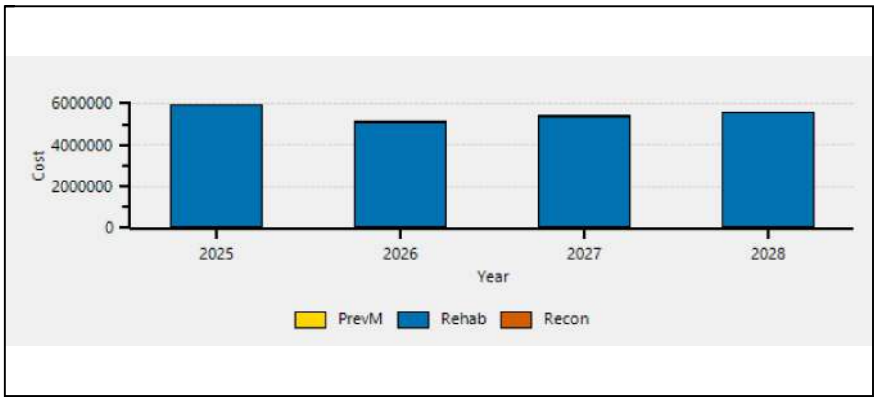
Last Modified: 8/19/2025
Percent Inflation: 0
Number of Years: 4
Strategy/Filter Name: Filter: Primary - Paved
Strategy Filter: Primary - Paved
Plan Memo:

Project Planner Summarized Projects By Year Report

Planner-2026-28

Type of Maintenance Performed - Lane Miles

Type of Maintenance Performed - Cost



Project Planner Summarized Projects By Year Report

Planner-2026-28

Year	SubType	Maint. Type	Treatment	Reset	Length	Lane Length	Surface Cost
2025							
	Asphalt-Prim-Rd	PM (CPM)	Crack Seal	8	1.725	3.450	$12,650
		PM (CPM)	Crack Seal	8	1.920	3.840	$14,080
		PM (CPM)	Crack Seal	8	0.291	0.582	$2,134
		PM (CPM)	Crack Seal	8	0.510	1.020	$3,740
		PM (CPM)	Crack Seal	8	1.435	2.870	$10,523
		PM (CPM)	Crack Seal	8	1.004	2.008	$7,363
		PM (CPM)	Crack Seal	8	1.449	2.898	$10,626
		RH (SI)	Crush & Shape / 4" Resurface	10	5.984	11.968	$2,073,017
		RH (SI)	Crush & Shape / 4" Resurface	10	5.297	10.594	$1,835,022
		RH (SI)	Crush & Shape / 4" Resurface	10	0.514	1.028	$178,063
		RH (SI)	Crush & Shape / 4" Resurface	10	3.924	7.848	$1,359,378
		RH (SI)	HMA Overlay - 2.5"	9	2.093	4.186	$434,674
				Year 2025 Totals:	**26.146**	**52.292**	**$5,941,271**
2026							
		PM (CPM)	Crack Seal	8	3.341	6.682	$24,501
		PM (CPM)	Crack Seal	8	3.903	7.806	$28,622
		PM (CPM)	Crack Seal	8	0.111	0.222	$814
		PM (CPM)	Crack Seal	8	0.265	0.530	$1,943
		RH (SI)	Crush & Shape / 4" Resurface	10	4.264	8.528	$1,477,163
		RH (SI)	Crush & Shape / 4" Resurface	10	0.151	0.453	$78,466
		RH (SI)	Crush & Shape / 4" Resurface	10	1.599	3.198	$553,936
		RH (SI)	Crush & Shape / 4" Resurface	10	0.132	0.264	$45,728
		RH (SI)	Crush & Shape / 4" Resurface	10	2.600	5.200	$900,709
		RH (SI)	HMA Overlay - 2.5"	9	2.027	4.438	$460,842
		RH (SI)	HMA Overlay - 2.5"	9	1.744	3.488	$362,194
		RH (SI)	HMA Overlay - 2.5"	9	0.854	1.708	$177,359
		RH (SI)	HMA Overlay - 2.5"	9	2.739	5.478	$568,836
		RH (SI)	HMA Overlay - 2.5"	9	2.157	4.314	$447,966

Project Planner Summarized Projects By Year Report

Planner-2026-28

Year	SubType	Maint. Type	Treatment	Reset	Length	Lane Length	Surface Cost
			Year 2026 Totals:		**25.887**	**52.309**	**$5,129,079**
2027							
		PM (CPM)	Crack Seal	8	4.453	9.193	$33,708
		PM (CPM)	Crack Seal	8	0.495	0.990	$3,630
		PM (CPM)	Crack Seal	8	1.820	3.640	$13,347
		RH (SI)	Crush & Shape / 4" Resurface	10	2.711	5.422	$939,163
		RH (SI)	Crush & Shape / 4" Resurface	10	0.928	1.856	$321,484
		RH (SI)	Crush & Shape / 4" Resurface	10	1.960	3.920	$678,996
		RH (SI)	Crush & Shape / 4" Resurface	10	2.234	4.468	$773,917
		RH (SI)	Crush & Shape / 4" Resurface	10	1.816	3.632	$629,111
		RH (SI)	Crush & Shape / 4" Resurface	10	2.940	5.880	$1,018,494
		RH (SI)	HMA Overlay - 2.5"	9	0.996	1.992	$206,849
		RH (SI)	HMA Overlay - 2.5"	9	3.792	7.584	$787,523
			Year 2027 Totals:		**24.145**	**48.577**	**$5,406,221**
2028							
		PM (CPM)	Crack Seal	8	5.229	10.458	$38,346
		PM (CPM)	Crack Seal	8	6.073	12.146	$44,535
		RH (SI)	Crush & Shape / 4" Resurface	10	8.303	16.606	$2,876,381
		RH (SI)	Crush & Shape / 4" Resurface	10	0.748	1.496	$259,127
		RH (SI)	Crush & Shape / 4" Resurface	10	2.025	4.050	$701,514
		RH (SI)	Crush & Shape / 4" Resurface	10	4.862	9.724	$1,684,326
			Year 2028 Totals:		**27.240**	**54.480**	**$5,604,230**
			Report Totals:		**103.418**	**207.658**	**$22,080,801**

Strategy Comprehensive Report

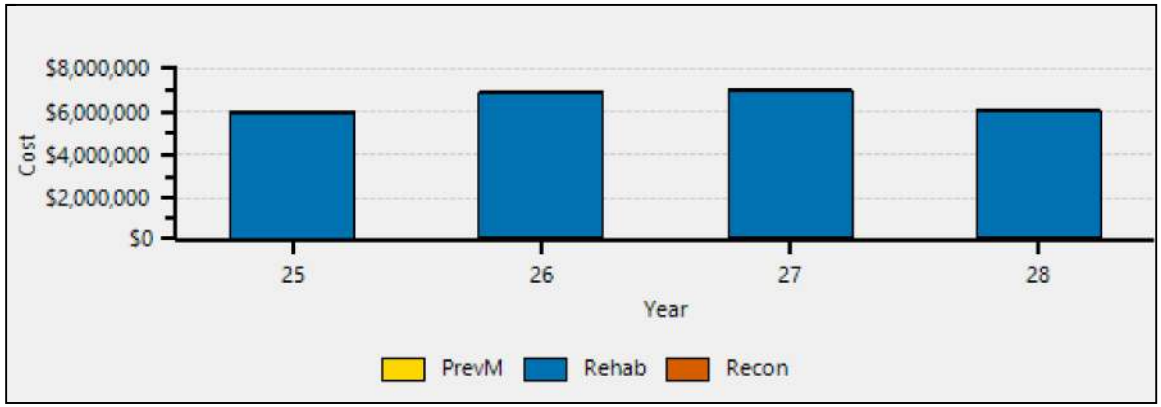
Primary-Planner-2026-28

Base Year	2025
Percent Inflation	0
Number of Years	4
Optimized	No
Current Filter	Primary - Paved

Subtype	Treatment	Trigger	Reset	Cost/Ln Mile	Budget	Lane Miles	Year
Asphalt-Prim-Rd	RH (SI) Crush & Shape / 4" Resurface	1 - 4	10	$173,213.33			
					$6,000,006	34.639	2025
					$3,500,001	20.206	2026
					$6,000,006	34.639	2027
					$6,000,006	34.639	2028
					$2,299,580	13.276	2029
	RH (SI) HMA Overlay - 2.5"	2 - 4	9	$103,840.00			
					$2,017,196	19.426	2026
					$994,372	9.576	2027
	PM (CPM) Crack Seal	6 - 8	8	$3,666.67			
					$55,880	15.240	2026
					$50,684	13.823	2027
					$82,881	22.604	2028
Composite	RH (SI) Mill & Overlay - 2" HMA	2 - 4	9	$105,541.33			
					$1,358,317	12.870	2026

Strategy Comprehensive Report

Cost Distribution

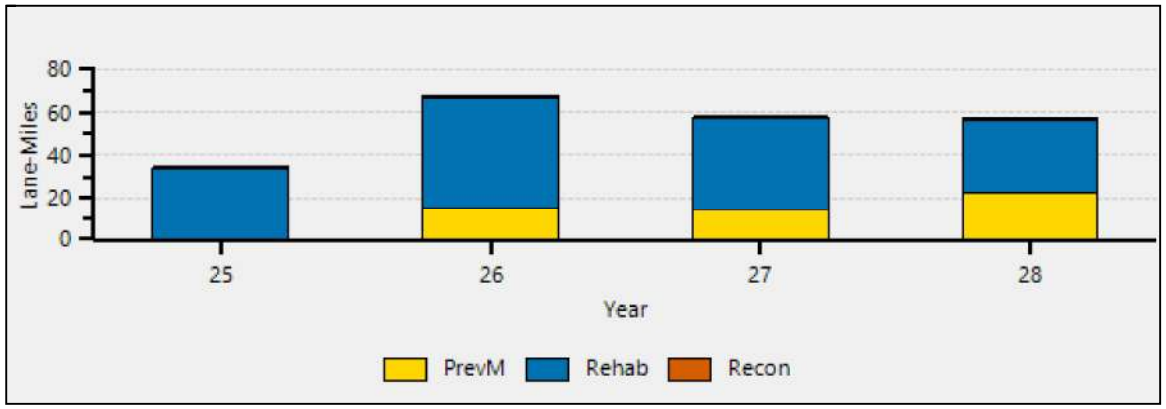


Primary-Planner-2026-28

Maintenance Type	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Prev Maint	$0	$55,880	$50,684	$82,881						
Rehab	$6,000,006	$6,875,513	$6,994,378	$6,000,006						
Recon	$0	$0	$0	$0						
Total	$6,000,006	$6,931,393	$7,045,062	$6,082,887						

Strategy Comprehensive Report

Maintenance Performed

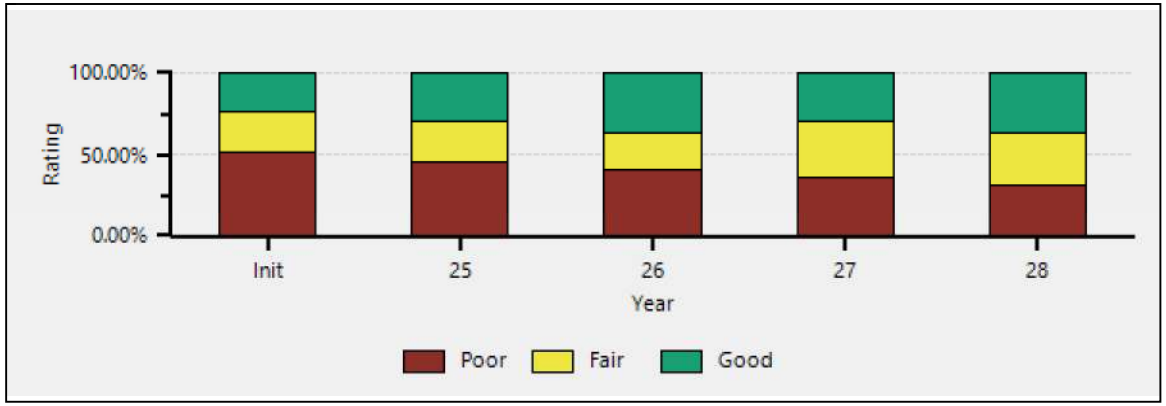


Primary-Planner-2026-28

Maintenance Type in Lane Miles	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Prev Maint	0.000	15.240	13.823	22.604						
Rehab	34.639	52.502	44.215	34.639						
Recon	0.000	0.000	0.000	0.000						
Total	34.639	67.742	58.038	57.243						

Strategy Comprehensive Report

Rating Distribution



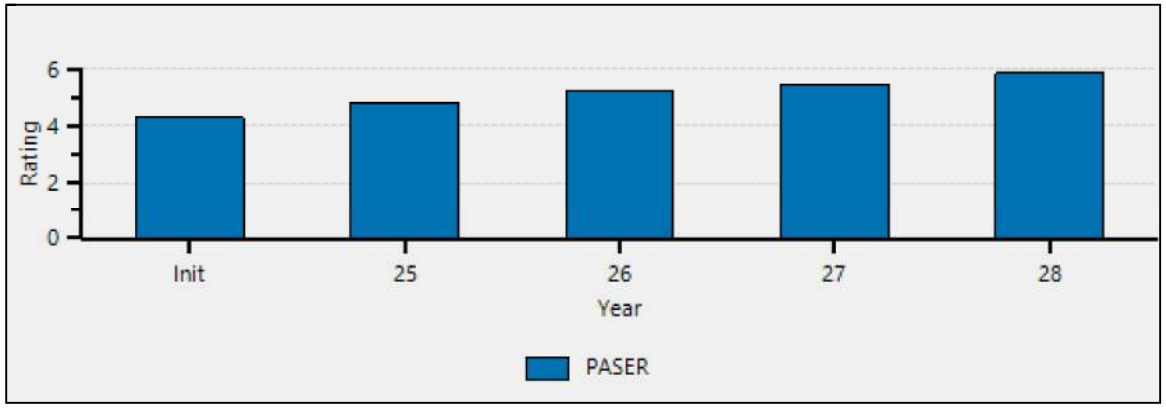
Primary-Planner-2026-28

Initial Values

Lane Miles	%	Rating	2025		2026		2027		2028		2029	2030	2031	2032	2033	2034
149.377	24.1	Good	184.016	29.7	222.357	35.9	180.108	29.1	225.012	36.3						
149.733	24.2	Fair	149.733	24.2	139.085	22.5	214.026	34.6	199.428	32.2						
320.364	51.7	Poor	285.725	46.1	258.031	41.7	225.340	36.4	195.035	31.5						
619.474	100.0	Total														

Strategy Comprehensive Report

PASER Distribution



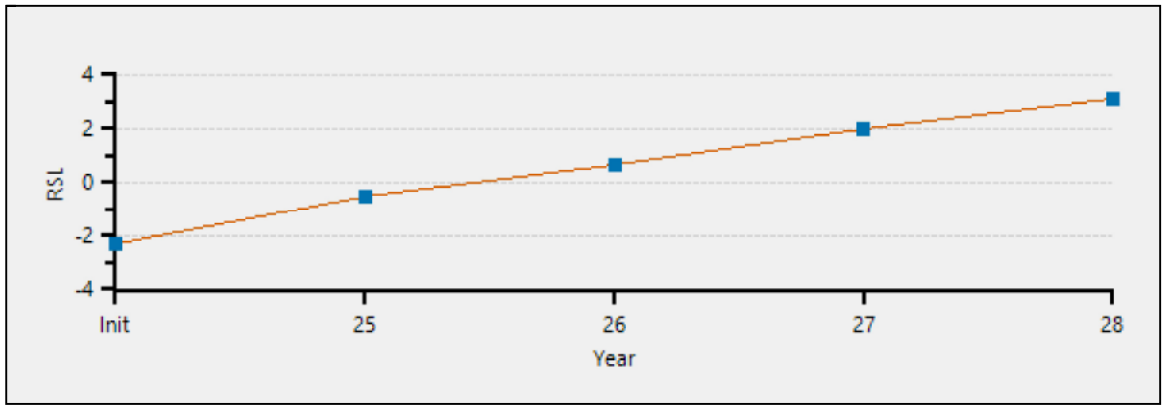
Primary-Planner-2026-28

Initial Value

Lane Miles	PASER	2025	2026	2027	2028
5.188	10	39.827	20.206	34.639	34.639
16.928	9	16.928	72.123	29.782	34.639
127.261	8	127.261	130.028	115.687	155.734
86.895	7	86.895	97.627	173.436	157.066
25.795	6	25.795	25.098	30.996	34.758
37.043	5	37.043	16.360	9.594	7.604
22.046	4	22.046	30.689	35.879	34.443
18.958	3	18.958	17.230	14.063	15.400
66.859	2	66.859	37.503	36.781	35.326
212.501	1	177.862	172.609	138.617	109.866
4.297	Average	4.800	5.213	5.466	5.835

Strategy Comprehensive Report

RSL Distribution



Primary-Planner-2026-28

Initial Value

Lane Miles	RSL	2025	2026	2027	2028
5.188	**14**	39.827	20.206	34.639	34.639
16.928	**13**	16.928	72.123	29.782	34.639
2.652	**12**	2.652	22.008	76.731	37.317
95.448	**11**	95.448	7.732	26.616	84.266
29.401	**10**	29.401	100.528	12.340	34.151
15.037	**9**	15.037	29.401	100.528	12.340
28.470	**8**	28.470	15.037	29.401	100.528
24.541	**7**	24.541	28.470	15.037	29.401
18.669	**6**	18.669	24.541	28.470	15.037
11.733	**5**	11.733	17.996	21.408	25.280
10.376	**4**	10.376	2.846	7.306	1.994
4.334	**3**	4.334	4.696	2.846	7.306
11.524	**2**	11.524	4.334	4.696	2.846
24.809	**1**	24.809	11.524	4.334	4.696
9.414	**0**	9.414	18.585	11.524	4.334
9.246	**-1**	9.246	5.770	18.585	11.524
3.386	**-2**	3.386	6.334	5.770	18.585
4.433	**-3**	4.433	3.296	6.334	5.770
9.501	**-4**	9.501	4.433	3.296	6.334
5.024	**-5**	5.024	9.501	4.433	3.296
7.018	**-6**	7.018	5.024	9.501	4.433
9.350	**-7**	9.350	7.018	5.024	9.501
22.372	**-8**	22.372	9.350	7.018	5.024
13.165	**-9**	13.165	15.464	9.350	7.018
14.954	**-10**	14.954	0.647	5.888	9.350

Strategy Comprehensive Report

7.012	**-11**	7.012	14.954	0.647	5.888
22.834	**-12**	22.834	7.012	14.954	0.647
9.164	**-13**	9.164	22.834	7.012	14.954
17.590	**-14**	17.590	9.164	22.834	7.012
39.040	**-15**	39.040	17.590	9.164	22.834
70.353	**-16**	70.353	39.040	17.590	9.164
32.102	**-17**	11.869	61.771	39.040	17.590
13.170	**-18**	0.000	0.244	27.132	31.410
1.236	**-19**	0.000	0.000	0.244	0.123
0.000	**-20**	0.000	0.000	0.000	0.244
-2.268	Average	-0.509	0.697	1.993	3.077

APPENDIX C: MEETING MINUTES VERIFYING PLAN ACCEPTANCE BY GOVERNING BODY

Board of Lapeer County Road Commissioners

820 Davis Lake Road
Lapeer, Michigan 48446
Phone: 810.664.6272 | Fax: 810.664.0404

RESOLUTION

Motion No. 091725- 145

Member Novak moved, upon recommendation of Jostock to approve the following resolution:

WHEREAS:

PUBLIC ACT 325
CERTIFICATION OF TRANSPORTATION ASSET MANAGEMENT PLAN

Certification Year: 2025

Local Road-owning Agency Name: Lapeer County Road Commission

Beginning October 2019 and on a three-year cycle thereafter, certification must be made for compliance to Public Act 325. A local road-owning agency with 100 certified miles or more must certify that it has developed an asset management plan for the road, bridge, culvert and traffic signal assets. Signing this form certifies that the hitherto referred agency meets with minimum requirements as outlined by Public Act 325 and agency-defined goals and objectives.

This form must be signed by the chairperson of the local road-owning agency or the county executive and chief financial officer of the local road-owning agency.

Approved on September 17, 2025 by Board of Lapeer County Road Commission

John Howell, Chairman

Terry Jostock, Vice Chairman

James Novak, Jr., Member

Kathleen Cunningham, Board Secretary

Due every three years based on agency submission schedule

Submittal Date: September 24, 2025

NOW, THEREFORE, BE IT RESOLVED that Board of Lapeer County Road Commissioners is committed to asset management and approves the County Highway Engineer to submit the Lapeer County Road Commission Asset Management Plan.

Ayes: Howell, Jostock, Novak Nays: None

I, Kathleen Cunningham, duly appointed Secretary to the Board of Lapeer County Road Commission, do hereby certify that the above is a true and exact copy of a resolution adopted by the Board and extracted from the minutes of a regular meeting held on Wednesday, September 17, 2025, at the Lapeer County Road Commission office at 820 Davis Lake Road, Lapeer, Michigan 48446

Kathleen Cunningham
Kathleen Cunningham, Board Secretary