



City of Goshen

Pavement Management Plan

November 2022

Approved by:

Board of Public Works and Safety



Mayor Jeremy Stutsman



Michael Landis



Mary Nichols

Absent

DeWayne Riouse

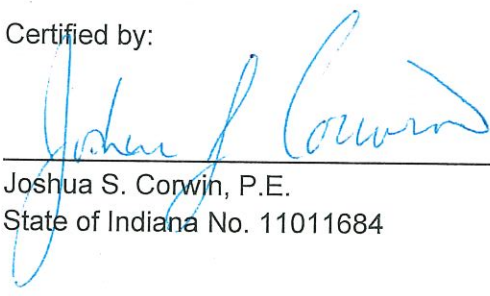


Barb Swartley

Prepared by:

City of Goshen Engineering Department
204 East Jefferson Street, Suite 1
Goshen, IN 46528

Certified by:



Joshua S. Corwin, P.E.
State of Indiana No. 11011684

Table of Contents

Definitions 2

Report Overview 3

Goals and Objectives 3

What is the PASER System? 3

Study Methodology 9

Pavement Maintenance and Cost Considerations 10

Pavement Preservation Strategy 10

Roadway Improvements Scheduled for 2023 13

Roadway Improvements Completed in 2022 14

Recommendations and Conclusions 17

Definitions

1. **Transverse Crack** - Cracks perpendicular to the pavement's centerline.
2. **Longitudinal Crack** - Cracks parallel to the pavement's centerline.
3. **Rutting** - Surface depression in the wheel path of the pavement.
4. **Block Cracking** - Interconnected cracks that divide the pavement up into rectangular pieces.
5. **Alligator Cracking** - A series of interconnected cracks caused by fatigue failure of the HMA surface under repeated traffic loading.
6. **Raveling** - The progressive disintegration of an HMA layer from the surface downward as a result of the dislodgement of aggregate particles.

Report Overview

The purpose of this inspection report was to rate the current pavement conditions of each street segment and to identify needed maintenance and repair of the 153 centerline miles of roadway (312 lane miles) under the jurisdiction of the City of Goshen utilizing the PASER guidelines. The results of the study will be the basis for the development of programs in consideration of available funds. The study is intended to be reviewed and updated annually with PASER reassessment occurring every other year.

Goals and Objectives

It is the City of Goshen's goal to use the inventory and condition ratings to apply appropriate roadway preservation techniques in order to extend the life of the City's roadways in a cost-effective manner. It is the City's goal to reduce the number of poor roads (PASER rating 1-4) from 70% to 30% in the next 20 years.

What is the PASER System?

The Pavement Surface Evaluation and Rating (PASER) system visually evaluates the condition of road segments. Ratings are applied to road segments of varying length, with segment values ranging from 10 for a new road segment to 1 for a completely failed segment, and specific ratings determined by the number and type of surface defects. The rating is based upon the worst area within the street segment.

PASER also recommends needed maintenance or repair, based on the condition of the roadway. PASER Ratings for this report are divided into the following maintenance categories:

PASER Rating	Pavement Quality
10	Excellent
9	↑
8	
7	
6	Fair
5	
4	↓
3	
2	
1	

- **Roads with PASER ratings of 8-10 (Good Condition) require Routine Maintenance.** Routine maintenance encompasses day-to-day maintenance activities, such as street sweeping, drainage, shoulder gravel grading, and sealing cracks to prevent standing water and water penetration.



PASER Rating 9

There are no visible distresses in PASER ratings 9 and 10 because they are new constructions or recent overlays.

Pictured is River Race Drive between Madison Street and Monroe Street shows no signs of wear.



PASER Rating 8

Roadways with a PASER rating 8 have no longitudinal cracks, except for reflection of pavement joints. Occasional transverse cracks spaced 40 feet or more apart. All cracks are sealed or tight (open less than 1/4").

Pictured is Martin Avenue from the Meijer Access Road to Corporate limits. This roadway has small occasional cracks, and requires very little maintenance.

- **Roads with PASER ratings of 5-7 (Fair Condition) require Capital Preventative Maintenance.** Capital preventative maintenance is a planned set of cost-effective treatments to an existing roadway system that slow down future deterioration and maintain or improve the functional condition of the system without significantly increasing structural capacity. The purpose of capital preventative maintenance fixes is to protect the pavement structure, slow the rate of pavement deterioration, and/or correct pavement surface deficiencies. These treatments are targeted at pavement surface defects primarily caused by the environment and by pavement material deficiencies.



PASER Rating 7

PASER rating 7 pavement can include very slight or no raveling and shows some surface wear. Longitudinal cracks from reflection or paving joints can be up to 1/4" wide and transverse cracks can be up to 1/4" wide and spaced between 10' and 40' apart. There is little or slight crack raveling, no patching, or very few patches in excellent condition.

Pictured is Wheatland Drive from Barley Lane to Oatfield Lane. This roadway has some longitudinal cracks. There are also transverse cracks 10'-40' apart. Most of the cracks are not open due to being recently crack sealed.



PASER Rating 6

Roadways with a PASER rating of 6 are starting to show signs of traffic wear and/or raveling. There are open longitudinal cracks with a width between 1/4"-1/2". Transverse cracks are open with a width between 1/4"-1/2" with some being less than 10' apart. The first signs of block cracking can appear, slight to moderate flushing or polishing, and it may have occasional patches in good condition.

Pictured is Waterford Mills Parkway between Regent Street and Edison Drive. This roadway has transverse cracks that are open between 1/4" and 1/2" and are less than 10 feet apart. Some longitudinal cracking along the corridor.



PASER Rating 5

Roadways with a PASER rating of 5 have moderate to severe raveling, longitudinal and transverse cracks open 1/2" or more and secondary cracks. Block cracking on up to 50% of the pavement surface, extensive to severe polishing, and some patching or wedging in good condition.

Pictured is Mountain Ash Lane between Redspire Boulevard and Tulip Boulevard. This roadway has transverse cracks that are greater than 1/2" wide.

Roads with PASER ratings of 1-4 (Poor Condition) require Structural Improvements.

This category includes work identified as rehabilitation and reconstruction, addressing the structural integrity of a road.



PASER Rating 4

PASER rating 4 roadways have severe surface raveling, multiple longitudinal and transverse cracks with slight raveling, block cracking over 50% of the surface, patching in fair condition, and rutting of less than 1/2".

Pictured is Sixth Street between Lincoln Avenue and Washington Street. This roadway has longitudinal cracks in the wheel path and the block cracking.



PASER Rating 3

Roadways with PASER rating 3 may have closely spaced longitudinal and transverse cracks, severe block cracking, alligator cracking on less than 25% of the surface, patches in fair to poor condition, occasional potholes, and rutting between 1/2" and 2".

Pictured is Lincoln Avenue between Greene Road and Silverwood Lane. This roadway has longitudinal and transverse cracks that are showing erosion, and there is also rutting in the wheel path.



PASER Rating 2

A PASER rating 2 road has cracking over 25% of the surface, rutting greater than 2", patches in poor condition, and potholes.

Pictured is VanGilst Drive between Alfalfa Street and Michigan Street. This roadway has alligator cracking over 25% of the surface, and patches that are in poor condition.



PASER Rating 1

PASER rating 1 roadways have severe distress with a loss of surface integrity.

Pictured is Westfield Drive between Pike Street and Wilkinson Street. This roadway has extensive alligator cracking and multiple patches that are in poor condition making it a PASER rating 1.

Study Methodology

The City of Goshen utilized 2-person data collection teams. Each roadway segment was driven. At the end of the segment, the team discussed the roadway and documented the data into a mobile GIS application that factors that resulted in the segment rating. All segments were entered into a spreadsheet that will allow for easy data presentation. Data for the 2022 report was collected in March of 2022.

Data collection team members attend regular training sessions hosted by Indiana Local Technical Assistance Program (LTAP). Participants are given instructions on how to use the PASER road rating system for data collection.

Goshen's Existing Roadway Conditions

A detailed table of the system is included in Appendix A. The table below provides a summary of the mileage and condition rating for the City. A rating of 5 is the minimum acceptable pavement condition, because it is the last rating that does not require structural repairs. Currently the average rating per lane mile for the City's network is **4.68**, up slightly from 2021's average of 4.49.

Rating and Mileage Summary		
Ratings	Lane Miles	Percentage
0-4	177.2	56.9%
5-7	80.9	26.0%
8-10	53.5	17.2%
Total	311.6	

Results of the 2022 PASER ratings are shown below in chart form.



A color-coded map of the PASER ratings for every street within the City of Goshen's street network is included in Appendix A.

Pavement Maintenance and Cost Considerations

A good pavement maintenance program involves a combination of activities that revolve around the principal that once pavement gets to a certain condition, the deterioration of the pavement accelerates. Maintenance items such as crack sealing on roads with PASER ratings in the Good categories (PASER Ratings 8-10) and sealing or micro-surfacing roadways with PASER ratings in the Fair categories (PASER Rating 5-7) are an essential part of roadway maintenance program. Crack sealing is a low-cost method to keep the roads from needing high cost reconstruction. Structural improvements are recommended for streets with a PASER Rating of 4 or below. Streets with a PASER Rating 3-4 are typically slated for milling and overlay with full depth patches. Street with a PASER Rating 1-2 are typically full-depth pavement reconstruction projects. The following table summarizes the anticipated costs associated with the City of Goshen’s streets.

Cost Summary of Goshen's Roadway Network (Based on 2022 PASER Ratings)					
PASER Rating	Centerline Miles	Treatment	Estimated Cost Per Mile	Estimated Cost	Typical Performance Period (Years)
8-10 (Good)	26.1	Crack Seal	\$8,500	\$221,850	2-4
7 (Fair)	9.3	Chip Seal	\$23,000	\$213,900	4-6
6 (Fair)	12.9	Slurry Seal	\$33,500	\$432,150	4-6
5 (Fair)	17.3	Micro-Surface	\$65,000	\$1,124,500	5-7
4 (Poor)	26.7	Mill & Overlay w/ 5% Full-Depth Patching	\$175,000	\$4,672,500	5-10
3 (Poor)	30.0	Mill & Overlay w/ 25% Full-Depth Patching	\$330,000	\$9,900,000	5-10
1-2 (Poor)	30.9	Full Reconstruction	\$1,070,000	\$33,063,000	20-30
Total =				\$49,627,900	

While there are numerous accepted treatments for recommended for each PASER rating level, the above methods are the most likely to be used by the City of Goshen. The costs alone show why it is so important maintain the higher rated streets and keep them from failure. The crack sealing be done with in-house crews, whereas the other options are usually bid and done by a contractor. In order to further stretch the paving funds, the Street Department has also started performing some of the paving operations in-house.

Pavement Preservation Strategy

The pavement preservation strategy is an important component of the asset management plan as it outlines a systematic approach to pavement maintenance. Pavement preservation strategies can be very basic, such as a “fix the worst first” strategy or can be very complex, using historical data on pavement treatments and maintenance costs to develop pavement degradation curves and document the benefits of each type of treatment to develop an optimal approach to minimize

maintenance expenses. The more complex approach can be very time consuming even with the use of specialized software, but many communities are seeing benefits from this approach that far outweigh the time and software costs.

The following tables are an example that roughly represent the City's current approach:

Arterial-Collector			
Year	Est. PASER	Treatment	Est. Cost
3	9	Crack Seal	\$ 6,000
7	7	Crack Seal	\$ 6,000
15	4	2" Mill and Overlay	\$ 110,000
19	7	Crack Seal	\$ 6,000
23	5	Crack Seal	\$ 6,000
27	4	Crack Seal	\$ 6,000
30	3	Reconstruction [^]	\$ 900,000
Total Life Cycle Cost			\$1,040,000
Yearly Cost			\$ 30,000

Local			
Year	Est. PASER	Treatment	Est. Cost
4	8	Crack Seal	\$ 6,000
8	6	Crack Seal	\$ 6,000
12	5	Crack Seal	\$ 6,000
20	3	2" Mill and Overlay	\$ 110,000
24	6	Crack Seal	\$ 6,000
28	5	Crack Seal	\$ 6,000
33	3	2" Mill and Overlay	\$ 110,000
37	6	Crack Seal	\$ 6,000
41	4	Crack Seal	\$ 6,000
45	3	Reconstruction - Minor Road [^]	\$ 550,000
Total Life Cycle Cost			\$ 812,000
Yearly Cost			\$18,044.44

*Note - The Costs do not include any necessary additional expenditures such as professional design services, right-of-way acquisition, utility relocation, etc.

The following tables summarize the estimated life cycle of the pavement resulting from the current preservation approach:

	Arterial-Collector	Local
Total Lane Miles	71.1	240.6
Total Life Cycle Cost per Lane Mile	\$ 1,040,000	\$ 812,000
Yearly Average Cost per Lane Mile	\$ 30,000	\$ 18,044
Resulting Average PASER	5.93	5.16
% PASER 5 & over	77%	58%
% PASER 4 & over	97%	84%
Yearly Required Lane Miles Per Activity		
Reconstruction	2.4	-
Reconstruction - Minor Road	-	5.3
2" Mill and Overlay	2.4	10.7
Crack Seal	11.9	37.4
Required Yearly Expenditure	\$ 2,133,000	\$ 4,340,754

The values shown in the above table assume that the current road network is already at the desired average PASER rating. Additional expenditures would be required over time to bring the network up to the desired level. Expenditure levels as part of the preservation strategy can be manipulated to result in a desired level for the average PASER rating for each road classification group. Note that the required expenditures represented in the table are often supplemented to some level with federal assistance, grant money, and funds from the City's Redevelopment Commission.

The following table shows the lane miles completed for each maintenance activity over the last 4 years given the current funding and manpower available relative to the amounts suggested in the pavement management plan's preservation strategy:

Lane Miles per Maintenance Activity

	2019	2020	2021	2022	AMP
Concrete - Joint/Crack Sealing	-	-	4.4	-	-
Concrete - Slab Replacement	1.8	2.4	2.5	2.5	0.6
Concrete - Full Depth Repairs					
Crack Seal	0.7	22.7	15.3	9.3	45.6
Mill and Overlay - 1.5"	6.3	-	19.8	-	12.3
Mill and Overlay - 2"	-	-	10.4	8.3	
Overlay - 1.5"	-	-	0.2	0.4	-
Reconstruction - Asphalt	5.9	2.3	6.9	1.0	7.0
Overlay < 1.5"	1.9	-	-	-	-

Roadway Improvements Scheduled for 2023

(Known projects as of report date)

Reconstruction

Wilden Ave. – Rock Run Creek to Main St.

Indiana Ave. – US 33 to Chicago Ave.

Full-Depth Replacement

Indiana Ave. – NS Chicago Line north

Alley #260 – Main St. to Alley #141

Chicago Ave. – Harrison St. to Bashor Rd.

Edgewood Dr. – Colonial Manor Dr. to Greene Rd.

Mayfield Dr. – Greene Rd. to Bashor Rd.

Mill/Pave

13th St. – Leroy St. to College Ave.

Chicago Ave. – Harrison St. west

Leroy St. – 12th St. to 15th St.

Mervin St. – 12th St. to 15th St.

Oak Lane – College Ave. north

Rieth Blvd. – CR 17 to US 33

Wildwood Ct. – Mervin St. to end

12th St. – Leroy St. to College Ave.

Wilson Ave. – Plymouth Ave. to Main St.

10th St – Madison St. to Washington St,

Jefferson St. – 10th St. to 11th St.

11th St. – Madison St. to Jefferson St.

Merrill Pl. – Parmley Dr. to Gorham Rd.

Twinflower Dr. – Mintcrest Dr. to Sweet Clover Dr.

Harvest Dr. – Mintcrest Dr. to Sweet Clover Dr.

Crimson Leaf Dr. – Harvest Dr. to Twinflower Dr.

White Blossom Dr. – Harvest Dr. to Twinflower Dr.

Red Blossom Dr. – Harvest Dr. to Twinflower Dr.

Sweet Clover Dr. – Harvest Dr. to Twinflower Dr.

Overlays

Burdick St. – Main St. west

Jackson St. – Main St. west

Murray St. – Wilson Ave. west

Roadway Improvements Completed in 2022

Roadway	From	To	2022 Treatment
Brookfield Ct	Dead End	Kentfield Way	Concrete - Slab Replacement
Kentfield Way	Woodstone Ct	Brookfield Ct	Concrete - Slab Replacement
Elmherst Ct	Dead End	Kentfield Way	Concrete - Slab Replacement
Kentfield Way	Elmherst Ct	Ashton Ct	Concrete - Slab Replacement
Maywood Ct	Dead End	Kentfield Way	Concrete - Slab Replacement
Kentfield Way	Pembroke Cir	Pembroke Cir	Concrete - Slab Replacement
Winsted Dr	College Ave	Kentfield Way	Concrete - Slab Replacement
Ashton Ct	Dead End	Kentfield Way	Concrete - Slab Replacement
Garland Dr	Canton Dr	Sutton Ct	Concrete - Slab Replacement
Sutton Ct	Dead End	Garland Dr	Concrete - Slab Replacement
Canton Dr	College Ave	Garland Dr	Concrete - Slab Replacement
Kentfield Way	Winsted Dr	Pembroke Ci	Concrete - Slab Replacement
Kentfield Way	Canton Dr	Elmherst Ct	Concrete - Slab Replacement
Garland Dr	Sutton Ct	Kentfield Way	Concrete - Slab Replacement
Canton Dr	Garland Dr	Kentfield Way	Concrete - Slab Replacement
Kentfield Way	Canton Dr	Brookfield Ct	Concrete - Slab Replacement
Kentfield Way	Maywood Ct	Woodstone Ct	Concrete - Slab Replacement
Kentfield Way	College Ave	Maywood Ct	Concrete - Slab Replacement
Ferndale Rd	Midway Rd	County Home Rd	Crack Seal
Midway Rd	Ferndale Rd	County Rd 113	Crack Seal
Midway Rd	Elkhart Rd	County Home Rd	Crack Seal
Berkey Ave	Greene Rd	Wentworth Dr	Crack Seal
Berkey Ave	Waneta Dr	City Limits	Crack Seal
Berkey Ave	Wentworth Dr	Waneta Dr	Crack Seal
Marshwood Rd	Cul-de-Sac	Marabou Pl	Crack Seal
Sweetbriar Dr	Woodmere Ln	Wilden Ave	Crack Seal
Marshwood Rd	Russett Ave	Saybrook Dr	Crack Seal
Marshwood Rd	Russet Ave	Sweetbriar Dr	Crack Seal
Lincoln Ave	Main St	3rd St	Crack Seal
Lincoln Ave	3rd St	2nd St	Crack Seal
Lincoln Ave	Water St	Chicago Ave	Crack Seal
9th St	Madison St	Jefferson St	Crack Seal
8th St	Washington St	Lincoln Ave	Crack Seal
Purl St	9th St	8th St	Crack Seal
Purl St	7th St	6th St	Crack Seal
Purl St	6th St	5th St	Crack Seal
8th St	Madison St	Jefferson St	Crack Seal
8th St	Jefferson St	Washington St	Crack Seal

9th St	Jefferson St	Washington St	Crack Seal
Lincoln Ave	5th St	Main St	Crack Seal
Jefferson St	10th St	9th St	Crack Seal
Purl St	Cottage Ave	7th St	Crack Seal
Purl St	8th St	Cottage Ave	Crack Seal
Lincoln Ave	2nd St	Water St	Crack Seal
Martin Ave	Meijer Access Rd West	Corp Limits	Crack Seal
Ferndale Rd	County Home Rd	Elkhart Rd	Crack Seal
Marshwood Rd	Marabou Pl	Saybrook Dr	Crack Seal
Lincoln Ave	8th St	Railroad Tracks	Crack Seal
Newbury Circ	Regent St	Regent St	Crack Seal
Tyler Ln	Tippecanoe Dr	William Henry Ln	Crack Seal
Shawnee Dr	Harrison Ridge Ln	Dead end	Crack Seal
Tyler Ln	Aspen Dr	Weaver Woods Dr	Crack Seal
Tyler Ln	Aspen Dr	William Henry Ln	Crack Seal
Shawnee Dr	Harrison Ridge Ln	Tippecanoe Dr	Crack Seal
Harrison Ridge Ln	CR 28	Tyler Ln	Crack Seal
Shawnee Dr	Aspen Dr	William Henry Ln	Crack Seal
William Henry Ln	Tyler Ln	Shawnee Dr	Crack Seal
Tyler Ln	Palmetto Ln	Dead end	Crack Seal
Tyler Ln	Weaver Woods Dr	Palmetto Ln	Crack Seal
Tyler Ln	Harrison Ridge Ln	Tippecanoe Dr	Crack Seal
Shawnee Dr	Tippecanoe Dr	William Henry Ln	Crack Seal
Fescue Ct	Michigan Ave	Cul-de-Sac	Mill and Overlay - 2"
Berkey Ave	Amberwood Dr	Greene Rd	Mill and Overlay - 2"
Berkey Ave	Silverwood Ln	Amberwood Dr	Mill and Overlay - 2"
Berkey Ave	Wheatland Dr	Silverwood Ln	Mill and Overlay - 2"
Berkey Ave	Glenwood Dr	Wheatland Dr	Mill and Overlay - 2"
Berkey Ave	Riverside Blvd	Bainbridge Pl	Mill and Overlay - 2"
Berkey Ave	Winter Ave	Riverside Blvd	Mill and Overlay - 2"
Huron St	Pike St	Wilkinson St	Mill and Overlay - 2"
Carter Rd	Main St	Main St	Mill and Overlay - 2"
Sedgefield Way	Harvest	Clover Trails Blvd	Mill and Overlay - 2"
Clover Trails Blvd	Indiana Ave	Sedgefield Way	Mill and Overlay - 2"
Harvest Dr	Sedgefield Way	Sweet Clover Dr	Mill and Overlay - 2"
Westwood Rd	Main St	Woodward Pl	Mill and Overlay - 2"
Berkey Ave	Bainbridge Pl	Glenwood Dr	Mill and Overlay - 2"
Berkey Ave	Dewey Ave	Winter Ave	Mill and Overlay - 2"
Sedgefield Way	Twinflower Dr	Clover Trails Blvd	Mill and Overlay - 2"
Westwood Rd	Mayflower Pl	Gra-Roy	Mill and Overlay - 2"
Illinois St	11th St	10th St	Mill and Overlay - 2"

Illinois St	12th St	11th St	Mill and Overlay - 2"
Illinois St	14th St	13th St	Mill and Overlay - 2"
Ohio St	11th St	10th St	Mill and Overlay - 2"
Ohio St	12th St	11th St	Mill and Overlay - 2"
Illinois St	13th St	12th St	Mill and Overlay - 2"
Illinois St	15th St	14th St	Mill and Overlay - 2"
Iowa St	11th St	10th St	Mill and Overlay - 2"
Iowa St	12th St	11th St	Mill and Overlay - 2"
Iowa St	13th St	12th St	Mill and Overlay - 2"
Iowa St	14th St	13th St	Mill and Overlay - 2"
College Ave	10th St	9th St	Mill and Overlay - 2"
12th St	Mervin St	College Ave	Mill and Overlay - 2"
12th St	Mervin St	Leroy St	Mill and Overlay - 2"
College Ave	15th St	13th St	Mill and Overlay - 2"
College Ave	14th St	13th St	Mill and Overlay - 2"
College Ave	13th St	12th St	Mill and Overlay - 2"
College Ave	12th St	11th St	Mill and Overlay - 2"
College Ave	11th St	10th St	Mill and Overlay - 2"
Madison St	9th St	8th St	Mill and Overlay - 2"
Madison St	8th St	Cottage Ave	Mill and Overlay - 2"
Madison St	Cottage Ave	7th St	Mill and Overlay - 2"
Madison St	7th St	6th St	Mill and Overlay - 2"
Madison St	6th St	5th St	Mill and Overlay - 2"
Madison St	5th St	Main St	Mill and Overlay - 2"
Illinois St	16th St	15th St	Mill and Overlay - 2"
Gorham Rd	Parmley Dr	Lincolnway East	Mill and Overlay - 2"
Westwood Rd	Woodward Pl	Mayflower Pl	Mill and Overlay - 2"
Skyview Dr	Cul-de-sac	Indiana Ave	Overlay - 1.5"
Wilden Ave	N 5th St	Main St	Reconstruction - Asphalt
Dykstra St	24th St	23rd St	Reconstruction - Asphalt
Dykstra St	27th St	26th St	Reconstruction - Asphalt
Dykstra St	29th St	28th St	Reconstruction - Asphalt
Dykstra St	28th St	27th St	Reconstruction - Asphalt
Dykstra St	26th St	Blackport Dr	Reconstruction - Asphalt
Dykstra St	Blackport Dr	24th St	Reconstruction - Asphalt
Dykstra St	23rd St	22nd St	Reconstruction - Asphalt

Recommendations and Conclusions

This report provides the City with valuable information to assist in determining the annual maintenance budget. The results of this plan provide the City with a summary of the potential costs and different life cycle options that can be used in creating a plan for road maintenance. However, if more manhours were available, much more could be done to better track the deterioration and current condition of the pavement and the associated costs of maintenance. With the improved data, analysis and optimization, there would be a potential for a significant increase in the amount of realized improvement per dollar spent.

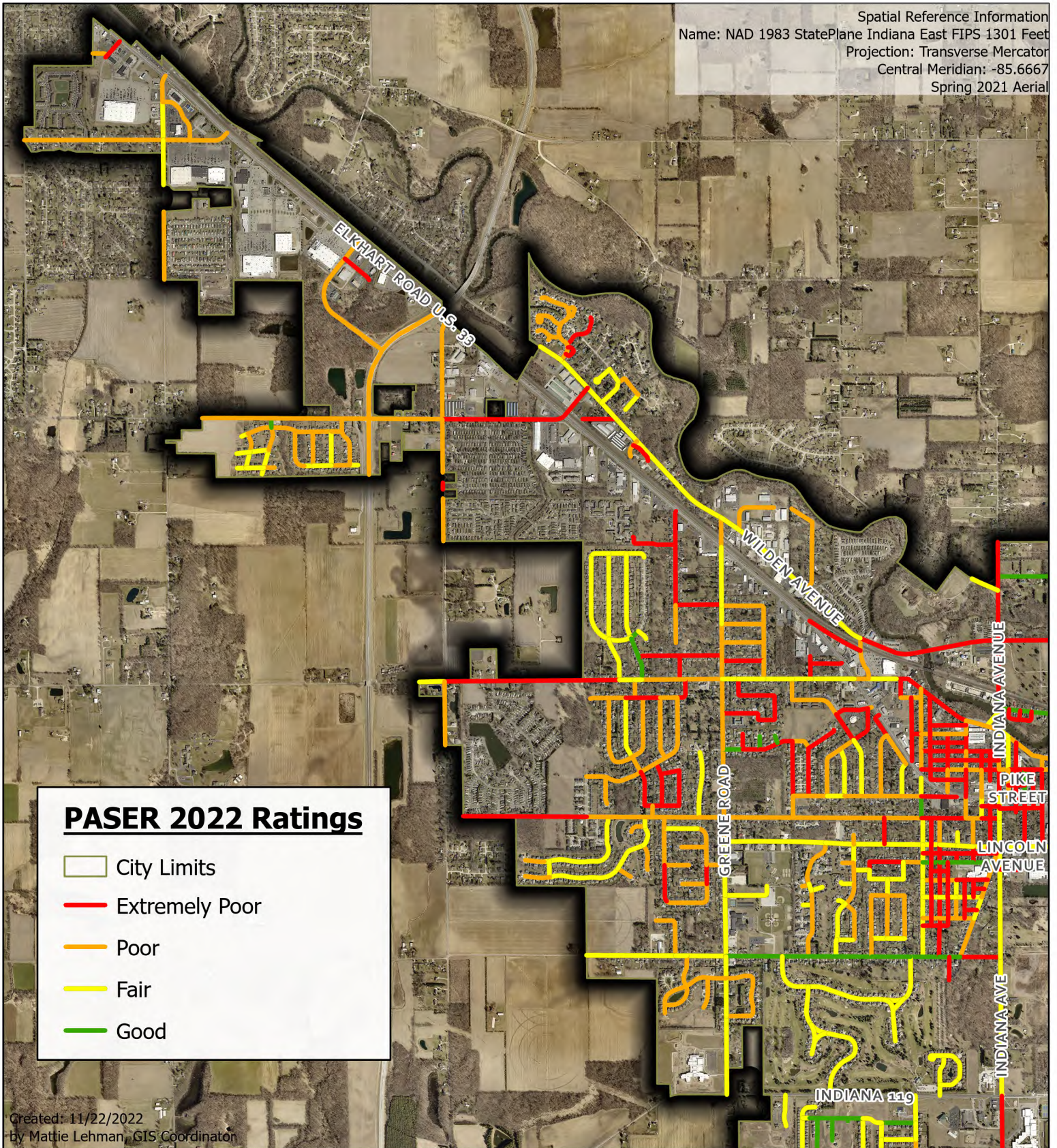
While many of the City's streets are not in need of complete reconstruction, the overall network is currently deteriorating year over year. There are several options that are currently used and some that are being considered to help preserve and extend the life of City streets. It is important to utilize preventative maintenance treatments early on in the life cycle of pavement, while the pavement is in good condition in order to extend the life of the pavement.

Biennial monitoring of all streets will need to be done to ensure that roadways are deteriorating at expected rates. This will help to find what maintenance methods help extend the lifecycle of the pavement most efficiently. Drainage conditions need to be looked at as well to determine if a drainage issue is causing the pavement failure. With overlays and reconstructions, the drainage catch basins may need to be adjusted to make sure that water is not trapped on the pavement.

The following is a list of recommendations resulting from this report:

- Adopt this plan as a framework for future maintenance and rehabilitation of the City of Goshen's Streets.
- The City should consider investment in a comprehensive pavement management program and preservation strategy to better optimize each dollar spent.
- The City should retain an asset manager to provide additional review and evaluation of appropriate funding distributions.

Appendix



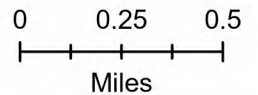
PASER 2022 Ratings

-  City Limits
-  Extremely Poor
-  Poor
-  Fair
-  Good

Created: 11/22/2022
 by Mattie Lehman, GIS Coordinator

City of Goshen - Southeast 2022 - PASER Ratings


The City of Goshen's Digital Data is the property of the City of Goshen and Elkhart County, Indiana. All graphic data supplied by the city and county has been derived from public records that are constantly undergoing change and is not warranted for content or accuracy. The city and county do not guarantee the positional or thematic accuracy of the data. The cartographic digital files are not a legal representation of any of the features depicted, and the city and county disclaim any assumption of the legal status they represent. Any implied warranties, including warranties of merchantability or fitness for a particular purpose, shall be expressly excluded. The data represents an actual reproduction of data contained in the city's or county's computer files. This data may be incomplete or inaccurate, and is subject to modifications and changes. City of Goshen and Elkhart County cannot be held liable for errors or omissions in the data. The recipient's use and reliance upon such data is at the recipient's risk. By using this data, the recipient agrees to protect, hold harmless and indemnify the City of Goshen and Elkhart County and its employees and officers. This indemnity covers reasonable attorney fees and all court costs associated with the defense of the city and county arising out of this disclaimer.

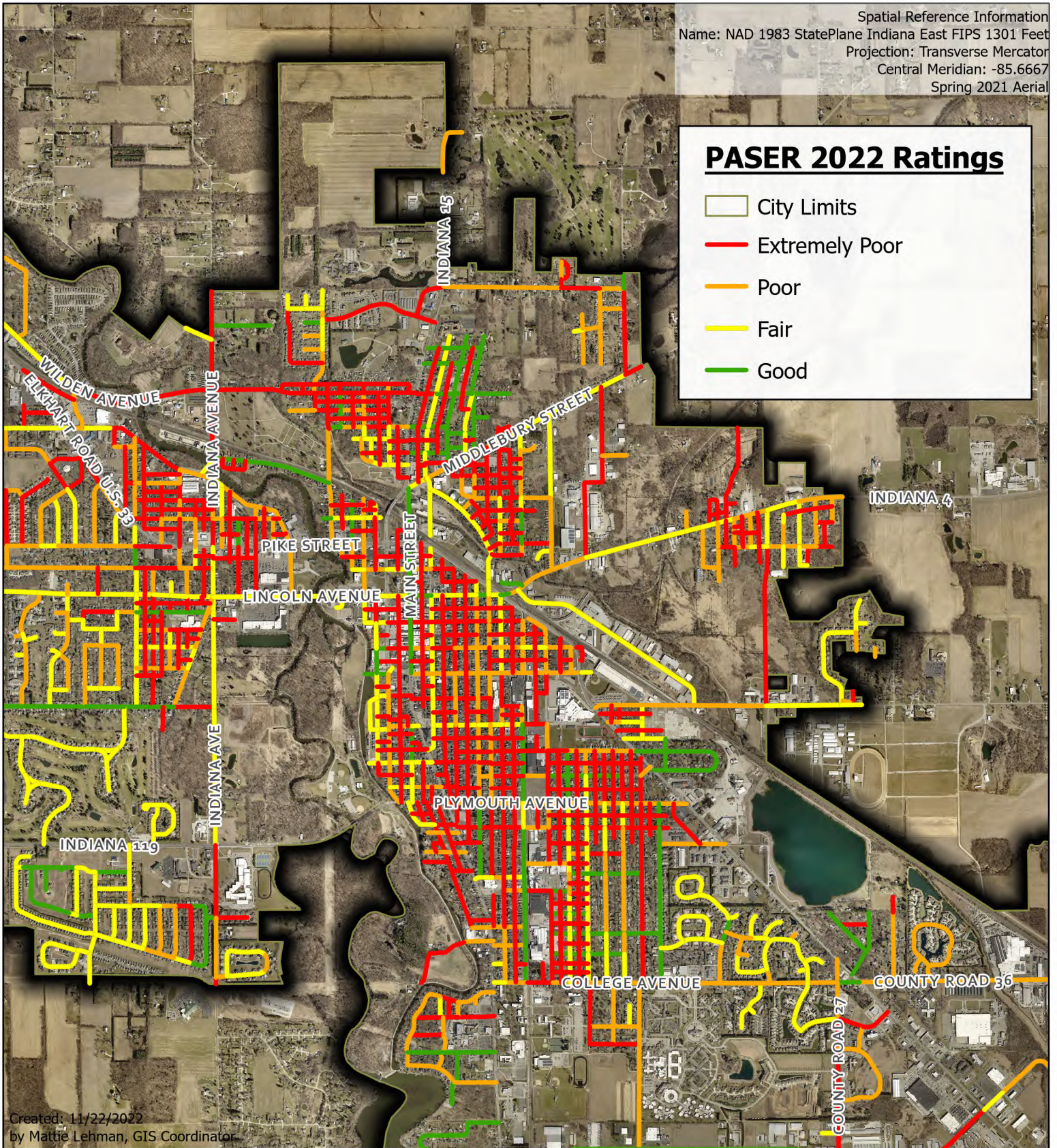


The City of Goshen
 Department of Public Works &
 Safety Office of Engineering

204 East Jefferson Street, Goshen, Indiana 46528
 Phone: 574-534-2201 Fax: 574-533-8626

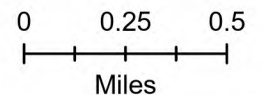
PASER 2022 Ratings

-  City Limits
-  Extremely Poor
-  Poor
-  Fair
-  Good



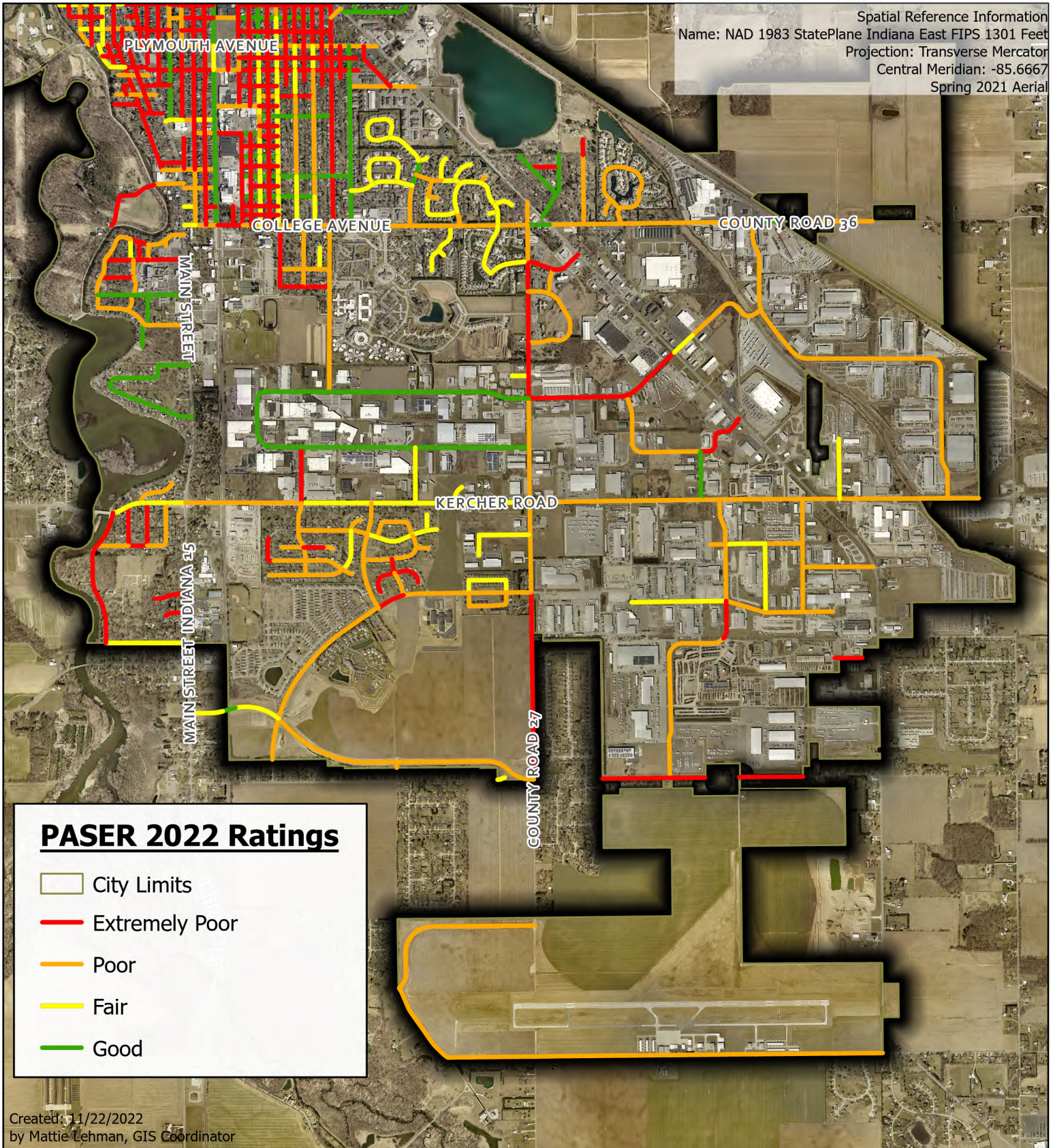
Created: 11/22/2022
 by Mattie Lehman, GIS Coordinator

City of Goshen - Southeast 2022 - PASER Ratings








The City of Goshen's Digital Data is the property of the City of Goshen and Elkhart County, Indiana. All graphic data supplied by the city and county has been derived from public records that are constantly undergoing change and is not warranted for content or accuracy. The city and county do not guarantee the positional or thematic accuracy of the data. The cartographic digital files are not a legal representation of any of the features depicted, and the city and county disclaim any assumption of the legal status they represent. Any implied warranties, including warranties of merchantability or fitness for a particular purpose, shall be expressly excluded. The data represents an actual reproduction of data contained in the city's or county's computer files. This data may be incomplete or inaccurate, and is subject to modifications and changes. City of Goshen and Elkhart County cannot be held liable for errors or omissions in the data. The recipient's use and reliance upon such data is at the recipient's risk. By using this data, the recipient agrees to protect, hold harmless and indemnify the City of Goshen and Elkhart County and its employees and officers. This indemnity covers reasonable attorney fees and all court costs associated with the defense of the city and county arising out of this disclaimer.

The City of Goshen
 Department of Public Works &
 Safety Office of Engineering
 204 East Jefferson Street, Goshen, Indiana 46528
 Phone: 574-534-2201 Fax: 574-533-8626

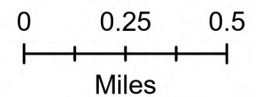


PASER 2022 Ratings

-  City Limits
-  Extremely Poor
-  Poor
-  Fair
-  Good

Created: 11/22/2022
 by Mattie Lehman, GIS Coordinator

**City of Goshen - Southeast
 2022 - PASER Ratings**



The City of Goshen's Digital Data is the property of the City of Goshen and Elkhart County, Indiana. All graphic data supplied by the city and county has been derived from public records that are constantly undergoing change and is not warranted for content or accuracy. The city and county do not guarantee the positional or thematic accuracy of the data. The cartographic digital files are not a legal representation of any of the features depicted, and the city and county disclaim any assumption of the legal status they represent. Any implied warranties, including warranties of merchantability or fitness for a particular purpose, shall be expressly excluded. The data represents an actual reproduction of data contained in the city's or county's computer files. This data may be incomplete or inaccurate, and is subject to modifications and changes. City of Goshen and Elkhart County cannot be held liable for errors or omissions in the data. The recipient's use and reliance upon such data is at the recipient's risk. By using this data, the recipient agrees to protect, hold harmless and indemnify the City of Goshen and Elkhart County and its employees and officers. This indemnity covers reasonable attorney fees and all court costs associated with the defense of the city and county arising out of this disclaimer.

The City of Goshen
 Department of Public Works &
 Safety Office of Engineering
 204 East Jefferson Street, Goshen, Indiana 46528
 Phone: 574-534-2201 Fax: 574-533-8626