

AGENDA

Streets & Sidewalks Committee
Wednesday, October 13, 2021
Committee Meeting – 12:00 PM
218 N. Michigan Ave, Shelby, MI 49455



Agenda Topics:

1. Call to Order:
2. Roll Call:
3. Pledge of Allegiance:
4. Review minutes of the previous meeting:
 - a) Tuesday, December 3, 2019 **AR**
5. Additions to Agenda:
6. Public Participation:
7. Old Business:
8. New Business:
 - a) Road Line Painting **AR**
 - b) Street Sweeping **AR**
 - c) Road Paving Plan **AR**
 - d) E. Fifth Street School Traffic **D**
9. Adjournment:

AR-Action Requested
D-Discussion item

**VILLAGE OF SHELBY
STREETS AND SIDEWALKS COMMITTEE MEETING**



COMMITTEE PROCEEDINGS

1. CALL TO ORDER: The Streets and Sidewalks Committee Meeting was called to order at 12:07 P.M. by Committee Chair Dan Zaverl for the purpose of reviewing the policy for plowing of the Village streets.

2. ROLL CALL: Jim Wyns, Dan Zaverl, Paul Inglis

3. PLEDGE OF ALLEGIANCE: All stood for the Pledge

4. MINUTES:

a.) May 1, 2019

Paul Inglis moved to approve the minutes of the Streets and Sidewalks Committee meeting of May 1, 2019 as prepared.

Seconded by: Jim Wyns.

Voice Vote: All in favor.

Motion Carried.

5. CITIZEN PARTICIPATION: No Citizen Participation.

6. OLD BUSINESS: No Old Business.

7. NEW BUSINESS:

a.) 2020 Streets and Sidewalks Projects/Budget

The Committee discussed a number of streets in the Village that could be repaired in the next fiscal year. A number of streets were mentioned including: Sessions Road from Plum to Valley, Harrison, Hilcrest, Fifth, Pine, and Barnett. The sidewalk by on the corners of Michigan Avenue and Fourth Street as well as the sidewalk and the wall on cemetery hill. VA Widigan will be looking into the suggested streets and will get a better idea of those with highest priority.

b.) Flashing Light at 6th Street – Study from Jim Wyns

The Committee discussed the red light on Sixth Street and the number of cars that do not stop for the red light. Jim Wyns observed cars and the number of children crossing the street for a number of days. There were 452 vehicles passing through the intersection from 8:30 A.M. and 3:00 P.M. 17 of those vehicles did not slow down or stop for the intersection. There were a total of 63 children who crossing the intersection during the hours of 8:30 A.M to 5:30 P.M. Mr. Wyns believes that a flashing yellow light would accomplish the same thing as the red light, without requiring so many drivers to stop needlessly for a period of 10 – 11 hours. Chief Farber has a concern of the morning hours from 7:30 A.M. to 8:30 A.M. and has requested that Mr. Wyns observe during that time and Chief Farber will observe as well.

8. ADJOURNMENT: Paul Inglis moved to adjourn the meeting at 1:05 P.M.
Seconded by: Jim Wyns.

Voice Vote: All in Favor.
Motion Carried.

Committee minutes are not official until approved at the next Committee meeting. Approved

Minutes Respectfully Submitted by Crystal Budde, Village Clerk

Date



Streets & Sidewalks Committee
Item Cover Page

Meeting Date:	October 13, 2021
Agenda Item:	Road Line Painting
Budget Impact:	To Be Determined
Staff Contact:	Brady Selner, Village Administrator

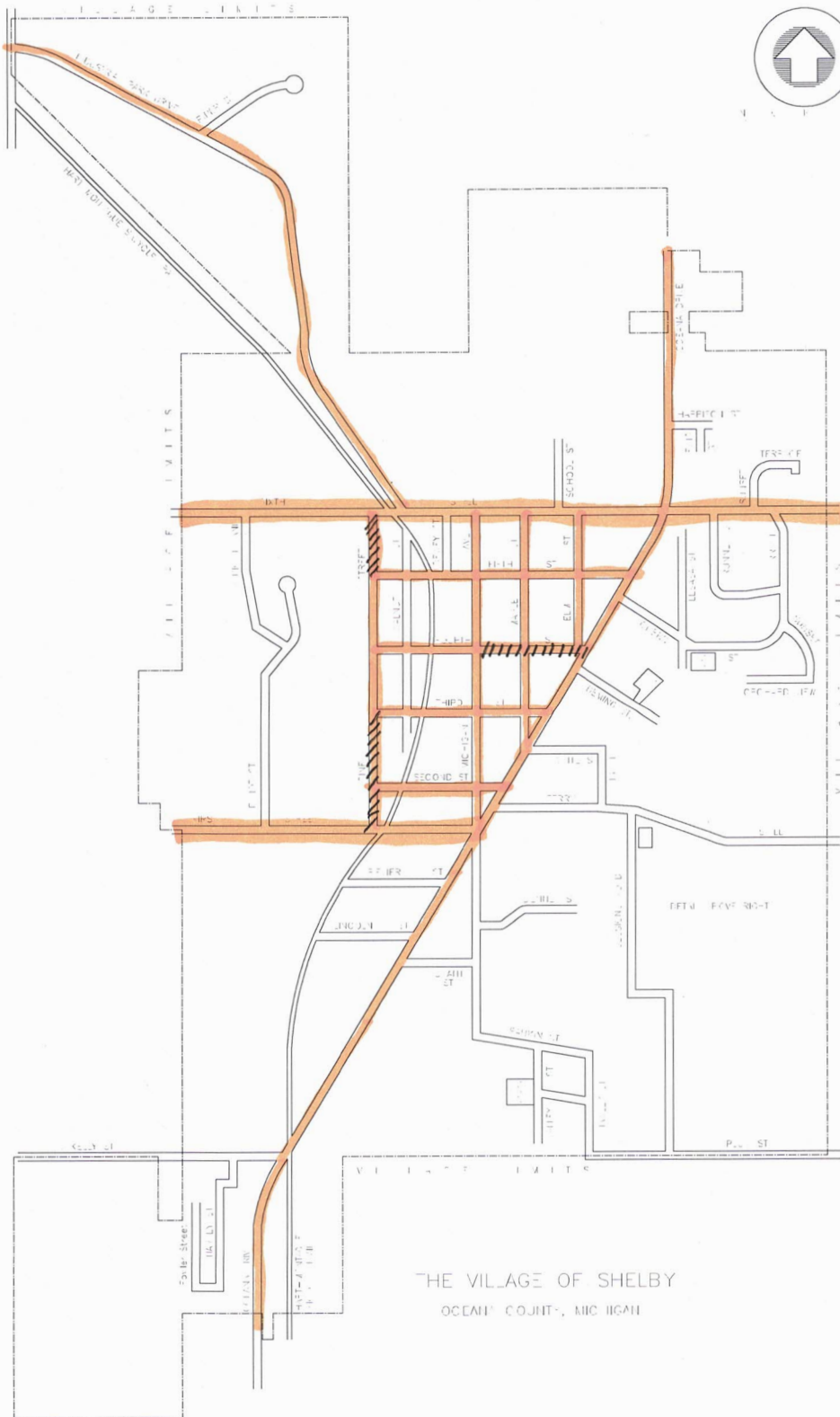
Background:

All street lines, parking spaces, and cross walks should be repainted throughout the Village. With a healthy fund balance in the Local and Major Street Funds, I recommend completing this as one project. It appears companies providing this service are busy and are likely unable to complete the work for several months. I plan to solicit bids through an Request for Proposal process and select a firm (subject to Village Council approval) to complete the work spring 2022.

Supporting Documents:

Shelby Map Identifying Streets Requiring Pavement Markings
Example RFP – City of Charlevoix

Motion _____ by seconded by _____ to authorize Village staff to solicit bids through a Request for Proposals process and to select the qualified bidder to bring before Village Council for formal bid approval.



THE VILLAGE OF SHELBY
 OCEAN COUNTY, MICHIGAN

CITY OF CHARLEVOIX

ADVERTISEMENT FOR BID

Pavement Marking Services

The City of Charlevoix will accept sealed proposals for pavement marking until 11:00 am, March 31, 2020, with bid openings at that time in the office of the City Clerk, 210 State Street, Charlevoix, MI 49720. All bids shall be clearly marked "**Pavement Marking**". Bid packages are to be directed to Joyce Golding, City Clerk.

All questions are to be directed to Pat Elliott, Superintendent, Department of Public Works at 231-547-3276.

Bid specs may be viewed on the City website www.charlevoixmi.gov or the City Manager's Office during normal business hours.

A copy of the City of Charlevoix's "Local Bidder's Preference Policy" can be viewed at the City's website www.charlevoixmi.gov.

The City of Charlevoix reserves the right to accept or reject any or all proposals, to waive irregularities and to accept the proposal deemed to be in the best interest of the City of Charlevoix.

Pat Elliott Superintendent
Department of Public Works

CITY OF CHARLEVOIX

PAVEMENT MARKING SERVICES SPECIFICATIONS

PART I

GENERAL REQUIREMENTS

I-1 QUALIFICATION REQUIREMENTS

Bids are solicited only from responsible bidders known to be experienced and regularly engaged in work of similar character and scope to that covered in this Request for Proposal (RFP). Satisfactory evidence that the bidder has the necessary capital, equipment, personnel, experience, etc. to do the work, may be required.

I-2 BID FORM

Sealed bids shall be submitted on the bid form furnished in the "Bid Packet". All bid amounts must be written and shown in figures in ink or typewritten together with all other data as required and shall be legally signed with the complete address of the bidder given thereon. Successful bidders not responding to all information requested in this RFP may have their bids rejected.

I-3 PRE-BID INSPECTIONS

All prospective bidders are invited to ask any necessary questions by contacting Pat Elliott, Charlevoix DPW Superintendent at 231-547-3276.

I-4 RESPONSE DATE

To be considered, sealed bids must be received at the City of Charlevoix Clerk's Office, 210 State Street Charlevoix, Michigan, 49720, on March 31, 2020, no later than 11:00 am local time; at which time the bids will be opened. The City Clerk's Office is open Monday thru Friday, excluding holidays, between 8:00 a.m. and 5:00 p.m. Successful bidders mailing bids should allow normal delivery time to assure timely receipt of their bids. Sealed envelopes containing bids must be clearly marked on the outside with the bidder's name and "PAVEMENT MARKING BIDS 2020".

All information submitted in the bid, including but not limited to bid prices, equipment, etc., must remain valid and in effect for at least ninety (90) days past the submission deadline.

I-5 OPENING OF BIDS

All bids received will be publicly opened and read at the time specified in section I-4 of this document. All bidders are invited to be present.

I-6 REJECTION OF BIDS

The City of Charlevoix reserve the right to reject any and all bids, to waive irregularities and/or informalities in any bid, and to make an award in any manner, consistent with law, it deems to be in the best interest of the Cities.

I-7 ALTERNATES OR ADDENDUMS

Explanations desired by a prospective bidder shall be requested of the City in writing, and if explanations are necessary, a reply shall be made in the form of an Addendum, a copy of which will be forwarded to each registered bidder. Every request for such explanation shall be in writing and addressed to: City Clerk, City of Charlevoix, 210 State Street, Charlevoix, MI 49720.

Bidders may provide alternate means of providing the services called for in this RFP at their discretion. This in no way relieves the bidder from providing the responses called for in this RFP. The City is under no obligation to consider any such alternates that may be provided.

No inquiry or request received within two (2) working days of the submission deadline for bidders will be given consideration.

I-8 LENGTH OF CONTRACT

Bids shall address, to the greatest extent possible, all possible service delivery impacts, including, but not limited to, bid prices, equipment, etc., throughout the term of the contract. The City seeks to have this work completed by May 22, 2020.

Provide alternate schedule if this schedule is not achievable.

PART II

PROGRAM GUIDELINES

II-1 DEFINITIONS

“City” shall refer to the City of Charlevoix

“Bids” shall be defined as an announcement of terms indicating what items are needed to complete a project

“Bidders” shall be defined as any person(s) or company that attempts to meet the terms of the bid

“Successful Bidders” shall be defined as the bidder who is chosen by the City Council to enter into an agreement or contract with the City.

These definitions are meant as guides for understanding and not binding explanations.

II-2 PROJECT NARRATIVE

The City will be evaluating each bid in regards to quality of service offered, experience, cost, and other intangibles. With these aspects in mind, we will hold the successful bidder to the highest necessary standards to complete this task.

II-3 BIDDER RESPONSIBILITY

Each bidder shall have the responsibility to fully acquaint himself with all aspects of the conditions surrounding the contract and any or all of the other requirements as set forth in this document.

The successful bidder shall provide all of the required labor and materials, supplies, devices, or tools needed to perform the required services, unless otherwise specified in this document. The successful bidder shall perform at the utmost professional level.

II-4 SCOPE OF PROJECT

Successful bidder shall provide services for Pavement Marking Services, as outlined in this document, on a schedule to be acceptable to the Cities.

II-5 BACKGROUND

The City purchases Pavement Marking services for use on their city’s streets and parking lots on a regular basis.

II-6 SCOPE OF SERVICES

Supply and Deliver all Personnel, Equipment and Supplies to complete the Pavement Marking Services project in accordance with the following specifications:

Estimated Pavement Marking Quantities

Item	Quantity	Unit
4" Yellow Line Painting	7451	LF
4" White Line Painting	611	LF
6" Cross Walk	3235	LF
24" Stop Bar	400	FL
Stop Symbol	1	EA
Left Turn Arrow	8	EA
Right Turn Arrow	4	EA
Combination Arrow	10	EA
"Only"	4	EA
Parking T's and L's	245	EA
Re-stripe Stalls	363	EA
24" x 6' Crosswalk Bars	363	EA
12" x 7' Crosswalk Bars	121	EA
12" x 8' Crosswalk Bars	74	EA
12" x 9' Crosswalk Bars	306	EA
12"x 13' Crosswalk Bars	18	EA
4" Cross Hatching	376	LF
Curb Painting	3387	LF
12" Yellow Line	53	LF
Handi-cap Symbol - Blue	12	EA
4" Blue Line	250	LF
12" X 4' Pad	11	EA
4" White Parking Line	332	LF
Municipality Inv. List Service	9.5	EA

Paint to be Waterborne Regular Dry Lane Marking Paint as specified in the 2003 edition of the MDOT Uniform Construction Standards.

CONTRACTOR REQUIRED TO FIELD VERIFY ALL QUANTITIES.

II-7 PROPOSAL FORMAT

The Bidder shall provide the following information in response to this request:

1. Understanding – Document your understanding of the City needs
2. Approach – Describe your approach to the project in general terms, including how you propose to work with the City and maintain strong communication of your progress.
3. Scope of Services – Outline in detail the specific steps you will take to perform the scope of services identified above. Note any variation or exception you take to the outlined scope provided.
4. Assumptions – Note the assumptions you are making to qualify your price proposal.
5. Qualifications – Describe a minimum of three (3) similar projects you have performed for other clients. This shall include the project location, a description of the specific services you provided, client name and contact information including address and phone number.
6. Communication Plan – Outline your proposed communication methods to coordinate the efforts among team members and coordinate between your firm and the City of Charlevoix.
7. Fee – Provide a proposed fee for the scope of services identified in this RFP.
8. Schedule – Identify your proposed schedule. The City of Charlevoix requires complete delivery of product no later than May 22, 2020.
9. Insurance – Provide specific information regarding your general and professional liability coverage. Successful bidders will be required to provide insurance certificate to each City naming them as an additional insured. Minimum amounts required are as follows:
 - a. General Liability- \$2,000,000
 - b. Auto Liability- \$2,000,000
 - c. Workers Compensation- Statutory amounts

II-8 EVALUATION CRITERIA

The City will use the following criteria to evaluate the proposals, not necessarily presented in order of ranking:

1. Related project experience and familiarity with municipal facilities
2. Ability to be responsive to the City needs
3. Project references
4. Project schedule
5. Fee (on the basis of perceived value and not necessarily lowest cost to the City)

II-9 ASSIGNMENT OR SUBCONTRACTING

The successful bidder shall not assign, subcontract or otherwise transfer its duties and/or obligations under the contract, without the prior written consent of the Cities. Such consent does not release the successful bidder from any of his obligations and liabilities under the contract. Violations of this specification shall result in instant forfeiture of the contract.

II-10 INVOICING AND PAYMENTS

The successful bidder will submit to the City an invoice, at monthly intervals throughout the term, for which service have been performed.

The City shall pay such invoices after approval and generally within thirty (30) days of submission of the invoices.

II-11 PERSONNEL REQUIREMENTS

Successful bidder shall gainfully employ all individuals according to all applicable Municipal, County, State, and/or Federal laws.

II-12 FAIR EMPLOYMENT PRACTICES

Successful bidder agrees that there will not be any discrimination against any employee or applicant for employment, to be employed in the performance of the contract, with respect to hire, tenure, term, conditions or privileges of employment, or any matter directly or indirectly related to employment, because of sex, race, color, religion, national origin, ancestry, handicap or any other bias prohibited by State or Federal law or regulations.

II-13 CONTRACTOR'S PAYMENT OF TAXES

Without limitation on the foregoing, the successful bidder shall be solely responsible for:

- Payment of wages to its work force in compliance with all Federal and State laws, including the Federal Wage and Hour Act.
- Payment of any and all FICA, unemployment contributions and other payroll-related taxes or contributions required to be paid by the contractor under State and Federal law.
- Payment of all applicable Federal, State or Municipal taxes, charges or permit fees, whether now in force or subsequently enacted.

The successful bidder shall indemnify and hold the City harmless from all claims arising from the foregoing payment obligations of the successful bidder.

II-14 QUALITY OF SERVICE

As is the intent of any contract, the City expect the successful bidder to maintain all equipment in a clean and well-operating fashion, with special consideration for proper maintenance and care of all elements, items and equipment mentioned in this document. The successful bidder will operate in a professional manner and keep all noise and other nuisances to a minimum at all times while under contract with the City. The City is looking to keep from inconveniencing the public as much as possible. The successful bidder shall file all documents outlined in this RFP in a timely and well-organized manner. All work will be inspected by the DPW Superintendent or other duly designated City employee, before payment is made, payments may be reduced and/or withheld for work not considered complete.

II-15 OPERATION OF VEHICLES

The successful bidder shall operate all company (contractor's) vehicles in a manner so as to not impede traffic flow on City streets. Company vehicles are not to be left unattended for any reason except for emergencies or in the actual performance of the job. When a vehicle is left unattended for the actual performance of the job, it shall be parked according to all City codes and ordinances in place at that time.

II-16 BREACH OF CONTRACT

In the event that any of the provisions of this bid and/or resulting contract are breached by the successful bidder, the City shall give written notice to the successful bidder of the breach or pattern of behavior that constitutes the breach and allow the successful bidder to resolve the breach or pattern of behavior that constitutes the breach within ten (10) days of successful bidder's receipt of notice. If the breach or pattern of behavior is not resolved, then the City Manager shall have the right to rescind this bid and/or resulting contract by sending written notice to the successful bidder of the cancellation and rescission.

II-17 THE CITY'S RIGHT TO TERMINATE CONTRACT

If the successful bidder should be judged bankrupt, if they should make a general assignment for the benefit of their creditors, if a receiver should be appointed on account of their insolvency, if they should persistently or repeatedly refuse to supply enough labor, materials and/or equipment to meet the scope of work of the contract, if they should persistently disregard laws of the State of Michigan and/or ordinances of the City or be guilty of substantial violations of any provision of the contract, the City may, without prejudice to any other right or remedy, terminate the contract immediately and re-let for same. The City, at its sole discretion, may terminate the contract immediately, based on warrants and if said immediate termination is in the best public health, safety and welfare interests of the City and their citizens.

In cases not involving the public's health, safety and welfare, a minimum of ten (10) days notification will be given to the successful bidder prior to the termination of the contract.

II-18 CITY'S RIGHT TO MODIFY CONTRACT

The City reserves the right to negotiate with the bidder and/or successful bidder for a change in terms of the contract, during the term of the contract and to make adjustments relative to the implementation of a change that reduces or modifies the need for servicing called for in any resulting contract. If the City and the bidder and/or successful bidder are unable to agree on a revised contract, the City may seek new proposals and, upon a minimum of ten (10) days written notice, may terminate the unexpired portion of the contract. The City shall not be liable for any cost under this section beyond the contract price for the period where service is actually provided.

II-19 REFERENCES

The bidder shall include a list of current and prior projects similar to that proposed as illustrations of qualifying experience. Include the name, address, and telephone numbers of the responsible individual(s) at the project site who may be contacted. This must include:

- Municipalities within the State of Michigan
- Other references that the bidder feels should be considered.

BID SUBMITTED PURSUANT TO THE CITY OF CHARLEVOIX PAVEMENT MARKING SERVICES SPECIFICATIONS

The City and Charlevoix
210 State Street
Charlevoix, MI 49720

Mayor Kurtz and the Charlevoix City Council

The undersigned, as Successful Bidder, hereby declares that this bid is made in good faith without fraud or collusion with any person or persons bidding on the same Contract; that he/she has carefully read and examined the Contract Documents, including the Invitation to Bid, General Requirements, and Program Guidelines for the designated work and understands all of the same; that he/she, or his/her representative, has made such personal investigation at the site as is necessary to determine the character and difficulties attending the execution of the proposed work. Bidder proposes and agrees that if this Proposal is accepted, bidder will contract with the Cities, provide necessary machinery, tools, apparatus and transportation services necessary to do all the work specified or referred to in the Contract Documents in the manner and time therein prescribed, and according to the requirements of the owner as therein set forth, to furnish the insurance required of the Contractor by the Contract Documents, and that he/she will take in full payment, the unit prices set forth in the following proposal.

All bidders understand that the City reserve the right to accept or reject any and/or all bids, to waive any irregularities and/or informalities in the bids, negotiate with any bidder, or to select the bid(s), or portions thereof, most advantageous to the City.

The successful bidder agrees that this bid shall be good and may not be withdrawn for a period of ninety (90) calendar days after the scheduled closing time for receiving bids.

Upon receipt of a written Notice of Award of the Bid, the successful bidder shall execute the formal Contract Agreement within ten (10) days. In the event that the Contract is not executed within the time set forth above, the Bid Proposal shall become the property of the Cities as liquidated damage for the delay and additional expense to the Cities caused thereby.

Pursuant to your request for Pavement Marking Services, I submit my bid, with the understanding that if my bid proposal, or section thereof, is accepted, I will execute a written contract with the Cities, which will embody the terms as outlined in the bid proposal.

I will meet all of the requirements and provide all of the services for the amounts listed on the attached bid sheet for the items listed in this document.

The undersigned, by execution of this contract, certifies that he/she is the _____ of the firm named as _____ that he/she signs the bid on behalf of the firm and that he/she is authorized to execute the same on behalf of said firm

Company: _____

Address: _____

Phone: _____

Authorized Agent: _____

Signature: _____

Title: _____

Date: _____

Pavement Marking Cost

Item	Cost
4" Yellow Line Painting	
4" White Line Painting	
6" Cross Walk	
24" Stop Bar	
Stop Symbol	
Left Turn Arrow	
Right Turn Arrow	
Combination Arrow	
"Only"	
Parking T's and L's	
Re-stripe Stalls	
24 x 6 Crosswalk Bars	
12 x 7 Crosswalk Bars	
12 x 8 Crosswalk Bars	
12 x 9 Crosswalk Bars	
12 x 13 Cross Walk	
4" Cross Hatching	
Curb Painting	
12" Yellow Line	
Handi-cap Symbol-Blue	
4 " Blue Parking Line	
4" White Parking Line	
Municipality Inv. List Service	
TOTAL	



Streets & Sidewalks Committee
Item Cover Page

Meeting Date:	October 13, 2021
Agenda Item:	Street Sweeping
Budget Impact:	\$2,250 (for all Village Streets.)
Staff Contact:	Brady Selner, Village Administrator

Background:

A long-term solution is needed for street sweeping. The Village's 2005 Elgin Pelican Sweeper needs about \$7,400 of repairs (estimate from last year – likely more expensive now). The equipment is worth about \$11,000. The cost of a new street sweeper is heavily dependent on the model and used street sweepers range from \$30,000 - \$40,000. The Village has the following options:

1. Repair the existing street sweeper.
2. Purchase a new street sweeper.
3. Purchase a used street sweeper
4. Rent a street sweeper.
5. Contract for street sweeping.

Based on the options listed above, staff recommends we contract for street sweeping services. Based on our analysis, we believe this is the most economical option. The cost analysis was considered based on different assumptions that can be further explained at the Committee meeting. In addition, this option does not take DPW staff away from the many other tasks they need to complete every day/week.

Supporting Documents:

Street Sweeping Cost Analysis

Motion _____ by seconded by _____ to recommend Village Council approve a Professional Services Agreement for Sanisweep, Inc. to provide street sweeping services for the Village of Shelby for a three-year term.

Contracting Out Services

Table 1
Full Cost of In-House Operations Compared to Low Bids

	Buy New (a)	Rent (b)	Contract Costs (c)	Difference (a and c)	Difference (b and c)
Street Sweeping			2,250		
Salaries/wages	1,220	813	-		
Fringe benefits	433	289	-		
Rental Rate	-	3,300			
MDOT Rental Rate	1,353	-	-		
Total	<u>3,006</u>	<u>4,402</u>	<u>2,250</u>	<u>756</u>	<u>2,152</u>

TOTAL SAVINGS

Rental Rate: \$1,170 daily or \$3,300 weekly.

MDOT Rental Rate: hourly rental rates are based on expenses such as direct repair, indirect repair and storage, operating and depreciation.



Streets & Sidewalks Committee
Item Cover Page

Meeting Date:	October 13, 2021
Agenda Item:	Road Paving Plan
Budget Impact:	N/A – Discussion Item Only
Staff Contact:	Brady Selner, Village Administrator

Background:

The Village of Shelby had a street asset management plan completed by Fleis & VandenBrink in 2012 and a Current Surface Rating Report done by WMRSDC in 2011. I have recently contacted WMRSDC to see if they would update the 2011 report. There is a substantial fund balance in the Local Streets Fund to complete several road projects. The Village should strategically plan for street improvements over the next several years. Attachment 1 is a road project plan based on input from the DPW Department. Attachment 2 depicts the road construction plan identified in the 2012 Transportation Asset Management Plan. Instead of completing the identified roads from 2013 to 2016, it would span from 2023 to 2026. A decision needs to be made whether to complete another street asset management plan, use the existing plan, or determine a stand-alone repaving plan.

Supporting Documents:

Village of Shelby Transportation Asset Management Plan (2012)
Current Surfacing Rating Report (2011)
Attachment 1 – Proposed Street Resurfacing Plan
Attachment 2 – Proposed Street Resurfacing Plan

VILLAGE OF SHELBY

**TRANSPORTATION ASSET
MANAGEMENT PLAN**

February 2012
808940



TABLE OF CONTENTS

	Page
I. INTRODUCTION	1
II. EXISTING CONDITIONS	1
III. RECOMMENDATIONS	2
IV. MAINTENANCE	4
V. DRAINAGE	5
VI. FUNDING	6
VII. PRIORITY OF IMPROVEMENTS	6
VIII. DEFINITIONS AND DESCRIPTIONS	7

APPENDIX

1. Summary of Inventory by Priority
2. Road Map

Introduction

The purpose of this study is to evaluate the existing street system in the Village of Shelby and to develop a prioritization of street improvements based upon several factors.

The streets in Shelby were inventoried in 2011 by the West Michigan Shoreline Regional Development Commission (WMSRDC) by gathering data on the pavement conditions in the Village.

A spreadsheet was developed to summarize the data and to assist in the development of a priority list for a street improvement program. The factors considered included PASER condition rating, Act 51 classification, and estimated project costs.

This study generally followed the recommendations from the *Pavement Surface Evaluation and Rating (PASER)* manual developed by the University of Wisconsin-Madison, shown in the table below, as a standard for the suggested treatment options.

Recommended Improvements

PASER Rating	Asphalt Pavements	Gravel Roadways
1	Total Reconstruction	Total Reconstruction
2	Reconstruction with extensive base repairs	Grading to restore roadway crown
3	Patching with major overlay	Grading, additional gravel, and ditch cleaning
4	Structural overlay of two inches or more	Occasional routine grading
5	Sealcoat or nonstructural overlay of less than two inches	No maintenance required
6	Sealcoat	
7	Routine crack filling	
8	No maintenance required	
9	No maintenance required	
10	No maintenance required	

Source: Paser Manual

Existing Conditions

The Village’s streets were field rated based on the PASER manual. For asphalt surfaces, the PASER system uses a scale of one to ten to rate the roadway quality, and gravel roadways are rated on a scale of one to five. A one rating for asphalt pavements corresponds to a failed pavement with severe pavement distress and extensive loss of surface integrity. For gravel roads, a one rating corresponds to a failed surface with deep rutting and poor drainage. A ten rating for asphalt pavements and a five rating for gravel roadways correspond to an excellent ranking, which is reserved for new construction.

The Village road system is aging, and the majority of the roads received a rating between 2 and 5 on the PASER scale. This indicates that the road system will require additional investment if the Village wants to maintain or improve the overall quality of the streets.

Using field observations combined with the PASER Rating System, a table of recommended treatments and associated costs was assembled to assist in prioritizing the projects. The detailed table is in Appendix 1. The table below shows the total miles of road in the Village for each rating, with a 10 rating indicating a brand new road and a 1 or 2 rating indicating that the road requires reconstruction.

Paser Rating	Miles of Road	Percentage
1	0.000	0.0%
2	2.163	15.7%
3	2.541	18.4%
4	7.652	55.6%
5	1.112	8.1%
6	0.044	0.3%
7	0.000	0.0%
8	0.154	1.1%
9	0.000	0.0%
10	0.107	0.8%
Total	13.773	100.0%

Recommendations

With the existing road conditions and road base reviewed, recommendations for maintenance and improvements can be made. Categories entitled Action and Recommended Cross-section or Fix were developed as a guide to the recommended improvements or maintenance. The values in the Recommended Cross-section or Fix category range from a reconstruction of the road to an overlay or seal coat maintenance. Five recommended cross-sections were also developed for the reconstruction of Village streets. These sections are described below:

Cross Section A: 20-foot wide asphalt pavement without curb and gutter. This cross-section includes ditches and culverts for drainage. This section was assigned to streets of low traffic volume, residential areas.

Cross Section B: 24-foot wide asphalt pavement, including curb and gutter on each side and storm sewer installation. This section was assigned to residential streets with a higher traffic volume.

Cross Section C: 30-foot wide asphalt pavement without curb and gutter. This cross-section includes ditches and culverts for drainage. This section was assigned to major residential streets with a higher traffic volume.

Cross Section D: 36-foot wide asphalt pavement, including curb and gutter on each side and storm sewer installation. This section was assigned to primary three lane streets.

Cross Section E: 48-foot wide asphalt pavement, including curb and gutter on each side and storm sewer installation. This section was assigned to primary streets with parking.

Combinations of the estimated costs were used in some instances where the road width varied significantly from the recommended cross sections.

Based upon these typical cross-sections, cost estimates for street reconstruction were made. Multiplying the estimated cost to construct a one-foot length of road by the road length developed the final estimates. On roadways where reconstruction is recommended, storm sewer replacement costs were also estimated if necessary. Cost estimates were also produced for preventative maintenance projects using a square yard or a linear foot of roadway to estimate maintenance projects that would not significantly change the roadway widths. The final cost estimates are then established by taking the base prices of each fix multiplied by the existing roadway lengths or areas. The cost estimates are intended to guide the prioritizing process on road rehabilitation projects. The costs are based on 2011 estimated construction costs and should be increased by 3%-5% per year for projects that are completed after 2011.

The Village should use the spreadsheet and the recommended cross-sections and treatments as a guide for future improvements. Shelby should also consider capital improvements such as watermain or sewer reconstruction in the prioritization and coordination of future projects. The estimates are based on the standard cross-sections described above. Water and sewer reconstruction costs are not included in the street reconstruction estimates.

In actuality, each street will have a slightly different cross-section and elements such as sidewalks, curbing, pavement thickness, landscaping, and parking will vary per street. As projects get near the top of the priority list, detailed estimates should be prepared based on the Village's desires for that particular street. The following table shows projected costs, by PASER rating, to budget for the recommended fix on the roadways included in this study.

Paser Rating	Projected Cost
1	\$ -
2	\$ 2,597,000
3	\$ 449,000
4	\$ 1,339,000
5	\$ 147,000
6	\$ 2,000
7	\$ -
8	\$ -
9	\$ -
10	\$ -
Total	\$ 4,534,000

Maintenance

Maintenance of the asphalt pavements is extremely important in prolonging the surface life expectancy. Maintenance projects on asphalt pavements include crack filling, seal coats, overlays, cold milling and resurfacing, and patching.

The remaining service life (RSL) of a pavement can be increased significantly if the correct protective measures are taken. The table below, from the PASER Manual, illustrates the expected return in years that is generally realized with the proper use of preventative maintenance programs.

PASER Rating	Equivalent RSL (Years)	Recommended Treatment	Extended Service Life (Years)
1	0	Total Reconstruction	Up to 25
2	5	Reconstruction with extensive base repairs	Up to 25
3	8	Patching with major overlay	5 to 10
4	11	Structural overlay of two inches or more	5 to 10
5	13	Sealcoat or nonstructural overlay less than two inches	3 to 5
6	16	Sealcoat	3 to 6
7	20	Routine crack filling	4 to 6
8	23	No maintenance required	0
9	24	No maintenance required	0
10	25	No maintenance required	0

Source: PASER Manual

In a recent publication of *Asset Management Guide for Local Agencies in Michigan* by Cambridge Systematics, Inc., MDOT estimated that each dollar invested in preventative maintenance will save four to six dollars in future reconstruction costs. This estimate is based on a life cycle cost analysis.

As an example, a structural overlay of two inches on an eighteen-foot wide standard roadway using current prices costs around \$15 per linear foot of roadway and could extend the roadway life by 10 years. Using the same road width and assuming no utility improvements, the cost of a reconstruction is around \$130 per linear foot of roadway and could extend the remaining service life by 25 years. Proper roadway maintenance is necessary to ensure that available funding is used in the most efficient manner.

Below is a summary of pavement maintenance methods with a discussion of where each is appropriate. Please keep in mind, this is a general discussion and within each maintenance category, there are varying specifications for the materials used which can change performance and cost. Also, each street should be looked at on an individual basis because traffic volume, street surface condition, base condition, drainage and type of curbing can all affect the performance of any maintenance process used.

Fog Seal or Seal Coat

This is an application of diluted asphalt emulsion without an aggregate cover. It is intended to seal the minor cracks and prevent raveling. It can prolong pavement life by reducing water penetration. It should only be used where pavement is porous enough to absorb and where cracks are limited to hair like in size. Quality of emulsion and role of application are very important. It should not be used on high volume roads. Its effectiveness is limited to one to two years. It is sometimes used with a sand cover to help improve friction on a worn road.

Chip Seal

This is basically a seal coat followed by an application of aggregate. A two layer application is a double chip seal. This process helps water proof the pavement for added longevity as well as seal low-severity cracks. It also improves surface friction for better traction. The primary goal is to extend the life of the pavement. The asphalt application rate, quality of asphalt, stone quality, type and quantity of dust in the stone are all important factors. Weather temperature, humidity and moisture conditions during and after application are also important considerations affecting performance. Seal coats can be effective for three to six years. Disadvantages are dust, loose stone and tracking of asphalt. The rough surface is also viewed as a negative by some.

Slurry Seal

This is a mixture of asphalt emulsion, fine aggregates (sand), water and mineral filler (usually cement). The process seals the pavement, improves friction and helps slow raveling of the pavement surface. It can last three to five years and is not recommended for high volume roads. It should not be used in pavements that have moderate to excessive cracking. The application rates, quality of asphalt, emulsion and mixture proportions are important factors.

Micro Surfacing

Micro Surfacing is similar to Slurry Seal except the curing process is controlled by a chemical process rather than by temperature. Chemical additives are added to an asphalt emulsion, fine aggregate and mineral filler (usually Portland cement). The process seals pavement, fills ruts, reduces raveling and improves friction. It typically lasts five to seven years and can stand up to moderate traffic. The treatment should not be used on excessively cracked surfaces. Due to the chemical process, the proper mixture proportions are critical.

Hot Mix Overlays

This is actually conventional paving of a thin layer of hot mixed asphalt over the existing surface. The type of mix can be varied, based on expected traffic volume. The process can restore the surface to like-new condition. It should not be used on roads with excessive cracking. The layers can be as thin as one inch. Overlays increase the life of the underlying pavement, fill ruts and increase friction and ride quality. It typically lasts five to seven years, depending on traffic and base condition. On curbed streets, milling can be done in advance to maintain the curb effectiveness. Overlays should not be done on roads with poor base conditions.

In order to obtain the most value out of the above processes, it is important to review the existing surface conditions to select the best alternative. All of the above asphalt pavement maintenance processes are designed to be used before a road surface deteriorates completely. These methods will not repair a street with excessive cracking, pot holes or poor base conditions. Streets with these conditions should be reviewed to see if other repair methods can be used in conjunction with one of the above maintenance methods. We have attached a construction cost comparison of the processes outlined above.

Drainage

Storm water drainage is an important part of street design. On existing streets in the Village, drainage is typically provided with swales, ditches and culverts. Some Village streets have asphalt valley gutter or concrete curb and gutter with storm sewer. Street design and construction should include a review and design of drainage improvements throughout the Village. The Village should consider expanding the mapping of the existing storm system to include plans for future drainage improvements.

Priority of Improvements

The Village has acknowledged the importance of maintaining their roadway system, and now has a plan and priority associated with the needed roadway improvements. Shelby is planning to dedicate approximately \$150,000 of local and state funds toward road improvements each year for the next five years. In 2012, The Village has secured some MDOT transportation funding to assist with the State Street improvements. By leveraging the MDOT funds, the Village is able to spend more in 2012 than in normal years. To this end, the Village plans to begin road repairs under the following schedule:

Year	Paser Rating	Rank	Street	From	To	Estimated Cost	Yearly Total
2012	2	A	State Street	North Village Limits	South Village Limits	\$685,000	
							\$685,000
2013	3	A	2nd Street	Pine	State	\$42,000	
	3	A	Cherry Street	State	Lesada	\$21,000	
	3	A	Elm Street	4th	5th	\$28,000	
	3	A	Plum Road	Sessions	Hawley	\$16,000	
	3	A	Sunset Terrace, N.	6th	Dead End	\$21,000	
	3	B	3rd Street	Michigan	State	\$27,000	\$155,000
2014	3	B	3rd Street	Hart-Mont. Trail	Michigan	\$14,000	
	3	B	6th Street	Twp Line	Apricot	\$16,000	
	3	B	Deming Road	State	Dead End	\$18,000	
	3	B	Ellis Street	Ferry Street	White	\$13,000	
	3	B	Hillcrest Drive	Sunset	Runner	\$14,000	
	3	B	Lesada Street	6th	Dead End	\$36,000	
	3	B	Maple Street	4th	5th	\$24,000	
	3	B	Maple Street	5th	6th	\$23,000	\$158,000
2015	3	B	Sunset Terrace, S.	6th	Hillcrest	\$21,000	
	3	C	Devonwood Drive	Elliott	Dead End	\$17,000	
	3	C	Grant Street	State	Michigan	\$23,000	
	3	C	Harvey Street / Fowler	Kelly	Dead End	\$70,000	
	3	C	Lewis Street	Harrison	Dead End	\$5,000	
	4	A	4th Street	Maple	State	\$19,000	\$155,000
2016	4	A	5th Street	Elm	State	\$19,000	
	4	A	6th Street	Runner	Sunset Terrace	\$15,000	
	4	A	6th Street	Industrial Park	Runner	\$74,000	
	4	A	6th Street	Sunset	Twp Line	\$11,000	
	4	A	6th Street	Pine	Industrial Park	\$10,000	
	4	A	6th Street	Apricot	Pine	\$29,000	\$158,000

The improvement plan is intended to remain flexible, and each year the Village will review the list of roads that meets the criteria ranking to identify the highest priority roads for that year. The Village intends to let some of the remaining roads with a Paser rating of 2 continue to deteriorate for a few years while they focus on the roads that can be improved at a lower cost. This method will allow the Village to make substantial improvements to the overall quality of the system.

Funding

Funding can be obtained from a number of sources, although grants are usually limited to economic development or major streets.

The Safe, Accountable, Flexible, Efficient Transportation Equity Act of 2005 (SAFETEA) program, administrated through the Michigan Department of Transportation, provides funding for the federally eligible roads. The only roads in Shelby with this classification are Woodrow Road/6th Street, Industrial Park Drive, State Street, 1st Street, and Ferry Street.

Category A of the Transportation Economic Development Fund (TEDF) provides funding for road projects related to economic development and redevelopment opportunities in specific target industries. A need must be shown to exist in road capacity, condition, safety or accessibility with retention or creation of jobs in one of the funds targeted industries.

The Department of Commerce administers the Community Development Block Grant (CDBG) Program, which provides funding for road projects tied to economic development. A commitment from local employers to new jobs is required and funding is based on the number of new jobs created. These funds are not limited to major streets, although the street improvements need to be shown to be important to the creation of jobs.

The U.S. Economic Development Administration (EDA) also funds road projects related to economic development. The project must be submitted to the local state planning agency and included in its Overall Economic Development Planning (OEDP) Report. Funding priority is based on permanent job creation and the amount of local matching funds committed to the project.

DEFINITIONS AND DESCRIPTIONS

Source: PASER Manual

Alligator Cracking: Interconnected cracks forming small pieces ranging in size from about 1” to 6”. This is caused by failure of the surfacing due to traffic loading (fatigue) and very often also due to inadequate base or subgrade support. Repair by excavating localized areas and replacing base and surface. Large areas require reconstruction. Improvements in drainage may often be required.

Block Cracking: Block cracking are interconnected cracks forming large blocks. Cracks usually intersect at nearly right angles. Blocks may range from one foot to approximately 10’ or more across. The closer spacing indicates more advanced aging caused by shrinking and hardening of the asphalt over time. Repair with sealcoating during early stages to reduce weathering of the asphalt. Overlay or reconstruction required in the advanced stages.

Distortion: Shoving or rippling is surfacing material displaced crossways to the direction of traffic. It can develop into washboarding when the asphalt mixture is unstable because of poor quality aggregate or improper mix design. Repair by milling smooth and overlaying with stable asphalt mix. Other pavement distortions may be caused by settling, frost heave, etc. Patching may provide temporary repair. Permanent correction usually involves removal of unsuitable subgrade material and reconstruction.

Flushing: Flushing is excess asphalt on the surface caused by a poor initial asphalt mix design or by paving or sealcoating over a flushed surface. Repair by blotting with sand or by overlaying with properly designed asphalt mix.

Longitudinal Crack: Cracks running in the direction of traffic are longitudinal cracks. Centerline or lane cracks are caused by inadequate bonding during construction or reflect cracks in underlying pavement. Longitudinal cracks in the wheel path indicate fatigue failure from heavy

vehicle loads. Cracks within one foot of the edge are caused by insufficient shoulder support, poor drainage, or frost action. Cracks usually start as hairline or vary narrow and widen and erode with age. Without crack filling, they can ravel, develop multiple cracks, and become wide enough to require patching. Filling and sealing cracks will reduce moisture penetration and prevent further subgrade weakening. Multiple longitudinal cracks in the wheel path or pavement edge indicate a need for strengthening with an overlay or reconstruction.

Polishing: Polishing is a smooth slippery surface caused by traffic wearing off sharp edges of aggregates. Repair with sealcoat or thin bituminous overlay using skid-resistant aggregate.

Raveling: Raveling is progressive loss of pavement material from the surface downward, caused by: stripping of the bituminous film from the aggregate, asphalt hardening due to aging, poor compaction especially in cold weather construction, or insufficient asphalt content. Slight to moderate raveling has loss of fines. Severe raveling has loss of coarse aggregate. Raveling in the wheelpaths can be accelerated by traffic. Protect pavement surfaces from the environment with a sealcoat or a thin overlay if additional strength is required.

Reflective Cracking: Cracks in overlays reflect the crack pattern in the pavement underneath. They are difficult to prevent and correct. Thick overlays or reconstruction is usually required.

Rutting: Rutting is displacement of material, creating channels in wheelpaths. It is caused by traffic compaction or displacement of unstable material. Severe rutting (over 2") may be caused by base or subgrade consolidation. Repair minor rutting with overlays. Severe rutting requires milling the old surface or reconstructing the roadbed before resurfacing.

Slippage Crack: Crescent or rounded cracks in the direction of traffic, caused by slippage between an overlay and an underlying pavement. Slippage is most likely to occur at intersections where traffic is stopping and starting. Repair by removing the top surface and resurfacing using a tack coat.

Transverse Crack: A crack at approximately right angles to the centerline is a transverse crack. They are often regularly spaced. The cause is movement due to temperature changes and hardening of the asphalt with aging. Transverse cracks will initially be widely spaced (over 50'). Additional cracking will occur with aging until they are closely spaced (within several feet). These usually begin as hairline or very narrow cracks; with aging they widen. If not properly sealed and maintained, secondary or multiple cracks develop parallel to the initial crack. The crack edges can further deteriorate by raveling and eroding the adjacent pavement. Prevent water intrusion and damage by sealing cracks that are more than 1/4" wide.

Village of Shelby

Oceana County, Michigan

2011 Street Inventory

Ranking Criteria: Act 51 Classification and PASER



Cross-Section	Cost/LFT	Description
A	\$133.00	20' Wide, 3" Bit, no curb or storm
B	\$219.00	24' Wide, 3" Bit, Concrete Curb & Gutter
C	\$180.00	30' Wide, 4" Bit, no curb or storm
D	\$239.00	36' Wide, 4" Bit, Reuse Curb & Gutter
E	\$316.00	48' Wide, 4" Bit, Concrete Curb & Gutter

Fix	Cost/SYD	Description
F	\$1.30	Sealing
G	\$6.50	1.5" Overlay
H	\$8.60	2" Overlay
I	\$7.80	1.5" Coldmill and Resurface
J	\$9.90	2" Coldmill and Resurface

Notes:

1. Costs are based on 2011 construction prices and do not include sidewalk improvements. Engineering fees are included in the estimates.
2. Where reconstruction is recommended, storm sewer replacement costs are included in the estimate.
3. Costs do not include patches or structure adjustments for overlays.

Street Name	From	To	Length (miles)	Type	Width (ft)	Curb	ACT 51 Classification	PASER	Priority Grade	Action	Recommended Cross Section or Fix	Estimated Cost
State Street	CS Start	Twp Line	0.023	Asphalt	30	No	City Major	2	A	Reconstruction	C	\$ 22,000
State Street	Twp Line	Twp Line	0.01	Asphalt	30	No	City Major	2	A	Reconstruction	C	\$ 10,000
State Street	Twp Line	Kelly	0.22	Asphalt	30	No	City Major	2	A	Reconstruction	C	\$ 210,000
State Street	Kelly	2nd	0.655	Asphalt	36	Yes	City Major	2	A	Reconstruction	D	\$ 827,000
State Street	2nd	White	0.058	Asphalt	36	Yes	City Major	2	A	Reconstruction	D	\$ 74,000
State Street	White	3rd	0.071	Asphalt	36	Yes	City Major	2	A	Reconstruction	D	\$ 90,000
State Street	3rd	School	0.564	Asphalt	36	Yes	City Major	2	A	Reconstruction	D	\$ 712,000
State Street	School	School	0.06	Asphalt	36	Yes	City Major	2	A	Reconstruction	D	\$ 76,000
State Street	School	CS Start	0.228	Asphalt	36	Yes	City Major	2	A	Reconstruction	D	\$ 288,000
Sessions Road	Plum	Attribute change	0.102	Sealcoat	24	No	City Minor	2	B	Reconstruction	B	\$ 118,000
Piper Street	Industrial Park	Dead End	0.146	Asphalt	24	No	City Minor	2	C	Reconstruction	C	\$ 139,000
Walnut Street	3rd	S. Dead End	0.026	Asphalt	24	Yes	City Minor	2	C	Reconstruction	B	\$ 31,000
2nd Street	Pine	State	0.204	Asphalt	32	Yes	City Major	3	A	2" Mill and Fill with Patching	J	\$ 42,000
Cherry Street	State	Lesada	0.134	Asphalt	24	Yes	City Minor	3	A	2" Mill and Fill with Patching	J	\$ 21,000
Elm Street	4th	5th	0.107	Asphalt	40	Yes	City Minor	3	A	2" Mill and Fill with Patching	J	\$ 28,000
Plum Road	Sessions	Hawley	0.128	Asphalt	22	No	City Minor	3	A	2" Overlay with Patching	H	\$ 16,000
Sunset Terrace, N.	6th	Dead End	0.133	Asphalt	24	Yes	City Minor	3	A	2" Mill and Fill	J	\$ 21,000
3rd Street	Michigan	State	0.114	Asphalt	36	Yes	City Major	3	B	2" Mill and Fill with Patching	J	\$ 27,000
3rd Street	Hart-Mont. Trail	Michigan	0.06	Asphalt	36	Yes	City Minor	3	B	2" Mill and Fill with Patching	J	\$ 14,000
6th Street	Twp Line	Apricot	0.100	Asphalt	24	Yes	City Minor	3	B	2" Mill and Fill with Patching	J	\$ 16,000
Deming Road	State	Dead End	0.129	Asphalt	24	No	City Minor	3	B	2" Overlay with Patching	H	\$ 18,000
Ellis Street	Ferry Street	White	0.088	Asphalt	26	No	City Minor	3	B	2" Overlay with Patching	H	\$ 13,000
Hillcrest Drive	Sunset	Runner	0.087	Asphalt	24	No	City Minor	3	B	2" Mill and Fill	J	\$ 14,000
Lesada Street	6th	Dead End	0.234	Asphalt	24	Yes	City Minor	3	B	2" Mill and Fill	J	\$ 36,000
Maple Street	4th	5th	0.108	Asphalt	34	Yes	City Minor	3	B	2" Mill and Fill with Patching	J	\$ 24,000
Maple Street	5th	6th	0.102	Asphalt	34	Yes	City Minor	3	B	2" Mill and Fill	J	\$ 23,000
Sunset Terrace, S.	6th	Hillcrest	0.133	Asphalt	24	Yes	City Minor	3	B	2" Mill and Fill	J	\$ 21,000
Devonwood Drive	Elliott	Dead End	0.111	Asphalt	26	No	City Minor	3	C	2" Overlay with Patching	H	\$ 17,000
Grant Street	State	Michigan	0.115	Asphalt	30	Yes	City Minor	3	C	2" Mill and Fill with Patching	J	\$ 23,000
Harvey Street / Fowler	Kelly	Dead End	0.42	Asphalt	26	Yes	City Minor	3	C	2" Mill and Fill with Patching	J	\$ 70,000
Lewis Street	Harrison	Dead End	0.034	Asphalt	24	No	City Minor	3	C	2" Overlay with Patching	H	\$ 5,000
4th Street	Maple	State	0.098	Asphalt	30	Yes	City Major	4	A	2" Mill and Fill	J	\$ 19,000

Village of Shelby Oceana County, Michigan 2011 Street Inventory

Ranking Criteria: Act 51 Classification and PASER



Cross-Section	Cost/LEI	Description
A	\$133.00	20' Wide, 3" Bit, no curb or storm
B	\$219.00	24' Wide, 3" Bit, Concrete Curb & Gutter
C	\$180.00	30' Wide, 4" Bit, no curb or storm
D	\$239.00	36' Wide, 4" Bit, Reuse Curb & Gutter
E	\$316.00	48' Wide, 4" Bit, Concrete Curb & Gutter

Fix	Cost/SYD	Description
F	\$1.30	Sealing
G	\$6.50	1.5" Overlay
H	\$8.60	2" Overlay
I	\$7.80	1.5" Coldmill and Resurface
J	\$9.90	2" Coldmill and Resurface

- Notes:
1. Costs are based on 2011 construction prices and do not include sidewalk improvements. Engineering fees are included in the estimates.
 2. Where reconstruction is recommended, storm sewer replacement costs are included in the estimate.
 3. Costs do not include patches or structure adjustments for overlays.

Street Name	From	To	Length (miles)	Type	Width (ft)	Curb	ACT 51 Classification	PASER	Priority Grade	Action	Recommended Cross Section or Fix	Estimated Cost
5th Street	Elm	State	0.081	Asphalt	36	Yes	City Major	4	A	2" Mill and Fill	J	\$ 19,000
6th Street	Runner	Sunset Terrace	0.096	Asphalt	24	Yes	City Major	4	A	2" Mill and Fill with Patching	J	\$ 15,000
6th Street	Industrial Park	Runner	0.477	Asphalt	24	Yes	City Major	4	A	2" Mill and Fill	J	\$ 74,000
6th Street	Sunset	Twp Line	0.07	Asphalt	24	Yes	City Major	4	A	2" Mill and Fill	J	\$ 11,000
6th Street	Pine	Industrial Park	0.064	Asphalt	24	Yes	City Major	4	A	2" Mill and Fill	J	\$ 10,000
6th Street	Apricot	Pine	0.188	Asphalt	24	Yes	City Minor	4	A	2" Mill and Fill	J	\$ 29,000
Cherry Street	Lesada	Sunset Terrace	0.168	Asphalt	24	Yes	City Minor	4	A	2" Mill and Fill	J	\$ 26,000
Elm Street	5th	6th	0.098	Asphalt	40	Yes	City Major	4	A	2" Mill and Fill with Patching	J	\$ 28,000
Michigan Ave / Rankin St	Valley	Grant	0.218	Asphalt	25	No	City Minor	4	A	2" Overlay	H	\$ 31,000
Michigan Avenue	Grant	State	0.19	Asphalt	24	Yes	City Minor	4	A	2" Mill and Fill	J	\$ 30,000
Runner	Hillcrest	6th	0.173	Asphalt	24	No	City Minor	4	A	2" Mill and Fill	J	\$ 27,000
White Street	Ellis	State	0.13	Asphalt	26	No	City Minor	4	A	2" Overlay	H	\$ 19,000
Apricot Lane	Elliott	6th	0.046	Asphalt	26	No	City Minor	4	B	2" Overlay with Patching	H	\$ 7,000
Elliott Street	Apricot	Dead End	0.118	Asphalt	26	No	City Minor	4	B	2" Overlay with Patching	H	\$ 18,000
Ferry Street	State	Twp Line	0.529	Asphalt	32	Yes	City Major	4	B	2" Mill and Fill	J	\$ 109,000
Hawley Street	Plum	Rankin	0.155	Asphalt	25	No	City Minor	4	B	2" Overlay	H	\$ 22,000
Industrial Park Drive	6th	Piper	0.726	Asphalt	36	No	City Major	4	B	2" Overlay	H	\$ 146,000
Michigan Avenue	State	2nd	0.074	Asphalt	42	Yes	City Major	4	B	2" Mill and Fill	J	\$ 20,000
Michigan Avenue	4th	6th	0.211	Asphalt	42	Yes	City Major	4	B	2" Mill and Fill	J	\$ 57,000
Michigan Avenue	2nd	3rd	0.109	Asphalt	60	Yes	City Minor	4	B	2" Mill and Fill	J	\$ 42,000
Michigan Avenue	3rd	4th	0.107	Asphalt	60	Yes	City Minor	4	B	2" Mill and Fill	J	\$ 42,000
School Street	6th	Dead End	0.105	Asphalt	33	No	City Major	4	B	2" Overlay	H	\$ 20,000
Sunset Terrace, S.	Hillcrest	Orchard View	0.133	Asphalt	24	No	City Minor	4	B	2" Mill and Fill	J	\$ 21,000
1st Street	Twp Line	Elliott	0.121	Asphalt	30	Yes	City Major	4	C	2" Mill and Fill	J	\$ 24,000
3rd Street	Pine	Hart-Mont. Trail	0.099	Asphalt	30	Yes	City Minor	4	C	2" Mill and Fill	J	\$ 19,000
5th Street	Walnut	Hart-Mont. Trail	0.036	Asphalt	24	Yes	City Minor	4	C	2" Mill and Fill with Patching	J	\$ 6,000
5th Street	Pine	Walnut	0.059	Asphalt	24	Yes	City Minor	4	C	2" Mill and Fill	J	\$ 10,000
5th Street	Hart-Mont. Trail	Elm	0.224	Asphalt	24	Yes	City Minor	4	C	2" Mill and Fill	J	\$ 35,000
Bennett Street	Michigan	Dead End	0.194	Asphalt	30	Yes	City Minor	4	C	2" Mill and Fill	J	\$ 38,000
Bevier Street	State	Dead End	0.106	Asphalt	30	No	City Minor	4	C	2" Overlay	H	\$ 18,000
Dewey Street	5th	6th	0.107	Asphalt	26	Yes	City Minor	4	C	2" Mill and Fill with Patching	J	\$ 18,000
Elliott Street	1st	Devonwood	0.198	Asphalt	26	No	City Minor	4	C	2" Overlay	H	\$ 29,000

Village of Shelby Oceana County, Michigan 2011 Street Inventory

Ranking Criteria: Act 51 Classification and PASER



Cross-Section	Cost/LFT	Description
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D	\$239.00	36' Wide, 4" Bit, Reuse Curb & Gutter
E	\$316.00	48' Wide, 4" Bit, Concrete Curb & Gutter

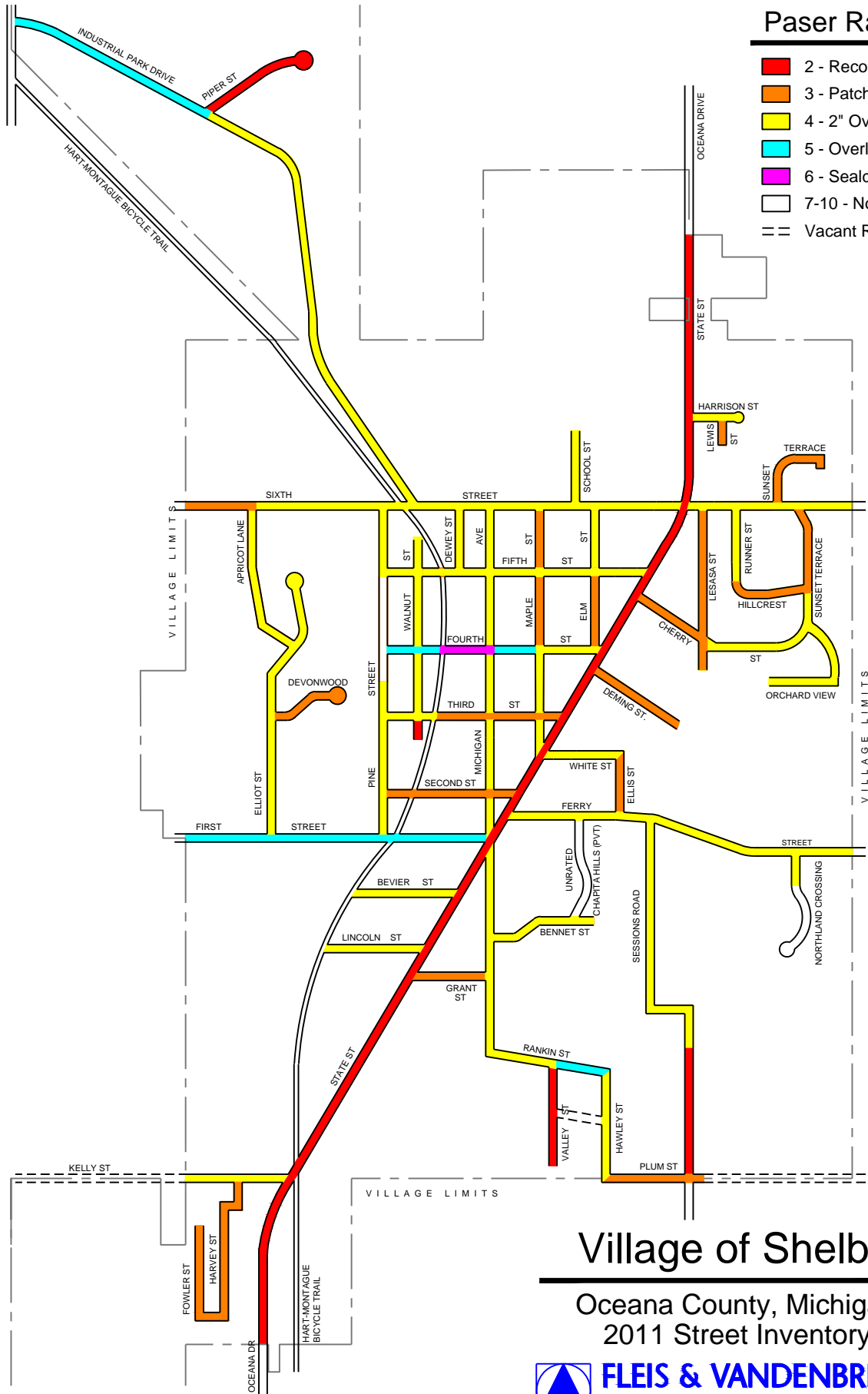
Fix	Cost/SYD	Description
F	\$1.30	Sealing
G	\$6.50	1.5" Overlay
H	\$8.60	2" Overlay
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Notes:

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2. Where reconstruction is recommended, storm sewer replacement costs are included in the estimate.
3. Costs do not include patches or structure adjustments for overlays.

Street Name	From	To	Length (miles)	Type	Width (ft)	Curb	ACT 51 Classification	PASER	Priority Grade	Action	Recommended Cross Section or Fix	Estimated Cost
Elliott Street	Devonwood	Apricot	0.096	Asphalt	26	No	City Minor	4	C	2" Overlay	H	\$ 14,000
Harrison Street	State	Dead End	0.139	Asphalt	24	No	City Minor	4	C	2" Overlay	H	\$ 19,000
Kelly Street	Twp Line	State	0.152	Asphalt	24	No	City Minor	4	C	2" Overlay	H	\$ 21,000
Lincoln Street	Dead End	State	0.084	Asphalt	30	No	City Major	4	C	2" Overlay	H	\$ 14,000
Maple Street	3rd	4th	0.106	Asphalt	40	Yes	City Major	4	C	2" Mill and Fill with Patching	J	\$ 28,000
Maple Street	State	3rd	0.06	Asphalt	35	Yes	City Major	4	C	2" Mill and Fill	J	\$ 14,000
Northland Crossing	Ferry Street	Attribute change	0.067	Asphalt	24	No	City Minor	4	C	2" Overlay	H	\$ 9,000
Orchard View	Sunset Terrace	Dead End	0.133	Asphalt	24	No	City Minor	4	C	2" Mill and Fill	J	\$ 21,000
Pine Street	1st	4th	0.282	Asphalt	24	No	City Major	4	C	2" Overlay	H	\$ 38,000
Pine Street	5th	6th	0.113	Asphalt	24	No	City Major	4	C	2" Overlay	H	\$ 16,000
Sessions Road	Attribute Change	Ferry Street	0.477	Asphalt	24	No	City Minor	4	C	2" Overlay	H	\$ 64,000
Walnut Street	3rd	N. Dead End	0.263	Asphalt	24	Yes	City Minor	4	C	2" Mill and Fill	J	\$ 41,000
1st Street	Elliott	State	0.328	Asphalt	30	Yes	City Major	5	-	1.5" Mill and Fill	I	\$ 46,000
4th Street	Walnut	Hart-Mont Trail	0.057	Asphalt	48	Yes	City Minor	5	-	1.5" Mill and Fill	G	\$ 11,000
4th Street	Michigan	Maple	0.079	Asphalt	30	Yes	City Major	5	-	1.5" Mill and Fill	I	\$ 11,000
4th Street	Pine	Walnut	0.059	Asphalt	24	Yes	City Minor	5	-	1.5" Mill and Fill	I	\$ 7,000
Apricot Lane	Elliott	Elliott	0.194	Asphalt	26	No	City Minor	5	-	1.5" Overlay	G	\$ 20,000
Industrial Park Drive	Piper	72nd	0.326	Asphalt	36	No	City Major	5	-	1.5" Overlay	G	\$ 45,000
Rankin Street	Hawley	Valley	0.069	Asphalt	25	No	City Minor	5	-	1.5" Overlay	G	\$ 7,000
4th Street	Hart-Mont. Trail	Michigan	0.044	Asphalt	48	Yes	City Minor	6	-	Sealcoat	F	\$ 2,000
Northland Crossing	Attribute Change	Dead End	0.154	Asphalt	24	No	City Minor	8	-	None	None	\$ -
Pine Street	4th	5th	0.107	Asphalt	24	No	City Major	10	-	None	None	\$ -

Gravel Streets	Rankin Street	Dead End	0.174	Gravel	24	No	City Minor	4	-	Gravel Grading	Grading	\$ 3,000
Valley Street												



- Paser Rating**
- 2 - Reconstruct
 - 3 - Patch & Overlay
 - 4 - 2" Overlay
 - 5 - Overlay or Sealcoat
 - 6 - Sealcoat
 - 7-10 - No Maintenance
 - Vacant R.O.W.

Village of Shelby

Oceana County, Michigan
2011 Street Inventory



Current Surface Rating Report

Region 14

Report Module: Road Surface Management Analysis

Today's Date: 10/11/2011

Grouped By: Act 51 Legal System

Report Filter

Field Name	Operator	Value
City/Twp	=	Shelby
TAMC Collection Year	=	2011

West Michigan Shoreline Regional Development Commission

316 Morris Avenue, Suite 340
P.O. Box 387
Muskegon, MI 49443-0387



Joel Fitzpatrick
Senior Planner
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Current Surface Rating Report

PR No.	Road Name	Segment Name	From Description	To Description	P.O.B.	P.O.E.	Length	City/Township	NFC	Surface Subtype	Last Resurf	Last Eval	PASER Rating	RSL
Act 51 Legal System: Undefined														
3641008	Charita													
1544310	Elliott St		Bennett St	Ferry St	0.000	0.186	0.186	Shelby	Unk	Asphalt-Standard	0	2011	2	-10
			Attribute Change	N Apricot Ln	0.412	0.519	0.107	Shelby	Unk	Gravel-Standard	0	2011	2	-4
Total Mileage for Act 51 Legal System Undefined: 0.293														
Act 51 Legal System: County Primary														
1544610	W Shelby Rd		City/Twp Line	City/Twp Line	7.226	7.292	0.066	Shelby	MajColl	Asphalt-Standard	0	2011	4	-2
Total Mileage for Act 51 Legal System County Primary: 0.066														
Act 51 Legal System: City Major														
1540803	W 2nd St		Pine St	N State St	0.000	0.204	0.204	Shelby	Local	Asphalt-Standard	0	2011	3	-5
1540806	W 3rd St		E 3rd St	N State St	0.159	0.273	0.114	Shelby	Local	Asphalt-Standard	0	2011	3	-5
1540808	E 4th St		E 4th St	Maple St	0.160	0.239	0.079	Shelby	Local	Asphalt-Standard	0	2011	5	1
			Maple St	N State St	0.239	0.337	0.098	Shelby	Local	Asphalt-Standard	0	2011	4	-2
1540810	W 5th St		Elm St	N State St	0.319	0.400	0.081	Shelby	Local	Asphalt-Standard	0	2011	4	-2
1544301	Elm St		E 5th St	W 6th St	0.107	0.205	0.098	Shelby	Local	Asphalt-Standard	0	2011	3	-5
1544510	Industrial Park Dr		W 6th St	Piper St	0.000	0.726	0.726	Shelby	MinColl	Asphalt-Standard	0	2011	4	-2
			Piper St	S 72nd Ave	0.726	1.052	0.326	Shelby	MinColl	Asphalt-Standard	0	2011	5	-1
1540708	Lincoln St		Dead End or Start	S State St	0.000	0.084	0.084	Shelby	Local	Asphalt-Standard	0	2011	4	-2
1540805	Maple St		N State St	E 3rd St	0.000	0.060	0.060	Shelby	Local	Asphalt-Standard	0	2011	4	-2

Current Surface Rating Report

PR No.	Road Name	Segment Name	From Description	To Description	P.O.B.	P.O.E.	Length	City/Township	NFC	Surface Subtype	Last Resurf	Last Eval	PASER Rating	RSL
Act 51 Legal System: City Major														
3641265	N Michigan Ave	Maple St	E 3rd St	E 4th St	0.060	0.166	0.106	Shelby	Local	Asphalt-Standard	0	2011	3	-5
		N Michigan Ave	N State St	E 2nd St	0.760	0.834	0.074	Shelby	Local	Asphalt-Standard	0	2011	4	-2
		N Michigan Ave	E 4th St	W 6th St	1.050	1.261	0.211	Shelby	Local	Asphalt-Standard	0	2011	4	-2
15440310	N Oceana Dr		CS End	City/Twp Line	9.251	9.274	0.023	Shelby	MajColl	Asphalt-Standard	0	2011	2	-10
		N State St	City/Twp Line	Kelly	9.274	9.284	0.010	Shelby	MajColl	Asphalt-Standard	0	2011	2	-5
		N State St	Kelly	E 2nd St	9.284	9.504	0.220	Shelby	MajColl	Asphalt-Standard	0	2011	2	-5
		N State St	E 2nd St	E 2nd St	9.504	10.159	0.655	Shelby	MajColl	Asphalt-Standard	0	2011	2	-5
		N State St	E 2nd St	White St	10.159	10.217	0.058	Shelby	MajColl	Asphalt-Standard	0	2011	2	-5
		N State St	White St	E 3rd St	10.217	10.288	0.071	Shelby	MajColl	Asphalt-Standard	0	2011	2	-5
		N State St	E 3rd St	E 3rd St	10.288	10.852	0.564	Shelby	MajColl	Asphalt-Standard	0	2011	2	-10
		N State St	E 3rd St	White St	10.852	10.912	0.060	Shelby	MajColl	Asphalt-Standard	0	2011	2	-10
		N State St	CS Start	CS Start	10.912	11.140	0.228	Shelby	MajColl	Asphalt-Standard	0	2011	2	-10
1544208	Pine St		1st St	W 4th St	0.000	0.282	0.282	Shelby	Local	Asphalt-Standard	0	2011	4	-2
		Pine St	W 4th St	W 5th St	0.282	0.369	0.107	Shelby	Local	Asphalt-Standard	0	2011	3	-5
		Pine St	W 5th St	W Woodrow Rd	0.369	0.502	0.113	Shelby	Local	Asphalt-Standard	0	2011	4	-2
1544302	School St		W 6th St	Dead End or Start	0.000	0.105	0.105	Shelby	Local	Asphalt-Standard	0	2011	4	-2
1540802	W Shelby Rd		N State St	City/Twp Line	0.000	0.529	0.529	Shelby	MajColl	Asphalt-Standard	0	2011	4	-2
1544610	W Shelby Rd		City/Twp Line	Elliott	7.292	7.413	0.121	Shelby	MajColl	Asphalt-Standard	0	2011	4	-2
		1st St	Elliott	N State St	7.413	7.741	0.328	Shelby	MajColl	Asphalt-Standard	0	2011	5	-1
1544802	W Woodrow Rd		Pine St	Industrial Park Dr	0.548	0.612	0.064	Shelby	Local	Asphalt-Standard	0	2011	4	-2
		W 6th St	Industrial Park Dr	Runner St	0.612	1.089	0.477	Shelby	MinColl	Asphalt-Standard	0	2011	4	-5

Current Surface Rating Report

PR No.	Road Name	Segment Name	From Description	To Description	P.O.B.	P.O.E.	Length	City/Township	NFC	Surface Subtype	Last Resurf	Last Eval	PASER Rating	RSL
Act 51 Legal System: City Major														
1540806	W 3rd St	W 6th St	Runner St	Sunset	1.089	1.185	0.096	Shelby	MinColl	Asphalt-Standard	0	2011	3	-5
1540808	E 4th St	W 6th St	Sunset	City/Twp Line	1.185	1.255	0.070	Shelby	MinColl	Asphalt-Standard	0	2011	4	1
Total Mileage for Act 51 Legal System City Major: 6.442														
Act 51 Legal System: City Minor														
1540806	W 3rd St	W 3rd St	Pine St	Hart Montague	0.000	0.099	0.099	Shelby	Local	Asphalt-Standard	0	2011	4	-2
1540808	E 4th St	W 3rd St	Hart Montague	E 3rd St	0.099	0.159	0.060	Shelby	Local	Asphalt-Standard	0	2011	3	-5
1540810	W 5th St	W 4th St	Pine St	Walnut St	0.000	0.059	0.059	Shelby	Local	Asphalt-Standard	0	2011	5	1
		W 4th St	Walnut St	Hart Montague	0.059	0.116	0.057	Shelby	Local	Asphalt-Standard	0	2011	2	-10
		W 4th St	Hart Montague	E 4th St	0.116	0.160	0.044	Shelby	Local	Asphalt-Standard	0	2011	6	4
		W 5th St	Pine St	Walnut St	0.000	0.059	0.059	Shelby	Local	Asphalt-Standard	0	2011	4	-2
		W 5th St	Walnut St	Hart Montague	0.059	0.095	0.036	Shelby	Local	Asphalt-Standard	0	2011	3	-5
		W 5th St	Hart Montague	Elm St	0.095	0.319	0.224	Shelby	Local	Asphalt-Standard	0	2011	4	-2
1544401	N Apricot Ln	N Apricot Ln	Elliott St	Elliott St	0.000	0.194	0.194	Shelby	Local	Asphalt-Standard	0	2011	5	1
		N Apricot Ln	Elliott St	W Woodrow Rd	0.194	0.240	0.046	Shelby	Local	Asphalt-Standard	0	2011	3	-5
1544207	Bennett St	Bennett St	S Michigan Ave	Charita	0.000	0.129	0.129	Shelby	Local	Asphalt-Standard	0	2011	4	-2
		Bennett St	Charita	Dead End or Start	0.129	0.194	0.065	Shelby	Local	Asphalt-Standard	0	2011	3	-5
1540719	Bevier St	Bevier St	S State St	Dead End or Start	0.000	0.106	0.106	Shelby	Local	Asphalt-Standard	0	2011	4	-2
1540809	Cherry St	Cherry St	N State St	Lesada St	0.000	0.134	0.134	Shelby	Local	Asphalt-Standard	0	2011	3	-5
		Cherry St	Lesada St	S Sunset Ter	0.134	0.302	0.168	Shelby	Local	Asphalt-Standard	0	2011	4	-2
1540817	Deming Rd	Deming Rd	N State St	Dead End or Start	0.000	0.129	0.129	Shelby	Local	Asphalt-Standard	0	2011	3	-5

Current Surface Rating Report

PR No.	Road Name	Segment Name	From Description	To Description	P.O.B.	P.O.E.	Length	City/Township	NFC	Surface Subtype	Last Resurf	Last Eval	PASER Rating	RSL
Act 51 Legal System: City Minor														
3641270	Devonwood Dr	Devonwood Dr	Elliott St	Dead End or Start	0.000	0.111	0.111	Shelby	Local	Asphalt-Standard	0	2011	3	-5
1544210	Dewey St	Dewey St	W 5th St	W 6th St	0.000	0.107	0.107	Shelby	Local	Asphalt-Standard	0	2011	3	-5
1544310	Elliott St	Elliott St	1st St	Devonwood Dr	0.000	0.198	0.198	Shelby	Local	Asphalt-Standard	0	2011	4	-2
		Elliott St	Devonwood Dr	N Apricot Ln	0.198	0.294	0.096	Shelby	Local	Asphalt-Standard	0	2011	4	-2
		Elliott St	N Apricot Ln	Attribute Change	0.294	0.412	0.118	Shelby	Local	Asphalt-Standard	0	2011	3	-5
1544206	Ellis St	Ellis St	Ferry St		0.000	0.088	0.088	Shelby	Local	Asphalt-Standard	0	2011	3	-5
		Ellis St	Maple St		0.088	0.218	0.130	Shelby	Local	Asphalt-Standard	0	2011	4	-2
1544301	Elm St	Elm St	E 4th St	E 5th St	0.000	0.107	0.107	Shelby	Local	Asphalt-Standard	0	2011	2	-10
1540707	Grant St	Grant St	S State St	S Michigan Ave	0.000	0.115	0.115	Shelby	Local	Asphalt-Standard	0	2011	3	-5
1540902	Harrison St	Harrison St	N State St	Dead End or Start	0.000	0.139	0.139	Shelby	Local	Asphalt-Standard	0	2011	4	-2
3640074	W Harvey St	W Harvey St	Kelly St	Dead End or Start	0.000	0.420	0.420	Shelby	Local	Asphalt-Standard	0	2011	3	-5
3640099	Hilcrest Dr	Hilcrest Dr	S Sunset Ter	W Woodrow Rd	0.000	0.260	0.260	Shelby	Local	Asphalt-Standard	0	2011	4	-2
1540705	Kelly St	Kelly St	City/Twp Line	S State St	0.245	0.397	0.152	Shelby	Local	Asphalt-Standard	0	2011	4	-2
1544319	Lesada St	Lesada St	W Woodrow Rd	Dead End or Start	0.000	0.234	0.234	Shelby	Local	Asphalt-Standard	0	2011	4	-2
1544403	Lewis St	Lewis St	Harrison St	Dead End or Start	0.000	0.034	0.034	Shelby	Local	Asphalt-Standard	0	2011	3	-5
1540805	Maple St	Maple St	E 4th St	W 5th St	0.166	0.274	0.108	Shelby	Local	Asphalt-Standard	0	2011	3	-5

Current Surface Rating Report

PR No.	Road Name	Segment Name	From Description	To Description	P.O.B.	P.O.E.	Length	City/Township	NFC	Surface Subtype	Last Resurf	Last Eval	PASER Rating	RSL
Act 51 Legal System: City Minor														
3641265	N Michigan Ave	Maple St	W 5th St	W 6th St	0.274	0.376	0.102	Shelby	Local	Asphalt-Standard	0	2011	4	-2
		W Plum Rd	Sessions Rd		0.000	0.128	0.128	Shelby	Local	Asphalt-Standard	0	2011	3	-5
		W Plum Rd		Valley St	0.128	0.283	0.155	Shelby	Local	Asphalt-Standard	0	2011	4	-2
		W Plum Rd	Valley St	Valley St	0.283	0.352	0.069	Shelby	Local	Asphalt-Standard	0	2011	5	1
		W Plum Rd	Valley St	N State St	0.352	0.760	0.408	Shelby	Local	Asphalt-Standard	0	2011	4	-2
		N Michigan Ave	E 2nd St	W 3rd St	0.834	0.943	0.109	Shelby	Local	Asphalt-Standard	0	2011	4	-2
		N Michigan Ave	W 3rd St	E 4th St	0.943	1.050	0.107	Shelby	Local	Asphalt-Standard	0	2011	4	-2
3641269	Northland Crossing	Northland Crossing	Ferry St		0.000	0.067	0.067	Shelby	Local	Asphalt-Standard	0	2011	4	-2
		Northland Crossing		Dead End or Start	0.067	0.221	0.154	Shelby	Local	Asphalt-Standard	0	2011	8	9
1544509	Piper St	Piper St	Industrial Park Dr	Dead End or Start	0.000	0.146	0.146	Shelby	Local	Asphalt-Standard	0	2011	2	-10
1544602	Sessions Rd	Sessions Rd	Sessions Rd	[Surface Segment Split]	0.510	0.612	0.102	Shelby	Local	Sealcoat-Standard	0	2011	2	-4
		Sessions Rd	[Surface Segment Split]	Ferry St	0.612	1.089	0.477	Shelby	Local	Asphalt-Standard	0	2011	4	-2
1544308	N Sunset Ter	N Sunset Ter	W Woodrow Rd	Dead End or Start	0.000	0.133	0.133	Shelby	Local	Asphalt-Standard	0	2011	4	-2
3640073	S Sunset Ter	S Sunset Ter	W Woodrow Rd	Dead End or Start	0.000	0.399	0.399	Shelby	Local	Asphalt-Standard	0	2011	4	-2
3641292	Valley St	Valley St	Rankin St	Dead End or Start	0.000	0.174	0.174	Shelby	Local	Gravel-Standard	0	2011	2	-4
3640026	Walnut St	Walnut St	W 3rd St	Dead End or Start	0.000	0.263	0.263	Shelby	Local	Asphalt-Standard	0	2011	4	-2
3641084	Walnut St	Walnut St	W 3rd St	Dead End or Start	0.000	0.026	0.026	Shelby	Local	Asphalt-Standard	0	2011	2	-10
1544802	W Woodrow Rd	W Woodrow Rd	City/Twp Line	N Apricot Ln	0.262	0.362	0.100	Shelby	Local	Asphalt-Standard	0	2011	2	-10
		W Woodrow Rd	N Apricot Ln	Pine St	0.362	0.548	0.186	Shelby	Local	Asphalt-Standard	0	2011	4	-2

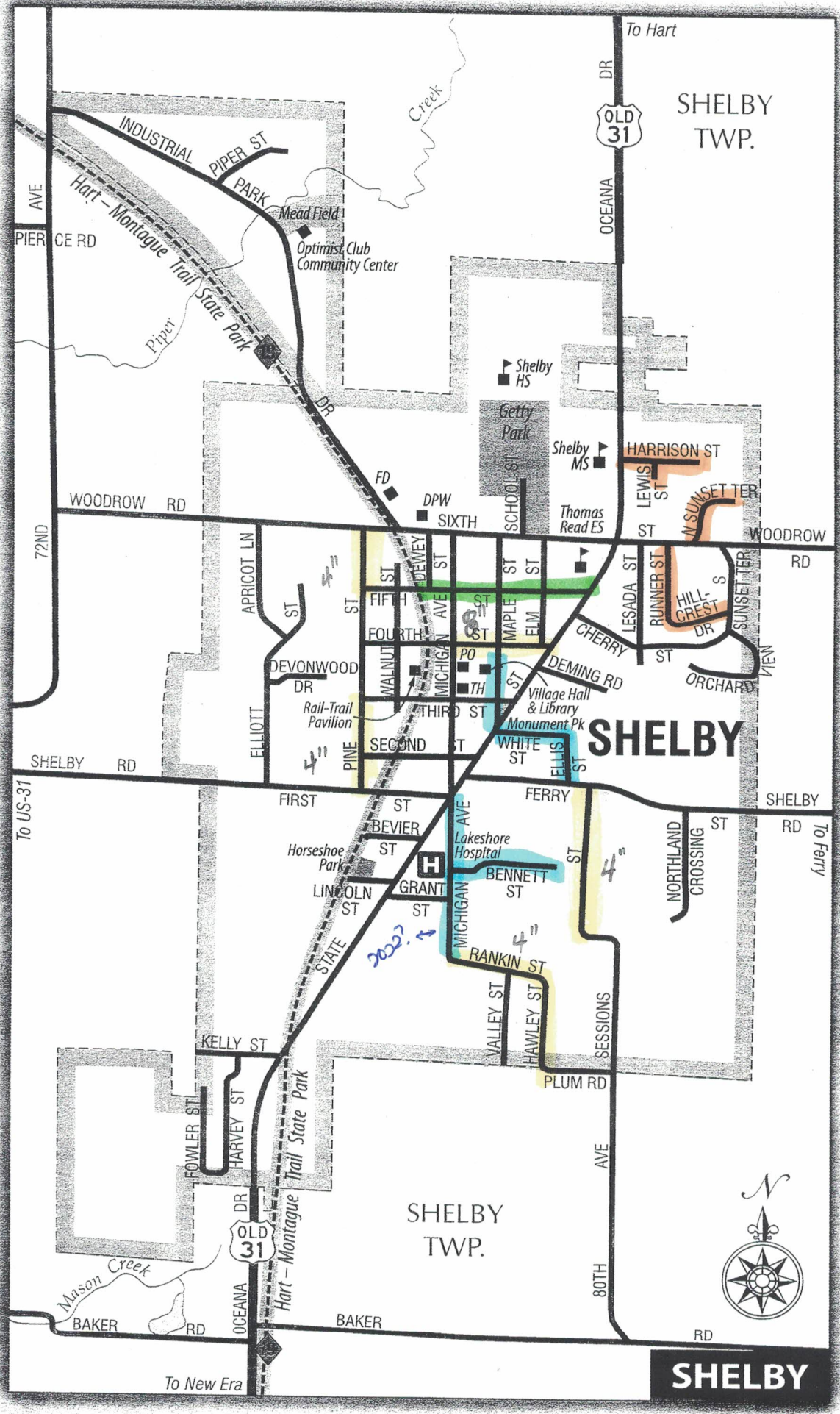
Current Surface Rating Report

PR No.	Road Name	Segment Name	From Description	To Description	P.O.B.	P.O.E.	Length	City/Township	NFC	Surface Subtype	Last Resurf	Last Eval	PASER Rating	RSL
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Act 51 Legal System: City Minor

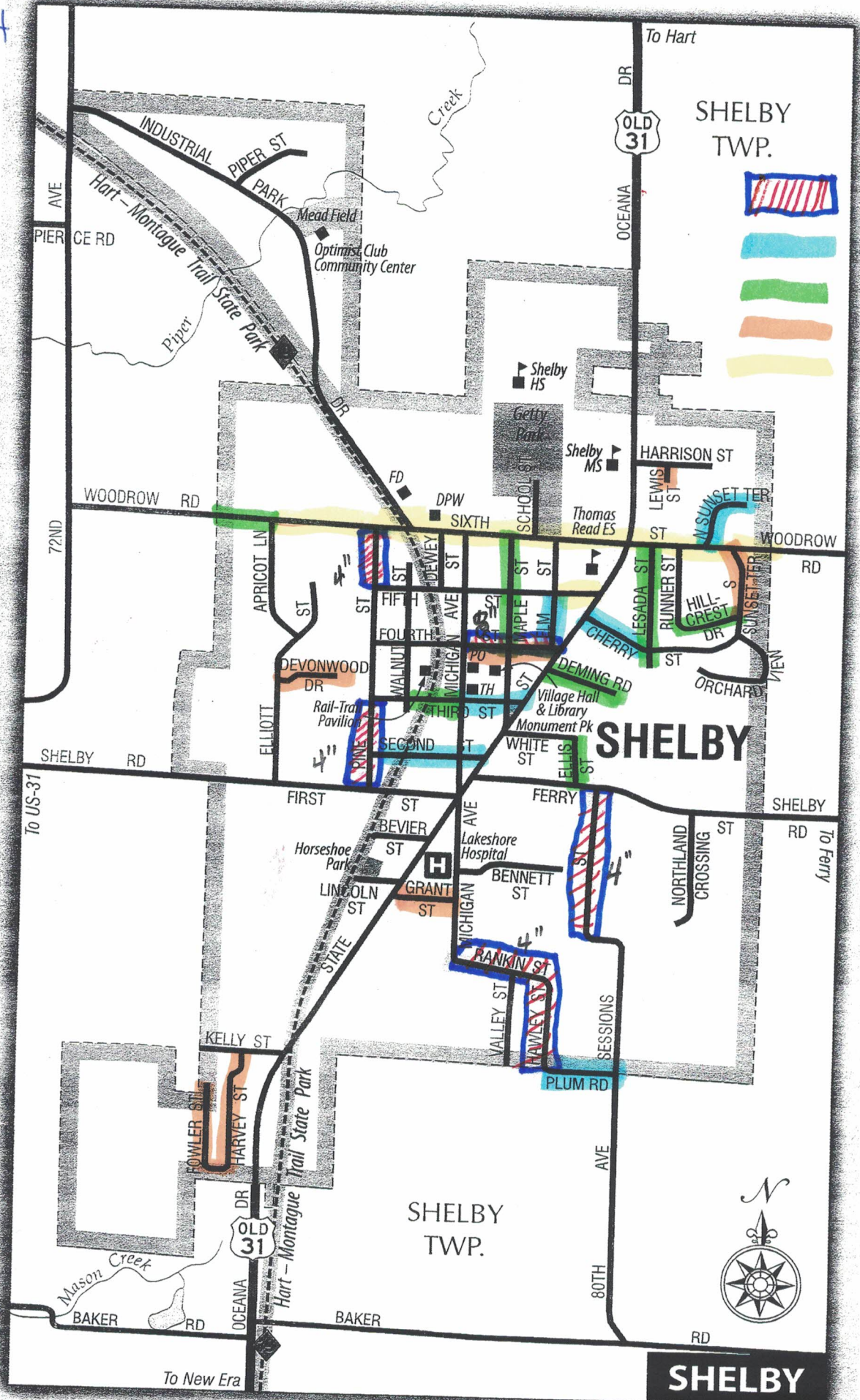
Total Mileage for Act 51 Legal System City Minor: 7.331

Total Mileage for all roads: 14.132



- 2022-622
- 2023
- 2024
- 2025

Attachment
2



SHELBY TWP.



2022 (Grant)
2023
2024
2025
2026

SHELBY

SHELBY TWP.

SHELBY





Streets & Sidewalks Committee
Item Cover Page

Meeting Date:	October 13, 2021
Agenda Item:	E. Fifth Street - School Traffic
Budget Impact:	N/A – Discussion Item Only
Staff Contact:	Brady Selner, Village Administrator

Background:

Chief Waltz has a meeting with Shelby Public Schools on Tuesday, September 28, at 1:00pm to discuss the traffic concerns at the elementary school. Chief Waltz is recommending we change E. Fifth Street as a one-way allowing traffic from west to east instead of east to west. He will be at the Streets & Sidewalks Committee meeting to provide an update regarding this agenda item.

Supporting Documents:

None