

AGENDA

Committee on City Operations AGENDA FOR FEBRUARY 21, 2024 AT 4:00 PM



Lansing City Hall, City Council Conference Room
124 W. Michigan Avenue, 10th Floor

To provide input or ask questions on any item that is listed on the agenda,
members of the public may contact the City Council at city.council@lansingmi.gov or (517) 483-4177 prior to the meeting.
view on: <https://www.youtube.com/@lansingcitycouncil4446/streams>

Council Member Jackson, Chairperson

Council Member Hussain, Vice Chairperson

Council Member Kost, Member

- 1. Call to Order**
- 2. Roll Call**
- 3. Minutes**
 - A. February 7, 2024
- 4. Public Comment on Agenda Items (Up to 3 Minutes)**
- 5. Discussion/Action:**
 - B. RESOLUTION - Claim Appeal; Claim #2017, Gridiron Marketing Group LLC for \$900 in red tag fees at 831 N. Chestnut Street
 - C. RESOLUTION - Liquor License; New Class C Development District or Area Liquor License, a request from Macotta Club, LLC at 300 S. Washington Square
 - D. RESOLUTION - Setting a Public Hearing on Noise Special Permit; Hoffman Bros. Inc. to allow for Combined Sewer Overflow 016/017 Phase 2 Project
 - E. RESOLUTION - Setting a Public Hearing on a Noise Special Permit; Michigan Department of Transportation request to allow for work activities to take place on I-496/US-127
 - F. RESOLUTION - Acceptance of Transportation Asset Management Plan
- 6. Other**
- 7. Adjourn**

Persons with disabilities who need an accommodation to fully participate in these meetings should contact the City Council Office at 517-483-4177 (TTY 711) 24 hour notice may be needed for certain accommodations. An attempt will be made to grant all reasonable accommodation requests.



MINUTES
Committee on City Operations
Wednesday, February 7, 2024 @ 4:00 p.m.
City Council Conference Room

CALL TO ORDER

Council Member Hussain called the meeting to order at 4:00p.m.

PRESENT

Council Member Jackson, Chair - excused
Council Member Hussain, Vice-Chair
Council Member Kost, Member

OTHERS PRESENT

Renee Richmond, Council Administrative Assistant
Emily Linden, Internal Auditor
Lisa Hagen-Lawrence, OCA
Matt Staples, OCA
Henry Green, RE Olds Transportation Museum
Marc Jones, Dept. Public Service
Walter Allen, Code Compliance Manager
Cora Kelly
Heather & Jeff Wilde

MINUTES

MOTION BY COUNCIL MEMBER KOST TO APPROVE THE MINUTES FROM DECEMBER 11, 2023, AS PRESENTED. MOTION CARRIED 2-0.

PUBLIC COMMENT

No public comment at this time.

Discussion/Action

COMMUNITY FUNDING – R.E. Olds Transportation Museum, Car Capital Auto Show

Mr. green introduced himself, stating this is the Museum's third request to support the car show. They have over 200 cars, the museum is open for visitors which last year visitors from out of the country stopped by. They are happy to bring things to the city.

MOTION BY COUNCIL MEMBER KOST TO APPROVE THE COMMUNITY FUNDING REQUEST FOR R.E. OLDS TRANSPORTATION MUSEUM, CAR CAPITAL AUTO SHOW IN THE AMOUNT OF \$250. MOTION CARRIED 2-0.

RESOLUTION – Noise Special Permit; Leavitt and Starck Excavating, Inc. to allow for Combined Sewer Overflow (CSO) 015 South Project

Mr. Jones indicated they had nothing additional to add regarding the work itself. They have activated an update on the website as requested and will be having a neighborhood meeting for residents at the end of the month.

MOTION BY COUNCIL MEMBER KOST TO APPROVE THE RESOLUTION NOISE SPECIAL PERMIT; LEAVITT AND STARCK EXCAVATING, INC. TO ALLOW FOR COMBINED SEWER OVERFLOW (CSO) 015 SOUTH PROJECT. MOTION CARRIED 2-0.

RESOLUTION – Claim Appeal; Claim #1988, Cora Kelly for \$493.40 in board up fees for 3634 Karen Street

Mr. Allen summarized their office was contacted by LPD with an open/accessible home and unable to secure. Councilmember Hussain asked if there is a police report, Mr. Allen confirmed, adding LPD received a call for a wellness check and that the neighbor broke the window of the door.

Ms. Linden stated the Claims Review Committee (CRC) spoke on this extensively, homeowner was out of town and the neighbor was worried and wanted to make sure she was ok and safe.

Ms. Kelly explained she was unsure why the neighbor called, she spoke to the neighbor on Thursday before she left and returned on Saturday. Ms. Kelly had to replace the door which was reimbursed by the City but the cost of the LPD wellness check and the board up should be as well. Councilmembers Kost and Hussain concurred this is a tough and rare incident but agreed with Ms. Kelly.

MOTION BY COUNCIL MEMBER KOST TO GRANT THE CLAIM APPEAL #1988; CORA KELLY FOR \$493.40 IN BOARD UP FEES FOR 3634 KAREN STREET. MOTION CARRIED 2-0.

RESOLUTION – Claim Appeal; Claim #2018, Heather & Jeff Wilde in trash fees at 1213 W. Ottawa Street

Mr. Allen read the notes on the notice, recommending denial of the claim, the property was cited on 05/18/2023 with a compliance date of 05/25/2023. The violations were still present and the contractor was notified to clean up. Councilmember Hussain asked if there is anything in the record that a request for extension was asked for, Mr. Allen responded no, and Ms. Wilde confirmed that no extension was asked for, she didn't read the paper properly. Ms. Linden spoke on behalf of the CRC, from the photos the tires were not mentioned originally, and just moving location doesn't constitute removal/clean up.

Mr. Wilde referenced there were 6 dumpsters and you can see the debris, the porch was not visible from the street, they had additional dumpsters on the way. Ms. Wilde stated her concern was that more than what was allowed was taken, including mulberry bushes seen in the trailer, and it padded the weight/amount charged. Councilmember Hussain asked Ms. Linden if she recalled this in CRC, Ms. Linden answered the ordinance stated weeds/debris. Councilmember Kost asked if the shrubs exceeded 4ft and why are they in the trailer, Mr. Allen stated they usually would not be, but if they are in the way of clean up, they will be cut down as in this case. Councilmember Kost mentioning the trash didn't happen overnight, and it is the responsibility of the property owners/landlords to maintain.

MOTION BY COUNCIL MEMBER KOST TO DENY THE CLAIM APPEAL #2018; HEATHER & JEFF WILDE FOR \$1,375 IN TRASH FEES AT 1213 W. OTTAWA STREET. MOTION CARRIED 2-0.

Other

Adjourn

Adjourned at 4:28pm

Submitted by Renee Richmond

Recording Secretary, Lansing City Council

Approved by the Committee on

DRAFT

Claim #2017

831 N. Chestnut Street, Lansing, MI 48906

\$900 (Red Tag Fees)

Parcel No. 33-01-01-09-360-191

B. Incident Date (per claim application) – 06-01-2023

C. Incident Date (per code report) – Since 09-16-2008; Purchased 10-16-2020

D. Taxes – See Above

E. Filed Claim – 08-11-2023

F. Claims Review Committee Hearing – 12-13-2023

G. Claims Review Committee Letter – 12-21-2023

H. Referred to City Council – 01-26-2024

I. Referred to Committee on City Operations - 02-12-2024



2017

Claims Review Committee Form

(Commonly including: Grass, Trash, Weeds and Board-Up Violations)

NAME: GRADIRON MARKETING GROUP LLC DATE: 8-7-23
MAILING ADDRESS: 2609 Hibiscus EMAIL: DAMIAN@GRADIRONGROUP.ORG
CITY: Ft Lauderdale FL STATE: FL ZIP CODE: 33301
TELEPHONE: Home (517-204-0925) Work ()

Please provide the following information on the incident(s) for which you are filing a claim. WE MAY NOT BE ABLE TO PROCESS YOUR CLAIM IF YOU DO NOT PROVIDE ALL OF THE INFORMATION BELOW.

ADDRESS: 831 N CHESTNUT PARCEL NO. 33-01-01-09-360-191
DATE OF INCIDENT: 6-1-23 AMOUNT YOU WERE BILLED: 900
TOTAL AMOUNT YOU ARE CONTESTING: 900
TYPE OF ASSESMENT: RED TAG MONITORING FEES

Please give a detailed description of the circumstances surrounding the incident, including why you feel the City should not have charged you this fee. You may attach additional pages or documentation to this form as needed.

WE PURCHASED THIS DISTRESSED PROPERTY FROM THE CITY
OF LANSING TAX AUCTION. FULL PLAN REVIEW AND PERMITS IS
GOING ON. WE PURCHASED THIS PROPERTY WITH ALL FEES PAID
THE PROJECT IS 85% COMPLETE. PLEASE REFUND ALL REDTAGGED
FEES SO WE CAN CONTINUE WITH OUR MISSION TO PROVIDE
CLEAN AFFORDABLE HOUSING IN LANSING MI

A description of the claims review process is available on our website at: <https://www.lansingmi.gov/349/Claims-Review-Process>

To download the claim form: <https://www.lansingmi.gov/DocumentCenter/View/4639/Claims-Review-Committee-Form?bidId=>



City of Lansing

OFFICE OF THE CITY ATTORNEY

James D. Smiertka, City Attorney

December 21, 2023

Gridiron Marketing Group
2609 Hibiscus Place
Fort Lauderdale, FL 33301

Re: Claim – 831 N Chestnut St.

Gridiron Marketing Group:

Please be advised that the Claims Review Committee reviewed the claim you submitted in the amount of \$900.00 for a red tag fees for property located at 831 N Chestnut St., Lansing, Michigan, and denied the claims you filed with the City of Lansing.

You do have the right to appeal the decision of the Claims Review Committee to the Lansing City Council. If you desire to do so, please submit your appeal in writing, within thirty (30) days of the date of this letter, to the Lansing City Clerk, 9th Floor, City Hall, Lansing, MI 48933, for placement on the Council's agenda.

If you have any questions concerning this matter, please contact this office.

Sincerely,

Venus Kumar

Venus Kumar
Paralegal

Claim: 2017

Jackson, Brian

From: Kumar, Venus
Sent: Friday, January 26, 2024 9:06 AM
To: Jackson, Brian
Cc: Spousta, Courtney
Subject: FW: [EXTERNAL] 831 N CHESTNUT LANSING MI 48915
Attachments: Claim Form.pdf; Denial Letter - CRC.pdf; Rec.pdf

Brian,
Received this appeal to CO today. Please see attached supporting documents.
Thanks,
V

From: mark king <mkeworldwide@gmail.com>
Sent: Friday, January 26, 2024 8:11 AM
To: CityAtty <CityAtty@lansingmi.gov>; Kumar, Venus <Venus.Kumar@lansingmi.gov>
Subject: [EXTERNAL] 831 N CHESTNUT LANSING MI 48915

Good morning. We are writing you today to protest the decision by the city committee in regards to the red tag fees that were placed on our property that was under a full rehab. We would like to appear in front of the city council and plead our case.

Kind regards

Damian Gregory
Owner
Gridiron Marketing Group

Mark King
Project Manager
Gridiron Marketing Group

MARK KING DIRECTOR 313-355-2829

DATE: 10/27/2023

PPN: 33-01-01-09-360-191
DATE SUBMITTED: 8/11/2023
ADDRESS OF VIOLATION: 831 N Chestnut St.
LISTED TAXPAYER OF RECORD: Gridiron Marketing Group LLC
OTHER TAXPAYER OF RECORD:
CLAIMANT: Gridiron Marketing Group LLC
CLAIMANT'S ADDRESS: 2609 Hibiscus Place
Fort Lauderdale, FL 33301

TYPE OF ACTIONS CONTESTED: 33-01-01-0-360-191
VIOLATION DATE: Red Tagged since 9/16/2008
current owner purchased
10/16/2020

NOTIFICATION DATE:
2ND NOTICE ASSESSMENT DATE:
AMOUNT OF ASSESSMENT: \$1087.50 total since
ownership
CONTRACTOR NAME - INVOICE NO. - DATE: City of Lansing Code
Enforcement multiple
invoices & dates
\$900.00
AMOUNT OF CLAIM:
MEMO DATE – INVOICE NO.:
ADDITIONAL ACTIONS CONTESTED:
VIOLATION DATE:
NOTIFICATION DATE:
2ND NOTICE ASSESSMENT DATE:
AMOUNT OF ASSESSMENT:
CONTRACTOR NAME - INVOICE NO. - DATE:
AMOUNT OF CLAIM:
MEMO DATE – INVOICE NO.:

HISTORY: Red Tagged
2008-to
present

CITATIONS IN PREVIOUS YEAR:

CLAIMANT'S CIRCUMSTANCES: See Attached

CODE OFFICER'S NOTES: This property has been Red Tagged since 2008, the claimant has owned the property since 10/16/2020. All Red Tagged NEAT properties in the City of Lansing are being billed the \$150.00 per month Red Tag when not paid in 30 days \$7.50 late fees is applied. Monitoring fees will continue until the property is brought to code as stated in the City of Lansing ordinance. The claimant has been receiving monthly bills since 4/05/2023 they have been billed \$1,087.50 in fees, this office recommends denial of the claim.



Andy Schor, Mayor

CITY OF LANSING

316 N. CAPITOL SUITE C2

Lansing, MI 48933

Building Safety (517) 483-4355

Code Compliance (517) 483-4361

Fax: (517) 377-0100

Invoice No.: 00226604

Date: 06/01/2023

Record: E11-0091

GRIDIRON MARKETING GROUP L L C

2609 HIBISCUS PLACE

FORT LAUDERDALE, FL 33301

TOTAL AMOUNT DUE

\$157.50

Item Category	Item Description	Amount Due
Code Compliance Monitoring	Tag Monitoring Fee - Res	\$150.00
Code Compliance Penalty	Penalty Fee - 30 Days Overdue	\$7.50
Total Amount Due		\$157.50



Andy Schor, Mayor

CITY OF LANSING

316 N. CAPITOL SUITE C2

Lansing, MI 48933

Building Safety (517) 483-4355

Code Compliance (517) 483-4361

Fax: (517) 377-0100

Invoice No.: 00229351

Date: 07/03/2023

Record: E11-0091

GRIDIRON MARKETING GROUP L L C

2609 HIBISCUS PLACE

FORT LAUDERDALE, FL 33301

TOTAL AMOUNT DUE

\$150.00

Item Category	Item Description	Amount Due
Code Compliance Monitoring	Tag Monitoring Fee - Res	\$150.00
Total Amount Due		\$150.00



Andy Schor, Mayor

CITY OF LANSING

316 N. CAPITOL SUITE C2

Lansing, MI 48933

Building Safety (517) 483-4355

Code Compliance (517) 483-4361

Fax: (517) 377-0100

Invoice No.: 00231775

Date: 07/28/2023

Record: E11-0091

GRIDIRON MARKETING GROUP L L C

2609 HIBISCUS PLACE

FORT LAUDERDALE, FL 33301

TOTAL AMOUNT DUE

\$157.50

Item Category	Item Description	Amount Due
Code Compliance Monitoring	Tag Monitoring Fee - Res	\$150.00
Code Compliance Penalty	Penalty Fee - 30 Days Overdue	\$7.50
Total Amount Due		\$157.50



New On-Premises Redevelopment or Development District License Questionnaire

Complete and submit this questionnaire along with a fully completed On-Premises Retailer License & Permit Application (LCC-100a) with the documents required to be submitted with that form and any other documents required as listed below.

Part 1 - Applicant Information

Individuals, please state your legal name. Corporations or Limited Liability Companies, please state your name as it is filed with the State of Michigan Corporation Division.

Applicant name(s): Cathleen Edgerly/The Macotta Club		
Address to be licensed: 300 S. Washington Square		
City: Lansing	Zip Code: 48933	
City/township/village where license will be issued: Lansing		County: Ingham
Contact Name: Cathleen Edgerly	Phone: 517-648-0670	Email: cathleen@downtownlansing.org
Mailing address (if different from above): 112 S. Washington Square		
City: Lansing	Zip Code: 48933	

I am applying for the following on-premises redevelopment or development district license:

☐ **MCL 436.1521a(1)(a) - Redevelopment (RDA) License - Complete Parts 2a, 3, 4, & 5**

Select one: ☐ Class C ☐ B-Hotel ☐ Tavern ☐ A-Hotel

- The proposed licensed premises must be located in a redevelopment project area defined by the local governmental unit and the investment in the redevelopment project area must meet one (1) of following requirements:
 - Investment of not less than \$50 million in cities, townships, or villages having a population of 50,000 or more
 - Investment of not less than \$1 million per 1,000 people in cities, townships, or villages having a population of less than 50,000
- The licensed business must be engaged in activities related to dining, entertainment, or recreation and provide that activity not less than five (5) days per week
- The licensed business must be open to the public not less than ten (10) hours per day, five (5) days per week
- The initial enhanced license fee for a license issued under this section is \$20,000.00

☒ **MCL 436.1521a(1)(b) - Development District (DDA) License - Complete Parts 2b, 3, 4, & 5**

Select one: ☒ Class C ☐ B-Hotel ☐ Tavern ☐ A-Hotel

- The proposed licensed premises must be located in one of the development districts or areas listed in MCL 436.1521a(1)(b):
 - Tax Increment Finance Authority District Under Part 3 of Public Act 57 of 2018 (Formerly Public Act 450 of 1980)
 - Corridor Improvement Authority Act Development Area under Part 6 of Public Act 57 of 2018 (Formerly Public Act 280 of 2005)
 - Downtown Development Authority (DDA) District under Part 2 of Public Act 57 of 2018 (Formerly Public Act 197 of 1975)
 - Principal Shopping District under Public Act 120 of 1961
- The total investment in real and personal property within the development district or area shall not be less than \$200,000.00 over a period of the preceding five (5) years.
- The building may be new construction or the restoration or rehabilitation of an existing building.
- The building that will house the proposed licensed premises must have at least \$75,000.00 expended for new construction or the rehabilitation or restoration of the building over the preceding five (5) years or a commitment for a capital investment of at least \$75,000.00 in the building that must be expended before the license is issued.
- The licensed business must be engaged in activities related to dining, entertainment, or recreation.
- The licensed business must be open to the general public and have a seating capacity of not less than 25 persons.
- The initial enhanced license fee for a license issued under this section is \$20,000.00.

Please Note: Pursuant to MCL 436.1521a(8) a license issued under MCL 436.1521a cannot be transferred to another location and if the licensee goes out of business the license issued under MCL 436.1521a shall be surrendered by the licensee to the Commission and the Commission will terminate the license.

Part 2a - MCL 436.1521a(1)(a) - Redevelopment (RDA) License Required Documents

☐ Resolution from local governmental unit establishing the redevelopment project area
☐ Affidavit from the assessor, certified by the city, township, or village clerk, which states the following: • The amount of investment money expended for manufacturing, industrial, residential, and commercial development within the redevelopment project area during the preceding three (3) years (must specifically state start and end dates for the investment, i.e. January 1, 2013, to December 31, 2015). • Statement that the amount of commercial investment in the redevelopment project area constitutes not less than 25% of the total investment in real and personal property in the area.
☐ Legible map of the redevelopment project area which clearly labels all street names

Part 2b - MCL 436.1521a(1)(b) - Development District (DDA) License Required Documents

☐ Resolution from local governmental unit establishing the development district or area which specifically references the statute under which the area was established: • Part 3 of Public Act 57 of 2018 (Formerly Public Act 450 of 1980) for Tax Increment Finance Authorities • Part 6 of Public Act 57 of 2018 (Formerly Public Act 280 of 2005) for Corridor Improvement Authorities • Part 2 of Public Act 57 of 2018 (Formerly Public Act 197 of 1975) for Downtown Development Authorities • Public Act 120 of 1961 for Principal Shopping Districts
☐ Affidavit from the assessor, certified by the city, township, or village clerk, which states the following: • The total amount of public and private investment in real and personal property within the development district or area over a period of the preceding five (5) years (must specifically state start and end dates for the investment, i.e. January 1, 2011, to December 31, 2015).
☐ Legible map of the development district or area which clearly labels all street names

Part 3 - Available License Search

MCL 436.1521a(9) requires any person signing an application for an on-premises Redevelopment or Development District license to verify that he or she attempted to purchase any of the on-premises licenses that are in escrow that do not have a pending transfer on file with the MLCC within the county in which the applicant for the on-premises Redevelopment or Development District license proposes to operate.

You should not apply for an on-premises Redevelopment or Development District license if there is an available quota license in the local governmental unit in which the proposed licensed business will be located. You may verify the availability of quota licenses on the Commission's website using the [Local Government Quota search page](#).

☐ I verify that I have attempted to purchase any readily available on-premises escrowed licenses that do not have pending transfers on file with the MLCC in the county where the proposed licensed business will be located. • Applicant should provide a notarized affidavit outlining all attempts and responses (or lack thereof) to secure a readily available on-premises license. • Applicant should send certified letters of inquiry as to the availability of the license to each licensee at the address listed on the licensee listing report provided by the MLCC. • Applicant should submit copies of the letters sent, certified tags, signed certified return receipts, copies of any envelopes returned by the USPS, and copies of any correspondence received from the licensees. • Applicant should provide dates, the name of the person contacted, and a synopsis of the conversation if escrowed licensees are contacted by telephone. • Applicant should provide documentation regarding the fair market value of the license based on where the applicant will be located, if determinable, the size and scope of the proposed operation, and/or the existence of mandatory contractual restrictions or inclusion attached to the sale of the license when indicating to the MLCC that purchase of a license is not economically feasible or the license is not readily available.
☐ There are no readily available on-premises licenses in escrow in the county where the proposed licensed business will be located.
☐ There are no unissued, on-premises quota licenses readily available in the local governmental unit where the proposed licensed business will be located.

Part 4 - Local Governmental Approval

An applicant for a new on-premises Redevelopment or Development District license requires approval by the legislative body of the local governmental unit in which the licensed premises will be located. Applicants for a license in a city that has a population of 600,000 or more do not require local governmental approval. Please use the Local Governmental Unit Approval Form (LCC-106) or obtain a resolution from the local governmental unit that contains the same information required on the form. The form or a resolution from the city, village, or township must specifically state the applicant's legal name, if an individual person, or the corporate name of the business, the proposed licensed address, and contain a recommendation for the issuance of a license under one of the two following options:

- New Class C* license issued under the provisions of MCL 436.1521a(1)(a)
- New Class C* license issued under the provisions of MCL 436.1521a(1)(b)

**May substitute other license types such as Tavern, A-Hotel, or B-Hotel licenses*

Part 5 - Signature of Applicant

I certify that the information contained in this form is true and accurate to the best of my knowledge and belief. I agree to comply with all requirements of the Michigan Liquor Control Code and Administrative Rules. I also understand that providing **false** or **fraudulent** information is a violation of the Liquor Control Code pursuant to MCL 436.2003.

I certify that I understand that pursuant to MCL 436.1521a(8) a license issued under MCL 436.1521a cannot be transferred to another location and that if the licensee goes out of business the license issued under MCL 436.1521a shall be surrendered by the licensee to the Commission and the Commission will terminate the license.

Cathleen Edgerly



11/1/2023

Print Name of Applicant & Title

Signature of Applicant

Date

Please return this completed form along with corresponding documents:

Michigan Liquor Control Commission

Mailing address: P.O. Box 30005, Lansing, MI 48909

Hand deliveries: Constitution Hall - 525 W. Allegan, Lansing, MI 48933

Overnight packages: 2407 N. Grand River Ave., Lansing, MI 48906

Fax to: 517-763-0059

Application for Development District Liquor License – City of Lansing

To apply for a Development District Liquor license, a business must be located in either a Business District listed below or in a City Redevelopment Area, as defined in Sec. 521a (2)(c)

- Tax Increment Finance Authority (TIFA) PA 450 of 1980
- Corridor Improvement Authority (CIA) PA 280 of 2006
- Downtown Development Authority (DDA) PA 197 of 1975
- Principal Shopping District (PSD) PA 120 of 1961

Per State Law, Development District Liquor Licenses require the following:

1. The amount expended for the rehabilitation or restoration of the building that houses the licensed premises shall be not less than \$75,000 over a period of the preceding 5 years, or a commitment for a capital investment of at least that amount in the building that houses the licensed premises, which must be expended before the issuance of the license.
2. That the licensed business is engaged in dining, entertainment, or recreation, that is open to the general public, with a seating capacity of not less than 25 persons.

You should also be aware of the following:

- The initial enhanced license fee for licenses issued is \$20,000.
- The licenses issued under the Development District Liquor License criteria may **not be** transferred to another location.
- If the licensee goes out of business, the licensee shall surrender the license to the Commission. The governing body of the local governmental unit may approve another applicant within the redevelopment project area or development district area to replace a licensee who has surrendered the license to the Commission.
- Do not invest any money in improvements or bind yourself in any agreements until you have been officially notified by the Michigan Liquor Control Commission that your request has been approved.
- The individual signing the application shall state and demonstrate that they attempted to secure an appropriate on-premises escrowed license first or quota license which may be available within the local unit of government in which the applicant proposes to operate.

The Lansing Economic Development Corporation (LEDC) will receive, process, and represent an application for a development liquor license for the initial approval through City Council. Once City Council has approved the application it is the applicant's responsibility to carry out the remaining application process with the State Liquor Control Commission.

There is a local fee of \$1,500 per application, due to LEDC at the time of application.

Please return the completed and signed application form along with corresponding documents to:

Lansing Economic Development Corporation (LEDC)
401 S. Washington Sq. Ste 101
Lansing, MI 48933

Applicant and Property Information

Address to be licensed:	300 S. Washington Square, Lansing MI 48933
Applicant's Legal Entity Name:	Macotta Club, LLC
FEIN #:	
Doing business as: <i>(if applicable)</i>	The Macotta Club
Contact Name:	Cathleen Edgerly
Phone #:	517-648-0670
Email Address:	Cathleen@downtownlansing.org
Seating Capacity:	300
Usage: <i>(circle all that apply)</i>	Dining Entertainment Recreation

Please write a brief description of your business below and why you would like to apply for a development liquor license:

The Macotta Club is a food-hall style restaurant and bar. The restaurants are managed by individual start-up businesses and the bar is run by The Macotta Club, LLC. The Macotta Club will serve as an accelerator program and a restaurant industry educational hub that will encourage growth and sustainability for, not only the 16 in house participants, but for the restaurant industry throughout Lansing and the Mid-Michigan. A liquor license obtained from the local market is financial unattainable for this program which is why we are seeking a development license.

Please fill out the following:

Estimated Private Investment:	\$6,000,000
Estimated Jobs Created:	50
Estimated Jobs Retained:	new entity

Additional Applicant Information*:

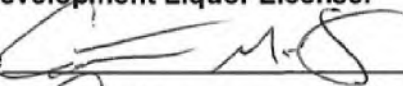
- ☐ Completed New On-Premises Development District License Questionnaire (LCC-109b)
- ☐ Completed Retailer License & Permit Application (LCC-100)
- ☐ Completed City of Lansing Treasury Information Request Form
- ☐ Completed City of Lansing Litigation Affidavit
- ☐ \$1,500 Application Fee: Lansing Economic Development Corporation (LEDC)
- ☐ Completed IRS Form W-9 for Applicant Entity
- ☐ Proof of ownership of the property where Development Liquor License is requested (a copy of the deed).
 - ☐ If not the owner of subject address, please provide a valid copy of the signed and executed lease.
- ☐ Proof that at least \$75,000 worth of personal and or real property improvements to the subject address has been made within the previous five (5) years.
 - *If \$75,000 has not been expended on the subject address please sign statement below that you agree to make such expenditures prior to any issuance of a Development Liquor License.

**Additional information may be required of the applicant to process the request.*

(Signature page follows.)

I, the undersigned, state that, to the best of my knowledge, am current on all City of Lansing and State of Michigan taxes, personal and real, as they pertain to the property and entity located at the address indicated above, and that, failure to remain current on all taxes, personal and real, may result in the denial of application, or revocation of any issued Development Liquor License.

Signature



Date

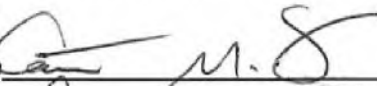
11/1/2023

Print Name

Cathleen Edgerly

***I, the undersigned, commit to making expenditures equal to or in excess of \$75,000 relating to real and personal property at the address indicated above, having not done so in any of the previous five years, prior to the issuance of any Development Liquor License.**

Signature



Date

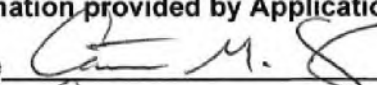
11/1/2023

Print Name

Cathleen Edgerly

By signing below, the undersigned represents and warrants their authority to submit this Development District Liquor License Application on behalf of the Applicant and certifies all information provided by Application is true and correct to the best of their knowledge.

Signature



Date

11/1/2023

Print Name

Cathleen Edgerly

CITY OF LANSING
DEVELOPMENT DISTRICT LIQUOR LICENSE
300 S. WASHINGTON SQ. REDEVELOPMENT PROJECT (MACOTTA CLUB)
PROPOSED APPROVAL PROCESS SCHEDULE

DATE	BOARD/ COMMITTEE	ACTION	ATTENDANCE BY APPLICANT
By February 6, 2024	City/LEDC	Submitted by Applicant: DDA Application and Attachments	
February 12, 2024 7:00PM	Lansing City Council	Council Receives Resolution for DDA Liquor License and refers to the Committee on City Operations	
February 21, 2024*	Committee on City Operations	Applicant presents to Committee on request/project. Committee recommends approval of DDA Liquor License to City Council	YES
February 26, 2024 7:00PM	City Council Meeting	City Council Approves DDA Liquor License	YES
Following Council Approval		City Assessor completes Investment Affidavit, Clerk completes Local Govt. Approval Form (LCC-106), and DDA approval package is provided to Applicant and MLCC.	

BY THE COMMITTEE ON CITY OPERATIONS
RESOLVED BY THE CITY COUNCIL OF THE CITY OF LANSING

WHEREAS, in 2006 in an effort to promote economic development in qualifying communities, the Michigan Legislature passed Act 501 of the Public Acts of 2006, being Section 521a of the Michigan Liquor Control Code of 1998, being MCL 436.1521a, which established the criteria for Development District or Area Liquor Licenses; and

WHEREAS, through the provisions of Public Act 501 of 2006, as amended (“Act”) the Michigan Liquor Control Commission (LCC) may issue new public on-premises liquor licenses in order to allow cities to enhance the quality of life for their residents and visitors to their communities; and

WHEREAS, the issuance of a Development District Liquor License under Section 521a(1)(b) of the Act requires a proposed licensed premises to be located in one of the development districts or areas listed in MCL 436.1521a(1)(b); and

WHEREAS, pursuant to Public Act 120 of 1961 for Principal Shopping Districts, the Lansing City Council created the Lansing Principal Shopping District by Resolution in 1996 which is listed as a qualifying development district or area under MCL 436.1521a(1)(b); and

WHEREAS, the City of Lansing received a request from MACOTTA CLUB, LLC (“Applicant”) regarding its intention to apply to the Michigan Liquor Control Commission for a new Class C Development District or Area Liquor License for its business located at 300 S. Washington Square, Lansing, MI 48933 (“Proposed Licensed Premises”) which is located within the Lansing Principal Shopping District; and

WHEREAS, the Applicant has affirmed that the Proposed Licensed Premises meets the statutory requirements for a Development District or Area Liquor License under the Act including 1) that its business must be engaged in activities of dining, entertainment, or recreation, and 2) the licensed business must be open to the general public and have a seating capacity of not less than 25 persons; and

WHEREAS, the Applicant will provide evidence with its application that it can document the expenditure to the Michigan Liquor Control Commission, of not less than \$75,000.00 in the rehabilitation or restoration of the building that will house the licensed premises over a period of the preceding five (5) years or a commitment for a capital investment of at least that amount in the building that houses the licensed premises, which must be expended before the issuance of the license, as required by the Act; and

WHEREAS, the Committee on City Operations met on February 21, 2023, to review the request with affirmative action taken;

WHEREAS, the Applicant has been informed that licensure of the Proposed Licensed Premises will be subject to approval by the Michigan Liquor Control Commission.

NOW, THEREFORE, BE IT RESOLVED, that City Council recommend for the reasons stated above that the Michigan Liquor Control Commission consider the request from MACOTTA CLUB, LLC, for a new Class C License issued under the provisions of MCL 436.1521a(1)(b) for its business located at 300 S. Washington Square, Lansing, MI 48933.

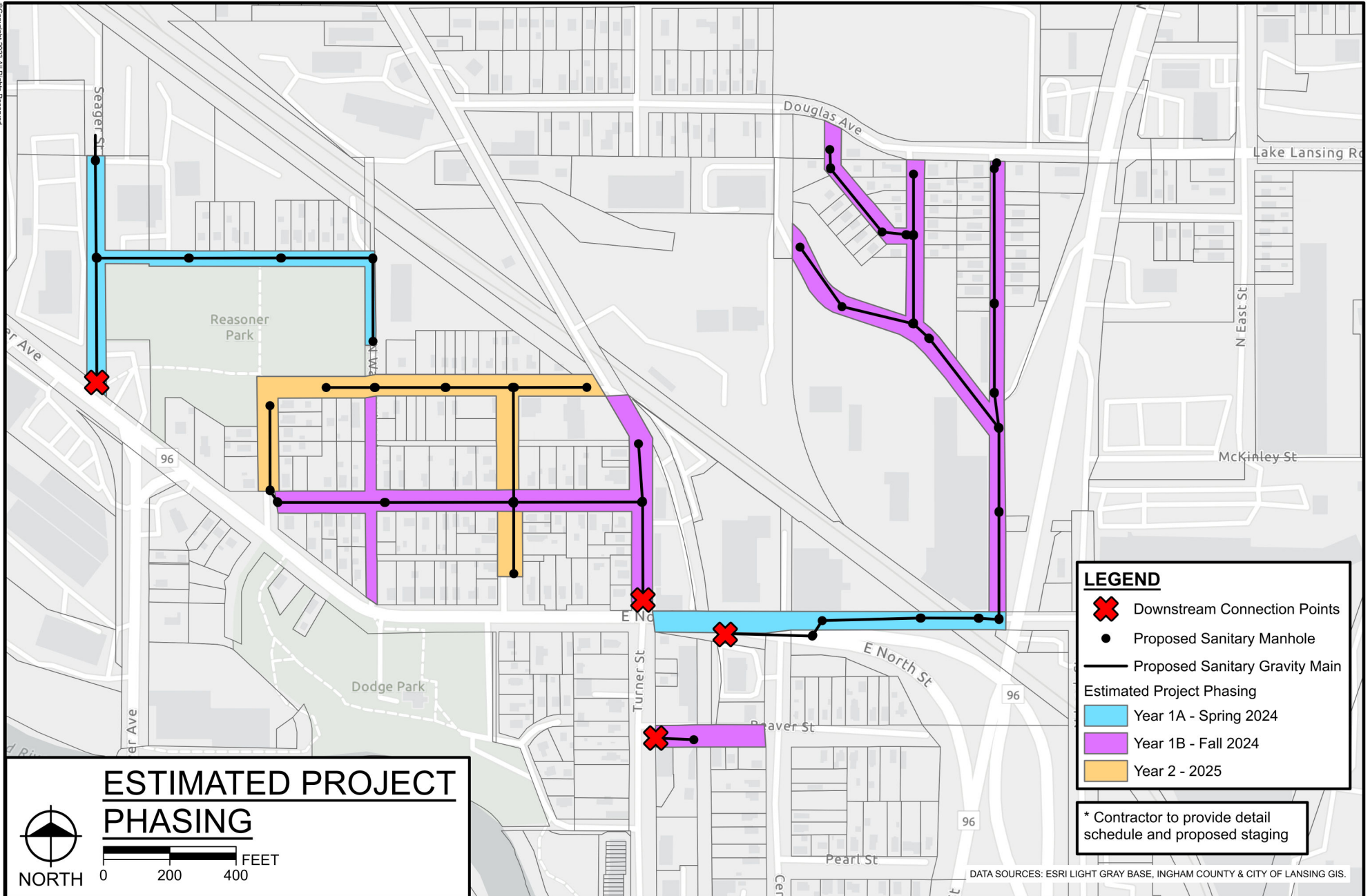
BE IT FURTHER RESOLVED, the City Council affirms that the Proposed Licensed Premises, 300 S. Washington Square, Lansing, MI 48933 is within the established boundaries of the Lansing Principal Shopping District; and

BE IT FURTHER RESOLVED, the City Council directs the City Assessor to verify via an Affidavit the total amount of public and private investment in real and personal property within the Lansing Principal Shopping District amounts to \$200,000.00 or more over the preceding 5 years.

BE IT FURTHER RESOLVED, the Applicant meets the qualifications of Lansing's City Liquor Ordinances, and those required under MCL 436.1521a(1)(b) and that the license is approved "Above all others."

BE IT FINALLY RESOLVED, the City Council directs the City Clerk to complete the Local Governmental Unit Approval Form (LCC-106) for the specific license approval of a New Class C license issued under MCL 436.1521a(1)(b) and to forward a copy of the certified form and this resolution to MACOTTA CLUB, LLC and the Michigan Liquor Control Commission.

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LEGEND

- ✗ Downstream Connection Points
- Proposed Sanitary Manhole
- Proposed Sanitary Gravity Main

Estimated Project Phasing

- Year 1A - Spring 2024
- Year 1B - Fall 2024
- Year 2 - 2025

* Contractor to provide detail schedule and proposed staging

DATA SOURCES: ESRI LIGHT GRAY BASE, INGHAM COUNTY & CITY OF LANSING GIS.

ESTIMATED PROJECT PHASING

NORTH

0 200 400 FEET

BY THE COMMITTEE ON CITY OPERATIONS
RESOLVED BY THE CITY COUNCIL OF THE CITY OF LANSING

WHEREAS, the City of Lansing Department of Public Service and the Lansing Board of Water & Light are partnering to construct the utility and infrastructure improvements associated with the Combined Sewer Overflow (CSO) 016/017 Phase 2 Project, a project area generally bounded by Douglas Avenue on the northside, N Larch Street on the eastside, Beaver Street on the southside, and Seager Street on the westside; and

WHEREAS, the large amount of construction required for this project will encompass all of the 2024 construction season and all of the 2025 construction season; and

WHEREAS, the construction contractor, Hoffman Bros., Inc., is required to complete removal and replacement of utilities under the CSX Railroad Tracks in E. North Street, which will require a continuous operation until the work is complete; and

WHEREAS, this project includes a significant amount of utility work and other improvements on the local neighborhood streets within the project area and on major streets, E. North Street and Turner Road; and

WHEREAS, for the periods April 13, 2024, through November 16, 2024, and March 15, 2025, through November 1, 2025 the construction contractor, Hoffman Bros., Inc., has requested a waiver of the noise ordinance on Saturdays from 8:00 AM to 4:30 PM; and

WHEREAS, the City of Lansing Public Service Department recommends that the contractor be granted the requested noise waiver in order to:

- reduce the amount of time local access for property owners is impacted;
- allow the contractor to have the ability to work some Saturdays when necessary for completion of important work activities; and
- keep the project on-schedule based on rain days.

NOW THEREFORE BE IT RESOLVED that a public hearing be held on Monday, March 11, 2024, at 7:00 PM in the City of Lansing Council Chambers, 124 W. Michigan Ave., in consideration of the request for granting a waiver of the noise ordinance to Hoffman Bros., Inc., while the company is conducting work as part of the CSO 016/017 Phase 2 Project on Saturdays from 8:00 AM to 4:30 PM for the periods April 13, 2024, through November 16, 2024, and March 15, 2025, through November 1, 2025.

MDOT I-496/US-127 Reconstruction from I-96 to I-496

City of Lansing Special Permit Request

Lansing Michigan Code of Ordinances, Part 6 – General Offenses Code states the following:

654.07(g) Construction. *Operating or permitting the operation of any tools or equipment used in construction, drilling or demolition work between 8:00 p.m. and 7:00 a.m. of the following day on weekdays, or at any time on weekends or holidays, such that the sound therefrom creates a noise disturbance across a residential real property boundary or within a noise sensitive zone, except for emergency work of public service utilities or by a temporary or special permit issued pursuant to Section 654.10 or 654.11.*

The Michigan Department of Transportation is submitting a Special Permit Request to allow certain construction work within the I-496/US-127 project limits (approximately from I-96 to the Red Cedar River/I-496 interchange) to occur outside of the allowable construction timeframes set forth in the Lansing Michigan Code of Ordinances section 654.07(g).

Dates for request:

- March 1st, 2024 through December 1st, 2024
- March 1st, 2025 through December 1st, 2025

Times for request:

- 8:00 p.m. until 7:00 a.m. of the following day on weekdays.
- Any time on weekends or holidays.

Construction Activities Limited to 15 days every month as part of the request:

- Pavement breaking activities
- Pavement saw cutting
- Bridge demolition activities
- Deck placement
- Bridge demolition activities (night work required due to railroad restrictions)
- Pile driving (night work only as dictated by railroad requirements)
- Installation of steel sheet piling (night work only as dictated by railroad requirements)
- Use of vibratory hammers (night work only as dictated by railroad requirements)
- Beam Setting (night work required due to railroad restrictions)

BY THE COMMITTEE ON CITY OPERATIONS
RESOLVED BY THE CITY COUNCIL OF THE CITY OF LANSING

WHEREAS, the Michigan Department of Transportation will be reconstructing I-496/US-127 between the Red Cedar River and I-96; and

WHEREAS, this project necessitates extended work hours for certain activities; and

WHEREAS, to expediate the work and minimize the overall disruption of the project, the Michigan Department of Transportation is requesting approval to allow pavement breaking and saw cutting as well as bridge demolition and deck placement to be completed outside standard construction hours; and

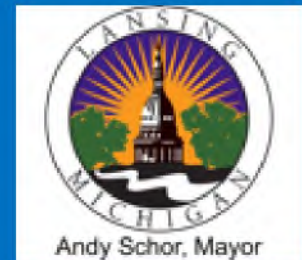
WHEREAS, MDOT has requested a waiver of the noise ordinance to allow the aforementioned work activities to take place on all days and hours for up to 15 calendar days each month from March through December of 2024 and 2025; and

WHEREAS, the City of Lansing Public Service Department supports the completion of certain work activities outside of normal work hours to:

- expedite critical construction activities;
- maximize motorist safety;
- reduce the overall impact of the project; and

NOW THEREFORE BE IT RESOLVED that a public hearing be held on Monday, March 11, 2024, at 7:00 PM in the City of Lansing Council Chambers, 124 W. Michigan Ave., in consideration of MDOT's request for granting a waiver of the noise ordinance for certain work activities on I-496/US-127 between the Red Cedar River and I-96 for up to 15 days each month from March through December of 2024 and 2025.

City of Lansing 2023 Transportation Asset Management Plan



A plan describing the City of Lansing, Public Service Department's transportation assets and conditions

Prepared by:
Ann M. Parry
Engineer
ann.parry@lansingmi.gov

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EXECUTIVE SUMMARY

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

This plan identifies COL's assets and condition and how COL maintains and plans to improve the overall condition of those assets. An asset management plan is required by Michigan Public Act 325 of 2018, and this document represents fulfillment of some of COL's obligations towards meeting these requirements. However, this plan and its supporting documents are intended to be much more than a fulfillment of required reporting. This asset management plan helps to demonstrate COL's responsible use of public funds by providing elected and appointed officials as well as the general public with the inventory and condition information of COL's assets, and it gives taxpayers the information they need to make informed decisions about investing in COL's essential transportation infrastructure.

INTRODUCTION

Asset management is defined by Public Act 325 of 2018 as “an ongoing process of maintaining, preserving, upgrading, and operating physical assets cost effectively, based on a continuous physical inventory and condition assessment and investment to achieve established performance goals”. In other words, asset management is a process that uses data to manage and track assets, like roads and bridges, in a cost-effective manner using a combination of engineering and business principles. This process is endorsed by leaders in municipal planning and transportation infrastructure, including the Michigan Municipal League, County Road Association of Michigan, the Michigan Department of Transportation (MDOT), and the Federal Highway Administration (FHWA). The City of Lansing is supported in its use of asset management principles and processes by the Michigan Transportation Asset Management Council (TAMC), formed by the State of Michigan.

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

The City of Lansing (COL) has adopted an “asset management” business process to overcome the challenges presented by having limited financial, staffing, and other resources while needing to meet road users’ expectations. COL is responsible for maintaining and operating over 416.65 centerline miles of roads and 35 bridge structures. It is also responsible for several culverts and signals.

This 2023 plan identifies COL’s transportation assets and their condition as well as the strategy that COL uses to maintain and upgrade particular assets given COL’s condition goals, priorities of network’s road users, and resources. An updated plan is to be released approximately every two years both to comply with Public Act 325 and to reflect changes in road conditions, finances, and priorities.

Questions regarding the use or content of this plan should be directed to Nicole Mc Pherson, P.E., 124 W. Michigan Avenue, Lansing, MI 48933, 517-483-4458 or nicole.mcpherson@lansingmi.gov. A copy of this plan can be accessed on our website at <https://www.lansingmi.gov/>.

1. PAVEMENT ASSETS



Inventory of Assets

More detail about these road assets can be found in COL's Roadsoft database or by contacting COL.

COL has multiple types of pavements in its jurisdiction, including asphalt, concrete, brick/block, and undefined; it also has unpaved roads (i.e., gravel and/or earth). Figure 2 shows a breakdown of these pavement types for all of COL's road assets.

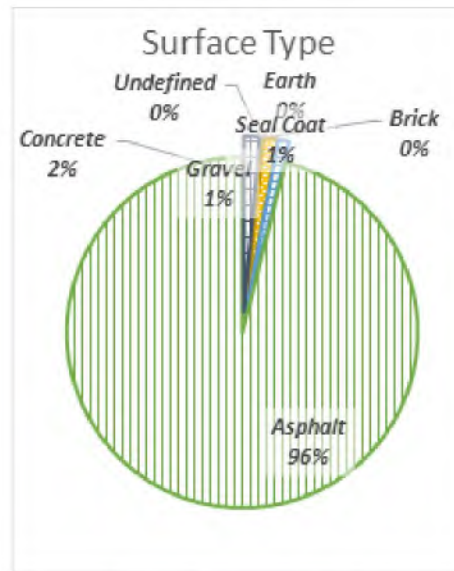


Figure 2: Pavement type by percentage maintained by COL, PSD. Undefined pavements have not been inventoried in COL, PSD's asset management system to date, but will be included as data becomes available.

Condition, Goals, and Trend

Paved Roads

Paved roads in Michigan are rated using the Pavement Surface Evaluation and Rating (PASER) system, which is a 1 to 10 scale with 10 being a newly constructed surface and 1 being a completely failed surface. PASER scores are grouped into TAMC definition categories of good (8-10), fair (5-7), and poor (1-4) categories. COL collects PASER data every two years on 100 percent of those portions of its city major and city minor networks that are eligible for federal funding. In addition, COL uses its own staff and resources to collect PASER data on 50 percent of its city major and city minor networks that are not eligible for federal funding.

Currently, the city major network has 20.4% of its roads in good condition, 28.1% in fair condition, and 51.5% in poor condition, and the city minor network has 14.2% of its roads in good condition, 14.6% in fair condition, and 71.2% in poor condition (Figure 3 and Figure 4). COL's long-range goal for the city major network is to have 50% of roads in good condition, 40% in fair condition, and 10% in poor condition, and for the city minor network is to have 50% of roads in good condition, 40% in fair condition, and 10% in poor condition (Figure 3 and Figure 4). Figure 3 and Figure 4 illustrate the historical and current condition of COL's city major and city minor networks, respectively.

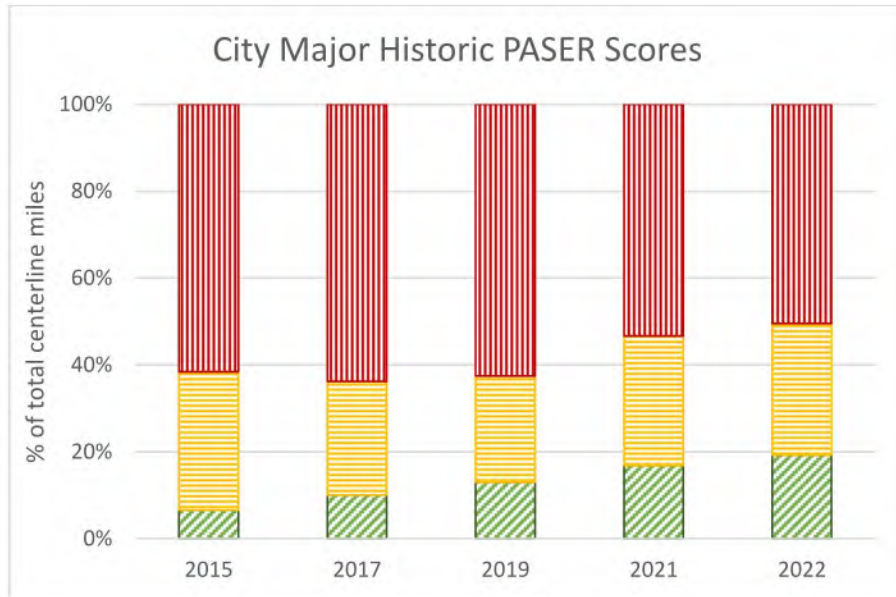


Figure 3: city major network historic condition

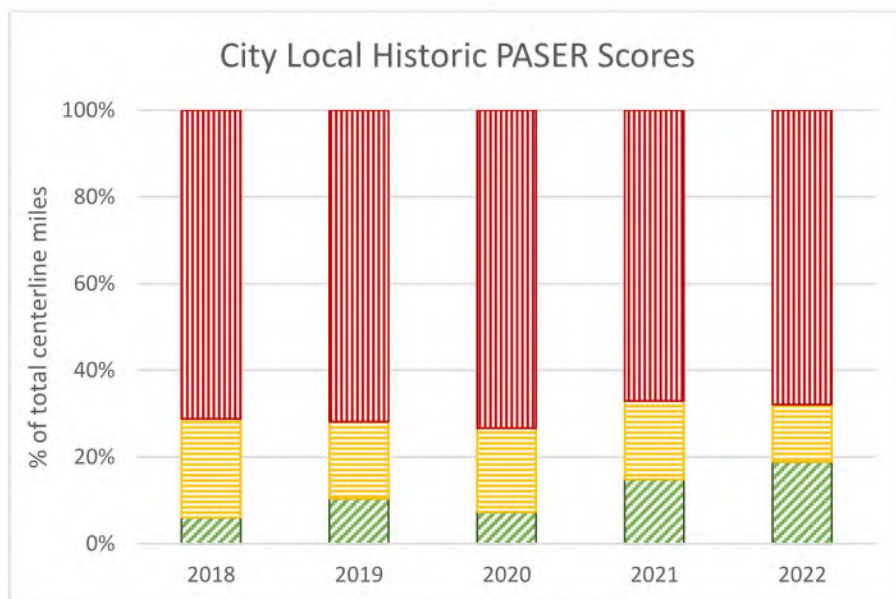


Figure 4: city minor network historic condition

Modelled Trends, Gap Analysis, and Planned Projects

NCPP Network Quick Check to Forecast Future Trends

The National Center for Pavement Preservation (NCPP) has developed an analysis method that gives an overall indicator of likely future road network condition trends. An example of this method along with a description is included as *Appendix D*.

The NCPP Quick Check works under the premise that a one-mile road segment loses one year of life each year that it is not treated with a maintenance, rehabilitation, or reconstruction project. For example, a 100-mile network loses 100 mile-years worth of life each year that it is not treated. Construction and maintenance projects add life to a road network, offsetting the steady yearly loss. For example, an overlay project that is expected to last 10 years and constructed on 5 miles of pavement will add 10-years x 5 miles = 50 mile-years of improvement, which is about half the value lost in one year on the example 100-mile network. In order for the network to remain stable, an agency would need to complete projects every year that offset all of the mile-years of loss. For this example, that would be 100 mile-years.

All Paved City Roads

Table 2 illustrates the calculations for the NCPP Quick Check method of the COL's paved city major road network for FY 2023. Results from the NCPP Quick Check for the paved city street network indicate that the volume of work that the COL has been able to afford falls far short and is not keeping up with the natural deterioration of the road network due to age and use. This number is an average of 653.82 out of an average of 923 lane miles, or 70% deficiency. **In other words, the COL's annual input into road projects is only 30% of the lane miles needed to just keep the roads from further deterioration.** Continuing the current treatment volume on this network will result in an ongoing 70% deficit of mile-years of project benefit to stabilize this trend and maintain current conditions.

Table 1			Life Extension	Total
		Lane	Per Mile	Life Extension
Project/Treatment	Miles	Miles	(Years)	(lane-mile-years)
Major Streets				
Reconstruct	1.38	3.144	15	47.16
Crush and Shape	0.158	0.474	12	5.688
Mill and Fill, 3.5 inches	2.326	6.029	10	60.29
Mill and Fill, 2 inches	0	0	7	0
Mill and Fill, 1.5 inches	0	0	7	0
Chip and Fog Seal	1.242	2.483	3	7.449
Mastic Crack Seal	0	0	2	0
Crack Seal	0	0	2	0
Local (Minor) Streets				
Reconstruct	0.456	0.912	15	13.68
Crush and Shape	0.696	1.598	12	19.176
Mill and Fill, 3.5 inches	1.156	2.313	10	81.28
Mill and Fill, 2 inches	0.262	0.525	10	5.25
Overlay, 1.5 inches	1.787	3.574	7	25.02
Crush, Chip and Micro	0.322	0.644	7	4.508
Chip and Fog Seal	0	0	7	0
Crack Seal	0	0	2	0
			Total System Lane Miles	923.32
			Lane Mile Years Added	269.501
Lane Miles Treated			Yearly Loss Lane Miles	653.82

Table 1 – Miles Treated in 2022 and the Yearly Loss

Modelled Trends & Gap Analysis

The Roadsoft network analysis of COL's planned projects for the city major and city minor networks from COL's currently-available budget does not allow COL to reach its pavement condition goals given the projects planned for the next three years.

Results from the Roadsoft for the city major and city minor network condition models indicate that the necessary additional work needed to meet the agency condition goal would cost an additional \$39.8 Million per year.

Unpaved Road Condition Trends

The City does not have a program for gravel streets. Paving of gravel streets is done on a case-by-case basis and is usually initiated by the residents of the street through a petition signed by more than 50 percent of the property owners. A portion of the costs are assessed to the affected property owners, which usually totals to about 30 % of the total construction cost.

Planned Projects

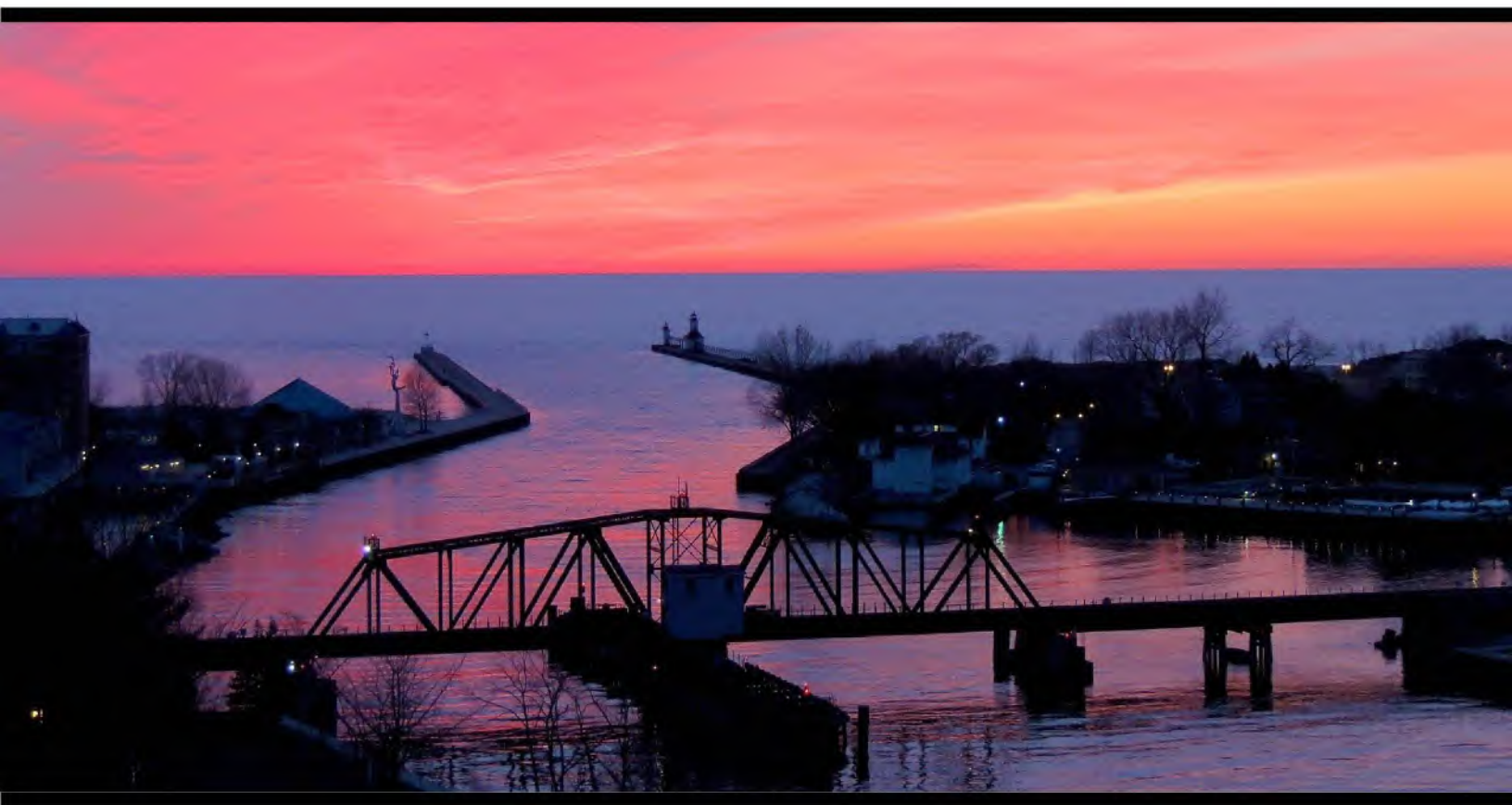
COL has projects planned for the next three years. These projects are identified in Figure 5.



Figure 5 : Map illustrating planned projects for pavement assets

The total pavement cost of the projects illustrated in Figure 5 is approximately \$ 15,000,000.

2. BRIDGE ASSETS



COL is responsible for 19 bridges that provide safe service to road users across the agency network. COL seeks to implement a cost-effective program of preventive maintenance to maximize the useful service life and safety of the local bridges under its jurisdiction.

Inventory of Assets

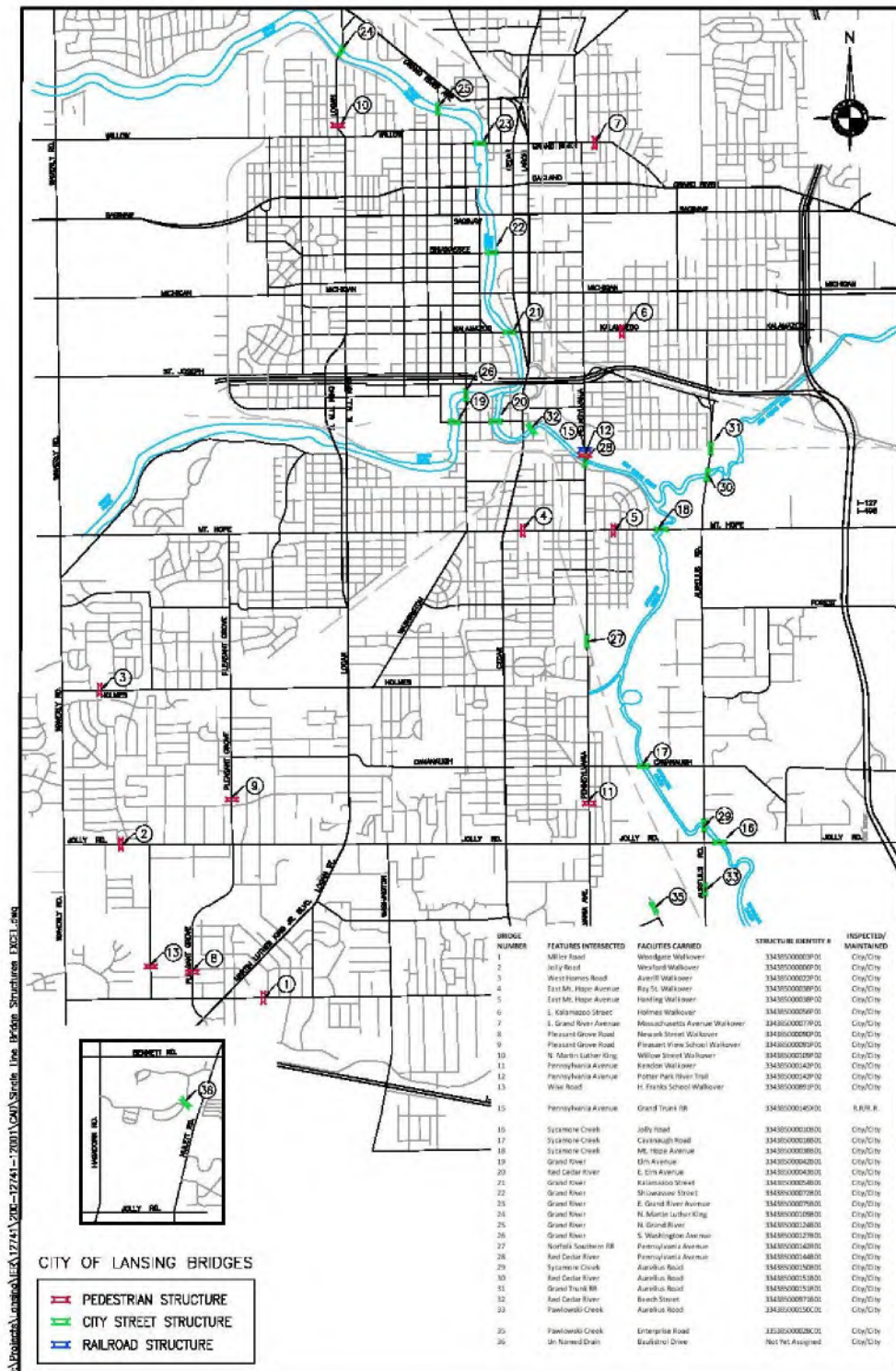


Figure 6: Map illustrating locations of COL's bridge assets

COL has 19 total bridges in its road and bridge network; these bridges connect various points of the road network, as illustrated in Figure 6. These bridge structures can be summarized by type, size, and condition, which are detailed in **Error! Reference source not found.** More information about each of these structures can be found in COL's MiBRIDGE database or by contacting COL.

Condition, Goals, and Trend

Bridges in Michigan are given a good, fair, or poor rating based on the National Bridge Inspection Standards (NBIS) rating scale, which was created by the Federal Highway Administration to evaluate a bridge's deficiencies and to ensure the safety of road users. The current condition of COL's bridge network based on the NBIS is structures rated good, structures rated fair, and structures rated poor.

Table 2: Bridge Assets by Type: Inventory, Size, and Condition								
Bridge Type	Total Number of Bridges	Total Deck Area (sq ft)	Condition: Structurally Deficient, Posted, Closed			2021 Condition		
			Struct. Defic	Posted	Closed	Poor	Fair	Good
Concrete – Arch—deck	1	9,050	0	0	0	0	0	1
Prestressed concrete – Box beam/girders—multiple	3	15,262	1	1	0	1	2	0
Prestressed concrete – Multistringer	4	61,111	0	0	0	0	0	4
Steel – Culvert	2	3,225	1	0	0	1	1	0
Steel – Multistringer	8	94,465	0	0	0	0	6	2
Steel continuous – Multistringer	1	29,344	0	0	0	0	1	0
Concrete - Culvert	1	807	0	0	0	0	0	1
Total SD/Posted/Closed			2	1	0			
Total	20	213,264				2	10	8
Percentage (%)			10	5	0	10	50	40

Bridges are designed to carry legal loads in terms of vehicles and traffic. Due to a decline in condition, a bridge may be “posted” with a restriction for what would be considered safe loads passing over the bridge. On occasion, posting a bridge may also restrict other load-capacity-related elements like speed and number of vehicles on the bridge, but this type of posting designates the bridge differently. COL has three structures that are posted for load restriction. Designating a bridge as “posted” has no influence on its condition rating. A “closed” bridge is one that is closed to all traffic. Closing a bridge is contingent upon its ability to carry a set minimum live load. COL has no structures that are closed.

The goal of the program is the preservation and safety of COL's bridge network.

Figure 7 illustrates the baseline condition, projected trend, and goal that COL has for its good/fair and its structurally deficient bridges.

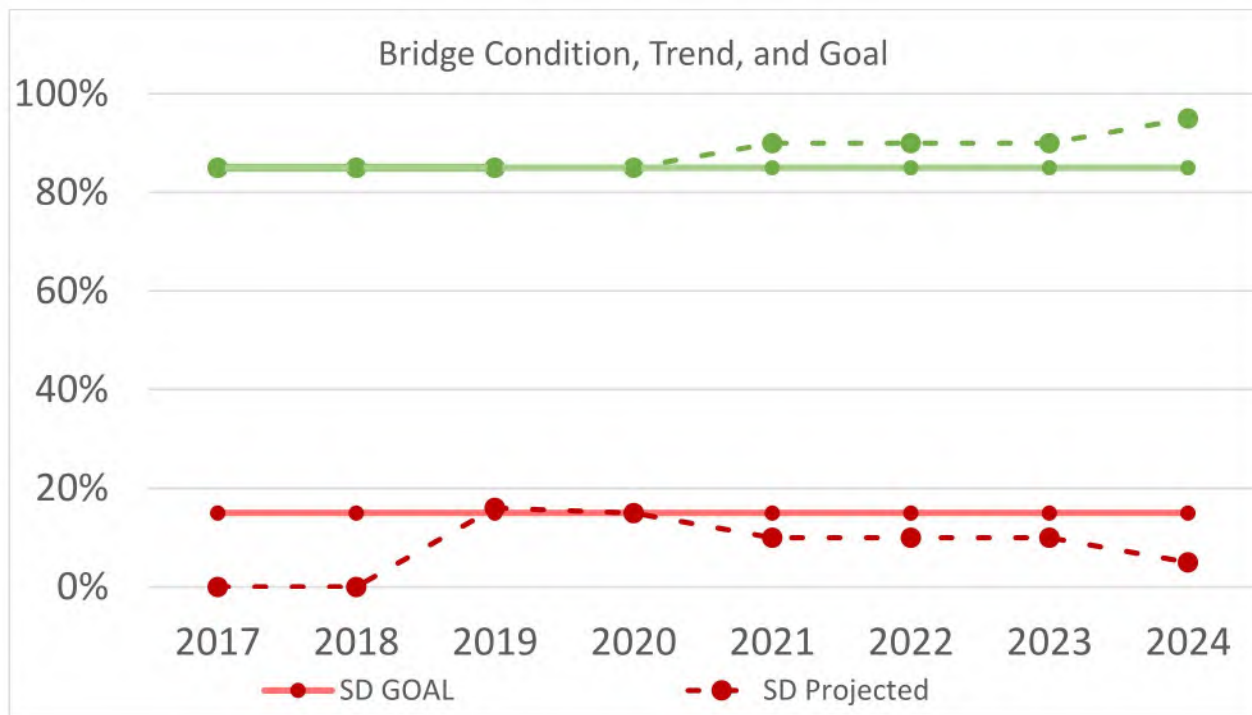


Figure 7: Condition, projected trend, and goal for COL's good/fair and structurally deficient bridges

Programmed/Funded Projects, Gap Analysis, and Planned Projects

COL received \$898,500 in total funding for the years 2020-2023. Preventive maintenance is a more effective use of these funds than the costly alternative of major rehabilitation or replacement. Since COL recognizes that limited funds are available for improving the bridge network, it seeks to identify those bridges that will benefit from a planned maintenance program, and it plans to spend \$98,500 per year for the next three years on preventive maintenance of bridges. By performing the aforementioned preventive maintenance and replacement of bridge structures, COL will achieve its goal of keeping its overall bridge network at the same condition.

Table illustrates the programmed/funded projects that will be undertaken in order to achieve COL's goal. These programmed/funded projects are juxtaposed with priority projects that remain unfunded.

Table 3: Planned Projects and Gap Analysis

Strategy	2023	2024	2025	2026	2027	GAP
New						
Subtotal	\$0	\$0	\$0	\$0	\$0	\$0
Replacement						
13398		\$ 1,382,000				
3936			\$	\$5,045,000		
Subtotal	\$0	\$ 1,382,000		\$5,045,000	\$0	\$0
Rehabilitation						
Subtotal	\$0	\$0	\$0	\$0	\$0	\$0
Scheduled Maintenance						
3944		\$510,018				
3939		\$289,036				
3948		\$425,326				
3951		\$140,000				
3940		\$86,000				
13685			\$444,000			
3937				\$258,000		
3958				\$110,000		
Subtotal		\$1,450,380	\$444,000	\$368,000	\$0	\$0
Preventive Maintenance						
3952					\$774,000	
3932					\$ 205,000	
Subtotal	\$0	\$0	\$0	\$	\$979,000	\$0
Other						
3930						\$29,000
3935						\$15,000
3955						\$59,000
Subtotal	\$0	\$0	\$0	\$0	\$0	\$103,000

3. CULVERT ASSETS



The City of Lansing has 17 culverts within the City limits.

Inventory of Assets

At present, COL has inventoried 17 culverts, which is 100 percent of the culverts owned by the COL.

Of the 17 tracked and rated culverts, the COL has 2 culverts considered good, 10 culverts considered fair, 2 culverts considered poor and 0 culverts considered failed based on the culvert inventory and inspections.

Goals

The goal of COL's asset management program is the preservation of its culvert network. COL is responsible for preserving culverts that underlie its entire road network.

Planned Projects

COL's policy is to replace or repair culvert assets concurrent with projects affecting road segments carried by the particular culverts. COL also includes culvert assets in scheduled maintenance projects affecting road segments carried by the particular culverts. There are no culvert projects scheduled at this time.

4. SIGNAL ASSETS



Inventory of Assets

At present, COL tracks only inventory data for traffic signals. COL has inventoried 104 traffic signals, which is 100 percent of the 104 traffic signals that COL owns.

The City has also inventoried an additional 103 signals, which are owned by other agencies.

More detail about these traffic signal assets can be obtained by contacting COL.

Goals

The goal of COL, PSD's asset management program is the preservation of its traffic signals. COL, PSD is responsible for preserving 104 traffic signals along its entire road network.

Planned Projects

COL's policy is to evaluate traffic signal assets based on condition assessment for replacement or repair during any reconstruction, rehabilitation, preventive maintenance, or schedule maintenance activities on the roadway affected by the particular signal. It also conducts replacements or repairs for those traffic signal assets reported as non-functional or as performing with reduced function. COL adheres to regular maintenance and servicing policies outlined in the *Michigan Manual of Uniform Traffic Control Devices*.

5. FINANCIAL RESOURCES

Public entities must balance the quality and extent of services they can provide with the tax resources provided by citizens and businesses, all while maximizing how efficiently funds are used. Therefore, COL will overview its general expenditures and financial resources currently devoted to transportation infrastructure maintenance. This financial information is not intended to be a full financial disclosure or a formal report. Full details of COL's financial status can be found by request submitted to our agency contact (listed in this plan).

Anticipated Revenues & Expenses

COL, PSD receives funding from the following sources:

- **State funds** – COL's principal source of transportation funding is received from the Michigan Transportation Fund (MTF). This fund is supported by vehicle registration fees and the state's per-gallon gas tax. Allocations from the MTF are distributed to state and local governmental units based on a legislated formula, which includes factors such as population, miles of certified roads, and vehicle registration fees for vehicles registered in the agency's jurisdiction. COL also receives revenue from the Michigan Department of Transportation to maintain (e.g. plow, patch, mow) the state trunklines within its jurisdictional boundary. Revenue from these maintenance contracts are received on a time and materials basis as resources are expended to maintain the State's roads. While these contracts do not allow for capital gain (profit) and only bring in revenue to cover the cost of the work, they do provide a benefit to COL by allowing an economy of scale that enables us to provide better service at a lower cost for COL's roads while allowing the same for the State of Michigan. Examples of state grants also include local bridge grants, economic development funds, and metro funds.

- **Federal and state grants for individual projects** – These are typically competitive funding applications that are targeted at a specific project type to accomplish a specific purpose. These may include safety enhancement projects, economic development projects, or other targeted funding. Examples of federal funds include Surface Transportation Program (STP) funds, C and D funds, bridge funds, MDOT payments to private contractors, and negotiated contracts.
- **Local government entities or private developer contributions to construction projects for specific improvements** – This category includes funding received to mitigate the impact of commercial developments as a condition of construction of a specific development project, and can also include funding from a special assessment district levied by another governmental unit. Examples of contributions from local units include city, village, and township contributions to the county; special assessments; county appropriations; bond and note proceeds; contributions from counties to cities and villages; city general fund transfers; city municipal street funds; capital improvement funds; and tax millages (see below).
- **Local tax millages** – Many local agencies in Michigan use local tax millages to supplement their road-funding budget. These taxes can provide for additional construction and maintenance for new or existing roads that are also funded using MTF or MDOT funds. COL has local tax millages in its road-funding budget. Millage paying funds are to be used for residential streets. These funds are mostly used for overlays on streets in poor condition that has substantial neighborhood traffic, such as entrances to neighborhoods.
- **Interest** – Interest from invested funds.
- **Permit fees** – Generally, permit fees cover the cost of a permit application review.
- **Other** – Other revenues can be gained through salvage sales, property rentals, land and building sales, sundry refunds, equipment disposition or installation, private sources, and financing.
- **Charges for services** – Funds from partner agencies who contract with COL, PSD to construct or maintain its roads, or roads under joint or neighboring jurisdictions, including state trunkline maintenance and non-maintenance services and preservation.

COL is required to report transportation fund expenditures to the State of Michigan using a prescribed format with predefined expenditure categories. The definitions of these categories according to Public Act 51 of 1951 may differ from common pavement management nomenclature and practice. For the purposes of reporting under PA 51, the expenditure categories are:

- **Construction/Capacity Improvement Funds** – According to PA 51 of 1951, this financial classification of projects includes, “new construction of highways, roads, streets, or bridges, a project that increases the capacity of a highway facility to accommodate that part of traffic having neither an origin nor destination within the local area, widening of a lane width or more, or adding turn lanes of more than 1/2 mile in length.”¹

¹ Public Act 51 of 1951, 247.660c Definitions

- **Preservation and Structural Improvement Funds** – Preservation and structural improvements are “activit[ies] undertaken to preserve the integrity of the existing roadway system.”² Preservation includes items such as a reconstruction of an existing road or bridge, or adding structure to an existing road.
- **Routine and Preventive Maintenance Funds** – Routine maintenance activities are “actions performed on a regular or controllable basis or in response to uncontrollable events upon a highway, road, street, or bridge”.³ Preventive maintenance activities are “planned strategy[ies] of cost-effective treatments to an existing roadway system and its appurtenances that preserve assets by retarding deterioration and maintaining functional condition without significantly increasing structural capacity”.⁴
- **Winter Maintenance Funds** – Expenditures for snow and ice control.
- **Trunkline Maintenance Funds** – Expenditures spent under COL, PSD’s maintenance agreement with MDOT for maintenance it performs on MDOT trunkline routes.
- **Administrative Funds** – There are specific items that can and cannot be included in administrative expenditures as specified in PA 51 of 1951. The law also states that the amount of MTF revenues that are spent on administrative expenditures is limited to 10 percent of the annual MTF funds that are received.
- **Other Funds** – Expenditures for equipment, capital outlay, debt principal payment, interest expense, contributions to adjacent governmental units, principal, interest and bank fees, and miscellaneous for cities and villages.

The Table (below) details the revenues and expenditures for COL.

Table 4: Annual Fiscal-Year Revenues & Expenditures per Fiscal Year

REVENUES			EXPENDITURES		
Item	Estimated \$	Percent of Total	Item	Estimated \$	Percent of Total
State funds	\$20,875,987	87.0	Construction & capacity improvement (CCI)	\$1,448,464	6.1
Federal funds	\$525,933	2.2	Preservation & structural improvement (PSI)	\$17,708,445	74.1
Contributions for local units	\$2,498,180	10.4	Routine maintenance	\$421,625	1.8
Interest, rents, and other	\$88,389	0.4	Winter maintenance	\$1,756,602	7.3
Charges for services	\$0	0	Trunkline maintenance	\$0.00	0.0
			Administrative	\$634,072	2.7
			Other	\$1,933,336	8.1
TOTAL	23,988,489	100	TOTAL	23,902,544	100
Verify the information in this table. You can find your agency's information in the TAMC dashboard at https://www.mcgi.state.mi.us/mitrp/tamcDashboards .					

² Public Act 51 of 1951, 247.660c Definitions

³ Public Act 51 of 1951, 247.660c Definitions

⁴ Public Act 51 of 1951, 247.660c Definitions

6. RISK OF FAILURE ANALYSIS

Transportation infrastructure is designed to be resilient. The system of interconnecting roads and bridges maintained by COL, PSD provides road users with multiple alternate options in the event of an unplanned disruption of one part of the system. There are, however, key links in the transportation system that may cause significant inconvenience to users if they are unexpectedly closed to traffic. Key transportation links include:

- **Geographic divides:** Areas where a geographic feature (river, lake, hilly terrain, or limited access road) limits crossing points of the feature; bridge failures, in particular, can create loss of access to entire regions of the state
- **Emergency alternate routes for high-volume roads and bridges:** Roads and bridges that are routinely used as alternate routes for high-volume assets are included in an emergency response plan
- **Limited access areas:** Roads and bridges that serve remote or limited access areas that result in long detours if closed
- **Main access to key commercial districts:** Areas with a large concentration of businesses or where large-size business will be significantly impacted if a road is unavailable
- The City of Lansing has no critical assets considered key links based on the above criteria. There are multiple alternate options to navigate the City in the event a road or bridge is closed.

7. COORDINATION WITH OTHER ENTITIES

An asset management plan provides a significant value for infrastructure owners because it serves as a platform to engage other infrastructure owners using the same shared right of way space. The COL communicates with both public and private infrastructure owners to coordinate work in the following ways:

- The City of Lansing holds quarterly meetings with the major utilities to discuss and coordinate projects. This includes Consumers Energy, who supplies the gas for the City. Consumers has ongoing infrastructure upgrade projects through the City, as well as any upgrading needed ahead of planned city projects. With the quarterly meetings and close communication, the City is able to coordinate projects.
- The City also holds quarterly utility meetings with the Lansing Board of Water and Light (BWL), who maintains the drinking water, electricity and steam lines in the City. The BWL often partners with the City on projects to perform any necessary upgrades to their systems in conjunction with city projects. The BWL performs system upgrade projects independently as well, with efforts coordinated with the City to ensure traffic detours do not excessively impede traffic flow.
- The biggest coordination efforts between the utilities and the City is the City's Combined Sewer Overflow (CSO) separation program. Projects are planned years in advance and all infrastructure is updated at once. The streets within the project areas are generally reconstructed when the sewers are replaced. By upgrading the infrastructure all at once, the City does not anticipate major construction needs in an area again for at least 20 years.
- The City also has good working relationships with surrounding community and county agencies. If a project impacts a nearby agency, the City tries to alert them so that any necessary

coordination can take place. The City maintains a map of all planned projects on their website, which includes any utility or MDOT projects within the area as well.

8. PROOF OF ACCEPTANCE

PUBLIC ACT 325

CERTIFICATION OF TRANSPORTATION ASSET MANAGEMENT PLAN

Certification Year: _____

Local Road-owning Agency Name: _____

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

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

Signature		Signature	
Printed Name		Printed Name	
Title	Date	Title	Date

Due every three years based on agency submission schedule

Submittal Date: _____

See attached council meeting minutes and/or resolution.

A. PAVEMENT ASSET MANAGEMENT PLAN

An attached pavement asset management plan follows.

City of Lansing 2023 Pavement Asset Management Plan



Andy Schor, Mayor

This is a plan describing the City of Lansing's roadway assets and conditions.

Prepared by:
Ann M. Parry
Engineer
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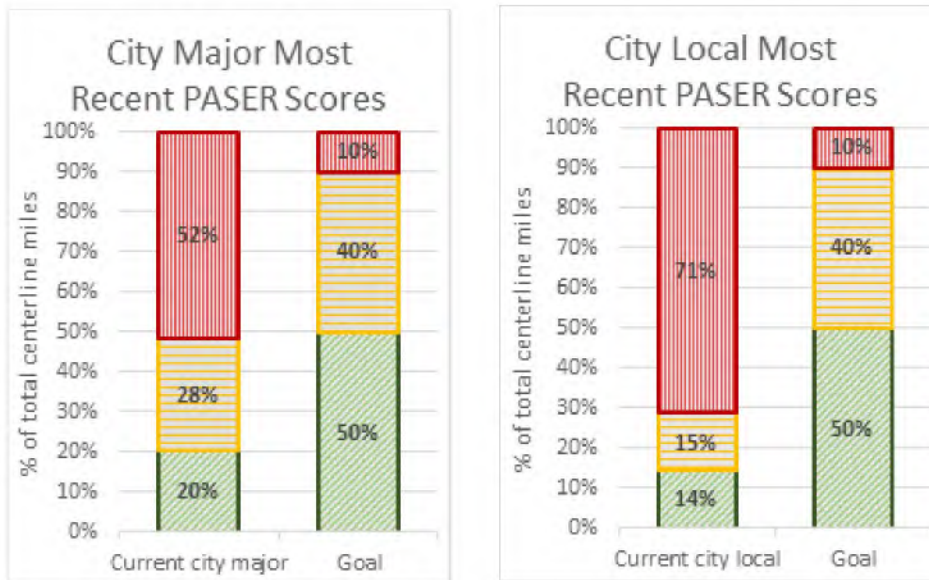
EXECUTIVE SUMMARY

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

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

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

The COL owns and/or manages 416.65 centerline miles of roads. This road network can be divided into the city major network, the city minor network, the unpaved road network and the National Highway System (NHS) network based on the different factors these roads have that influence asset management decisions. A summary of the COL's current network conditions and desired goals for city major minor networks can be seen in the following graphs:



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

INTRODUCTION

Asset management is defined by Public Act 325 of 2018 as “an ongoing process of maintaining, preserving, upgrading, and operating physical assets cost effectively, based on a continuous physical inventory and condition assessment and investment to achieve established performance goals.” In other words, asset management is a process that uses data to manage and track assets, like roads and bridges, in a cost-effective manner using a combination of engineering and business principles. This process is endorsed by leaders in municipal planning and transportation infrastructure, including the Michigan Municipal League (MML), County Road Association of Michigan, the Michigan Department of Transportation (MDOT) and the Federal Highway Administration (FHWA). The COL is supported in its use of asset management principles and processes by the Michigan Transportation Asset Management Council (TAMC), formed by the State of Michigan.

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

The COL has adopted an “asset management” business process to overcome the challenges presented by having limited financial, staffing, and other resources while needing to meet road users’ expectations. COL is responsible for maintaining and operating over 416.65 centerline miles of roads.

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

Questions regarding the use or content of this plan should be directed to Nicole McPherson, PE, at 124 W. Michigan Avenue 7th Floor, Lansing, MI 48933 or at 517-483-4458 and/or nicole.mcpherson@lansingmi.gov

A copy of this plan can be accessed on the COL's website at www.lansingmi.gov/streets. Key terms used in this plan are defined in COL's comprehensive transportation asset management plan (also known as the "compliance plan") used for compliance with PA 325 of 2018.

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

Pavement Primer

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

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

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

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

Surfacing

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

Paved Surfacing

Typical benefits and trade-offs for hard surface types include:

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

comparison with other pavement types). However, they require frequent maintenance activities to maximize their service life. A typical HMA pavement design life will provide service for 18 years before major rehabilitation is necessary. The vast majority of local-agency-owned pavements are HMA pavements.

- **Composite Pavement:** Composite pavement is a combination of concrete and asphalt layers. Typically, composite pavements are old concrete pavements exhibiting ride-related issues that were overlaid by several inches of HMA in order to gain more service life from the pavement before the need for reconstruction. Converting a concrete pavement to a composite pavement is typically used as a “holding pattern” treatment to maintain the road in usable condition until reconstruction funds become available.
- **Sealcoat Pavement:** Sealcoat pavement is a gravel road that has been sealed with a thin asphalt binder coating that has stone chips spread on top (not to be confused with a chip seal treatment over HMA pavement). This type of a pavement relies on the gravel layer to provide structure to support traffic, and the asphalt binder coating and stone chips shed water and eliminate the need for maintenance grading. Nonetheless, sealcoat pavement does require additional maintenance steps that asphalt and gravel do not require. While sealcoat pavement does not last as long as HMA pavement, it provides a low-cost alternative for lightly-trafficked areas and competes with asphalt for ride quality when properly constructed and maintained. Sealcoat pavement can provide service for ten or more years before the surface layer deteriorates and needs to be replaced.

Unpaved Surfacing

Typical benefits and tradeoffs for non-hard surfacing include:

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

Pavement Condition

Besides traffic congestion, pavement condition is what road users typically notice most about the quality of the roads that they regularly use—the better the pavement condition, the more satisfied users are with the service provided by the roadwork performed by road-owning agencies. Pavement condition is also a major factor in determining the most cost-effective treatment—that is, routine maintenance, capital preventive maintenance, or structural improvement—for a given section of pavement. As pavements age, they transition between “windows” of opportunity when a specific type of treatment can be applied to gain an increase in quality and extension of service life. Routine maintenance is day-to-day, regularly-scheduled and low-cost activity applied to “good” roads to prevent water or debris damage. Capital

preventive maintenance (CPM) is a planned set of cost-effective treatments for “fair” roads that corrects pavement defects, slows further deterioration and maintains the functional condition without increasing structural capacity. COL uses pavement condition and age to anticipate when a specific section of pavement will be a potential candidate for preventive maintenance. More detail on this topic is included in the *Pavement Treatment* section of this primer.

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

Paved Road Condition Rating System

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

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

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

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

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

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



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

The TAMC’s good, fair and poor categories are based solely on the above definitions. Therefore, caution should be exercised when comparing other condition assessments with these categories because other condition assessments may have “good,” “fair,” or “poor” designations similar to the TAMC condition

categories but with a potentially different definition. Often, other condition assessment systems define the “good,” “fair” and “poor” categories differently, thus rendering the data of little use for cross-system comparison. The TAMC’s definitions provide a statewide standard for all of Michigan’s road-owning agencies to use for comparison purposes.

PASER data is collected 100 percent every two years on all federal-aid-eligible roads in Michigan. The TAMC dictates and funds the required training and the format for this collection, and it shares the data both regionally and statewide. In addition, COL collects 50 percent of its paved non-federal-aid-eligible network annually using its own staff and resources.

Unpaved Road Condition Rating System (IBR System™)

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

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

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

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



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

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

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

The COL has 5.9 miles of unpaved streets; all are city minor streets. This section is included for information purposes. This Asset Management Plan will mainly focus on the paved street network.

Pavement Treatments

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

Reconstruction

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



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

service life and performance. A reconstructed road lasts approximately 15 years and costs \$683,000 per lane mile. The following descriptions outline the main reconstruction treatments used by COL.

Full-depth Concrete Repair

A full-depth concrete repair removes sections of damaged concrete pavement and replaces it with new concrete of the same dimensions (Figure 3). It is usually performed on isolated and deteriorated joint locations or entire slabs that are much further deteriorated than adjacent slabs. The purpose is to restore the riding surface, delay water infiltration, restore load transfer from one slab to the next and eliminate the need to perform costly, temporary patching. This repair lasts approximately 12 years and typically costs \$125,000 per mile.

Structural Improvement

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



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

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

An HMA overlay is a layer of new asphalt (liquid asphalt and stones) placed on an existing pavement (Figure 4). Depending on the overlay thickness, this treatment can add significant structural strength. This treatment also creates a new wearing surface for traffic and seals the pavement from water, debris and sunlight damage. An HMA overlay lasts approximately five to ten years and costs \$368,000 per lane mile. The top layer of severely damaged pavement can be removed by milling, a technique that helps prevent structural problems from being quickly reflected up to the new surface. Milling is also done to keep roads at the same height of curb and gutter that is not being raised or reinstalled in the project. Milling adds \$15,000 per lane mile to the HMA overlay cost.

Crush and Shape

During a crush and shape treatment, the existing pavement and base are pulverized. The road surface is then reshaped and excess material is removed (Figure 4). A new wearing surface (HMA) is added. This treatment is usually done on city minor streets. Crush and shape treatments last approximately 12 years and cost \$441,000 per lane mile.

Capital Preventive Maintenance

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



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

Crack Seal

Water that infiltrates the pavement surface softens the pavement structure and allows traffic loads to cause more damage to the pavement than in normal dry conditions. Crack sealing helps prevent water infiltration by sealing cracks in the pavement with asphalt sealant (Figure 5). COL seals pavement cracks early in the life of the pavement to keep it as best and long functioning as possible. Crack sealing lasts approximately two years and costs \$6,400 per lane mile. Even though it does not last very long compared to other treatments, it does not cost very much compared to other treatments. This makes it a very cost effective treatment when the COL evaluates crack filling costs per year of the treatment's life.

Fog Seal

Fog sealing sprays a liquid asphalt coating onto the entire pavement surface to fill hairline cracks and prevent damage from sunlight (Figure 5). Fog seals are best for good to very good pavements and last approximately two years at a cost of \$3,300 per lane mile.

Chip Seal

A chip seal, also known as a sealcoat, is a two-part treatment. First, a liquid asphalt is sprayed onto an old pavement surface. Then, a single layer of small stone chips is spread onto the layer of wet liquid asphalt (Figure 5). The liquid asphalt seals the pavement from water and debris and holds the stone chips in place, providing a new wearing surface for traffic that can correct friction problems and help prevent further surface deterioration. Chip seals are best applied to pavements that are not exhibiting problems with strength since their purpose is to help preserve such strength. These treatments last approximately five years and cost \$30,000 per lane mile. Often a chip seal and a fog seal will be used together.

Partial-Depth Concrete Repair

A partial-depth concrete repair involves removing spalled (i.e., fragmented) or delaminated (i.e., separated into layers) areas of concrete pavement, usually near joints and cracks, and replacing such areas with new concrete (Figure 6). This is done to provide a new wearing surface in isolated areas to slow down water infiltration and to help delay further freeze/thaw damage. This repair lasts approximately five years and typically costs \$25,000 per mile.



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

Innovative Treatments

Innovative treatments are newer, unique and non-standard treatments that provide ways of treating pavements using established engineering principles in new and cost-effective ways. COL strives to be innovative with its pavement treatments by looking for ways to prevent pavement damage and save taxpayer dollars.

Chip and Fog

In the past few years, the City of Lansing has tried different treatments from those that they have considered in the past. A chip seal would not normally be considered for an urban setting, because it leaves behind loose stones that may end up in the storm sewer system, and the rough surface left by the chip seal is not desirable for residents who are walking or biking on the street. The City has combined two preventive treatments—chip seal and fog seal—to create a “chip and fog” treatment, which has exhibited good results. The chip and fog treatment is applied to streets in the 5-7 PASER range. It is expected to last seven years and costs about \$33,600 per lane mile.

Mastic Crack Seal

The City’s street maintenance crews have started using a mastic crack seal material. The material is used to fill substantial cracks that would not be able to be filled with normal crack seal material. This is used in select locations, because the material and labor costs are higher than crack seal. It is expected to last three years and costs about \$7,000 per lane mile.

Crush and Shape, Chip Seal and Microsurface

The City has seen a slight increase in funding in the past few years, but funding levels are still inadequate to meet our needs. No change in funding levels are anticipated in the near future. In 2021, the City implemented a treatment of a few select roads to see if it is a viable solution in the long term to improve our street system. A few low volume roads, mostly cul-de-sacs, were chosen to be crushed and shaped and, rather than placing new asphalt, received a double chip seal. The streets became chip seal roads instead of asphalt roads. A few gravel streets also were converted to chip seal (seal coat) roads, helping with some ongoing maintenance issues. One street was treated with a microsurface (thin layer of asphalt) over the chip seal. Early indications are the project was a success and has been expanded to include more streets in the future with similar traffic counts and conditions. The City now uses a microsurface finish over all newly converted chip seal streets.

Maintenance

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

1. PAVEMENT ASSETS

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

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

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

The COL is responsible for a total of 416.65 centerline of public roads, as shown in Figure 7.



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

Inventory

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

Figure 8 illustrates the percentage of roads owned by COL that are classified as city major and city minor roads.

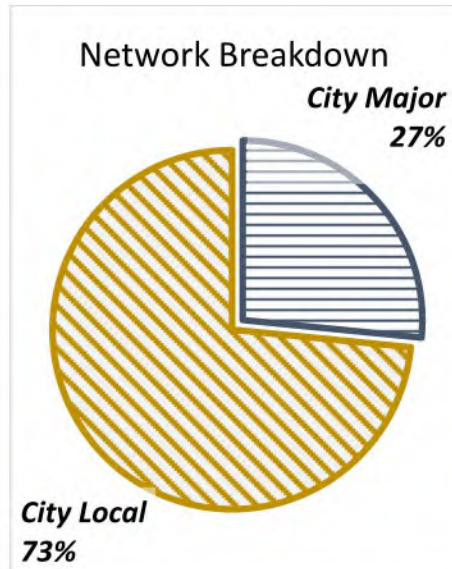


Figure 8: Percentage of city major and city minor roads for COL.

The COL manages 13.239 miles of roads that are part of the National Highway System (NHS)—roads that are critical to the nation’s economy, defense and mobility—and monitors and maintains their condition. The NHS is subject to special rules and regulations and has its own performance metrics dictated by the FHWA. While most NHS roads in Michigan are managed by MDOT, COL manages a percentage of those roads located in its jurisdiction, as shown in Figure 9.

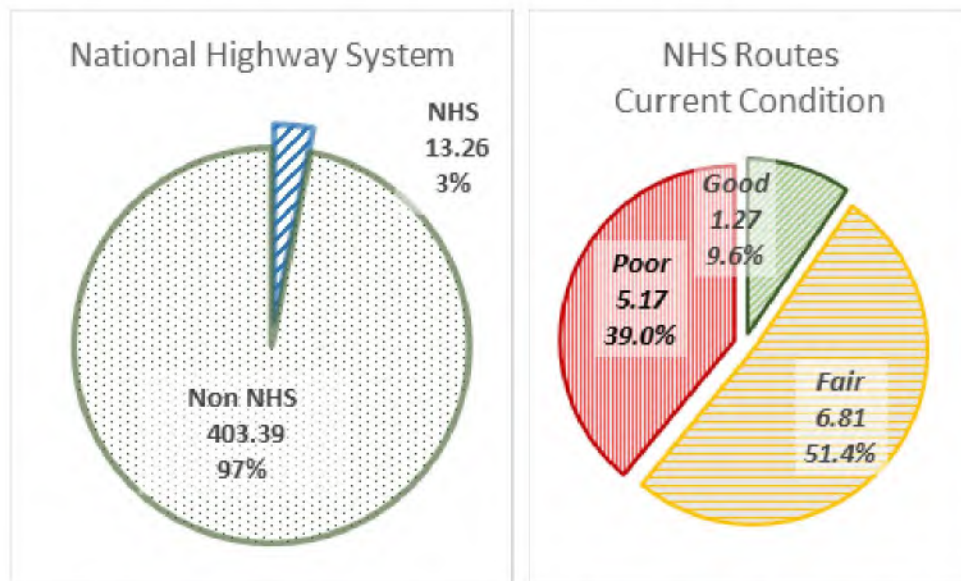


Figure 9: Miles of roads managed by COL that are part of the National Highway System and condition.

COL also owns and manages 5.44 miles of unpaved roads.

Types

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

Figure 10 illustrates the percentage of various pavement types that the COL has in its network.

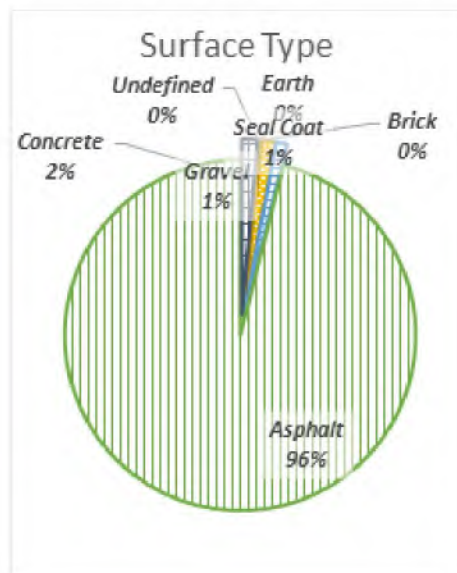


Figure 10: Pavement type by percentage maintained by COL

Locations

Locations and sizes of each asset can be found in the COL's Roadsoft database. For more detail, please refer to the agency contact listed in the *Introduction* of this pavement asset management plan.

Condition

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

additional funding is necessary to meet a network's condition improvement goals. More detail on this topic is included in the *Introduction's Pavement Primer*.

Paved Roads

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

The COL collects 100 percent of its PASER data every two years on all federal-aid-eligible roads in Michigan. In addition, the COL collects 50 percent of its paved non-federal-aid-eligible network using its own staff and resources.

The COL's 2022 paved city major road network has 22.5 percent of roads in the TAMC good condition category, 28.1 percent in fair and 51.5 percent in poor (Figure 11A). The paved city minor road network has 14.2 percent in good, 14.6 percent in fair and 71.2 percent in poor (Figure 11B).

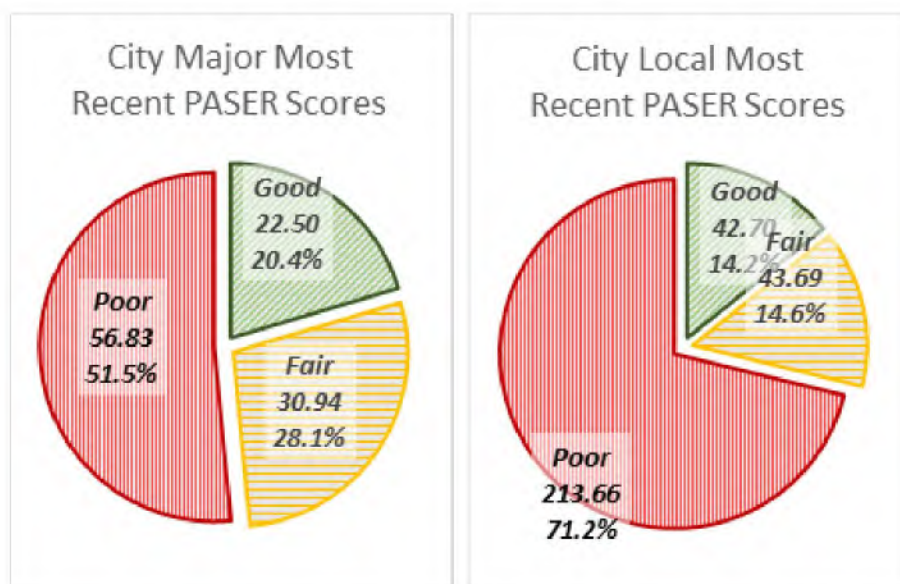


Figure 11: (A) Left: COL paved city major road network conditions by percentage of good, fair, or poor, and (B) Right: paved city minor road network conditions by percentage of good, fair, or poor

In comparison, the statewide paved city major road network has 26 percent of roads in the TAMC good condition category, 41 percent in fair and 33 percent in poor (Figure 12A). The statewide paved city minor road network has 20 percent in good, 35 percent in fair and 45 percent in poor (Figure 12B). Figure 11A and Figure 12A, in comparison, show that the COL's paved city major road network is worse than similarly-classified roads in the rest of the state. Figure 11B and Figure 12B show that the COL's paved city minor road network is also worse than similarly-classified roads in the rest of the state. Other road

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

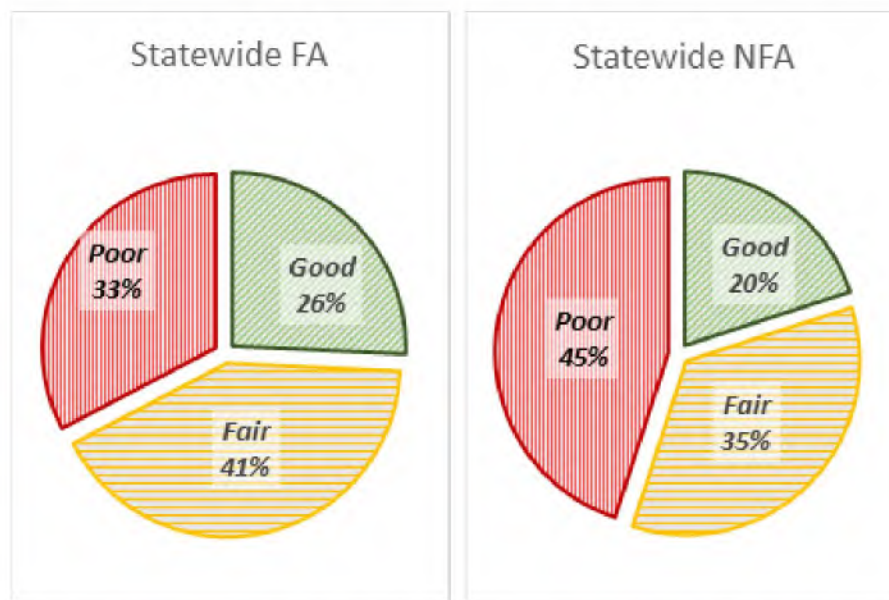


Figure 12: (A) Left: Statewide paved city major road network conditions by percentage of good, fair, or poor, and (B) Right: paved city minor road network conditions by percentage of good, fair, or poor

Many of Michigan's roadways are in rural areas, which means that agencies are able to spread their funding further than in urban areas. Many rural roads have low traffic volumes, which causes less deterioration of the roads. They also generally do not have to contend with other utilities within the roadway, which can deteriorate roads with utility repair cuts. Rural areas also do not generally have to deal with sidewalk crossings, which can devour budget dollars in a roadway project. The COL is an urban area with high traffic roads, many utilities and an extensive sidewalk network that must be updated to current standards—all of which contribute to road decay and funding shortages.

Figure 13 and Figure 14 show the number of miles for the COL's roads with PASER scores expressed in TAMC definition categories for the paved city major road network (Figure 13) and the paved city minor road network (Figure 14). The COL considers road miles on the transition line between good and fair (PASER 8). The COL considers the transition line between fair and poor (PASER 5) as representing parts of the road network where there is a risk of losing the opportunity to apply less expensive treatments that gain significant improvements in service life.

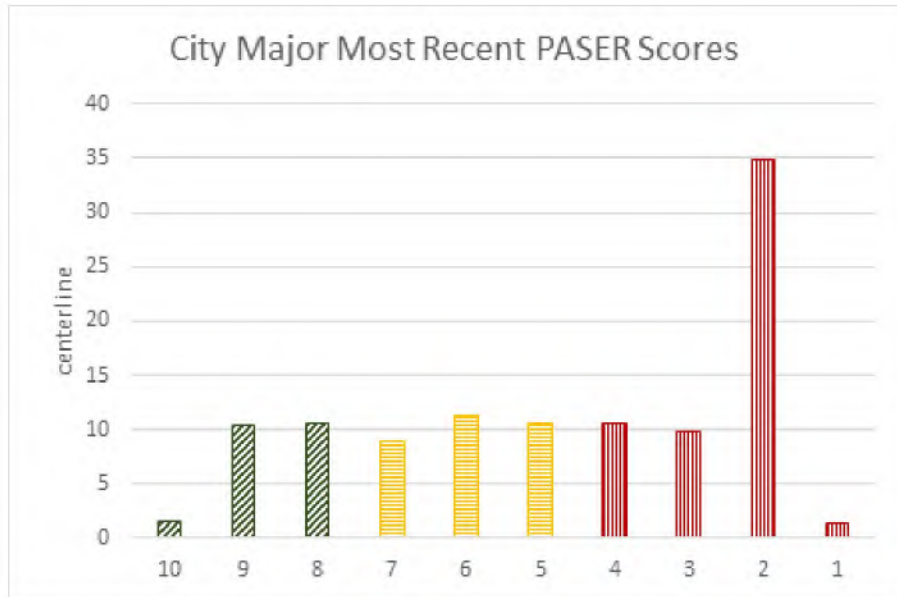


Figure 13: COL paved city major road network conditions. Bar graph colors correspond to good/fair/poor TAMC designations.

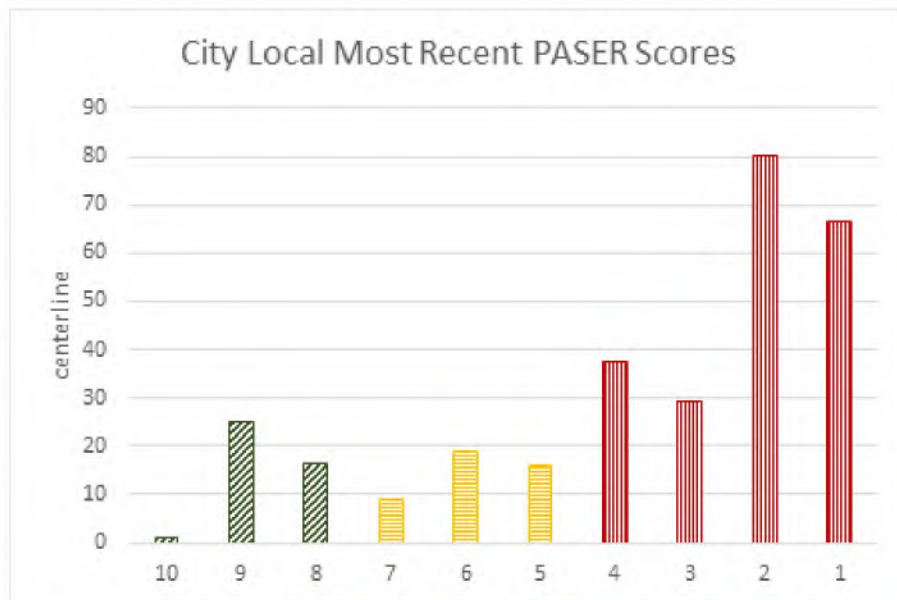


Figure 14: COL paved city minor network condition by PASER rating. Bar graph colors correspond to good/fair/poor TAMC designations.

Figure 15 provides a map illustrating the geographic location of paved roads and their respective PASER condition. An online version of the most recent PASER data is located at <https://www.mcgi.state.mi.us/tamcMap/#/>.



Figure 15: Map of the current paved road condition in good (PASER 10, 9, 8) shown in green, fair (PASER 7, 6, 5) shown in yellow, and poor (PASER 4, 3, 2, 1) shown in red. Only Roads owned by COL are shown.

After many years of declining road conditions, there have been slight improvements in the overall quality of the COL's paved major roads in recent years. The increase in overall condition of the COL's paved city major road system can be observed in Figure 16 by noting the decrease in roads that are in poor condition. The percentage has remained stable from 2015 to 2019, which may indicate that the road conditions had reached the maximum percentage of poor condition that the system would reach with the funding. The percentage of poor roads decreased after 2019, which is around the time the COL had slightly more funding and applied more preventive maintenance measures.

Comparing the COL's paved city major road condition trends illustrated in Figure 16 with overall statewide condition trends for similarly-classified roads, which are illustrated in Figure 17, shows a different trend locally in comparison to the rest of the state. The COL roads are improving at a slower rate than the average for the rest of the state.

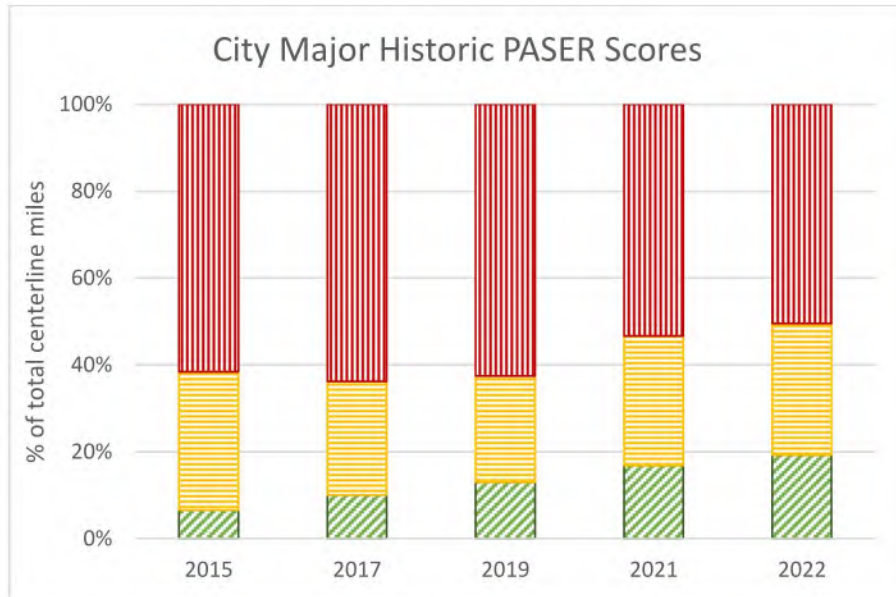


Figure 16: Historical COL paved city major road network condition trend

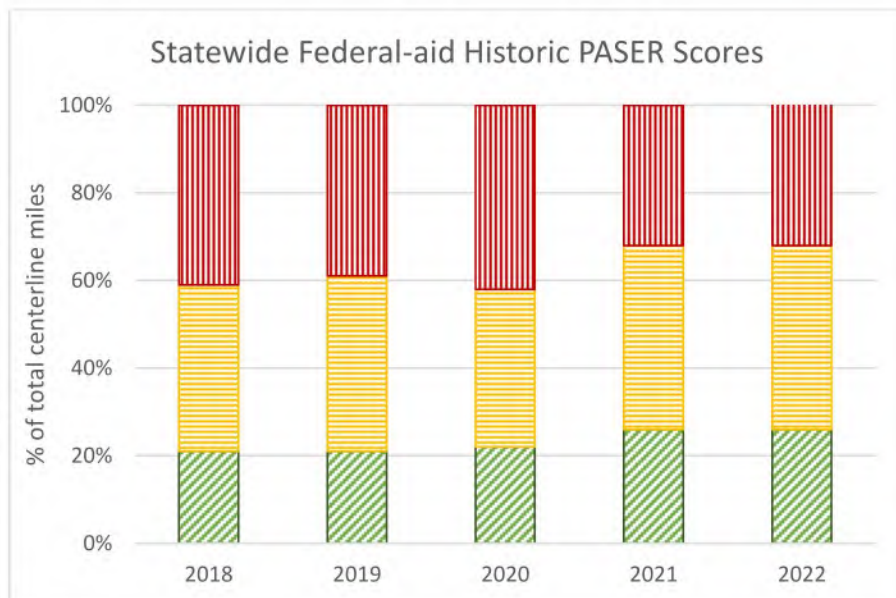


Figure 17: Historical statewide city major road network condition trend

Similarly, the COL paved city minor roads have shown slight increases in condition, in recent years. The COL minor roads have not decreased the amount in poor condition but have more rated good and less rated fair. The addition of previously unused preventive maintenance treatments and roads reconstructed with the CSO program has contributed to the increase in roads rated good. There is no source of state and federal funding, and therefore, must be supported locally.

Comparing the COL's paved city minor road condition trends illustrated in Figure 18 with overall statewide condition trends for all paved city minor roads illustrated in Figure 19 indicates the COL has a greater percentage of roads in poor condition that the statewide average. The year-to-year variation in the paved city minor road network is likely due to the fact that only a portion of the network is collected each year, both locally and statewide. This variation is likely a result of reporting bias since a representative sample of roads is not collected each year statewide.

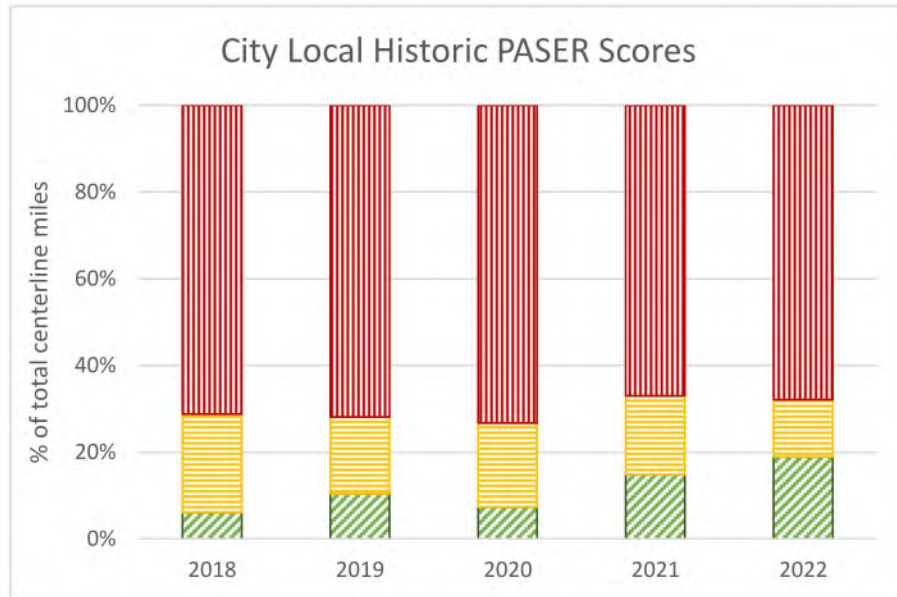


Figure 18: Historical COL paved city minor road network condition trend.

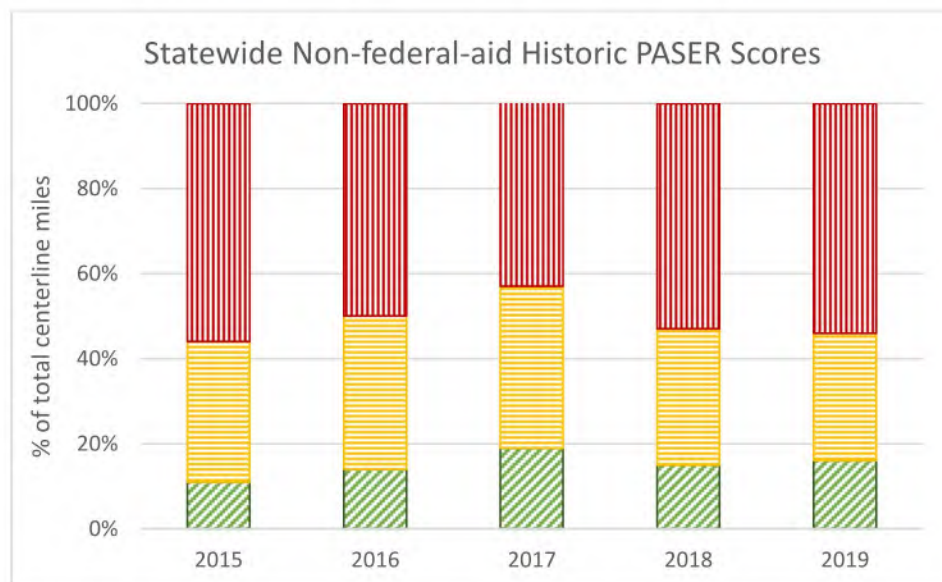


Figure 19: Historical statewide paved city minor road network condition trend

Unpaved Roads

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

The COL's nearly six miles of unpaved streets are all city minor streets. They consist of short segments of streets, roughly a block or two long, located throughout the City. Historically, the City has assessed property owners for street improvements, like storm sewer and curb and gutter. Much of the City was built by those who developed the area and then turned it over to the City at the time of completion. At one time, the City had a goal and program to pave all of the gravel streets. The funding was from the City's general fund, which has not been set aside since approximately 2007. An economic recession and opposition from residents to assess paving streets contributed to the loss of funding set aside to pave gravel streets. Since then, the City has only paved gravel streets with a valid petition from the affected property owners.

Many gravel street segments are difficult for our city crews to adequately maintain. The Engineering Department works with City Operations and Maintenance (O&M) to create solutions for problem areas. A few areas have had some spot drainage improvements to help with maintaining the street. There have also been some unpaved streets that have been converted to seal coat roads.

Figure 20 shows the percentage of unpaved roads in each IBR number ranges of 10, 9, and 8; 7, 6, and 5; and 4, 3, 2, and 1, for all roads.

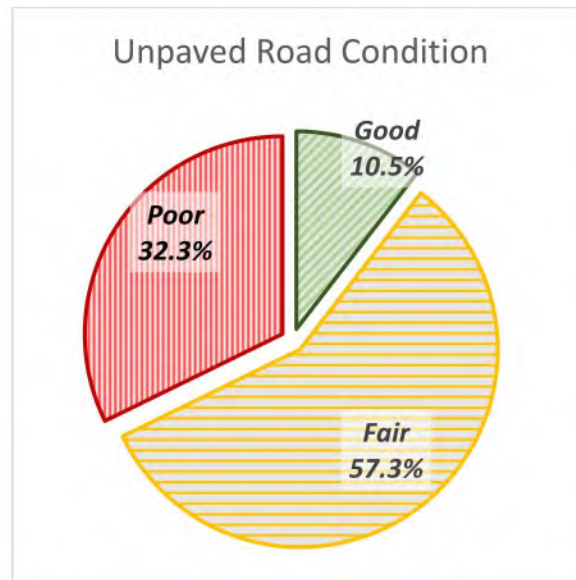


Figure 20: COL's unpaved road network condition by percentage of roads with IBR numbers of 10, 9, and 8; roads with IBR numbers of 7, 6, and 5; and IBR numbers of 4, 3, 2, and 1.

Goals

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

Goals for Paved City Major Roads

The overall goal for the COL's paved city major road network is to maintain or improve road conditions network-wide at 2022 levels. The baseline condition for this goal is illustrated in Figure 21. The ultimate goal for the system, with adequate resources, is shown below.

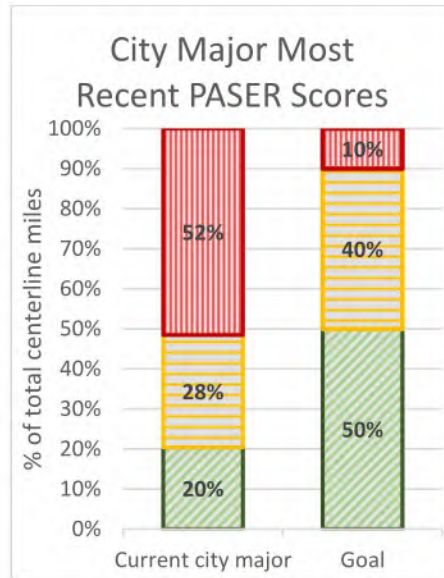


Figure 21: COL's 2022 city major road network condition by percentage of good/fair/poor

The COL's network-level pavement condition strategy for paved city major roads is:

1. Prevent its good and fair (PASER 10 - 5) paved city major from becoming poor (PASER 4 - 1).
2. Keep the percentage of paved city major roads in the poor category from growing.

Goals for Paved City Minor Roads

The overall goal for the COL's paved city minor road network is to maintain or improve road conditions network-wide at 2019 levels. The baseline condition for this goal is illustrated in Figure 22. The ultimate goal for the system, with adequate resources, is shown below.

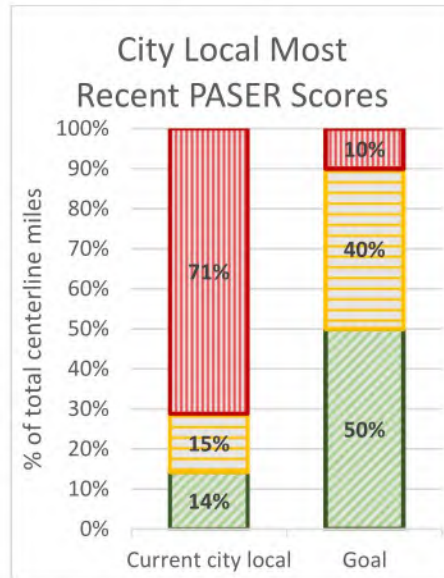


Figure 22: COL 2021 paved city minor road network condition by percentage of good/fair/poor

The COL's network-level pavement condition strategy for paved city minor roads is:

1. Prevent its good and fair (PASER 10 - 5) paved city minor roads from becoming poor (PASER 4 - 1).
2. Keep the percentage of paved city minor roads in the poor category from growing.

Modelled Trends

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

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

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

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

Another factor for roads in the COL is the Combined Sewer Overflow (CSO) separation program. Streets are generally reconstructed when the combined sewers are separated in the area. Sometimes, streets are in very poor condition and cannot wait until CSO construction before receiving some kind of maintenance. Such streets are evaluated based on when the CSO construction is expected and are treated based upon the years of road life needed until reconstruction.

When choosing candidates for street projects, the City also tries to balance the funding between the four City Counsel Wards within the City.

Table 1: Service Life Extension (in Years) for Pavement Types Gained by Fix Type¹

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

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

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

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

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

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

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

NCPP Network Quick Check to Forecast Future Trends

The National Center for Pavement Preservation (NCPP) has developed an analysis method that gives an overall indicator of likely future road network condition trends. An example of this method along with a description is included as *Appendix D*.

The NCPP Quick Check works under the premise that a one-mile road segment loses one year of life each year that it is not treated with a maintenance, rehabilitation, or reconstruction project. For example, a 100-mile network loses 100 mile-years worth of life each year that it is not treated. Construction and maintenance projects add life to a road network, offsetting the steady yearly loss. For example, an overlay project that is expected to last 10 years and constructed on 5 miles of pavement will add 10-years x 5 miles = 50 mile-years of improvement, which is about half the value lost in one year on the example 100-mile network. In order for the network to remain stable, an agency would need to complete projects every year that offset all of the mile-years of loss. For this example, that would be 100 mile-years.

All Paved City Roads

Table 2 illustrates the calculations for the NCPP Quick Check method of the COL's paved city major road network for FY 2023. Results from the NCPP Quick Check for the paved city street network indicate that the volume of work that the COL has been able to afford falls far short and is not keeping up with the natural deterioration of the road network due to age and use. This number is an average of 653.82 out of an average of 923 lane miles, or 70% deficiency. **In other words, the COL's annual input into road projects is only 30% of the lane miles needed to just keep the roads from further deterioration.** Continuing the current treatment volume on this network will result in an ongoing 70% deficit of mile-years of project benefit to stabilize this trend and maintain current conditions.

Table 2			Life Extension	Total
		Lane	Per Mile	Life Extension
Project/Treatment	Miles	Miles	(Years)	(lane-mile-years)
Major Streets				
Reconstruct	1.38	3.144	15	47.16
Crush and Shape	0.158	0.474	12	5.688
Mill and Fill, 3.5 inches	2.326	6.029	10	60.29
Mill and Fill, 2 inches	0	0	7	0
Mill and Fill, 1.5 inches	0	0	7	0
Chip and Fog Seal	1.242	2.483	3	7.449
Mastic Crack Seal	0	0	2	0
Crack Seal	0	0	2	0
Local (Minor) Streets				
Reconstruct	0.456	0.912	15	13.68
Crush and Shape	0.696	1.598	12	19.176
Mill and Fill, 3.5 inches	1.156	2.313	10	81.28
Mill and Fill, 2 inches	0.262	0.525	10	5.25
Overlay, 1.5 inches	1.787	3.574	7	25.02
Crush, Chip and Micro	0.322	0.644	7	4.508
Chip and Fog Seal	0	0	7	0
Crack Seal	0	0	2	0
			Total System Lane Miles	923.32
			Lane Mile Years Added	269.501
Lane Miles Treated			Yearly Loss Lane Miles	653.82

The NCPP analysis of the COL's planned projects from its currently-available budget does not allow the COL to reach its pavement condition goal given the projects planned for the next three years. The goal for the City street system is an Average PASER rating of 7. In order to achieve that goal within 10 years, the City estimates that the annual street system needs are more than **\$39.8 million**. Each year that this funding level is not achieved, the overall condition of the street system decreases.

Demonstration Areas

The City of Lansing, after many years of declining street conditions and inadequate funding available, decided to demonstrate what could happen when a street program has adequate funding.

Two areas of the City were chosen as demonstration project areas. The current street conditions within these areas are representative of typical residential areas in the City with corresponding local street conditions. A 10-year improvement program has been devised for these areas that is intended to raise the overall condition of the streets to acceptable levels. The City has committed to providing adequate funding for these two areas over ten years. The City is now in the fourth year of the pilot demonstration. More information on the Pilot Demonstration Areas is available in *Appendix E*.

Planned Projects

The COL tries to plan construction and maintenance projects a few years in advance. A multi-year planning threshold is required due to the time necessary to plan, design and finance construction and maintenance projects on the paved city major road network. This includes planning and programming requirements from state and federal agencies that must be met prior to starting a project and can include:

- Studies on environmental and archeological impacts
- Review of construction and design documents and plans
- Documentation of rights-of-way ownership
- Planning and permitting for stormwater discharges
- Other regulatory and administrative requirements

Per PA 499 of 2002 (later amended by PA 199 of 2007), road projects for the upcoming three years are required to be reported annually to the TAMC. Planned projects represent the best estimate of future activity; however, changes in design, funding and permitting may require the COL to alter initial plans.

The *1. Pavement Assets: Modelled Trends* section of this plan provides a detailed analysis of the impact of the proposed projects on their respective road networks.

For 2020-2022, the COL plans to do the following projects:

Paved City Major Projects

The COL is currently planning the construction and maintenance projects listed in *Appendix A* for the paved city major road network. The City spends approximately \$3,000,000 per year on construction and maintenance projects on the major streets network.

Paved City Minor Projects

The COL's list of possible construction and maintenance projects for the paved city minor road network can be found in *Appendix B*. The COL spend approx. \$3,000,000 on paving and maintenance projects each year.

Unpaved City Streets

A list of unpaved COL streets is in *Appendix C*. The City does not have a program for gravel streets. Paving of gravel streets is done on a case-by-case basis and is usually initiated by the residents of the street through a petition signed by more than 50 percent of the property owners. A portion of the costs are assessed to the affected property owners, which usually totals to about 30 % of the total construction cost. In writing, there are no planned projects on unpaved streets.

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

Gap Analysis

The current funding levels that the COL receives are not sufficient to meet the goals for the paved city major road network, the paved city minor road network and the unpaved road network. However, the COL believes that the overall condition of this network can be maintained or improved with additional funding for construction and maintenance. The City is dedicated to preventive maintenance projects on the good and fair streets to extend the life and deter deterioration. The remaining budget is spent on improving the streets and then maintaining them. The City has seen an increase in overall system condition in recent years, but it is very slight and not sustainable without additional funding. The network is currently deteriorating at a faster rate than the effort the City can afford to put into the network, as shown in Table 2 above.

2. FINANCIAL RESOURCES

Public entities must balance the quality and extent of services they can provide with the tax resources provided by citizens and businesses, all while maximizing how efficiently funds are used. The COL will overview its general expenditures and financial resources currently devoted to pavement maintenance and construction. This financial information is not intended to be a full financial disclosure or a formal report. Michigan agencies are required to submit an Act 51 Report to the Michigan Department of Transportation each year; this is a full financial report that outlines revenues and expenditures. This report can be obtained by request submitted to the City's agency contact (listed in this plan).

The COL had a total budget for pavement asset management of \$8,000,000 in 2022. While insufficient funding levels continue, the Asset Management Plan will help the City better understand and communicate the consequences of continued under-funding. Likewise, it will enable the City to apply the funds that are available in a manner that is most beneficial for the overall condition of the street system. The estimated annual street system needs are more than **\$39 million**. Each year that the funding level is not achieved, the overall condition of the street system decreases. The chart below indicates the recent funding history associated with the street program.

The City's CSO projects provide substantial funding for reconstruction of city streets within the project areas. The CSO program was suspended from 2011 to 2018. The lowest amount of road funding was in 2011, due to budget cuts during a recession and funding has remained lower than pre-2011 levels, which has contributed to the decline of City streets. A voted millage in recent years has added about \$2 million for use on residential streets.

City Street Network

The COL has historically spent \$1.5 to \$2.5 million annually on pavement-related major street projects. Over the next three years, the COL plans to spend approximately \$3,500,000 or more on city major-network projects consisting of, but not limited to, reconstruction, overlay, and preventive maintenance. Spending on projects depends on revenue from Michigan Transportation Fund (MTF), millage and federal/state programs.

City Minor Network

The COL has historically spent about \$1million of the annual streets budget on pavement-related projects. Over the next three years, the COL plans to spend \$4,500,000 or more on city minor-network projects consisting of, but not limited to reconstruction, overlay, and preventive maintenance. Spending on projects depends on revenue from Michigan Transportation Fund (MTF), millage, and federal/state programs.

3. RISK OF FAILURE ANALYSIS

Transportation infrastructure is designed to be resilient. The system of interconnecting roads and bridges maintained by the COL provides road users with multiple alternate options in the event of an unplanned disruption of one part of the system. There may be, however, key links in a transportation system that may cause significant inconvenience to users if unexpectedly closed to traffic. The following types of situations may be considered critical points of a system:

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

The City of Lansing has no critical assets considered key links based on the above criteria. There are multiple alternate options to navigate the City in the event a road is closed.

4. COORDINATION WITH OTHER ENTITIES

An asset management plan provides a significant value for infrastructure owners because it serves as a platform to engage other infrastructure owners using the same shared right of way space. The COL communicates with both public and private infrastructure owners to coordinate work in the following ways:

- The City of Lansing holds quarterly meetings with the major utilities to discuss and coordinate projects. This includes Consumers Energy, who supplies the gas for the City. Consumers has ongoing infrastructure upgrade projects through the City, as well as any upgrading needed ahead of planned city projects. With the quarterly meetings and close communication, the City is able to coordinate projects.
- The City also holds quarterly utility meetings with the Lansing Board of Water and Light (BWL), who maintains the drinking water, electricity and steam lines in the City. The BWL often partners with the City on projects to perform any necessary upgrades to their systems in conjunction with city projects. The BWL performs system upgrade projects independently as well, with efforts coordinated with the City to ensure traffic detours do not excessively impede traffic flow.
- The biggest coordination efforts between the utilities and the City is the City's Combined Sewer Overflow (CSO) separation program. Projects are planned years in advance and all infrastructure is updated at once. The streets within the project areas are generally reconstructed when the sewers are replaced. By upgrading the infrastructure all at once, the City does not anticipate major construction needs in an area again for at least 20 years.
- The City also has good working relationships with surrounding community and county agencies. If a project impacts a nearby agency, the City tries to alert them so that any necessary coordination can take place. The City maintains a map of all planned projects on their website, which includes any utility or MDOT projects within the area as well.

APPENDIX A: PAVED CITY MAJOR STREET PLANNED PROJECTS

ID	PRNo	RoadName	Length	FromDesc	ToDesc	SurfaceType	SurfaceSubType	LastPASERRating	LastPASERRatingDate	Lanes	NFC
2023 Major Chipseal	345706	Executive Dr	0.127	Miller	Andrew Jackson Dr	Asphalt	Asphalt-Standard	9: Good	9/22/2023	2	MajColl
2023 Major Chipseal	345706	Executive Dr	0.267	Andrew Jackson Dr	Keystone	Asphalt	Asphalt-Standard	9: Good	9/22/2023	2	MajColl
2023 Major Chipseal	336107	Keystone Ave	0.16	Pennsylvania	Lamone	Asphalt	Asphalt-Standard	9: Good	9/22/2023	2	MajColl
2023 Major Chipseal	336107	Keystone Ave	0.038	Lamone	Executive	Asphalt	Asphalt-Standard	9: Good	9/22/2023	2	MajColl
2023 Major Chipseal	336107	Keystone Ave	0.089	Executive	Commerce	Asphalt	Asphalt-Standard	9: Good	9/22/2023	2	MajColl
2023 Major Chipseal	336107	Keystone Ave	0.182	Commerce	Enterprise	Asphalt	Asphalt-Standard	9: Good	9/22/2023	2	MajColl
34E	342405	W Greenlawn Ave	0.1	Washington	Wakefield Ave	Asphalt	Asphalt-Standard	5: Fair	8/18/2022	2	MajColl
34E	342405	W Greenlawn Ave	0.078	Wakefield Ave	Wayburn	Asphalt	Asphalt-Standard	5: Fair	8/18/2022	4	MajColl
34E	342405	W Greenlawn Ave	0.07	Wayburn	Eaton	Asphalt	Asphalt-Standard	5: Fair	8/18/2022	2	MajColl
2023 Major Chipseal	342302	W Holmes Rd	0.184	Waverly	Bridge 3931	Asphalt	Asphalt-Standard	9: Good	9/22/2023	3	MinArt
2023 Major Chipseal	342302	W Holmes Rd	0.038	Bridge 3931	Berwick Dr	Asphalt	Asphalt-Standard	9: Good	9/22/2023	3	MinArt
2023 Major Chipseal	342302	W Holmes Rd	0.175	Berwick Dr	Lawdor Rd	Asphalt	Asphalt-Standard	9: Good	9/22/2023	3	MinArt
2023 Major Chipseal	342302	W Holmes Rd	0.066	Lawdor Rd	Churchill Ave	Asphalt	Asphalt-Standard	9: Good	9/22/2023	3	MinArt
2023 Major Chipseal	342302	W Holmes Rd	0.106	Churchill Ave	S Deerfield Ave	Asphalt	Asphalt-Standard	9: Good	9/22/2023	3	MinArt
2023 Major Chipseal	342302	W Holmes Rd	0.075	S Deerfield Ave	S Catherine St	Asphalt	Asphalt-Standard	9: Good	9/22/2023	3	MinArt
2023 Major Chipseal	342302	W Holmes Rd	0.085	S Catherine St	Ingham St	Asphalt	Asphalt-Standard	9: Good	9/22/2023	3	MinArt
2023 Major Chipseal	342302	W Holmes Rd	0.081	Ingham St	Viking St	Asphalt	Asphalt-Standard	9: Good	9/22/2023	3	MinArt
2023 Major Chipseal	342302	W Holmes Rd	0.078	Viking St	Avalon St	Asphalt	Asphalt-Standard	9: Good	9/22/2023	3	MinArt
2023 Major Chipseal	342302	W Holmes Rd	0.099	Avalon St	Maloney St	Asphalt	Asphalt-Standard	9: Good	9/22/2023	3	MinArt
2023 Major Chipseal	342302	W Holmes Rd	0.076	Maloney St	Pleasant Grove	Asphalt	Asphalt-Standard	9: Good	9/22/2023	3	MinArt

ID	PRNo	RoadName	Length	FromDesc	ToDesc	SurfaceType	SurfaceSubType	LastPASERRating	LastPASERRatingDate	Lanes	NFC
Pennsylvania Ave 2025	335905	S Pennsylvania Ave	0.039	Mount Hope	Pershing Dr	Asphalt	Asphalt-Standard	2: Poor	8/18/2022	4	MinArt
Pennsylvania Ave 2025	335905	S Pennsylvania Ave	0.054	S Pennsylvania Ave	S Pennsylvania Ave	Asphalt	Asphalt-Standard	2: Poor	8/18/2022	2	MinArt
Pennsylvania Ave 2025	335905	S Pennsylvania Ave	0.026	Mount Hope	Pershing Dr	Asphalt	Asphalt-Standard	2: Poor	8/18/2022	4	MinArt
Pennsylvania Ave 2025	335905	S Pennsylvania Ave	0.097	Pershing Dr	S Pennsylvania Ave	Asphalt	Asphalt-Standard	2: Poor	8/18/2022	2	MinArt
Pennsylvania Ave 2025	335905	S Pennsylvania Ave	0.014	Parkdale St	Motor Ave	Asphalt	Asphalt-Standard	2: Poor	8/18/2022	4	MinArt
Pennsylvania Ave 2025	335905	S Pennsylvania Ave	0.015	Motor Ave	Baker	Asphalt	Asphalt-Standard	2: Poor	8/18/2022	4	MinArt
Pennsylvania Ave 2025	335905	S Pennsylvania Ave	0.031	S Pennsylvania Ave	S Pennsylvania Ave	Asphalt	Asphalt-Standard	2: Poor	8/18/2022	2	MinArt
Pennsylvania Ave 2025	335905	S Pennsylvania Ave	0.041	Motor Ave	Baker	Asphalt	Asphalt-Standard	2: Poor	8/18/2022	4	MinArt
Pennsylvania Ave 2025	335905	S Pennsylvania Ave	0.061	Baker St	S Pennsylvania Ave	Asphalt	Asphalt-Standard	2: Poor	8/18/2022	2	MinArt
Pennsylvania Ave 2025	335905	S Pennsylvania Ave	0.024	Baker	Lindbergh	Asphalt	Asphalt-Standard	2: Poor	8/18/2022	4	MinArt
Pennsylvania Ave 2025	335905	S Pennsylvania Ave	0.014	Lindbergh	Fayette St	Concrete	Concrete-Standard	2: Poor	8/18/2022	5	MinArt
Pennsylvania Ave 2025	6701433	S Pennsylvania Ave	0.055	S Pennsylvania Ave	S Pennsylvania Ave	Asphalt	Asphalt-Standard	2: Poor	8/18/2022	2	MinArt
Pennsylvania Ave 2025	6701434	S Pennsylvania Ave	0.098	Pershing Dr	S Pennsylvania Ave	Asphalt	Asphalt-Standard	2: Poor	8/18/2022	2	MinArt
Pennsylvania Ave 2025	6701435	S Pennsylvania Ave	0.032	S Pennsylvania Ave	S Pennsylvania Ave	Asphalt	Asphalt-Standard	2: Poor	8/18/2022	2	MinArt
Pennsylvania Ave 2025	6701436	S Pennsylvania Ave	0.063	Baker St	S Pennsylvania Ave	Asphalt	Asphalt-Standard	2: Poor	8/18/2022	2	MinArt
Michigan Avenue	335507	E Michigan Ave	0.082	S Pennsylvania Ave	Bingham	Asphalt	Asphalt-Standard	4: Poor	8/18/2022	5	PrincArt

ID	PRNo	RoadName	Length	FromDesc	ToDesc	SurfaceType	SurfaceSubType	LastPASERRating	LastPASERRatingDate	Lanes	NFC
Michigan Avenue	335507	E Michigan Ave	0.183	Bingham	N Holmes and S Holmes	Asphalt	Asphalt-Standard	4: Poor	8/18/2022	5	PrincArt
Michigan Avenue	335507	E Michigan Ave	0.074	N Holmes St & S Holmes St	Ferguson St	Asphalt	Asphalt-Standard	4: Poor	8/18/2022	5	PrincArt
Michigan Avenue	335507	E Michigan Ave	0.084	Ferguson St	Clifford St	Asphalt	Asphalt-Standard	4: Poor	8/18/2022	5	PrincArt
Michigan Avenue	335507	E Michigan Ave	0.026	Clifford St	Custer Ave	Asphalt	Asphalt-Standard	4: Poor	8/18/2022	5	PrincArt
Michigan Avenue	335507	E Michigan Ave	0.03	Custer Ave	Lathrop St	Asphalt	Asphalt-Standard	4: Poor	8/18/2022	5	PrincArt
Michigan Avenue	335507	E Michigan Ave	0.062	Lathrop St	Allen St	Asphalt	Asphalt-Standard	4: Poor	8/18/2022	5	PrincArt
Michigan Avenue	335507	E Michigan Ave	0.064	Allen St	Marshall	Asphalt	Asphalt-Standard	4: Poor	8/18/2022	5	PrincArt
Michigan Avenue	335507	E Michigan Ave	0.059	Marshall	Leslie St	Asphalt	Asphalt-Standard	4: Poor	8/18/2022	5	PrincArt
Michigan Avenue	335507	E Michigan Ave	0.05	Leslie St	Horton	Asphalt	Asphalt-Standard	4: Poor	8/18/2022	5	PrincArt
Michigan Avenue	335507	E Michigan Ave	0.01	Horton	Regent	Asphalt	Asphalt-Standard	4: Poor	8/18/2022	5	PrincArt
Michigan Avenue	335507	E Michigan Ave	0.063	Regent	Clemens	Asphalt	Asphalt-Standard	4: Poor	8/18/2022	5	PrincArt
Michigan Avenue	335507	E Michigan Ave	0.064	Clemens	Fairview	Asphalt	Asphalt-Standard	4: Poor	8/18/2022	5	PrincArt
Michigan Avenue	335507	E Michigan Ave	0.062	Fairview	Magnolia	Asphalt	Asphalt-Standard	4: Poor	8/18/2022	5	PrincArt
Michigan Avenue	335507	E Michigan Ave	0.06	Magnolia	S Hayford Ave	Asphalt	Asphalt-Standard	4: Poor	8/18/2022	5	PrincArt
Michigan Avenue	335507	E Michigan Ave	0.064	S Hayford Ave	S Foster Ave & N Foster Ave	Asphalt	Asphalt-Standard	4: Poor	8/18/2022	5	PrincArt
Michigan Avenue	335507	E Michigan Ave	0.061	S Foster Ave & N Foster Ave	N Francis Ave & S Francis Ave	Asphalt	Asphalt-Standard	4: Poor	8/18/2022	5	PrincArt
Michigan Avenue	335507	E Michigan Ave	0.064	N Francis Ave & S Francis Ave	Kipling Blvd & Mifflin Ave	Asphalt	Asphalt-Standard	4: Poor	8/18/2022	5	PrincArt

ID	PRNo	RoadName	Length	FromDesc	ToDesc	SurfaceType	SurfaceSubType	LastPASERRating	LastPASERRatingDate	Lanes	NFC
Michigan Avenue	335507	E Michigan Ave	0.026	Kipling Blvd & Mifflin Ave	Michigan	Asphalt	Asphalt-Standard	4: Poor	8/18/2022	5	PrincArt
Michigan Avenue	335507	E Michigan Ave	0.04	division	Charles	Asphalt	Asphalt-Standard	4: Poor	9/16/2021	3	PrincArt
Michigan Avenue	335507	E Michigan Ave	0.07	Charles	Detroit	Asphalt	Asphalt-Standard	4: Poor	9/16/2021	3	PrincArt
Michigan Avenue	335507	E Michigan Ave	0.07	Detroit St	Howard St	Asphalt	Asphalt-Standard	4: Poor	9/16/2021	3	PrincArt
Michigan Avenue	3330500	E Michigan Ave	0.039	Michigan	Charles St	Asphalt	Asphalt-Standard	2: Poor	8/18/2022	2	PrincArt
Michigan Avenue	3330500	E Michigan Ave	0.07	Charles St	Detroit St	Asphalt	Asphalt-Standard	2: Poor	8/18/2022	2	PrincArt
Michigan Avenue	3330500	E Michigan Ave	0.069	Detroit	N Howard St	Asphalt	Asphalt-Standard	2: Poor	8/18/2022	3	PrincArt

APPENDIX B: PAVED CITY MINOR STREET PLANNED PROJECTS

ID	PRNo	RoadName	Length	FromDesc	ToDesc	SurfaceType	SurfaceSubType	LastPASERRating	LastPASERRatingDate	Lanes	NFC
2023 BWL	345508	Glendale Ave	0.134	Cedar	Wildwood Ave	Asphalt	Asphalt-Standard	2: Poor	9/6/2023	2	Local
2023 BWL	345508	Glendale Ave	0.125	Wildwood Ave	Southgate	Asphalt	Asphalt-Standard	2: Poor	9/18/2023	2	Local
2023 BWL	345508	Glendale Ave	0.092	Southgate	Parkway	Asphalt	Asphalt-Standard	5: Fair	9/18/2023	2	Local
2023 BWL	345404	Parkway Dr	0.108	Hunter	Ridgewood	Asphalt	Asphalt-Standard	1: Poor	9/13/2023	2	Local
2023 BWL	345404	Parkway Dr	0.055	Ridgewood	Irvington	Asphalt	Asphalt-Standard	1: Poor	9/13/2023	2	Local
2023 BWL	345404	Parkway Dr	0.048	Irvington	Glendale	Asphalt	Asphalt-Standard	1: Poor	9/6/2023	2	Local
2023 BWL	345404	Parkway Dr	0.047	Glendale	Vernon	Asphalt	Asphalt-Standard	1: Poor	9/6/2023	2	Local
2023 BWL	336302	Vernon Ave	0.134	Cedar	Wildwood	Asphalt	Asphalt-Standard	1: Poor	9/6/2023	2	Local
2023 BWL	336302	Vernon Ave	0.127	Wildwood	Southgate	Asphalt	Asphalt-Standard	5: Fair	9/6/2023	2	Local
2023 BWL	336302	Vernon Ave	0.093	Southgate	Parkway	Asphalt	Asphalt-Standard	1: Poor	9/6/2023	2	Local
2023 BWL	336302	Vernon Ave	0.063	Parkway	Homewood Ave	Asphalt	Asphalt-Standard	1: Poor	9/6/2023	2	Local
2023 BWL	336302	Vernon Ave	0.052	Homewood Ave	Glenwood Ave	Asphalt	Asphalt-Standard	1: Poor	9/6/2023	2	Local
2023 BWL	336302	Vernon Ave	0.053	Glenwood Ave	Pennsylvania	Asphalt	Asphalt-Standard	1: Poor	9/6/2023	2	Local
34E	342407	E Rockford Rd	0.047	Washington	Markley Pl	Asphalt	Asphalt-Standard	10: Good	9/18/2023	2	Local
34E	342407	E Rockford Rd	0.042	Markley Pl	Kensington Rd	Asphalt	Asphalt-Standard	10: Good	9/18/2023	2	Local
34E	342407	E Rockford Rd	0.049	Kensington Rd	Strathmore Rd	Asphalt	Asphalt-Standard	3: Poor	9/18/2023	2	Local
34E	342407	E Rockford Rd	0.061	Strathmore Rd	E Rockford Rd	Asphalt	Asphalt-Standard	3: Poor	9/18/2023	2	Local
34E	343018	Eaton Rd	0.102	Strathmore	Greenlawn	Asphalt	Asphalt-Standard	3: Poor	9/18/2023	2	Local
34E	343018	Eaton Rd	0.029	Greenlawn	Dead End or Start	Asphalt	Asphalt-Standard	1: Poor	9/18/2023	2	Local
34E	343406	Greencroft Rd	0.158	Washington	Strathmore	Asphalt	Asphalt-Standard	3: Poor	9/18/2023	2	Local

ID	PRNo	RoadName	Length	FromDesc	ToDesc	SurfaceType	SurfaceSubType	LastPASERRating	LastPASERRatingDate	Lanes	NFC
34E	343408	Kensington Rd	0.057	Washington	Wakefield Ave	Asphalt	Asphalt-Standard	4: Poor	9/18/2023	2	Local
34E	343408	Kensington Rd	0.055	Wakefield Ave	Wayburn Rd	Asphalt	Asphalt-Standard	4: Poor	9/18/2023	2	Local
34E	343408	Kensington Rd	0.084	Wayburn Rd	Rockford	Asphalt	Asphalt-Standard	3: Poor	9/18/2023	2	Local
34E	343408	Kensington Rd	0.104	Rockford	Washington	Asphalt	Asphalt-Standard	4: Poor	9/18/2023	2	Local
34E	343403	Markley Pl	0.067	Wayburn	Rockford	Asphalt	Asphalt-Standard	10: Good	9/18/2023	2	Local
34E	343407	Strathmore Rd	0.079	Washington	Wakefield	Asphalt	Asphalt-Standard	7: Fair	9/18/2023	2	Local
34E	343407	Strathmore Rd	0.076	Wakefield	Wayburn	Asphalt	Asphalt-Standard	10: Good	9/18/2023	2	Local
34E	343407	Strathmore Rd	0.096	Wayburn	Eaton Rd	Asphalt	Asphalt-Standard	7: Fair	9/18/2023	2	Local
34E	343407	Strathmore Rd	0.043	Eaton Rd	W Rockford Rd	Asphalt	Asphalt-Standard	6: Fair	9/18/2023	2	Local
34E	343407	Strathmore Rd	0.079	W Rockford Rd	Greencroft	Asphalt	Asphalt-Standard	6: Fair	9/18/2023	2	Local
34E	343407	Strathmore Rd	0.084	Greencroft	Washington	Asphalt	Asphalt-Standard	4: Poor	9/18/2023	2	Local
34E	343006	Wakefield Ave	0.048	Greenlawn	Strathmore	Asphalt	Asphalt-Standard	1: Poor	9/18/2023	2	Local
34E	343006	Wakefield Ave	0.047	Strathmore	Kensington	Asphalt	Asphalt-Standard	1: Poor	9/18/2023	2	Local
34E	343007	Wayburn Rd	0.05	Greenlawn	Strathmore Rd	Asphalt	Asphalt-Standard	1: Poor	9/18/2023	2	Local
34E	343007	Wayburn Rd	0.047	Strathmore Rd	Kensington	Asphalt	Asphalt-Standard	1: Poor	9/18/2023	2	Local
34E	343007	Wayburn Rd	0.044	Kensington	Markley	Asphalt	Asphalt-Standard	10: Good	9/18/2023	2	Local
34E	343007	Wayburn Rd	0.052	Markley	Washington	Asphalt	Asphalt-Standard	10: Good	9/18/2023	2	Local
CSO 34D (2023)	342004	Kelsey Ave	0.108	Marion	Martin Luther King Jr	Asphalt	Asphalt-Standard	1: Poor	9/10/2020	2	Local
CSO 34D (2023)	342003	Loraine Ave	0.122	Pattengill	Marion	Asphalt	Asphalt-Standard	5: Fair	9/10/2020	2	Local
CSO 34D (2023)	342003	Loraine Ave	0.11	Marion	Martin Luther King Jr	Asphalt	Asphalt-Standard	3: Poor	9/10/2020	2	Local

ID	PRNo	RoadName	Length	FromDesc	ToDesc	SurfaceType	SurfaceSubType	LastPASERRating	LastPASERRatingDate	Lanes	NFC
CSO 34D (2023)	342602	Marion Ave	0.054	Victor	Rundle	Asphalt	Asphalt-Standard	4: Poor	9/10/2020	2	Local
CSO 34D (2023)	342602	Marion Ave	0.051	Rundle	Loraine	Asphalt	Asphalt-Standard	4: Poor	9/10/2020	2	Local
CSO 34D (2023)	342602	Marion Ave	0.051	Loraine	Kelsey Ave	Asphalt	Asphalt-Standard	4: Poor	9/10/2020	2	Local
CSO 34D (2023)	342002	S Rundle Ave	0.122	Pattengill Ave	Marion Ave	Asphalt	Asphalt-Standard	1: Poor	9/10/2020	2	Local
CSO 34D (2023)	342002	S Rundle Ave	0.112	Marion Ave	S Martin Luther King Jr Blvd	Asphalt	Asphalt-Standard	1: Poor	9/10/2020	2	Local
CSO 34D (2023)	3330548	Victor Ave	0.119	Pattengill	Marion	Asphalt	Asphalt-Standard	2: Poor	9/10/2020	2	Local
CSO 34D (2023)	3330548	Victor Ave	0.048	Marion	Kellybrook Ln	Asphalt	Asphalt-Standard	2: Poor	9/10/2020	2	Local
CSO 34D (2023)	3330548	Victor Ave	0.078	Kellybrook Ln	Martin Luther King Jr	Asphalt	Asphalt-Standard	2: Poor	9/10/2020	2	Local
Eastside Locals 2023	340701	Allen St	0.077	Michigan	Jerome	Asphalt	Asphalt-Standard	9: Good	9/19/2023	2	Local
Eastside Locals 2023	341005	Bensch St	0.104	Perkins St	Walsh	Asphalt	Asphalt-Standard	1: Poor	8/23/2023	2	Local
Eastside Locals 2023	341005	Bensch St	0.103	Walsh	Gray	Asphalt	Asphalt-Standard	1: Poor	8/23/2023	2	Local
Eastside Locals 2023	340609	Clifford St	0.088	Eureka	Michigan	Asphalt	Asphalt-Standard	9: Good	9/19/2023	2	Local
Eastside Locals 2023	340507	Custer Ave	0.078	Michigan	Jerome	Asphalt	Asphalt-Standard	9: Good	9/19/2023	2	Local
Eastside Locals 2023	340904	Lathrop St	0.103	Perkins	Walsh	Asphalt	Asphalt-Standard	1: Poor	8/23/2023	2	Local
Eastside Locals 2023	340904	Lathrop St	0.094	Walsh	Gray	Asphalt	Asphalt-Standard	1: Poor	8/23/2023	2	Local
Eastside Locals 2023	341001	Leslie St	0.103	Perkins St	Walsh	Asphalt	Asphalt-Standard	2: Poor	8/23/2023	2	Local
Eastside Locals 2023	341001	Leslie St	0.13	Walsh	Main	Asphalt	Asphalt-Standard	2: Poor	8/23/2023	2	Local
Eastside Locals 2023	340704	N Foster Ave	0.178	Prospect	Michigan	Asphalt	Asphalt-Standard	9: Good	9/19/2023	2	Local
Eastside Locals 2023	338510	N High St	0.121	Porter		Asphalt	Asphalt-Standard	1: Poor	8/5/2022	2	Local
Eastside Locals 2023	3331762	Perkins St	0.059	Shepard St	Leslie St	Asphalt	Asphalt-Standard	1: Poor	8/23/2023	2	Local

ID	PRNo	RoadName	Length	FromDesc	ToDesc	SurfaceType	SurfaceSubType	LastPASERRating	LastPASERRatingDate	Lanes	NFC
Eastside Locals 2023	3331762	Perkins St	0.06	Leslie St	Regent	Asphalt	Asphalt-Standard	1: Poor	8/23/2023	2	Local
Eastside Locals 2023	335506	Prospect St	0.061	Foster	Francis	Asphalt	Asphalt-Standard	9: Good	9/19/2023	2	Local
Eastside Locals 2023	335506	Prospect St	0.065	Francis	Mifflin	Asphalt	Asphalt-Standard	9: Good	9/19/2023	2	Local
Eastside Locals 2023	3330724	Regent St	0.04	Main	Main	Asphalt	Asphalt-Standard	1: Poor	8/23/2023	2	Local
Eastside Locals 2023	3330724	Regent St	0.089	Main	Walsh	Asphalt	Asphalt-Standard	1: Poor	8/23/2023	2	Local
Eastside Locals 2023	3330724	Regent St	0.104	Walsh	Perkins	Asphalt	Asphalt-Standard	1: Poor	8/23/2023	2	Local
Eastside Locals 2023	338806	Sheldon St	0.101	Otto	Maryland	Asphalt	Asphalt-Standard	1: Poor	8/5/2022	2	Local
Eastside Locals 2023	338806	Sheldon St	0.056	Maryland	Dead End or Start	Asphalt	Asphalt-Standard	1: Poor	8/5/2022	2	Local
Eastside Locals 2023	1821703	Trappers Cove Trl	0.161	Beau Jardin	Pavement change	Asphalt	Asphalt-Standard	1: Poor	8/30/2023	2	Local
Eastside Locals 2023	1821703	Trappers Cove Trl	0.09			Asphalt	Asphalt-Standard	1: Poor	8/30/2023	2	Local
Eastside Locals 2023	1821703	Trappers Cove Trl	0.101			Asphalt	Asphalt-Standard	1: Poor	8/30/2023	2	Local
Eastside Locals 2023	1821703	Trappers Cove Trl	0.224		Dunckel	Asphalt	Asphalt-Standard	1: Poor	8/30/2023	2	Local
Eastside Locals 2023	3331788	Walsh St	0.057	Holmes	Bensch	Asphalt	Asphalt-Standard	1: Poor	8/23/2023	2	Local
Eastside Locals 2023	3331788	Walsh St	0.058	Bensch	Dakin	Asphalt	Asphalt-Standard	2: Poor	8/23/2023	2	Local
Eastside Locals 2023	3331788	Walsh St	0.056	Dakin	Mccullough	Asphalt	Asphalt-Standard	1: Poor	8/23/2023	2	Local
Eastside Locals 2023	3331788	Walsh St	0.057	Mccullough	Lathrop	Asphalt	Asphalt-Standard	1: Poor	8/23/2023	2	Local
Eastside Locals 2023	3331788	Walsh St	0.06	Shepard	Leslie	Asphalt	Asphalt-Standard	1: Poor	8/23/2023	2	Local
Eastside Locals 2023	3331788	Walsh St	0.057	Leslie	Regent	Asphalt	Asphalt-Standard	1: Poor	8/23/2023	2	Local
Eastside Locals 2023	3331788	Walsh St	0.059	Regent	Clemens	Asphalt	Asphalt-Standard	1: Poor	8/23/2023	2	Local
Eastside Locals 2023	337209	Belle Chase Blvd	0.107	Jolly	Beau Jardin	Asphalt	Asphalt-Standard	1: Poor	8/30/2023	2	Local

ID	PRNo	RoadName	Length	FromDesc	ToDesc	SurfaceType	SurfaceSubType	LastPASERRating	LastPASERRatingDate	Lanes	NFC
Frاندورا Hills	339214	Fairway Ct	0.052	Fairway Ln	Fairway Ct	Asphalt	Asphalt-Standard	1: Poor	6/4/2021	1	Local
Frاندورا Hills	6800220	Fairway Ct	0.052	Fairway Ln	Fairway Ct	Asphalt	Asphalt-Standard	3: Poor	6/4/2021	1	Local
Frاندورا Hills	339107	Fairway Ln	0.059	Dead End or Start	Melody	Asphalt	Asphalt-Standard	2: Poor	6/4/2021	2	Local
Frاندورا Hills	339107	Fairway Ln	0.061	Melody	Fairway Ln	Asphalt	Asphalt-Standard	2: Poor	6/4/2021	2	Local
Frاندورا Hills	339107	Fairway Ln	0.073	Fairway Ln	Clippert	Asphalt	Asphalt-Standard	2: Poor	6/4/2021	2	Local
Frاندورا Hills	339107	Fairway Ln	0.033	Clippert	Fairway	Asphalt	Asphalt-Standard	1: Poor	6/4/2021	2	Local
Frاندورا Hills	339107	Fairway Ln	0.013	Clippert	Fairway	Asphalt	Asphalt-Standard	1: Poor	6/4/2021	2	Local
Frاندورا Hills	339107	Fairway Ln	0.128	Fairway	Fairway Ct	Asphalt	Asphalt-Standard	1: Poor	6/4/2021	2	Local
Frاندورا Hills	339107	Fairway Ln	0.08	Fairway Ct	Hillgate	Asphalt	Asphalt-Standard	1: Poor	6/4/2021	2	Local
Frاندورا Hills	339107	Fairway Ln	0.131	Hillgate	Shelter Ln	Asphalt	Asphalt-Standard	1: Poor	6/4/2021	2	Local
Frاندورا Hills	339107	Fairway Ln	0.058	Shelter Ln	Coolidge	Asphalt	Asphalt-Standard	2: Poor	6/4/2021	2	Local
Frاندورا Hills	339206	Hillgate Cir	0.025	Hillgate	Dead End or Start	Asphalt	Asphalt-Standard	4: Poor	6/4/2021	2	Local
Frاندورا Hills	339109	Hillgate Way	0.115	Shelter	Hillgate Cir	Asphalt	Asphalt-Standard	2: Poor	6/4/2021	2	Local
Frاندورا Hills	339109	Hillgate Way	0.062	Hillgate Cir	Stonewood	Asphalt	Asphalt-Standard	1: Poor	6/4/2021	2	Local
Frاندورا Hills	339201	Melody Ln	0.151	Holiday	Coolidge	Asphalt	Asphalt-Standard	1: Poor	6/4/2021	2	Local
Frاندورا Hills	340803	N Clippert St	0.037	Grand River	Fairway	Asphalt	Asphalt-Standard	4: Poor	6/4/2021	2	Local
Frاندورا Hills	339106	Shelter Ln	0.165	Fairway	Shelter	Asphalt	Asphalt-Standard	1: Poor	6/4/2021	2	Local
Frاندورا Hills	339108	Shelter Ln	0.052	Shelter	Hillgate	Asphalt	Asphalt-Standard	2: Poor	6/4/2021	2	Local
Frاندورا Hills	339108	Shelter Ln	0.149	Hillgate	Stonewood	Asphalt	Asphalt-Standard	1: Poor	6/4/2021	2	Local
Westside Locals 2023	343803	Belaire Dr	0.132	Edwin	Wellesly Dr	Asphalt	Asphalt-Standard	1: Poor	7/22/2022	2	Local

ID	PRNo	RoadName	Length	FromDesc	ToDesc	SurfaceType	SurfaceSubType	LastPASERRating	LastPASERRatingDate	Lanes	NFC
Westside Locals 2023	343803	Belaire Dr	0.074	Wellesly Dr	Hampden	Asphalt	Asphalt-Standard	1: Poor	7/22/2022	2	Local
Westside Locals 2023	344812	Bernard St	0.054	Richmond		Asphalt	Asphalt-Standard	1: Poor	7/1/2022	2	Local
Westside Locals 2023	344812	Bernard St	0.037		Wadsworth	Asphalt	Asphalt-Standard	1: Poor	7/1/2022	2	Local
Westside Locals 2023	344001	Cooley Dr	0.058	Rossiter	Hanover	Asphalt	Asphalt-Standard	1: Poor	7/22/2022	2	Local
Westside Locals 2023	344109	Gingersnap Ln	0.034	pavement change	Rice	Asphalt	Asphalt-Standard	1: Poor	7/29/2022	2	Local
Westside Locals 2023	344109	Gingersnap Ln	0.099	Rice	Norwich	Asphalt	Asphalt-Standard	1: Poor	7/29/2022	2	Local
Westside Locals 2023	344009	Glasgow Dr	0.108	Oban	Deerfield	Asphalt	Asphalt-Standard	1: Poor	7/8/2022	2	Local
Westside Locals 2023	343806	Hanover Dr	0.058	Edwin	Wellesly	Asphalt	Asphalt-Standard	1: Poor	7/22/2022	2	Local
Westside Locals 2023	343907	Norwich Rd	0.145	Kilberry	Argyll Dr	Asphalt	Asphalt-Standard	1: Poor	7/29/2022	2	Local
Westside Locals 2023	343907	Norwich Rd	0.072	Argyll Dr	Dunlap St	Asphalt	Asphalt-Standard	1: Poor	7/29/2022	2	Local
Westside Locals 2023	343907	Norwich Rd	0.039	Dunlap St	Rice Ct	Asphalt	Asphalt-Standard	1: Poor	7/29/2022	2	Local
Westside Locals 2023	343907	Norwich Rd	0.054	Rice Ct	Gingersnap Ln	Asphalt	Asphalt-Standard	1: Poor	7/29/2022	2	Local
Westside Locals 2023	343907	Norwich Rd	0.058	Gingersnap Ln	Brisbane Dr	Asphalt	Asphalt-Standard	1: Poor	7/29/2022	2	Local
Westside Locals 2023	344709	Richmond St	0.093	Bernard	Ferrol	Asphalt	Asphalt-Standard	1: Poor	7/1/2022	2	Local
Westside Locals 2023	344708	S Wadsworth Dr	0.095	Calvin	Hillcrest	Asphalt	Asphalt-Standard	1: Poor	7/1/2022	2	Local
Westside Locals 2023	344708	S Wadsworth Dr	0.161	Hillcrest	Richmond	Asphalt	Asphalt-Standard	1: Poor	7/1/2022	2	Local
Westside Locals 2023	341601	Everett Dr	0.077	Olds	William	Asphalt	Asphalt-Standard	1: Poor	7/31/2023	3	Local
Westside Locals 2023	341601	Everett Dr	0.079	William	Main	Asphalt	Asphalt-Standard	1: Poor	7/31/2023	3	Local
Westside Locals 2023	341601	Everett Dr	0.063	Saint Joseph	Hillsdale	Asphalt	Asphalt-Standard	1: Poor	7/31/2023	3	Local
Westside Locals 2023	341601	Everett Dr	0.095	Hillsdale	W Lenawee St	Asphalt	Asphalt-Standard	1: Poor	7/31/2023	3	Local

ID	PRNo	RoadName	Length	FromDesc	ToDesc	SurfaceType	SurfaceSubType	LastPASERRating	LastPASERRatingDate	Lanes	NFC
Westside Locals 2023	341601	Everett Dr	0.105	W Lenawee St	Kalamazoo	Asphalt	Asphalt-Standard	1: Poor	7/31/2023	3	Local
Westside Locals 2023	339805	W Lenawee St	0.051	West	West	Asphalt	Asphalt-Standard	1: Poor	7/31/2023	2	Local
Westside Locals 2023	340001	William St	0.019	Olds		Asphalt	Asphalt-Standard	1: Poor	7/31/2023	3	Local
Westside Locals 2023	340001	William St	0.085		Buffalo	Asphalt	Asphalt-Standard	1: Poor	7/31/2023	3	Local
Westside Locals 2023	340001	William St	0.126	Buffalo	Everett	Asphalt	Asphalt-Standard	1: Poor	7/31/2023	3	Local
2023 Major Chipseal	345706	Executive Dr	0.127	Miller	Andrew Jackson Dr	Asphalt	Asphalt-Standard	9: Good	9/22/2023	2	MajColl
2023 Major Chipseal	345706	Executive Dr	0.267	Andrew Jackson Dr	Keystone	Asphalt	Asphalt-Standard	9: Good	9/22/2023	2	MajColl
2023 Major Chipseal	336107	Keystone Ave	0.16	Pennsylvania	Lamone	Asphalt	Asphalt-Standard	9: Good	9/22/2023	2	MajColl
2023 Major Chipseal	336107	Keystone Ave	0.038	Lamone	Executive	Asphalt	Asphalt-Standard	9: Good	9/22/2023	2	MajColl
2023 Major Chipseal	336107	Keystone Ave	0.089	Executive	Commerce	Asphalt	Asphalt-Standard	9: Good	9/22/2023	2	MajColl
2023 Major Chipseal	336107	Keystone Ave	0.182	Commerce	Enterprise	Asphalt	Asphalt-Standard	9: Good	9/22/2023	2	MajColl
34E	342405	W Greenlawn Ave	0.1	Washington	Wakefield Ave	Asphalt	Asphalt-Standard	5: Fair	8/18/2022	2	MajColl
34E	342405	W Greenlawn Ave	0.078	Wakefield Ave	Wayburn	Asphalt	Asphalt-Standard	5: Fair	8/18/2022	4	MajColl
34E	342405	W Greenlawn Ave	0.07	Wayburn	Eaton	Asphalt	Asphalt-Standard	5: Fair	8/18/2022	2	MajColl
2023 Major Chipseal	342302	W Holmes Rd	0.184	Waverly	Bridge 3931	Asphalt	Asphalt-Standard	9: Good	9/22/2023	3	MinArt
2023 Major Chipseal	342302	W Holmes Rd	0.038	Bridge 3931	Berwick Dr	Asphalt	Asphalt-Standard	9: Good	9/22/2023	3	MinArt
2023 Major Chipseal	342302	W Holmes Rd	0.175	Berwick Dr	Lawdor Rd	Asphalt	Asphalt-Standard	9: Good	9/22/2023	3	MinArt
2023 Major Chipseal	342302	W Holmes Rd	0.066	Lawdor Rd	Churchill Ave	Asphalt	Asphalt-Standard	9: Good	9/22/2023	3	MinArt

ID	PRNo	RoadName	Length	FromDesc	ToDesc	SurfaceType	SurfaceSubType	LastPASERRating	LastPASERRatingDate	Lanes	NFC
2023 Major Chipseal	342302	W Holmes Rd	0.106	Churchill Ave	S Deerfield Ave	Asphalt	Asphalt-Standard	9: Good	9/22/2023	3	MinArt
2023 Major Chipseal	342302	W Holmes Rd	0.075	S Deerfield Ave	S Catherine St	Asphalt	Asphalt-Standard	9: Good	9/22/2023	3	MinArt
2023 Major Chipseal	342302	W Holmes Rd	0.085	S Catherine St	Ingham St	Asphalt	Asphalt-Standard	9: Good	9/22/2023	3	MinArt
2023 Major Chipseal	342302	W Holmes Rd	0.081	Ingham St	Viking St	Asphalt	Asphalt-Standard	9: Good	9/22/2023	3	MinArt
2023 Major Chipseal	342302	W Holmes Rd	0.078	Viking St	Avalon St	Asphalt	Asphalt-Standard	9: Good	9/22/2023	3	MinArt
2023 Major Chipseal	342302	W Holmes Rd	0.099	Avalon St	Maloney St	Asphalt	Asphalt-Standard	9: Good	9/22/2023	3	MinArt
2023 Major Chipseal	342302	W Holmes Rd	0.076	Maloney St	Pleasant Grove	Asphalt	Asphalt-Standard	9: Good	9/22/2023	3	MinArt
Pennsylvania Ave 2025	335905	S Pennsylvania Ave	0.039	Mount Hope	Pershing Dr	Asphalt	Asphalt-Standard	2: Poor	8/18/2022	4	MinArt
Pennsylvania Ave 2025	335905	S Pennsylvania Ave	0.054	S Pennsylvania Ave	S Pennsylvania Ave	Asphalt	Asphalt-Standard	2: Poor	8/18/2022	2	MinArt
Pennsylvania Ave 2025	335905	S Pennsylvania Ave	0.026	Mount Hope	Pershing Dr	Asphalt	Asphalt-Standard	2: Poor	8/18/2022	4	MinArt
Pennsylvania Ave 2025	335905	S Pennsylvania Ave	0.097	Pershing Dr	S Pennsylvania Ave	Asphalt	Asphalt-Standard	2: Poor	8/18/2022	2	MinArt
Pennsylvania Ave 2025	335905	S Pennsylvania Ave	0.014	Parkdale St	Motor Ave	Asphalt	Asphalt-Standard	2: Poor	8/18/2022	4	MinArt
Pennsylvania Ave 2025	335905	S Pennsylvania Ave	0.015	Motor Ave	Baker	Asphalt	Asphalt-Standard	2: Poor	8/18/2022	4	MinArt
Pennsylvania Ave 2025	335905	S Pennsylvania Ave	0.031	S Pennsylvania Ave	S Pennsylvania Ave	Asphalt	Asphalt-Standard	2: Poor	8/18/2022	2	MinArt
Pennsylvania Ave 2025	335905	S Pennsylvania Ave	0.041	Motor Ave	Baker	Asphalt	Asphalt-Standard	2: Poor	8/18/2022	4	MinArt
Pennsylvania Ave 2025	335905	S Pennsylvania Ave	0.061	Baker St	S Pennsylvania Ave	Asphalt	Asphalt-Standard	2: Poor	8/18/2022	2	MinArt
Pennsylvania Ave 2025	335905	S Pennsylvania Ave	0.024	Baker	Lindbergh	Asphalt	Asphalt-Standard	2: Poor	8/18/2022	4	MinArt
Pennsylvania Ave 2025	335905	S Pennsylvania Ave	0.014	Lindbergh	Fayette St	Concrete	Concrete-Standard	2: Poor	8/18/2022	5	MinArt

ID	PRNo	RoadName	Length	FromDesc	ToDesc	SurfaceType	SurfaceSubType	LastPASERRating	LastPASERRatingDate	Lanes	NFC
Pennsylvania Ave 2025	6701433	S Pennsylvania Ave	0.055	S Pennsylvania Ave	S Pennsylvania Ave	Asphalt	Asphalt-Standard	2: Poor	8/18/2022	2	MinArt
Pennsylvania Ave 2025	6701434	S Pennsylvania Ave	0.098	Pershing Dr	S Pennsylvania Ave	Asphalt	Asphalt-Standard	2: Poor	8/18/2022	2	MinArt
Pennsylvania Ave 2025	6701435	S Pennsylvania Ave	0.032	S Pennsylvania Ave	S Pennsylvania Ave	Asphalt	Asphalt-Standard	2: Poor	8/18/2022	2	MinArt
Pennsylvania Ave 2025	6701436	S Pennsylvania Ave	0.063	Baker St	S Pennsylvania Ave	Asphalt	Asphalt-Standard	2: Poor	8/18/2022	2	MinArt
Michigan Avenue	335507	E Michigan Ave	0.082	S Pennsylvania Ave	Bingham	Asphalt	Asphalt-Standard	4: Poor	8/18/2022	5	PrincArt
Michigan Avenue	335507	E Michigan Ave	0.183	Bingham	N Holmes and S Holmes	Asphalt	Asphalt-Standard	4: Poor	8/18/2022	5	PrincArt
Michigan Avenue	335507	E Michigan Ave	0.074	N Holmes St & S Holmes St	Ferguson St	Asphalt	Asphalt-Standard	4: Poor	8/18/2022	5	PrincArt
Michigan Avenue	335507	E Michigan Ave	0.084	Ferguson St	Clifford St	Asphalt	Asphalt-Standard	4: Poor	8/18/2022	5	PrincArt
Michigan Avenue	335507	E Michigan Ave	0.026	Clifford St	Custer Ave	Asphalt	Asphalt-Standard	4: Poor	8/18/2022	5	PrincArt
Michigan Avenue	335507	E Michigan Ave	0.03	Custer Ave	Lathrop St	Asphalt	Asphalt-Standard	4: Poor	8/18/2022	5	PrincArt
Michigan Avenue	335507	E Michigan Ave	0.062	Lathrop St	Allen St	Asphalt	Asphalt-Standard	4: Poor	8/18/2022	5	PrincArt
Michigan Avenue	335507	E Michigan Ave	0.064	Allen St	Marshall	Asphalt	Asphalt-Standard	4: Poor	8/18/2022	5	PrincArt
Michigan Avenue	335507	E Michigan Ave	0.059	Marshall	Leslie St	Asphalt	Asphalt-Standard	4: Poor	8/18/2022	5	PrincArt
Michigan Avenue	335507	E Michigan Ave	0.05	Leslie St	Horton	Asphalt	Asphalt-Standard	4: Poor	8/18/2022	5	PrincArt
Michigan Avenue	335507	E Michigan Ave	0.01	Horton	Regent	Asphalt	Asphalt-Standard	4: Poor	8/18/2022	5	PrincArt
Michigan Avenue	335507	E Michigan Ave	0.063	Regent	Clemens	Asphalt	Asphalt-Standard	4: Poor	8/18/2022	5	PrincArt
Michigan Avenue	335507	E Michigan Ave	0.064	Clemens	Fairview	Asphalt	Asphalt-Standard	4: Poor	8/18/2022	5	PrincArt
Michigan Avenue	335507	E Michigan Ave	0.062	Fairview	Magnolia	Asphalt	Asphalt-Standard	4: Poor	8/18/2022	5	PrincArt

ID	PRNo	RoadName	Length	FromDesc	ToDesc	SurfaceType	SurfaceSubType	LastPASERRating	LastPASERRatingDate	Lanes	NFC
Michigan Avenue	335507	E Michigan Ave	0.06	Magnolia	S Hayford Ave	Asphalt	Asphalt-Standard	4: Poor	8/18/2022	5	PrincArt
Michigan Avenue	335507	E Michigan Ave	0.064	S Hayford Ave	S Foster Ave & N Foster Ave	Asphalt	Asphalt-Standard	4: Poor	8/18/2022	5	PrincArt
Michigan Avenue	335507	E Michigan Ave	0.061	S Foster Ave & N Foster Ave	N Francis Ave & S Francis Ave	Asphalt	Asphalt-Standard	4: Poor	8/18/2022	5	PrincArt
Michigan Avenue	335507	E Michigan Ave	0.064	N Francis Ave & S Francis Ave	Kipling Blvd & Mifflin Ave	Asphalt	Asphalt-Standard	4: Poor	8/18/2022	5	PrincArt
Michigan Avenue	335507	E Michigan Ave	0.026	Kipling Blvd & Mifflin Ave	Michigan	Asphalt	Asphalt-Standard	4: Poor	8/18/2022	5	PrincArt
Michigan Avenue	335507	E Michigan Ave	0.04	division	Charles	Asphalt	Asphalt-Standard	4: Poor	9/16/2021	3	PrincArt
Michigan Avenue	335507	E Michigan Ave	0.07	Charles	Detroit	Asphalt	Asphalt-Standard	4: Poor	9/16/2021	3	PrincArt
Michigan Avenue	335507	E Michigan Ave	0.07	Detroit St	Howard St	Asphalt	Asphalt-Standard	4: Poor	9/16/2021	3	PrincArt
Michigan Avenue	3330500	E Michigan Ave	0.039	Michigan	Charles St	Asphalt	Asphalt-Standard	2: Poor	8/18/2022	2	PrincArt
Michigan Avenue	3330500	E Michigan Ave	0.07	Charles St	Detroit St	Asphalt	Asphalt-Standard	2: Poor	8/18/2022	2	PrincArt
Michigan Avenue	3330500	E Michigan Ave	0.069	Detroit	N Howard St	Asphalt	Asphalt-Standard	2: Poor	8/18/2022	3	PrincArt

APPENDIX C: UNPAVED STREETS

RoadName	SegmentName	FromDesc	ToDesc	SurfaceType	CurrentPASERRating	Length
8th Ave	8th Ave	Dead End or Start	Gier	Gravel	2	0.017
Annetta Rd	Annetta Rd	Kenbrook	Dead End or Start	Gravel	2	0.059
Atlas Ave	Atlas Ave	Dunlap	Dead End or Start	Gravel	2	0.026
Balzer St	Balzer St	Ferley	Dead End or Start	Gravel	2	0.048
Boettcher Ct	Boettcher Ct	Jolly	Dead End or Start	Gravel	2	0.074
Cady Ct	Cady Ct	Pennsylvania Ave	Dead End or Start	Gravel	4	0.035
Chilson Ave	Chilson Ave	Dead End or Start	[Surface Segment Split]	Gravel	2	0.138
Cross St	Cross St	Knollwood	Christopher	Gravel	2	0.061
Cypress St	Cypress St	Knollwood	Christopher	Gravel	2	0.061
Daft St	Daft St	Dead End or Start	Victoria	Gravel	2	0.015
E Harris St	E Harris St	Dead End or Start	Creston	Gravel	2	0.056
E Holmes Rd	E Holmes Rd	Holmes	Dead End or Start	Gravel	4	0.054
E Howe Ave	E Howe Ave	Dead End or Start	[Surface Segment Split]	Gravel	2	0.015
E Willard Ave	E Willard Ave	Ruth	Aurelius	Gravel	2	0.166
Eaton Ct	Eaton Ct	Martin Luther King Jr	Dead End or Start	Gravel	2	0.056
Edison Ave	Edison Ave	Alpha	Pennsylvania	Gravel	2	0.062
Elizabeth St	Elizabeth St	Hayford	S Foster Ave	Gravel	2	0.063
Elizabeth St	Elizabeth St	S Foster Ave	Francis	Gravel	2	0.061
Elmore St	Elmore St	Dead End or Start	Devonshire	Gravel	2	0.019
Elmore St	Elmore St	Clifton	Sunnyside	Gravel	2	0.051
Emily Ave	Livernois Ave		Cavanaugh	Gravel	4	0.059
Fauna Ave	Fauna Ave	Deerfield	Catherine	Gravel	2	0.067
Fauna Ave	Fauna Ave	Catherine	Ingham St	Gravel	2	0.094
Fauna Ave	Fauna Ave	Ingham St	Viking	Gravel	2	0.08
Fayette St	Fayette St	Dead End or Start	Ada	Gravel	2	0.035
Garfield St	Garfield St	Greenlawn	Lincoln	Gravel	2	0.059
Garland St	Garland St		Orchard Glen	Gravel	2	0.039
Glenn St	Glenn St	Martin Luther King Jr	Princeton	Gravel	4	0.065

RoadName	SegmentName	FromDesc	ToDesc	SurfaceType	CurrentPASE RRating	Length
Glenrose Ave	Glenrose Ave	Muskegon	Attribute Change	Gravel	2	0.035
Harton St	Harton St	Fairview	Magnolia	Gravel	4	0.063
Harton St	Harton St	Magnolia	Hayford	Gravel	4	0.062
Hoyt Ave	Hoyt Ave	Aurelius	Ruth	Gravel	2	0.164
Hughes Rd	Hughes Rd	Reo	Dead End or Start	Gravel	2	0.052
Irene St	Irene St	Aurelius	Dead End or Start	Gravel	2	0.141
Kaplin St	Kaplin St	Sunset	Dead End or Start	Gravel	2	0.087
Kenbrook Rd	Kenbrook Rd	Labelle	Annetta Rd	Gravel	2	0.07
Kenbrook Rd	Kenbrook Rd	Annetta Rd	Martin Luther King Jr	Gravel	2	0.126
Kennedy Dr	Kennedy Dr	Selfridge	Valencia	Gravel	2	0.071
Kennedy Dr	Kennedy Dr	Valencia	Hughes Rd	Gravel	2	0.072
Kennedy Dr	Kennedy Dr	Hughes Rd	Haag	Gravel	2	0.074
Kenwood Ave	Kenwood Ave	Dead End or Start	Donora	Gravel	2	0.022
Kenwood Ave	Kenwood Ave	Pennsylvania	Alpha St	Gravel	4	0.062
Kenwood Ave	Kenwood Ave	Alpha St	Dead End or Start	Gravel	2	0.042
Labelle St	Labelle St	Labelle		Gravel	2	0.034
Labelle St	Labelle St		Kenbrook Rd	Gravel	2	0.015
Labelle St	Labelle St	Kenbrook Rd	Grovenburg	Gravel	2	0.068
Lawler Ct	Lawler Ct	Chestnut	Dead End or Start	Gravel	2	0.052
Leonard Ct	Leonard Ct	Madison	Oakland	Gravel	2	0.083
Marion Ave	Marion Ave	Hillcrest	Pompton	Gravel	2	0.088
McKim Ave	McKim Ave	Dead End or Start	Donora	Gravel	2	0.02
Muskegon Ave	Muskegon Ave	Comfort		Gravel	2	0.143
Muskegon Ave	Muskegon Ave		Glenrose	Gravel	2	0.041
Muskegon Ave	Muskegon Ave	Glenrose	Robertson	Gravel	2	0.092
N Washington Ave	N Washington Ave	Reasoner	Russell	Gravel	2	0.076
Newark Ave	Newark Ave	Martin Luther King Jr	Dead End or Start	Gravel	2	0.052
Platt St	Platt St	Elm	E Hazel St	Gravel	2	0.093

RoadName	SegmentName	FromDesc	ToDesc	SurfaceType	CurrentPASERRating	Length
Redwood St	Redwood St	Glenrose	Roselawn Ave	Gravel	2	0.043
Redwood St	Redwood St	Roselawn Ave	Robertson	Gravel	2	0.051
Ruth Ave	Ruth Ave	Willard	Hoyt Ave	Gravel	2	0.273
Ruth Ave	Ruth Ave	Hoyt Ave	Dead End or Start	Gravel	2	0.073
S Grand Ave	S Grand Ave	Hazel	Dead End or Start	Gravel	2	0.03
Southbrook Ave	Southbrook Ave	Miller	Dead End or Start	Gravel	2	0.087
Southgate Ave	Southgate Ave	Vernon	Parkway	Gravel	4	0.029
Starr Ave	Starr Ave	Reo	Dead End or Start	Gravel	2	0.093
Stirling Ave	Stirling Ave	Loa	Dunlap St	Gravel	2	0.062
Stirling Ave	Stirling Ave	Dunlap St	Dead End or Start	Gravel	2	0.027
Stockman Ct	Stockman Ct	Grand River	Dead End or Start	Gravel	2	0.072
Summerville Ave	Summerville Ave	Pavement change	Daleford	Gravel	2	0.001
Summerville Ave	Summerville Ave	Pavement change	Daleford	Gravel	2	0.049
Taffy Pkwy	Taffy Pkwy	Hughes		Gravel	2	0.11
Taffy Pkwy	Taffy Pkwy		Haag	Gravel	2	0.066
Taylor St	Taylor St	Attribute Change	Randolph	Gravel	2	0.036
Tecumseh River Rd	Tecumseh Ave	Biltmore	Attribute Change	Gravel	2	0.023
W Fairfield Ave	W Fairfield Ave	Felt	Dead End or Start	Gravel	2	0.111
W Frederick Ave	W Frederick Ave	Dead End or Start	Northdale	Gravel	2	0.045
W Paulson St	W Paulson St	Felt	Dead End or Start	Gravel	2	0.093
W Willow St	E Willow St	Washington	Dead End or Start	Gravel	2	0.034
Windsor St	Windsor St	Greenoak	Tecumseh Ave	Gravel	2	0.079
Windsor St	Windsor St	Tecumseh Ave	Mildred	Gravel	2	0.094
Worden St	Worden St	Aurelius	Dead End or Start	Gravel	2	0.111

APPENDIX D

A Quick Check of Your Highway Network Health

*By Larry Galehouse, Director, National Center for Pavement Preservation
and*

Jim Sorenson, Team Leader, FHWA Office of Asset Management

Historically, many highway agency managers and administrators have tended to view their highway systems as simply a collection of projects. By viewing the network in this manner, there is a certain comfort derived from the ability to match pavement actions with their physical/functional needs. However, by only focusing on projects, opportunities for strategically managing entire road networks and asset needs are overlooked. While the “bottom up” approach is analytically possible, managing networks this way can be a daunting prospect. Instead, road agency administrators have tackled the network problem from the “top down” by allocating budgets and resources based on historical estimates of need. Implicit in this approach, is a belief that the allocated resources will be wisely used and prove adequate to achieve desirable network service levels.

Using a quick checkup tool, road agency managers and administrators can assess the needs of their network and other highway assets and determine the adequacy of their resource allocation effort. A quick checkup is readily available and can be usefully applied with minimum calculations.

It is essential to know whether present and planned program actions (reconstruction, rehabilitation, and preservation) will produce a net improvement in the condition of the network. However, before the effects of any planned actions on the highway network can be analyzed, some basic concepts should be considered.

Assume every lane-mile segment of road in the network was rated by the number of years remaining until the end of life (terminal condition). Remember that terminal condition does not mean a failed road. Rather, it is the level of deterioration that management has set as a minimum operating condition for that road or network. Consider the rated result of the current network condition as shown in Figure 1.

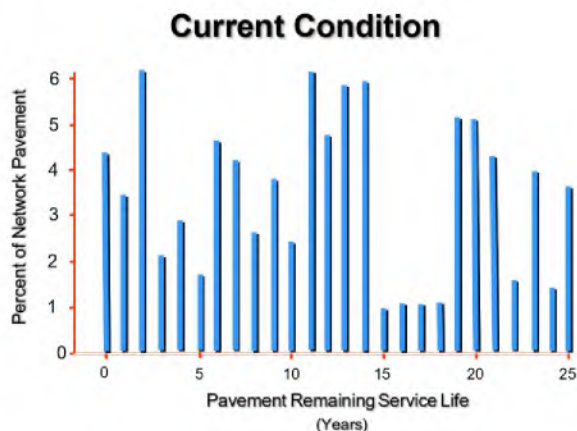


Figure 1 – Current Condition

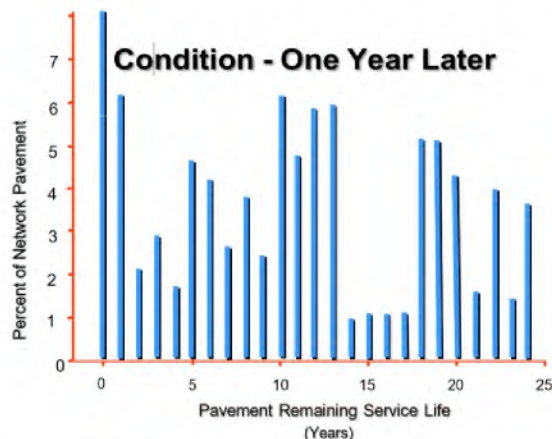


Figure 2 – Condition 1-Year Later

If no improvements are made for one year, then the number of years remaining until the end of life will decrease by one year for each road segment, except for those stacked at zero. The zero- stack will increase significantly because it maintains its previous balance and also becomes the recipient of those roads having previously been stacked with one year remaining. Thus, the entire network will age one year to the condition shown in Figure 2, with the net lane-miles in the zero stack raised from 4% to 8% of the network.

Some highway agencies still subscribe to the old practice of assigning their highest priorities to the reconstruction or rehabilitation of the worst roads. This practice of “worst first”, i.e., continually addressing only those roads in the zero-stack, is a proven death spiral strategy because reconstruction and rehabilitation are the most expensive ways to maintain or restore serviceability. Rarely does sufficient funding exist to sustain such a strategy.

The measurable loss of pavement life can be thought of as the network’s total lane-miles multiplied by 1 year, i.e., lane-mile-years. Consider the following quantitative illustration. Suppose your agency’s highway network consisted of 4,356 lane-miles. Figure 3 shows that without intervention, it will lose 4,356 lane-mile-years per year.

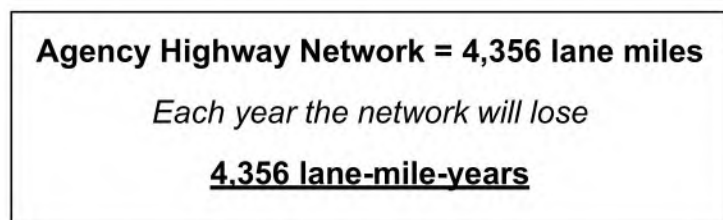


Figure 3 – Network Lane Miles

To offset this amount of deterioration over the entire network, the agency would need to annually perform a quantity of work equal to the total number of lane-mile-years lost just to maintain the status quo. Performing work which produces fewer than 4,356 lane-mile-years would lessen the natural decline of the overall network, but still fall short of maintaining the

status quo. However, if the agency produces more than 4,356 lane-mile-years, it will improve the network.

In the following example, an agency can easily identify the effect of an annual program consisting of reconstruction, rehabilitation, and preservation projects on its network. This assessment involves knowing the only two components for reconstruction and rehabilitation projects: lane-miles and design life of each project fix. Figure 4 displays the agency's programmed activities for reconstruction and Figure 5 displays it for rehabilitation.

Reconstruction Evaluation

Projects this Year = 2

Project	Design Life	Lane Miles	Lane Mile Years	Lane Mile Cost	Total Cost
No. 1	25 yrs	22	550	\$463,425	\$10,195,350
No. 2	30 yrs	18	540	\$556,110	\$10,009,980
Total =			1,090		\$20,205,330

Figure 4 - Reconstruction

Rehabilitation Evaluation

Projects this Year = 3

Project	Design Life	Lane Miles	Lane Mile Years	Lane Mile Cost	Total Cost
No. 10	18 yrs	22	396	\$263,268	\$5,791,896
No. 11	15 yrs	28	420	\$219,390	\$6,142,920
No. 12	12 yrs	32	384	\$115,848	\$3,707,136
Total =			1,200		\$15,641,952

Figure 5 – Rehabilitation

When evaluating pavement preservation treatments in this analysis, it is appropriate to think in terms of “extended life” rather than design life. The term design life, as used in the reconstruction and rehabilitation tables, relates better to the new pavement's structural adequacy to handle repetitive loadings and environmental factors. This is not the goal of pavement preservation. Each type of treatment/repair has unique benefits that should be targeted to the specific mode of pavement deterioration. This means that life extension depends on factors such as type and severity of distress, traffic volume, environment, etc. Figure 6 exhibits the agency's programmed activities for preservation.

Preservation Evaluation

Project	Life Extension	Lane Miles	Lane Mile Years	Lane Mile Cost	Total Cost
No. 101	2 yrs	12	24	\$2,562	\$30,744
No. 102	3 yrs	22	66	\$7,743	\$170,346
No. 103	5 yrs	26	130	\$13,980	\$363,480
No. 104	7 yrs	16	112	\$29,750	\$476,000
No. 105	10 yrs	8	80	\$54,410	\$435,280
Total			= 412		\$1,475,850

Figure 6 – Preservation

To satisfy the needs of its highway network, the agency must accomplish 4,356 lane-mile-years of work per year. The agency's program will derive 1,090 lane-mile-years from reconstruction, 1,200 lane-mile-years from rehabilitation, and 412 lane-mile-years from pavement preservation, for a total of 2,702 lane-mile-years. Thus, these programmed activities fall short of the minimum required to maintain the status quo, and hence would contribute to a net loss in network pavement condition of 1,653 lane-mile-years. The agency's programmed tally is shown in Figure 7.

Network Trend

Programmed Activity	Lane-Mile-Years	Total Cost
Reconstruction	1,090	\$20,205,330
Rehabilitation	1,200	\$15,641,952
Preservation	412	\$1,475,850
Total	2,702	\$37,323,132
Network Needs (Loss)	(-) 4,356	
Deficit =		- 1,654

Figure 7 – Programmed Tally

This exercise can be performed for any pavement network to benchmark its current trend. Using this approach, it is possible to see how various long-term strategies could be devised and evaluated against a policy objective related to total-network condition.

Once the pavement network is benchmarked, an opportunity exists to correct any shortcomings in the programmed tally. A decision must first be made whether to improve the network condition or just to maintain the status quo. This is a management decision and system goal.

Continuing with the previous example, a strategy will be proposed to prevent further network deterioration until additional funding is secured.

The first step is to modify the reconstruction and rehabilitation (R&R) programs. An agonizing decision must be made about which projects to defer, eliminate, or phase differently with multi- year activity. In Figure 8, reductions are made in the R&R programs to recover funds for less costly treatments in the pavement preservation program. The result of this decision recovered slightly over \$6 million.

Program Modification

<u>Programmed Activity</u>	<u>Lane-Mile-Years</u>	<u>Cost Savings</u>
Reconstruction <i>31 lane miles</i> (40 lane-miles)	<i>820</i> (1,090)	<i>\$5,004,990</i>
Rehabilitation <i>77 lane miles</i> (82 lane-miles)	<i>1,125</i> (1,200)	<i>\$1,096,950</i>
Pavement Preservation (84 lane-miles)	(412)	0
Total =	<i>2,357</i> (2,702)	<i>\$6,101,940</i>

Figure 8 – Revised R & R Programs

Modifying the reconstruction and rehabilitation programs has reduced the number of lane-mile- years added to the network from 2,702 to 2,357 lane-mile-years. However, using less costly treatments elsewhere in the network to address roads in better condition will increase the number of lane-mile-years added to the network. A palette of pavement preservation treatments, or mix of fixes, is available to address the network needs at a much lower cost than traditional methods.

Preservation treatments are only suitable if the right treatment is used on the right road at the right time. In Figure 9, the added treatments used include concrete joint resealing, thin hot-mix asphalt (HMA) overlay ($\leq 1.5''$), microsurfacing, chip seal, and crack seal. By knowing the cost per lane-mile and the treatment life-extension, it is possible to create a new strategy (costing \$36,781,144) that satisfies the network need. In this example, the agency saved in excess of \$500,000 from traditional methods (costing \$37,323,132), while erasing the 1,653 lane-mile-year deficit produced by the initial program tally. Network Strategy

Programmed Activity		Lane Mile Years	Total Cost
Reconstruction (31 lane-miles)		820	\$15,200,340
Rehabilitation (77 lane-miles)		1,125	\$14,545,002
Pavement Preservation (84 lane-miles)		412	\$1,475,850
Concrete Resealing	(4 years x 31 lane-miles)	124	\$979,600
Thin HMA Overlay	(10 years x 16 lane-miles)	160	\$870,560
Microsurfacing	(7 years x 44 lane-miles)	308	\$1,309,000
Chip Seal	(5 years x 79 lane-miles)	395	\$1,104,420
Crack Seal	(2 years x 506 lane-miles)	1,012	\$1,296,372
Total =		4,356	\$36,781,144

Figure 9 – New Program Tally

In a real-world situation, the highway agency would program its budget to achieve the greatest impact on its network condition. Funds allocated for reconstruction and rehabilitation projects must be viewed as investments in the infrastructure. Conversely, funds directed for preservation projects must be regarded as protecting and preserving past infrastructure investments.

Integrating reconstruction, rehabilitation, and preservation in the proper proportions will substantially improve network conditions for the taxpayer while safeguarding the highway investment.

APPENDIX E: CITY OF LANSING PILOT AREAS

City of Lansing Street Program Demonstration Areas

Updated November 2023

Forward

The City of Lansing (COL) is responsible for maintaining and operating over 413 miles of roads. Building a new road can cost well over a million dollars per mile due to the large volume of materials and equipment that are necessary. The high cost of road assets underlines the critical nature of properly managing and maintaining the investments made in this vital infrastructure. Understanding the specific needs of every mile of road is a challenge given the size of our road network, its rapidly changing conditions, and the varying needs of road users. Prioritizing the use of the limited resources that the COL has while meeting user expectations also presents a challenge. To overcome these challenges, the COL uses a business process called asset management.

Asset management is defined by Public Act 499 of 2002 as *“An ongoing process of maintaining, upgrading, and operating physical assets cost effectively, based on a continuous physical inventory and condition assessment”*. In other words, asset management is a process that uses data to cost effectively manage and track roadway assets using a combination of engineering and business principles.

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

The City of Lansing, after many years of declining street conditions and inadequate funding available, decided to demonstrate what could happen when a street program has adequate funding.

Two areas of the City have been chosen as demonstration projects. The current street conditions within these areas are representative of typical residential areas in the City with corresponding local street conditions. A 10-year improvement program has been devised for these areas that is intended to raise the overall condition of the streets to acceptable levels. The City has committed to providing adequate funding for these two areas over the next ten years.

Our goal for the two demonstration areas are to achieve an average PASER rating of 7 at the end of 10 years. The areas are representative of typical Lansing neighborhoods. The Roadsoft software program was used to help project the funding needed in each area in order to achieve our goal. Roadsoft was also used to help determine candidate projects within the demonstration areas for the next 10 years.

Demonstration Area #1 – West of Waverly

[illegible]

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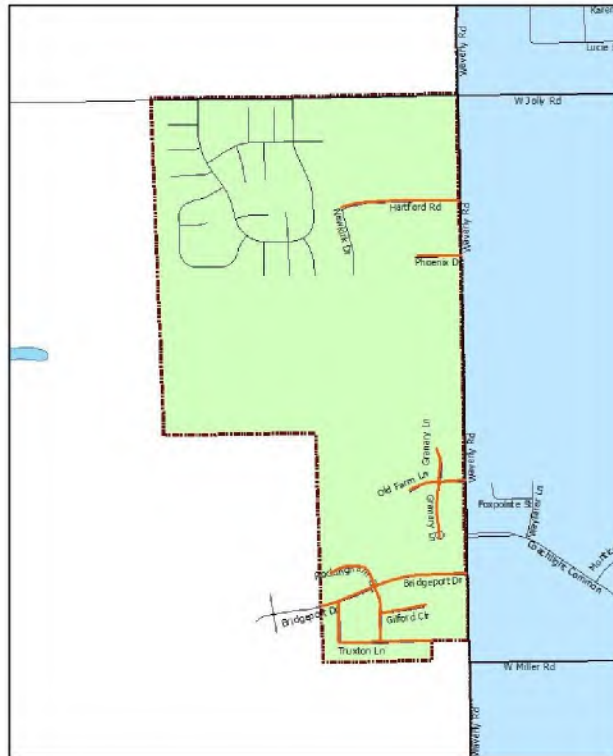


Figure 1 – City of Lansing Streets located within Eaton County

There are two areas of streets located north and South of Jolly Road. This comprises a total of 8.4 miles of streets.

Current Street Condition

The average PASER for demonstration area #1 was 3.38 (Poor) in 2018. Figure 2 shows the distribution of the conditions in 2018.

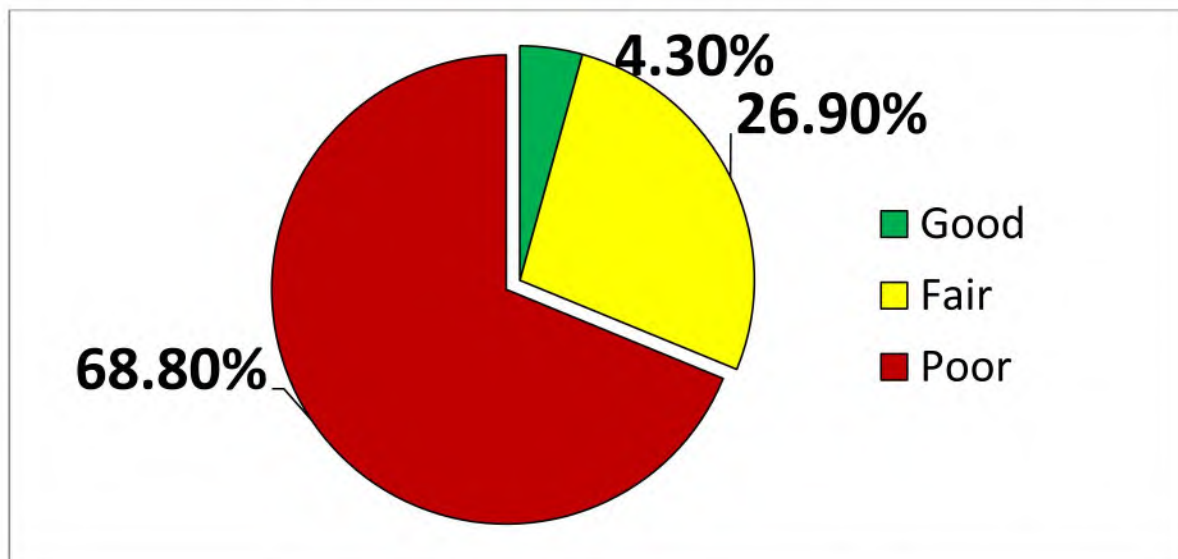


Figure 2 – 2018 Street Condition in Demonstration Area #1

After 4 years of the pilot program, the streets have improved, as shown in Figure 3

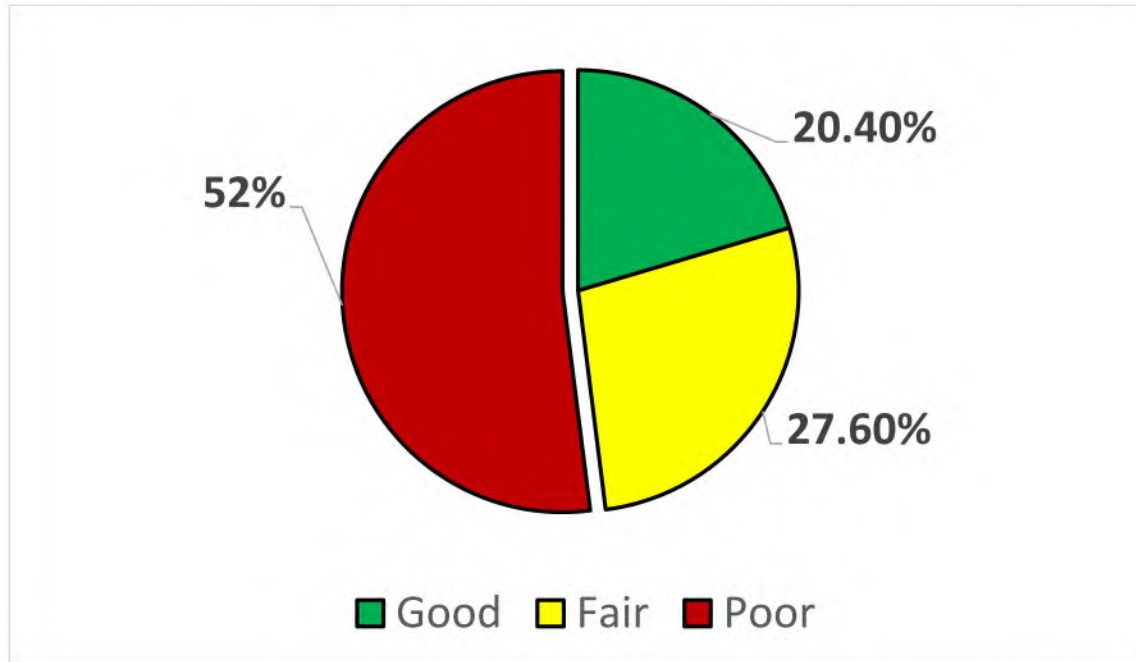


Figure 3 – 2022 Street Conditions in Demonstration Area #1

Using Asset Management, we predict the average PASER for the same area will be 7 in 10 years with adequate funding. The projected condition distribution is shown in Figure 4.

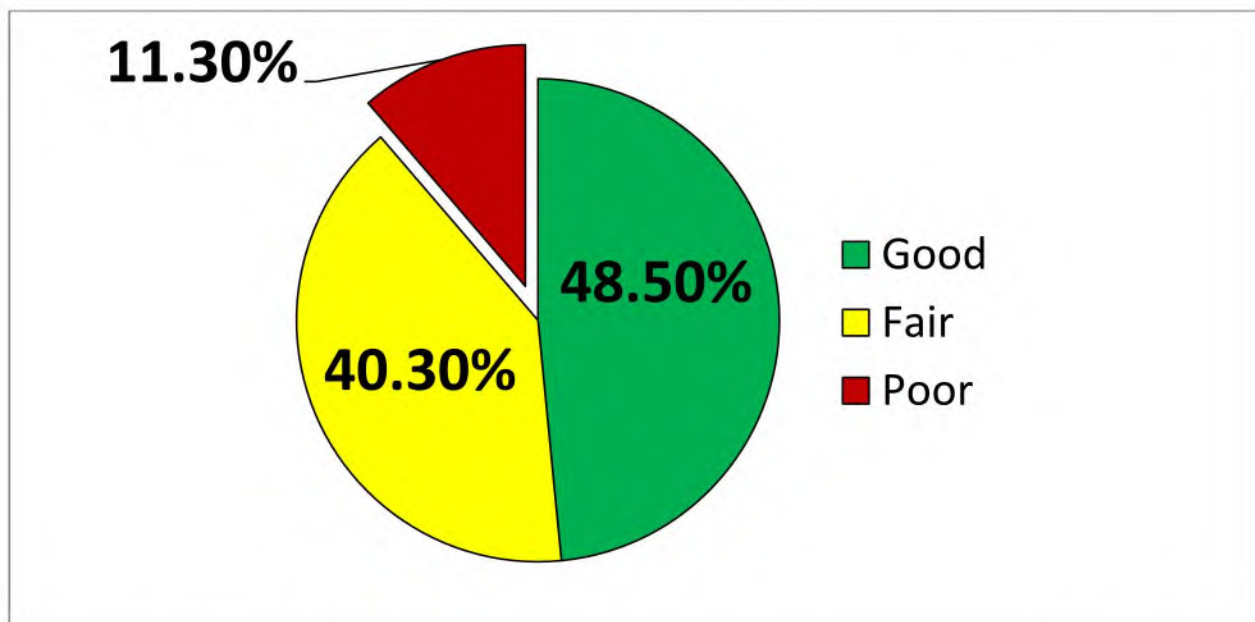


Figure 4 – Projected 10-year Street Conditions in Demonstration Area #1

Demonstration Area #2 – East of Aurelius Road, South of Forest Road

There are 5.8 miles of local streets located within Demonstration Area #2. Roadsoft was used to determine the funding needed to achieve street improvements to reach our goal of an average PASER of 7 in 10 years. A total of \$325,000 was determined to be need and will be used in this area annually to help achieve our goal.

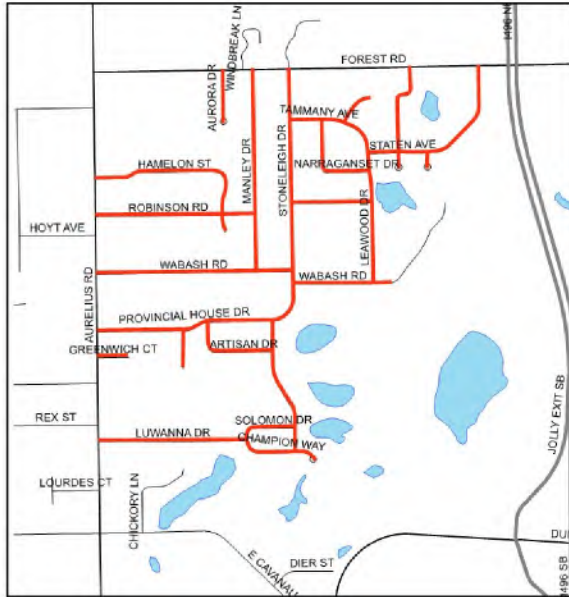


Figure 5 – Demonstration Area #2
– 5.8 Miles

Current Street Condition

The average PASER for demonstration area #2 was 2.08 (Poor) in 2018. Figure 6 shows the distribution of the conditions.

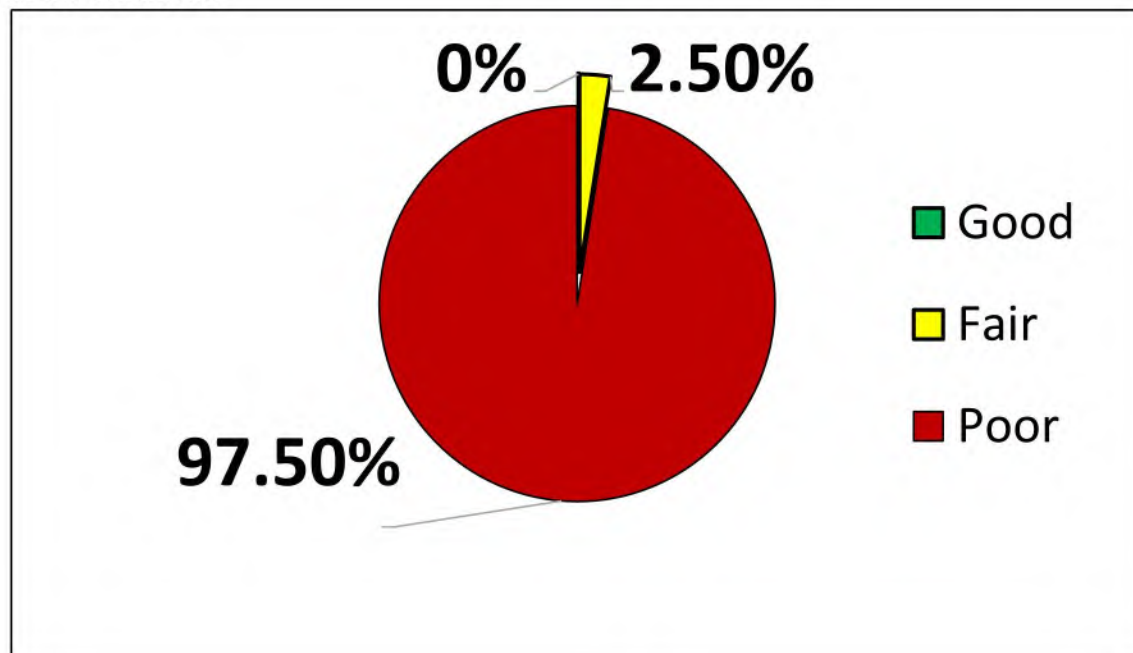


Figure 6 – 2018 Street Condition in Demonstration Area #2

After 4 years of the pilot program, the street conditions have improved, as shown in Figure 7

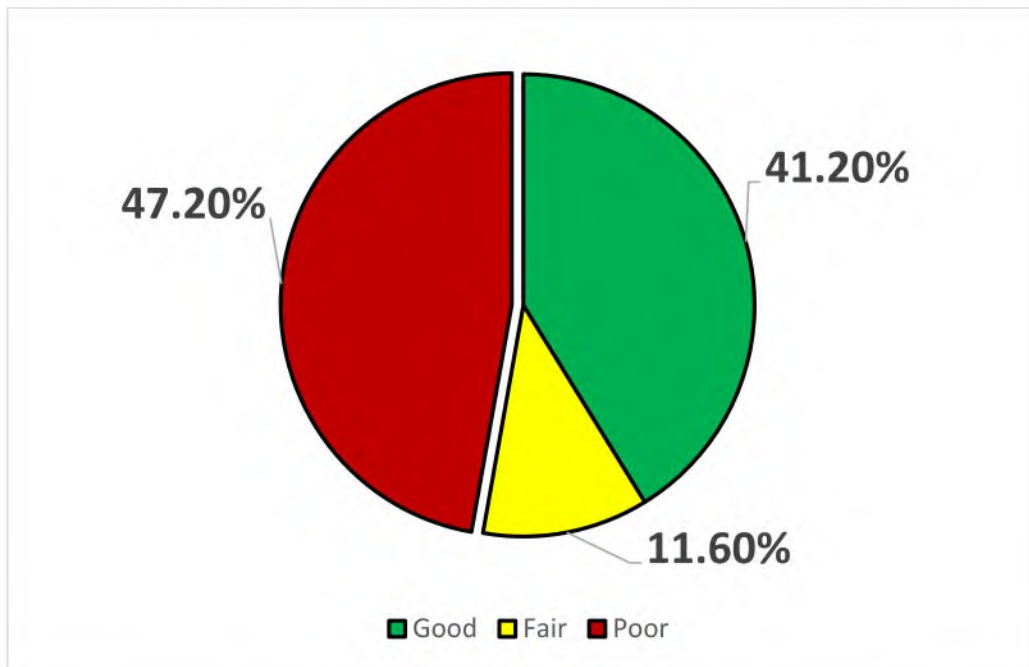


Figure 7 – 2022 Street Conditions in Demonstration Area #2

Using Asset Management, we predict the average PASER for the same area will be 7 in 10 years with adequate funding.

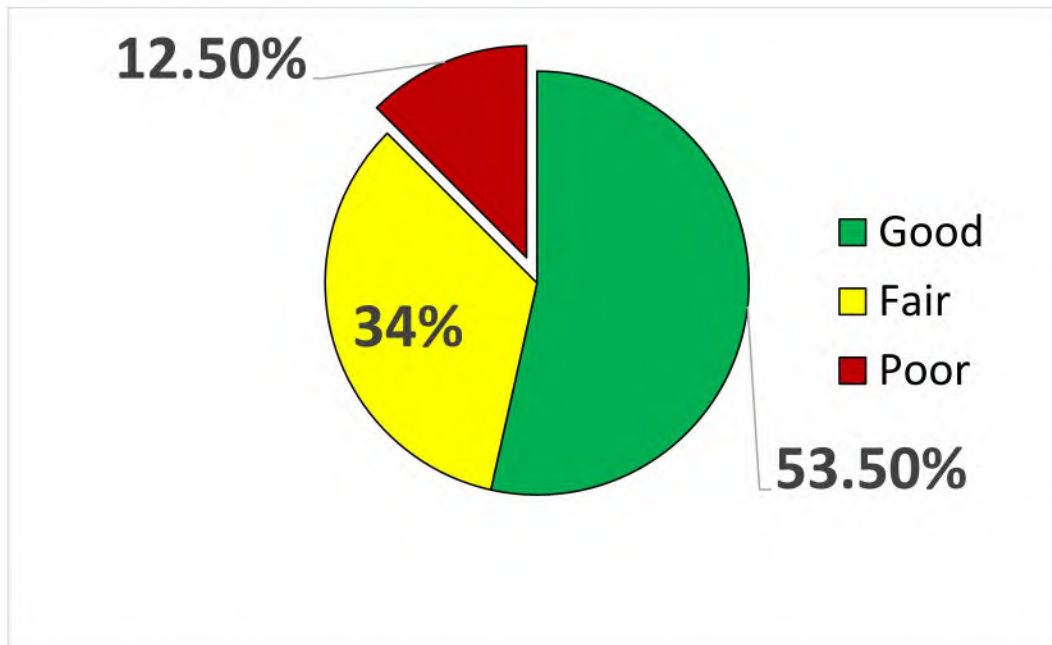


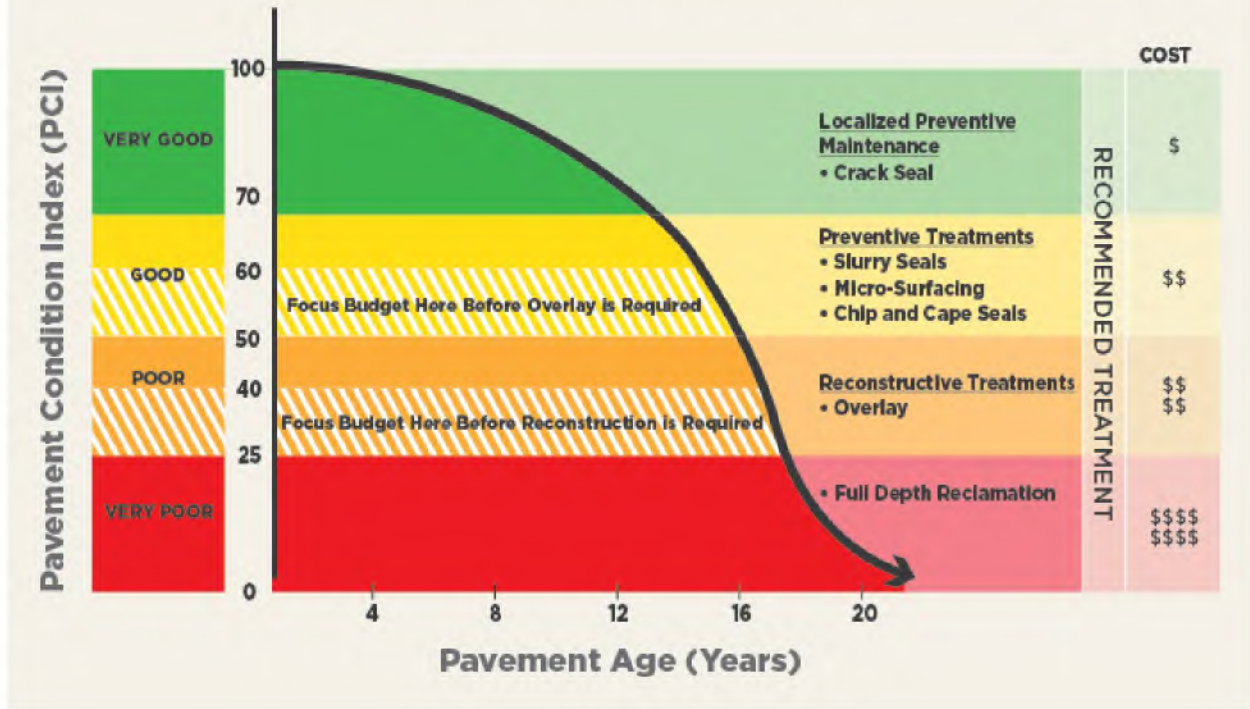
Figure 10 – Projected 10-year Street Conditions in Demonstration Area #2

Maintaining Improved Streets

Once streets are improved, by applying principles of asset management, we predict that maintaining the streets into the future would require about half of the funding needed to improve the streets. Asset Management means applying the “right fix at the right time”, like the use of CPM treatments to prevent deterioration of the streets. The following graphic (from the City of Elk Grove, California) shows a typical pavement deterioration curve (condition vs. time) and possible treatments to apply at the correct time. This also shows the relative costs of each area of treatment, showing that preserving a pavement in fair condition is less costly than waiting until the pavement is in poor condition.

THE CONCEPT OF PAVEMENT PRESERVATION

CATCH STREETS BEFORE THEY FAIL



APPENDIX F: MEETING MINUTES VERIFYING PLAN ACCEPTANCE BY GOVERNING BODY

B. BRIDGE ASSET MANAGEMENT PLAN

An attached bridge asset management plan follows.

City of Lansing Public Service Department 2023 Bridge Asset Management Plan



A plan describing the City of Lansing Public Service Department's bridge assets and conditions.

Prepared by:

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EXECUTIVE SUMMARY

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

This plan overviews PSD's bridge assets and conditions and explains how City of Lansing Public Service Department works to maintain and improve the overall condition of those assets. These explanations can help answer:

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

PSD owns and/or manages 20 road bridges. A summary of its historical and current bridge asset conditions, projected trends, and goals can be seen in the figure, below.



.1.

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

INTRODUCTION

Asset management is defined by Public Act 325 of 2018 as “an ongoing process of maintaining, preserving, upgrading, and operating physical assets cost effectively, based on a continuous physical inventory and condition assessment and investment to achieve established performance goals”. In other words, asset management is a process that uses data to manage and track assets, like roads and bridges, in a cost-effective manner using a combination of engineering and business principles. This process is endorsed by leaders in municipal planning and transportation infrastructure, including the Michigan Municipal League, County Road Association of Michigan, the Michigan Department of Transportation (MDOT), and the Federal Highway Administration (FHWA). The City of Lansing Public Service Department is supported in its use of asset management principles and processes by the Michigan Transportation Asset Management Council (TAMC), formed by the State of Michigan.

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

The City of Lansing Public Service Department (PSD) has adopted an “asset management” business process to overcome the challenges presented by having limited financial, staffing, and other resources while needing to meet safety standards and bridge users’ expectations. PSD is responsible for maintaining and operating 20 bridges.

This 2023 plan outlines how PSD determines its strategy to maintain and upgrade bridge asset condition given agency goals, priorities of its bridge users, and resources provided. An updated plan is to be released approximately every two years to reflect changes in bridge conditions, finances, and priorities.

Questions regarding the use or content of this plan should be directed to Daniel Danke at 124 W Michigan Avenue 7th Floor, Lansing, MI 48933 or at (517) 483-4456 and/or dan.danke@lansingmi.gov. A copy of this plan can be accessed on our website at <https://www.lansingmi.gov/877/Bridges-Trails>.

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

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

Bridge Primer

Bridge Types

Bridges are structures that span 20 feet or more. These bridges can extend across one or multiple spans.

If culverts are placed side by side to form a span of 20 feet or more (for example, three 6-foot culverts with one-foot between each culvert), then this culvert system would be defined as a bridge. (Note: The Compliance Plan Appendix C contains a primer on culverts not defined as bridges.)

Bridge types are classified based on two features: design and material.

The most common bridge design is the **girder system** (Figure 1). With this design, the bridge deck transfers vehicle loads to girders (or beams) that, in turn, transfer the load to the piers or abutments (see Figure 6).

A similar design that lacks girders (or beams) is a **slab bridge** (Figure 2, and see Figure 6). A slab bridge transfers the vehicle load directly to the abutments and, if necessary, piers.

Truss bridges were once quite common and consist of a support structure that is created when structural members are connected at joints to form interconnected triangles (Figure 4). Structural members may consist of steel tubes or angles connected at joints with gusset plates.

Another common bridge design in Michigan is the three-sided pre-cast box or arch bridge (Figure 4).

Michigan is also home to several unique bridge designs.

Adding another layer of complexity to bridge typing is the primary construction materials used (Figure 5). Bridges are generally constructed from concrete, steel, pre-stressed concrete, or timber. Some historical bridges or bridge components in Michigan may be constructed from stone or masonry.



Figure 1: Girder bridge



Figure 2: Slab bridge



Figure 3: Truss bridge



Figure 4: Three-sided box bridge



Figure 5: Examples of common bridge construction materials used in Michigan

Bridge Condition

Michigan inspectors rate bridge condition on a 0-9 scale known as the National Bridge Inventory (NBI) rating scale (see Table for a summary of the NBI Rating scale). Elements of the bridge's superstructure, deck, and substructure receive a 9 if they are in excellent condition down to a 0 if they are in failed condition. A complete guide for Michigan bridge condition rating according to the NBI can be found in the MDOT Bridge Field Services' *Bridge Safety Inspection NBI Rating Guidelines* (https://www.michigan.gov/documents/mdot/BIR_Ratings_Guide_Combined_2017-10-30_606610_7.pdf).

Table 1: Summary of the NBI Rating Scale	
NBI Rating	General Condition
9-7	Like new/good
6-5	Fair
4-3	Poor/serious
2-0	Critical/failed

Bridge Treatments

Replacement

Replacement work is typically performed when a bridge is in poor condition (NBI rating of 4 or less) and will improve the bridge to good condition (NBI rating of 7 or more). The Local Bridge Program, a part of MDOT's Local Agency Program, defines bridge replacement as full replacement, which removes the entire bridge (superstructure, deck, and substructure) before re-building a bridge at the same location (Figure 6). The decision to perform a total replacement over rehabilitation (see below) should be made based on a life-cycle cost analysis. Generally, replacement is selected if rehabilitation costs more than two-thirds of the cost of replacement. Replacement is generally the most expensive of the treatment options.

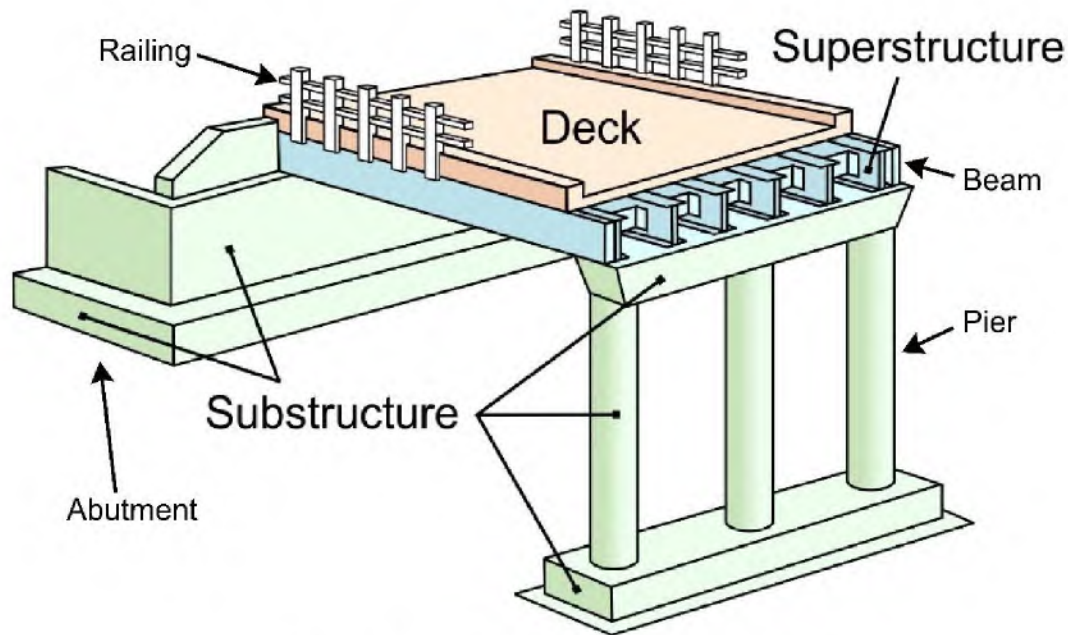


Figure 6: Diagram of basic elements of a bridge

Rehabilitation

Rehabilitation involves repairs that improve the existing condition and extend the service life of the structure and the riding surface. Most often, rehabilitation options are associated with bridges that have degraded beyond what can be fixed with preventive maintenance. Rehabilitation is typically performed on poor-rated elements (NBI rating of 4 or less) to improve them to fair or good condition (NBI rating of 5 or more). Rehabilitation can include superstructure replacement (removal and replacement of beams and deck) or deck replacement. While typically more expensive than general maintenance, rehabilitation treatments may be more cost-effective than replacing the entire structure.

- **Railing retrofit/replacement:** A railing retrofit or replacement either reinforces the existing railing or replaces it entirely (Figure 6). This rehabilitation is driven by a need for safety improvements on poor-rated railings or barriers (NBI rating less than 5).
- **Beam repair:** Beam repair corrects damage that has reduced beam strength (Figure 6). In the case of steel beams, it is performed if there is 25 percent or more of section loss in an area of the beam that affects load-carrying capacity. In the case of concrete beams, this is performed if there is 50 percent or more spalling (i.e., loss of material) at the ends of beams.
- **Substructure concrete patching and repair:** Patching and repairing the substructure is essential to keep a bridge in service. These rehabilitation efforts are performed when the abutments or piers are fair or poor (NBI rating of 5 or 4), or if spalling and delamination affect less than 30 percent of the bridge surface.

Preventive Maintenance

The Federal Highway Administration's (FHWA) *Bridge Preservation Guide* (2018) defines preventive maintenance as "a strategy of extending service life by applying cost-effective treatments to bridge elements...[that] retard future deterioration and avoid large expenses in bridge rehabilitation or replacements."

Preventive maintenance work is typically done on bridges rated fair (NBI rating of 5 or 6) in order to slow the rate of deterioration and keep them from falling into poor condition.

- **Concrete deck overlay:** A concrete deck overlay involves removing and replacing the driving surface. Typically, this is done when the deck surface is poor (NBI rating is less than 5) and the underneath portion of the deck is at least fair (NBI rating greater than 4). A shallow or deep concrete overlay may be performed depending on the condition of the bottom of the deck. The MDOT *Bridge Deck Preservation* matrices provide more detail on concrete deck overlays (see https://www.michigan.gov/mdot/0,4616,7-151-9625_24768_24773---,00.html).
- **Deck repairs:** Deck repairs include three common techniques: HMA overlay with or without waterproof membranes, concrete patching, deck sealing, crack sealing, and joint repair/replacement. An HMA overlay with an underlying waterproof membrane can be placed on bridge decks with a surface rating of fair or lower (NBI of 5 or less) and with deficiencies that cover between 15 and 30 percent of the deck surface and deck bottom. An HMA overlay without a waterproof membrane should be used on a bridge deck with a deck surface and deck bottom rating of serious condition or lower (NBI rating of 3 or less) and with deficiencies that cover greater than 30 percent of the deck surface and bottom; this is considered a temporary holdover to improve ride quality when a bridge deck is scheduled to undergo major rehabilitation within five years. All HMA overlays need to be accompanied by an updated load rating. Patching of the concrete on a bridge deck is done in response to an inspector's work recommendation or when the deck surface is in good, satisfactory, or fair condition (NBI rating of 7, 6, or 5) with minor delamination and spalling. To preserve a good bridge deck in good condition, a deck sealer can be used.

Deck sealing should only be done when the bridge deck has surface rating of fair or better (NBI of 5 or more). Concrete sealers should only be used when the top and bottom surfaces of the deck are free from major deficiencies, cracks, and spalling. An epoxy overlay may be used when between 2 and 5 percent of the deck surface has delaminations and spalls, but these deficiencies must be repaired prior to the overlay. An epoxy overlay may also be used to repair an existing epoxy overlay. Concrete crack sealing is an option to maintain concrete in otherwise good condition that has visible cracks with the potential of reaching the steel reinforcement. Crack sealing may be performed on concrete with a surface rating of good, satisfactory, or fair (NBI rating of 7, 6, or 5) with minor surface spalling and delamination; it may also be performed in response to a work recommendation by an inspector who has determined that the frequency and size of the cracks require sealing.

- **Steel bearing repair/replacement:** Rather than sitting directly on the piers, a bridge superstructure is separated from the piers by bearings. Bearings allow for a certain degree of movement due to temperature changes or other forces. Repairing or replacing the bearings is considered preventive maintenance. Girders and a deck in at least fair condition (NBI of 5 or higher) and bearings in poor condition (NBI rating of 4 or less) identifies candidates for this maintenance activity.
- **Painting:** Re-painting a bridge structure can either be done in totality or in part. Total re-painting is done in response to an inspector's work recommendation or when the paint condition is in serious condition (NBI rating of 3 or less). Partial re-painting can either consist of zone re-painting, which is a preventive maintenance technique, or spot re-painting, which is scheduled maintenance (see below). Zone re-painting is done when less than 15 percent of the paint in a smaller area, or zone, has failed while the rest of the bridge is in good or fair condition. It is also done if the paint condition is fair or poor (NBI rating of 5 or 4).
- **Channel improvements:** Occasionally, it is necessary to make improvements to the waterway that flows underneath the bridge. Such channel improvements are driven by an inspector's work recommendation based on a hydraulic analysis or to remove vegetation, debris, or sediment from the channel and banks (Figure 6).
- **Scour countermeasures:** An inspector's work recommendations or a hydraulic analysis may require scour countermeasures (see the *Risk Management* section of this plan for more information on scour). This is done when a structure is categorized as scour critical and is not scheduled for replacement or when NBI comments in abutment and pier ratings indicate the presence of scour holes.
- **Approach repaving:** A bridge's approach is the transition area between the roadway leading up to and away from the bridge and the bridge deck. Repaving the approach areas is performed in response to an inspector's work recommendation, when the pavement surface is in poor condition (NBI rating of 4 or less), or when the bridge deck is replaced or rehabilitated (e.g., concrete overlay).
- **Guardrail repair/replacement:** A guardrail is a safety feature on many roads and bridges that prevents or minimizes the effects of lane departure incidents. Keeping bridge guardrails in good condition is important. Repair or replacement of bridge guardrail should be done when a guardrail is missing or damaged, or when it needs a safety improvement.

Scheduled Maintenance

Scheduled maintenance activities are those activities or treatments that are regularly scheduled and intend to maintain serviceability while reducing the rate of deterioration.

- **Superstructure washing:** Washing the superstructure, or the main structure supporting the bridge, typically occurs in response to an inspector's work recommendation or when salt-

contaminated dirt and debris collected on the superstructure is causing corrosion or deterioration by trapping moisture.

- **Drainage system cleanout/repair:** Keeping a bridge's drainage system clean and in good working order allows the bridge to shed water effectively. An inspector's work recommendation may indicate drainage system cleanout/repair. Signs that a drainage system needs cleaning or repair include clogs and broken, deteriorated, or damaged drainage elements.
- **Spot painting:** Spot painting is a form of partial bridge painting. This scheduled maintenance technique involves painting a small portion of a bridge. Generally, this is done in response to an inspector's work recommendation and is used for zinc-based paint systems only.
- **Slope repair/reinforcement:** The terrain on either side of the bridge that slopes down toward the channel is called the slope. At times, it is necessary to repair the slope. Situations that call for slope repair include when the slope is degraded, when the slope has significant areas of distress or failure, when the slope has settled, or if the slope is in fair or poor condition (NBI rating of 5 or less). Other times, it is necessary to reinforce the slope. Reinforcement can be added by installing Riprap, which is a side-slope covering made of stones. Riprap protects the stability of side slopes of channel banks when erosion threatens the surface.
- **Vegetation control and debris removal:** Keeping the area around a bridge structure free of vegetation and debris safeguards the bridge structure from these potentially damaging forces. Removing or restricting vegetation around bridges prevents damage to the structure. Vegetation control is done in response to an inspector's work recommendation or when vegetation traps moisture on structural elements or is growing from joints or cracks. Debris in the water channel or in the bridge can also cause damage to the structure. Removing this debris is typically done in response to an inspector's work recommendation or when vegetation, debris, or sediment accumulates on the structure or channel.
- **Miscellaneous repairs:** These are uncategorized repairs in response to an inspector's work recommendation.

1. BRIDGE ASSETS

PSD seeks to implement an asset management program for its bridge structures. This program balances the decision to perform reconstruction, rehabilitation, preventive maintenance, scheduled maintenance, or new construction, with PSD's bridge funding in order to maximize the useful service life and to ensure the safety of the local bridges under its jurisdiction. In other words, PSD's bridge asset management program aims to preserve and/or improve the condition of its local bridge network within the means of its financial resources.

Nonetheless, PSD recognizes that limited funds are available for improving the bridge network. Since preservation strategies like preventive maintenance are generally a more effective use of these funds than costly alternative management strategies like major rehabilitation or replacement, PSD seeks to identify those bridges that will benefit from a planned maintenance program while addressing those bridges that pose usability and/or safety concerns.

The three-fold goal of PSD's asset management program is the preservation and safety of its bridge network, increase of its bridge assets' useful service life by extending of the time that bridges remain in good and fair condition, and reduction of future maintenance costs. To quantify this goal, PSD specifically aims to have to have 85% or more of the agency's local bridges in fair to good condition and to have less than 15% classify as structurally deficient over its five-year plan.

Thus, PSD's asset management plan objectives are:

- To establish the current condition of the city's bridges
- To develop a "mix of fixes" that will:
 - Program scheduled maintenance actions to impede deterioration of bridges in good condition
 - Implement selective corrective repairs or rehabilitation for degraded bridge elements order to restore functionality
 - Identify and program those eligible bridges in need of replacement
- To identify available funding sources, such as:

- Dedicated city resources
- City funding through Michigan's Local Bridge Program
- Opportunities to obtain other funding
- To prioritize the programmed actions within available funding limitations
- To improve the condition of bridges currently rated poor (4 or lower) and preserve bridges currently rated fair (5) or higher in their current condition in order to extend their useful service life.

Inventory

PSD is responsible for 20 local bridges. Table 2 summarizes PSD's bridge assets by type, sizes by bridge type, and condition by bridge type. Additional inventory data, condition ratings, and proposed preventive maintenance actions for each bridge are contained in the tables in Appendixes 3, 4, and 5. The bridge inventory data was obtained from MDOT MiBRIDGE and other sources, and the 2021 condition data and maintenance actions are taken from the inspector's summary report (see Appendix 2).

Types

Of the PSD's 20 structures, 1 is a concrete bridge, 11 are steel bridges, 8 are pre-stressed concrete bridges, and 0 are timber bridges.

Locations and Sizes

Figure 7 illustrates the locations of bridge assets owned by PSD. Details about the locations and sizes of each individual asset can be found in PSD's MiBRIDGE database. For more information, please refer to the agency contact listed in the *Introduction* of this bridge asset management plan.

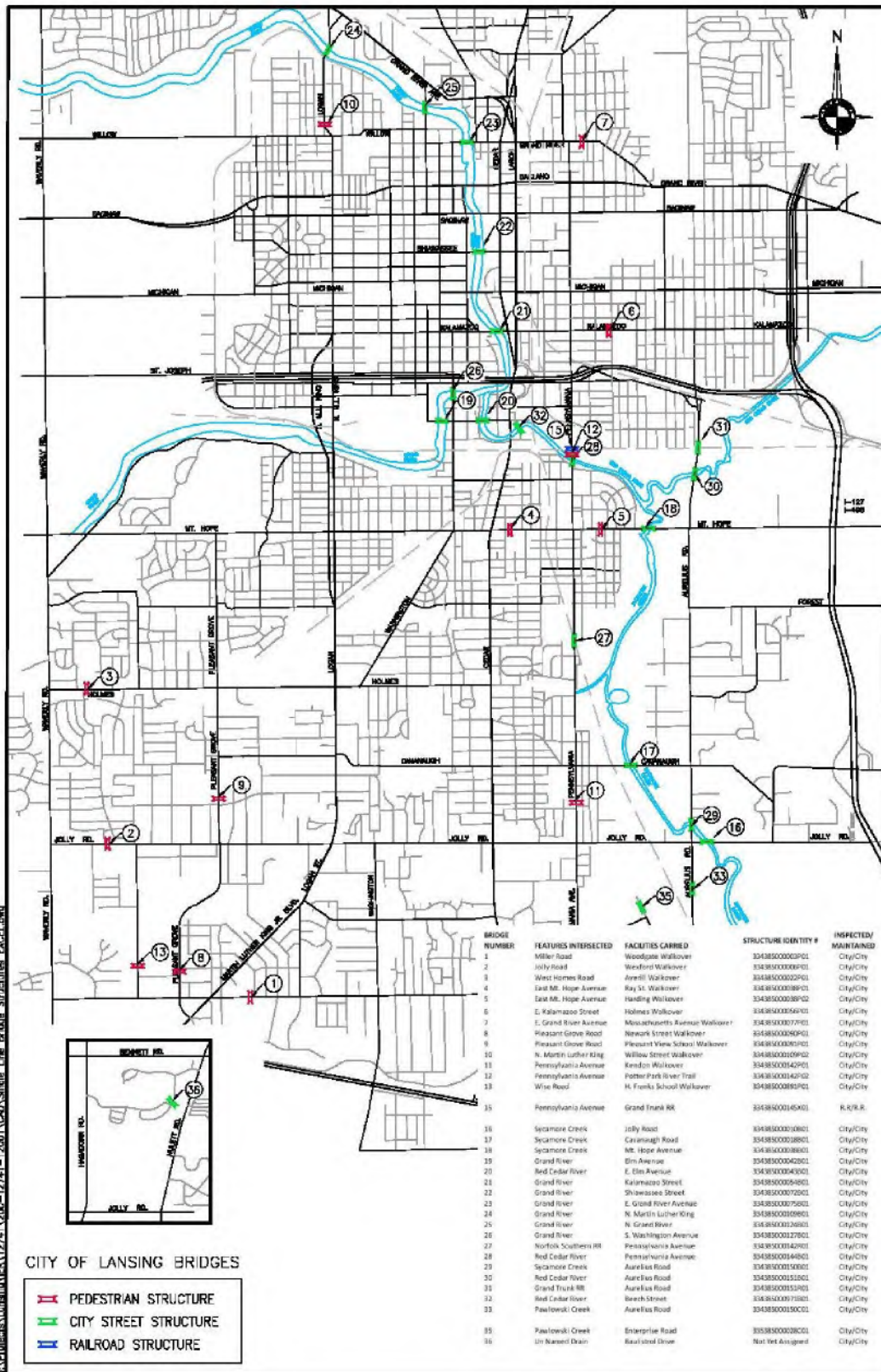


Figure 7: Map illustrating locations PSD's of bridge assets

Condition

PSD evaluates its bridges according to the National Bridge Inspection Standards rating scale, with a rating of 9 to 7 being like new to good condition, a rating of 6 and 5 being fair condition, and a rating of 4 or lower being poor or serious/critical condition. The current condition of PSD's bridge network is 8 (40%) are good, 10 (50%) are fair, and 2 (10%) are poor or lower.

Another layer of classification of PSD's bridge inventory classifies 2 (10%) bridges as structurally deficient, 1 (5%) bridges as posted, and 0 (0) bridges as closed. Structurally deficient bridges are those with a deck, superstructure, substructure, and/or culvert rated as "poor" according to the NBI rating scale, with a load-carrying capacity significantly below design standards, or with a waterway that regularly overtops the bridge during floods. Posted bridges are those that have declined in condition to a point where a restriction is necessary for what would be considered a safe vehicular or traffic load passing over the bridge; designating a bridge as "posted" has no influence on its condition rating. Closed bridges are those that are closed to all traffic; closing a bridge is contingent upon its ability to carry a set minimum live load.

Table 2: Bridge Assets by Type: Inventory, Size, and Condition								
Bridge Type	Total Number of Bridges	Total Deck Area (sq ft)	Condition: Structurally Deficient, Posted, Closed			2021 Condition		
			Struct. Defic.	Posted	Closed	Poor	Fair	Good
Concrete – Arch—deck	1	9,050	0	0	0	0	0	1
Prestressed concrete – Box beam/girders—multiple	3	15,262	1	1	0	1	2	0
Prestressed concrete – Multistringer	4	61,111	0	0	0	0	0	4
Steel – Culvert	2	3,225	1	0	0	1	1	0
Steel – Multistringer	8	94,465	0	0	0	0	6	2
Steel continuous – Multistringer	1	29,344	0	0	0	0	1	0
Concrete - Culvert	1	807	0	0	0	0	0	1
Total SD/Posted/Closed			2	1	0			
Total	20	213,264				2	10	8
Percentage (%)			10	5	0	10	50	40

Statewide, MDOT’s statistics for local agency bridges show that 14% are poor and 86% are good/fair, indicating that the PSD has a lesser percentage of poor bridges compared to the statewide average for local agencies. Correspondingly, PSD has 90% of its bridges in fair/good condition versus the statewide average of 86% for local agency bridges. Statewide, 97% of local agency bridge deck area classifies as structurally deficient compared to 3.4% of PSD’s bridge deck area.

Goals

The goal of PSD’s asset management program is the preservation and safety of its bridge network; it also aims to extend the period of time that bridges remain in good and fair condition, thereby increasing their useful service life and reducing future maintenance costs.

Specifically, this goal translates into long-range goals of having 85% of its bridges rated fair/good and having less than 15% classify as structurally deficient within five years. These goals are juxtaposed with the historic and current condition and the projected trend in Figure 8.

Several metrics will be used to assess the effectiveness of this asset management program. PSD will monitor and report the annual change in the number of its bridges rated fair/good (5 or higher) and the annual change in the number of its bridges classified as structurally deficient.

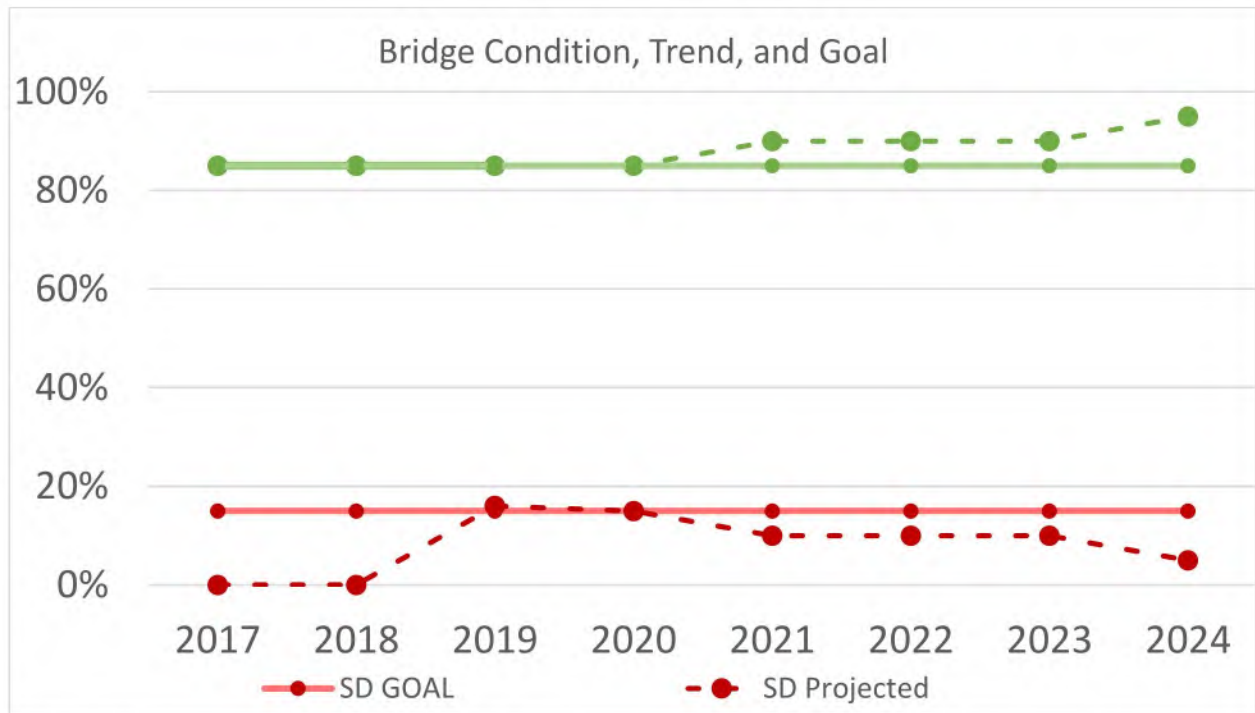


Figure 1: Progress tracking graph indicating COL, PSD's historic and current bridge conditions, projected trends, and goals.

Based on past inspection records and condition ratings, PSD will establish a baseline of past performance by determining the average period of time that a bridge remains in good or fair condition. The performance measure will be the increased average amount of time a bridge is in the good or fair

condition status after implementation of the asset management strategy when compared to the baseline time before implementation.

Prioritization, Programmed/Funded Projects, and Planned Projects

Prioritization

PSD's asset management program aims to address the structures of critical concern by targeting elements rated as being in poor condition and to improve and maintain the overall condition of the bridge network to good or fair condition through a "mix of fixes" strategy. Therefore, PSD prioritizes bridges for projects by evaluating five factors and weighting them as follows: condition –30%, load capacity –25%, traffic –20%, safety –20%, and detour –5%. There are several components within each factor that are used to arrive at its score. Each project under consideration is scored, and its total score is then compared with other proposed project to establish a priority order.

PSD annually reviews the current condition of each of its bridges using the NBIS inspection data contained in the *MDOT Bridge Safety Inspection Report* and the inspector's work recommendations contained in MDOT's *Bridge Inspection Report*. The inspection inventory and condition data are consolidated in spreadsheet format for PSD's bridges in Appendix 3. PSD then determines management and preservation needs and corresponding actions for each bridge (Appendix 4) As well as inspection follow-up actions (Appendix 5). The management and preservation actions are selected in accordance with criteria contained in the *Summary of Preservation Criteria* table (below) and adapted to PSD's specific bridge network.

Table 3: Summary of Preservation Criteria		
Preservation Action	Bridge Selection Criteria	Expected Service Life
Replacement		
Total Replacement	- NBI rating of 3 or less [1] [2] - OR Cost of rehabilitation exceeds cost of replacement [1] - OR Bridge is scour critical with no counter-measures available [1]	70 years
Rehabilitation		
Superstructure Replacement	- NBI rating of 4 or less for the superstructure [1] [2] - OR Cost of superstructure and deck rehabilitation exceeds cost of replacement [1]	40 years ^[1]
Deck Replacement Epoxy Coated Steel Black Steel	- Use guidelines in MDOT's Bridge Deck Preservation Matrix [3] [4] - NBI rating of 4 or less for the deck surface and deck bottom [1] [2] - Deck bottom has more than 25% total area with deficiencies [1] - OR Replacement cost of deck is competitive with rehabilitation [1]	60+ years ^{[3] [4]}
Substructure Replacement (Full or Partial)	- NBI rating of 4 or less for abutments, piers, or pier cap [1] [2] - Has open vertical cracks, signs of differential settlement, or active movement [1] - Pontis rating of 3 or 5 for more than 30 percent of the substructure [1] [5]	40 years ^[1*]

Table 3: Summary of Preservation Criteria		
Preservation Action	Bridge Selection Criteria	Expected Service Life
	OR Bridge is scour critical with no counter-measures available	
Steel Beam Repair	- More than 25% section loss in an area of the beam that affects load carrying capacity [1] - OR To correct impact damage that impairs beam strength [1]	40 years ^[1]
Prestressed Concrete Beam Repair	- More than 5% spalling at ends of prestressed I-beams [1] - OR Impact damage that impairs beam strength or exposes prestressing strands [1]	40 years ^[1]
Substructure Concrete Patching and Repair	- NBI rating of 5 or 4 for abutments or piers, and surface has less than 30% area spalled and delaminated [1] [2] - OR Pontis rating of 3 or 4 for the column or pile extension, pier wall, and/or abutment wall and surface has between 2% and 30% area with deficiencies [1] [5] - OR In response to inspector's work recommendation for substructure patching [1]	
Abutment Repair/Replacement	- NBI rating of 4 or less for the abutment [1] [2] - OR Has open vertical cracks, signs of differential settlement, or active movement	
Railing/Barrier Replacement	- NBI rating greater than 5 for the deck [1] [2] - NBI rating less than 5 for the railing with more than 30% total area having deficiencies [1] [2] - OR Pontis rating is 4 for railing [1] [5] - OR Safety improvement is needed [1]	
Culvert Repair/Replacement	- NBI rating of 4 or less for culvert or drainage outlet structure - OR Has open vertical cracks, signs of deformation, movement, or differential settlement	
Preventive Maintenance		
Shallow Concrete Deck Overlay	- NBI rating is 5 or less for deck surface, and deck surface has more than 15% area with deficiencies [1] [2] - NBI rating of 4 or 5 for deck bottom, and deck bottom has between 5% and 30% area with deficiencies [1] [2] - OR In response to inspector's work recommendation [1]	12 years
Deep Concrete Deck Overlay	- NBI rating of 5 or less for deck surface, and deck surface has more than 15% area with deficiencies [1] [2] - NBI deck bottom rating is 5 or 6, and deck bottom has less than 10% area with deficiencies [1] [2] - OR In response to inspector's work recommendation [1]	25 years
HMA Overlay with Waterproofing Membrane	- NBI rating of 5 or less for deck surface, and both deck surface and bottom have between 15% and 30% area with deficiencies [1] [2] - OR Bridge is in poor condition and will be replaced in the near future and the most cost-effective fix is HMA overlay [1]	
HMA Overlay Cap without Membrane	- Note: All HMA caps should have membranes unless scheduled for replacement within five years. - NBI rating of 3 or less for deck surface and deck bottom, and deck surface and deck bottom have more than 30% area with deficiencies. Temporary holdover to improve ride quality for a bridge in the five-year plan for rehab/replacement. [1] [2]	3 years

Table 3: Summary of Preservation Criteria		
Preservation Action	Bridge Selection Criteria	Expected Service Life
Concrete Deck Patching	- NBI rating of 5, 6, or 7 for deck surface, and deck surface has between 2% and 5% area with delamination and spalling [1] [2] - OR In response to inspector's work recommendation [1]	5 years
Steel Bearing Repair/Replacement	NBI rating of 5 or more for superstructure and deck, and NBI rating 4 or less for bearing [2]	
Deck Joint Replacement	- Always include when doing deep or shallow concrete overlays [1] - NBI rating of 4 or less for joints [1] [2] - OR Joint leaking heavily [1] - OR In response to inspector's work recommendation for replacement [1]	
Pin and Hanger Replacement	- NBI rating of 4 or less for superstructure for pins and hangers [1] [2] - Pontis rating of 1, 2, or 3 for a frozen or deformed pin and hanger [1] [5] - OR Presence of excessive section loss, severe pack rust, or out-of-plane distortion [1]	15 years
Zone Repainting	- NBI rating of 5 or 4 for paint condition, and paint has 3% to 15% total area failing [1] [2] - OR During routine maintenance on beam ends or pins and hangers [1] - OR less than 15% of existing paint area has failed and remainder of paint system is in good or fair condition [1]	10 years
Complete Repainting	- NBI rating of 3 or less for paint condition [1] [2] - OR Painted steel beams that have greater than 15% of the existing paint area failing [1]	
Partial Repainting	See Zone or Spot Painting	
Channel Improvements	- Removal of vegetation, debris, or sediment from channel and banks to improve channel flow - OR in response to inspector's work recommendation	
Scour Countermeasures	- Pontis scour rating of 2 or 3 and is not scheduled for replacement [1] [5] - OR NBI comments in abutment and pier ratings indicate presence of scour holes [1] [2]	
Approach Repaving	- Approach pavement relief joints should be included in all projects that contain a significant amount of concrete roadway (in excess of 1000' adjacent to the structure). The purpose is to alleviate the effects of pavement growth that may cause distress to the structure. Signs of pavement growth include: - Abutment spalling under bearings [1] - Beam end contact [1] - Closed expansion joints and/or pin and hangers [1] - Damaged railing and deck fascia at joints [1] - Cracking in deck at reference line (45 degree angle) [1]	
Guard Rail Repair/Replacement	- Guard rail missing or damaged ^[2*] - OR Safety improvement is needed ^[2*]	
Scheduled Maintenance		

Table 3: Summary of Preservation Criteria		
Preservation Action	Bridge Selection Criteria	Expected Service Life
Superstructure Washing	- When salt contaminated dirt and debris collected on superstructure is causing corrosion or deterioration by trapping moisture [1] - OR Expansion or construction joints are to be replaced and the steel is not to be repainted [1] - OR Prior to a detailed replacement [1] - OR In response to inspector's work recommendation [1]	2 years
Drainage System Clean-Out/Repair	- When drainage system is clogged with debris [1] - OR Drainage elements are broken, deteriorated, or damaged [1] - OR NBI rating comments for drainage system indicate need for cleaning or repair [1] [2]	2 years
Spot Repainting	- For zinc-based paint systems only. Do not spot paint with lead-based paints. - Less than 5% of paint area has failed in isolated areas [1] - OR In response to inspector's work recommendation [1]	5 years
Slope Paving Repair	- NBI rating is 5 or less for slope protection [1] [2] - OR Slope is degraded or sloughed - OR Slope paving has significant areas of distress, failure, or has settled [1]	
Riprap Installation	To protect surface when erosion threatens the stability of side slopes of channel banks	
Vegetation Control	- When vegetation traps moisture on structural elements [1] - OR Vegetation is growing from joints or cracks [1] - OR In response to inspector's work recommendation for brush cut [1]	1 year
Debris Removal	- When vegetation, debris, or sediment accumulates on the structure or in the channel - OR In response to inspectors work recommendation	1 year
Deck Joint Repair	- Do not repair compression joint seals, assembly joint seals, steel armor expansions joints, and block out expansion joints; these should always be replaced. [1] - NBI rating is 5 for joint [1] [2] - OR In response to inspector's work recommendation for repair [1]	
Concrete Sealing	- Top surface of pier or abutments are below deck joints and, when contaminated with salt, salt can collect on the surface [1] - OR Surface of the concrete has heavy salt exposure. Horizontal surfaces of substructure elements are directly below expansion joints [1]	
Concrete Crack Sealing	- Concrete is in good or fair condition, and cracks extend to the depth of the steel reinforcement [1] - OR NBI rating of 5, 6, or 7 for deck surface, and deck surface has between 2% and 5% area with deficiencies [1] [2] - OR Unsealed cracks exist that are narrow and/or less than 1/8" wide and spaced more than 8' apart [1] - OR In response to inspector's work recommendation [1]	5 years
Minor Concrete Patching	Repair minor delaminations and spalling that cover less than 30% of the concrete substructure [1]	

BY THE COMMITTEE ON CITY OPERATIONS
RESOLVED BY THE CITY COUNCIL OF THE CITY OF LANSING

Acceptance of Transportation Asset Management Plan

WHEREAS, Michigan Public Act 325 of 2018 requires local road agencies to develop and submit an asset management plan to the Transportation Asset Management Council (TAMC) including an asset inventory, performance goals, risk of failure analysis, anticipated revenues and expenses and performance outcomes to be submitted to TAMC; and

WHEREAS, local road agencies responsible for 100 or more certified miles of road, based on the 2017 PA 51 Mileage Certification, including all 83 Michigan counties and 39 Michigan cities are required to submit their completed asset management plans in designated phases beginning October 1, 2020; and

WHEREAS, the City of Lansing Public Service Department has completed a Transportation Asset Management Plan containing the required information; and

WHEREAS, the City of Lansing Public Service Department has updated the Transportation Asset Management Plan in 2023; and

WHEREAS, the TAMC requires a resolution accepting the updated Asset Management Plan.

NOW, THEREFORE, BE IT RESOLVED that the City Council hereby accepts the 2023 Transportation Asset Management Plan; and

BE IT FINALLY RESOLVED that a copy of this resolution be added to the Transportation Asset Management Plan before submittal to the TAMC.