



Saginaw City Council Regular Meeting Agenda

Andersen Enrichment Center
[120 Ezra Rust Dr.](#)
February 23, 2026
6:30 PM

Prayer and Pledge of Allegiance

Roll Call

Announcements

Public Hearings

1. 2026 Single Lot Assessment Tax Roll.
2. Regarding the request from Saginaw County Real Estate LLC to create an Obsolete Property Rehabilitation Certificate at 1413 Gratiot Avenue.
3. Regarding the official intent to reimburse project expenditure with bond proceeds and authorizing publication of notice of intent to issue Water Supply System Revenue Bonds through the State of Michigan Drinking Water Revolving Fund Program.

Public Input

(A list will be provided following submittal deadline.)

Remarks of Council

Reports From Manager

1. Riverfront Park Project Update, Phil Karwat, Director of Public Services, Joe Primeau, Spicer Engineering, and Will Tietje, Scape Landscape Architecture.

Consent Agenda

1. Approve the February 9, 2026 regular council meeting minutes.
2. Receive and file Petition 26-03 from the Help Yourself Recover Project to be recognized as a nonprofit organization for purposes of obtaining a charitable gaming license.
3. Approve the amendments to the 2025/2026 Approved Budget for the listed funds. This adjustment is required to recognize any errors, omissions, or changes that have occurred within the month of January.
4. Approve the purchase with AIS Construction Equipment for \$11,700 for a Felling FT14 Tag Trailer for the Department of Neighborhood Services and Inspections, Environmental Division.

5. Approve the purchase with Kiesler Police Supply, Inc. for \$8,352 for training ammunition for the Police Department.
6. Approve the purchase with J&N Tactical, a sole source, for \$2,675 for a Hard Surface Breaching Head BH-2 for the Police Department, Emergency Services Team.
7. Approve the purchase with Hamilton's RV for \$2,970 for the repair of the awning on the fire prevention trailer for the Fire Department.
8. Approve the purchase with MacQueen Emergency Group for \$44,411 for the purchase of a Paratech Rescue System for the Fire Department.
9. Approve the purchase with Todd Wenzel Buick GMC of Westland for \$125,078 for two 2026 GMC Sierra 3500HD, 1-Ton Mini Dump Trucks for the Public Services Department, Maintenance and Service Division.
10. Approve the proposal from Wade Trim, Inc. for \$328,000 for construction engineering and administration for the Weiss Street Watermain Replacement & Road Resurfacing project for the Public Services Department, Engineering Division.
11. Approve the purchase with Fishbeck for \$45,800 to prepare and submit a project plan amendment for the DWSRF to the State of Michigan for watermain improvements, and for federal cross-cutting requirements for lead service line replacement for the Water and Wastewater Treatment Services Department, Water Treatment Division.
12. Approve the professional services agreement with Dickinson Wright, PLLC for \$35,000 to act as bond counsel for the City in connection with the issuance of bonds for the City's water supply system that includes the replacement of water main and the construction of a new looped connection.
13. Approve the purchase with Microscope World for \$2,509 for a Laboratory Microscope at the Water and Wastewater Treatment Services Department, Treatment and Pumping Division.

Board/Commission/Committee Reports

Appointment of Board/Commission/Committee Members

Ordinance Introduction

Ordinance Adoption

Resolutions

1. Recognizing the Help Yourself Recover Project as a non-profit organization for the purpose of obtaining a charitable gaming license.
2. Approving the Obsolete Property Rehabilitation Certificate for the property at 1413 Gratiot Avenue.

3. Declaring Official Intent to reimburse project expenditures with bond proceeds and authorizing publication of notice of intent to issue water supply system revenue bonds through the State of Michigan Drinking Water Revolving Fund Program.
4. Adopting the Safe Streets for Saginaw Safety Action Plan.

Unfinished Business

Miscellaneous Business

1. Consideration of a FOIA Appeal filed by Meredith St. Henry.
2. Consideration of a FOIA Appeal filed by Joshua Monroe.

Adjournment

Timothy Morales
City Manager



Accessibility Notice:

If you require accommodations to attend or participate in this meeting due to a disability, please contact the [City Clerk's Office](#) at [\(989\) 759-1480 ext. 6](tel:9897591480) or visit in person at:

[Saginaw City Hall](#)
[1315 S. Washington Ave.](#)
[Saginaw, MI 48601](#)

Advance notice is appreciated to allow time to make arrangements.



City of Saginaw

PUBLIC HEARING NOTICE

Pursuant to Title III, Administration, Chapter 33, "Taxation and Assessment," Section 33.22, "Assessment Roll Hearing and Confirmation," of the City of Saginaw Code of Ordinances, O-204, notice is hereby given that the Council of the City of Saginaw, Michigan, will meet at the Andersen Enrichment Center at **6:30 p.m. Monday, February 23, 2026**, and review the following single lot special assessment rolls:

1. Nuisances: Yard Violations, Board Ups, and Weed Cutting
2. False Alarms
3. Sewer Connections
4. Demolitions

Anyone objecting to such an assessment may appear in person at the hearing to protest or may file an objection in writing with the City Clerk prior to the close of said hearing, which written objection shall specify in what respect the objection is made. Postmark date will not be honored, and no phone call objections will be accepted.

A written or personally spoken objection must be made at the public hearing in this assessment proceeding as required in order to appeal the amount of the special assessment to the Michigan State Tax Tribunal. Such appeal must be submitted within 30 days of City Council having approved the single lot special assessment tax roll. The single lot special assessment rolls are on file in the office of the City Clerk and are available for inspection during regular office hours up to the time of the hearing.

Kristine Bolzman, MiPMC/CMC
City Clerk

IF YOU ARE DISABLED AND NEED ACCOMMODATION TO PROVIDE YOU WITH AN OPPORTUNITY TO PARTICIPATE OR OBSERVE IN PROGRAMS, SERVICES, OR ACTIVITIES, PLEASE CALL THE SAGINAW CITY CLERK AT 989.759.1480.

Posted:
By: _____



CITY COUNCIL PUBLIC HEARING NOTICE

**In compliance with requirements of Public Act 146,
as amended, the following notice is posted:**

Notice is hereby given that the Saginaw City Council will conduct a public hearing on Monday, February 23, 2026 at 6:30 p.m. at the Andersen Enrichment Center, 120 Ezra Rust Drive, to consider the request from Saginaw County Real Estate LLC to create an Obsolete Property Rehabilitation Certificate at 1413 Gratiot Avenue.

The OPRA application with a legal description of the property is on file in the Office of the City Clerk. All interested persons are invited to attend this public hearing.

Kristine Bolzman, MiPMC/CMC
City Clerk

IF YOU ARE DISABLED AND NEED ACCOMMODATION TO PROVIDE YOU WITH AN OPPORTUNITY TO PARTICIPATE OR OBSERVE IN PROGRAMS, SERVICES, OR ACTIVITIES, PLEASE CALL THE SAGINAW CITY CLERK AT 989.759.1480.

Posted:

By: _____



CITY OF SAGINAW

NOTICE OF PUBLIC HEARING

In compliance with requirements of Public Act 267 of 1976, the following notice is posted:

Notice is hereby given that the Saginaw City Council has scheduled a public hearing regarding the official intent to reimburse project expenditure with bond proceeds and authorizing publication of notice of intent to issue Water Supply System Revenue Bonds through the State of Michigan Drinking Water Revolving Fund Program.

The public hearing will be held Monday, February 23, 2026, at 6:30 p.m. at the Andersen Enrichment Center located at 120 Ezra Rust Drive, Saginaw, MI 48601. All interested persons are invited to attend this public hearing.

Kristine Bolzman, MiPMC/CMC
City Clerk

IF YOU ARE DISABLED AND NEED ACCOMMODATION TO PROVIDE YOU WITH AN OPPORTUNITY TO PARTICIPATE OR OBSERVE IN PROGRAMS, SERVICES, OR ACTIVITIES, PLEASE CALL THE SAGINAW CITY CLERK AT 989.759-1480.

Posted: _____
By: kb _____

A Regular Meeting of the Council of the City of Saginaw, Michigan, was held Monday, February 9, 2026, at 6:30 p.m. at the Andersen Enrichment Center, 120 Ezra Rust Drive, Saginaw, Michigan.

Prayer and Pledge of Allegiance

Mayor Moore offered a prayer and led the pledge of allegiance of the United States of America.

Roll Call

Mayor Moore called the meeting to order. Council Members present: Tobias Young, Michael Balls, Priscilla Garcia, Bill Ostash, Eric Braddock Sr., Heidi Wiggins, Carly Hammond, Brenda Moore: 8. Council Members absent: Jacinta Seals:1.

Announcements

City Clerk Kristine Bolzman announced that the City's Convenience Station will be open this Saturday from 8:00 a.m. to noon. City residents may utilize the station to drop off miscellaneous or bulky items for disposal.

Council Member Wiggins read a proclamation recognizing February 2026 as "Black History Month."

Public Hearings

Clerk Bolzman announced the Public Hearing regarding the request to amend the Brownfield Plan to include the former Walgreens Redevelopment Project, located at 409 West Genesee Avenue. Mayor Moore called for public comments. Grace Smith, Saginaw Future Inc. Economic Development Coordinator, spoke in favor of the topic. Mayor Moore called for public comments two additional times. No further comment was made.

Moved by Council Member Ostash, seconded by Council Member Wiggins to close the public hearing. 8 ayes, 0 nays, 1 absent.

Public Input

Members of the public that addressed the Council: AnnMarie Batkoski-Sullivan, Hurley Coleman III, Debra Melkonian, Estell Hackos, Chris Pryor, Thomas Fancher, Saleem Manaana, and Melanie Velasco.

Council Remarks

Remarks were heard from the following Council Members: Hammond, Young, Balls, Ostash, Braddock, Wiggins, Garcia, and Mayor Moore.

Council Member Hammond left the meeting at 7:09 p.m. and returned at 7:12 p.m.

Reports from Manager

City Manager Tim Morales reported updates regarding various projects.

Manager Morales introduced Yolanda Bland, Director of the Office of Management and Budget/Community Services. Ms. Bland provided an update on the Strategic Plan and Goals and the budget.

Council Member Balls left the meeting at 7:52 p.m. and returned at 7:54 p.m.

Consent Agenda:

Moved by Council Member Wiggins, seconded by Mayor Pro Tem Garcia to approve the consent agenda, allowing room for exceptions. No exceptions were made. 8 ayes, 0 nays, 1 absent. Motion approved.

1. Approve the January 23, 2026, regular council meeting minutes.
2. Approve the updated Guidelines for Applicants Requesting Poverty Exemptions.
3. Approve the grant agreement with the Saginaw Community Foundation (SCF) through the General SCF Grant Program for \$15,000 for the Saginaw Fairgrounds Community Park. Further, authorize the City Manager and/or his designee to sign all applicable documents, execute any necessary contracts, and issue purchase orders to approved vendors in the expenditures of these funds. In addition, approve a budget adjustment to recognize these funds.
4. Approve the purchase with Applied Capital for \$1,061.64 in annual payments, for a total amount of \$5,308.20, for a five-year lease of one multi-function copier for the Water Treatment Administration Division.
5. Approve the purchase with Scientific Brake & Equipment Company for \$3,350 for a Western Pro-Flo 525 tailgate salt spreader for the Department of Neighborhood and Inspections, Parking Operations Division.
6. Approve to increase the blanket purchase order with W.W. Williams by \$25,000, for a new total of \$65,000, for vehicle repair services for the Public Services Department, Motor Pool Division.
7. Approve to increase the blanket purchase order with Precision Fleet Image by \$35,000, for a new total of \$50,000, for vehicle repair services for the Public Services Department, Motor Pool Division.
8. Approve to increase the blanket purchase order with Elite Aerial Compliance by \$1,600, for a new total of \$4,400, for vehicle inspection services for the Public Services Department, Motor Pool Division.
9. Approve the purchase with Scientific Brake & Equipment Company for \$9,423 for a Western MVP 3 V-Plow system for the Public Services Department, Cemeteries Division.
10. Approve the purchase with Sullivan Fence Company for \$4,745 for fence repairs and replacement for the Public Services Department, Maintenance and Service Division.

11. Approve the purchase with Standard Electric Company, a sole source, for \$30,391 for Whatley Street light poles and equipment for the Public Services Department, Traffic Engineering Division.
12. Approve the purchase with Standard Electric Company for \$19,858 for various items needed to maintain the decorative streetlights for the Public Services Department, Traffic Engineering Division.
13. Approve the purchase with Mid-State Builders for \$7,850 for a 31' x 11' x 7' storage loft inside the Traffic Engineering Maintenance Barn for the Public Services Department, Traffic Engineering Division.
14. Approve the purchase with Fishbeck for \$58,100 to prepare and submit a project plan amendment for the CWSRF to the State of Michigan for solids handling improvements, and for a study of the secondary aeration system for the Water and Wastewater Treatment Services Department, Wastewater Treatment Division.
15. Approve the purchase with Berger Chevrolet for \$27,165 for a 2026 Chevy Trailblazer LT for the Water and Wastewater Treatment Services Department, Instrumentation and Process Controls Division.
16. Approve the purchase with Johnson Controls for \$3,714 for annual maintenance and monitoring fees of the Ccure door access system and alarm system for the Water and Wastewater Treatment Department, Instrumentation and Process Controls Division.
17. Approve the purchase with Fastenal Company for \$3,533 for AlturnaMats ground protection mats for the Water and Wastewater Treatment Services Department, Water Treatment Division.

Appointment of Board/Commission/Committee Members

Moved by Mayor Pro Tem Garcia, seconded by Council Member Balls to appoint the following:

1. Delena Spates-Allen to the Saginaw Economic Development Corporation with a term to expire June 30, 2028.
2. Melissa Spranger to the Saginaw Economic Development Corporation with a term to expire June 30, 2028.
3. Nathan Hanley to the Historic District Commission with a term to expire July 31, 2028.
4. Beth Church to the Police and Fire Civil Service Commission with a term to expire September 30, 2031.

8 ayes, 0 nays, 1 absent. Motion approved.

Ordinance Adoption

Moved by Mayor Pro Tem Garcia, seconded by Council Member Ostash to adopt an ordinance to amend Chapter 14, "Finance and Purchasing," of Title I, "Administrative Code," by amending

§14.34. "Bids and Bonds," of "Purchasing, Contracting, and Selling Procedure," of the City of Saginaw Code of Ordinances, O-204. 8 ayes, 0 nays, 1 absent. Motion approved.

Resolutions

Moved by Mayor Pro Tem Garcia, seconded by Council Member Wiggins to adopt a resolution amending the Brownfield Plan for the City of Saginaw to include the former Walgreens Redevelopment Project located at 409 West Genesee Avenue. 8 ayes, 0 nays, 1 absent. Motion approved.

Moved by Council Member Balls, seconded by Mayor Pro Tem Garcia to adopt a resolution approving MDOT Cost Agreement 25-5642 for the reconstruction of Perkins Street from Genesee Avenue to 17th Street. 8 ayes, 0 nays, 1 absent. Motion approved.

Miscellaneous Business

Moved by Council Member Ostash, seconded by Council Member Balls to uphold the response associated with Joseph Martuch's FOIA request. 8 ayes, 0 nays, 1 absent. Motion approved.

Adjournment

Moved by Mayor Pro Tem Garcia, seconded by Council Member Ostash to adjourn the meeting at 8:15 p.m. 8 ayes, 0 nays, 1 absent. Motion approved.

Submitted by,

Kristine Bolzman, MiPMC/CMC
City Clerk

#26-03



HELP YOURSELF RECOVER PROJECT

480-729-1197

johnlloydbowen30@yahoo.com

helpyourselfrecoverproject.org

January 24, 2025

Attention: Saginaw City Council

RE: Charitable Gaming License

This letter is a request from the Help Yourself Recover Project a 501 © 3 non-profit charitable organization EIN #85-4205532 located at 844 Sherman Road Saginaw, MI. 48604. We are asking the Saginaw City Council to be considered for a Charitable Gaming License in the City of Saginaw for a Big Bingo license. I have enclosed all necessary documentation for non-profit recognition. If you have any further questions please feel free to contact. Thank you for your time.

John L. Bowen III

Director

Help Yourself Recover Project

Council Communication

Item Number: 3.

Date: February 23, 2026
From: Timothy Morales, City Manager
Subject: Approve the amendments to the FY 2026 Approved Budget to recognize changes that have occurred during the January period.
Prepared By: Yolanda Bland, Director of OMB

Manager's Recommendation:

Approve the amendments to the 2025/2026 Approved Budget for the listed funds. This adjustment is required to recognize any errors, omissions, or changes that have occurred within the month of January.

Justification:

The 2025/2026 annual budget will be adjusted in accordance with Public Act 2 of 1968, Uniform Budgeting and Accounting Act, the City Charter; and the approved 2026 Budget Resolution, which states that the City Manager must provide budget adjustments to City Council quarterly and/or as needed. As a result of the City Manager's monthly analysis for January, the below-mentioned budget adjustments take into consideration any errors, omissions, or changes in the funding levels and expenditure approved by the City Council as prescribed by the City Charter.

In review of the General Fund, it is recommended that this fund be increased by \$104,106 from \$46,723,124 to \$46,836,230.

- A budget adjustment is required to increase purchase order 0519073 with Quality Environmental Services Inc. for additional asbestos abatement for the City Hall HVAC Renovation Project in the amount of \$16,050. Expenditures will be recognized in the General Fund, Other General Fund Expenditures, Transfers Out Division, Transfer to the Capital Project Fund Account No. 101-966.00-995.401 in the amount of \$16,050. An appropriation of restricted fund balance will offset this increase.
- A budget adjustment is required for two reimbursements for Community Public Safety – Police. One reimbursement for \$95 is for restitution to Police for damages that occurred to police property and the second reimbursement for \$50 is for the upgrade to a police phone. Revenues will be recognized in the General Fund Revenue, Reimbursement – PD Account No. 101-000.00-676.020 in the amount of \$145. To offset the increase in revenues, there will be an increase to the Community Public Safety – Police, Police Administration Division, Training and Development Account No. 101-305.00-957.003 of \$50 and to the Police Patrol Division, Parts and Supplies Account No. 101-302.00-742.000 of \$95.

- A budget adjustment is required to recognize \$12,866 received from Consumers Energy for overtime services by Community Public Safety – Police. Revenues will be recognized in the General Fund Revenues, Police Billable Overtime Account No. 101-000.00-607.016 of \$12,866. To offset this increase in revenues, there will be the same increase to the General Fund, Community Public Safety – Police, Police Patrol Division, Billable Overtime Account No. 101-302.00-704.001.
- A budget adjustment is required to recognize the unanticipated funds from the PSN Grant in the amount of \$17,005. Revenues will be recognized in the General Fund Revenues, PSN Grant Account No. 101-000.00-505.017 of \$17,005. To offset this increase in revenues, there will be the same increase to the General Fund, Community Public Safety – Police, PSN Grant Division, Billable Overtime Account No. 101-307.21-704.001.
- A budget adjustment is required to recognize unanticipated funds, \$240, received from the Bullet Proof Vest Grant for Community Public Safety – Police. Revenues will be recognized in the General Fund Revenues; Other Federal Grants Account No. 101-000.00-502.027 of \$240. To offset this increase in revenues, there will be the same increase to the General Fund, Community Public Safety – Police, Police Building Management Division, Clothing Supplies Account No. 101-303.00-728.000.
- A budget adjustment is required to recognize \$45,000 received from the Byrne Kildee Grant #1 in order to pay for the public safety camera for FY 2026. Revenues will be recognized in the General Fund Revenues, Byrne Grant – Kildee #1 Account No. 101-000.00-502.059 of \$45,000. To offset this increase in revenues, there will be the same increase to the General Fund, Community Public Safety – Police, Byrne Grant – Kildee #1 Division, Equipment Account No. 101-307.25-984.000.
- A budget adjustment is required to recognize receiving \$8,300 for the sale of a police vehicle. Revenues will be recognized in the General Fund Revenues, Sale of Property Item Account No. 101-000.00-693.003 of \$8,300. To offset this increase in revenues, there will be the same increase to the General Fund, Community Public Safety – Police, Police Building Management Division, Vehicles Account No. 101-303.00-982.000.
- A budget adjustment is required to increase the City Council’s Training and Development Account by \$4,500. This increase is due to the funds needed for the March Capital Conference and the Elected Officials Academy that council is anticipating to attend this fiscal year. Expenditure will be recognized in the General Fund, Office of General Government, City Council Division, Training and Development Account No. 101-101.00-957.003 in the amount of \$4,500. To offset this increase in expenditure, there will be an appropriation of available fund balance.

The Major Streets Fund (202) should be increased by \$295,450, from \$11,302,839 to \$11,598,289. This adjustment is required for the purchase of a Hook Loader Plow Truck with salter and brine tanks in the amount of \$258,250 and two ¾ ton pick-up

trucks equipped with front plows in the amount of \$37,200. These trucks take about two to three years for delivery, therefore the request to purchase must be made presently. Expenditures will be recognized in this fund's Routine Maintenance Division, Vehicles Account No. 202-449.02-982.000 in the amount of \$37,200 and Winter Maintenance Division, Vehicles Account No. 202-449.03-982.000 in the amount of \$258,250. (Please note that this expenditure is shared with the Local Streets and Rubbish Collection Funds). An appropriation of available fund balance will be utilized to offset these expenditures.

The Local Streets Fund (203) should be increased by \$100,550, from \$3,773,567 to \$3,874,117. This adjustment is required for the purchase of a Hook Loader Plow Truck with salter and brine tanks in the amount of \$75,750 and two ¾ ton pick-up trucks equipped with front plows in the amount of \$24,800. These trucks take about two to three years for delivery, therefore the request to purchase must be made presently. Expenditures will be recognized in this fund's Routine Maintenance Division, Vehicles Account No. 203-449.02-982.000 in the amount of \$24,800 and Winter Maintenance Division, Vehicles Account No. 203-449.03-982.000 in the amount of \$88,150. (Please note that this expenditure is shared with the Major Streets and Rubbish Collection Funds). An appropriation of available fund balance will be utilized to offset these expenditures.

The Rubbish Collection Fund (226) should be increased by \$31,000, from \$5,420,735 to \$5,451,735. This adjustment is required for the purchase of two ¾ ton pick-up trucks equipped with front plows in the amount of \$31,000. These trucks take about two to three years for delivery, therefore the request to purchase must be made presently. Expenditures will be recognized in this fund's Rubbish Collection Administration Division, Vehicles Account No. 226-529.00-982.000 in the amount of \$31,000. (Please note that this expenditure is shared with the Major Streets and Rubbish Collection Funds). An appropriation of available fund balance will be utilized to offset these expenditures.

The Capital Project Fund (401) should be increased from \$3,796,184 to \$3,812,234. This is an increase of \$16,050. This adjustment is required to increase purchase order 0519073 with Quality Environmental Services Inc. for additional asbestos abatement for the City Hall HVAC Renovation Project. Expenditures will be recognized in this fund's Facilities Division, Professional Services Account No. 401-265.00-801.000 in the amount of \$16,050. To offset the increase in expenditures, there will be the same increase to the Transfer from Other Fund.

Council Action:

Motion to approve the recommendation of the City Manager.

Attachments:

None

Council Communication

Item Number: 4.

Date: February 23, 2026
From: Timothy Morales, City Manager
Subject: Felling FT14 Tag Trailer – Environmental Division
Prepared By: Alex Niedecken, Motor Pool Administrator

Manager's Recommendation:

Approve the purchase with AIS Construction Equipment for \$11,700 for a Felling FT14 Tag Trailer for the Department of Neighborhood Services and Inspections, Environmental Division.

Justification:

On January 27, 2026, a quote was received from AIS Construction Equipment for a Felling FT-14 Tag Trailer. The Environmental Division requires this trailer for transporting a skid steer and all attachments during public operations. The current trailer is considered unserviceable and will be removed from service and placed on the auction line. This trailer meets all required specifications and will replace the existing trailer currently in use. The purchase will be made through MiDEAL Contract #240000000158 with AIS Construction Equipment, Corp.

This vendor meets all requirements of §14.33, "Vendors," of "Purchasing, Contracting, and Selling Procedure," of Chapter 14, "Finance and Purchasing," of Title I, "Administrative Code," of the Saginaw Code of Ordinances, O-204.

Funds are budgeted in the Garbage and Rubbish Collection Fund, Environmental Improvement Division, Maintenance Equipment Account No. 226-531.00-978.000.

Council Action:

Motion to approve the recommendation of the City Manager.

Attachments:

None

Council Communication

Item Number: 5.

Date: February 23, 2026
From: Timothy Morales, City Manager
Subject: Training Ammunition Purchase
Prepared By: Brian Rowell, Administrative Professional

Manager's Recommendation:

Approve the purchase with Kiesler Police Supply, Inc. for \$8,352 for training ammunition for the Police Department.

Justification:

Kiesler Police Supply, Inc. was awarded the state contract to supply Michigan law enforcement agencies ammunition at a set price, per State of Michigan Contact Pricing, Contract Number: MA # 240000001217. Pricing includes all costs, including shipping and handling. This purchase is comprised of 40 cases of Federal AE9FP 9mm Luger Auto 147 Grain FMJ Flat Point rounds, priced at \$208.80 per case (1000 Rnds per case). This purchase will replenish the Police Department's training ammunition stock.

This vendor meets all requirements of §14.33, "Vendors," of "Purchasing, Contracting, and Selling Procedure," of Chapter 14, "Finance and Purchasing," of Title I, "Administrative Code," of the Saginaw Code of Ordinances, O-204.

Funds are budgeted in the Drug Forfeiture Fund, Parts and Supplies Account No. 262-312.01-742.000.

Council Action:

Motion to approve the recommendation of the City Manager.

Attachments:

None

Council Communication

Item Number: 6.

Date: February 23, 2026
From: Timothy Morales, City Manager
Subject: Hard Surface Breaching Head Purchase
Prepared By: Brian Rowell, Administrative Professional

Manager's Recommendation:

Approve the purchase with J&N Tactical, a sole source, for \$2,675 for a Hard Surface Breaching Head BH-2 for the Police Department, Emergency Services Team.

Justification:

On January 12, 2026, City Council approved acceptance of the grant award of \$5,271 from the 100 Club of Saginaw County to the Police Department for the purchase of a Hard Surface Breaching Head BH-2 and Truck Mount for the Saginaw Police Emergency Services Team (EST).

J&N Tactical is the sole-source manufacturer and distributor of the BH-2 breaching equipment, which is designed and engineered exclusively for use with the Lenco Bearcat. The EST would utilize this specialized tool during time-sensitive tactical or rescue operations, such as hostage rescues, armed suspect incidents, and high-risk structural entries.

This vendor meets all requirements of §14.33, "Vendors," of "Purchasing, Contracting, and Selling Procedure," of Chapter 14, "Finance and Purchasing," of Title I, "Administrative Code," of the Saginaw Code of Ordinances, O-204.

Funds are budgeted in the General Fund, Community Public Safety – Police, Police Administration Division, Parts and Supplies, Account No 101-305.00-742.000.

Council Action:

Motion to approve the recommendation of the City Manager.

Attachments:

None

Council Communication

Item Number: 7.

Date: February 23, 2026
From: Timothy Morales, City Manager
Subject: Fire Prevention Trailer Repair
Prepared By: Brandon Hausbeck, Fire Chief

Manager's Recommendation:

Approve the purchase with Hamilton's RV for \$2,970 for the repair of the awning on the fire prevention trailer for the Fire Department.

Justification:

The fire prevention trailer requires repairs to its exterior awning. Damage was caused by a third party, and the third party has paid the City for the repairs. On January 7, 2026, Hamilton's RV provided an estimate for the necessary repairs.

This vendor meets all requirements of §14.33, "Vendors," of "Purchasing, Contracting, and Selling Procedure," of Chapter 14, "Finance and Purchasing," of Title I, "Administrative Code," of the Saginaw Code of Ordinances, O-204.

Funds are budgeted in the General Fund, Community Public Safety - Fire, Fire Operations Division, Parts and Supplies Account No. 101-344.01-742.000.

Council Action:

Motion to approve the recommendation of the City Manager.

Attachments:

None

Council Communication

Item Number: 8.

Date: February 23, 2026
From: Timothy Morales, City Manager
Subject: Paratech Rescue System
Prepared By: Brandon Hausbeck, Fire Chief

Manager's Recommendation:

Approve the purchase with MacQueen Emergency Group for \$44,411 for the purchase of a Paratech Rescue System for the Fire Department.

Justification:

The Saginaw Fire Department has members trained in special emergency response, including structural collapse and trench emergencies. The Paratech Rescue System will allow the department to stabilize collapsed buildings, shore unstable trenches, and otherwise stabilize unsafe environments. This purchase will be reimbursed in full by Region 3 Homeland Security funding. On February 2, 2026, MacQueen Emergency Group provided the sole source quote.

This vendor meets all requirements of §14.33, "Vendors," of "Purchasing, Contracting, and Selling Procedure," of Chapter 14, "Finance and Purchasing," of Title I, "Administrative Code," of the Saginaw Code of Ordinances, O-204.

Funds are budgeted in the General Fund, Community Public Safety - Fire, Fire Operations Division, Parts and Supplies Account No. 101-344.01-742.000.

Council Action:

Motion to approve the recommendation of the City Manager.

Attachments:

None

Council Communication

Item Number: 9.

Date: February 23, 2026
From: Timothy Morales, City Manager
Subject: 1-Ton Mini Dump Truck - Maintenance and Service
Prepared By: Alex Niedecken, Motor Pool Administrator

Manager's Recommendation:

Approve the purchase with Todd Wenzel Buick GMC of Westland for \$125,078 for two 2026 GMC Sierra 3500HD, 1-Ton Mini Dump Trucks for the Public Services Department, Maintenance and Service Division.

Justification:

The Maintenance and Service Division has budgeted in Fiscal Year 2026 to purchase two new 2026 GMC Sierra 3500HD 1-ton dump trucks. These vehicles are essential to the division's operations and play a critical role in supporting city projects and emergency response efforts, including dirt removal and concrete debris cleanup.

The new dump trucks will replace two aged and unserviceable units (57-0234 and 57-0235). Both units are currently inoperable, leaving the Maintenance and Service Division short on essential vehicles. The old vehicles will be decommissioned and auctioned. This purchase will be made using MiDeal State bid pricing number #240000001205, Todd Wenzel Buick GMC of Westland.

This vendor meets all requirements of §14.33, "Vendors," of "Purchasing, Contracting, and Selling Procedure," of Chapter 14, "Finance and Purchasing," of Title I, "Administrative Code," of the Saginaw Code of Ordinances, O-204.

Funds are budgeted in the Water Operations and Maintenance Fund, Surplus Division, Vehicles Account No. 591-546.01-982.000 \$62,539.00 and the Sewer Operations and Maintenance Fund, Surplus Division, Vehicles Account No. 590-546.02-982.000 \$62,539.00.

Council Action:

Motion to approve the recommendation of the City Manager.

Attachments:

None

Council Communication

Item Number: 10.

Date: February 23, 2026
From: Timothy Morales, City Manager
Subject: Weiss Street Watermain & Resurfacing – Construction Administration
Prepared By: Travis Hare, City Engineer

Manager's Recommendation:

Approve the proposal from Wade Trim, Inc. for \$328,000 for construction engineering and administration for the Weiss Street Watermain Replacement & Road Resurfacing project for the Public Services Department, Engineering Division.

Justification:

On June 17, 2024, City Council approved professional engineering services agreements with 11 firms, including Wade Trim, Inc. The proposal will be treated as an exhibit to Wade Trim's engineering agreement, but the cost will be separate from the approved total amount of \$1,250,000.

In September 2024, the City was awarded a \$16,500,000 loan for the Weiss Street Watermain & Resurfacing project, \$6,393,000 of which is considered a principal forgiveness loan. On December 16, 2024, City Council approved the proposal with Wade Trim, Inc. to complete full design of the Weiss Street project. The project was then approved by EGLE and bid out in Spring 2025 and was officially awarded to Rohde Brothers Excavating, Inc. on July 14, 2025, by City Council.

On February 3, 2026, the City received the proposal for construction administration services for the Weiss Street Watermain & Road Resurfacing project. The services of Wade Trim are to include construction engineering, construction inspection, construction survey staking, and contract closeout assistance. The Weiss Street Watermain project is unique in that it is the first time the City will have completed a watermain structural lining project. City staff does not have the expertise required to inspect this type of project, nor do we have enough construction inspectors to handle the workload for the 2026 construction season. Wade Trim has extensive experience designing, inspecting, and overseeing these types of projects. Wade Trim's cost proposal has been thoroughly reviewed and is in line with what would be expected for these types of services.

Funds are budgeted in the Major Street Fund, Streets Projects Division, Professional Services Account No. 202-451.00-801.000 \$30,000 and the Water Operations and Maintenance Fund, Surplus Division, Professional Services Account No. 591-546.01-801.000 \$163,000, and will be budgeted in the FY 2027 Major Street Fund, Streets

Projects Division, Professional Services Account No. 202-451.00-801.000 \$35,000 and the Water Operations and Maintenance Fund, Surplus Division, Professional Services Account No. 591-546.01-801.000 \$100,000, upon approval of the FY 2027 budget.

Council Action:

Motion to approve the recommendation of the City Manager.

Attachments:

- 1. Saginaw_Ex. A_2026-03_Rev2

City of Saginaw – Exhibit A

TO AGREEMENT BETWEEN OWNER AND ENGINEER FOR PROFESSIONAL SERVICES

ATTACHMENT NO. 2026-03

PROJECT TITLE: Weiss Street Construction Inspection, Construction Staking, and Field Engineering Services

Company Tracking Number: SAG 2016.02B

Description of work:

Contract administration assistance and construction engineering services for the Weiss Street water main and roadway design from Mackinaw Street to North Michigan Avenue within the City of Saginaw. This project encompasses road resurfacing, miscellaneous curb and gutter replacement, ADA sidewalk ramp construction, and water main replacement and abandonment. This section encompasses approximately 2.3 miles of reconstruction within the City of Saginaw.

The role of Wade Trim during construction of Weiss Street will be providing construction observation, engineering, closeout and surveying services for the City of Saginaw.

1. This is an exhibit attached to, make a part of, and incorporated by reference into the Agreement made June 17, 2024 between the City of Saginaw, Saginaw County, Michigan (Owner) and Wade Trim, Inc. (Engineer) providing for professional engineering services. The Basic Services of Professional as described in Article 1 of the Agreement are amended or supplemented as indicated below and the time periods for the performance of certain services as indicated in Article 3 of the Agreement are stipulated below and as indicated in the attached Scope of Work.
2. During the Study and Report Phase ENGINEER shall:
 - Not applicable
3. During the Preliminary Design Phase ENGINEER shall:
 - Not applicable
4. During the Final Design Phase ENGINEER shall:
 - Not applicable
5. During the Bidding or Negotiating Phase ENGINEER shall:
 - Not applicable

City of Saginaw – Exhibit A (Continued)

TO AGREEMENT BETWEEN OWNER AND ENGINEER FOR PROFESSIONAL SERVICES

6. During the Construction Phase ENGINEER shall:
- Provide **Field Engineering** per attached scope letter.
 - Provide **Field Inspection** per attached scope letter.
 - Provide **Construction Staking** per attached scope letter.
 - Provide **Contract Closeout** per attached scope letter.

Phase Fees

001	Field Engineering:	\$17,000.00
002	Field Inspection:	\$208,000.00
003	Construction Staking:	\$97,000.00
004	Contract Closeout:	\$ 6,000.00
<hr/>		
Total Estimated Fee		\$328,000.00

7. During the Operation Phase ENGINEER shall:

- Not applicable

Payment for this work shall be based on the Standard Hourly Rates Method of Payment as detailed in Section 5 of the Agreement.

Dated: _____

Authorized by: CITY OF SAGINAW

Proposed by: WADE TRIM, INC.



Travis J. Hare, PE
City Engineer

Rebecca M. Smith, PE
Senior Vice President



January 30, 2026

City of Saginaw Engineering Department
1315 South Washington Avenue
Saginaw, MI 48601

Attention: Travis Hare, PE
City Engineer

Re: Proposal for Construction Engineering Services
Weiss Street Water Main and Roadway Design
Saginaw, Michigan

Dear Travis Hare:

Wade Trim is pleased to provide this proposal for contract administration assistance and construction engineering services for the Weiss Street water main and roadway design from Mackinaw Street to North Michigan Avenue within the City of Saginaw. This project encompasses road resurfacing, miscellaneous curb and gutter replacement, ADA sidewalk ramp construction, and water main replacement and abandonment. This section encompasses approximately 2.3 miles of reconstruction within the City of Saginaw.

Our previous experience provides us with a thorough understanding of the natural/environmental conditions and infrastructure, and we take great pride in being part of this project. Wade Trim has considerable experience in planning, designing, and providing construction engineering services on all phases of municipal and site development projects. The following work plan and project scope describes our scope of services in detail.

WORK PLAN

The role of Wade Trim during construction of Weiss Street will be providing construction observation and surveying services for the City of Saginaw. Wade Trim personnel will work closely with the City of Saginaw, the contractor, and all other stakeholders to provide daily observation and documentation of the contractor's work activities.

SCOPE OF SERVICES

FIELD ENGINEERING

Wade Trim will have staff available to respond to requests for information (RFIs) in coordination with the City of Saginaw. Wade Trim can communicate with the contractor to clarify design-related issues with any on-site construction conflicts. Wade Trim will be available to look at and coordinate with the City on any design-related changes should they be needed during the construction process.

Cost for this task of services is based on 4 hours per week dedicated to field engineering review, calculating 25 weeks from the progress clause. If we exceed the 100 hours due to unforeseen additional scope requirements, we will provide those additional services on a Time and Materials Basis in accordance with our current Rate Schedule (or negotiated fee).

FIELD INSPECTION

Documenting overall work performance and progress in accordance with the contract documents for the water main improvements will be the primary focus of Wade Trim's field staff. This includes our primary inspector covering the daily fieldwork for up to 50 hours per week, calculating 29 weeks of construction over the 2026 calendar year basing this off the progress clause with a start date of March 30, 2026, and a substantial completion date of September 25, 2026, then adding four additional weeks should they be needed for cleanup, signage, restoration, etc. Documentation to be provided includes, the following:

- Field conditions at the time of observation including day, time, weather conditions, and temperature.
- Contractor's construction operations, including documenting the contractor's progress and work via Appia Software.
- Materials being used, including field measurements, for payment recommendation and compliance with specifications.
- Effectiveness of soil erosion and sedimentation control measures and vehicle track-out measures to prevent public nuisance, as well as documentation of this via the Michigan Department of Transportation (MDOT) National Pollution Elimination Discharge System Inspection Form (Form 1126).
- Photographs demonstrating work that is currently in progress, the state of soil erosion control measures, and areas of concern or discrepancy.
- Any irregularities observed during construction will be noted on the daily report and will be brought to the attention of the owner.
- GPS shots or field measurements will be recorded by inspector for information where construction placement of utilities in the field varies from design to gather data for As-Builts.
- Wade Trim will schedule all testing required for the project with the City of Saginaw's testing contractor, SMAC Testing, Inc.

CONSTRUCTION STAKING

1. Control Verification:
 - A. Verification of existing horizontal and vertical control as shown on plans.
 - B. Additional working points and temporary control shall be established as needed to complete the tasks below.
2. Staking Saw Cuts:
 - A. Stake saw cut limits denoted on plans.
3. Sidewalk Staking:
 - A. Stake the proposed concrete sidewalks.
 - B. Provide offset grade stakes at PCs, PTs, and high and low points along the sidewalk.
 - C. Offsets will be set at three feet unless otherwise determined and agreed upon.
4. Watermain Staking:
 - A. Provide stakes and grades for domestic water valves, tees, and hydrants for the proposed domestic water main.
 - B. Stakes shall be set at the centerline of the proposed structure and not more than two offset stakes per structure.
 - C. Hub and lathe shall be placed, and the hub shall be graded.
 - D. The centerline of the pipe shall be staked at intervals no less than 100 feet between proposed structures.

- E. Both centerline and one offset stake shall be set at a distance identified by the contractor and noted in the survey staking request form prior to the commencement of staking.
- F. Cut sheets will be provided for all graded stakes.
- G. We anticipate at least three working days' notice for staking requests. The fee is for one-time staking only; re-staking would be completed on an additional Time and Materials Basis.

ASSUMPTIONS AND EXCLUSIONS

1. Our estimate includes drive time and standard surveying equipment to complete the tasks as outlined above. We estimate that not more than four mobilizations will be required to complete all surveying items outlined above. Any mobilizations over the four mentioned above will be considered as optional services.
2. Fees are for one-time staking; any re-staking shall be completed at an additional cost to the contractor on a Time and Materials Basis in accordance with our current Rate Schedule.
3. Any staking that is not listed above will be completed at an additional cost on a Time and Materials Basis in accordance with our current Rate Schedule.
4. Estimated fees for staking are based on non-frost conditions. If staking is requested while the ground is frozen, additional fees shall be paid for by the contractor on a Time and Materials Basis in accordance with our current Rate Schedule.
5. Access to the site will be the responsibility of the owner.
6. No special training or certifications are necessary for our surveyors to work on this site. Hours have not been included for any such training or certifications.
7. Cut sheets shall be provided within two working days of staking.
8. Wade Trim assumes that the engineer will furnish all grades.
9. Our Fee assumes that a CAD file (.dwg format) of the final site, including control points and benchmarks, will be provided to Wade Trim prior to survey commencement.

CONTRACT CLOSEOUT

Our project manager and field staff will perform a substantial completion inspection, along with all EGLE required closeout documentation, with the contractor and develop a punch list of items that do not conform to approved plans and specifications. Once the punch list has been finalized, it will be distributed to the appropriate parties and we will transfer the responsibility of monitoring the contractor's progress in regard to addressing the outstanding items to the City of Saginaw from that point forward. Additionally, we will work with the contractor to make sure that final deliverables are prepared, organized, and submitted, including any additional as-built drawing data showing the field-measured location and elevation of features. Final As-Builts are assumed to be finished by the City of Saginaw.

FEES

The construction phase services, including field oversight, are based on the anticipated project schedule of 29 weeks for project completion and field oversight per the progress clause. We anticipate some additional work items to be completed past this September 25, 2026 date, which is the reason for basing the timeline on 29 weeks.

This work will be performed under our current Professional Services Agreement on file with the City and will be invoiced in accordance with our current Rate Schedule. Additional services not identified in this proposal shall be discussed as they arise. Estimated Fees are attached for review and reference.

Task	Description	Estimated Fee Amount
001	Field Engineering	\$17,000
002	Field Inspection	\$208,000
003	Construction Staking	\$97,000
004	Contract Closeout	\$6,000
Total Estimated Fee		\$328,000

REIMBURSABLE EXPENSES

Reimbursable expenses include items such as mileage, postage, and document reproduction. The fees for these items are included in the costs in the above phases.

ADDITIONAL SERVICES

We will provide additional services on a Time and Materials Basis in accordance with our current Rate Schedule (or negotiated fee).

INVOICING PROCEDURES

All effort and cost will be invoiced monthly for our effort to date. Any disputes in the invoice amount shall immediately be brought to the attention of Wade Trim. Wade Trim reserves the right to stop work when accounts receivable exceeds 90 days. All deliverables are the property of Wade Trim until payment obligations are met.

PROJECT SCHEDULE

We expect to start our services promptly upon authorization to proceed and commencement of the construction contract with the bulk of the field observation to begin once the contractor has mobilized in 2026.


If you have any questions or require additional information regarding this proposal, please contact our office.

Very truly yours,

Wade Trim, Inc.



Jason Martin
Construction Manager



Troy E. Andrews, PE
Senior Project Manager

JS:TEA;jlb
BDXSAG
20260130_HARE-WEISSCELTR.DOCX
Attachment

Council Communication

Item Number: 11.

Date: February 23, 2026
From: Timothy Morales, City Manager
Subject: Professional Engineering Services
Prepared By: Michael (Mike) Grenier, Director of Water/Wastewater Treatment

Manager's Recommendation:

Approve the purchase with Fishbeck for \$45,800 to prepare and submit a project plan amendment for the DWSRF to the State of Michigan for watermain improvements, and for federal cross-cutting requirements for lead service line replacement for the Water and Wastewater Treatment Services Department, Water Treatment Division.

Justification:

On June 17, 2024, City Council approved professional services agreements with 10 firms, including Fishbeck. The proposal will be treated as an Exhibit A to Fishbeck's engineering agreement, but the cost will be separate from the approved total amount of \$750,000. In October 2025, Fishbeck assisted the City with applying for the FY 2027 Drinking Water State Revolving Fund (DWSRF) for water main replacements and dead-end looping. Due to additional water mains being included, an amendment to the Project Plan is required. On January 22, 2025, the City received a proposal from Fishbeck to prepare and submit this amendment to the Michigan Department of Environment, Great Lakes, and Energy (EGLE). Fishbeck is best suited for this project as they assisted in designing and filing the original Project Plan.

This proposal also includes the completion of federal cross-cutter requirements for the DWSRF funded lead service line replacement project for FY 2026. These requirements include environmental and archaeological laws, orders, and policies that the project must adhere to when receiving federal funds.

This vendor meets all requirements of §14.33, "Vendors," of "Purchasing, Contracting, and Selling Procedure," of Chapter 14, "Finance and Purchasing," of Title I, "Administrative Code," of the Saginaw Code of Ordinances, O-204.

Funds are budgeted in the Water Operations and Maintenance Fund, Surplus Engineering Services Account No. 591-546.01-802.000.

Council Action:

Motion to approve the recommendation of the City Manager.

Attachments:

None

Council Communication

Item Number: 12.

Date: February 23, 2026
From: Timothy Morales, City Manager
Subject: Dickinson Wright, PLLC Agreement
Prepared By: Michael (Mike) Grenier, Director of Water/Wastewater Treatment

Manager's Recommendation:

Approve the professional services agreement with Dickinson Wright, PLLC for \$35,000 to act as bond counsel for the City in connection with the issuance of bonds for the City's water supply system that includes the replacement of water main and the construction of a new looped connection.

Justification:

The Department of Water and Wastewater Services was selected as a recipient to receive funds from the Drinking Water State Revolving Fund (DWSRF) in the not to exceed amount of \$9,154,000 through the State of Michigan, Department of Environment, Great Lakes, and Energy. These programs will provide funding for improvements to the City's water supply system.

In order for the bond to be completed, bond counsel is required to provide documentation and any approving opinions on the total financing packages. This agreement covers the fee and provides the services of bond counsel.

This vendor meets all requirements of §14.33, "Vendors," of "Purchasing, Contracting, and Selling Procedure," of Chapter 14, "Finance and Purchasing," of Title I, "Administrative Code," of the Saginaw Code of Ordinances, O-204.

Funds for this service are budgeted in the Water Operations and Maintenance Fund, Administration Division, Professional Services Account No 591-537.01-801.000 in the amount of \$35,000.

I have approved this agreement as to substance and the City Attorney as to form.

Council Action:

Motion to approve the recommendation of the City Manager.

Attachments:

1. Letter RE DWRF Bonds 2026 Dickinson Wright

VIA E-MAIL

February 11, 2026

City Council
City of Saginaw, Michigan

Re: Water Supply System Bonds, DWRP Projects #7900-01a and #7900-01b

Ladies and Gentlemen:

We are thankful for the opportunity to serve as bond counsel to the City of Saginaw (the “City”), in connection with the issuance of bonds for the purpose of financing improvements to the City’s water supply system (the “Water System”). We understand that the bonds will be sold in multiple series to the State of Michigan pursuant to the State’s Drinking Water Revolving Fund (“DWRP”) program, and are expected to be issued in the aggregate principal amount of \$9,154,000, comprised of one bond issue in the principal amount of \$6,854,000, and one bond issue in the principal amount of \$2,300,000. We understand, further, that the bonds will be payable from net revenues of the Water System, and will, therefore, be issued under Michigan’s Revenue Bond Act, Public Act 94 of 1933, as amended.

As with prior bond transactions of the City, in our capacity as bond counsel, we will (i) meet with representatives of the City with respect to the bond issues, (ii) provide legal advice as to the authorization, issuance and delivery of the bonds, (iii) prepare and review documents necessary or appropriate to the authorization, issuance and delivery of the bonds (including, without limitation, the resolution of the governing body of the City declaring the City’s official intent to reimburse project costs paid by the City prior to the issuance of the Bonds (if necessary), the resolution of the governing body of the City authorizing a notice of intent to issue bonds, the resolution of the governing body of the City authorizing the issuance of the Bonds and the order of the City approving the sale of the Bonds and all necessary closing documents, and coordinating the authorization and execution of such documents, (iv) work with the State of Michigan to facilitate compliance with DWRP program requirements, (v) subject to the completion of proceedings to our satisfaction, deliver our legal opinion, or opinions in the event of multiple series, addressed to the City regarding the validity and binding effect of the respective series of bonds, the source of payment and security for the bonds, and, if applicable, the excludability of the interest on the bonds from gross income for Federal and State income tax purposes, and (vi) prepare the closing transcripts for the bonds.

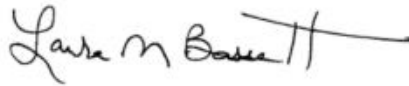
February 11, 2026
Page 2

Our fees to serve as bond counsel for the bonds described herein, assuming an issuance in the principal amount of \$9,154,000, would be \$35,000. I will be the attorney primarily responsible for managing the financing, and will be assisted by Leiana Monkman, a paralegal in the Troy office with me. Following the closing and delivery of the bonds, we will make the required State and Federal post-closing filings, and will prepare and distribute a transcript of the proceedings pertaining to the bonds. Our fee for services is based upon the facts and expected issuance amount set forth above, and we reserve the right to modify our fee if such facts or expectations significantly change or if the financing experiences any significant delays. If for any reason the financing represented by the bonds is not consummated, we will not invoice the City for our fee hereunder, but we will expect to be reimbursed for any time and charges incurred.

During the term of this Agreement, the Firm shall, at its own expense, procure, pay the premium on, keep, and maintain a professional liability/malpractice insurance policy in amounts standard to the industry. The Firm shall, at its own expense, protect, defend, indemnify and save harmless the City, its elected and appointed officers, employees, servants, and agents, from any and all liability resulting from the willful misconduct or negligence of the Firm, or its employees or agents, arising in connection with the services to be performed under this Agreement.

We look forward to working with you. Please do not hesitate to let us know if you have any questions.

Very truly yours,



Laura M. Bassett

Accepted: _____, 2026

CITY OF SAGINAW

By: _____
Timothy Morales, City Manager

LMB/
4918-3851-7135 v1 [9052-123]

Council Communication

Item Number: 13.

Date: February 23, 2026
From: Timothy Morales, City Manager
Subject: Microscope
Prepared By: John Frollo, Superintendent of Wastewater Treatment

Manager's Recommendation:

Approve the purchase with Microscope World for \$2,509 for a Laboratory Microscope at the Water and Wastewater Treatment Services Department, Treatment and Pumping Division.

Justification:

The purchase of a new wastewater laboratory microscope to replace the failing twenty-year-old unit is necessary to support routine examination of microorganisms that indicate overall process health. Microscopic evaluation enables timely operational adjustments that protect treatment efficiency and prevent treatment process upsets. In addition, maintaining reliable microscopic monitoring is an important component of meeting National Pollutant Discharge Elimination System (NPDES) permit requirements. Investing in a dependable microscope strengthens the facility's ability to maintain regulatory compliance and safeguard environmental quality. This was placed out for bids and the following is a summary of qualified bids received:

Vendor	Amount
Microscope World Carlsbad, CA	\$2,509.00

This vendor meets all requirements of §14.33, "Vendors," of "Purchasing, Contracting, and Selling Procedure," of Chapter 14, "Finance and Purchasing," of Title I, "Administrative Code," of the Saginaw Code of Ordinances, O-204.

Funds are budgeted in the Sewer Operations and Maintenance Fund, Treatment and Pumping Division, Laboratory Equipment Account No. 590-542.02-977.000.

Council Action:

Motion to approve the recommendation of the City Manager.

Attachments:

None

Charitable Gaming License for the Help Yourself Recover Project

Moved by _____, seconded by Council Member _____ to offer and adopt the following resolution:

WHEREAS: the Help Yourself Recover Project has submitted a request, Petition #26-03, to be recognized as a nonprofit organization for purposes of obtaining a charitable gaming license; and

WHEREAS: the Michigan Bureau of State Lottery, pursuant to MCL 432.103a, requires a resolution be adopted by the local governing body approving this recognition.

NOW, THEREFORE BE IT RESOLVED that the request from Help Yourself Recover Project, in the City of Saginaw and County of Saginaw, asking that they be recognized as a nonprofit organization operating in the community for the purpose of obtaining charitable gaming licenses, be considered approved.

Ayes:
Nays:
Absent:

RESOLUTION DECLARED ADOPTED

I, Kristine Bolzman, City Clerk of the City of Saginaw, Michigan, do hereby certify that the foregoing is a true and complete copy of the resolution adopted by the City of Saginaw, Saginaw County, State of Michigan, at a public meeting held on February 23, 2026; the original thereof is on file in the records of the Office of the City Clerk; the meeting was conducted and public notice of said meeting was given pursuant to Act No. 267, Public Acts of Michigan, 1976, as amended, and minutes of this meeting were kept and will be made available as required.

Kristine Bolzman, MiPMC/CMC
City Clerk

Obsolete Property Rehabilitation Certificate for Property at 1413 Gratiot Avenue

Moved by Council Member _____, seconded by Council Member _____ to adopt the following resolution:

WHEREAS: under P.A. 146 of 2000, as amended, the City of Saginaw is a Qualified Local Government Unit eligible to establish one or more Obsolete Property Rehabilitation (OPRA) Districts; and

WHEREAS: the Saginaw City Council legally established the OPRA District at 1413 Gratiot Avenue on December 18, 2006, after a public hearing on December 18, 2006; and

WHEREAS: the taxable value of the property proposed to be exempt plus the aggregate taxable value of property already exempt under Public Act 146 of 2000 and under Public Act 198 of 1974 (IFT's) does not exceed 5% of the total taxable value of the City of Saginaw; and

WHEREAS: the application was approved after a public hearing as provided by section 4(2) of Public Act 146 of 2000 on February 23, 2026; and

WHEREAS: the applicant is not delinquent in any taxes related to the facility; and

WHEREAS: the application is for obsolete property as defined in section 2(h) of Public Act 146 of 2000; and

WHEREAS: the applicant Saginaw County Real Estate LLC has provided answers to all required questions under the application instructions to the City of Saginaw; and

WHEREAS: the City of Saginaw requires that rehabilitation of the facility shall be completed by March 1, 2027; and

WHEREAS: the commencement of the rehabilitation of the facility did not occur before the establishment of the Obsolete Property Rehabilitation District; and

WHEREAS: the application relates to a rehabilitation program that when completed constitutes a rehabilitated facility within the meaning of Public Act 146 of 2000 and that it is situated within the OPRA District established in the City of Saginaw eligible under Public Act 146 of 2000 to establish such a district; and

WHEREAS: completion of the rehabilitated facility is calculated to, and will at the time of issuance of the certificate, have the reasonable likelihood to, increase commercial activity, revitalize urban areas, and increase the number of residents in which the facility is situated; and

WHEREAS: the rehabilitation includes improvements aggregating 10% or more of the true cash value of the property at commencement of the rehabilitation as provided by section 2(1) of Public Act 146 of 2000; and

WHEREAS: the application was approved for 12 years and no extension of the certificate can be considered. The certificate shall be in effect for a period of twelve (12) years.

NOW THEREFORE BE IT RESOLVED that the City Council of the City of Saginaw hereby granted an Obsolete Property Rehabilitation Exemption for the real property, excluding land, located at 1413 Gratiot Avenue, Saginaw, Michigan, for a period of twelve (12) years, pursuant to the provisions of Public Act 146 of 2000, as amended.

1413 Gratiot Avenue
Assessor's File #: 18-0035-00000

PART OF LOTS 21, 22, 23, 24, 25, 26, 27 AND 28, BINDER AND SEYFFARDT'S ADDITION, AS PER PLAT THEREOF RECORDED IN LIBER 38 OF PLATS, PAGE 65, SAGINAW COUNTY RECORDS, EXCEPT THAT PART SOLD TO MICHIGAN DEPARTMENT OF TRANSPORTATION, BEING PART OF THE SOUTHEAST 1/4, SECTION 27, T12N - R04E, CITY OF SAGINAW, SAGINAW COUNTY, MICHIGAN. BEING FURTHER DESCRIBED AS BEGINNING AT THE NORTHEAST CORNER OF SAID LOT 28; THENCE S00°12'35"E ALONG THE EAST LINE OF SAID LOT 28, 451.68'; THENCE N89°44'43"W, 466.47' TO THE WEST LINE OF SAID LOT 23; THENCE N00°13'26"W ALONG SAID WEST LINE, 232.14'; THENCE N89°40'25"W, 155.51' TO THE EAST LINE OF S. ELM STREET; THENCE N00°13'43"W ALONG SAID EAST LINE, 99.16'; THENCE S89°42'22"E, 155.52' TO WEST LINE OF SAID LOT 23; THENCE N00°13'26"W ALONG SAID WEST LINE, 108.30' TO THE SOUTHERLY LINE OF GRATIOT AVENUE (M-46); THENCE S89°44'42"E ALONG SAID SOUTHERLY LINE, 210.53'; THENCE N84°19'10"E ALONG SAID SOUTHERLY LINE, 116.05'; THENCE S89°44'42"E ALONG SAID SOUTHERLY LINE, 140.52' TO THE POINT OF BEGINNING

Ayes:
Nays:
Absent:

RESOLUTION DECLARED ADOPTED

I, Kristine Bolzman, City Clerk of the City of Saginaw, Michigan, do hereby certify that the foregoing is a true and complete copy of the resolution adopted by the City of Saginaw, Saginaw County, State of Michigan, at a public meeting held on February 23, 2026; the original thereof is on file in the records of my office; the meeting was conducted and public notice of said meeting was given pursuant to Act No. 267, Public Acts of Michigan, 1976, as amended, and minutes of this meeting were kept and will be made available as required.

Kristine Bolzman, MiPMC/CMC
City Clerk

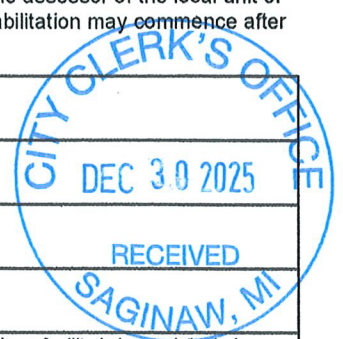
Application for Obsolete Property Rehabilitation Exemption Certificate

Issued under authority of Public Act 146 of 2000, as amended.

This application should be filed after the district is established. This project will not receive tax benefits until approved by the State Tax Commission. Applications received after October 31 may not be acted upon in the current year. This application is subject to audit by the State Tax Commission.

INSTRUCTIONS: File the completed application and the required attachments with the clerk of the local government unit. (The State Tax Commission requires two copies of the Application and attachments. The original is retained by the clerk.) See State Tax Commission Bulletin 9 of 2000 for more information about the Obsolete Property Rehabilitation Exemption. The following must be provided to the local government unit as attachments to this application: (a) General description of the obsolete facility (year built, original use, most recent use, number of stories, square footage); (b) General description of the proposed use of the rehabilitated facility, (c) Description of the general nature and extent of the rehabilitation to be undertaken, (d) A descriptive list of the fixed building equipment that will be a part of the rehabilitated facility, (e) A time schedule for undertaking and completing the rehabilitation of the facility, (f) A statement of the economic advantages expected from the exemption. A statement from the assessor of the local unit of government, describing the required obsolescence has been met for this building, is required with each application. Rehabilitation may commence after establishment of district.

Applicant (Company) Name (applicant must be the OWNER of the facility) Saginaw County Real Estate, LLC		
Company Mailing Address (Number and Street, P.O. Box, City, State, ZIP Code) 31300 Rexwood St, Ste A9, Farmington Hills, MI 48334		
Location of obsolete facility (Number and Street, City, State, ZIP Code) 1413 Gratiot Ave, Saginaw MI 48602		
City, Township, Village (indicate which) Saginaw	County Saginaw	
Date of Commencement of Rehabilitation (mm/dd/yyyy) 03/01/2026	Planned date of Completion of Rehabilitation (mm/dd/yyyy) 03/01/2027	School District where facility is located (include school code) 73010
Estimated Cost of Rehabilitation \$3,997,553.45	Number of years exemption requested	
Attach legal description of obsolete property on separate sheet.		
Expected Project Outcomes (Check all that apply)		
<input checked="" type="checkbox"/> Increase commercial activity	<input type="checkbox"/> Retain employment	<input checked="" type="checkbox"/> Revitalize urban areas
<input checked="" type="checkbox"/> Create employment	<input type="checkbox"/> Prevent a loss of employment	<input type="checkbox"/> Increase number of residents in the community in which the facility is situated
Indicate the number of jobs to be retained or created as a result of rehabilitating the facility, including expected construction employment. <u>95</u>		
<input type="checkbox"/> Each year, the State Treasurer may approve 25 additional reductions of half the school operating and state education taxes for a period not to exceed six years. Check the box at left if you wish to be considered for this exclusion.		
APPLICANT CERTIFICATION		
The undersigned, authorized officer of the company making this application certifies that, to the best of his/her knowledge, no information contained herein or in the attachments hereto is false in any way and that all of the information is truly descriptive of the property for which this application is being submitted. Further, the undersigned is aware that, if any statement or information provided is untrue, the exemption provided by Public Act 146 of 2000 may be in jeopardy.		
The applicant certifies that this application relates to a rehabilitation program that, when completed, constitutes a rehabilitated facility, as defined by Public Act 146 of 2000, as amended, and that the rehabilitation of the facility would not be undertaken without the applicant's receipt of the exemption certificate.		
It is further certified that the undersigned is familiar with the provisions of Public Act 146 of 2000, as amended, of the Michigan Compiled Laws; and to the best of his/her knowledge and belief, (s)he has complied or will be able to comply with all of the requirements thereof which are prerequisite to the approval of the application by the local unit of government and the issuance of an Obsolete Property Rehabilitation Exemption Certificate by the State Tax Commission.		
Name of Company Officer (No authorized agents) Fahad Khan	Telephone Number [REDACTED]	Fax Number [REDACTED]
Mailing Address 31300 Rexwood St, Ste A9, Farmington Hills MI 48334	E-mail Address CEO	
Signature [REDACTED]	Title CEO	
LOCAL GOVERNMENT UNIT CLERK CERTIFICATION		
The Clerk must also complete Parts 1, 2 and 4 on page 2. Part 3 is to be completed by the Assessor.		
Signature	Date Application Received	
FOR STATE TAX COMMISSION USE		
Application Number	Date Received	LUCI Code



LOCAL GOVERNMENT ACTION		
This section is to be completed by the clerk of the local governing unit before submitting the application to the State Tax Commission. Include a copy of the resolution which approves the application and Instruction items (a) through (f) on page 1, and a separate statement of obsolescence from the assessor of record with the State Assessor's Board. All sections must be completed in order to process.		
PART 1: ACTION TAKEN		
Action Date		
<input type="checkbox"/> Exemption Approved for _____ Years, ending December 30, _____ (not to exceed 12 years) <input type="checkbox"/> Denied		
Date District Established	LUCI Code	School Code
PART 2: RESOLUTIONS (the following statements must be included in resolutions approving)		
<p>A statement that the local unit is a Qualified Local Governmental Unit.</p> <p>A statement that the Obsolete Property Rehabilitation District was legally established including the date established and the date of hearing as provided by section 3 of Public Act 146 of 2000.</p> <p>A statement indicating whether the taxable value of the property proposed to be exempt plus the aggregate taxable value of property already exempt under Public Act 146 of 2000 and under Public Act 198 of 1974 (IFT's) exceeds 5% of the total taxable value of the unit.</p> <p>A statement of the factors, criteria and objectives, if any, necessary for extending the exemption, when the certificate is for less than 12 years.</p> <p>A statement that a public hearing was held on the application as provided by section 4(2) of Public Act 146 of 2000 including the date of the hearing.</p> <p>A statement that the applicant is not delinquent in any taxes related to the facility.</p> <p>If it exceeds 5% (see above), a statement that exceeding 5% will not have the effect of substantially impeding the operation of the Qualified Local Governmental Unit or of impairing the financial soundness of an affected taxing unit.</p> <p>A statement that all of the items described under "Instructions" (a) through (f) of the Application for Obsolete Property Rehabilitation Exemption Certificate have been provided to the Qualified Local Governmental Unit by the applicant.</p>	<p>A statement that the application is for obsolete property as defined in section 2(h) of Public Act 146 of 2000.</p> <p>A statement that the commencement of the rehabilitation of the facility did not occur before the establishment of the Obsolete Property Rehabilitation District.</p> <p>A statement that the application relates to a rehabilitation program that when completed constitutes a rehabilitated facility within the meaning of Public Act 146 of 2000 and that is situated within an Obsolete Property Rehabilitation District established in a Qualified Local Governmental Unit eligible under Public Act 146 of 2000 to establish such a district.</p> <p>A statement that completion of the rehabilitated facility is calculated to, and will at the time of issuance of the certificate, have the reasonable likelihood to, increase commercial activity, create employment, retain employment, prevent a loss of employment, revitalize urban areas, or increase the number of residents in the community in which the facility is situated. The statement should indicate which of these the rehabilitation is likely to result in.</p> <p>A statement that the rehabilitation includes improvements aggregating 10% or more of the true cash value of the property at commencement of the rehabilitation as provided by section 2(l) of Public Act 146 of 2000.</p> <p>A statement of the period of time authorized by the Qualified Local Governmental Unit for completion of the rehabilitation.</p>	
PART 3: ASSESSOR RECOMMENDATIONS		
Provide the Taxable Value and State Equalized Value of the Obsolete Property, as provided in Public Act 146 of 2000, as amended, for the tax year immediately preceding the effective date of the certificate (December 31 of the year approved by the STC)		
Building Taxable Value	Building State Equalized Value	
\$ 393,355	\$ 408,015	
Name of Government Unit	Date of Action Application	Date of Statement of Obsolescence
PART 4: CLERK CERTIFICATION		
The undersigned clerk certifies that, to the best of his/her knowledge, no information contained herein or in the attachments hereto is false in any way. Further, the undersigned is aware that if any information provided is untrue, the exemption provided by Public Act of 2000 may be in jeopardy.		
Name of Clerk	Telephone Number	
Clerk Mailing Address		
Mailing Address		
Telephone Number	Fax Number	E-mail Address
Clerk Signature	Date	

For faster service, email completed application and attachments to PTE@michigan.gov. An additional submission option is to mail the completed application and attachments to Michigan Department of Treasury, State Tax Commission, PO Box 30471, Lansing, MI 48909. If you have any questions, call 517-335-7491.

Saginaw County Real Estate

1413 Gratiot Ave
Saginaw, MI 48602

Requesting Obsolete Rehabilitation Exemption

Dear,
Kristine Bolzman
City Clerk
1315 S. Washington Ave
Saginaw, MI 48601

I hope this message finds you well. I would like to formally request an OPRA (Obsolete Property Rehabilitation Act) designation for the property mentioned above. We are a healthcare group specializing in post-acute care, with 17 years of experience in the industry. As we expand beyond our core counties, we have identified Saginaw as a key area in need of mental health and substance abuse treatment facilities.

Our organization is a preferred provider for mental health and substance abuse services in the state of Michigan, and we are committed to serving the Saginaw community by developing a state-of-the-art outpatient and inpatient facility. We have received strong support from local health systems and are eager to move forward with this important project. We will also offer Medication assisted treatment, mental health counseling, primary care access, imaging services, and ancillary services for the community.

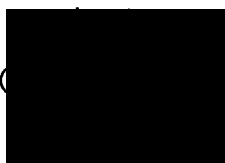
We have allocated a budget of \$3,997,553.45 to renovate and operate the 55,000 sq. ft. facility built in 1955 and previously utilized for elderly housing. Planned renovations include new carpeting, painting, tiles, showers, bathrooms, windows, roof, boilers, kitchen appliances, and a virtual reality relaxation area. Additionally, we may request to convert the backyard into a secure, enclosed farm for community mental health healing. Based on our experience, animal-assisted therapy has shown significant benefits in supporting mental health recovery. Timeline for rehabilitation is to be finished by Summer of 2027.

This facility is expected to create approximately 90 additional jobs in the City of Saginaw, contributing significantly to local economic growth. It will serve as a cornerstone in the recovery and reintegration of substance abuse participants, offering them a pathway to employment and fostering their ability to thrive within the community. Furthermore, the rehabilitation of this building will enhance housing and commercial property values in the surrounding area, promoting broader economic and social revitalization.

I look forward to discussing the OPRA designation further and collaborating to support the needs of the community.

Thank You,

Fahad Khan, CEO



PART OF LOTS 21, 22, 23, 24, 25, 26, 27 AND 28, BINDER AND SEYFFARDT'S ADDITION, AS PER PLAT THEREOF RECORDED IN LIBER 38 OF PLATS, PAGE 65, SAGINAW COUNTY RECORDS, EXCEPT THAT PART SOLD TO MICHIGAN DEPARTMENT OF TRANSPORTATION, BEING PART OF THE SOUTHEAST 1/4, SECTION 27, T12N - R04E, CITY OF SAGINAW, SAGINAW COUNTY, MICHIGAN. BEING FURTHER DESCRIBED AS BEGINNING AT THE NORTHEAST CORNER OF SAID LOT 28; THENCE S00°12'35"E ALONG THE EAST LINE OF SAID LOT 28, 451.68'; THENCE N89°44'43"W, 466.47' TO THE WEST LINE OF SAID LOT 23; THENCE N00°13'26"W ALONG SAID WEST LINE, 232.14'; THENCE N89°40'25"W, 155.51' TO THE EAST LINE OF S. ELM STREET; THENCE N00°13'43"W ALONG SAID EAST LINE, 99.16'; THENCE S89°42'22"E, 155.52' TO WEST LINE OF SAID LOT 23; THENCE N00°13'26"W ALONG SAID WEST LINE, 108.30' TO THE SOUTHERLY LINE OF GRATIOT AVENUE (M-46); THENCE S89°44'42"E ALONG SAID SOUTHERLY LINE, 210.53'; THENCE N84°19'10"E ALONG SAID SOUTHERLY LINE, 116.05'; THENCE S89°44'42"E ALONG SAID SOUTHERLY LINE, 140.52' TO THE POINT OF BEGINNING



CITY OF SAGINAW

ASSESSOR'S OFFICE
1315 S WASHINGTON AVE
SAGINAW, MI 48601

Tuesday, May 13, 2025

Michigan Department of Treasury
State Tax Commission
Treasury Building
Lansing, MI 48922

Re: 1413 Gratiot Ave., Saginaw, MI 48602

To Whom It May Concern:

Please allow this letter to serve as finding by the City of Saginaw Assessors Office that the building located at the above address is functionally obsolete.

The building is a 52,893 square-foot brick commercial structure with a partial basement built in 1955 as a parochial school, and expanded in 1978 when it became an assisted living facility. In early 2022, the boiler failed and was unable to be repaired or replaced due to cost and COVID-related restrictions. The facility henceforth had to be vacated. Since then, the building had been unlawfully occupied and vandalized throughout, at which time several windows and doors were broken and graffiti was applied to many surfaces. The necessary improvements include a new HVAC system to replace the outdated and unrepairable boiler system; replacing windows, doors, ceilings and flooring in some sections; and updating the plumbing and electrical systems. In addition, due to the age and construction of the building there are potentially high levels of asbestos.

If you have any questions, feel free to contact our office.

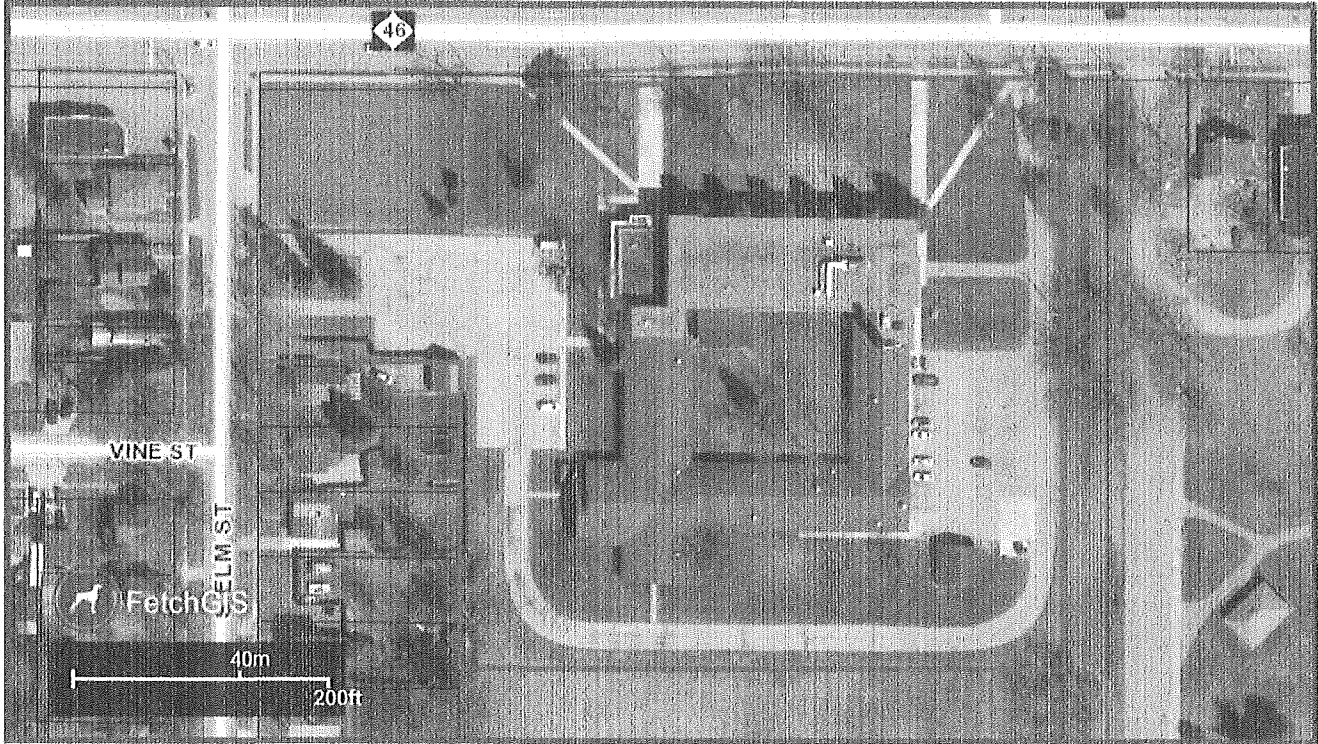
Sincerely,

A handwritten signature in cursive script that reads "Lori D. Brown".

Lori D. Brown, MAAO (3)
City Assessor
City of Saginaw
(989) 759-1473
lbrown@saginaw-mi.com

CONTINUATION SHEET			SCHEDULE of VALUES
AIA Document G702, APPLICATION AND CERTIFICATION FOR PAYMENT, containing Contractor's signed certification is attached.			
In tabulations below, amounts are stated to the nearest dollar.			
Use Column F on Contracts where variable retainage for line items may apply.			
A ITEM NO.	B DESCRIPTION OF WORK	Scheduled Value	D WORK COMPLETED FROM PREVIOUS APPLICATION (D + E)
01000 General Conditions			
1	Supervision	\$100,000.00	0.00
2	Supervision Medical Ins.	\$2,500.00	0.00
3	Insurance General Liability	\$7,000.00	0.00
4	Demo/Clean Up Inside Building	\$170,000.00	0.00
5	Vehicle charges	\$4,000.00	0.00
6	Fuel	\$4,000.00	0.00
7	Temp port a Jon	\$3,500.00	0.00
8	Temp trailer	\$1,200.00	0.00
9	Misc Labor	\$25,000.00	0.00
10	misc materials	\$30,000.00	0.00
11	Dumpsters	\$13,000.00	0.00
12	Building Permit Allowance	\$7,000.00	0.00
13	Parking Lot Refinishing	\$204,500.00	0.00
14	Doors, Frames, Hardware	\$84,400.00	0.00
15	Final Cleaning Allowance	\$30,000.00	0.00
16	Window Replacement	\$316,500.00	0.00
17	Interior Trim Labor	\$27,700.00	0.00
18	Cabinet Materials & labor	\$80,000.00	0.00
19	Roofing	\$436,935.00	0.00
20	Gutters	\$62,500.00	0.00
21	Glass & Glazing (includes bullet proof glass)	\$55,000.00	0.00
22	Drywall & Acoustical	\$160,000.00	0.00
23	EIFS	\$25,000.00	0.00
24	flooring/demo	\$280,500.00	0.00
25	Indoor & Outdoor Painting	\$383,350.00	0.00
26	Kitchen Demo & Build Out	\$40,000.00	0.00
27	Water Heater	\$48,500.00	0.00
28	Plumbing	\$184,000.00	0.00
29	HVAC	\$950,000.00	0.00
30	Electrical	\$79,550.00	0.00
31	Builders Risk (needed by owner for bank)	\$10,000.00	0.00
32	Contingency Allowance	\$245,000.00	0.00
33	Overhead	\$100,000.00	0.00
34	Profit	\$165,510.45	0.00
35		\$0.00	0.00
36		\$0.00	0.00
37		\$0.00	0.00
38		\$0.00	0.00
39		\$0.00	0.00
40		\$0.00	0.00
		\$3,997,553.45	\$

Serenity Springs					
1413 Gratlot Ave					
Saginaw MI 48602					
CONTRACTOR'S PROJECT NO:					S24500
APPLICATION DATE:					Revised 11/31/2024
E	F	G	H	I	
THIS PERIOD	MATERIALS PRESENTLY STORED (NOT IN D OR E)	TOTAL COMPLETED AND STORED TO DATE (D+E+F)	% (G + C)	BALANCE TO FINISH (C - G)	RETAINAGE (IF VARIABLE RATE)
\$ -	0.00	0.00	0%	\$100,000.00	\$ -
\$ -	0.00	0.00	0%	\$2,500.00	\$ -
\$ -	0.00	0.00	0%	\$7,000.00	\$ -
\$ -	0.00	0.00	0%	\$170,000.00	\$ -
\$ -	0.00	0.00	0%	\$4,000.00	\$ -
\$ -	0.00	0.00	0%	\$4,000.00	\$ -
\$ -	0.00	0.00	0%	\$3,800.00	\$ -
\$ -	0.00	0.00	0%	\$1,200.00	\$ -
\$ -	0.00	0.00	0%	\$25,000.00	\$ -
\$ -	0.00	0.00	0%	\$30,000.00	\$ -
\$ -	0.00	0.00	0%	\$13,800.00	\$ -
\$ -	0.00	0.00	0%	\$7,000.00	\$ -
\$ -	0.00	0.00	0%	\$284,600.00	\$ -
\$ -	0.00	0.00	0%	\$84,400.00	\$ -
\$ -	0.00	0.00	0%	\$30,000.00	\$ -
\$ -	0.00	0.00	0%	\$318,000.00	\$ -
\$ -	0.00	0.00	0%	\$27,700.00	\$ -
\$ -	0.00	0.00	0%	\$60,000.00	\$ -
\$ -	0.00	0.00	0%	\$436,835.00	\$ -
\$ -	0.00	0.00	0%	\$62,500.00	\$ -
\$ -	0.00	0.00	0%	\$55,000.00	\$ -
\$ -	0.00	0.00	0%	\$160,000.00	\$ -
\$ -	0.00	0.00	0%	\$25,000.00	\$ -
\$ -	0.00	0.00	0%	\$280,500.00	\$ -
\$ -	0.00	0.00	0%	\$383,350.00	\$ -
\$ -	0.00	0.00	0%	\$40,600.00	\$ -
\$ -	0.00	0.00	0%	\$40,500.00	\$ -
\$ -	0.00	0.00	0%	\$184,000.00	\$ -
\$ -	0.00	0.00	0%	\$650,000.00	\$ -
\$ -	0.00	0.00	0%	\$79,550.00	\$ -
\$ -	0.00	0.00	0%	\$10,000.00	\$ -
\$ -	0.00	0.00	0%	\$245,000.00	\$ -
\$ -	0.00	0.00	0%	\$100,000.00	\$ -
\$ -	0.00	0.00	0%	\$165,610.45	\$ -
\$ -	0.00	0.00	#DIV/0!	0.00	\$ -
\$ -	0.00	0.00	#DIV/0!	0.00	\$ -
\$ -	0.00	0.00	#DIV/0!	0.00	\$ -
\$ -	0.00	0.00	#DIV/0!	0.00	\$ -
\$ -	0.00	0.00	#DIV/0!	0.00	\$ -
\$ -	0.00	0.00	#DIV/0!	0.00	\$ -
\$ -	0.00	0.00	0.0%	\$3,897,653.45	\$ -



Property Address

1413 GRATIOT AVE
Saginaw, MI, 48602-2628

This Parcel has no image on file.

Owner Address

SAGINAW COUNTY REAL ESTATE LLC
--
5010 VILLAGE COMMONS DR
WEST BLOOMFIELD, MI 48322

Unit: 90
Unit Name: CITY OF SAGINAW

General Information for 2025 Tax Year

Official Intent to Reimburse Project Expenditures with Bond Proceeds and Authorizing Publication of Notice of Intent to Issue Water Supply System Revenue Bonds Through the State Of Michigan Drinking Water Revolving Fund Program.

Moved by Council Member _____, seconded by Council Member _____ to adopt the following resolution:

WHEREAS: the City of Saginaw (the “City”) proposes to issue its tax-exempt revenue bonds (the “Bonds”) under Act 94, Public Acts of Michigan, 1933, as amended (“Act 94”), to finance water supply system improvements as hereinafter described (the “Project”); and

WHEREAS: it is anticipated that the City will advance all or a portion of the costs of the Project prior to the issuance of the Bonds, such advance to be repaid from proceeds of the Bonds upon the issuance thereof; and

WHEREAS: Section 1.150-2 of the Treasury Regulations on Income Tax (the “Reimbursement Regulations”) specifies conditions under which a reimbursement allocation may be treated as an expenditure of bond proceeds, and the City intends by this resolution to qualify amounts advanced by the City to the Project for reimbursement from proceeds of the Bonds in accordance with the requirements of the Reimbursement Regulations.

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City, approves the following:

1. The Projects shall consist of water supply system improvements, including but not limited to (a) the replacement of water main and the construction of a new looped connection from A Street through Larch Street along the Huron and Eastern Railway, eliminating dead-end water mains; and (b) the replacement of water service lines along N. Mason Street between Houghton Street and State Street, and along Perkins Street between Genesee Street and 17th Street, in the City; as well as all work, equipment and appurtenances necessary or incidental to such improvements; all to improve deteriorating infrastructure, enhance system reliability, increase available fire flow and improve overall water quality in the City, and
2. The maximum principal amount of the Bonds expected to be issued for the Project is \$9,154,000, and
3. The City hereby declares its official intent to issue the Bonds to finance the costs of the Project, and hereby declares that it reasonably expects to reimburse the City’s advances to the Project as anticipated by this resolution, and
4. The Bonds shall be authorized by proper proceedings subsequent to this resolution, and

5. The City Clerk is hereby instructed to publish the following notice attached hereto as Exhibit A once in *The Saginaw News*, a newspaper of general circulation in the City, and
6. The Mayor or the City Manager is authorized, if necessary, to file with the Michigan Department of Treasury an application for permission to issue the Bonds, and
7. All prior resolutions and parts of resolutions insofar as they may be in conflict with this resolution are hereby rescinded.

Ayes:
Nays:
Absent:

RESOLUTION DECLARED ADOPTED

I, Kristine Bolzman, City Clerk of the City of Saginaw, Michigan, do hereby certify that the foregoing is a true and complete copy of the resolution adopted by the City of Saginaw, Saginaw County, State of Michigan, at a public meeting held on February 23, 2026, the original thereof is on file in the records of my office; the meeting was conducted and public notice of said meeting was given pursuant to Act No. 267, Public Acts of Michigan, 1976, as amended, and minutes of this meeting were kept and will be made available as required.

Kristine Bolzman, MiPMC/CMC
City Clerk

EXHIBIT A

NOTICE OF INTENT TO ISSUE BONDS BY THE CITY OF SAGINAW, MICHIGAN

NOTICE IS HEREBY GIVEN, that the City of Saginaw, Saginaw County, Michigan, intends to issue revenue bonds in multiple series in the aggregate principal amount of not to exceed \$9,154,000 for the purpose of defraying all or part of the cost of acquiring, constructing and installing improvements to the City's water supply system (the "System"), including but not limited to (a) the replacement of water main and the construction of a new looped connection from A Street through Larch Street along the Huron and Eastern Railway, eliminating dead-end water mains; and (b) the replacement of water service lines along N. Mason Street between Houghton Street and State Street, and along Perkins Street between Genesee Street and 17th Street, in the City; as well as all work, equipment and appurtenances necessary or incidental to such improvements; all to improve deteriorating infrastructure, enhance system reliability, increase available fire flow and improve overall water quality in the City.

Each series of bonds will be payable in annual principal installments not to exceed forty (40) in number and bear interest from their date at a rate or rates to be determined at the time of sale but in no event to exceed the maximum rate permitted by law. Certain of the bonds may be subject to redemption prior to maturity.

The bonds will be issued under the provisions of Act 94, Public Acts of Michigan, 1933, as amended, and a resolution of the City Council and will be payable from the net revenues of the System and any improvements, enlargements and extensions thereto, and a statutory lien on said revenues will be established by the resolution. The City of Saginaw will covenant and agree to fix and maintain at all times while any of the bonds shall be outstanding such rates for service furnished by the System as shall be sufficient to provide for payment of the necessary expenses of operation, maintenance and administration of the System and of the principal of and interest on the bonds when due, to create a bond and interest reserve account and to provide for such other expenditures and funds for the System as are required by the resolution authorizing the issuance of bonds.

RIGHT TO PETITION FOR REFERENDUM

This notice is given, by order of the City Council of the City of Saginaw, to and for the benefit of the electors and taxpayers of the City of Saginaw in order to inform them of their right to petition for a referendum upon the question of the issuance of the aforesaid bonds. The bonds will be issued, without submitting such a question to a vote of the electors, unless within 45 days after the date of publication of this notice, a petition requesting a referendum upon such question, signed by not less than 10% or 15,000 of the registered electors in the City of Saginaw, whichever is less, shall have been filed with the undersigned City Clerk. In the event that such a petition is filed, the bonds will not be issued unless and until the issuance thereof shall have been approved by the vote of a

February 23, 2026
Page 3 of 4

majority of the electors of the City of Saginaw qualified to vote and voting thereon at a general or special election.

FURTHER INFORMATION

Further information relative to the issuance of said bonds and the subject matter of this notice may be secured at the office of the City Clerk of the City of Saginaw, 1315 S. Washington Avenue, Saginaw, Michigan 48601.

This notice is given pursuant to the provisions of Section 33 of Act 94, Public Acts of Michigan, 1933, as amended.

Kristine Bolzman
City Clerk
City of Saginaw

Dated: February 23, 2026

4927-2672-6543 v1 [9052-123]

From: Timothy Morales, City Manager
Subject: Adoption of the Safe Streets for Saginaw Safety Action Plan
Prepared by: Ronald Rangel, Public Services Department

Manager’s Recommendation:

I recommend approval and adoption of the Safe Streets For Saginaw (SS4S) Safety Action Plan for the Public Services Department, Engineering Division.

Justification:

The City received funding through the U.S. Department of Transportation’s Safe Streets and Roads for All (SS4A) Grant program in July 2023. The grant was awarded in the amount of \$278,530, with a local match of \$74,220, for a total of \$352,750 towards the development and implementation of a safety action plan. Cincar Consulting Group, LLC (C2G) was selected to develop the safety action plan for the City in January 2025.

The adoption of the SS4S Safety Action Plan is essential to address the growing concerns regarding traffic safety, pedestrian protection, and overall community well-being. Recent data and community feedback indicate an urgent need for comprehensive measures to reduce roadway fatalities and serious injuries, which align with the national Vision Zero initiative and federal safety guidelines. This plan provides a strategic framework that prioritizes evidence-based interventions, including infrastructure improvements, enhanced enforcement, public policies, and public education campaigns, to create safer streets for all users; drivers, pedestrians, and cyclists alike.

Implementing this plan demonstrates the City’s commitment to proactive risk reduction and equitable mobility. By focusing on high-crash corridors and vulnerable populations, the plan ensures that resources are allocated where they will have the greatest impact. Furthermore, adoption of the plan positions the City to leverage state and federal funding opportunities, fostering long-term sustainability and economic growth. Ultimately, the SS4S Safety Action Plan is not only a response to current safety challenges but also a forward-looking investment in the health, security, and prosperity of the community.

This Safety Action Plan serves as a foundational framework that enhances our eligibility and competitiveness for future grant opportunities. By outlining clear objectives, actionable strategies, and measurable outcomes, the plan demonstrates our commitment to safety and community well-being—key priorities for funding agencies.

Council Action:

This Council Communication is for informational purposes of the resolution to be adopted.

Approving the Adoption of the Safe Streets for Saginaw Safety Action Plan

Moved by Council Member _____, seconded by Council Member _____ to adopt the following resolution:

WHEREAS, the City of Saginaw is committed to ensuring the safety and well-being of all roadway users, including pedestrians, bicyclists, motorists, and transit riders; and

WHEREAS, traffic-related fatalities and serious injuries are preventable and represent a significant public health concern; and

WHEREAS, the U.S. Department of Transportation encourages local governments to adopt comprehensive roadway safety action plans as part of the Safe Streets and Roads for All (SS4A) initiative; and

WHEREAS, the Safe Streets for Saginaw Safety Action Plan has been developed through a data-driven, community-informed process that identifies high-risk corridors, vulnerable populations, and evidence-based strategies to reduce traffic-related harm; and

WHEREAS, the Plan outlines a goal to eliminate traffic fatalities and serious injuries by 2050, and includes actionable steps such as infrastructure improvements, speed management, public education, and enhanced enforcement.

NOW, THEREFORE, BE IT RESOLVED, that the Council of the City of Saginaw hereby adopts the Safe Streets for Saginaw Safety Action Plan as the guiding framework for roadway safety improvements across the city.

BE IT FURTHER RESOLVED, that the City of Saginaw will pursue federal, state, and local funding opportunities to implement the strategies outlined in the Plan.

BE IT FINALLY RESOLVED, that the City of Saginaw will monitor progress annually, engage the public in ongoing safety efforts, and update the Plan as needed to reflect new data, technologies, and community priorities.

Ayes:
Nays:
Absent:

RESOLUTION DECLARED ADOPTED

I, Kristine Bolzman, City Clerk of the City of Saginaw, Michigan, do hereby certify that the foregoing is a true and complete copy of the resolution adopted by the City of Saginaw, Saginaw County, State of Michigan, at a public meeting held on February 23, 2026; the original thereof is on file in the records of my office; the meeting was conducted and public notice of said meeting was given pursuant to Act No. 267, Public Acts of Michigan, 1976, as amended, and minutes of this meeting were kept and will be made available as required.

Kristine Bolzman, MiPMC/CMC
City Clerk



Safety Action Plan

Safe Streets for Saginaw



City of Saginaw Public Service Department,
Engineering Division



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Glossary

Abbreviation (if applicable)	Term / Definition	Definition
	Access Management	Techniques for reducing traffic congestion, improving safety and preserving road capacity by managing the curb cuts/driveways to access properties. It addresses the design, application, and control of entry and exit points along a roadway.
	Crash Data	Includes crashes reported to the local or State Police that were recorded. Minor incidents where there is not a crash reported by the police are not included. The crash data analysis and comparisons of this document are based on reported crash data. Crashes recorded by the Police are the basis for the crash data analysis.
COSED	City of Saginaw Engineering Department	The City of Saginaw’s Engineering Department. View their website here: Engineering City of Saginaw, MI
	Crash	Traffic-related crash that is reported to the City or State Police and it is recorded. Minor incidents where there is not a crash report by the police are not included.
EB	Empirical Bayes (Safety Analysis Method)	This method combines a site-specific crash history with predictions from a reference population to pinpoint a more accurate estimate of crashes expected.
FHWA	Federal Highway Administration	As part of the U.S. Department of Transportation, the Federal Highway Administration provides stewardship over the construction, maintenance, and preservation of the Nation’s highways, bridges, and tunnels.
Five E’s	Engineering, Equity, Education, Enforcement, and Evaluation	The five Es—Engineering, Equity, Education, Enforcement, and Evaluation—form a foundation for addressing safety concerns related to fatal and serious injury (FSI) crashes. This concept is further explained in the introduction of the plan.
FI	Fatal and Injury	This refers to traffic crashes that are recorded by the Department of Transportation (DOT) involving an injury that requires medical treatment away from the scene and/or fatality as a result of the crash. Fatal refers to a person who dies within 30 days of an injury accident.
FSI	Fatal and Serious Injury	A more specific category of traffic crashes referring to crashes resulting in serious injuries and fatalities. Serious injury is defined by the US DOT using the Model Minimum Uniform Crash Criteria (MMUCC) 4 th Edition “Suspected Serious Injury (A)” attribute found in the “injury status” data element. This includes severe laceration causing significant blood loss, exposure of tissue/muscle/organ; broken or dislocated extremity; suspected skull, chest, or abdominal injury other than bruises or minor laceration; significant burns; unconsciousness; pr paralysis.



HII	High-Injury Intersections	Identifies intersections, signalized and unsignalized, that are a part of the High Injury Network (HIN). For the purposes of this plan, intersection crashes apply to the area within 100 feet of an intersection or within the intersection, as determined by the police officer recording the crash information.
HIN	High-Injury Network	Road segments where the highest concentration of fatal or serious injury (KA) crashes have occurred over five years of data. By mapping the corridors where a disproportionate number of traffic-related injuries from crashes occur, the HINs provide a clear picture of where interventions are most needed to enhance safety for all road users.
HIS	High-Injury Segments	Road segment where the highest concentration of fatal or serious injury (KA) crashes occurred, as included in the High-Injury Network.
HRN	High-Risk Network	Identifies segments along corridors where traffic crashes are likely to happen based on comparable attributes (land use, roadway characteristics, and proximity to previously identified high-risk intersections) to the HIN. This approach allows for the inclusion of segments that, while not flagged by crash data alone, may still present elevated risk due to their alignment with high-crash conditions. Taking proactive measures and flagging risk areas helps cities prioritize safety improvements based on historical data.
	Iron Belle Trail	A trail system that, once completed, will cover 2,000 miles from the far western tip of the Upper Peninsula to Belle Isle in Detroit. The trail is approximately 70% complete as of 2025. The biking route travels along the eastern side of the state and the hiking route follows the western side of the Lower Peninsula.
KABCO	Crash Severity Scale	
K	Fatal Injury	Any injury that results in death due to a motor vehicle traffic crash.
A	Suspected Serious Injury	An injury, other than fatal, that prevents the injured person from walking, driving, or normally continuing the activities which the individual could perform prior to the motor vehicle crash. This does not include momentary unconsciousness.
B	Suspected Minor Injury	Any injury that is evident at the scene of the crash, other than fatal and incapacitating injuries. This does not include limping.
C	Possible Injury	An injury reported or claimed which is not a fatal, incapacitating, or non-incapacitating evident injury.
O/PDO	No Apparent Injury	Refers to a situation where there is no reason to believe that the person received any bodily harm from the motor vehicle traffic crash.



MDOT	Michigan Department of Transportation	This State-level department is responsible for Michigan’s nearly 10,000 miles of state highway system.
	Mid-block	The segments of the corridor that are not considered within the area of an intersection and are often the midway point between intersections.
SAP	Safety Action Plan	A plan created to prevent roadway serious injury and fatalities in a locality or region through proactive policies, countermeasures, and prioritized projects.
SS4A	Safe Streets and Roads for All	This is a competitive U.S. Department of Transportation grant program that provides funding to local, regional, and Tribal governments to develop and implement strategies to prevent roadway fatalities and serious injuries. This program, established by the Infrastructure Investment and Jobs Act, offers two main types of grants: Planning and Demonstration Grant to create an Action Plan, and an Implementation Grants to fund projects and strategies outlines in an eligible Action Plan.
SSA	Safe System Approach	A comprehensive road safety strategy that accepts human error and aims to prevent fatalities and serious injuries by creating a system where crashes are less likely and less severe.
USDOT	US Department of Transportation	This federal department is responsible for planning and coordinating federal transportation projects. It also sets safety regulations.
VRU	Vulnerable Road User	People on or near roadways who lack the protection of a motor vehicle, including pedestrians, cyclists, motorcyclists, and those using mobility devices like wheelchairs or scooters.



Executive Summary

The City of Saginaw has developed a Safety Action Plan (SAP) to reinforce its commitment to making roadways safer for all users. **Safe Streets for Saginaw** was initiated through a U.S. Department of Transportation (USDOT) Safe Streets and Roads for All (SS4A) grant awarded in 2024. The grant reflects an ongoing commitment to improving safety and accessibility for all residents and visitors of the city, including pedestrians, cyclists, motorists, and transit users.

The SAP evaluates current roadway and intersection conditions, analyzes crash data, and identifies proactive, targeted improvements to reduce serious injury and fatal crashes in Saginaw.

			
Safer People	Safer Roads	Safer Speeds	Post Crash Care
Promote responsible behavior among all road users through education, enforcement, and community engagement to reduce traffic-related injuries and fatalities.	Design, maintain, and upgrade transportation infrastructure to minimize crash risks and improve safety for all users, with a focus on high-risk areas and vulnerable populations.	Implementation strategies to manage vehicle speeds through policy, design, and enforcement to create safer travel environments and reduce the severity of crashes.	Enhance emergency response systems and coordination to ensure timely, effective medical care and support services following traffic incidents.

A comprehensive safety analysis (page 20) forms the foundation of the SAP and its recommendations. To perform the analysis, historical crash data from 2014-2023 was used to pinpoint high-risk locations, crash types, and injury severity. This data was analyzed to establish the High-Injury Network (HIN), which consists of corridors and intersections with a disproportionate share of the city’s crashes. The analysis showed that Saginaw’s HIN accounts for 70% of fatal and serious injury (FSI) crashes at intersections and 94% of FSI crashes along roadway segments. The SAP examined contributing factors such as roadway geometrics, traffic patterns, and environmental conditions and proposed targeted interventions to reduce crash risk.

Additionally, a predictive safety analysis (page 28) estimated Fatal and Injury (FI) crashes for each road segment beyond expected levels. This predictive analysis, combined with the HIN, formed the High-Risk Network (HRN) which not only identifies where crashes have occurred but also predicts where they are likely to occur. By using both the HIN and HRN, the SAP prioritizes locations where deaths and serious injuries are occurring and most likely to occur. Resources can then be directed at these high-priority locations to deliver the most effective and impactful crash-reduction improvements.



City of Saginaw Safe Streets for Saginaw Action Plan High Injury Network



The development of the SAP was guided by robust stakeholder and public engagement. The approach ensured that the plan reflects community needs, local context, and proven safety strategies.

Public engagement (page 13) included online surveys, an interactive mapping tool to get locational feedback on safety concerns, and open houses. Feedback from residents and stakeholders highlighted speeding, red-light running, and distracted driving as top safety concerns. Survey results showed that over half of respondents feel unsafe while walking or biking in Saginaw. Residents also noted that angle crashes and impaired driving are top priorities for improving safety, and they agreed that the HIN accurately captures the locations with the most urgent safety concerns. An interactive mapping tool identified locations with safety issues, with the majority of those responses noting high vehicle speeds.

The SAP recommendations are comprised of safety countermeasures that directly address the leading crash types and

factors to improve transportation safety and reduce serious injuries and deaths in Saginaw. The recommendations were structured to be project-ready, actionable, eligible for grant funding and address each corridor's or intersection's key issues.

Overall policy recommendations (page 46) were included in the SAP and divided into five categories (Engineering, Education, Enforcement, Post-Crash Care, Transit Policies). Engineering policies focus on traffic calming measures with an emphasis on reducing conflict points through access management. Education and enforcement policies aim to shape safer driver behavior and deter dangerous driving. Post-Crash Care policies concentrate on reducing the severity of injuries after a crash. The Transit policies in the plan address ways to reduce vehicle dependency.

A recommended project list (page 66) was created that focuses attention on two projects (Michigan Avenue at Court Street and Michigan Avenue from M-46 (Williams Street) to Genesee Avenue) which were identified to be submitted for the next round of SS4A Implementation Grant Funding. A project prioritization matrix and funding strategy (pages 64 and 74) were also developed to identify future priorities and opportunities to ensure that Saginaw's roadways are safe and accessible for all its users.



1.0 Introduction

The **Safe System Approach (SSA)**¹ to roadway safety is the United States Department of Transportation (USDOT) Federal Highway Administration’s (FHWA’s) initiative to achieve the **zero deaths vision**². Figure 1-1 shows the six principles of the SSA on the perimeter of the graphic and the five objectives of the SSA on the inside of the graphic.

The City of Saginaw is committed to implementing the Safe System Approach, beginning with the development of a Safety Action Plan (SAP). The SAP is the first step toward implementing safety improvements with federal funding from the Safe Streets and Roads for All (SS4A) program.

The Safe Streets for Saginaw SAP was developed in accordance with SS4A program requirements and aims to ensure the needs of the city are met and outcomes align with FHWA’s safety initiatives. The SAP is a data-driven examination of safety needs that correlates the system user types, demographics, accessibility, and vulnerable road users to crash information depicting cause, context, and location. The project team, stakeholders, and public were consulted throughout the project to establish a baseline of safety concerns and consensus on study recommendations.

The City of Saginaw Engineering Department (COSED) is committed to a comprehensive approach to address traffic safety. This approach will balance both proactive measures as well as responsive measures that utilize the 5 E’s (Engineering, Equity, Education, Enforcement, and Evaluation) to address issues that have contributed to severe crashes in the city. Ultimately, these measures will be targeted to provide significant progress towards meeting the goal of eliminating traffic-related fatalities and serious injuries. This includes designing a system that encourages safety and identifying factors that create risk for the whole system over the causes of individual or isolated incidents.

In 2023, motor vehicle crashes resulted in over 40,901 deaths across the United States³. In Michigan, there were 5,993 fatalities and serious injuries reported in 2023, with the City of Saginaw accounting for five fatalities and 19 serious injuries⁴. While the factors that lead to devastating crashes can be complex, they are not unknown or inescapable. Fatalities and serious injuries are preventable. By completing a community-centered and data-driven analysis, the root causes of these crashes can be identified and addressed.



Figure 1-1: Safe System Approach Principles and Objectives

¹ US Department of Transportation (USDOT). “What Is a Safe System Approach?” Accessed November 7, 2025. <https://www.transportation.gov/safe-system-approach>.

² US Department of Transportation (USDOT) Federal Highway Administration (FHWA). “Zero Deaths and Safe System.” Accessed November 7, 2025. <https://highways.dot.gov/safety/zero-deaths>.

³ Insurance Institute for Highway Safety and Highway Loss Data Institute. July 2025. “Fatality Facts 2023.” Accessed August 25, 2025. <https://www.iihs.org/research-areas/fatality-statistics/detail/state-by-state#yearly-snapshot>.

⁴ Roadsoft crash data. 2014-2023.



The Five Es

The five Es—Engineering, Equity, Education, Enforcement, and Evaluation—form a foundation for addressing safety concerns related to fatal and serious injury crashes in Saginaw.



Engineering - involves designing and improving infrastructure to enhance safety and efficiency for all road users. This includes making physical improvements like better signage, safer intersections, improved corridors, and pedestrian-friendly infrastructure.



Equity - includes measures to produce inclusive outcomes that benefit all community members, especially vulnerable road users and underserved populations. It involves identifying high-risk areas, engaging with diverse community groups to understand their specific safety needs, and distributing resources to address disparities in traffic safety.



Education - focuses on informing and educating decision makers, engineers, and the public about road safety. Decision makers learn the impact of policies on safety. Engineers receive training on safety standards and design practices. Public campaigns promote public awareness and safe driving behaviors. Together, these efforts can reduce roadway fatalities and injuries.



Enforcement - promotes compliance with traffic laws and regulations, particularly those that protect vulnerable road users and reduce dangerous behaviors like speeding, impaired driving, and distracted driving. Enforcement agencies must often balance many priorities with limited resources. Incorporating proven practices, such as high-visibility enforcement, automated technologies, consistent penalties, and community engagement can improve the effectiveness of enforcement across the region.



Evaluation - is the process of assessing the effectiveness of safety measures and making necessary adjustments. This involves collecting and analyzing data on crashes and traffic patterns, setting and tracking goals for reducing crashes and injuries, and using evaluation results to refine and enhance safety strategies.

Study Area and Characteristics

The City of Saginaw is located in central Michigan about 16 miles south of the Saginaw Bay of Lake Huron (Figure 1-2). Saginaw is the county seat for Saginaw County.

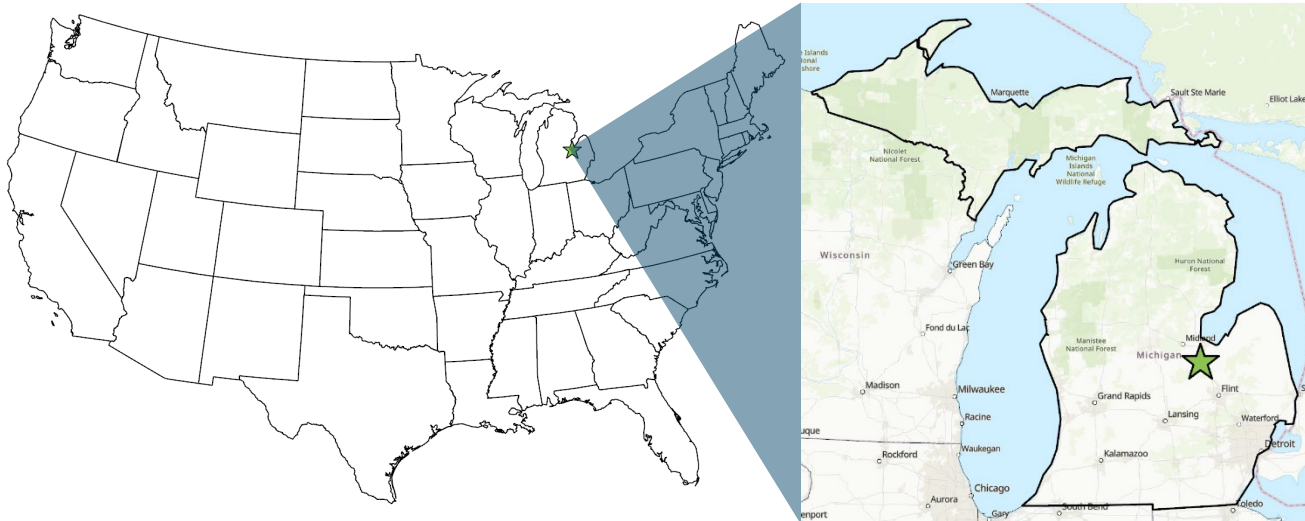


Figure 1-2: City of Saginaw Context Map

The City of Saginaw was originally territory of the Anishinaabe indigenous people. The United States established Fort Saginaw in 1822. The lumber industry contributed to settlement growth in the area, and by the mid-19th century, the two sides of the Saginaw River - East Saginaw and Saginaw City - were growing into commercial centers. The Saginaw River served as a vital transportation route for floating logs downstream to mills for processing. In 1889, East Saginaw and Saginaw City combined into the single City of Saginaw. As the lumber industry declined by the early 20th century, Saginaw's main industries shifted to automotive manufacturing. Today, the Saginaw River is still a central feature of the city, whose economy has shifted to focus on the medical industry.

Saginaw has an abundance of public amenities, including several museums, event centers, and theaters; schools and libraries; parks and recreational facilities; and medical centers. Saginaw's transitioning economy over time is a significant contributor to the city's current built environment, which is composed of primarily residential, industrial, and commercial land uses with an abundance of vacant properties and overbuilt roadways. This environment poses unique safety risks which this SAP will address.







Saginaw at a Glance





Population: 43,879

Median Household Income: \$37,298

Major Industries (by number of employees):

Transportation Assets:

-  Hospitals
-  Food and Drink Services
-  Engineering Services
-  Social Assistance

-  338 miles of roadways
-  23 bridges
-  477,324 annual transit trips
-  12 miles of trails

Sources: 2023 American Community Survey 5-Year Estimates Data Profiles; 2022 Economic Census Core Statistics; MDOT Version 25 Roads & Highways Centerline Attribution Data; National Bridge Inventory Bridge Condition; FTA National Transit Database 2023 Annual Agency Profile - Saginaw Transit Authority Regional Service (NTD ID 50039); City of Saginaw 2022 Master Plan Map 4 - Non-Motorized Transportation Map.

Transportation in the City of Saginaw is shaped by the Saginaw River which runs north to south, splits the city in two, and is crossed by seven roadway bridges and two railroad bridges (see Figure 1-3). The city is served by several different Saginaw Transit Authority and Regional Services (STARS) bus routes and has 12 miles of trails, mostly along the river. Figure 1-4 shows various agencies' jurisdiction over roadways in Saginaw.



City of Saginaw Safe Streets for Saginaw Action Plan Existing Transportation Assets



Date: 9/15/2025

Figure 1-3: City of Saginaw Existing Transportation Assets



City of Saginaw - Road Jurisdiction

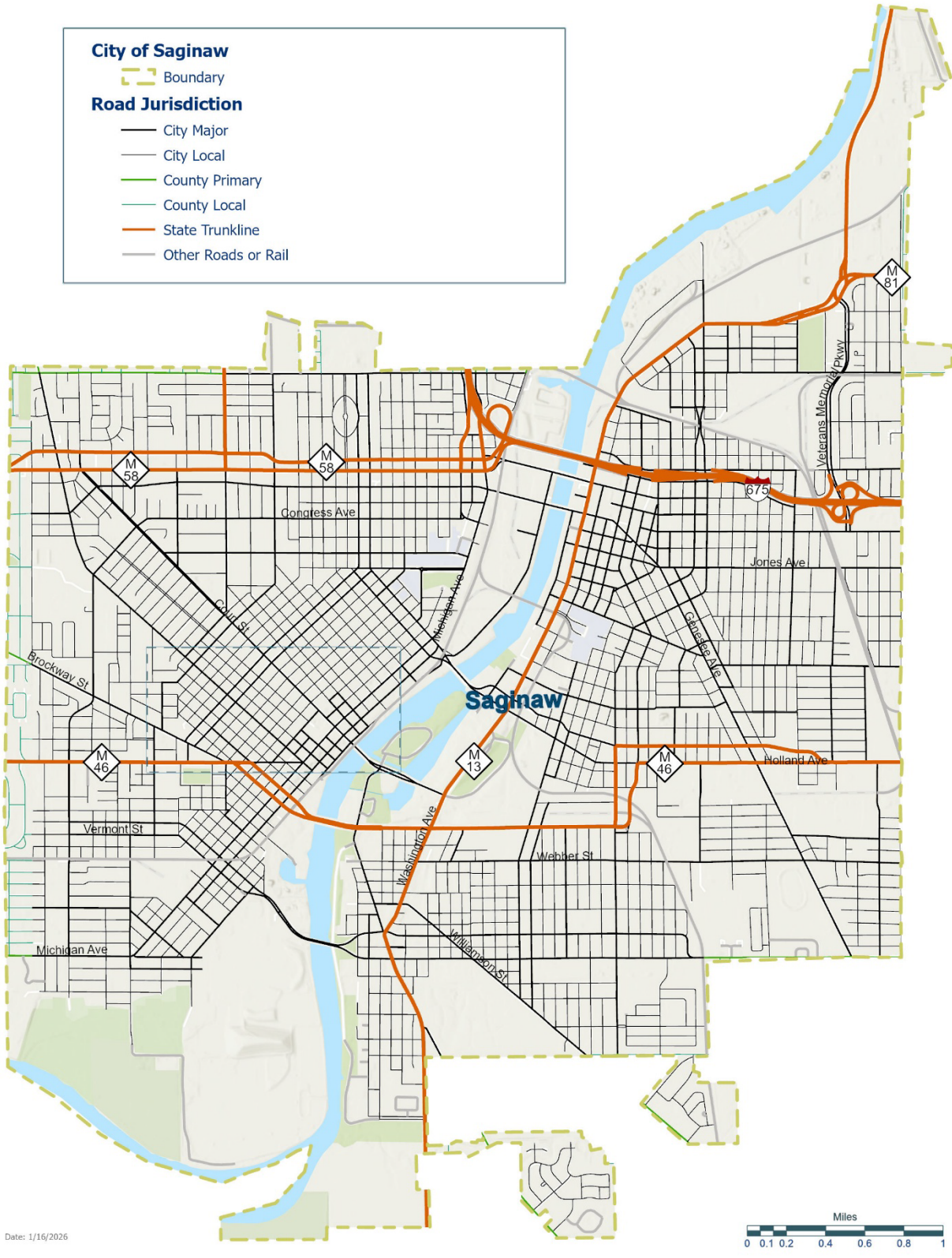


Figure 1-4: Jurisdiction Over Roadways in Saginaw

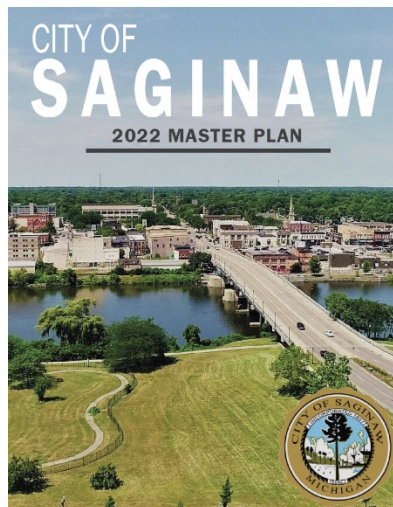


Coordinating with Other Plans

Local and regional plans were reviewed and incorporated into the development of the Safe Streets for Saginaw SAP. Each document was reviewed to identify transportation priorities as well as recommended or planned projects relating to transportation.

The plans reviewed included:

- SATA Saginaw Metropolitan Long Range Transportation Plan (LRT), 2045
- City of Saginaw Comprehensive Land Use / Master Plan, 2022
 - Saginaw Transportation Plan, 2022 (Comprehensive Land Use Plan Appendix C)
 - Saginaw Parking Study, 2022 (Comprehensive Land Use Plan Appendix D)
- Saginaw Zoning Ordinance Update, 2025
- Saginaw Economic Development Strategy, 2018
- STARS Transit Master Plan, 2012
- M-46 Corridor Study, 2023
- M-13/M-81 Corridor Study, 2025 (Coordinating with MDOT on the current study to align with this SAP)





2.0 Leadership Commitment and Goals

Leadership Commitment

Safe Streets for Saginaw demonstrates the city’s commitment to creating a safe system for all road users. The city has determined an overarching vision to steer its safety efforts. To realize this vision, specific and measurable goals have also been identified to create a clear path to success. The city aims to reduce traffic fatalities and move toward zero fatalities and serious injuries by 2050. The city has identified specific projects and priorities to achieve this goal and is committed to ongoing implementation, tracking, and reporting of road safety initiatives.

In support of the Safe Streets for Saginaw SAP process and its implementation, a Safety Committee was created to guide the project. The Safety Committee played a crucial role in developing an impactful and feasible plan and will remain critical to ensure the plan and the recommended projects are implemented. Details on the entities represented and their roles are explained in the next chapter.

“The City of Saginaw envisions a future where every resident and visitor can travel safely while walking, biking, driving, or using public transit. The City of Saginaw commits to building a connected and accessible transportation network that prioritizes transportation safety. With a goal of moving towards zero traffic-related deaths by 2050, we are investing in safer infrastructure, smarter policies, and community-driven solutions that ensure every journey in Saginaw begins and ends safely.”

Safe Streets for Saginaw Vision

Goals

The goals described below are a commitment to make roadways in the City of Saginaw safer for all users. These goals offer a framework for evaluating investments and activities.



Safer People

Promote responsible behavior among all road users through education, enforcement, and community engagement to reduce traffic-related injuries and fatalities.



Safer Roads

Design, maintain, and upgrade transportation infrastructure to minimize crash risks and improve safety for all users, with a focus on high-risk areas and vulnerable populations.



Safer Speeds

Implementation strategies to manage vehicle speeds through policy, design, and enforcement to create safer travel environments and reduce the severity of crashes.



Post Crash Care

Enhance emergency response systems and coordination to ensure timely, effective medical care and support services following traffic incidents.



3.0 Community Engagement and Collaboration

A key part of the established model for developing an SAP is to engage stakeholders and the public. Feedback from engagement helped to assess existing conditions, in conjunction with an evaluation of safety data and proven safety countermeasures, ultimately led to the SAP’s identified priorities for implementation.



A variety of groups were engaged as part of this planning effort, including the Safety Committee, focus group stakeholders, and the general public. A timeline of engagement including the cadence of meetings, surveys, and mapping tool feedback are provided in the adjacent Figure 3-1.

Safety Committee

A Safety Committee was created to be an advisory group to the Safe Streets for Saginaw Plan. The Safety Committee played a crucial role in developing and implementing this plan. Members committed to active participation in developing the Safe Streets for Saginaw Plan as well as advancing strategies, implementing projects, and tracking progress toward established safety targets.

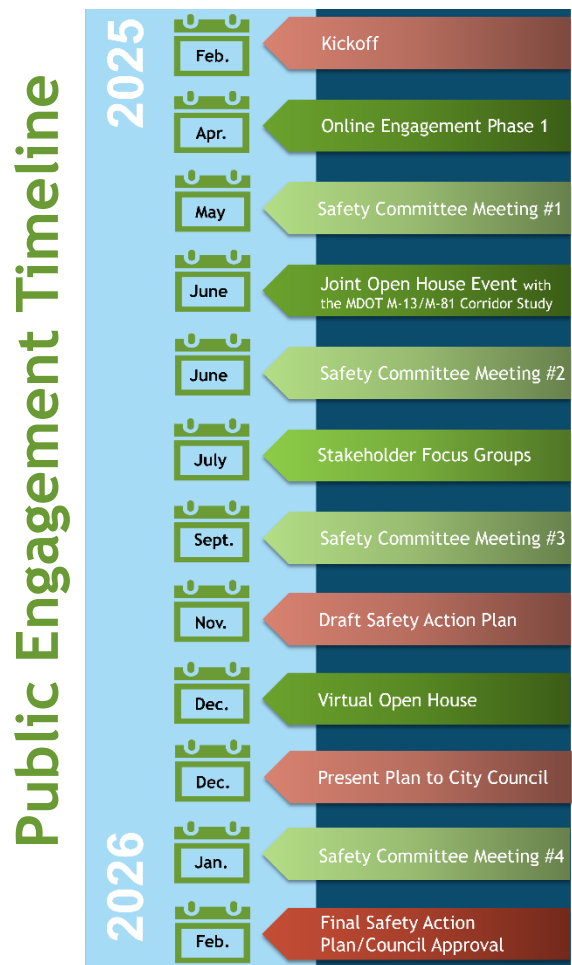


Figure 3-1: Public Engagement Timeline



The Safety Committee is comprised of representatives from:

- City of Saginaw Engineering
- City of Saginaw Planning and Zoning
- Michigan Department of Transportation (MDOT)
- Saginaw Transit Authority and Regional Services (STARS)
- Saginaw Area Transportation Agency (SATA)
- Downtown Saginaw Association (DSA)
- Saginaw School District
- Police Department
- Fire Department
- Community Alliance for the People
- Disability Network of Mid-Michigan

Roles and Responsibilities of the Safety Committee Members:

- Establish goals and targets for achieving zero fatalities and serious injuries by a target date.
- Identify strategies, project implementation, and progress tracking of the SAP.
- Identify Stakeholders and assist with public outreach.
- Identify areas of concerns (i.e. intersections or other locations where there are safety concerns, specific topic areas to address such as safer crossings near schools, ways to mitigate vehicles running red lights in targeted areas, education of younger drivers, etc.).
- Share and gather information to/from their respective organization, group, and/or business.
- Review and comment on the Safety Action Plan.
- Continue participation in the safety planning after the creation of the Safety Action Plan.

Over the course of this project, the Safety Committee met four times and worked together to align the plan with the needs of the community, factor in local context, and offer diverse perspectives. At the meetings, the Safety Committee reviewed summaries of public and stakeholder input, reviewed analysis of existing conditions and crash data, and supported the team in promoting engagement opportunities. The committee also studied policy recommendations and the implementation plan prior to those being reviewed by the public.

The committee has played a crucial role in developing an impactful plan. Committee members will remain critical in making sure the plan and the recommended projects are implemented and should participate in tracking progress toward established safety targets.



Figure 3-2: Safety Committee Kick-Off Meeting



Stakeholder Engagement

Stakeholder input plays a crucial role in the safety action planning process, ensuring that the plan reflects community needs, local context, and diverse perspectives. Representatives from organizations, institutions, neighborhood groups, and businesses were invited to participate in stakeholder focus group meetings. These stakeholders met to discuss and review data and pinpoint targeted areas for improvement. Below are the organizations that participated in the stakeholder engagement process:

- Covenant Healthcare
- MMR (EMS Provider)
- Saginaw County Health Department
- Delta College
- Saginaw Public Schools
- Saginaw County Parks Department
- Old Town Saginaw Association
- STARS Transit Provider
- Fairground Neighborhood Association
- DSA

Priorities expressed in stakeholder engagement consisted of the following:

- Speed reduction
- Traffic calming
- Signage, including speed signs
- Pedestrian crossings and sidewalk gaps
- Improve signal timing
- Prioritize the High Injury Network along bus routes
- Improve accessibility overall at transit stops
- Expand trails and improve connectivity
- Enhance the pedestrian experience, such as implementing street trees
- Update the vision statement to include a focus on accessible transportation

The Fairground Neighborhood Association was unable to attend a focus group meeting, but submitted the following location-specific comments apart from the stakeholder meeting:

- Reinstate the traffic light at Webber & Bagley: The school is now a middle school, and speeding has increased since the light was removed.
- Sheridan & Gallagher should be a 4-way stop.
- A traffic light is needed at Webber & Sheridan.
- Update traffic signal timing at Webber & Washington, as drivers must wait a long time before light changes to green.

From the November 25, 2025 DSA meeting, city staff heard the following priority issues/areas:

- Along M-13 there are issues with speeding, crossing and general pedestrian safety, and truck traffic,
- Pedestrian safety issues at Saginaw Valley State University, market, and the DOW event center,
- Signal actuation along Federal Avenue.

Roles and Responsibilities of the Stakeholder Committee Members:

- Identify areas of concerns (i.e. intersections or other locations where there are safety concerns, specific topic areas to address such as safer crossings near schools, ways to mitigate vehicles running red lights in targeted areas, education of younger drivers, etc.)
- Share and gather information to/from their respective organization, group, and/or business
- Assist in promoting public outreach
- Review and comment on the Safety Action Plan



Public Engagement

Public engagement is an essential part of developing an implementable Safety Action Plan (SAP). To gather accurate and instructive feedback from the public, a diverse range of strategies were used to capture comments from people with varying levels of interest in improving roadway safety in Saginaw. Strategies used included online surveys, an interactive mapping tool, open houses, and project brochure. The input gathered through these varying platforms was used to develop the strategies and projects identified in the SAP.



Figure 3-3: Joint Public Open House (with MDOT M-13/M-81 Corridor Study) - June 4, 2025

Online Survey

An online survey was conducted between April 3, 2025 and June 20, 2025 to collect feedback from the public on the safety issues that residents face as well as the types of improvements they want to see. In total, 59 surveys were completed. See Appendix A - Public Engagement Summary for full survey results.

WHAT WE HEARD FROM SURVEYS

Survey participants identified high speeds, vehicles running red lights, and distracted driving as the top three safety concerns in the city. Over half (57%) reported feeling somewhat or very unsafe while walking or biking in Saginaw. Additionally, 51% indicated that someone in their household was involved in a crash within the city. When it comes to traveling by car, 37% expressed feeling unsafe either as drivers or passengers. Meanwhile, only 10% of respondents rely on public transit for transportation.



In your daily travel, what safety issues are most important?

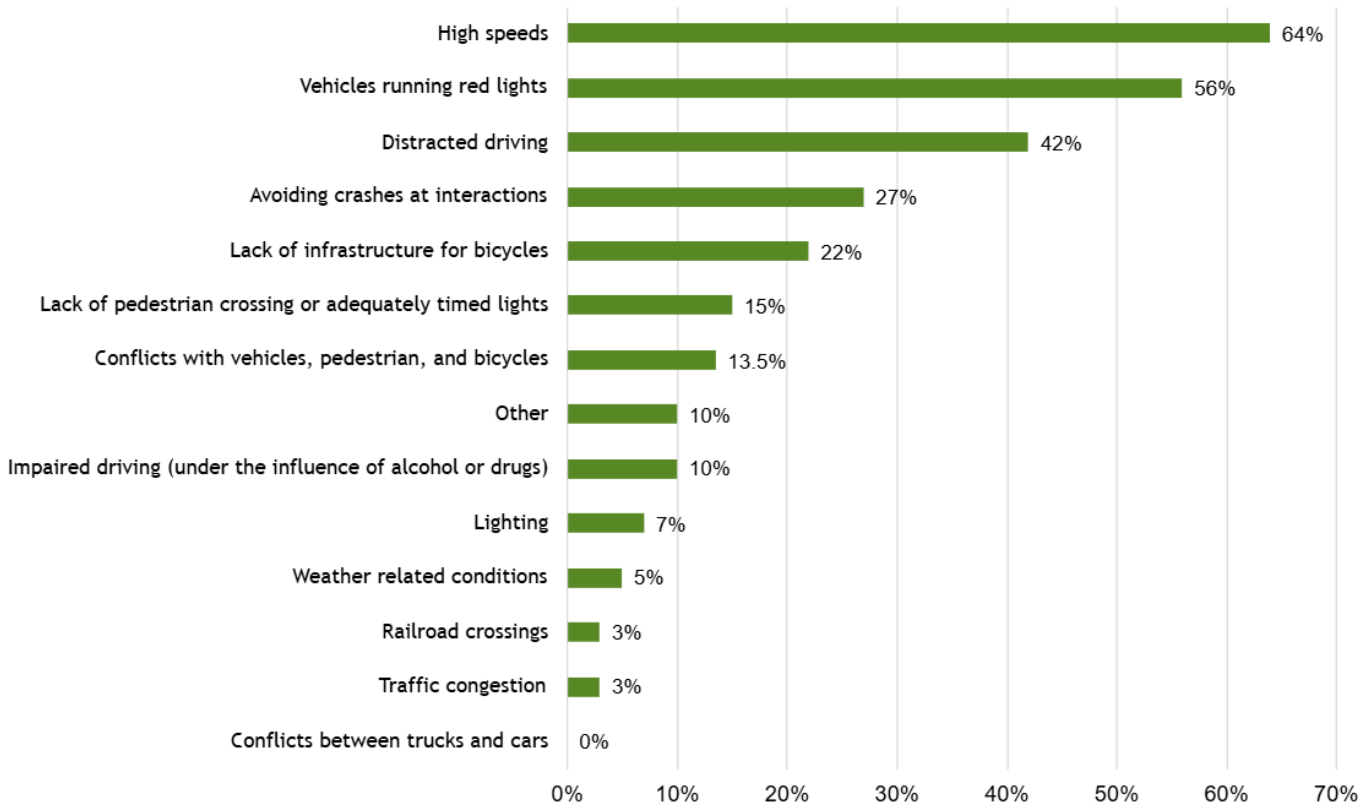


Figure 3-4: Graph Summarizing Traffic Safety Concerns from the Public Survey

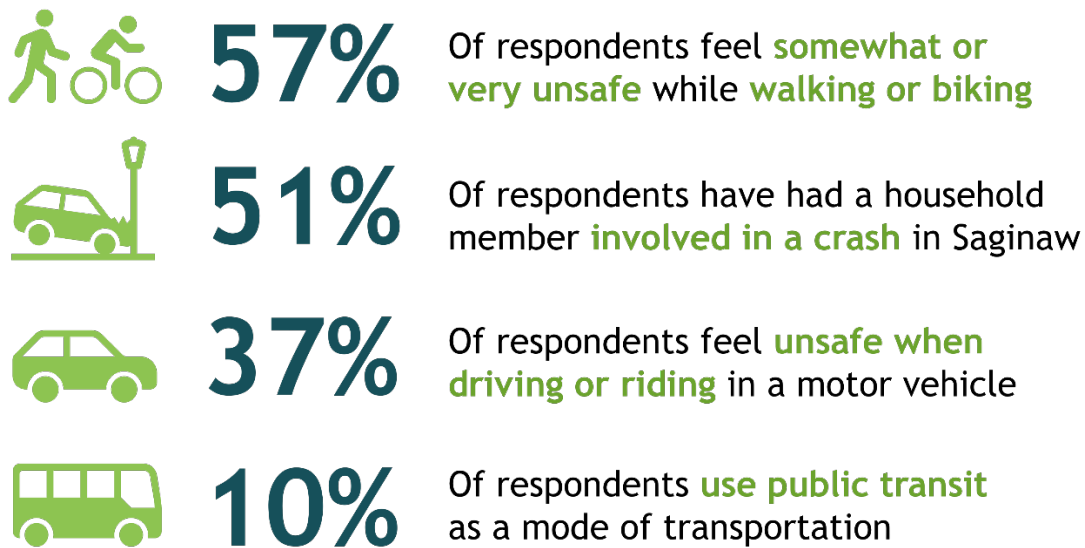


Figure 3-5: Public Survey Results Summary



Interactive Mapping Tool

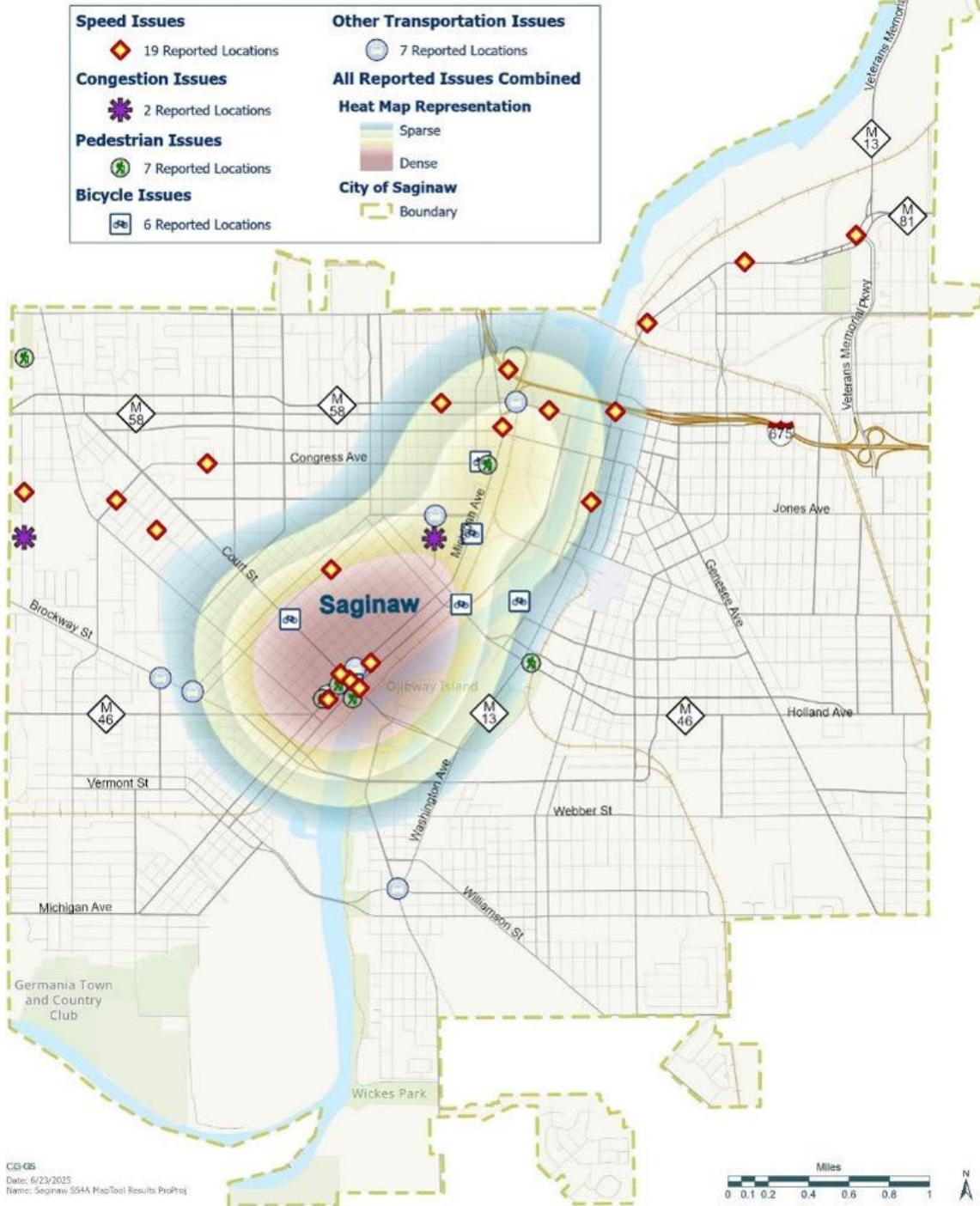
An interactive mapping tool was used to identify the specific location of safety issues in the City of Saginaw. This tool prompted users to place a pin and comment on the virtual map and add a comment in one of the five categories: Speed, Congestion, Pedestrian, Bicycle, and Other Transportation Issues. A total of 41 locations were identified by users. Speed issues were the most used category on the mapping tool, with 19 locations identified.



Figure 3-6: Interactive Mapping Tool - Comment Summary



City of Saginaw Safe Streets for Saginaw Action Plan Public Engagement Map Tool Results



CIG-GS
Date: 6/23/2025
Name: Saginaw SSHA MapTool Results ProProj



Figure 3-7: Interactive Mapping Tool - Map Summary

Joint Public Open House

On June 4, 2025, the City of Saginaw and the Michigan Department of Transportation (MDOT) hosted a joint open house at the SVRC Marketplace for the Safe Streets for Saginaw and the M-13/M-81 Corridor Study projects. Since both projects address transportation safety in the City, a joint open house was the most effective way to maximize public outreach and reduce the number of meetings residents would need to attend. This event included a brief presentation as well as informational and interactive boards about the project scope and crash history and analysis. There were also opportunities to share goals and priorities, and location-specific concerns about the corridor.

15 members from the public, including council members, attended the event and provided the following general comments:

- Request for more police.
- Reduce traffic speeds and add traffic calming measures.

Location-specific feedback primarily was about speed issues. This included comments about speeds being too fast or not obeyed, and the lack of speed signage. Additional location-specific feedback regarded signal timing issues, connectivity issues across the river, bicycle travel issues, and left turn visibility concerns. The specific comments are noted below.

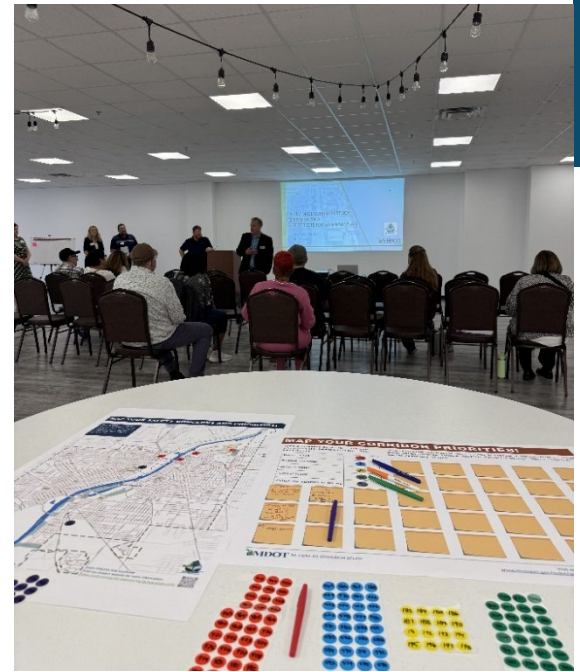


Figure 3-8: Joint Public Open House - Photo showing the interactive feedback opportunities for the Safe Streets for Saginaw and M-13/M-81 Corridor Study projects

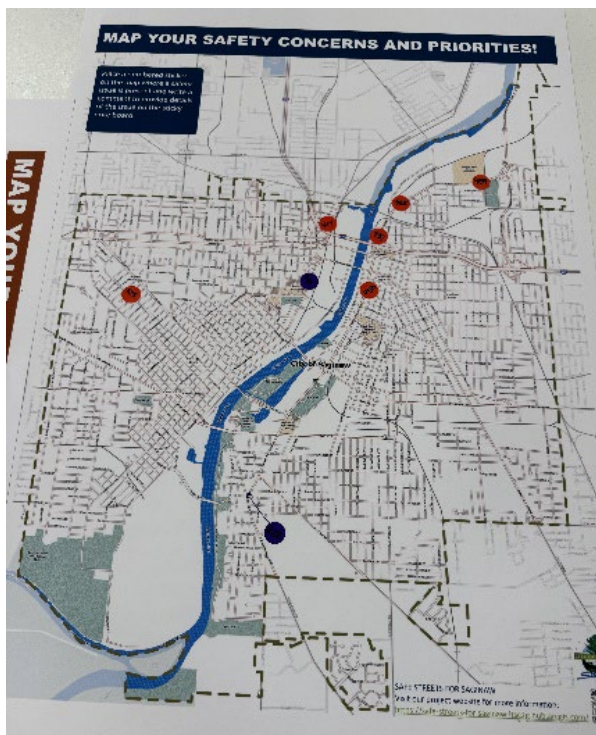


Figure 3-9: Safe Streets for Saginaw Comment Locations

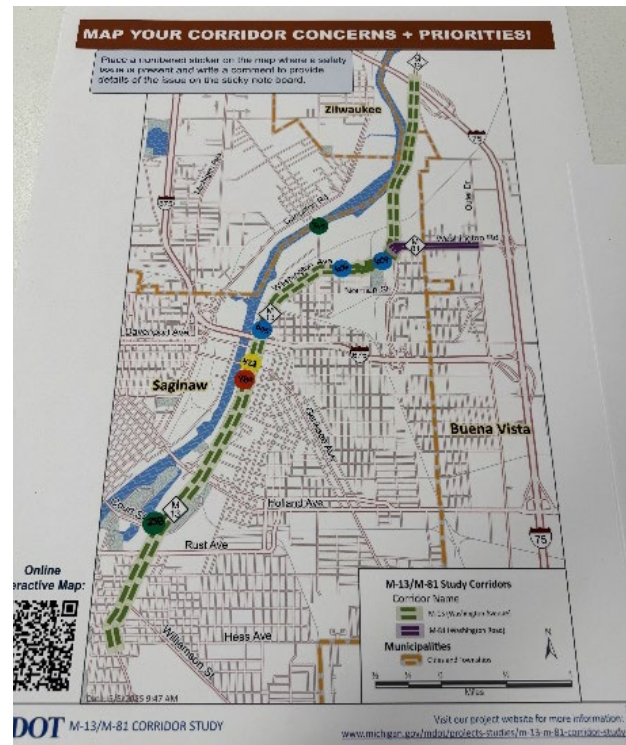


Figure 3-10: M-13/M-81 Corridor Comment Locations



General and corresponding specific comments from the open house are listed below, grouped by topic:

SPEED

- Need to lower speed limits, for example:
 - “50 mph is TOO FAST on M-13 north”
 - Traffic through downtown is too fast, slow down traffic on M-13 (Washington Avenue)
- Traffic calming measures are imperative at the south end of M-13 specifically the downtown segment where residential uses exist and businesses have on street parking
- Need speed signage, such as an exit speed posted on the turn radius

CONGESTION/SIGNAL TIMING

- Request for better signal timing, such as the light at M-13 and Webber Street. “[The traffic light] stays red for Webber Street [traffic] for 8-10 minutes”

PEDESTRIAN OR BICYCLE ISSUE

- Create a bike route that goes all the way along M-13, from the north-south of the city
- General safety and well-being concerns for nonmotorized transportation
- Improve crossing, such as along Genesee Avenue near Thompson/Cherry. Attendees noted difficulty crossing during the day, especially when using public transportation.

OTHER TRANSPORTATION ISSUES

- Request to reopen pedestrian bridges over the river, such as the one on the north end of the river that extended from 6th Steet
- Address poor visibility issues, such as when taking a left turns onto Gallagher and at the Brockway and Helms Intersection which is difficult to turn with the traffic signal having been removed

Virtual Public Open House

On Wednesday, December 10, 2025 at 5 p.m., the City of Saginaw staff and consultant team hosted a virtual open house to offer an opportunity for Saginaw residents and stakeholders to learn more about the project, the planning process, the findings, and recommendations, and to offer an opportunity to ask questions. In total there were 14 attendees, and the event was also recorded to be viewed for those who could not attend. Information was also shared for attendees to access the project website and survey for feedback on the draft recommendations.

The event started with a presentation discussing the project’s origin and goals, funding, engagement, the high injury network, the project prioritization list, and next steps. Attendees asked questions after the presentation that included the following:

- Request to review the slide on recommended projects
- Seeking clarification on the project scope and if it includes small-scale projects such as stop signs and traffic signals
- Clarity on which recommended projects/streets were the top priority for city staff in seeking funding next year

City staff and the consultant team clarified that a variety of countermeasures—from low-cost, short-term improvements to road diets to streetscape redesigns—selection is based on location, input, and crash data.



They noted the priorities currently focus on Michigan Avenue and Genesee Avenue, where a road diet and possible multimodal infrastructure improvements are being explored.

Travis Hare from Saginaw Engineering explained that the population decline has created an overbuilt roadway system based on current vehicular traffic. Space can be reallocated to calm traffic and improve conditions for pedestrians and cyclists. He also mentioned Federal Highway grants that the City would seek in the next year.

AGENDA

- Overview of Project
- Engagement Summary
- Vision & Goals
- High Injury Network
- Project Identification
- Next Steps
- Questions and Discussion

Participant thumbnails (from top to bottom): Ann Marie Kerby, Lagpacan, Sarah, Ronald Rangel, Travis Hare, Josh Porath, Brigitte ... (+7)

Figure 3-11: Screenshot from the presentation during the virtual open house event.



4.0 Safety Analysis

Both a historical and predictive safety analysis were conducted to identify systemic safety issues throughout the City of Saginaw and to identify the City's High-Injury and High-Risk Networks - the streets and intersections throughout Saginaw where safety interventions are needed most.

Historical Safety Analysis

Crash data (2014-2013) from the Michigan Department of Transportation (MDOT) asset management system within the City of Saginaw was used for historical safety analysis. Two different crash severity categories were analyzed to understand crash patterns in Saginaw:

- Fatal and Serious Injury (FSI): Crashes resulting in death (labeled “K” in crash reports) or serious injury (labeled “A” in crash reports)
- Fatal and Injury (FI): Fatal and Injury (FI): Crashes resulting in death or any class of injury (labeled “A”, “B”, and “C” in crash reports)

By examining key aspects such as crash frequency, types, and contributing factors, the analysis offers insights into the city's safety challenges, taking a Safe System Approach to prioritize the elimination of crashes that result in death and serious injuries. Findings from historical safety analysis inform emphasis areas for the SAP to address through targeted safety measures, including traffic calming, speed and access management strategies, sidewalk improvements, public engagement, and education initiatives.

CRASH HISTORY

One of the key takeaways of the City of Saginaw's crash history is the substantial variation in total crash rates over time, as shown in the graphs of Figure 4-1. The City's total crash rates show a declining trend from 2021 to 2023, especially in comparison to statewide trends, whereas serious injury and fatal crash rates in Saginaw have increased overall since 2014. This highlights the need for intervention, which the Safe Streets for Saginaw SAP aims to address as a roadmap to guide that effort.

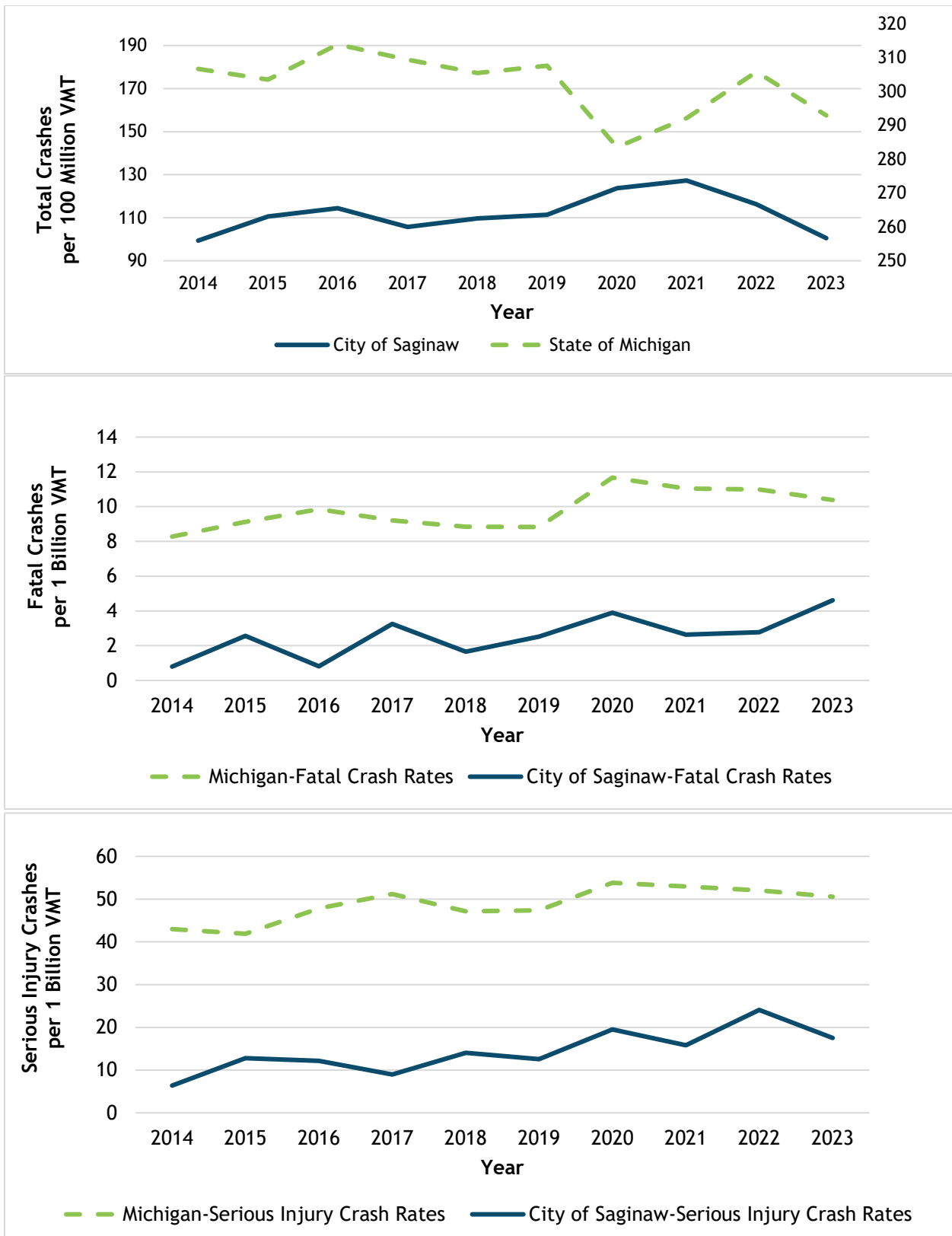


Figure 4-1: 2014-2023 Crash Rates (City of Saginaw vs. Michigan)



CRASH TYPES

The historical safety analysis highlights that angle and rear-end crashes are the top two types of FI crashes. Both crash types are common at intersections, as described in Figure 4-2.



Angle crashes happen when vehicles traveling perpendicular to each other collide. These crashes are often referred to as “T-Bone crashes”. Angle crashes can involve one vehicle driving straight into another vehicle crossing its path, or a vehicle attempting to turn at an intersection or driveway.

Rear end crashes happen when one vehicle collides with the back of another vehicle. Rear end crashes often happen when the lead vehicle slows or stops for a red light, a stop sign, or to turn into a driveway. These collisions can involve multiple vehicles, where the initial crash causes the vehicles behind it to crash into one another.

Figure 4-2: Top Crash Types for the City of Saginaw, 2014-2023

While not among the top crash types overall due to being less frequent than vehicular crashes, VRU crashes are of note because of the likelihood that VRU crashes result in fatal or serious injuries, as shown in Figure 4-3.

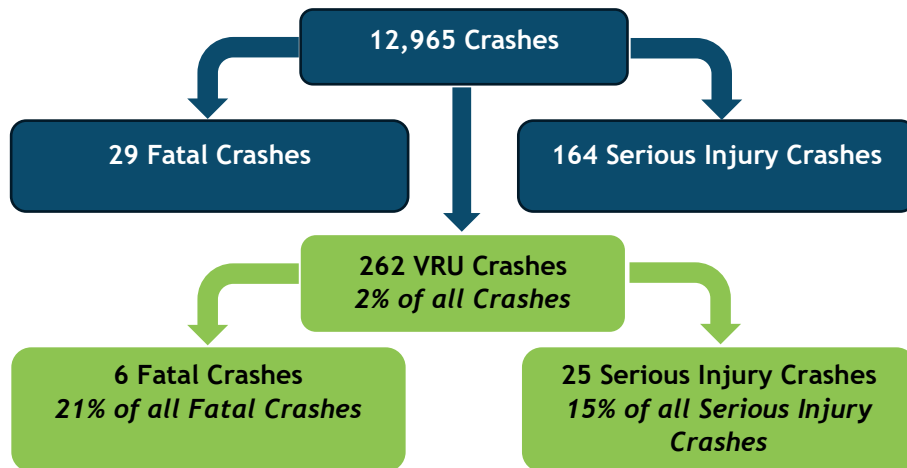


Figure 4-3: Fatal and Serious Injury (FSI) Outcomes of All Crashes Compared to Vulnerable Road Users (VRU) Crashes

Hit by a car driving at...



Figure 4-4: Pedestrian Crash Survival Probability at Various Vehicular Speeds (Source: NACTO Urban Street Design Guide)



CONTRIBUTING FACTORS

Potential contributing factors such as impaired driving, adverse surface and weather conditions, and poor lighting may influence crash severity. Impaired driving alone accounts for nearly 41% of all fatalities in the City of Saginaw from 2014 to 2023, as shown in Figure 4-5.

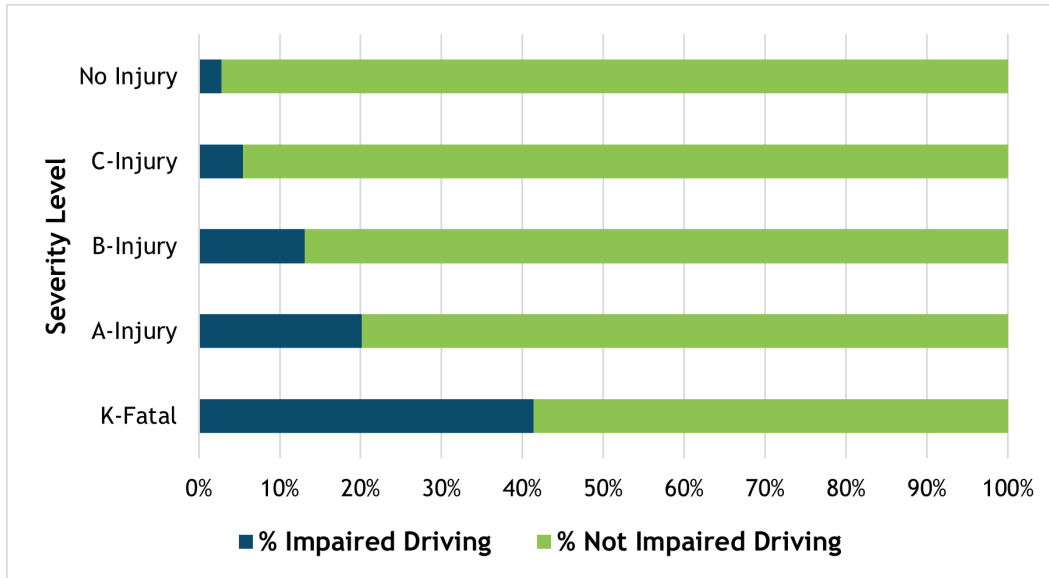


Figure 4-5: Proportion of Impaired Driving Crashes Across Severity Levels

Time-based analysis reveals that the highest concentration of crashes occurs during the afternoon peak period between 3 PM and 6 PM on both weekdays and weekends, as shown in Table 4-1, suggesting that congestion can contribute to elevated crash risks. This trend is common in other local urban-suburban areas.

Table 4-1: FI Crashes by Time of Day and Day of the Week

		Time of Day							
		12:00 AM	3:00 AM	6:00 AM	9:00 AM	12:00 PM	3:00 PM	6:00 PM	9:00 PM
From		12:00 AM	3:00 AM	6:00 AM	9:00 AM	12:00 PM	3:00 PM	6:00 PM	9:00 PM
To		3:00 AM	6:00 AM	9:00 AM	12:00 PM	3:00 PM	6:00 PM	9:00 PM	12:00 AM
Day of Week	Mon	15	12	42	62	86	103	54	35
	Tues	18	8	58	76	90	110	48	33
	Wed	20	10	46	54	87	99	71	32
	Thu	14	13	42	39	98	91	72	37
	Fri	22	9	45	49	87	104	58	52
	Sat	45	20	25	39	61	72	57	44
	Sun	38	24	11	33	36	56	57	33

Dark green: Lowest relative concentration of crashes, Dark red: Highest relative concentration of crashes



SPATIAL ANALYSIS

Spatial analysis highlights multiple intersections and corridors within the City’s jurisdiction - such as Michigan Avenue and Court Street - as hotspots for FSI crashes, emphasizing the need for targeted safety interventions in these areas. These hotspots are shown in Figure 4-6.

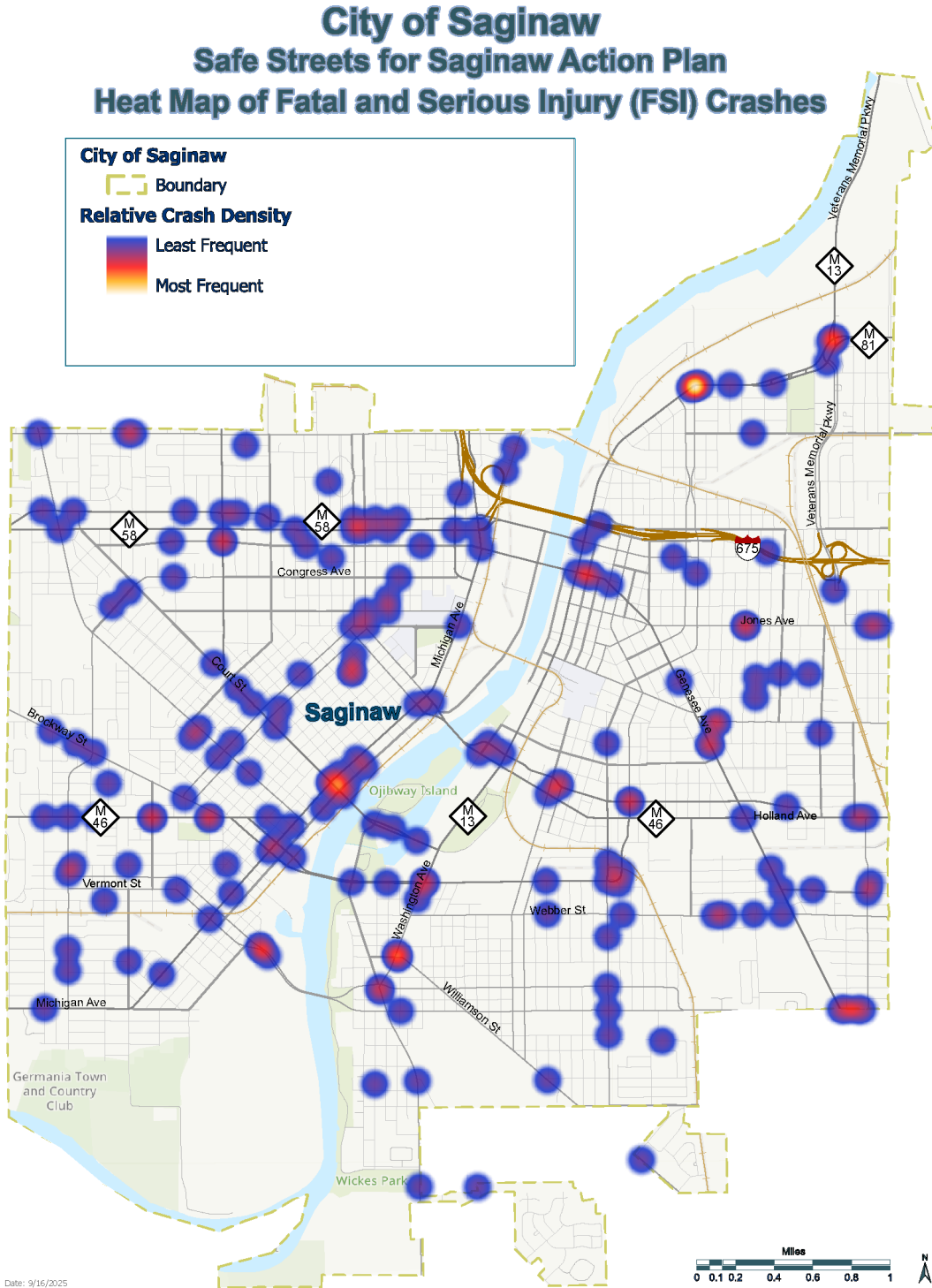


Figure 4-6: Heat Map of FSI Crashes



Spatial analysis also revealed that most FI crashes between 2014 and 2023 were concentrated at intersections and in residential areas, as shown in Figure 4-7 and Figure 4-8, respectively. Intersections refer to the area within either a signalized or non-signalized intersection and the area 100 feet from the intersection.

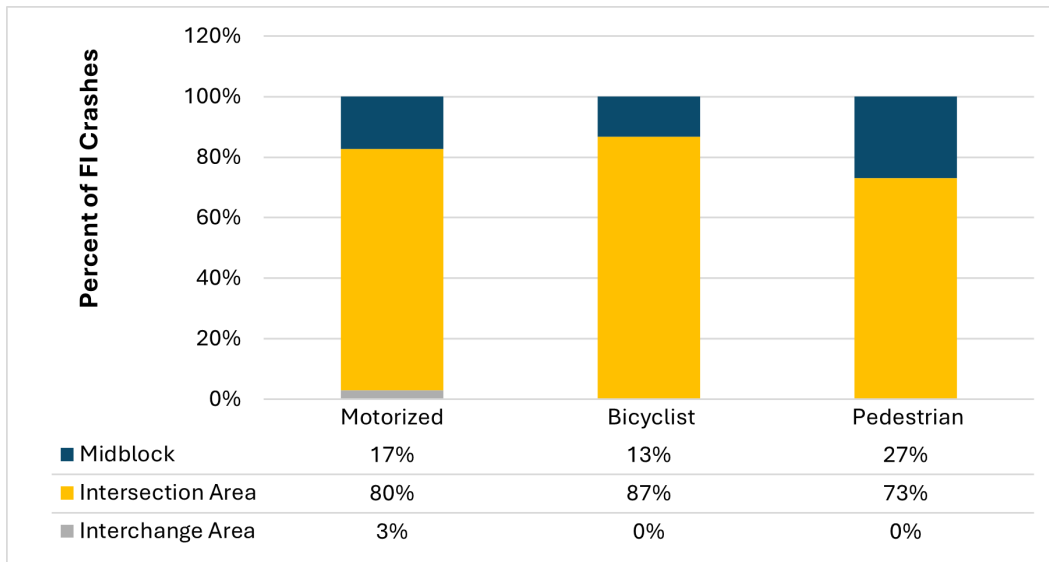


Figure 4-7: FI Crashes by Location

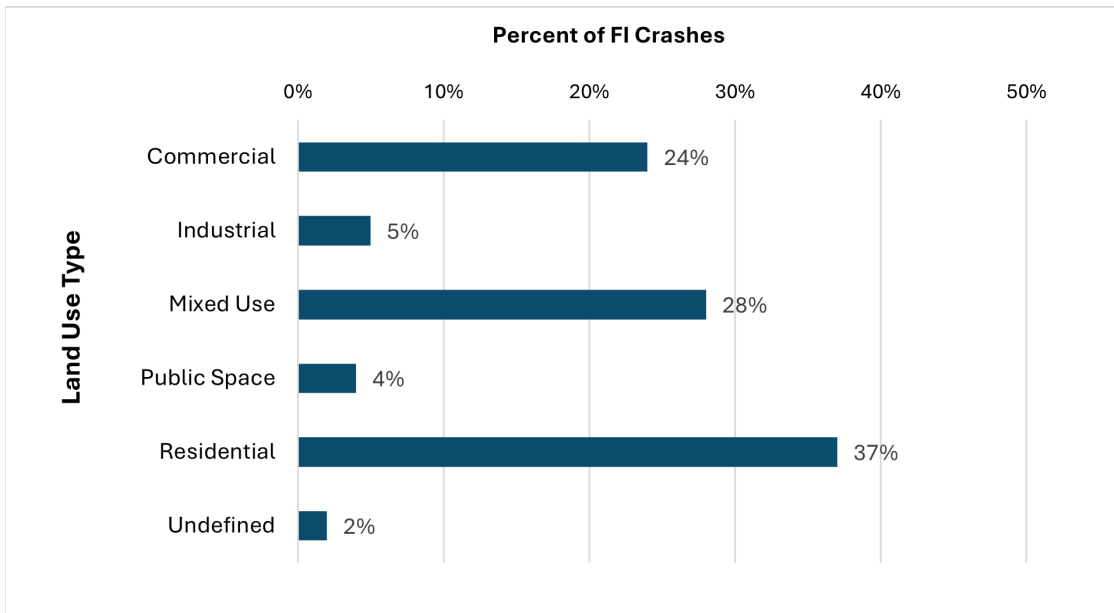


Figure 4-8: FI Crashes by Land Use Type



HIGH-INJURY NETWORK

Building on the historical crash data, the High-Injury Network (HIN, Figure 4-9) - comprised of high-injury intersections (HII) and high-injury segments (HIS) was developed using the same ten-year dataset from 2014 to 2023. Fatal and injury crashes were spatially linked to intersections and segments, and crash severity was weighted using a 3:3:2:1:0 scale to reflect the relative impacts of each crash severity. The weights given include the following:

- 3 - Fatal Crashes
- 3 - Serious Injury Crashes
- 2 - Minor Injury Crashes
- 1 - Other Crashes

Intersections and segments were then ranked based on total weighted scores, with segment scores normalized by length. The final HIN includes intersections accounting for 65% of all intersection-related FI crashes and segments accounting for 80% of all segment-related FI crashes, as shown in Table 4-2.

Table 4-2: HIN Coverage Summary

HIN Component	Network Share	Jurisdiction	Share of FI Crashes	Share of FSI Crashes
High-Injury Intersections (HII)	9% of all intersections	55% City 4% County 41% MDOT	65% of FI intersection crashes	70% of FSI intersection crashes
High-Injury Segments (HIS)	6% of total road mileage	64% City 4% County 32% MDOT	80% of FI segment crashes	94% of FSI segment crashes



City of Saginaw Safe Streets for Saginaw Action Plan High Injury Network



Date: 9/16/2025

Figure 4-9: High-Injury Network Map



Predictive Safety Analysis

To complement the HIN, a predictive analysis was conducted using the Empirical Bayes (EB) method to estimate FI crashes for each road segment beyond what would be expected. Five safety performance functions were developed using Negative Binomial models, incorporating AADT, land use proximity, and segment length as key predictors.

The Empirical Bayes (EB) method combines a site-specific crash history with predictions from a reference population to pinpoint a more accurate estimate of crashes expected.

The Negative Binomial model is a statistical model used for analyzing count data when the variance is greater than the mean, known as overdispersion. It accounts for overdispersion by including an additional parameter, k (the dispersion parameter) in which the variance is a quadratic function of the mean rather than an equal relationship.

HIGH-RISK NETWORK (HRN)

A detailed review was conducted to identify gapped segments along corridors where multiple individual segments were highlighted in the HIN and the EB predictive analysis. These gapped segments were evaluated for similarities in surrounding land use, roadway characteristics, and proximity to previously identified high-risk intersections. Segments with comparable attributes were incorporated into the network based on contextual risk, resulting in the creation of the High-Risk Network (HRN), shown in Figure 4-10. This approach allows for the inclusion of segments that, while not flagged by crash data alone, may still present elevated risk due to their alignment with high-crash conditions. This supports the Safe System Approach principle that “Safety is proactive: Proactive tools should be used to identify and address safety issues in the transportation system, rather than waiting for crashes to occur and reacting afterwards”⁵. Approximately 54% of the HRN falls within City jurisdiction, 11% within County jurisdiction, and 34% within MDOT jurisdiction.

Together, the HIN and HRN will act as prioritization tools for the SAP, identifying locations on Saginaw’s streets where deaths and serious injuries are already happening and where they are most likely to happen as places to target future investments in safety interventions. Whether a location is a high-injury/high-risk intersection or segment will inform the types of safety interventions most appropriate for implementation at that location.

⁵ USDOT National Roadway Safety Strategy - Safe System Approach <https://www.transportation.gov/safe-system-approach>



City of Saginaw Safe Streets for Saginaw Action Plan High Risk Network



Figure 4-10: High-Risk Network Map



5.0 Policy, Education, and Enforcement Review

This section offers model strategies that contribute to and prioritizes transportation safety and provides an inventory of existing policies and initiatives in the City of Saginaw that either contribute to safety improvement efforts or could be modified to enhance efforts. Lastly, this chapter explores new recommendations on policies, educational campaigns, and enforcement strategies to improve transportation safety.

General Policy, Education, and Enforcement Strategies

As part of this planning effort, it is helpful to understand the possible safety action policies, procedures, and programs that are available as best practices. Table 5-1 includes a representative sample set of policies and guidelines that should be considered.

Table 5-1: Transportation Safety Best Practices in Policies, Education, and Enforcement

Policy Topic	Description
Best Practice Policy Goals & Guidelines	
Create Goals / Targets for Crash Reductions	Develop metrics and targeted goals for a reduction in serious injury and fatal crashes, which is being conducted as a part of this Safe Streets for Saginaw SAP, see sections 6 and 7. These targets can be adopted administratively by an implementing agency or formally approved by a governing board or council and then monitored to track progress.
Implement the Safe System Approach (SSA)	The SSA takes a comprehensive approach to anticipate human mistakes through roadway design, anticipate maintenance needs, set safer speeds, and minimize crash angles to reduce injury severity. https://www.transportation.gov/NRSS/SafeSystem
"Complete Streets" Policy / Multi-modal Policy	Michigan law defines "complete streets" to mean roadways planned, designed, and constructed to provide appropriate access to all legal users in a manner that promotes safe and efficient movement of people and goods whether by car, truck, transit, assistive device, foot, or bicycle. While 'Complete Street' policies are not mandatory, implementing a Complete Streets Policy or defining multi-modal street designs can be useful to focus designs on the safety of pedestrians and bicyclists, and often results in design that slows speeding and mitigates unsafe driving behaviors.
Create Complete Streets Design Guidelines	Creating design guidelines for specific context will help the City of Saginaw to advance safe designs that will work for the community.
Enforcement	
Data-driven enforcement campaigns	Policing and enforcement of unsafe traffic behavior can sometimes be challenging based on perceived problem locations. Instead, use data to ensure resources are being used most effectively.



Education	
Develop or enhance crash reporting to public leadership	Often stakeholders and local leadership are in the best position to make changes to improve safety. By creating a routine data-driven approach to notifying leadership of the trends in crashes, it can help create institutional support and accountability around finding solutions to traffic safety.
Campaigns: Dangers of speeding/DUI	Public agencies might have opportunities to communicate with their constituents through websites, newsletters, signage at public buildings, etc. These can be opportunities to promote new safety initiatives. Grants are often available to help support even more robust campaigns if desired.
Campaigns: Sharing the Road with Bicycles	Too often, drivers are unaware of, or not up to date on, policies about sharing the road with cyclists. Additionally, updated infrastructure for cyclists, such as on-road bicycle left turn priority, can be new to drivers in the region. Sharing information about bicycle right-of-way law can be helpful for vehicles and bicycles to better coexist on the road.
Outreach: Local land use decision makers on site design	<p>Site design can greatly impact safety for pedestrians. Elements such as pedestrian walkways to building entrances, curb cut width and placement vs. shared driveways, and lot splits with inadequate roadway/sidewalk access can be overlooked in the site plan review process. Including Ordinance provisions to avoid poor design and/or offering continued education to local decision makers on site design and transportation issues can proactively benefit the end user and improve safety.</p> <p>Additional city-wide planning efforts can help guide these site level decisions, such as the development of a non-motorized plan.</p>
Pedestrian	
Walkability Audits	Often, the truest way to assess the quality of an environment for its walkability and comfort level for safety is to conduct a walkability audit. These audits can sometimes be done using trained volunteers near or around a particular area of concern, in conjunction with a review and analysis by engineers or planners. Mobility-restricted persons or considerations for mobility-restricted users must be included in the audit.
School Zone Treatments	To help prioritize safety in school zones, upgraded treatments are considered, including high visibility crosswalks, activated pedestrian signals, speed humps, or rumble strips.
Biking	
Connect the bike and trail network	One effort to improve bicycle safety is to ensure that there is a connected network of recreational trails that are combined with an on-street network that is well marked and protected from traffic.



Traffic/Street Design	
Road Repurposing / Diets	Roadway design can be adjusted to reduce opportunities for high speeding and unsafe driving behaviors. When the street is designed to accommodate a capacity of vehicles that is higher than what is needed, speeds tend to increase. In those locations, vehicle traffic lanes can then be repurposed to utilize the right-of-way space for wider sidewalks, bike facilities, on-street parking, improved aesthetics, landscaping and/or green stormwater management.
Shared Streets / Curb less / Flex Space	Shared streets are fitting for narrow streets with low vehicle volumes or high foot traffic areas. The street is designed or retrofitted without a curb, which allows for more flexible and shared space between vehicles, pedestrians, and bicycles. For example, if a cyclist was in the street and needed to move over for a vehicle, they could easily shift to the pedestrian area without having the barrier of the curb. It also allows pedestrians to move around easier. The street gives equal priority to all modes of transportation and essentially functions as a plaza. This design allows for the space to be more easily converted into a pedestrian-only space that is ADA compliant for events or pop-ups.
Traffic Calming	Traffic Calming techniques (e.g., narrower lane widths, high-visibility signage, on-street parking, etc.) can compel drivers to use more caution while driving and slow down. There are various levels of traffic calming. On arterial or major streets, this might mean reducing the lane width or curb bump outs at major intersections with lots of pedestrian crossings. On residential streets, it could include a series of traffic calming measures like traffic circles/roundabouts, speed boards, or signs.
Speed Management	Programs could be developed to intentionally slow speeds in some contexts. Previously, for a municipality to reduce speeds, the State of Michigan required the State Police to conduct a speed study and update the speed based on the 85th percentile of actual speeds tracked. If road users travel faster than the speed limit, the results would be counterproductive to lowering speeds for safety measures and the existing or planned land use context or added nonmotorized infrastructure. In 2024, Michigan implemented changes to set speed limits based on the 50th percentile of speeds traveled and can be lower than the 85th percentile based on hazards not reflected in the speed, allowing greater flexibility for reasonable and safe speed limits for all roadway users. Additional interventions to lower speeds consist of narrowing lanes, reducing the number of lanes, speed boards to notify drivers of their actual speeds, or curb bump outs at intersections.
Corridor Studies (signal timings, geometric, pedestrian crossing, street network concerns all approached holistically)	Often the best safety solutions happen when corridors are studied in their entirety. Pursuing funding or grants to further study and redesign a corridor can not only lead to safer outcomes, but can be leveraged with other community benefits, including economic development efforts.



<p>Signal Timings / Investments / Roundabouts</p>	<p>Intersections often pose the highest vulnerability and likelihood for crashes and therefore offer an opportunity to solve safety concerns when timing or making signal investments. When upgrading 4-way, 3-way, 2-way, signalized and stop locations, roundabouts may offer a safer and more traffic-friendly solution.</p>
<p>Land Use Design and Regulations (Master Plan, Sub-Area Plans, and Zoning Ordinance)</p>	
<p>Mixed-Use and Transit-Oriented Development (TOD)</p>	<p>A land use development pattern that clusters a mix of housing, jobs, and services around transit stops, typically within a half-mile radius, to create more walkable, convenient neighborhoods. Mixed use buildings - residential, commercial, and office - help to create more compact and efficient development. Land use plans can designate specific areas, along transit routes, where a multitude of land uses and goods and services are co-located with one another so that residents do not need to drive to access daily destinations. This can reduce residents' exposure to traffic crash risks and reduce congestion, air pollution, and infrastructure needs to accommodate vehicles.</p>
<p>Walkability requirements (e.g., more rear parking, less curb-cuts, well-marked crosswalks)</p>	<p>Land use ordinances and/or building codes can require site designs that are more conducive to safe, walkable developments. Municipalities should ensure that traffic impact studies also include an evaluation of pedestrian travel and safety.</p>
<p>Access Management</p>	<p>Access management is a shared responsibility for MDOT, the county, the City of Saginaw depending on who grants the permits for curb cuts and local site plan decision making. Ensuring the appropriate policies and review processes are in place helps proactively to reduce curb cuts during road reconstruction projects. A more in-depth overview and brief analysis for the City of Saginaw is provided on the next several pages.</p>



ACCESS MANAGEMENT

What is Access Management?

Access Management refers to techniques to improve safety by reducing crashes and conflicts along major roadways. It focuses on **where driveways should go and how they are designed**. Access management includes standards for the placement of driveways from intersections and from other driveways. It also includes recommended spacing from freeway ramps, railroad crossings, roundabouts, median cuts, and to ensure adequate sight distance for people using driveways. Associated driveway standards also include preferred dimensions for driveway width, radii, the need for a passing or deceleration lane/taper and other features of a driveway.

Generally, the fewer number of driveways and wide spacing from signalized intersections means fewer conflicts and crashes. Desired spacing can be modified based on the context of the area if there are pedestrians or bicyclists travelling along the road, the speed of traffic, traffic volumes, the number of lanes and other physical conditions (such as hills or curves).

Michigan law, case law, and the Subdivision, Land Division and Driveway Standards require that “reasonable access” be provided to properties. The Michigan Department of Transportation has developed an Access Management Guidebook, based in part on the International Transportation Research Board’s Access Management Guidebooks. Saginaw also has specific standards for access and driveways.

Reasonable access may need to balance convenient access to a property with the need for safe travel conditions along the roadway. In some cases, the location desired by a property owner may need to be modified to improve safety. In some cases, especially when prioritizing safety, access may be best provided through shared or indirect means.

Access Management Techniques

The access management techniques most relevant to the City of Saginaw, listed in the order of priority, include the following:

1. **Minimize the Number of Driveways.** Fewer driveways mean safer conditions and less crashes. It can also provide more room for green space, stormwater management, and better aesthetics. (Figure 5-1)
2. **Adequate Sight Distance** to see other vehicles and non-motorized travelers before making a turn. (Figure 5-2)
3. **Spacing from a Signalized Intersection.** Good spacing from a traffic signal to the nearest driveways (Intersection

How Access Management Contributes to Transportation Safety

Numerous national and Michigan case studies demonstrate that appropriate placement, spacing and design of driveways **reduces conflict points and crashes**. Fewer driveways along a major roadway can reduce stopping and traffic backups and helps keep traffic flowing.

Fewer driveways along roads with sidewalks or pathways can improve visibility between vehicles and nonmotorized traffic, such as bicycles and pedestrians on a pathway or sidewalk. Less expansive driveways with narrow radii can also reduce those conflicts, especially if truck volumes at the driveways are minor.



Clearance) can reduce congestion and crash potential. The goal is to reduce the number of drivers attempting to enter a driveway where the cross traffic is going in the opposite direction. This distance varies depending upon the corner of the intersection and the number of lanes. (Figure 5-3)

4. **Keep driveways separate from driveways on the other side of the street.** Driveways should align with driveways on the other side of the street or be separated, preferably 150 feet apart but especially to avoid left turn lock-up as shown in Figure 5-3 and Figure 5-4. The MDOT guidebook recommends spacing based on posted speed limits. In urban areas like Saginaw, those standards can be difficult to meet but adding more spacing, especially between higher traffic volumes driveways or along a roadway with high crashes, is important.
5. **Increase Spacing Between Driveways on the Same Side of the Street.** Space driveways at least 60 feet apart. It is recommended that more spacing be provided for higher volume roads or where posted speeds are 40 miles per hour or more.

Additional Special Standards should be considered if the following conditions occur:

- a. Location of crossovers and driveways along a median
- b. Spacing from railroad crossings, interchange ramps, and roundabouts
- c. Internal Site Design - Try to keep parking away from the driveway operation zone and allow pedestrians to travel from the sidewalk to building entrances
- d. Lot Splits - Assure that adequate access can be provided and/or shared driveway access agreement can be agreed upon before a lot split is approved



Minimize Driveways in Quantity and Width

For smaller lots, look for opportunities to close a driveway when the use changes or there is potential to share a driveway with the adjacent site. In some cases, an easement may be needed that will allow a connection in the future, when the adjacent site is redeveloped. If there is a large site being split, require an access agreement to allow shared access.

The width of a driveway can also contribute to crashes. The typical dimension for an entry/exit driveway is 22-30 feet wide depending on the speed limit of the road, the number of trucks expected, whether there is a sidewalk, and other physical factors. In an area with pedestrians, a radius of 25 feet is preferred, but larger radii may be needed for higher speed roads or where there is anticipated to be a large number of trucks entering the site.

Minimizing driveway quantity and width helps to:

- Minimize conflict points between vehicles on the road and using the driveway;
- Reduce conflicts between pedestrians/bikes when vehicles enter or exit;
- Provide better visual guides where vehicles can enter and exit; and
- Allow better off-road connections between commercial sites with shared driveways.

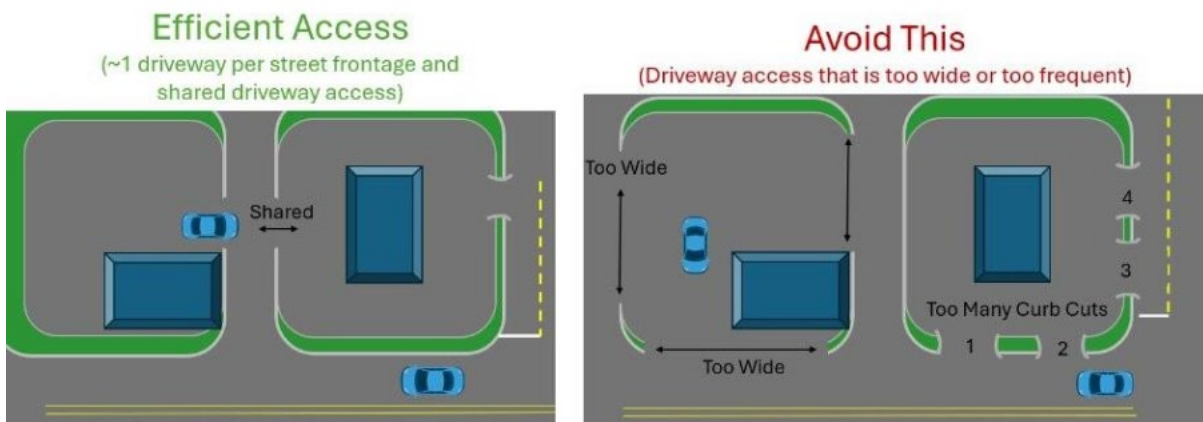


Figure 5-1: Minimize Curb Cuts Graphic - Shared driveways and minimized driveway width help reduce vehicle crash points when entering/exiting a site.

When possible, cross-access between sites should be maintained to aid with traffic flow. ‘Cross-access’ refers to a vehicle connection between properties or a shared access system. This can be through an alleyway, a drive aisle connecting parking lots, or a shared driveway along the road. This type of connection can allow travel between sites without going back onto the road. There could also be shared access requirements to lot splits or new developments, which could be codified in the Ordinance, especially when the preferred spacing dimensions cannot be met. The City of Saginaw could also provide a template agreement to help promote shared access systems.



Sight Distance Clearance

Being able to see opposing traffic and non-motorized travelers and gauging when one has a gap to enter or cross a roadway are important safety factors. The City of Saginaw has engineering standards for sight distance. A clear vision triangle, measured from the right-of-way onto a corner property to ensure vehicles can see oncoming traffic, can be included in the zoning and subdivision ordinances too (see Figure 5-2). The area shown as shaded should not have signs, landscaping, poles or other obstacles that block visibility from the driver of a car or truck.

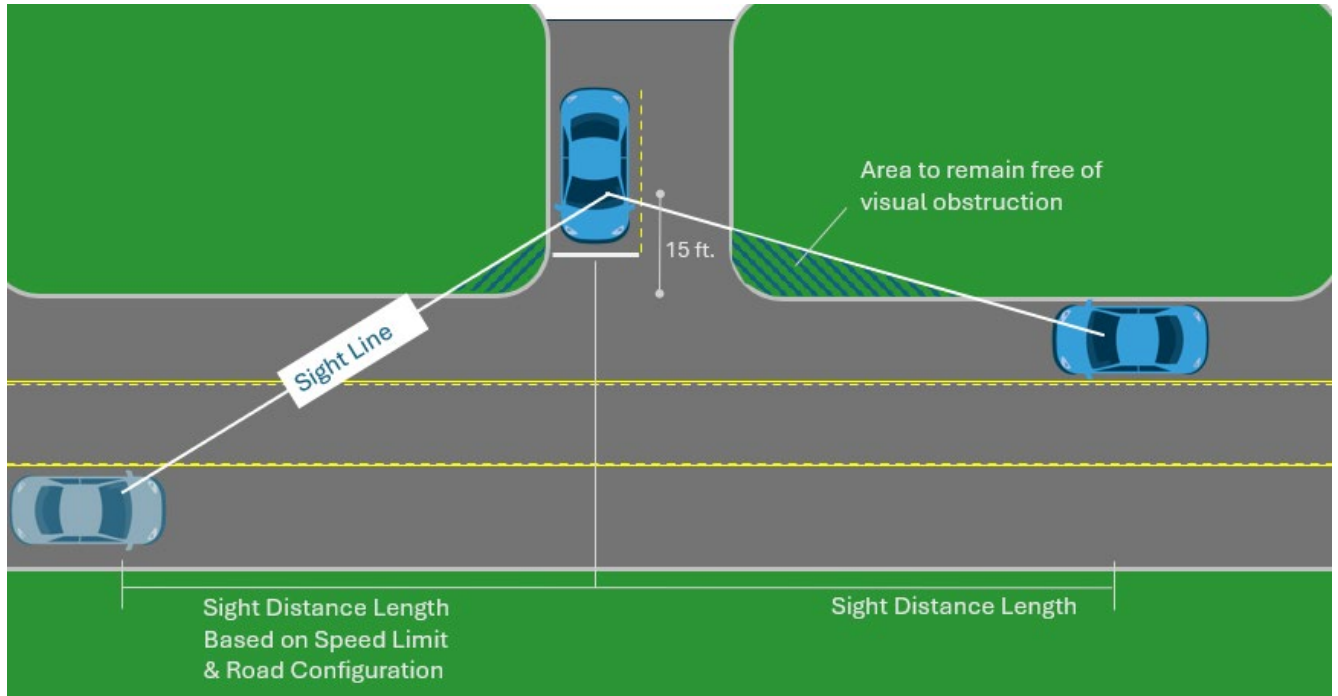


Figure 5-2: Sight Distance Clearance Graphic - The area within the sight distance line, marked in the hatched shading, correlates with the 'clear vision triangle' area that must remain clear of any visual obstructions.

Table 5-2: Minimum Intersection Sight Distance

Speed Limit (mph)	Minimum Intersection Sight Distance (ft)					
	2 Lane Undivided		3 Lane Undivided or 2 Lane Divided w/ 12' Median		4 Lane Undivided	
	Left Turn	Right Turn	Left Turn	Right Turn	Left Turn	Right Turn
25	280	240	300	240	320	200
30	335	290	360	290	380	240
35	390	335	420	340	440	340
40	445	385	480	390	500	390
45	500	430	530	430	570	430
50	555	480	590	480	630	480

Source: Michigan Department of Transportation (MDOT) 2015 Geometrics and Operations Unit Traffic and Safety Sight Distance Guidelines according to the 2011 AASHTO and MMUTCD Guidelines



Intersection Clearance

As a general rule, driveways should be outside of the ‘functional area’ of an intersection, also known as the ‘operational area’ of an intersection. The functional area of an intersection varies from intersection to intersection, but it generally encompasses the areas where motorists are actively turning or waiting to turn. This area often equates to a driveway being at least 150 feet from a signalized intersection along a primary road. This distance does vary based on the speed limit, road classification/function, and the roadway configuration.

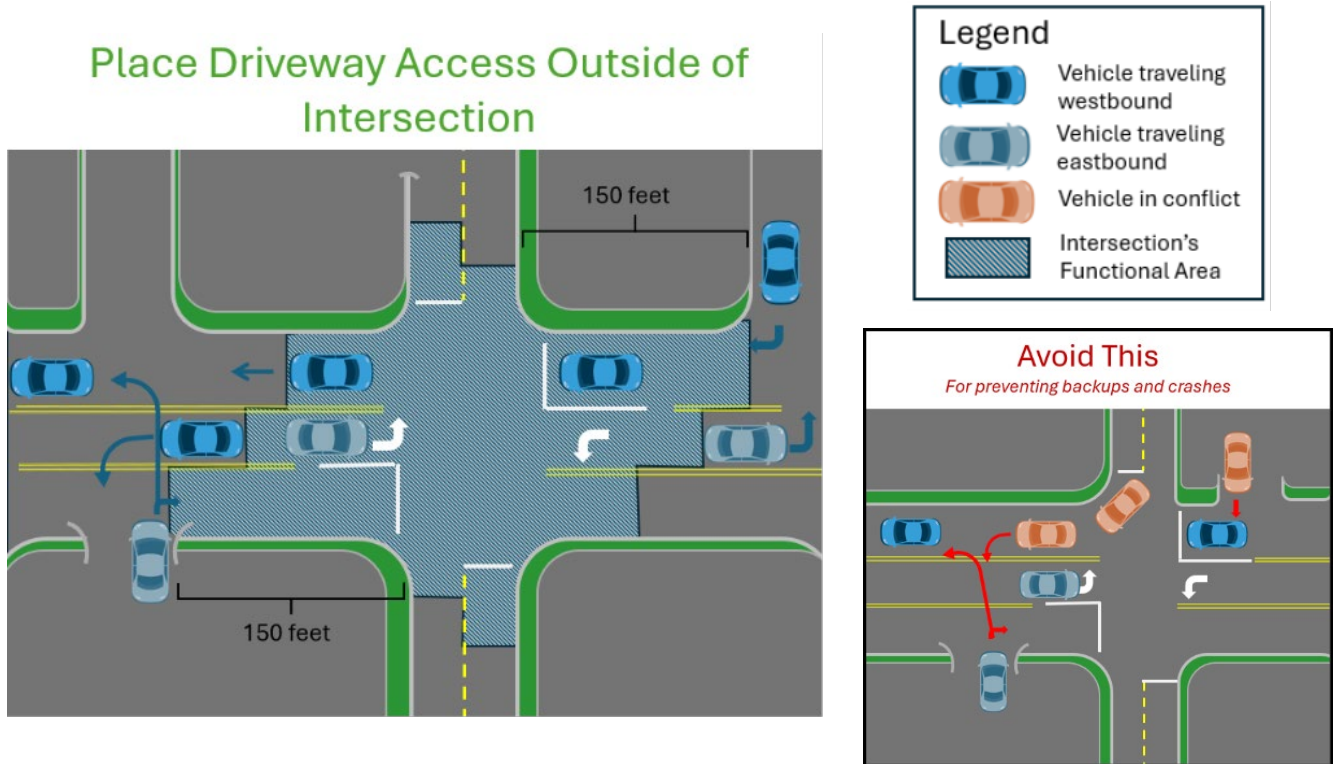


Figure 5-3: This graphic offers a visual representation of the functional area of an intersection and why appropriate spacing is vital to avoid crashes and backups.



Driveway Offset - Alignment for Left Turns

Intersections and/or driveways should be aligned or offset enough that vehicles turning left do not have to cross paths. The minimum offset spacing for opposing driveways is 150 feet in most circumstances. The key thing is to avoid a left turn lock-up, as shown in Figure 5-4.

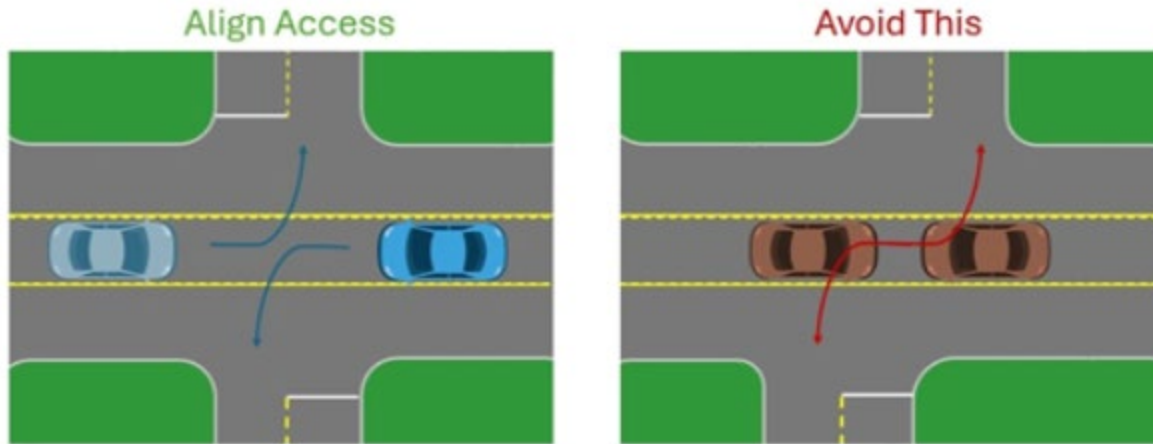


Figure 5-4: Driveway / Street Alignment for Left Turns - Driveways and streets must be aligned or offset enough to avoid crash conflict points.

Driveway Spacing on the Same Side of the Road

Driveways on the same side of the road must be adequately spaced apart. When driveways are too close, it causes too many cross points between vehicles and nonmotorized traffic as well as vehicle to vehicle. It can also obstruct the view or sight line for the drivers of vehicles exiting the site. The minimum space for driveways on the same side of the street is based on the street type, speed limits, and existing context of land uses on and adjacent to the site.

MDOT driveway separation guidelines are the following:

- 245 feet for 35 mph speed limits
- 300 feet for 40 mph speed limits
- 350 feet for 45 mph speed limits

These spacing requirements are helpful in the creation of new streets or for major development or redevelopment projects. The recommended spacing requirements can be difficult to obtain along a built-up corridor so the general concept is to increase the spacing as much as is practical or limiting left turns when adequate spacing cannot be achieved.

Case Studies

One of the best ways to show how access management principles can be applied is to look at specific examples. Several sites with access issues, and some ideas to improve the access while providing the property owner with reasonable access, are illustrated on the following page.

Example 1. Court St. & Granger St.



Pros:

- Buffer parking spaces from public right-of-way
- Delineate internal pathways
- Sidewalk extension to the entrance

Cons:

- Too many driveways along street frontage, especially along the primary street
- No internal vehicle connectivity

Example 2. Court St. between N Woodbridge St. and Mason St.



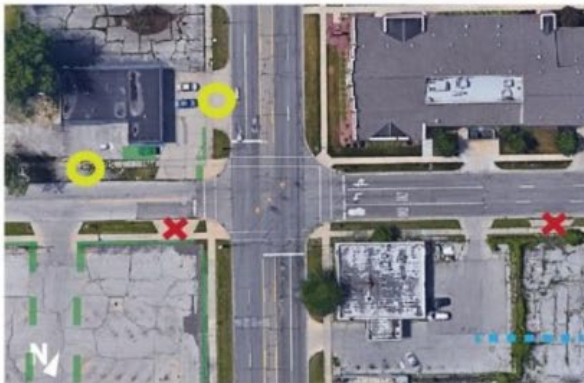
Pros:

- Buffer parking spaces from public right-of-way
- Sidewalk extension to the entrance (for one site)

Cons:

- Too many driveways
- Driveways and sight distance blocked
- Parking spaces and drive aisle not clear, pathways should remain open and marked
- On-street parking too close to driveways and block appropriate sight distance

Example 3. 945 E Genesee



Pros:

- Top right site: buffers parking spaces from public right-of-way, has adequate driveway spacing from intersections, has sidewalk to entrance connections, no more than one driveway per street frontage and sight distance clearance,

Cons:

- Driveways too close to intersection (some used, some unused)
- Driveways too wide
- No internal vehicle connectivity
- Need clear internal pathways for vehicles and pedestrians surrounding and within each site

Example 4. E Genesee Ave. & E Holland Ave



Pros:

- One corner is designed to keep the intersection clear vision triangle clear; however, it is not enforced as objects are placed in the way

Cons:

- Too many driveways per site
- Driveways located too close to signalized intersection
- Driveways too wide
- Need buffering along right-of-way
- Clear vision triangle at corners not designed to be unobstructed

	Remove		Buffer		Clear Vision Triangle/ Sight Distance Clearance
	Improve		Vehicle Circulation/ Cross Access		



Next Steps - How to Implement Safe Access Management

Property owners have a right to have access to the roadway, but that does not mean the property owner has a right to as many driveways as they might prefer or at a location of their choosing. The location and design of driveways need to meet standards to reduce conflicts and crashes. Property owners should also not expect compensation for relocation of access if the government shows justifiable cause and least impact.

Overall Access Management Guidelines:

- **Driveway permitting.** Require a new access or driveway permit when there is an additional use that will increase traffic flow or for the reuse of an existing building or lot.
- **Change in Use.** When a site is proposed for a change in use, this is the opportunity for the City Engineering Department to remove unnecessary driveways and/or change their design to reduce conflicts. The list of factors shown provides a good hierarchy - reduce the number of driveways, remove or relocate those that are too close to signalized intersections and access points on the other side of the road.
- **New Development or Redevelopment.** Minimize the number of driveways and locate them as far from a signalized intersection as is practical as part of the site plan approval. Look for opportunities to share access with adjacent properties or reserve a location and require an easement to accomplish this in the future.
- **Road Repaving or Reconstruction.** As part of a Capital Improvement Project, work with the property owners to remove the less important driveways and redesign the driveway dimensions to reduce speeds of traffic entering the driveway when it crosses a sidewalk. The City or road agency can offer to change the driveways as part of the road project instead of the property owner being responsible in the future when they want to add new uses, expand or redevelop. This can save the property owners tens of thousands of dollars.
- **Incentives.** Many cities, road agencies (like MDOT), Downtown Development Authorities, Brownfield Organizations and other economic development groups may provide financial incentives to reduce the number of driveways or bring them into conformance with modern standards. This could also be included in stormwater or flood control grants and similar funds.

CASE STUDIES FOR RETROFITTING STREETS

This page discusses ways to retrofit and activate streets into pedestrian-oriented areas or shared streets. These examples offer conversions for pedestrian areas that are permanent and temporary for certain events or seasons.

Pedestrian-only areas can help to activate higher density residential and commercial areas that provide more public space for people to gather and space for businesses to extend into the public right-of-way. Streets or segments of streets can be turned into such plazas, without preventing vehicle access to businesses, especially when an alley way or secondary street access is available. This is a safer and often more attractive alternative for pedestrian placemaking spaces along the roadway, as it better separates vehicles and pedestrians.

A recent example of retrofitting streets into plazas is from Oak Park, Michigan as part of the 9 Mile Redesign Project. This project consisted of a road diet, the addition of bike lanes on Nine Mile, a multi-modal path and linear park parallel to the road, and the creation of pocket parks in between blocks. The area converted into a pocket park that was formerly a roadway is outlined in red on the top left image.

Instead of pedestrian-only areas, another alternative is to create shared streets, also known as curb less streets. The street gives equal priority to all modes of transportation and allows for flexible use of the right-of-way. Monroe Street in Greektown, Detroit, is currently undergoing streetscape renovation to be a shared street. Similar projects in Michigan have been completed in the cities of Dearborn, East Lansing, Hudsonville, and Midland and have been proposed for First Avenue in Flint.



Figure 5-5: Top and Center Image from the Oak Park Nine Mile Redesign Project



Figure 5-6: Renderings of the future Monroe streetscape in Greektown provided by The Smith Group, Source: The Detroit Free Press





Existing Local Policy, Education, and Enforcement Strategies

A review of existing plans and policies help to identify opportunities and barriers to implement the Safety Action Plan. The following section notes a review of the most recent Comprehensive Land Use Plan, studies on transportation and parking, as well as other local planning efforts that address motorized and nonmotorized transportation safety in the City of Saginaw.

CITY OF SAGINAW MASTER PLAN (2022)

The recently updated comprehensive land use plan focuses on community-wide growth and redevelopment to revitalize the City of Saginaw. It focuses on building upon existing community assets, such as the riverfront nonmotorized loop, the medical centers, and the Downtown/Old Town, as well as improving connectivity for multimodal transportation throughout neighborhoods, parks, and the City at large. The main goals and objectives relevant to these planning efforts include placemaking and investment on the riverfront, infrastructure improvements for improved transportation and connectivity, and redevelopment and investment. Public input prioritized bike lanes, safety, the riverfront, and sidewalk gaps and improvements throughout the city. Additionally, as part of the master planning process a transportation plan and parking study were conducted and included as appendices.

Transportation Plan (Master Plan Appendix C)

The Transportation Plan assesses road capacity, road diets, downtown traffic, traffic calming, access management, non-motorized traffic, pedestrians, sidewalks, crosswalks, public transit, truck traffic, rail service, and complete streets. The need to explore complete streets, road diets, timing of traffic signals, access management, nonmotorized infrastructure, sidewalk-crosswalks, ADA compliance, and public transit services are discussed in this plan.

Parking Study (Master Plan Appendix D)

As part of the 2022 Master Plan, a parking study was performed which developed an inventory of the existing City of Saginaw's public parking lots as well as on-street parking. The study notes the need for better marked parking areas for the river loop and the greatest parking demand is west of the river.

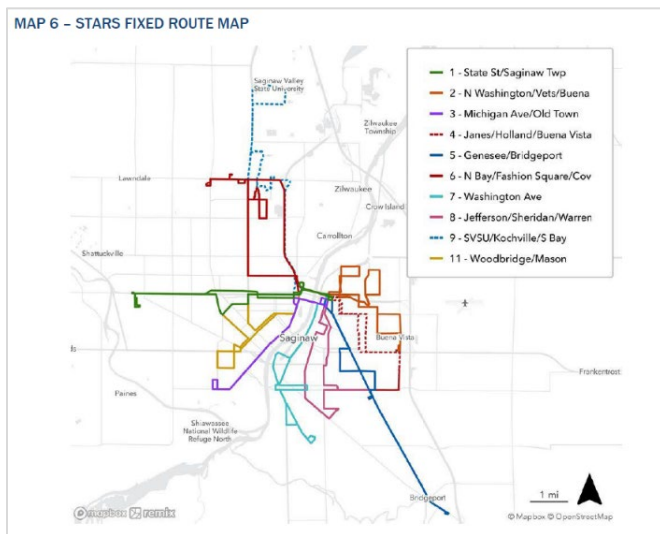


Figure 5-8: STARS Fixed Route Map

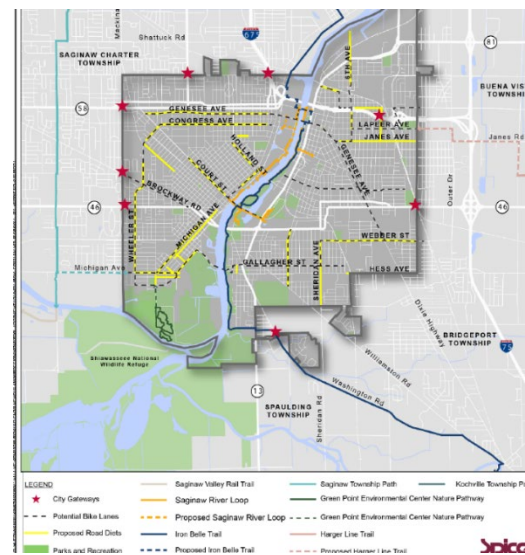


Figure 5-7: Nonmotorized Map from the 2022 Master Plan



CITY OF SAGINAW ECONOMIC DEVELOPMENT STRATEGY (2018)

This strategy plan offers helpful context about the economic conditions and recommendations for ways to improve workforce, employment opportunities, capitalize on existing assets, improve access to jobs and mobility, and activate property vacancies. This plan also identifies how improving STARS local and regional transit connections would be a great asset, especially in servicing the labor force between residents in the southeast corner of the City to the Covenant Medical Center on the west side of the City, connecting Downtown to Old Town, and connecting the medical campuses on each side of the Saginaw River to be known as the ‘HealthLink Corridor’.

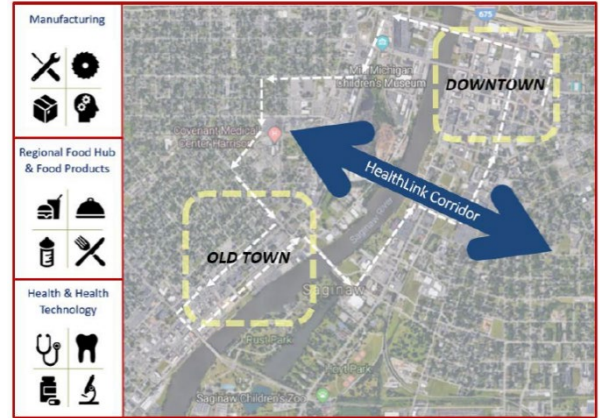


Figure 5-9: HealthLink Corridor Overview Map

M-46 CORRIDOR STUDY (2023)

The M-46 Corridor Study examines the current Level of Service and possible roadway design improvements to prevent crashes along the corridor and at intersections. Upon review of the crash history, public input, and roadway functionality, the plan recommends a road diet, adding a nonmotorized pathway, and converting intersections to roundabouts, including the M-46 and M-13 (Washington Avenue) intersection.

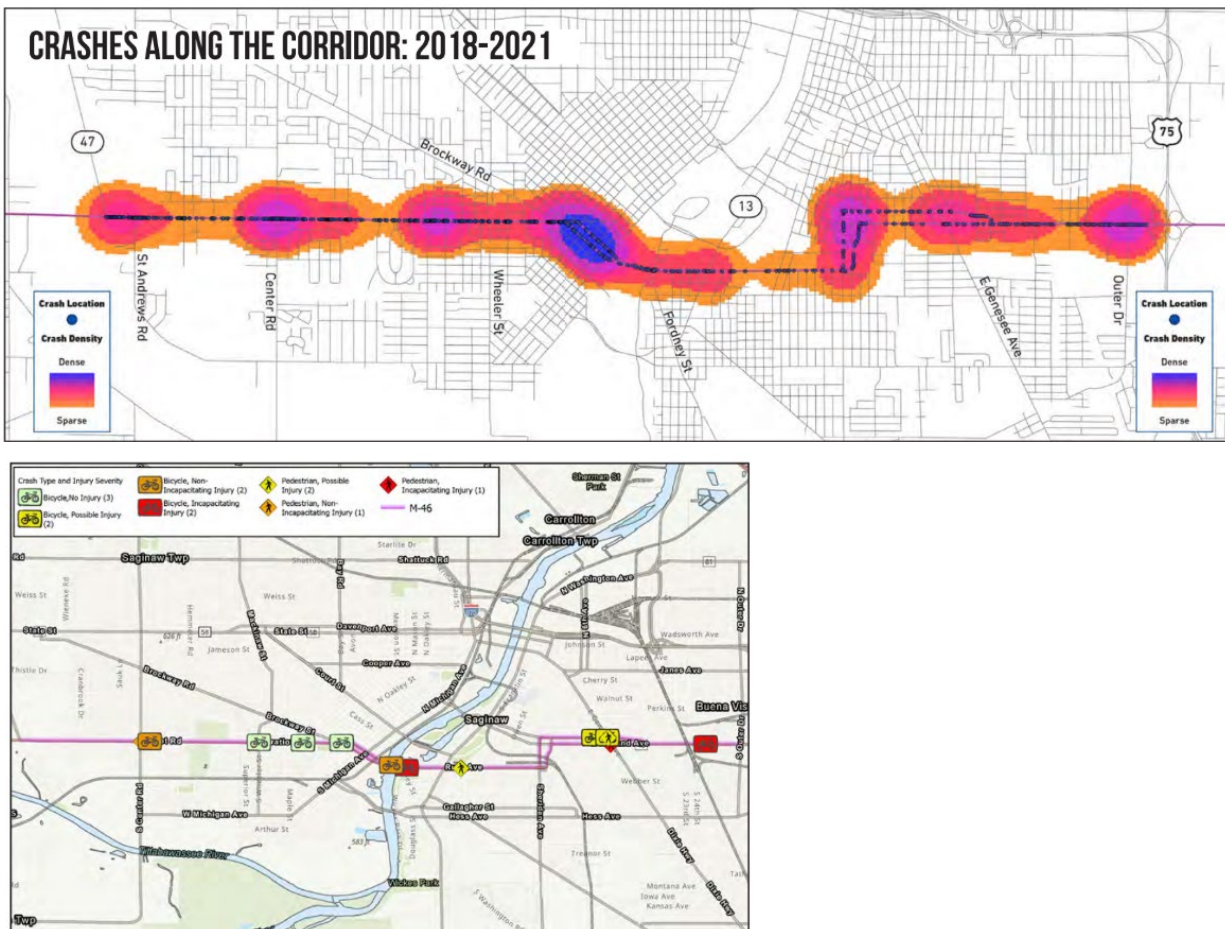


Figure 5-10: M-46 Corridor Study Crash Heat Map and the Pedestrian and Bicycle Crash/Injury Map (Source: MDOT M-46 Corridor Study)



CITY OF SAGINAW ZONING ORDINANCE UPDATE (2025)

The City of Saginaw Zoning Ordinance update focuses on improving clarity and accessibility while achieving the city’s long-term development goals as stated in the city’s Master Plan. The updates expand the mixed-use district and variety of housing types. It also requires site design improvements with landscaping, parking, access management, pedestrian pathways and assures clarity in the site review process to ensure the city is redevelopment ready.

SATA SAGINAW METROPOLITAN LONG RANGE TRANSPORTATION PLAN (LRT), 2045

The county-wide long-range transportation plan addresses non-motorized transportation, public transit, road infrastructure, and regional connectivity. The plan seeks to advance long-standing regional transportation needs, such as improving safety, preserving existing assets, economic growth and expanding access to alternative modes, while emphasizing the growing need to make transportation services more equitable and accessible for all. The plan addresses:

- Nonmotorized transportation in connecting existing trails (Iron Belle, Saginaw Valley Rail Trail, Water Trail, etc.) for a more unified system in Saginaw.
- Public transit expansion county-wide.
- Road maintenance needs and challenges.
- Connectivity within the broader region with the Great Lakes Bay Regional Trail and proposed trolley line trail expansion.

The plan also addresses the transportation needs of the region’s residents, businesses, and visitors. Specific to the City of Saginaw, the county plans to address sidewalk gaps, improve STARS fixed routes, bus stops, and demand services, roadway improvements, and local nonmotorized connector paths for the Saginaw Valley Rail Trail and extensions to the Iron Belle Trail. The plan will improve safety; enhance access, mobility, and efficiency safeguard environmental resources; and better link investments in transportation infrastructure and services to regional economic development opportunities.

OVERALL TAKEAWAYS

Common themes of past plans and studies regarding transportation safety and priorities are summarized here and should be carried forward with this Safety Action Plan:



Enhance Saginaw’s nonmotorized transportation infrastructure and safety to better connect neighborhoods to city amenities.



Enhance the pedestrian experience with improved sidewalks/crossings, pedestrian-only areas, and mixed-use development to transform roads to be corridors.



Continue to implement Complete Streets principles in future road projects to ensure road design safely accommodates all transportation modes and complete trails.



Better connect Saginaw with other cities and places throughout the region by improving and expanding transit options as well as rehabilitating major roads.



Recommended Policy, Education, and Enforcement Strategies

Based upon review of existing policies at the county level and an inventory of local initiatives, the following policy recommendations are provided, grouped by the following topics:

- Engineering
- Education
- Enforcement
- Post-Crash Care
- Transit Policies

ENGINEERING POLICY

Engineering Policy should address traffic calming measures, access management, and VRU infrastructure. The following policies provide guidance for applying system-wide transportation operational changes or preventative measures to be included in project planning or design processes.

In addition to these policy recommendations, this SAP includes a more in-depth overview and analysis of improved access management in the City of Saginaw. Listed here is a summary of the key overarching policies to implement.

Access Management

- Update city-wide access management standards to further address and regulate the number of driveways, spacing of driveways, and retrofitting existing driveways to improve safety.
- Create a standard to grant the city the power to require a parcel or lot owner to remove or modify a curb cut/driveway to meet access management standards before a lot receives a permit for changes to a parcel.
- Ensure operating businesses have properly marked entrances and painted parking spaces (if present), during building inspections, before obtaining/renewing their business license.
- Evaluate and remove unnecessary or crash-prone curb cuts during road reconstruction/redesign projects.
- Retrofit curb cuts that are too wide or add center median to differentiate between vehicle entrance and exits to reduce crash conflict points.
- Update the Zoning Ordinance to prohibit new curb cuts within 150 feet (the current standard is 100 feet) of an existing curb cut or intersection.

Complete Streets Policy

- Create a Complete Streets Policy to guide design and ensure street updates are planned, designed, and built to accommodate all users.
- Continue to implement Complete Streets practices improving safety and mobility.



Figure 5-11: Example rendering of a road diet to actualize a complete street.



Nonmotorized Network

- i. Continue to build bike lanes/multiuse paths that connect residential areas to the riverfront trails, the healthcare campus, downtown, schools, and other destination points in the area. Prioritize areas with existing sidewalk gaps and intersections that need ADA connections to ensure accessibility for people with disabilities.
- ii. Continue to work on nonmotorized connector paths for Saginaw Valley Rail Trail and the Iron Belle Trail.
- iii. Participate in Safe Routes to Schools in partnership with school districts to prioritize filling in sidewalk gaps and addressing crosswalk safety near schools.
- iv. Monitor and improve sidewalks to be evenly paved and ADA compliant.
- v. Conduct walkability audits with neighborhood groups/advocates to identify where sidewalk gaps exist and improvements should be prioritized, including accessibility for persons with disabilities.
- vi. Maintain temporary, ADA-compliant access for pedestrians and bicyclists during all construction projects.
- vii. Systematically review traffic signal timing to ensure adequate crossing time for mobility-restricted or pedestrians with disabilities. In areas with higher pedestrian volumes or historic crashes, consider allowing pedestrians to have a head start at intersection in how the signals are timed (leading pedestrian intervals).



Figure 5-12: Example rendering of proposed improvements in the City of Saginaw to improve nonmotorized pathways and connections that would contribute to new developments along the riverfront/downtown area. Rendering by Studio Gang Architects and SCAPE.

Traffic Calming

- i. Continue to implement curb extensions or bump outs beyond the downtown area, such as throughout residential neighborhoods, to slow down traffic in pedestrian-frequented areas.
- ii. Establish a quick-build program that includes fast and inexpensive measures to address transportation and accessibility concerns.
- iii. Add optical speed bars on the roadway where vehicles are entering reduced speed zones, as another visual indicator to slow traffic. These optical speed bars are transverse



Figure 5-13: Optical Speed Bar Representation, Federal Highway Administration



lines painted across the road with decreasing spacing to create an illusion of increased speed, causing drivers to naturally slow.

- iv. Prioritize road diets in areas of low traffic counts and speed management issues. Road diets help to reinforce speed limits and reduce crashes and allow for public right of way space to service pedestrians and cyclists. Road diets can also create space for green infrastructure, linear parks, shared nonmotorized pathways, and other beneficial uses that lower road maintenance costs.

Asset Management

- i. Convert streets or segments of streets, such as end of block side streets between the main road and alleyways, into pedestrian only areas or plazas, to contribute to pedestrian safety, placemaking, and reduce road management needs. Prioritize areas where there are not any existing driveways or underutilized roadways, such as Niagara and Court and Hamilton and Court.
- ii. Explore temporary street closures for greater placemaking opportunities and safety measures; this could occur either in the summer, for events, and/or certain times of day, while still maintaining access to businesses.
- iii. Consider 'shared street' design, also referred to as curb less streets, for areas of pedestrian priority or 'flex space' for temporary street closures, pop-up events, or other placemaking space.
- iv. Ensure higher intensity zoning (medium- to high-density residential and employment hubs) is allowed along existing roadways and nonmotorized infrastructure that can accommodate the vehicle traffic as well as safely accommodate multimodal transportation, such as higher density development near the riverfront.

Progress Tracking and Continuous Improvements

- i. Conduct an annual analysis of crash data categorized by type and mapped by location to continuously evaluate 'hot spot' areas.
- ii. Create a public-facing project dashboard that tracks the progress of transportation safety projects to keep the public and stakeholders informed.
- iii. Pursue grant funding to further study targeted corridors in their entirety to address intersections, crossings, and other enhancements.

EDUCATION POLICY

Changing driving behavior through enhanced education, public awareness campaigns, and safety education school programs is critical in reducing the likelihood of crashes, especially higher severity crashes. As transportation options increase, so does the need for comprehensive education to ensure that all road users—drivers, young and old, pedestrians, cyclists, transit users, and others—understand how to safely share the road. Public education plays a pivotal role in promoting safe behaviors by raising awareness of risks and helping to reduce preventable injuries and fatalities.

Public Awareness Campaigns

- i. Share the State of Michigan campaigns about safe driving practices, the dangers of distracted driving, and the importance of sharing the road.
- ii. Pursue grant funding to implement safety education programs in schools to teach children about driver, pedestrian, and bicycle safety.



- iii. Create a messaging campaign to address dangerous driving behavior and build knowledge of Vision Zero (i.e. speeding, impaired driving, failure to yield, etc.) and road safety for Vulnerable Road Users (VRUs), bicyclists, and motorcyclists.

ENFORCEMENT POLICY

Enforcement Policy includes speed management programs that can be implemented by lowering speed limits in residential areas and high-risk zones where speeding-related crashes are more common. Previously, for a municipality to reduce speed limits, the State of Michigan required the State Police to conduct a speed study and update the speed based on the 85th percentile of actual speeds tracked. If road users travel faster than the speed limit, the results would be counterproductive to lowering speeds for safety measures and the existing or planned land use context or added nonmotorized infrastructure. In 2024, Michigan began to implement changes in assessing and adjusting speed limits. When the 85th-percentile speed is appreciably greater than the posted speed limit, and the roadway context does not support setting a higher speed limit, the engineering study should consider whether changes to geometric features, enforcement, and/or other speed reduction countermeasures might improve compliance with the posted speed limit. Once these procedural changes are implemented, adjusting speeds to reflect the land use context will be more feasible.

Reducing speeds are most effective in tandem with traffic calming design measures such as speed humps, roundabouts, and narrowed lanes that were included in the engineering policy section above. Design measures help slow down vehicles naturally and reinforce more suitable speed limits without requiring constant law enforcement presence.

Additionally, non-police alternatives to traffic enforcement should be explored to alleviate the City’s police force’s limited capacity as they address other pressing concerns. One way to do this is through automated enforcement, such as speed cameras or red-light cameras, which can help deter speeding without constant law enforcement presence. While automated enforcement is not yet permitted by Michigan State statute, the State of Michigan is going to begin using speed cameras in 2026 to enforce reduced speed limits in roadway work zones. Following this precedent, camera-enforced speeds may be an option for local municipalities to explore in future years. These cameras can be for traffic enforcement only, and policies to prevent the use of facial recognition software in automated cameras can be added. In the meantime, an alternative non-police strategy to implement, which can reduce speed-related crashes while ensuring that enforcement is consistent and impartial, is:

- i. Build non-police first responder team that addresses traffic and road safety, not criminal law enforcement. These unarmed, civilian traffic response units can be overseen by the City’s department of transportation or public works to respond to traffic collisions and minor violations. Where this has been used elsewhere, these response units have the authority to stop cars, but not with force.

Until automated traffic enforcement is implemented, an increased law enforcement presence during peak traffic hours at high-risk intersections can help to reinforce compliance, ensuring that drivers follow the rules where violations are most frequent. Police presence should be increased strategically in areas with high numbers of crashes and violations, focused on high-visibility enforcement strategies. Additional programs to implement with law enforcement include the following:

- ii. Continue to install Flock Cameras with License Plate Readers (LPR) at priority intersections for incident monitoring and investigation. This can be conducted in tandem with traffic signal upgrades.



Figure 5-14: A Flock license plate reader camera used at intersections.
Source: MLive Joel Bissel



- iii. Create a Red-Light Education Program that includes installing red light cameras at targeted intersections that will issue warnings to drivers who run red lights.
- iv. Use additional automated systems, such as speed cameras, to deter violations and notify offenders. Can be used in combination with automated speed feedback signs. Feedback signs should be rotated to different locations at least every two weeks, specifically school zones or other areas with higher non-motorized traffic volumes. If used too frequently, or too long in one location, the presence of this sign diminishes in effectiveness.
- v. Develop or enhance crash reporting to public/leadership to create accountability and support for finding solutions to traffic safety.
- vi. Coordinate with law enforcement to conduct high visibility enforcement initiatives to target specific traffic safety issues (i.e. impaired driving, speeding, distracted driving, work zones, etc.).

POST-CRASH CARE

The Safe Systems Approach model for advancing transportation safety acknowledges that humans make mistakes. While proactive measures must be taken, such as improving roadway design, improving post-cash care is one of the five key areas of the Safe Systems Approach to eliminate fatalities and serious injuries. In addition to creating and working with non-police first responder teams, as mentioned above, the following policies can be explored to improve post-crash care:

- i. Promote the exchange of data between the police and EMS/hospital, which allows for better monitoring and efficient use of resources for post-incident response. The information collected and processed will help to identify methods and procedures that need improvement.
- ii. Explore the possibility that residents will become more involved in the reporting of crashes through an app.
- iii. Improve emergency vehicle preemption at intersections to reduce response times.
- iv. Implement Traffic Incident Management (TIM) practices to reduce secondary crashes and create a safer environment for first responders. These may include safe vehicle positioning, scene safety, command responsibilities, as well as the following mechanisms and procedures:
 - Flashing Emergency Lights can be minimized to avoid distracting drivers, such as avoiding forward-facing lights in the opposite direction of traffic and having calm flash patterns.
 - Using queue warning trucks for advance warnings.
 - Traveler Information Systems provide timely information to the public through various channels (e.g., VMS boards, media) help motorists avoid congested areas and make informed travel decisions.
 - Quick clearance procedures for prompt and safe clearing of temporary obstructions from the roadway.



Figure 5-15: Example of synchronized emergency vehicle lighting. Source: Colorado Department of Transportation; Federal Highway Administration



TRANSIT

Improving transit can help decrease vehicle usage and dependency which can lead to a reduction in crashes and traffic related injuries/death.

- i. Create Bus Rapid Transit dedicated lanes along key segments or along an entire corridor to improve transit frequency and operations as well as increase ridership, transit efficiency, usability, and appeal, while reducing vehicle dependency and parking demands especially during peak times.
- ii. Work with Saginaw Transit Authority Regional Services (STARS) to install transit amenities (shelters, concrete pads, and paved pathways) consistently for highly frequented bus stops and improve pedestrian crossings for riders.
- iii. Work with STARS to reduce crashes with buses and look for ways to reduce bus travel times to make it more convenient in commuting via transit or riding the bus to amenities and other destination points.

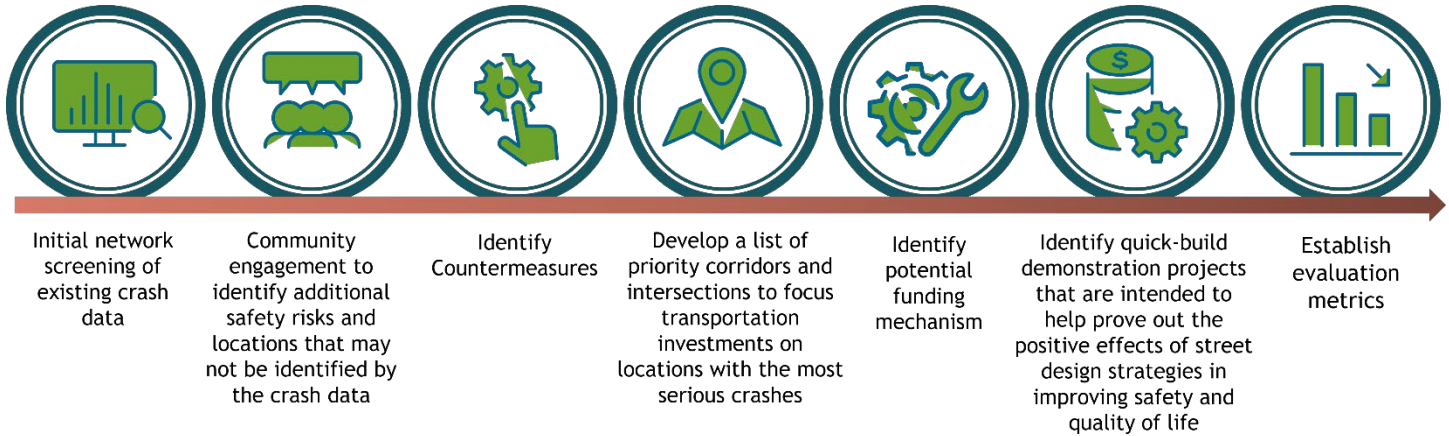


Figure 5-16: Image of the enhanced bus rapid transit along Euclid Avenue in Cleveland, Ohio. Source: NACTO



6.0 Action Plan

The Safety Action Plan consolidates findings from community engagement and collaboration, crash data analysis, and policy, education, and enforcement review into a comprehensive implementation strategy. This strategy outlines emphasis areas, priority projects, other actionable steps, and a phasing strategy to effectively create a safer Saginaw transportation system for all. The next chapter discusses metrics for future evaluation of the implemented projects.



Proven Safety Countermeasures

The Federal Highway Administration (FHWA) launched the Proven Safety Countermeasures Initiative (PSCi) in 2008 to reduce traffic-related fatalities and injuries through data-driven, standardized safety treatments. The initiative recognizes 28 countermeasures targeting key safety areas of speed management, intersection safety, roadway departures, and non-motorist safety. Some countermeasures are crosscutting, addressing multiple safety areas.

These initial 28 countermeasures served as a foundation for developing a toolkit of **77 countermeasures** and investments proven to improve roadway safety. These countermeasures incorporate resources from the FHWA, state and local governments, the National Association of City Transportation Officials (NACTO), and direct engineering experience from fatal crash investigations and roadway safety projects⁶.

How are these relevant to the City of Saginaw?

Identifying and allocating proven **safety countermeasures** are the first steps to addressing identified safety concerns and trends. Safety analysis findings and countermeasures determine project types, benefits, and costs. Priorities are set (see **Prioritization Matrix**) and then the top projects will advance to construction or be used for future grant applications (see **Funding Opportunities**).

⁶ *Making Our Roads Safer | One Countermeasure at a Time*, FHWA (2021); *Achieving Multimodal Networks: Applying Design Flexibility and Reducing Conflicts*, FHWA (2016); *Small Town and Rural Multimodal Networks*, FHWA (2016); *Urban Street Design Guide*, National Association of City Transportation Officials; *Urban Bikeway Design Guide*, National Association of City Transportation Officials; *Pedestrian Safety Action Plan*, Maryland Department of Transportation (2023) *Context-Driven Access & Mobility for All Users*, Maryland Department of Transportation (2020); *Fatal Crash Investigation Project & Reports*, Nashville Department of Transportation & AECOM (2022 - Present); FHWA Proven Safety Countermeasures Initiative: <https://highways.dot.gov/safety/proven-safety-countermeasures>; *Safe System Roadway Design Hierarchy*, Federal Highway Administration, (January 2024)



The full list of countermeasures is provided in Appendix D. The countermeasures most relevant to the City of Saginaw are discussed by each emphasis area.

Emphasis Areas

ANGLE CRASHES

Angle crashes involve side-impact collisions between vehicles traveling in different directions. These crashes occur at intersections or driveways and are often high-risk due to their severity. The angle, speed, and point of impact strongly influence crash outcomes.

In the City of Saginaw, 37% of all crashes and 30% of FSI crashes were angle crashes, making this one of the most critical crash types to address. Between 2014 and 2023, the City recorded **58 FSI angle crashes**, averaging more than five per year. These crashes represent a significant safety concern for both drivers and vulnerable road users as vehicles may also turn into a pedestrian's or bicyclist's path.

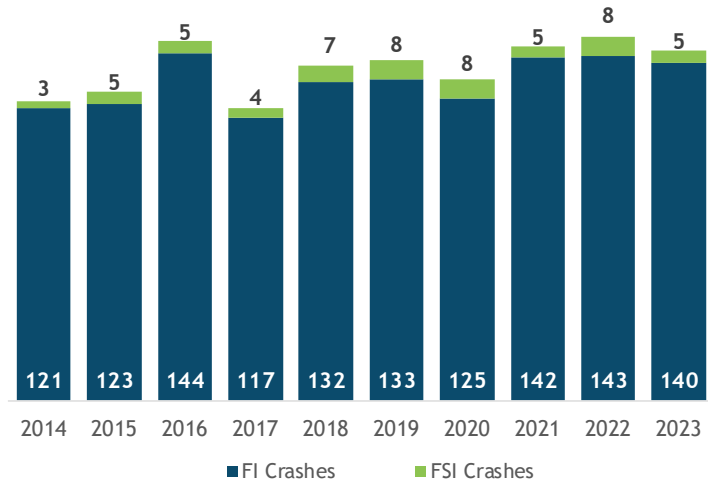


Figure 6-1: Angle FI and FSI, City of Saginaw (2014-2023)



Recommended Countermeasures

To reduce the frequency and severity of angle crashes in Saginaw, the following strategies should be considered:

- Add or improve **overhead lighting at intersections** to increase road users' ability to see one another.
- **Prohibit and remove parking and/or obstructions within a 60-foot radius of intersections** (daylighting) to increase road users' ability to see one another and mitigate the need for drivers to pull out into the middle of an intersection to see around obstructions.
- **Install centerline hardening and slow-turn wedges** at intersections to slow vehicle turning movements.
- **Install signal backplates with reflective borders** to improve signal visibility and driver awareness (see Appendix D Countermeasure Toolkit).
- **Upgrade diagonal span wires to box span configurations** to ensure each lane has its own signal head, increasing the visibility of traffic signals and encouraging compliance.
- **Increase the size and brightness (lumen output) of signal light heads** to increase the visibility of traffic signals and encourage compliance.
- **Evaluate geometric modifications**, including the addition of roundabouts, Reduced Conflict Intersections (RCIs) (see Appendix D Countermeasure Toolkit), and turn lanes where appropriate to reduce the speed, angle, and frequency of turning movements into the path of other road users.

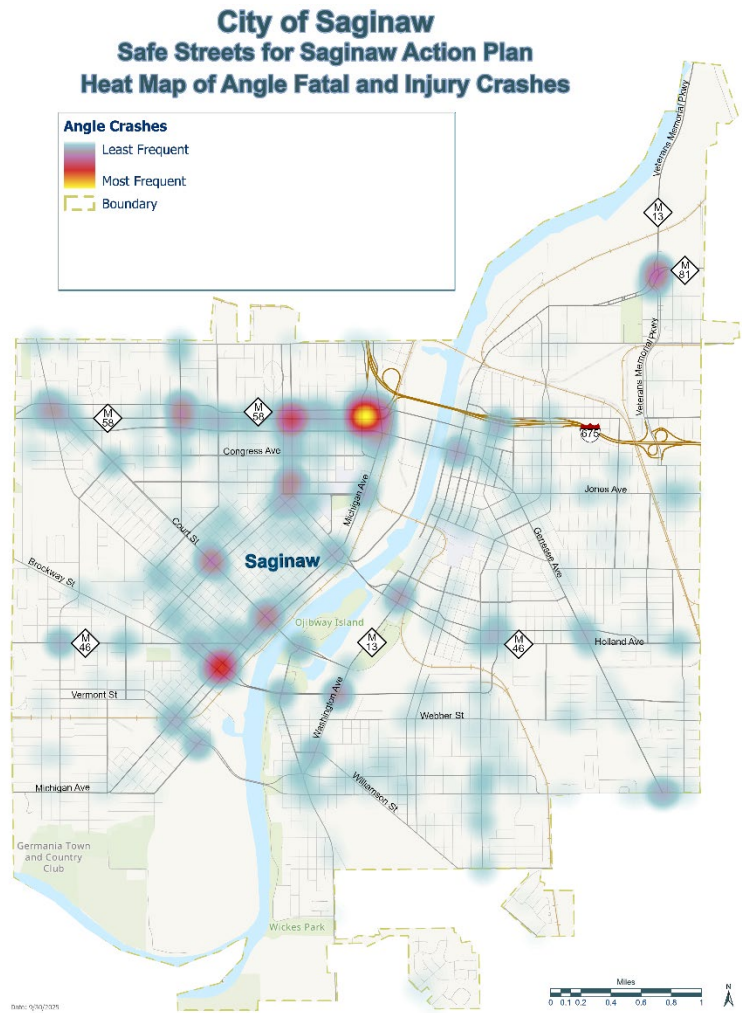


Figure 6-2: Angle Fatal and Injury Crash Frequency Heat Map, City of Saginaw (2014-2023)



REAR-END CRASHES

Rear-end crashes occur when a vehicle collides with the back of another vehicle, often caused by distracted driving, speeding, or sudden braking. While generally less severe than angle or head-on crashes, rear-end collisions can still result in serious injuries, especially for occupants of smaller vehicles.

In the City of Saginaw, rear-end crashes accounted for 18% of all crashes and 6% of FSI crashes between 2014 and 2023. Over the 10-year study period, the city recorded 12 FSI rear-end crashes.

Recommended Countermeasures

To reduce the likelihood and severity of rear-end crashes, the following countermeasures should be considered:

- Increase advance warning signage at high-volume intersections and congested corridors to alert drivers to the upcoming need to slow down and/or stop.
- Upgrade signal visibility with backplates, larger heads, and improved progression to minimize sudden stops.
- Explore adaptive signal control to reduce abrupt changes in traffic flow.
- Apply high-friction surface treatments in areas with frequent stop-and-go traffic to reduce stopping distance and prevent crashes when abrupt braking does occur.
- Implement speed management (see Appendix D Countermeasure Toolkit, and Section 4) and targeted enforcement strategies to reduce following distance violations.
- Expand education and awareness campaigns addressing distracted and impaired driving.

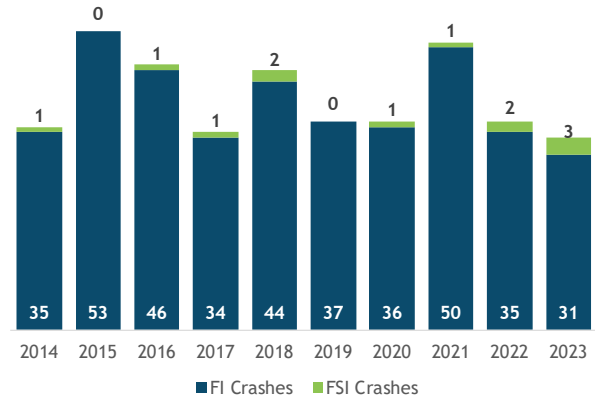


Figure 6-3: Rear-End FI and FSI Crashes, City of Saginaw (2014-2023)

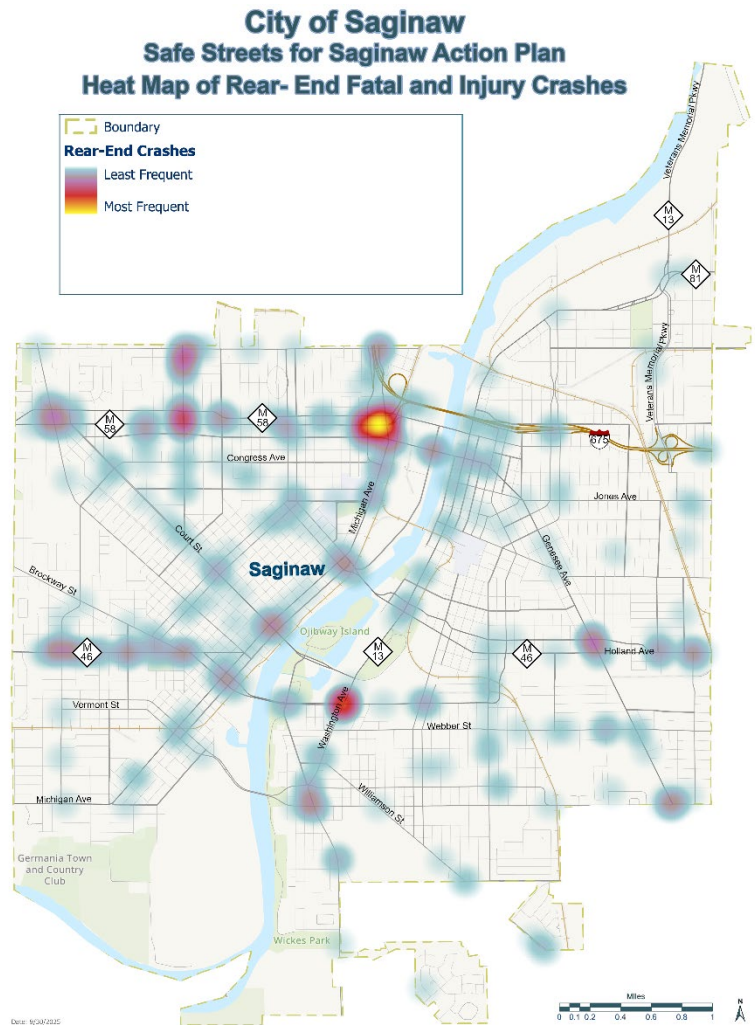


Figure 6-4: Rear-End Fatal and Injury Crash Frequency Heat Map, City of Saginaw (2014-2023)



VRU CRASHES

Vulnerable Road User (VRU) crashes – including those involving pedestrians and bicyclists – make up a significant share of FSI crashes: 21% of all fatal crashes and 15% of all serious injury crashes in the City of Saginaw. Contributing factors include inadequate infrastructure, driver and/or VRU distraction or inattention, mid-block crossings, limited visibility, and turning movements.



	Fatal	Incapacitating Injury	Non-Incapacitating Injury	Possible Injury	No Injury
Pedestrian 	6	16	37	71	19
Bicyclist 	0	9	26	55	23

Figure 6-5: VRU Crashes by Severity (2014-2023)

In this analysis, mid-block crashes are defined as those occurring more than 100 feet from an intersection, while intersection crashes occur within 100 feet of the center of an intersection.

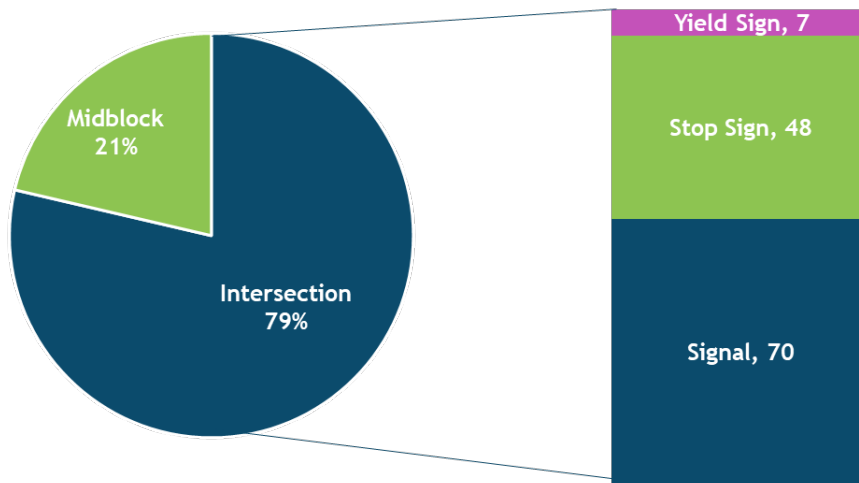


Figure 6-6: VRU Fatal and Injury Crashes by Location, City of Saginaw (2014-2023)

In Saginaw, VRU crashes accounted for 31 FSI crashes between 2014 and 2023, underscoring their importance as a priority safety issue. Analysis of VRU crashes, summarized in , shows that the majority (79%) of FI crashes occurred at intersections, while 21% took place at midblock locations. Among VRU crashes at intersections, signalized intersections accounted for the largest share (70 crashes), followed by stop-controlled intersections (48 crashes) and a smaller number at yield-controlled intersections (7 crashes). These patterns highlight the importance of addressing safety at signalized and stop-controlled intersections, while also improving midblock crossing opportunities where pedestrian and bicycle activity is high.

Recommended Countermeasures

To address VRU crashes in Saginaw, the following strategies are recommended:

- **Add Leading Pedestrian Intervals (LPIs)** at signalized intersections with high pedestrian traffic to increase pedestrian visibility within the crosswalk and give pedestrians more time to cross.
- **Provide enhanced crossings** (signalized, Pedestrian Hybrid Beacons [PHBs], stop-controlled, or Rectangular Rapid Flashing Beacons [RRFBs]) at least every ¼ mile in high-demand areas to provide ample safe opportunities to cross the street.
- **Expand the separated, on-road bicycle facility network** to separate bicycles from vehicular traffic and support safer bicycle commuting.
- **Install centerline hardening and slow-turn wedges** at intersections to slow vehicle turning movements.
- **Restrict parking** near crosswalks (daylighting) to improve sight lines between drivers and pedestrians and reduce instances of vehicles pulling into or across crosswalks to see around parked cars.
- **Eliminate permissive left-turn signal phasing** at intersections with high pedestrian and bicycle activity to prevent vehicles from turning into the path of crossing pedestrians and bicyclists.
- **Enhance placemaking along corridors with high VRU volumes** (e.g., landscaping, bus stops, wayfinding, kiosks) to create more engaging and pedestrian-oriented environments that naturally calm traffic and increase driver awareness of people walking and biking.
- **Install enhanced pedestrian-scale lighting** at intersections and along nonmotorized routes to increase visibility.
- **Install enhanced crossings** near neighborhoods and key destinations, using **high-visibility markings** and curb extensions to shorten crossing distances and improve pedestrian safety.
- **Install passive pedestrian activation** (automatic detection) in downtown areas, replacing push-button actuations.

City of Saginaw Safe Streets for Saginaw Action Plan Heat Map of VRU Fatal and Injury Crashes

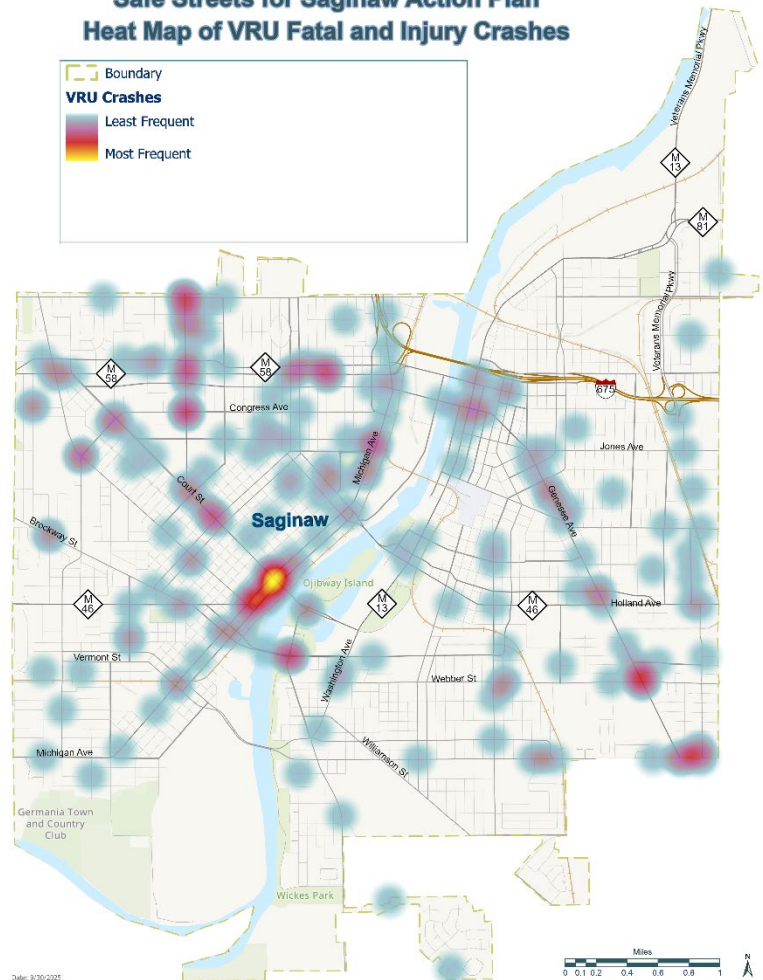


Figure 6-7: VRU Fatal and Injury Crash Frequency Heat Map, City of Saginaw (2014-2023)



IMPAIRED DRIVING

Impaired driving is a major contributing factor to severe crashes in the City of Saginaw. Between 2014 and 2023, there were 514 alcohol- and drug-involved crashes. While impaired driving crashes made up just 4% of all reported crashes, they accounted for nearly 41% of all traffic fatalities in the city. This disproportionate impact underscores the high risk associated with alcohol- and drug-impaired driving. The majority of impaired driving crashes involved alcohol only, as shown in Figure 6-8.

Trends in drug-involved crashes also reveal significant shifts following the legalization of recreational cannabis in Michigan in December 2019. As illustrated in Figure 6-9, Saginaw experienced an 85% increase in drug-involved crash rates from 2019 to 2020, followed by an additional 88% increase in 2021, reaching the statewide rate. After peaking in 2021, crash rates declined by 28% through 2023. This trend mirrors broader statewide patterns, though the increase in Saginaw was more pronounced.

Age distribution analysis, shown in Figure 6-10, highlights that impaired driving crashes are disproportionately concentrated among younger drivers. Adults aged 25-34 accounted for over 30% of impaired driving crashes despite making up only 15% of the city's population. The findings indicate that impaired driving is most prevalent among residents under age 45.

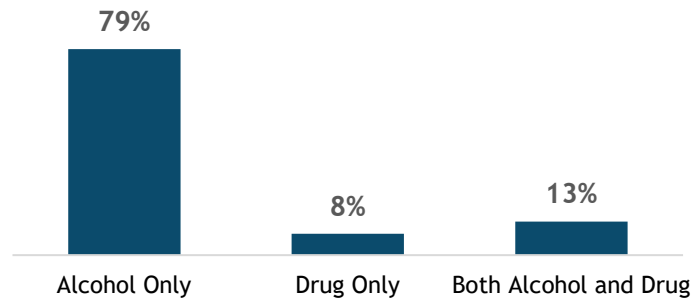


Figure 6-8: Crash Distribution by Impairment Type (2014-2023)

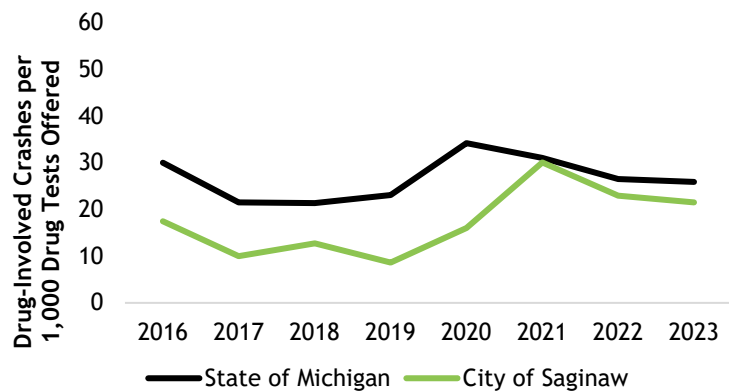


Figure 6-9: Comparison of Crash Rates for the City of Saginaw and the State of Michigan

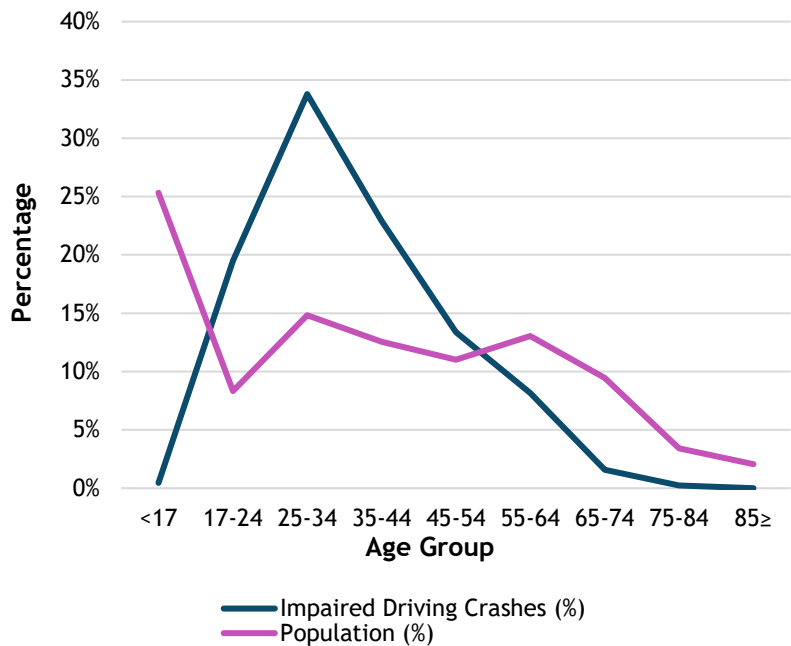


Figure 6-10: Percentage of Impaired Driving Crashes by Driver Age Group (2014-2023)



Recommended Strategies

To reduce impaired driving crashes in Saginaw, targeted strategies should include:

- **Enforcement campaigns focused on alcohol and drug impairment**, particularly during late-night and weekend hours. Use crash data to identify corridors for targeted sobriety checkpoints and high-visibility enforcement.
- **Public education and outreach efforts** aimed at drivers aged 17-44, including school, college, and workplace-based campaigns.
- **Partnerships with healthcare providers, bars, and cannabis retailers** to raise awareness of impairment risks.
- **Expansion of safe and affordable transportation alternatives** during peak impairment hours (generally late evenings/weekends).

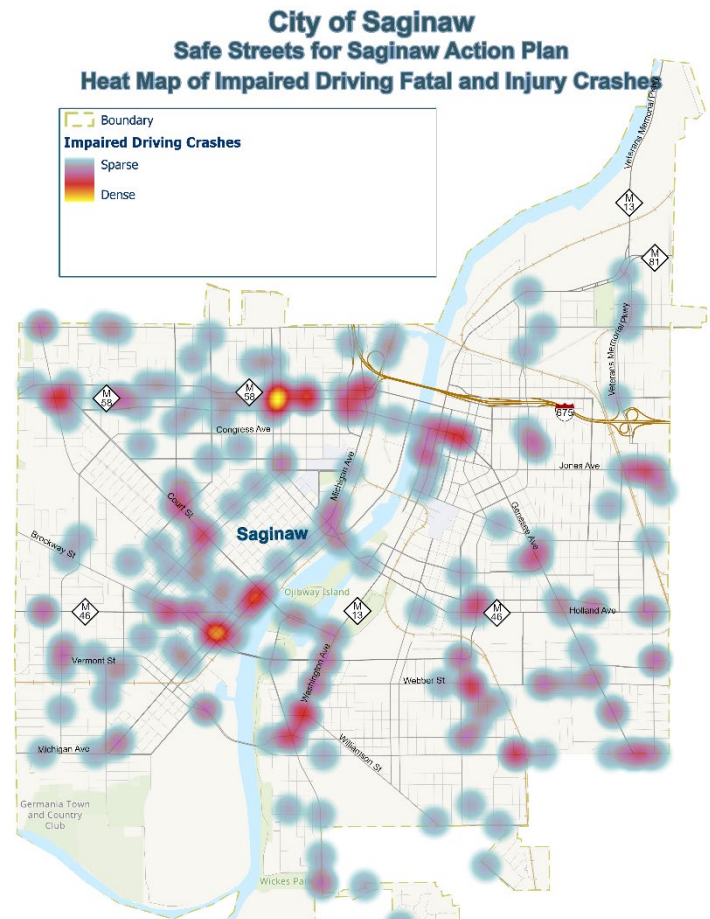


Figure 6-11: Impaired Driving Fatal and Injury Crash Frequency Heat Map, City of Saginaw (2014-2023)



ARTERIAL ROADWAYS

Arterial roadways play a central role in Saginaw’s transportation network but are also the location of a disproportionate share of Fatal and Injury (FI) crashes. Together, Minor Arterials and Other Principal Arterials account for 72% of motorized FI crashes, despite making up a smaller share of total roadway mileage.

For motorized users, nearly half of all FI crashes (47%) occurred on Other Principal Arterials, while another 25% occurred on Minor Arterials. This concentration underscores the role of higher-speed, high-volume corridors as critical safety concerns. Vulnerable Road Users (VRUs) face similar risks. Over one-third of bicyclist FI crashes (37%) and 38% of pedestrian FI crashes occurred on Other Principal Arterials, while an additional 20% of bicyclists and 28% of pedestrian FI crashes occurred on Minor Arterials. This means that nearly two-thirds of serious VRU crashes happened on arterial corridors.

A contributing factor is the high prevalence of overbuilt roadways throughout the city, particularly on arterials with several travel lanes. These wide roads often carry less traffic than they were designed for, creating an environment where drivers feel comfortable speeding. This mismatch between roadway design and actual traffic demand directly increases crash risk and severity.

Recommended Strategies

To address arterial roadway crashes, the following strategies should be considered:

- Implement **lane reallocation** to better align roadway capacity with traffic demand and reduce speeding opportunities.
- Use **traffic calming measures** (e.g., curb extensions, lane narrowing, raised crosswalks) to slow speeds on wide corridors.
- Introduce **access management and speed management** strategies on high-crash arterials.
- Add **enhanced pedestrian crossings** (high-visibility crosswalks, RRFBs, or PHBs) at regular intervals, particularly near transit stops, schools, and retail corridors.
- Expand **protected bicycle infrastructure** (e.g., flexible posts, bollards) on arterials with high bicyclist crash concentrations.

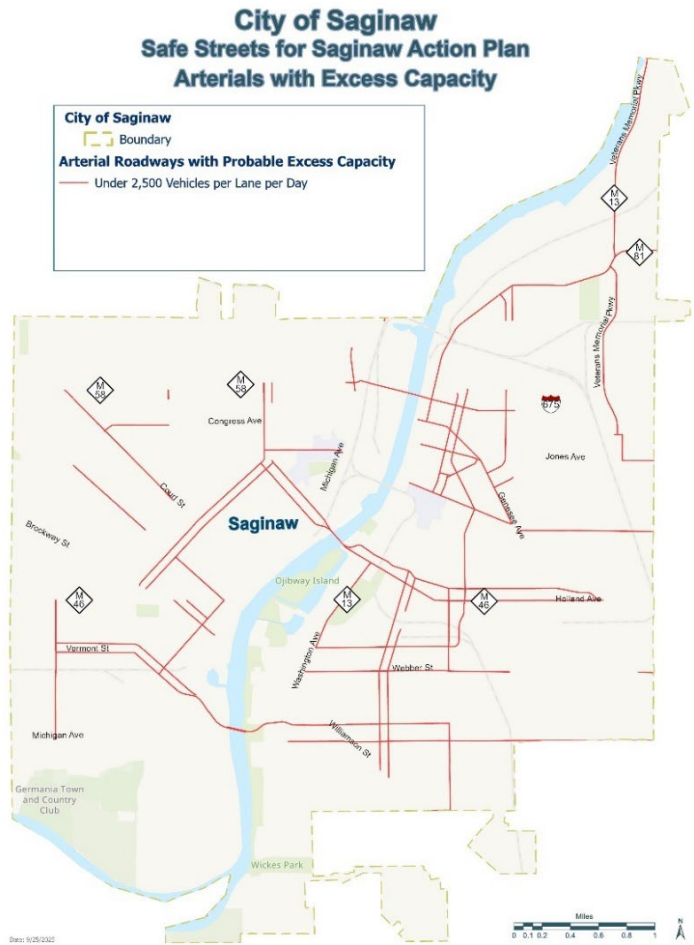


Figure 6-12: Arterials with Excess Capacity



- Improve **signal visibility and timing**, including Leading Pedestrian Intervals (LPIs) and protected turn phases, at high-volume intersections.
- Prioritize arterials for **safety-focused reconstruction projects** that incorporate several safety countermeasures at once.

The Arterials with Excess Capacity map shown in Figure 6-12 uses the methodology of the Southeast Michigan Council of Governments (SEMCOG)'s excess capacity analysis in which segments with up to 6,000 vehicles per lane per day were considered to have road diet investigation potential and a volume of 2,500 vehicles per lane per day was considered as having the best potential for a road diet⁷. A volume of 6,000 vehicles per day is the maximum resulting average daily traffic volume for MDOT to consider a road diet on a rural MDOT trunkline or a rural road intersecting an MDOT trunkline⁸; therefore, a volume of 2,500 vehicles per lane per day is well within the criteria, especially in an urban context.

SCHOOL ZONES

School zones are unique environments where large volumes of multimodal traffic converge during concentrated times of the day. The mix of children walking and biking, parents driving, and buses picking up or dropping off students creates complex safety challenges.

In Saginaw, 58% of FSI crashes occurred within half a mile of a school. Similarly, 70% of HIN segments and intersections are located within half a mile of a school, underscoring the overlap between known high-risk corridors and school zones. Addressing safety in these zones is critical to ensuring safe access to education and promoting walking and biking as viable travel options for students.

School zones in Saginaw experience intense periods of activity as pedestrians, bicyclists, school buses, and parent vehicles converge during morning arrival and afternoon dismissal times. These overlapping travel patterns create congestion and frequent conflicts between users. Wide or high-speed roads near schools further elevate risk, particularly in areas with limited crossing opportunities. In addition, inconsistent infrastructure—such as missing sidewalks, faded crosswalks, or gaps in bicycle facilities, reduces predictability and safety for students traveling to and from school. Together, these conditions highlight the need for comprehensive improvements that prioritize safe, comfortable, and reliable routes for children.

⁷ Southeast Michigan Council of Governments (SEMCOG), Southeast Michigan Transportation Safety Plan, <https://www.semco.org/wp-content/uploads/2025/07/SafetyPlanFinal.pdf>, page 37 of plan (page 47 of PDF)

⁸ Southeast Michigan Council of Governments (SEMCOG) and Michigan Department of Transportation (MDOT), MDOT Complete Streets Process Guide for Southeast Michigan, <https://www.semco.org/wp-content/uploads/2025/08/MMTCompleteStreetsProcessGuideJan2022.pdf>

Recommended Strategies

To improve safety in school zones, the following countermeasures should be prioritized:

- Implement or expand a **Safe Routes to School** program to coordinate infrastructure, education, and enforcement efforts.
- Use **temporary street closures** or “**school streets**” during arrival and dismissal times to reduce conflicts between children and vehicles.
- Install **enhanced pedestrian crossings** (high-visibility crosswalks, RRFBs, or PHBs) at locations with high student volumes.
- Apply **traffic calming measures** such as speed humps, curb extensions, raised crosswalks, or mini roundabouts near schools.
- Reduce posted speed limits and consider **automated speed enforcement** in school zones.
- Improve visibility by **restricting parking near crosswalks** (daylighting).
- Add **sidewalks and bicycle facilities** to ensure continuous and safe routes to school.
- Expand **education and enforcement campaigns** focused on yielding to pedestrians, obeying school zone speeds, and reducing distracted driving.
- Coordinate with school administration to **manage pick-up/drop-off activity**, explore **designated loading zones and flows** to reduce conflicts, and **communicate pick-up/drop-off instructions** to students and parents/guardians.

HOSPITALS

Hospitals are critical destinations within Saginaw, acting as major traffic generators that attract a diverse mix of patients, visitors, employees, and service vehicles. The unique travel patterns around hospitals – including frequent pick-ups and drop-offs, high pedestrian activity, and deliveries – create complex traffic conditions that require careful safety considerations.

In Saginaw, 21% of FSI crashes occurred within half a mile of a hospital. Similarly, 28% of HIN segments and intersections are located within half a mile of a hospital. Notably, Covenant Medical Center is surrounded by HIN corridors, underscoring the elevated safety risks in and around this key institutional hub.

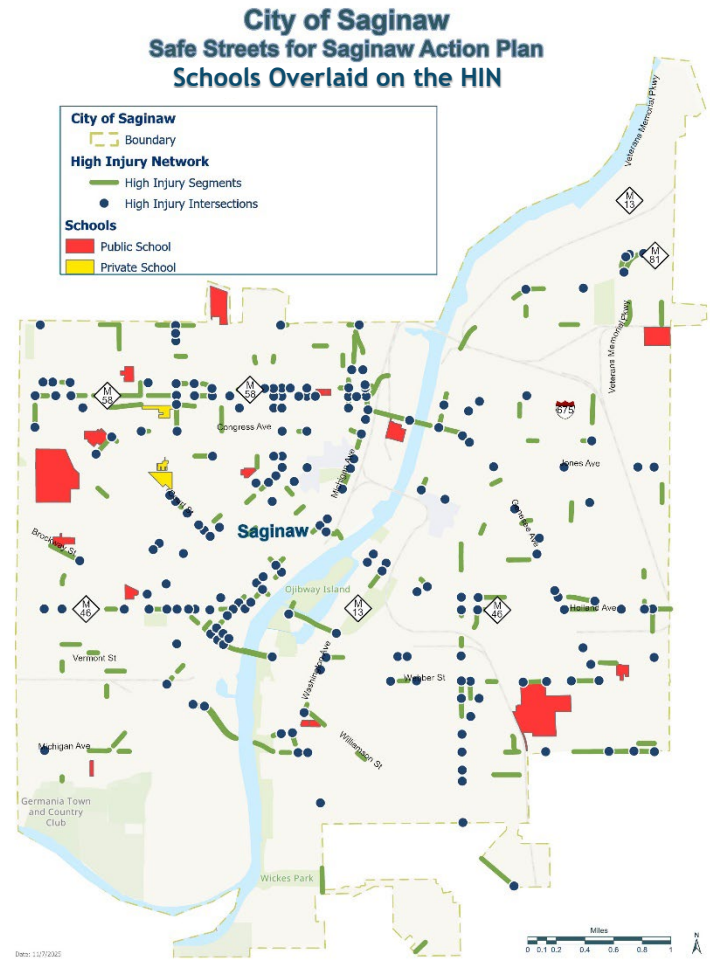


Figure 6-13: Schools Overlaid on the HIN



Beyond patient and emergency-related trips, hospitals generate steady employee and visitor travel throughout the day. Many employees and visitors also walk to surrounding businesses for food and services, further increasing pedestrian activity in the area.

Hospital areas in Saginaw experience consistently high levels of multimodal activity, with emergency vehicles, personal vehicles, pedestrians, and transit users all sharing limited roadway space. Frequent pick-up and drop-off activity adds to this congestion, resulting in unpredictable traffic movements and conflicts between modes. Compounding these challenges, many hospital-adjacent roadways are wide and high-speed, creating uncomfortable and unsafe conditions for people walking or biking. Together, these factors highlight the need for targeted safety improvements and traffic calming around hospital zones.

Recommended Strategies

To improve safety around hospitals, the following countermeasures should be considered:

- Implement **traffic calming measures** (lane narrowing, speed humps, raised crosswalks, curb extensions) on streets surrounding hospital campuses.
- Provide **enhanced pedestrian crossings** with high-visibility markings, pedestrian refuge islands, and signal enhancements.
- Add **wayfinding signage** to direct patients, visitors, and employees to appropriate entrances, parking facilities, and nearby services.
- Improve **lighting and visibility** at key pedestrian routes to and from hospital facilities.
- Coordinate with hospital administration to manage pick-up/drop-off activity and explore **designated loading zones** to reduce conflicts.

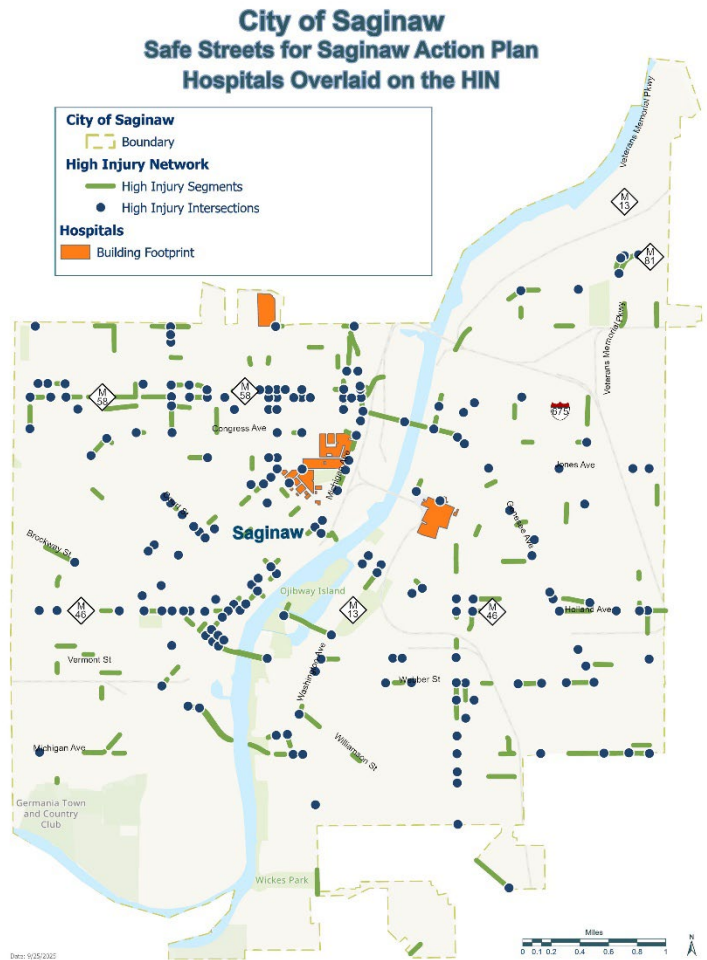


Figure 6-14: Hospitals Overlaid on the HIN



Project Identification and Prioritization

IDENTIFICATION PROCESS

The Safe Streets for Saginaw SAP advances a data-driven and community-informed approach to identifying and prioritizing roadway safety projects throughout the city. Aligned with the Vision Zero and Safe System Approach principles, this effort acknowledges that human mistakes are inevitable but that roadway systems should be designed to prevent those mistakes from resulting in fatal or serious injury crashes. The goal of this process was to develop a prioritized list of actionable projects that address documented safety issues while promoting equitable outcomes and protecting vulnerable road users.

Project identification began with an analysis of the High-Injury Network (HIN) and High-Risk Network (HRN), two key datasets established during the planning process. These networks were based on a 10-year crash history (2014-2023), encompassing all reported crashes within the City of Saginaw. The HIN captured corridors and intersections with the highest overall crash frequencies weighted by severity, while the HRN identified locations with characteristics contributing to elevated risk, such as geometry, traffic exposure, or multimodal conflicts. Higher-ranking segments on the HIN were compared against the HRN to determine where crash patterns and roadway risk overlapped. This alignment highlighted locations where safety improvements could provide the most meaningful benefit in reducing total crashes and preventing severe outcomes.

In addition to the technical analysis, public and stakeholder input played a critical role in shaping the project list. Feedback was gathered through focus groups and an open house, where participants identified areas of concern and proposed potential improvements. Comments were integrated into the scoring process, allowing community-supported priorities to support the data analysis.

Each project was categorized as either a segment project or an intersection project, depending on the concentration and nature of crashes. Segment projects often address corridor-level patterns such as speeding or pedestrian crossing challenges, while intersection projects focus on conflict points with recurring crash types. In several cases, adjacent intersections and segments were combined into a single project to address corridor-level issues comprehensively.

Ultimately, this process produced a list of projects representing a balanced mix of intersection, corridor, and systemic improvements distributed across the city. These projects form the foundation for the prioritization framework described below.

PRIORITIZATION FRAMEWORK

Each potential project was evaluated using a consistent scoring framework that reflects both technical data and the city's safety and accessibility goals. The framework is organized into three primary categories—*Context, Public, and Safety*—each containing parameters that capture the city's commitment to equitable investment, multimodal accessibility, and the protection of vulnerable road users.

Each applicable parameter was assigned one point, apart from the “Incorporates FHWA Proven Safety Countermeasures” parameter, which could receive up to two points due to its direct alignment with nationally recognized best practices and its proven potential for measurable crash reduction. Each project could receive a maximum score of 12 points.

This structured approach evaluated projects across a range of policy and technical dimensions, creating a clear connection between safety outcomes, community goals, and implementation feasibility.



Context

Context-based parameters identify projects located within areas of community significance or those that serve key destinations and mobility needs. These parameters reflect the City's emphasis on improving safety near schools, healthcare facilities, transit services, and economic activity centers where pedestrian and vehicle interaction is highest.

Projects received points under the Context category if they met any of the following conditions:

- **Located on City-Owned Infrastructure:** Prioritizes improvements on city-managed roadways to maximize the city's ability to implement safety treatments directly.
- **Within ¼ Mile of a School or School Zone:** Recognizes the importance of protecting children and families traveling to and from schools, where walking and biking activity is typically more common.
- **Within ¼ Mile of a Hospital or Health Care Facility:** Supports safe and accessible travel for those accessing critical health services and for emergency response access routes.
- **Within ¼ Mile of an Existing Transit Stop:** Prioritizes areas that support multimodal connectivity and improve first- and last-mile access for transit users.
- **Located within Old Town or Downtown Saginaw:** Promotes safety and accessibility in dense, mixed-use areas with high pedestrian activity, consistent with the city's revitalization and economic development goals.

Public

Projects that received specific mention or support during the community engagement process—including surveys, meetings, focus groups, or open house comments—received a point under this category. Public support demonstrates local awareness of the safety issue and reinforces the importance of addressing it. This parameter also reflects the city's commitment to incorporating community voices into transportation decision-making.

Safety

Safety-based parameters address documented crash conditions and emphasize improvements that will have the greatest potential to reduce severe outcomes, particularly for vulnerable road users. Projects received points under the Safety category for meeting one or more of the following conditions:

- **Located on the High-Injury Network:** Projects located within or overlapping with segments or intersections identified on the HIN received one point, reflecting their demonstrated history of frequent crashes.
- **Improves Safety for Vulnerable Road Users (VRUs):** Prioritizes projects that address conditions contributing to pedestrian, bicycle, or transit-user crashes, consistent with the Safe System Approach principle of protecting the most at-risk users.
- **Incorporates One or More FHWA Proven Safety Countermeasures (Up to Two Points):** Recognizes projects that apply nationally vetted treatments with measurable safety benefits, such as raised crosswalks, curb extensions, pedestrian refuge islands, lighting enhancements, or roadway reconfigurations.
- **Specifically Mitigates Fatal and Serious Injury Crash Types:** Awards points for projects designed to reduce crash types commonly resulting in severe outcomes, such as angle collisions, pedestrian impacts, or roadway departure crashes.



- **Reduces Speeds or Addresses Documented Speeding Concerns:** Reflects projects that aim to lower vehicle speeds or calm traffic in areas with a history of speeding-related crashes or strong public concern regarding speed.

Each project location received a cumulative prioritization score based on how many of these parameters it satisfied. Projects with higher total scores represent those that not only address documented safety needs but also enhance equity, accessibility, and multimodal safety consistent with the city's goals.

RECOMMENDED PROJECT LIST

The prioritized list represents a clear, actionable roadmap for improving safety on Saginaw's streets. While this Safety Action Plan primarily focuses on city-controlled roadways, coordination with external partners – including county and state agencies – will remain important, especially where project boundaries intersect or where broader network benefits can be achieved.

In the near term, high-ranking projects may advance toward concept development and preliminary engineering. These efforts will provide an opportunity to refine project scopes, confirm design feasibility, and pursue competitive funding sources such as the Safe Streets and Roads for All (SS4A) program, the Highway Safety Improvement Program (HSIP), or other state and federal funding opportunities.

Projects that incorporate FHWA Proven Safety Countermeasures are particularly strong candidates for funding due to their alignment with evidence-based practices and federal priorities. Longer-term implementation may include integration of these projects into capital improvement programs, coordination with ongoing infrastructure investments, or partnership with community-based initiatives that promote safe travel behavior.

The prioritization framework developed through this Safety Action Plan is designed to be replicable and adaptive, providing the City of Saginaw with a durable tool for future decision-making. As new crash data, infrastructure projects, and public input become available, the city can apply this same scoring methodology to re-evaluate priorities and maintain alignment with its Vision Zero objectives.

The table in Appendix C summarizes the prioritized list of safety projects by score order. Together, these projects represent a balanced portfolio of improvements that reduce crash frequency and severity, enhance comfort and accessibility for all users, and reflect the city's continued commitment to equitable, data-driven, and community-supported roadway safety outcomes.

All prioritized projects were mapped to illustrate their geographic distribution across the city. Mapping served several purposes:

- It confirmed that the final list of prioritized projects was geographically balanced and distributed throughout the city.
- It allowed planners to review adjacency and proximity, identifying where multiple projects could be implemented together as part of corridor-level initiatives.

This spatial review also confirmed that project coverage extended to areas with higher concentrations of vulnerable road users. Comparing project locations against demographic and land use patterns demonstrated that safety investments were not limited to any one part of the community but were instead spread across the city.



City of Saginaw Safe Streets for Saginaw Action Plan Recommended Projects



Figure 6-15: Map of Recommended Projects



Phasing Strategy

The proposed priority projects are subdivided by implementation time frame: near-term, mid-term, and long-term. The near-term projects and strategies include those that may be accomplished through regular maintenance work, signal re-timing, or already scheduled roadway maintenance or resurfacing projects, whereas mid-term and long-term projects and strategies may require more planning and may need to be advanced on their own, separate from ongoing processes.

- Near-Term: Within 2 years
- Mid-Term: 2-5 years
- Long-Term: More than 5 years

Cost Planning

The proposed priority projects are also assigned low, medium, and high costs. These values can help the city identify larger cost projects that require a longer timeline for implementation versus a smaller low-cost implementation effort.

- Low Cost (Tier 1): <\$150,000
- Medium Cost (Tier 2): \$150,000 - \$499,999
- High Cost (Tier 3): \$500,000+

See the table in APPENDIX C.

PRIORITY PROJECTS

As part of the planning effort, the city identified two projects to take a deeper look at, with the intention that these could be submitted for the next round of SS4A Implementation grant funding. The selected projects are:

1. Michigan Avenue at Court Street
2. Michigan Avenue from M-46 (Williams Street) to Genesee Avenue

Background

Michigan Avenue, from Williams Street to Genesee Avenue, is a 30-mph corridor consisting of two travel lanes in each direction with a center two-way left-turn lane (TWLTL). The roadway currently provides more capacity than necessary for existing traffic volumes, resulting in inefficient use of the corridor and higher operating speeds. To address these conditions, the City of Saginaw is considering implementing a road diet along Michigan Avenue.

According to the Federal Highway Administration (FHWA), a road diet typically involves converting a four-lane roadway into a three-lane configuration with two through lanes and a center two-way left-turn lane. A proposed road diet scenario was modeled in Synchro 11 from Williams Street to just south of Genesee Avenue with a 50% increase in traffic volumes to evaluate the feasibility of the configuration. Results showed all intersections running at or above level of service (LOS) D. These results are based on supplemental information and are intended for preliminary evaluation purposes only. Additional data collection and analysis may be required to confirm.

Existing Conditions

Michigan Avenue consists of two existing cross sections. The first cross section runs from Williams Street to Adams Street and Hancock Street to Genesee Avenue (Figure 6-16) and consists of the following features:

- Travel lanes: 4 x 11ft



- TWLTL: 1 x 11ft
- Planting strips: 2 x 13 ft
- Sidewalks: 2 x 5.5ft

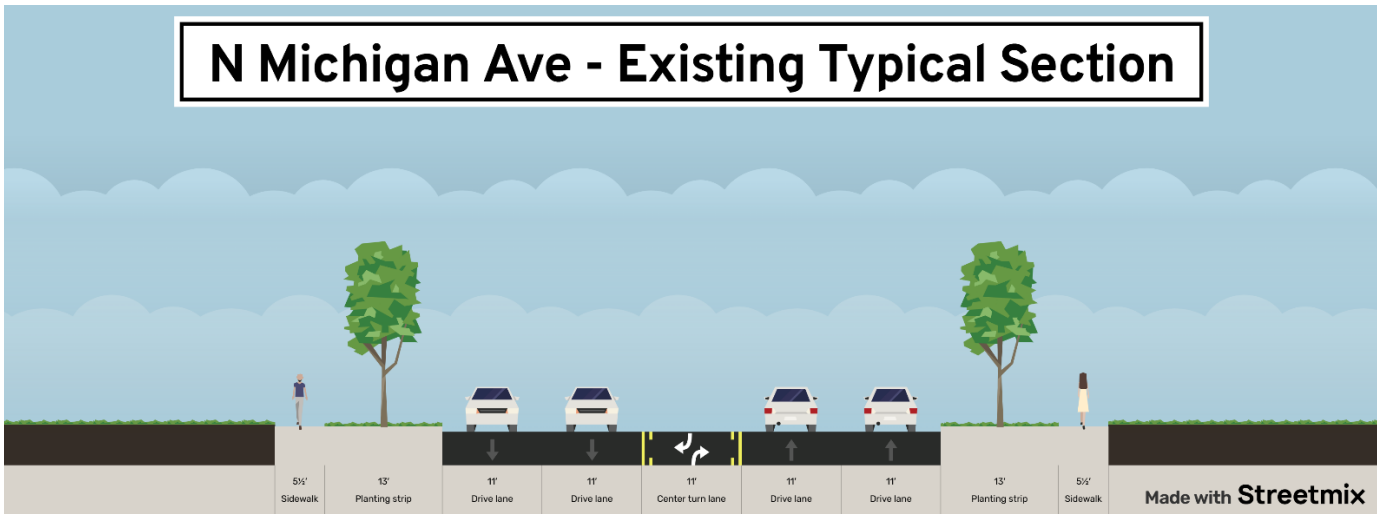


Figure 6-16: Existing Cross Section 1 - Michigan Ave from Williams St to Adams St and Hancock St to Genesee Ave

The second cross section runs from Adams Street to Hancock Street (Figure 6-17). This section has four travel lanes, a TWLTL, and parking, it consists of the following features:

- Drive lanes: 4 x 11 ft
- TWLTL: 1 x 11 ft
- Parking lanes: 1 x 8 ft, 1 x 9 ft
- Sidewalks: 1 x 6 ft, 1 x 13.5 ft

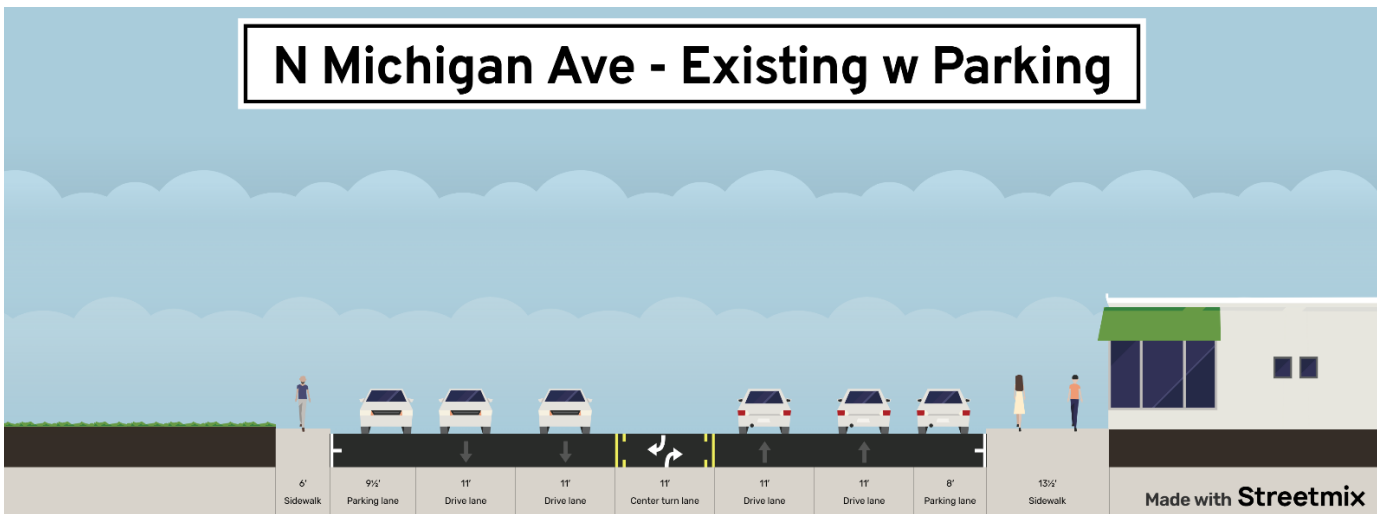


Figure 6-17: Existing Cross Section 2 - Michigan Ave from Adams St to Hancock St



Alternatives

Conversations with the City of Saginaw indicated an interest in exploring short-term improvements that can be implemented within the existing curb lines of the two sections, leaving landscaping and sidewalks untouched. Alternative one will show possible improvements to cross section one, and alternative two will refer to cross section two located in Old Town Saginaw.

Alternative 1A

Alternative 1A proposes restriping the roadway to reduce the number of travel lanes and introduce on-street parking (Figure 6-18). To fill the roadway and meet the city’s request for 8ft parking and 11ft drive lanes standards, a painted buffer was added to narrow the roadway. This configuration includes the following key features:

- Drive lanes: 2 × 11 ft
- TWLTL: 1 × 11 ft
- Parking lanes: 2 × 8 ft with a 3 ft buffer



Figure 6-18: Alternative Cross Section 1A - Road Diet and On-Street Parking

Alternative 1B

Alternative 1B reduces the number of travel lanes to add new bike lanes along the roadway (Figure 6-19). This option supports the city’s goal of improving bicycle connectivity between Old Town and Bliss Park. This configuration includes the following key features:

- Drive lanes: 2 × 11 ft
- TWLTL: 1 × 11 ft
- Bike lanes: 2 × 7 ft with a 4 ft buffer

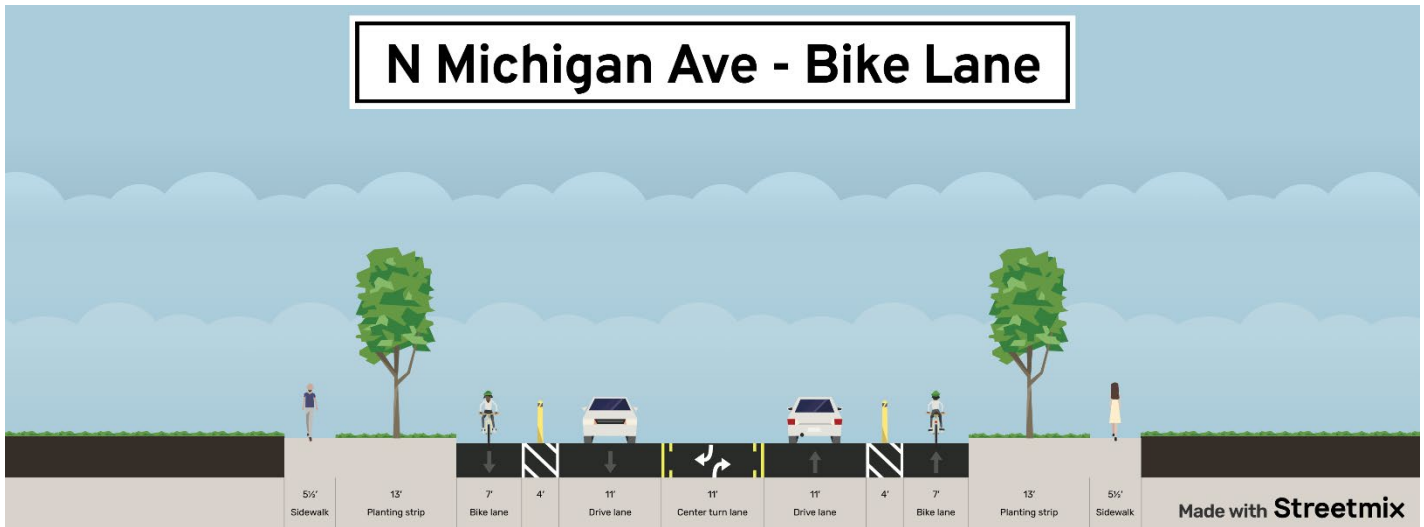


Figure 6-19: Alternative Cross Section 1B - Road Diet and Bike Lanes

Alternative 2A

Alternative 2A supports the city’s goals by reducing the number of travel lanes to allow space for a bike lane while maintaining on-street parking (Figure 6-20). This configuration includes the following key features:

- Drive lanes: 2 × 11 ft
- TWLTL: 1 × 11 ft
- Parking lanes: 2 × 8 ft
- Bike lanes: 2 × 7 ft with a 3.25 ft buffer

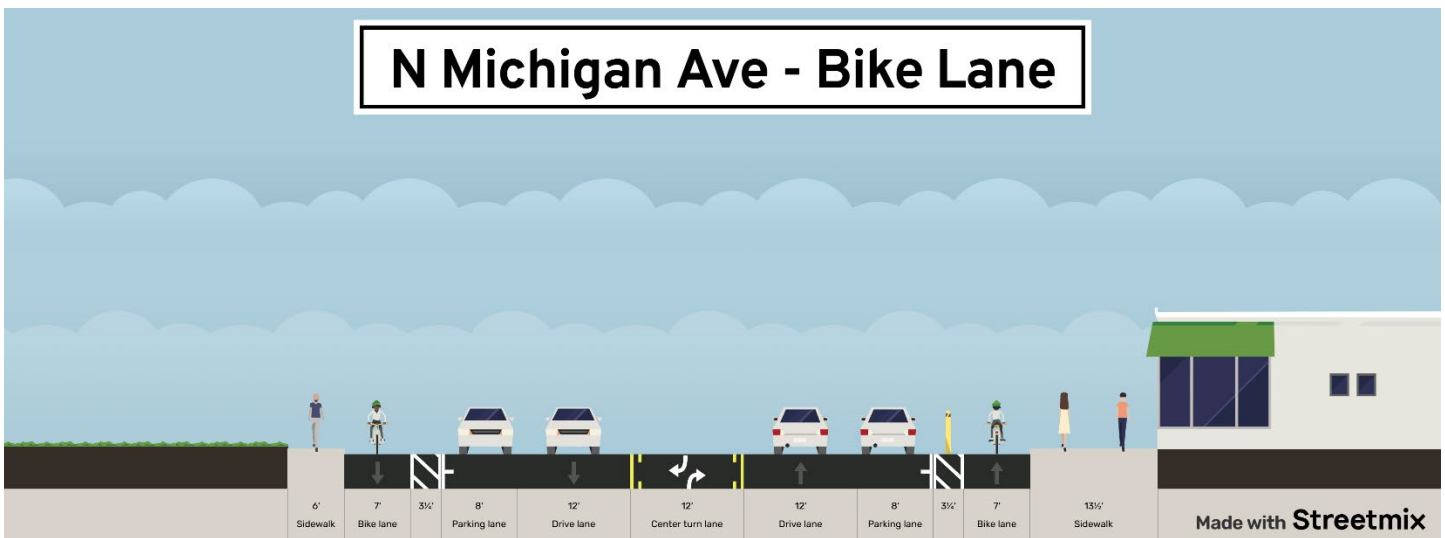


Figure 6-20: Alternative Cross Section 2A - Road Diet and Bike Lanes



Alternative 2B

Alternative 2B reduces the number of travel lanes and replaces former parking areas with parklets (Figure 6-22). These spaces would allow businesses to extend outdoor dining and enhance the overall atmosphere throughout Old Town. Allowing for outdoor dining space in the right-of-way greatly contributes to local economic growth by enhancing the public space, increasing foot traffic, and enhancing the dining experience. This opportunity helps support the specific business looking to add the outdoor dining spaces and businesses in the near vicinity due to increased foot traffic and visibility of nearby businesses.

To best optimize outdoor dining in the right-of-way, local policies should allow for flexibility while ensuring sufficient safety and design measures. Policies should ensure appropriate placement of the seating and buffering from vehicle traffic passing so that it is cohesive, unobstructive, and complementary to the overall streetscape design without being too restrictive that it prevents businesses from participating or actualizing outdoor dining spaces. For example, so long as there is at least 5 feet of a contiguous pedestrian pathway on the sidewalk, outdoor dining could occupy some sidewalk space abutting the building, abutting the street between street trees, or even occupy parking spaces, often referred to as parklets. With parklets, it is helpful to allow for patio-like elevated surfaces to allow for more event footing from the curb and to serve as curb-like buffer for vehicles, as seen in Figure 6-21. Caution should be given with any permanent fixtures or other additions since it remains the public right-of-way, yet there should be substantial buffering mechanism to protect people from vehicles passing by and human error.

To actualize greater flexibility in the City of Saginaw, the city will need to amend Section 132.06 of the Ordinance to allow for open alcoholic beverages in areas designated for the parking of motor vehicles with the caveat of being within an approved and designated outdoor dining area, if the city agrees to allow for outdoor dining parklets. Additionally, to simplify the permitted process for outdoor dining, Section 132.01 should be amended to exempt permitted outdoor dining areas in the public right-of-way to be permitted annually/seasonally without Council approval.

Additionally, the city should add design standards to the Zoning Ordinance, to be reviewed and verified in the permitting process to ensure adequate setup and functionality. For example, design standards can include further specifications about the materials and dimensions of buffering devices/structures, such as railings, potted plants, bollard, and other allowable fixtures, and whether or not structures covering the dining space, beyond anchored umbrellas, are allowable.



Figure 6-21: An example of outdoor dining in the public right-of-way abutting the building front and in an on-street parking space. Source: CNN Travel, Evan Sung



Figure 6-22: Example of outdoor dining that extends from the sidewalk to a parklet. Birmingham, Michigan Source: The Detroit Free Press



To allow for outdoor dining, the configuration of Alternative 2B includes the following key features:

- Drive lanes: 2 × 11 ft
- TWLTL: 1 × 11 ft
- Parking lanes: 2 × 8 ft
- Dining spaces: 1 × 11.5 ft, 1 × 12 ft

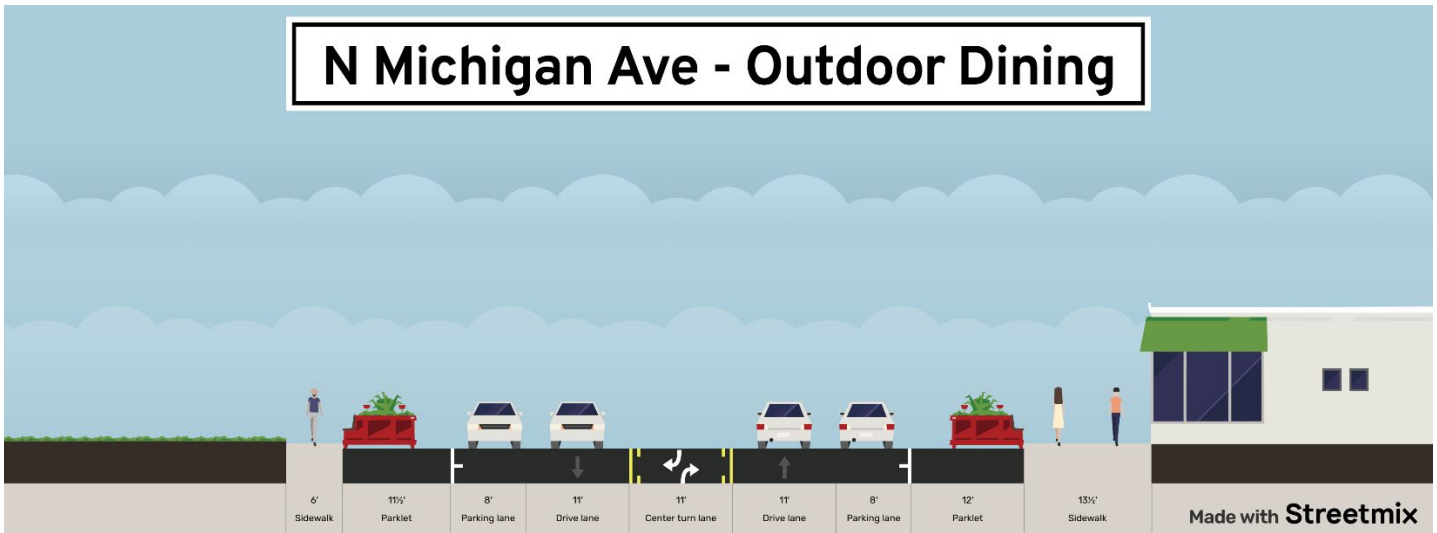


Figure 6-23: Alternative Cross Section 2B - Road Diet and Outdoor Dining Space

The proposed alternatives for Michigan Avenue present a range of opportunities to improve safety, accessibility, and the overall streetscape within the existing curb lines. Each concept supports the City of Saginaw's goals of enhancing multimodal connectivity, supporting local businesses, and creating a more inviting corridor. While the Synchro analysis indicates that a road diet is operationally feasible, further data collection, field verification, and community engagement is recommended to identify preferred alternatives.

Concept Plans

A comprehensive long-term concept has been developed for Michigan Avenue, extending from Gratiot Avenue to Genesee Avenue, to enhance multimodal safety and accessibility while supporting community placemaking (Appendix E). The proposed improvements include:

- **Roadway Reconfiguration:** Transition from a four-lane undivided roadway to a three-lane cross section, consisting of one travel lane in each direction and a dedicated center left-turn lane. This road diet is intended to improve traffic safety and reduce vehicle speeds.
- **Bikeway Infrastructure:** Installation of a two-way cycle track along the west side of Michigan Avenue, separated from vehicular traffic to provide a safe and comfortable facility for bicyclists of all ages and abilities.
- **Pedestrian Enhancements:**
 - Widened sidewalks on the east side of the corridor to improve pedestrian comfort and accessibility.
 - Integration of parklets and multi-purpose spaces to support community gathering and economic activity.



- Installation of **curb extensions (bump outs)** at intersections to shorten pedestrian crossing distances and improve visibility.
- Implementation of **three mid-block pedestrian crossings** equipped with **Rectangular Rapid Flashing Beacons (RRFBs)** and **staggered median refuge islands** to enhance pedestrian safety and crossing opportunities.
- **Traffic Signal Upgrades:** Replacement of existing diagonal span traffic signals with **box span configurations**, improving signal visibility and intersection operations.
- **Streetscape Improvements:** Addition of landscaped green spaces throughout the corridor to enhance aesthetics, support stormwater management, and contribute to traffic calming.
- **Parking Preservation:** Existing parallel on-street parking is retained throughout the corridor where feasible, ensuring continued access for local businesses and residents.

This concept supports the SS4A program goals by prioritizing vulnerable road users, reducing crash risk, and fostering a safer, more livable corridor.

Cost Estimates

A comprehensive cost estimate was developed to support both the short-term and the long-term corridor concept for Michigan Avenue, extending from south of Gratiot Avenue to south of Genesee Avenue. This estimate was prepared using Michigan Department of Transportation (MDOT) average unit prices and reflects the full scope of proposed improvements aligned with SS4A program goals. These cost estimates provide a solid foundation for future funding applications and implementation planning, ensuring that all elements of the corridor redesign are accounted for in alignment with SS4A safety and equity objectives. The concept cost estimates are in Appendix E.



Funding Strategy

A strategy for funding and partnership opportunities is critical to the long-term success of this SAP. It identifies areas for collaboration between public and private agencies and can help identify the requirements and timelines for future funding applications. It can also leverage local, State, and Federal resources and expertise to maximize the impact of safety projects within budget constraints. This section will summarize potential funding and partnership opportunities to make roadways safer in the city.

The majority of the grant programs listed below were funded during the Biden administration through the Bipartisan Infrastructure Law (BIL), which was signed in 2021. Under the Trump administration, grant programs and their priorities identified in the BIL are continuing to evolve and change. At the time of plan adoption, it is unclear if these grant programs will continue under the current Trump administration.

SAFE STREETS FOR ALL

The Safe Streets and Roads for All (SS4A) federal grant program, funded by the Infrastructure Investment and Jobs Act (IIJA), helps communities reduce roadway fatalities and injuries. It provides funding to local and regional governments for safety action plans, infrastructure improvements, and road safety activities for all users. By supporting strategies like Vision Zero, the SS4A grant aims to create safer streets and reduce traffic-related harm. The City of Saginaw was awarded \$278,000 in SS4A federal funds in October of 2023 to develop a regional Safety Action Plan, which will allow the City to apply for construction and implementation grants for safety projects. Nationwide, from 2022 through 2024, around \$2.9 billion was awarded for planning, demonstration, and implementation grants. The last funding cycle is expected to be in 2026, with the application being released in March and closing at some point in June.

ROAD TO ZERO COMMUNITY TRAFFIC SAFETY

The Road to Zero Community Traffic Safety grant, through the National Highway Traffic Safety Administration (NHTSA) and the National Safety Council (NSC), supports implementing evidence-based countermeasures, supporting a Safe Systems Approach, and performing necessary research to address traffic fatalities and serious injury crashes. It also supports projects that address disparities in mobility, safety, and access. The grant includes the planning and evaluation expenses to occur within a one-year time frame, costing between \$50,000 and \$200,000. The upcoming grant application is due January 16, 2026, and has occurred annually since 2016.

CONGESTION MITIGATION AND AIR QUALITY

The Congestion Mitigation and Air Quality (CMAQ) funds projects that improve air quality or relieve congestion to attain or maintain the National Ambient Air Quality (NAAQS) for ozone (Nox and VOC), carbon monoxide (CO), or particulate matter (PM 2.5). This funding supports educational outreach about ozone action, bicycle/pedestrian facilities, carpool/vanpool lots, traffic signal optimization, patrol, roundabouts, dynamic message signs, left turn or right turn lanes, alternative fuel infrastructure and non-transit alternative fuel vehicles, and certain transit improvements. This does not include new roads, upgrades to traffic signals without optimization, Safe Routes to School projects, nonmotorized projects for recreational purposes, emergency vehicle preemption of traffic signals, road rehabilitation and reconstruction projects and other projects that do not contribute to air quality benefits. The funding request is reviewed by the State and the FHWA.

SAFE ROUTES TO SCHOOL

The Safe Routes to School (SRTS) federal grant program aims to improve safety and accessibility for students traveling to and from school by walking or biking. The program provides funding for infrastructure projects, such as sidewalk construction, crosswalks, and bike lanes, as well as educational initiatives to encourage



healthy, active transportation. SRTS grants focus on reducing traffic-related accidents, promoting physical activity, and creating safer environments for children, particularly those in underserved areas. The program helps communities create safer and more accessible routes, ultimately supporting the well-being and independence of school-age children. There is no dedicated funding through the BIL, but funding is available through TAP, STP, and HSIP fund sources. This funding must be pursued by the school district rather than the city, and City staff are a willing partner in this process.

TRANSPORTATION ALTERNATIVES PROGRAM

The Transportation Alternatives Program (TAP) provides federal funding for projects that enhance active transportation options and improve the quality of life in communities. TAP supports a wide range of initiatives, including the development of bike paths, sidewalks, pedestrian bridges, and shared use pathways. The program also funds efforts to improve safety and accessibility for pedestrians and cyclists, helping to reduce congestion, promote active transportation, and foster more sustainable, connected communities. TAP plays a key role in encouraging healthier and more environmentally friendly transportation options. Nationwide, in FY2025, around \$1.468 billion was awarded. The City of Saginaw may apply for TAP through its local Metropolitan Planning Organization (MPO), which is the Saginaw Area Transportation Agency (SATA).

SATA TRANSPORTATION IMPROVEMENT PROGRAM

The SATA Transportation Improvement Program (TIP) supports improvements to the existing transportation system. The regional transportation agency creates the four-year schedule of projects based on existing conditions, public input, and project coordination from local municipalities and MDOT.

ACTIVE TRANSPORTATION INFRASTRUCTURE INVESTMENT PROGRAM

The Active Transportation Infrastructure Investment Program (ATIIP), established in 2021 by the BIL, is designed to provide funding for projects that support walking, biking, and other forms of active transportation. This program focuses on developing and enhancing infrastructure such as bike lanes, sidewalks, and shared use pathways, with the goal of improving safety, accessibility, and mobility for active transportation users. It aims to reduce traffic congestion, promote healthier lifestyles, and create more sustainable transportation networks. By investing in active transportation infrastructure, the program encourages the use of environmentally friendly modes of travel and fosters connected, vibrant communities. Nationwide, in FY2024, around \$44 million was awarded. While there is not yet any specific information for the ATIIP 2026 application cycle, the House Appropriations Subcommittee did include a reduced allocation of funds toward the program.

COMMUNITY DEVELOPMENT BLOCK GRANTS

Community Development Block Grants (CDBG) are federal funds provided to local governments to support a wide range of community development activities, including affordable housing, infrastructure improvements, and economic development. These grants aim to improve the quality of life in low- and moderate-income neighborhoods by funding projects that address pressing community needs, such as infrastructure upgrades, public facilities, and accessibility improvements. CDBG funds can also support initiatives that promote public health, safety, and employment opportunities, fostering vibrant, inclusive communities. Nationwide, in FY2024, around \$3.4 billion was made available.

HIGHWAY SAFETY IMPROVEMENT PROGRAM

The Highway Safety Improvement Program (HSIP) is a federally funded initiative under the FHWA aimed at reducing traffic fatalities and serious injuries. Local agencies can use HSIP funds on any roadway open to public travel for safety projects like road diets, signal upgrades, and pedestrian enhancements. Projects must be data-driven, demonstrate safety benefits, and align with the state's Strategic Highway Safety Plan (SHSP).



For FY 2027, the federal budget apportioned for the Michigan local roadway network is approximately \$21 million.

OFFICE OF HIGHWAY SAFETY PLANNING

The Office of Highway Safety (OHSP) administers grants for behavior-based traffic safety projects, funded by the National Highway Transportation Safety Administration (NHTSA). For 2026, the grant application opens February 2 and closes February 27. They are seeking applicants from all counties and any local agency eligible for federal funds may apply, such as local law enforcement, local health departments, educational institutions, etc. Projects can focus on traffic safety research, occupant protection, community traffic safety programs, police traffic services (i.e. Click It or Ticket), pedestrian and bicycle safety, traffic records, teen driving, distracted driving, impaired driving, and school bus safety. The shared priority across the different types of projects is reducing fatalities.

SURFACE TRANSPORTATION BLOCK GRANT

The Surface Transportation Block Grant (STBG) program is a flexible, federally funded program designed to support a wide range of transportation projects, including road maintenance, construction, and transit improvements. Funded through the Federal-aid Highway Program, STBG grants can be used for projects that enhance the safety, efficiency, and connectivity of transportation systems. Local agencies can utilize STBG funds for highway construction, bridge repair, public transit, and non-motorized transportation improvements. Projects must meet federal requirements, with funding allocated based on a formula that considers factors like population and road miles. In FY 2024, STBG funding was approximately \$13.2 billion nationwide.

STRENGTHENING MOBILITY AND REVOLUTIONIZING TRANSPORTATION

The Strengthening Mobility and Revolutionizing Transportation (SMART) grant program, funded by the U.S. Department of Transportation, supports innovative transportation technologies and smart infrastructure projects. The program aims to improve mobility, safety, and sustainability through advancements like autonomous vehicles, connected infrastructure, and data-driven transportation solutions. Local agencies can use SMART grants for pilot projects that integrate emerging technologies into transportation systems. In FY 2024, SMART funding was approximately \$100 million. Funding will continue through fiscal year 2026 but is unknown thereafter.

MICHIGAN NATURAL RESOURCES TRUST FUND

The Michigan Natural Resources Trust Fund (MNRTF) supports the acquisition and development of outdoor recreation spaces, including trails, parks, and greenways. The program prioritizes projects that enhance public access to recreational areas and encourage outdoor activities. Eligible applicants include local governments and nonprofits, and projects must align with the state's outdoor recreation goals. Funding is primarily from oil and gas royalties from state-owned lands, with annual amounts varying.

RALPH C. WILSON FOUNDATION

Nonprofits within Saginaw can apply for design projects that increase the walkability and bike-ability of local communities and/or increase outdoor recreational activities within the region, such as shared pathways or improvements to crossings and regional trails. These grants fall under "Parks, Trails and Green Design". Additionally, maintenance grants between \$50,000 and \$400,000 are available for greenway maintenance per year.

MICHIGAN HEALTH ENDOWMENT FUND

Community-based organizations, such as neighborhood groups or nonprofit organizations, may apply for funding to plan for healthier communities. Grants from \$50,000 to \$500,000 under the categories of



“Nutrition & Healthy Lifestyle” and “Healthy Aging” support better opportunities for physical activity, the built environment, and healthy aging-in-place and age friendly communities.

TRANSPORTATION INFRASTRUCTURE FINANCE AND INNOVATION ACT (TIFIA)

The Transportation Infrastructure Finance and Innovation Act (TIFIA) provides low-interest, long-term loans and credit assistance for major transportation projects, such as highway, rail, or transit, and leverages private co-investment. If the project is a revenue-backed public-private partnership (P3) project, at least 25 percent of the total eligible project costs must be in private co-investment to be eligible for financing of up to 49 percent of eligible project costs.



7.0 Progress and Transparency Methods

Successful SAPs establish a process to evaluate and assess that implemented safety measures are improving safety. Evaluation involves collecting and analyzing data from various sources such as crash reports, traffic flow studies, and feedback from partner agencies, stakeholders, and the public. By examining this data, the City of Saginaw can assess the impact of safety countermeasures, identify trends, and pinpoint areas where further improvements are needed. The evaluation helps understand the real-world effectiveness of safety measures and highlight unforeseen issues that may have developed.

The city and the Safety Committee will be responsible for reviewing the findings and will discuss the results of the safety measures implemented because of this SAP. By engaging all relevant parties, the evaluation phase will enhance the SAP and bolster the shared commitment to safer transportation systems in Saginaw. Keeping the public informed is crucial to the success of this effort. The SAP should be made publicly available online so continued efforts to engage the public may accompany the document.

The insights gained from evaluation and project tracking are used to refine and enhance the SAP. Based on the analysis, recommendations are made for adjustments or additional measures to further mitigate risks. This iterative process ensures that the SAP remains dynamic and responsive to changing conditions, such as new traffic patterns or emerging technologies. Additionally, the evaluation phase provides an opportunity to celebrate successes and recognize the efforts of those who contribute to maintaining a safe transportation environment. Progress monitoring and reporting include metrics to evaluate the effectiveness of strategies and countermeasures. By leveraging successful outcomes, the city can demonstrate accountability, pursue funding opportunities, and maintain transparency with stakeholders and the public.

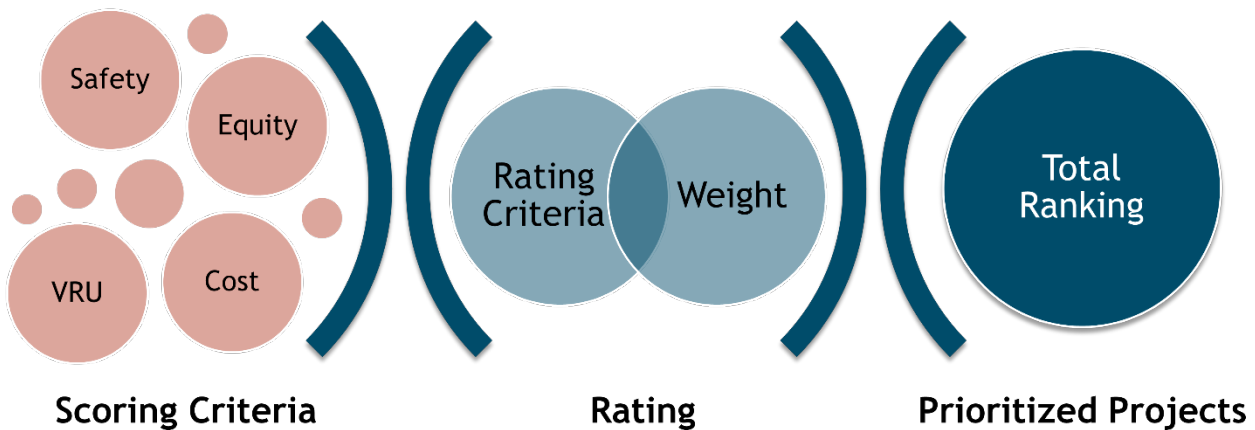


Figure 7-1: Project Prioritization Methodology

Metrics

Building on the criteria outlined in the prioritization matrix of Figure 7-1, metrics have been developed to measure and illustrate program success (Figure 7-2). These metrics will assess fatal and serious injury crashes over time, demonstrating the impact of investments and strategies. Additionally, they will highlight the effects of safer infrastructure, traffic conditions, and overall crash rates. The metrics are designed to provide information that can be easily shared and understood by funding agencies and the public.



Figure 7-2 outlines metrics that can be used to measure progress toward improving safety on the roadways in Saginaw. Each metric relates to the goals for safety and includes a description, a measure, and a benchmark with the average for each measure from the years 2020 through 2024.

Below is an example of how the established metrics will be tracked and shared with Saginaw residents.

	Description	Measure	Benchmark (2020-2024)
Total Crashes	Total number of crashes occurring on roads in the City of Saginaw each year.	Reduced total number of crashes each year.	1,254 average annual crashes
Fatal & Serious Injury Crashes	Total number of fatal and serious injury crashes in the City of Saginaw each year.	Reduced number of fatal and serious injury crashes each year.	23 average annual FSI crashes
Vulnerable Road User Crashes	Total number of crashes involving vulnerable road users each year.	Reduced number of vulnerable road user crashes each year.	21 average annual VRU crashes
Dangerous Driver Behavior Related Crashes	Total number of reckless (speeding), disregard traffic controls (red-lights/stop signs), and impaired, careless or distracted driving-related crashes each year.	Reduced number of crashes related to dangerous driver behavior each year.	370 average annual crashes
Location-based: Intersections Crashes	Total number of crashes at intersections in the City of Saginaw each year.	Reduced number of crashes.	810 average annual crashes, with about 109 of those crashes from running red lights at signalized intersection

Figure 7-2: Evaluation Metrics

Safety Committee Implementation

SAFETY COMMITTEE - IMPLEMENTATION MEETINGS

To continue implementation of the Safe Streets for Saginaw Plan, it is recommended that the Safety Committee meet at least two times a year to:

- Discuss plan progress
- Update crash data
- Identify funding and partnership opportunities
- Share information on new technologies, infrastructure, and education
- Promote inter-institutional cooperation
- Consider potential new projects to add to the overall list



- Track implementation progress using the metric benchmarks (City of Saginaw) and provide updates to the Safety Committee during their meetings. Benchmarks should be updated on at least an annual basis, but preferably on a biannual basis.

The Safety Committee should include at least one member from each of the following organizations and City departments:

- City of Saginaw Engineering
- City of Saginaw Planning and Zoning
- Michigan Department of Transportation (MDOT)
- Saginaw Transit Authority and Regional Services (STARS)
- Downtown Development Authority (DDA)
- Saginaw Public Schools
- Police Department
- Fire Department
- Community Alliance for the People
- Disability Network of Mid-Michigan
- Wellness Groups (Biking/Hiking)

PUBLIC ENGAGEMENT

The city should continue to keep the Safe Streets Plan available on their website for public viewing. Updates to projects planned, under construction, and completed should be provided. An open survey could be maintained to gather feedback on additional locations where residents and stakeholders have safety concerns that are not already included in the plan so that those can be noted and discussed (and potentially new projects could be added to the list).

CITY COUNCIL ENGAGEMENT

The city staff should present an annual update to City Council on progress tracking of the plan that will include a summary of the following information:

- Highlights of annual crash data that tie back to the overall benchmark metrics in the plan (i.e. were there reductions?)
- Completed and in-progress projects from the plan
- New projects added to the overall list based on new data and feedback from stakeholders, public, and the Safety Committee
- Priority projects to be completed in the next 1-3 years and how those will be funded (including funding and partnership opportunities)

COMMITTEE SCHEDULE

The following schedule (Figure 7-3) shows the cadence of Safety Committee meetings, public outreach, and engagement with City Council.



Figure 7-3 Safety Committee Annual Meeting Schedule

Figure 7-4 includes a monthly schedule of safety topics that can be promoted by the City of Saginaw through social media campaigns and in-person events or activities.

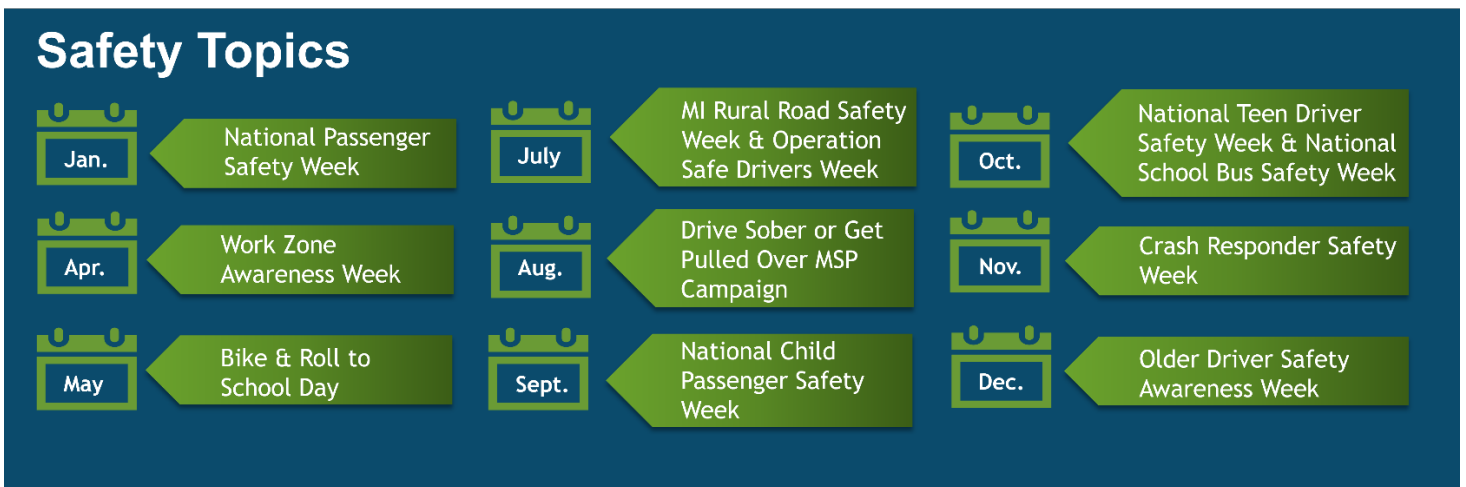


Figure 7-4 Monthly Schedule of Safety Topics to Promote



8.0 Updating the Plan

As conditions change and the SAP is implemented, a clear process for revising and improving the plan elements will allow for timely adjustments and continuous enhancement of safety measures. Progress tracking metrics identified in Section 7.0 will be updated annually following the release and certification of the previous year's crash data by the Michigan State Police ensuring this SAP remains aligned with evolving safety priorities.



Data Collection and Analysis

- **Crash Data:** Collect updated crash data for the most recent five-year period, including location, severity, lighting conditions, pavement conditions, collision type, functional class, context, date, most harmful event, and probable cause.
- **Traffic Data:** Gather information on traffic volumes, speeds, and road conditions.
- **Analysis Tools:** Utilize mapping tools like GIS to identify crash locations, refine the High-Injury Network (HIN), and assess trends and crash densities. Use analytical tools such as pivot tables, charts, and tables to summarize findings.
- **Other Inputs:** Overlay crash data with land use, demographic, and planning data to assess trends. Utilize tools like NCHRP 966 and USLIMITS2 to evaluate and enhance operational safety, including speed limits and traffic management.

High-Risk Areas

- **Hot Spot and Corridor Identification:** Identify locations and corridors with a high frequency of crashes.
- **Risk Factors:** Analyze contributing factors such as road design, traffic flow, driver behavior, and the involvement of vulnerable road users (VRUs), motorcycles, and transit.
- **HIN Comparison:** Use crash data and existing analysis to compare high-risk areas to the HIN.
- **Prioritization:** Prioritize improvements in the highest-risk areas, with a focus on equity.

Intervention Strategies

- **Engineering:** Implement strategies from the countermeasures toolkit, including speed studies, traffic calming measures, signage, and the Safe System Approach. Categorize interventions into short-term and long-term strategies.
- **Education:** Conduct campaigns to educate decision-makers, engineers, and the public on road safety. Emphasize the impact of policies, safety standards for design, and safe driving behaviors to reduce roadway fatalities and injuries.
- **Enforcement:** Deploy targeted or broad enforcement strategies to reinforce speed limits and other safety measures in high-risk areas.

Monitoring and Evaluation

- **Performance Metrics:** Establish evaluation metrics based on reductions in crashes and crash severity.



- **Monitoring Process:** Develop a review and evaluation process to regularly assess traffic safety applications and plans.

Reporting and Communication

- **Transparency:** Use agency websites to keep the public informed about implementation efforts, policies, enforcement measures, and outcomes.
- **Stakeholder and Public Engagement:** Engage with stakeholders, the public, and law enforcement to foster collaboration and communication on key safety approaches. Implement targeted outreach to ensure input from underserved and disadvantaged communities.

Appendix A: Safety Analysis

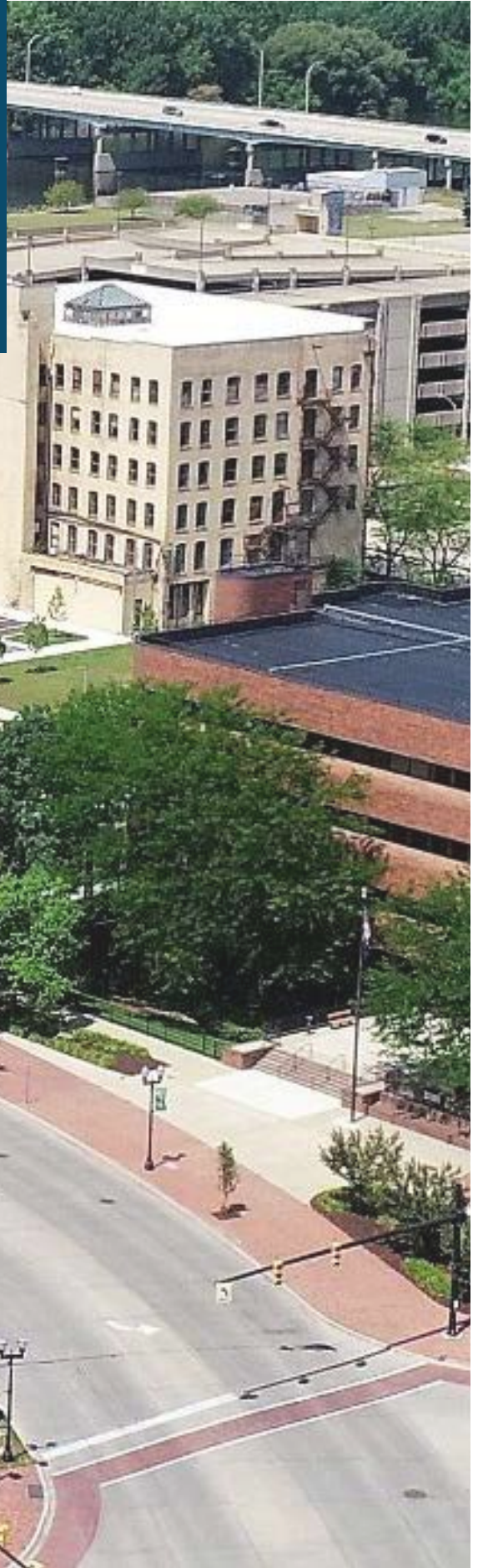




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Glossary

A	Suspected Serious Injury (KABCO Crash Severity Scale)
B	Suspected Minor Injury (KABCO Crash Severity Scale)
C	Possible Injury (KABCO Crash Severity Scale)
COSED	City of Saginaw Engineering Department
EB	Empirical Bayes (Safety Analysis Method)
FHWA	Federal Highway Administration
FI	Fatal and Injury
FSI	Fatal and Serious Injury
HII	High-Injury Intersections
HIN	High-Injury Network
HIS	High-Injury Segments
HRN	High-Risk Network
K	Fatal Injury (KABCO Crash Severity Scale)
MDOT	Michigan Department of Transportation
O/PDO	No Apparent Injury (KABCO Crash Severity Scale)
SAP	Safety Action Plan
SS4A	Safe Streets and Roads for All
SS4S	Safe Streets for Saginaw
SSA	Safe System Approach
US	United States
USDOT	US Department of Transportation
VRU	Vulnerable Road User



1.0 Introduction

The [Safe System Approach](#) (SSA) to roadway safety is the Federal Highway Administration’s (FHWA’s) initiative to achieve the [zero deaths vision](#). The City of Saginaw is committed to implementing the Safe System Approach, beginning with the development of a Safety Action Plan (SAP). The SAP is the first step toward implementing safety improvements with federal funding from the Safe Streets and Roads for All (SS4A) program.

The SSA is built on six principles:

- Deaths and serious injuries are unacceptable.
- Humans make mistakes.
- Humans are vulnerable.
- Responsibility is shared.
- Safety is proactive.
- Redundancy is crucial.

Taking these principles into consideration, the SSA has five objectives that it aims to achieve:

- Safer People
- Safer Roads
- Safer Vehicles
- Safer Speeds
- Post-Crash Care

The safety analysis presented in this report investigates how many crashes have been occurring in the city of Saginaw, what kind of crashes they are, where they have been occurring, and their contributing factors to begin identifying strategies for creating a safe transportation system.





2.0 Historical Baseline Safety Analysis

This report provides an in-depth analysis of crash data from 2014 to 2023 within the City of Saginaw, establishing a baseline for fatalities and serious injuries. By examining critical aspects such as the spatial distribution of crashes, contributing factors, severity, and temporal patterns, the analysis offers valuable insights to assist the City of Saginaw and its stakeholders in prioritizing safety mitigation strategies and effectively allocating resources.

Data Collection

To perform the safety analysis, Roadsoft crash data from 2014 to 2023 was utilized. Roadsoft is a roadway asset management system specifically designed to collect, store, and analyze data related to transportation infrastructure. As part of a statewide asset management initiative led and supported by the Michigan Department of Transportation (MDOT), it is available to local road agencies across Michigan. Using this data, various fields were analyzed to assess traffic crashes at different severity levels and to identify potential contributing factors. For the analysis of severity levels, the KABCO scale, defined by the US Department of Transportation (USDOT) Model Minimum Uniform Crash Criteria (MMUCC), has been utilized and is outlined below:

(K) Fatal Injury: any injury that results in death within 30 days after the motor vehicle crash in which the injury occurred.

(A) Suspected Serious Injury: any injury other than fatal that results in one or more of the following.

- Severe laceration resulting in exposure of underlying tissues, muscle, or organs or resulting in significant loss of blood
- Broken or distorted extremity (arm or leg)
- Crush injuries
- Suspected skull, chest, or abdominal injury other than bruises or minor lacerations
- Significant burns (second and third degree burns over 10 percent or more of the body)
- Unconsciousness when taken from the crash scene
- Paralysis

(B) Suspected Minor Injury: any injury that is evident at the scene of the crash, other than fatal or serious injuries.

(C) Possible Injury: any injury reported or claimed that is not a fatal, suspected serious, or suspected minor injury.

(O) No Apparent Injury: a situation where there is no reason to believe that the person received any bodily harm from the motor vehicle crash, but property damage occurred. These crashes are also commonly referred to as property damage only (PDO) crashes. Various states and jurisdictions may have different dollar thresholds for when a police report is required for PDO crashes. In Michigan, crashes involving property damage totaling \$1,000 or more must be reported.

In this report, fatal and serious injury (FSI) crashes refer to crashes resulting in K or A-level injury. In contrast, fatal and injury (FI) crashes refer to crashes resulting in K, A, B, or C-level injury. Both FI and FSI crashes were analyzed in this study. While FSI crashes are the primary focus, FI crashes were also examined in some cases to enhance the sample size and improve the robustness of the analysis. Trends identified using FI data were verified against FSI-only data, and any differences are discussed throughout the report.



Regional Safety Profile

From 2014 to 2023, 12,965 traffic crashes were reported within the City of Saginaw, compared to 2,959,355 crashes statewide in Michigan. **Figure 1** shows the number of crashes per 100 million vehicle miles traveled (VMT) for both the State of Michigan and the City of Saginaw. The City of Saginaw's year-over-year crash rates were lower than the statewide average. Moreover, the City's crash rate declined from 2021 to 2023, possibly due to numerous road reconstruction projects implemented as part of the transportation improvement program during those years.

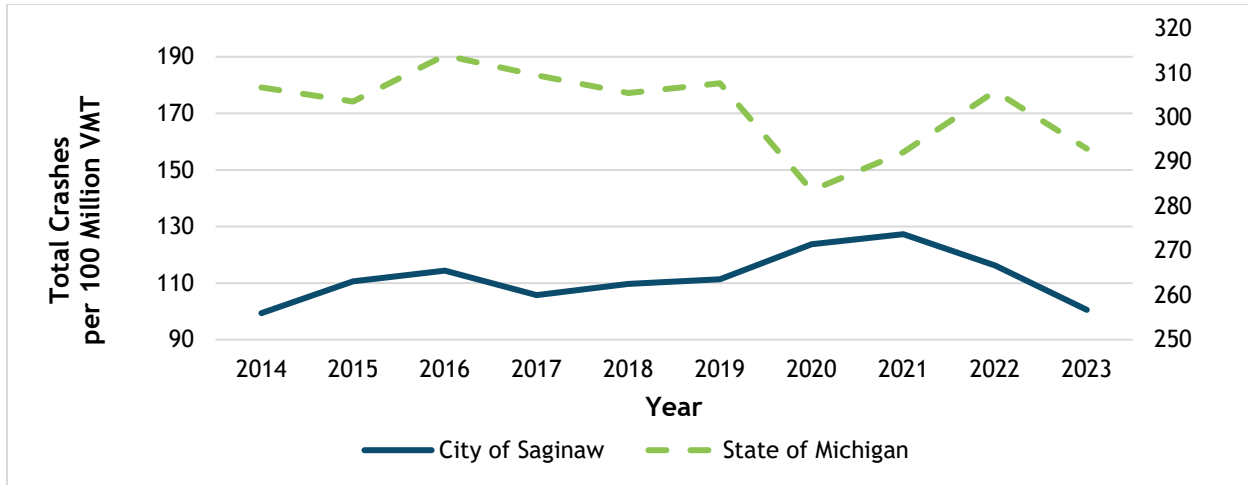


Figure 1. Total Crashes per 100 Million Vehicle Miles Traveled (VMT)

A review of crash data from 2014 to 2023 indicates that, although the City experienced the lowest total number of crashes in 2023 during the 10-year period, it had the highest number of fatal and B-injury crashes in the same year. This significant reduction in total crashes was primarily due to a decrease in property damage only (PDO) crashes. Therefore, greater attention should be given to reducing high-injury crashes. **Table 1** summarizes the crashes reported during the 10-year analysis period by severity in the City of Saginaw. **Figure 2** compares FSI crashes per 1 billion VMT in the City of Saginaw and the State of Michigan from 2014 to 2023. Both the city and statewide crash rates are consistent with each other and show an overall increasing trend.

Table 1. City of Saginaw Crashes by Year and Severity

Year	Crash Severity					Total
	Fatal (K)	A-Injury	B-Injury	C-Injury	Non-Injury (O)	
2014	1	8	51	181	1,004	1,245
2015	3	15	65	207	1,006	1,296
2016	1	15	53	220	1,120	1,409
2017	4	11	50	203	1,030	1,298
2018	2	17	47	210	1,050	1,326
2019	3	15	56	202	1,051	1,327
2020	4	20	56	173	1,015	1,268
2021	3	18	61	213	1,156	1,451
2022	3	26	69	200	957	1,255
2023	5	19	73	169	824	1,090
Grand Total	29	164	581	1978	10,213	12,965
% Total	0.2%	1.3%	4.5%	15.3%	78.8%	100%

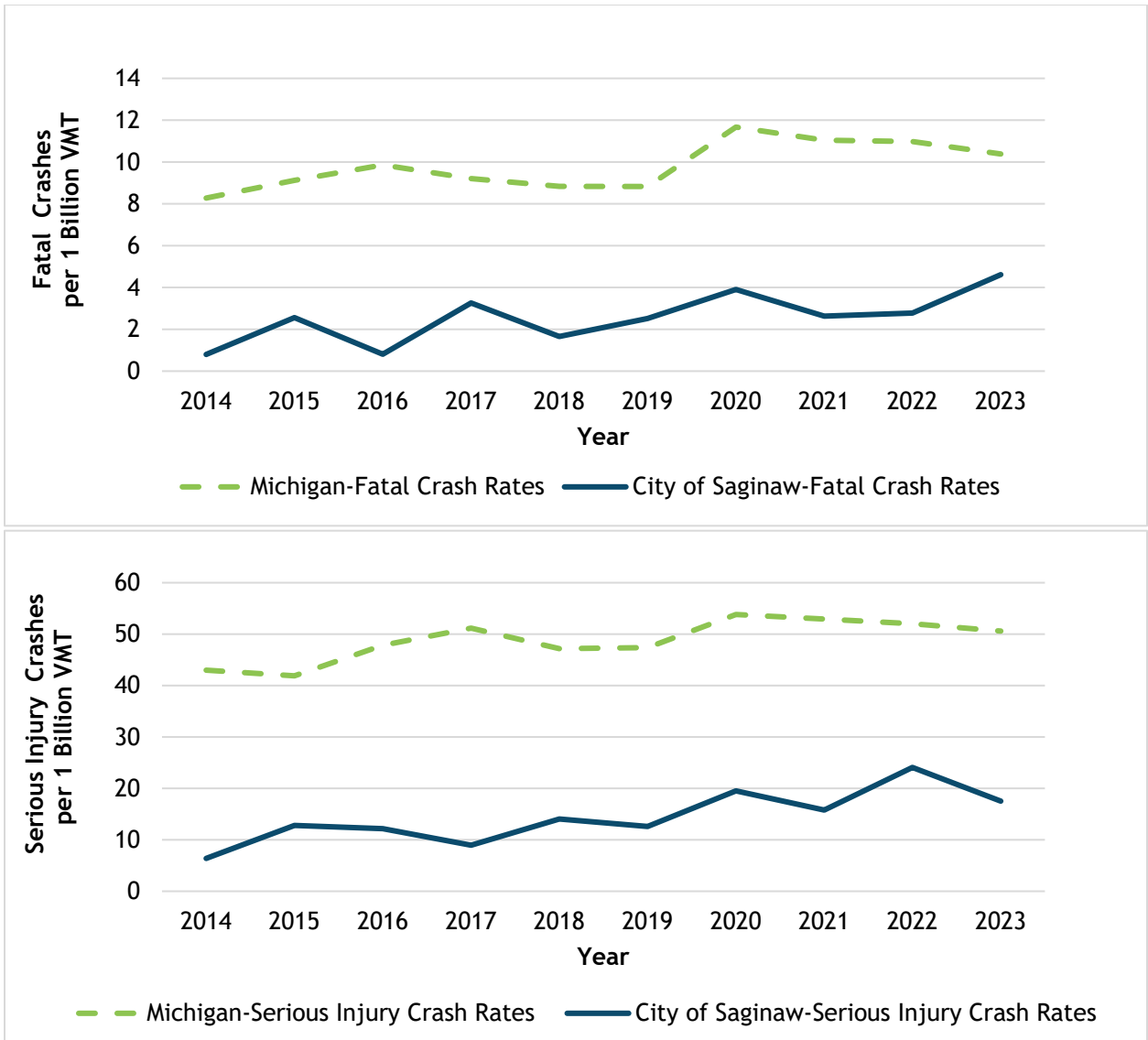


Figure 2. Fatal and Serious Injury (FSI) Crashes per 1 Billion Vehicle Miles Traveled (VMT)

Regarding crash types in the City of Saginaw, from 2014 to 2023, angle crashes (38%) were the most common, followed by rear-end (18%) and sideswipe crashes (15%). When considering only fatal and injury crashes, angle crashes (11%) and rear-end crashes (3%) still ranked first and second, while fixed object crashes (2.5%) ranked third. Other crash types such as miscellaneous single- and multi-vehicle crashes, pedestrian crashes, and head-on crashes account for a smaller portion of total crashes. Although crashes like these are relatively infrequent, they often result in more severe outcomes. In Saginaw, head-on crashes make up just 1% of all crashes, despite 85% of the roadways being two-way. **Figure 3** shows the crash types and their share of all and FI crashes.

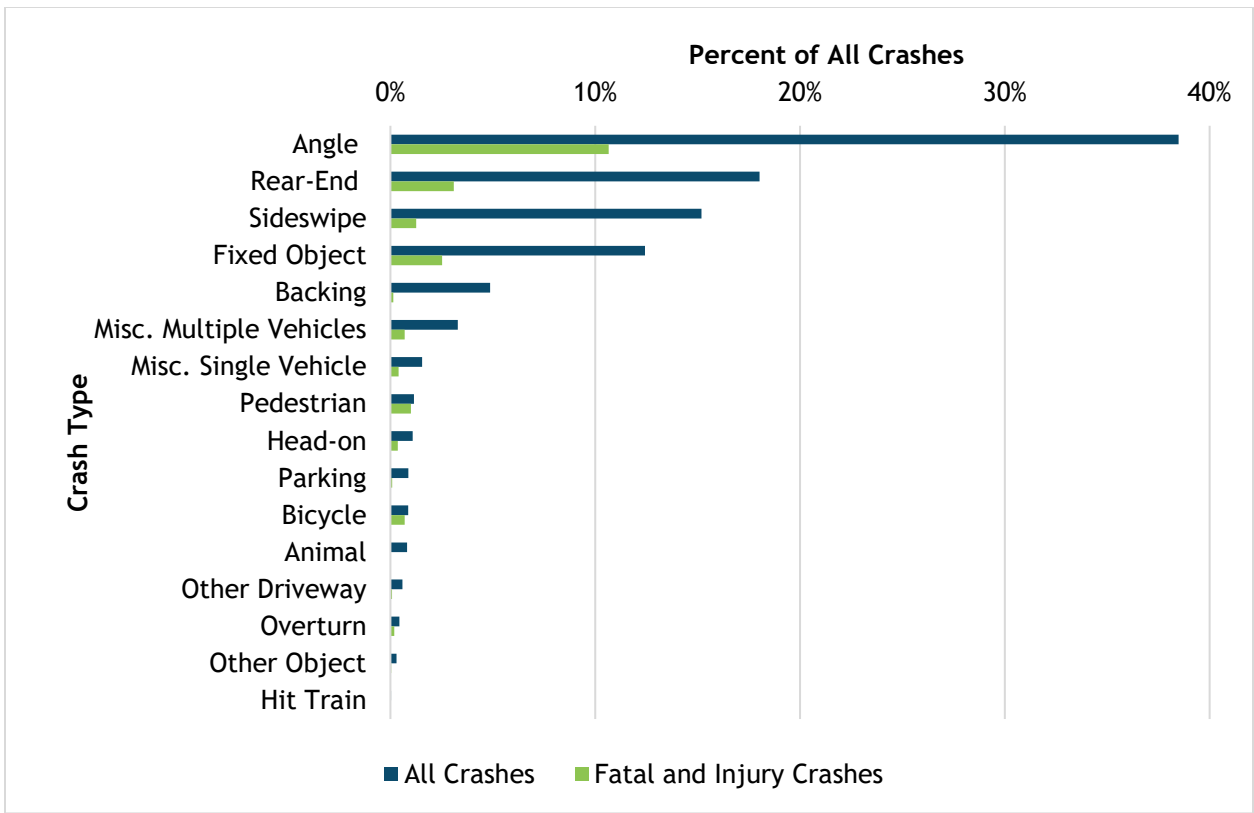


Figure 3. All Crashes and Fatal and Injury (FI) Crashes by Crash Type in the City of Saginaw (2014-2023)

Vulnerable Road Users

Vulnerable road users (VRUs) are pedestrians and bicyclists who are at higher risk of death or serious injury in traffic crashes. As shown in Figure 4, Between 2014 and 2023, there were 12,965 total crashes, including 262 (2.0%) crashes involving pedestrians or bicyclists. However, of the 29 fatal crashes and 164 serious injury crashes during this period, 6 and 25, respectively, involved VRUs, indicating an overrepresentation of VRUs in FSI crashes. As shown in Figure 5, from 2014 to 2023, most crashes (84%) led to either fatal or injury outcomes. Table 2 shows the VRU crash frequency by year and severity.

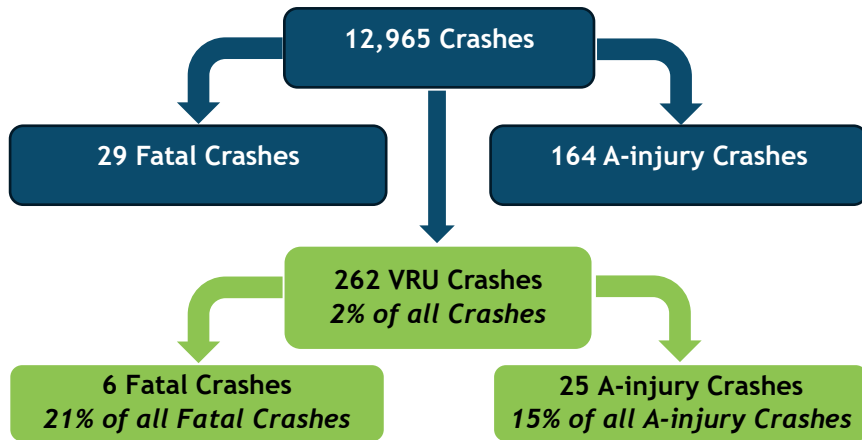


Figure 4. Summary of VRU Crashes in the City of Saginaw (2014-2023)

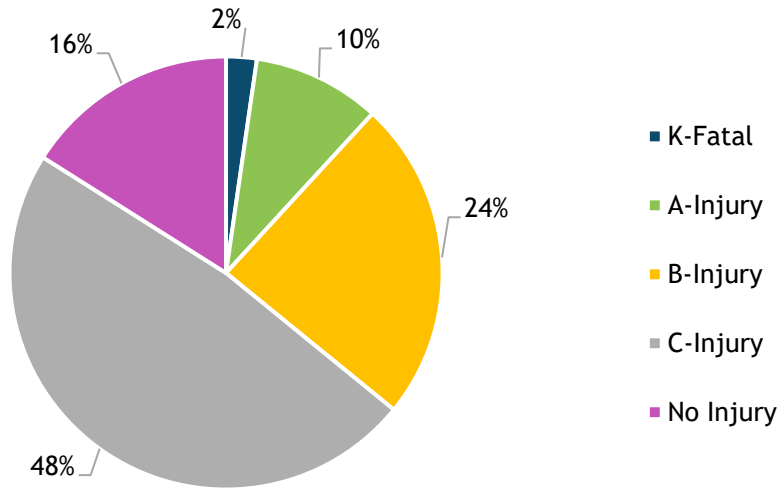


Figure 5. City of Saginaw VRU Crashes by Severity (2014-2023)

Table 2. City of Saginaw VRU Crashes by Year and Severity

Year	VRU Crash Severity					Total
	K	A	B	C	O	
2014	0	2	5	17	7	31
2015	0	8	10	13	2	33
2016	0	4	8	14	6	32
2017	1	1	7	21	3	33
2018	0	1	5	8	6	20
2019	0	2	8	17	5	32
2020	2	1	3	6	3	15
2021	1	4	6	10	4	25
2022	1	1	4	11	5	22
2023	1	1	7	9	1	19
Total	6	25	63	126	42	262
% Total	2%	10%	24%	48%	16%	100%



One of the critical factors in crash survivability is the impact speed. While the exact effect of impact speed on the severity of VRU crashes in the City of Saginaw is not known, the data (Table 3) suggests that fatal and serious injury crashes mostly occur in zones with a speed limit of 30 mph.

Table 3. City of Saginaw VRU Crashes by Severity by Posted Speed Limit

Greatest Severity	Posted Speed Limit						Total
	20 mph or less	25 mph	30 mph	35 mph	40 mph	45 mph or more	
Fatal (K)	0	0	4	1	1	0	6
Serious Injury (A)	1	9	11	2	1	1	25
Fatal and Serious Injury (KA)	1	9	15	3	2	1	31

Contributing Factors

To understand the factors that may contribute to traffic crashes, various behavioral and non-behavioral elements were analyzed. Dangerous behaviors, such as impaired driving, significantly increase the risk of crashes. Between 2014 and 2023, there were 514 alcohol- and drug-involved crashes in the City of Saginaw. While impaired driving crashes represented only 4.0% of all crashes, they accounted for nearly 41% of all fatalities in the city. Figure 6 shows the proportion of crashes across severity levels which involved impaired driving crashes; notably, 41% of all fatal crashes involved impaired driving. Considering impaired driving crashes, as shown in Figure 7, most cases involved alcohol only.

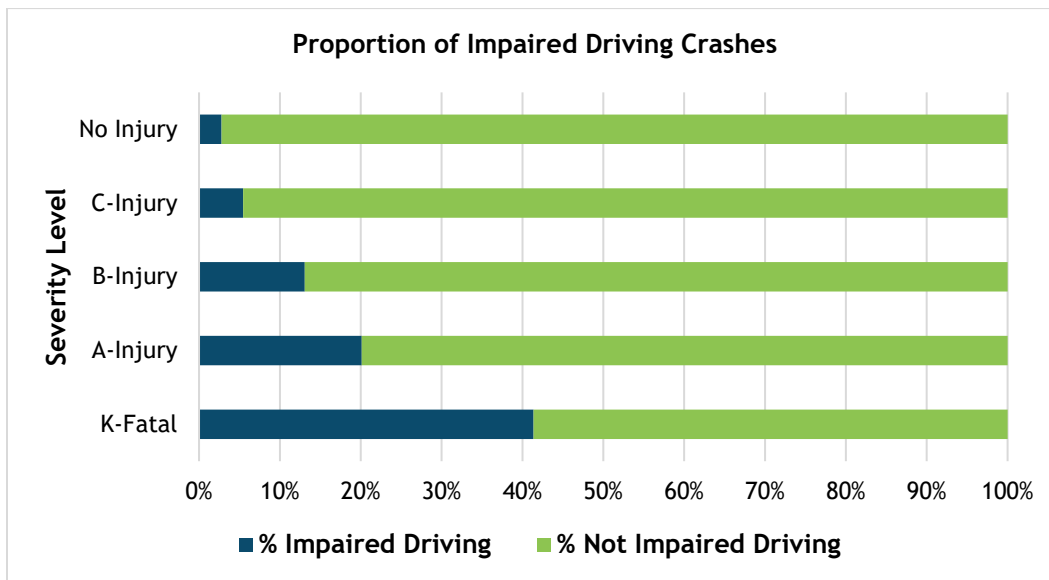


Figure 6. Proportion of Impaired Driving Crashes Across Severity Levels (2014-2023)

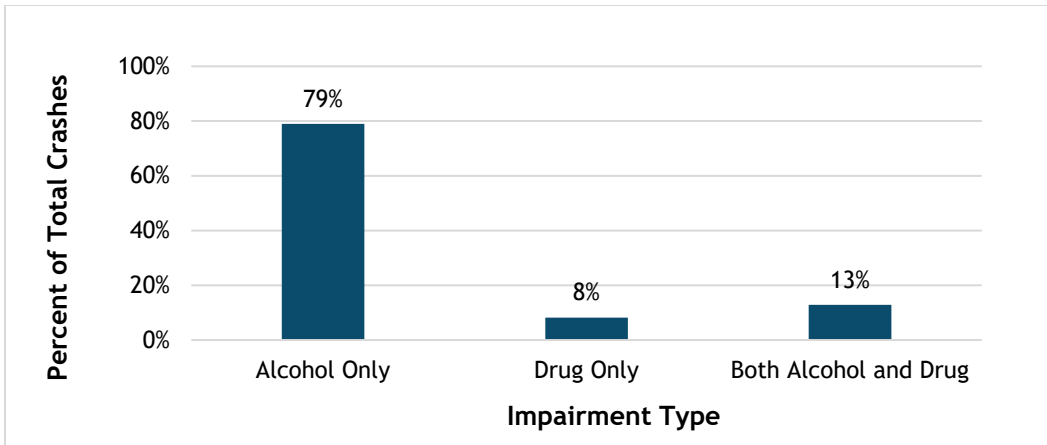


Figure 7. Crash Distribution by Impairment Type (2014-2023)

Figure 8 shows the number of drug-involved crashes per 1,000 drug tests offered to drivers in both the City of Saginaw and the State of Michigan. In both cases, the trends indicate a noticeable increase in crash rates in 2020, following the legalization of cannabis and the opening of the first recreational-use dispensaries in December 2019. The State of Michigan experienced a 48% increase in the crash rate from 2019 to 2020, followed by an overall decrease of 24% through 2023. In contrast, the City of Saginaw experienced an 85% increase from 2019 to 2020, followed by an additional 88% increase in 2021, reaching the statewide rate, before undergoing an overall decline of 28% by 2023. In terms of driver age, as shown in Figure 9, impaired driving crashes in the City are concentrated among younger adults, particularly those aged 25-34, who account for over 30% of such crashes despite representing only about 14% of the population. Drivers aged 17-24 and 35-44 are also overrepresented relative to their population share. In contrast, adults aged 55 and older are significantly underrepresented. These trends suggest that impaired driving in Saginaw is primarily a concern among drivers under the age of 45. Therefore, tailored strategies such as education, enforcement, and outreach targeting the 17-44 age group may be most effective in reducing impaired driving incidents.

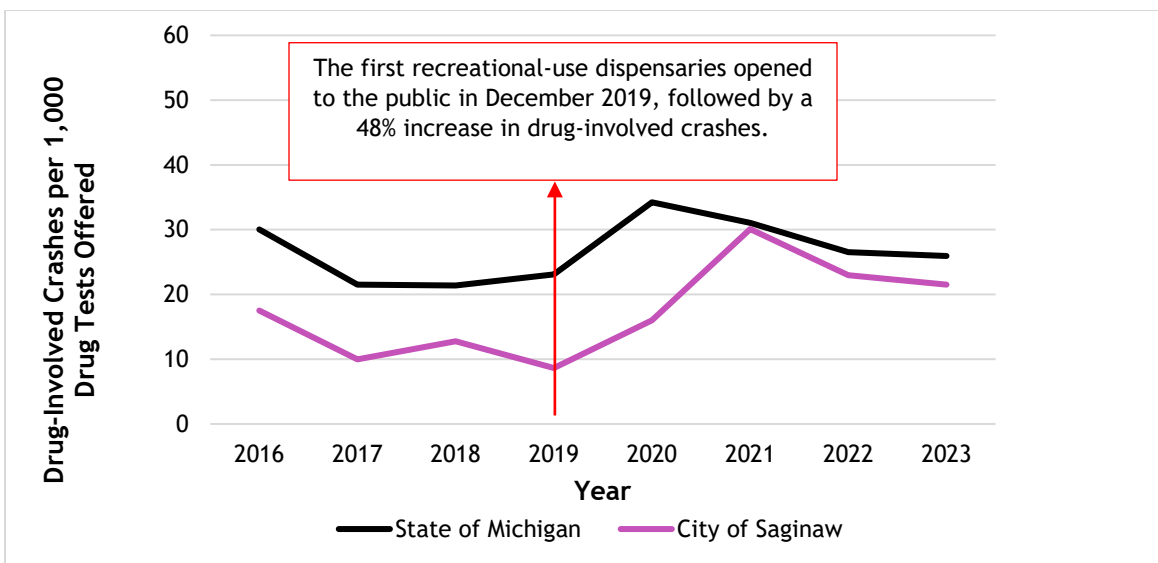


Figure 8. Comparison of Crash Rates for the City of Saginaw and the State of Michigan

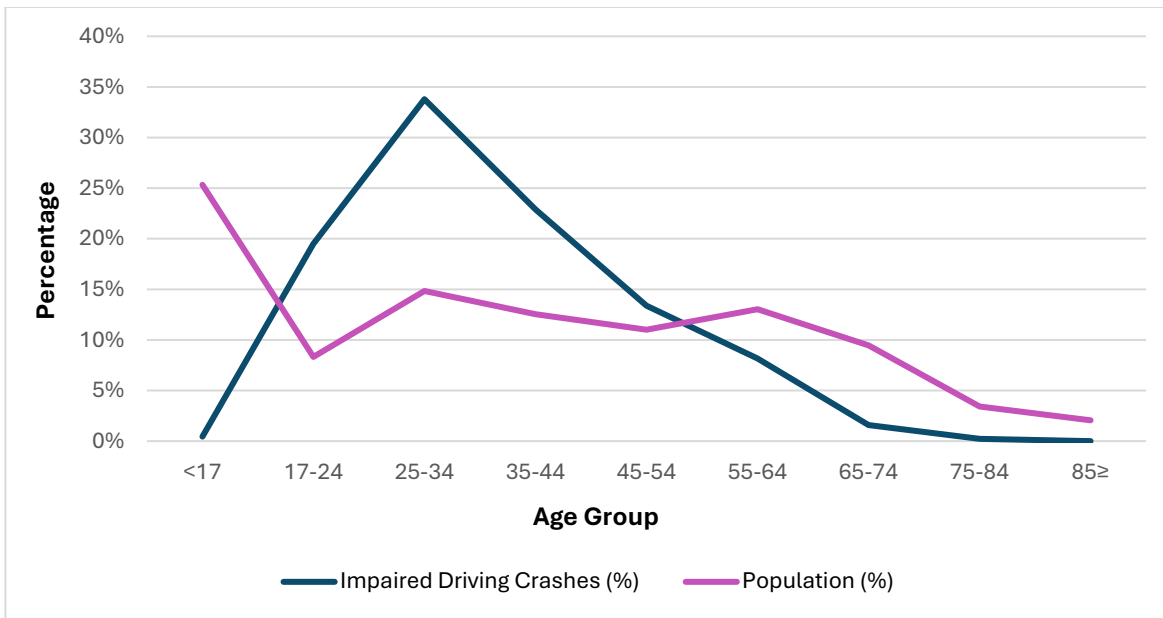


Figure 9. Percentage of Impaired Driving Crashes and Population by Driver Age Group in the City of Saginaw (2014-2023)

Non-behavioral factors may also contribute to crashes, including the physical condition of the roadway surface and weather conditions. Adverse conditions, such as ice and rain, increase the likelihood of crashes. As shown in **Figure 10**, 75% of FI crashes in the City of Saginaw occurred on dry road surfaces, while the remaining 25% took place on snowy, icy, or wet surfaces. Additionally, **Figure 11** shows that 87% of FI crashes occurred under clear or cloudy weather conditions, while approximately 13% were associated with adverse weather, such as rain or snow. Lighting conditions also influence crash risk. **Figure 12** illustrates that 70% of FI crashes happened during daylight, whereas 30% occurred during dark, dawn, or dusk hours, when driver visibility may be reduced. Additionally, there appears to be a correlation between age and traffic crashes occurring under dark conditions. As shown in **Figure 13**, The 17-24 age group is most frequently involved in these crashes. Beyond this age group, however, the percentage of such crashes tends to decrease with increasing age. This could imply that younger individuals are more likely to engage in activities during dark hours. Therefore, in addition to engineering countermeasures such as improving lighting conditions, driver education campaigns focused on nighttime driving through educational programs at schools and universities, as well as stricter enforcement during nighttime, may also be necessary.

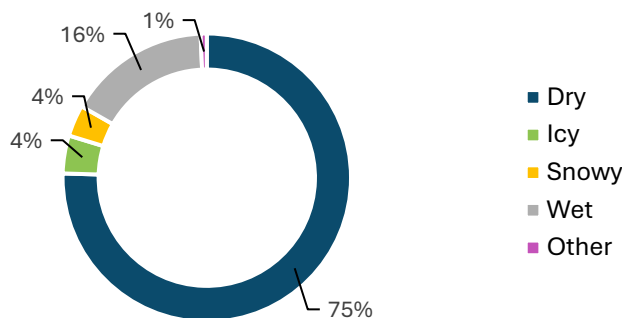


Figure 10. Percent of FI Crashes by Road Surface Conditions in the City of Saginaw (2014-2023)

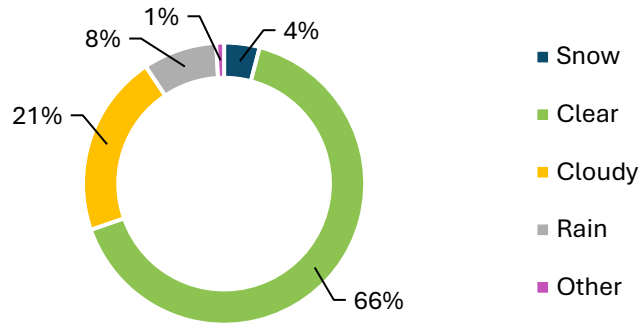


Figure 11. Percent of FI Crashes by Weather Conditions in the City of Saginaw (2014-2023)

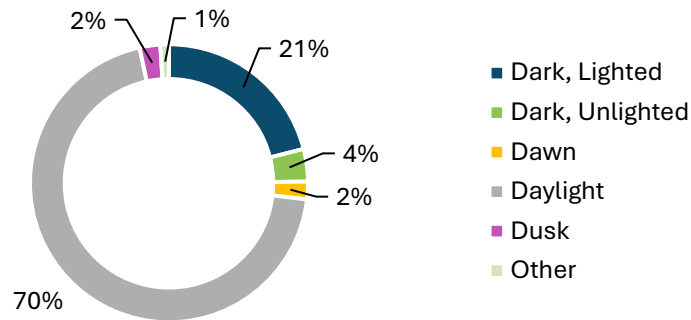


Figure 12. Percent of FI Crashes by Lighting Conditions in the City of Saginaw (2014-2023)

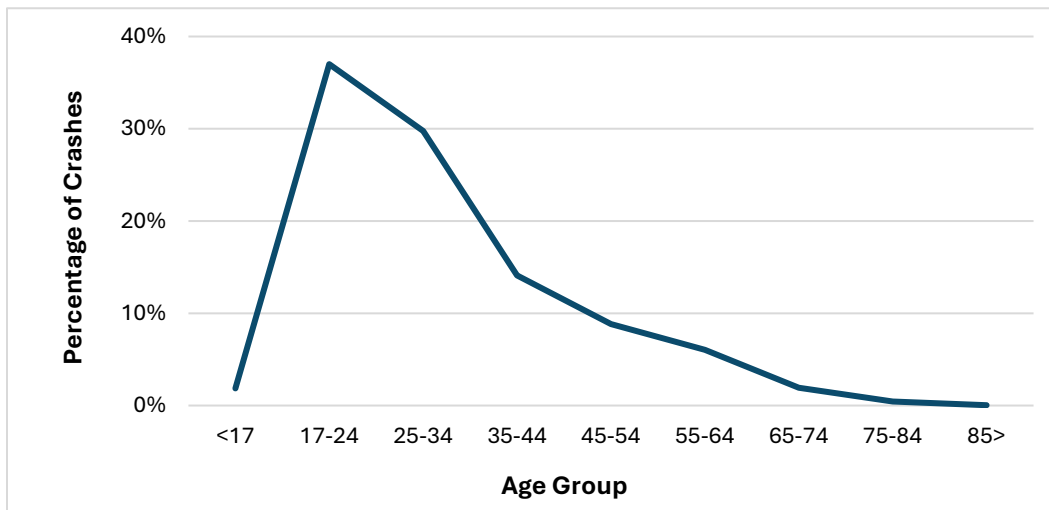


Figure 13. Percentage of Traffic Crashes Under Dark Conditions by Age Group (2014-2023)



Temporal Analysis

Table 4 highlights the distribution of FI crashes based on the time of day and day of week. As illustrated in this table, the number of FI crashes tends to be higher between 3 PM and 6 PM on both weekdays (Monday through Friday) and weekends (Friday and Saturday), compared to other times of the day. The peak occurred on Tuesday with 110 FI crashes during weekdays, and on Saturday with 72 crashes during the weekend. **Figure 14** presents a monthly breakdown of FI crashes in the City of Saginaw involving motorized vehicles, bicycles, and pedestrians across the different months. Based on the findings presented in Figure 14, which details a monthly breakdown of fatal and injury (FI) crashes in the City of Saginaw involving motorized vehicles, bicycles, and pedestrians, distinct seasonal patterns emerge across different crash types. The data indicates that overall FI crashes peaked in June, accounting for 10% of the annual total. This suggests a higher risk during early summer, possibly due to increased outdoor activity, tourism, or favorable weather conditions leading to more road users. Specifically, motorized vehicle FI crashes also reached their highest point in June (10%), aligning with the overall trend and potentially reflecting higher traffic volumes or seasonal distractions.

In contrast, bicyclist-involved FI crashes were most frequent in May (17%), which may be attributed to the start of warmer weather encouraging more cycling, combined with potentially inadequate infrastructure or a lack of awareness during this transition period. Pedestrian-involved FI crashes peaked in October (14%), possibly due to reduced daylight hours or inadequate lighting. These findings suggest a need for targeted safety interventions, including the following:

- Implement a "Safe Summer Roads" campaign to increase public awareness and deploy additional police patrols near activity centers to help mitigate motorized vehicle crashes.
- Install high-visibility bike lane markings and promote bicycle helmet use through education campaigns.
- Upgrade crosswalks at high-risk intersections and install pedestrian-activated flashing beacons and high-contrast zebra striping to improve visibility near school zones and in the downtown area.

Table 4. FI Crashes by Time of Day and Day of the Week in the City of Saginaw (2014-2023)

		Time of Day								
		From	12:00 AM	3:00 AM	6:00 AM	9:00 AM	12:00 PM	3:00 PM	6:00 PM	9:00 PM
		To	3:00 AM	6:00 AM	9:00 AM	12:00 PM	3:00 PM	6:00 PM	9:00 PM	12:00 AM
Day of Week	Mon	15	12	42	62	86	103	54	35	
	Tues	18	8	58	76	90	110	48	33	
	Wed	20	10	46	54	87	99	71	32	
	Thu	14	13	42	39	98	91	72	37	
	Fri	22	9	45	49	87	104	58	52	
	Sat	45	20	25	39	61	72	57	44	
	Sun	38	24	11	33	36	56	57	33	

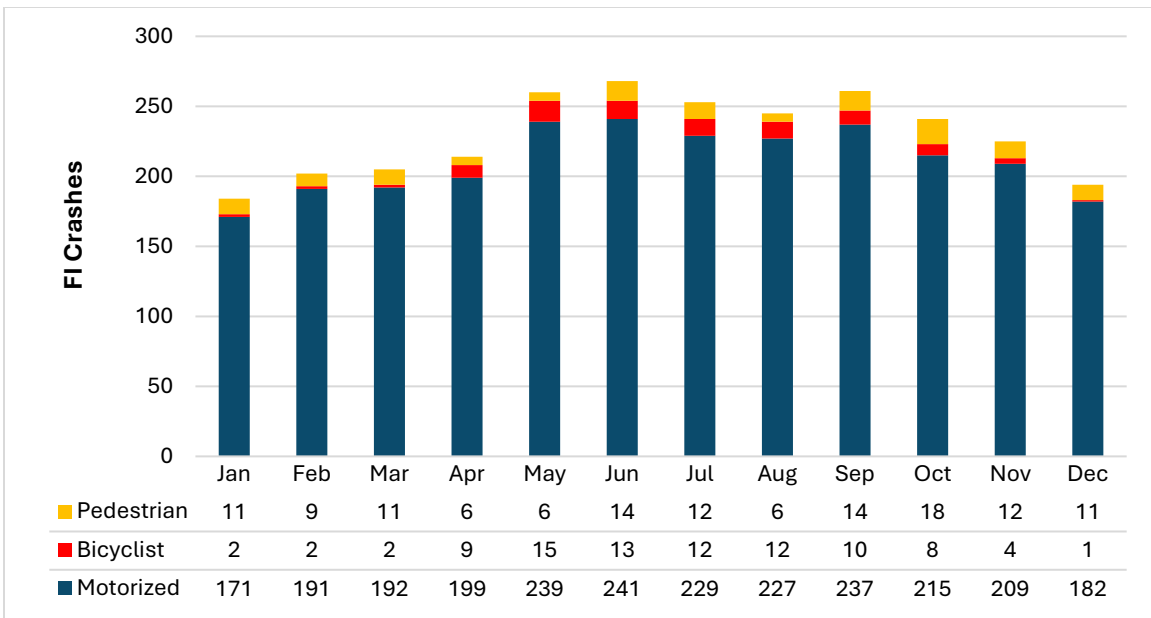


Figure 14. FI Crashes by Month by Mode in the City of Saginaw (2014-2023)

Spatial Analysis

Spatial crash analyses offer a powerful approach to understanding the geographical distribution and patterns of crashes, such as highlighting locations, road segments, and intersections with higher crash frequencies. Spatial analysis can also provide insight into the underlying factors that contribute to crashes in a certain area. Understanding the location and concentration of crashes is instrumental in developing targeted interventions, implementing effective safety measures, and optimizing resource allocation to reduce risks for road users. Within this section, a comprehensive spatial analysis of the crash data is provided, aiming to identify patterns and trends within the City of Saginaw.

Figure 15 illustrates the heatmap of total traffic crashes from 2014 to 2023, indicating that relative crash densities are higher in urban areas. Relative density refers to how concentrated crashes are in certain areas compared to others. As shown in the map legend, areas marked as 'most frequent' represent the highest concentration of crashes, while those labeled 'least frequent' indicate very few or no crashes. The map reveals that crash concentrations are distributed along M-58 and M-46 within MDOT jurisdiction, as well as on Michigan Avenue, Court Street, Woodbridge Street, Mason Street, and in the downtown area near the Dow Event Center within City jurisdiction.

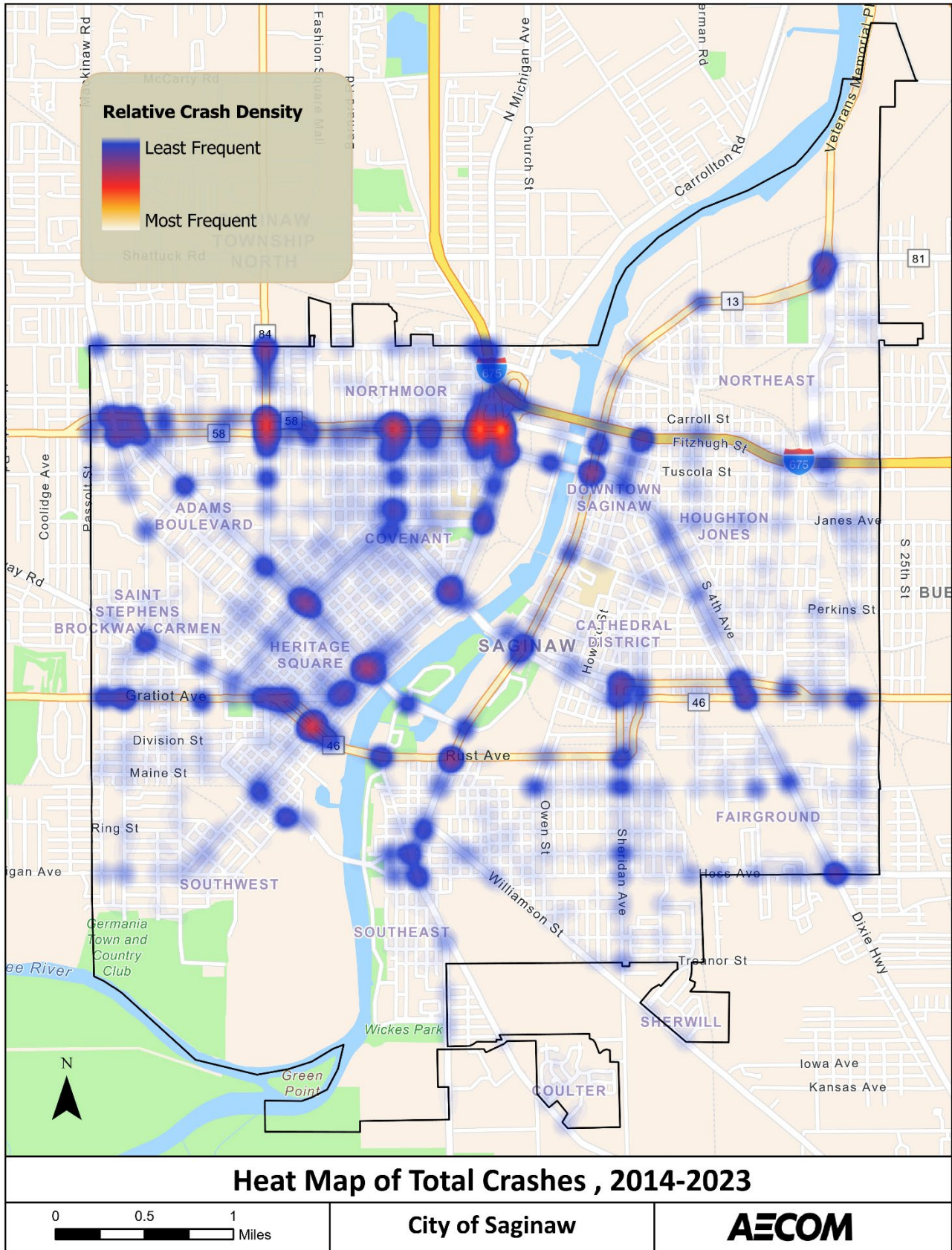


Figure 15. Total Crash Frequency Heat Map



Figure 16 presents a heatmap of FI crashes, while Figure 17 displays a heat map of FSI crashes. Both heatmaps show a similar geographic distribution of crashes, highlighting a higher prevalence of FI and FSI crashes on the above-mentioned roadways. Figure 18 illustrates the heatmap of total VRU crashes. The highest densities are observed at the intersections of Michigan Avenue at Court Street and Michigan Avenue at Gratiot Avenue within City jurisdiction, and at Genesee Avenue at Hess Avenue and Genesee Avenue at Webber Street within MDOT jurisdiction. Lastly, Figure 19 shows the VRU-involved FSI crashes, which are approximately equally distributed on both sides of the Saginaw River, with most crashes occurring at or near intersections.

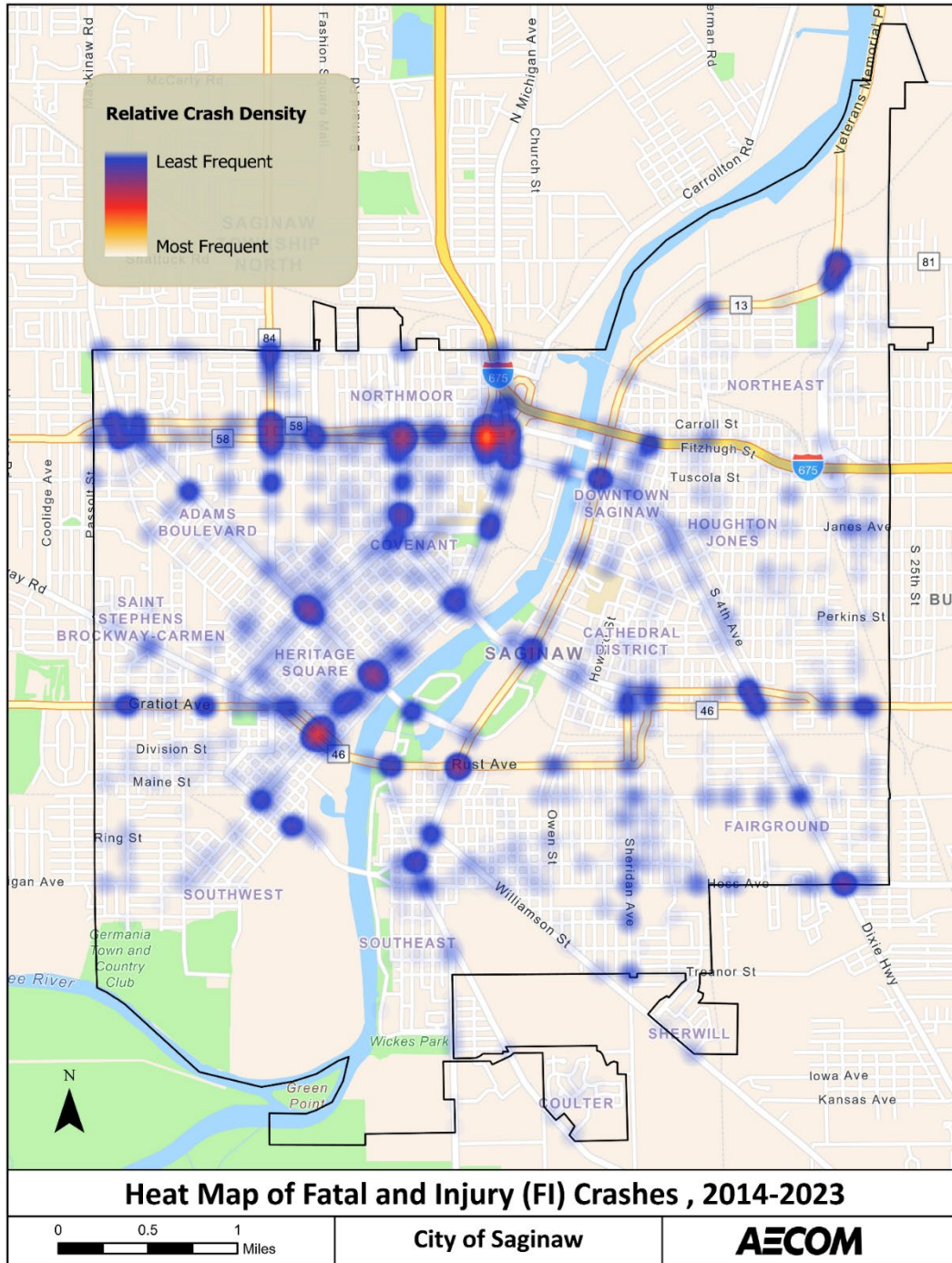


Figure 16. Fatal and Injury (FI) Crash Frequency Heat Map

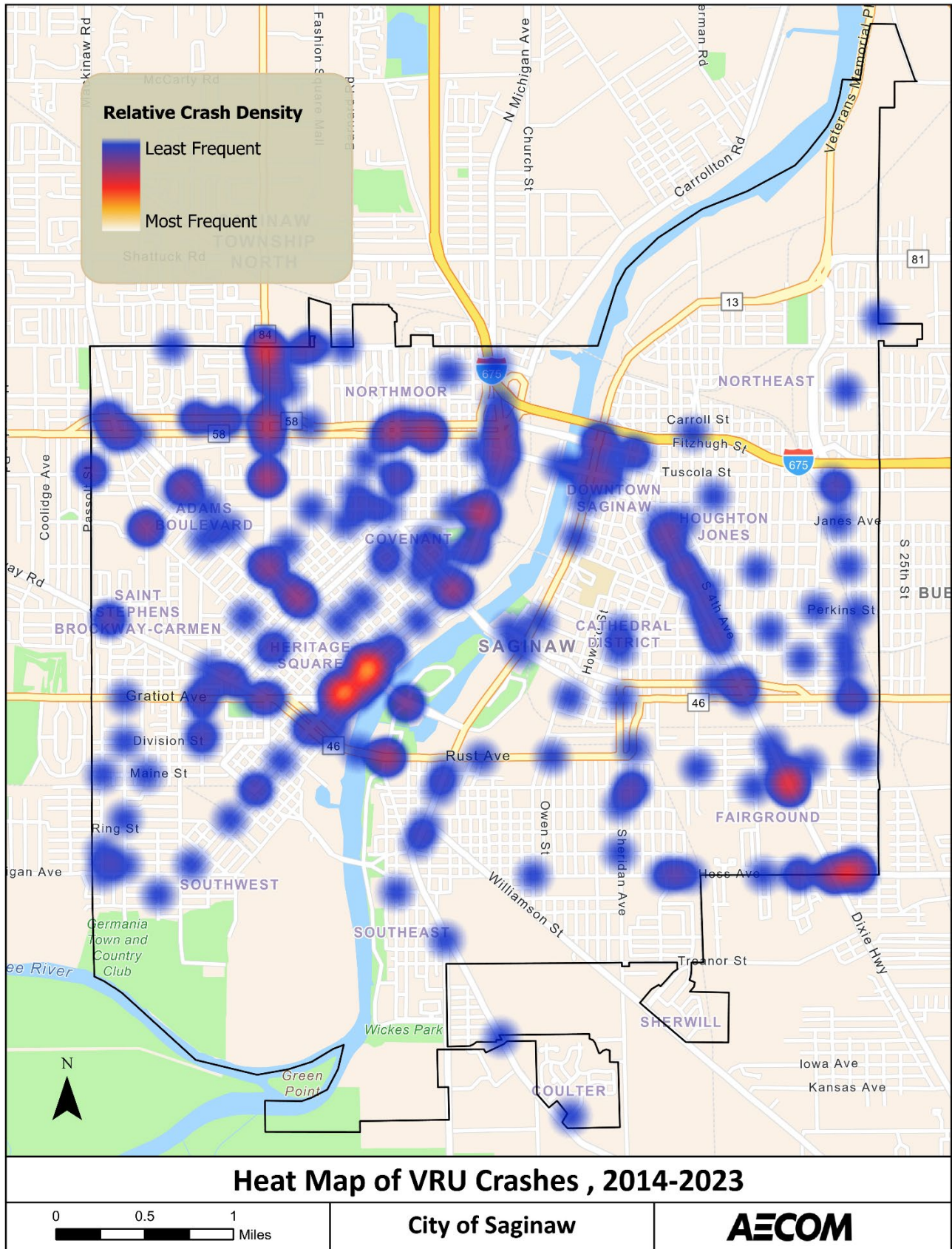


Figure 18. VRU or Pedestrian/Bicycle Crash Frequency Heat Map

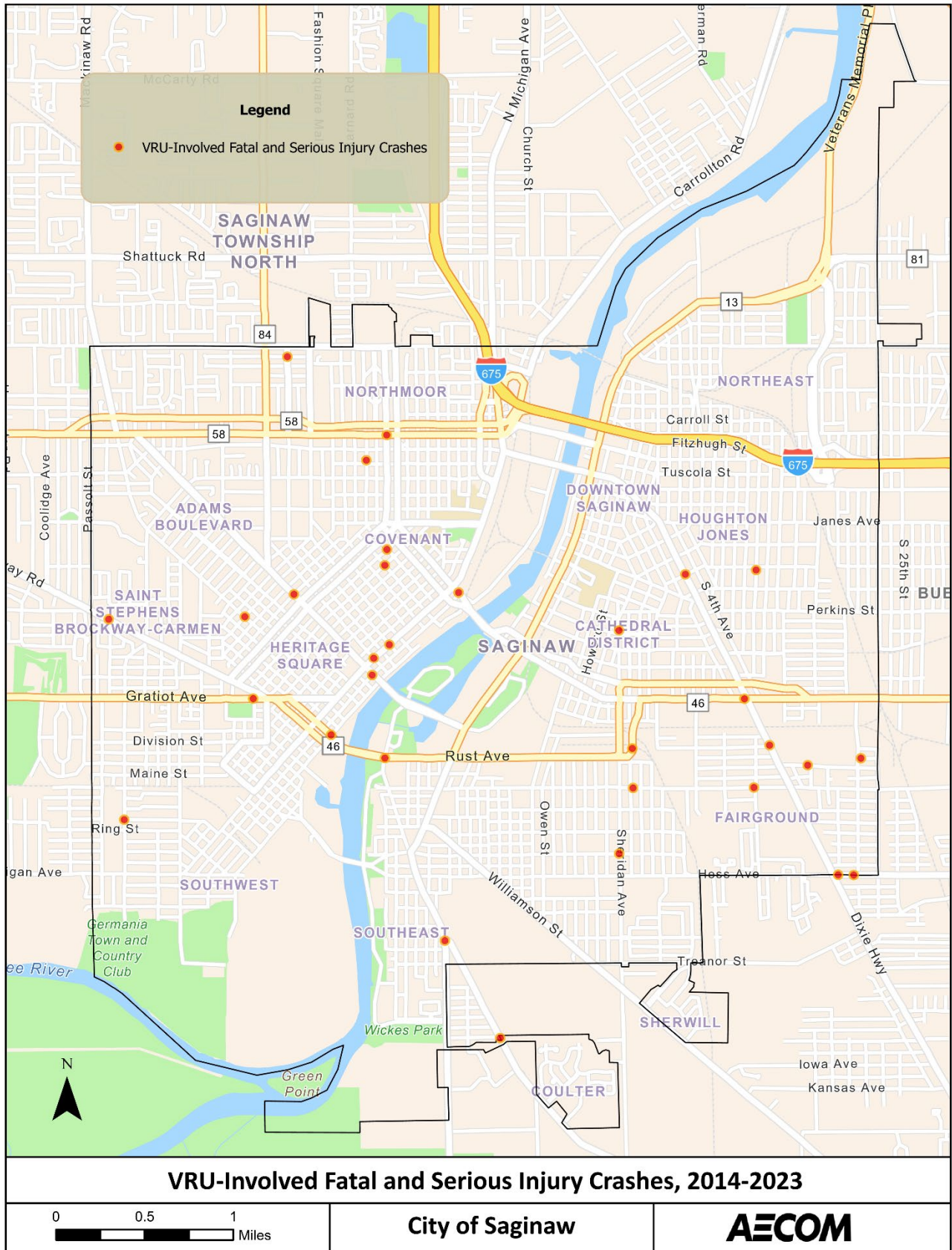


Figure 19. VRU or Pedestrian/Bicycle Fatal and Serious Injury Crash Locations



As discussed earlier, angle, rear-end, and fixed-object crashes were the top three crash types in the City of Saginaw in terms of fatal and injury crashes. **Figure 20**, which presents the heat map of angle crashes, indicates that the majority occurred at intersections. Key hotspots include Davenport Avenue at Hill Street, State Street at Hill Street, M-46 (Williams Street) at Michigan Avenue, M-46 (Stephens Street) at Michigan Avenue, Court Street at Michigan Avenue, Court Street at Woodbridge Street, and Court Street at Mason Street.

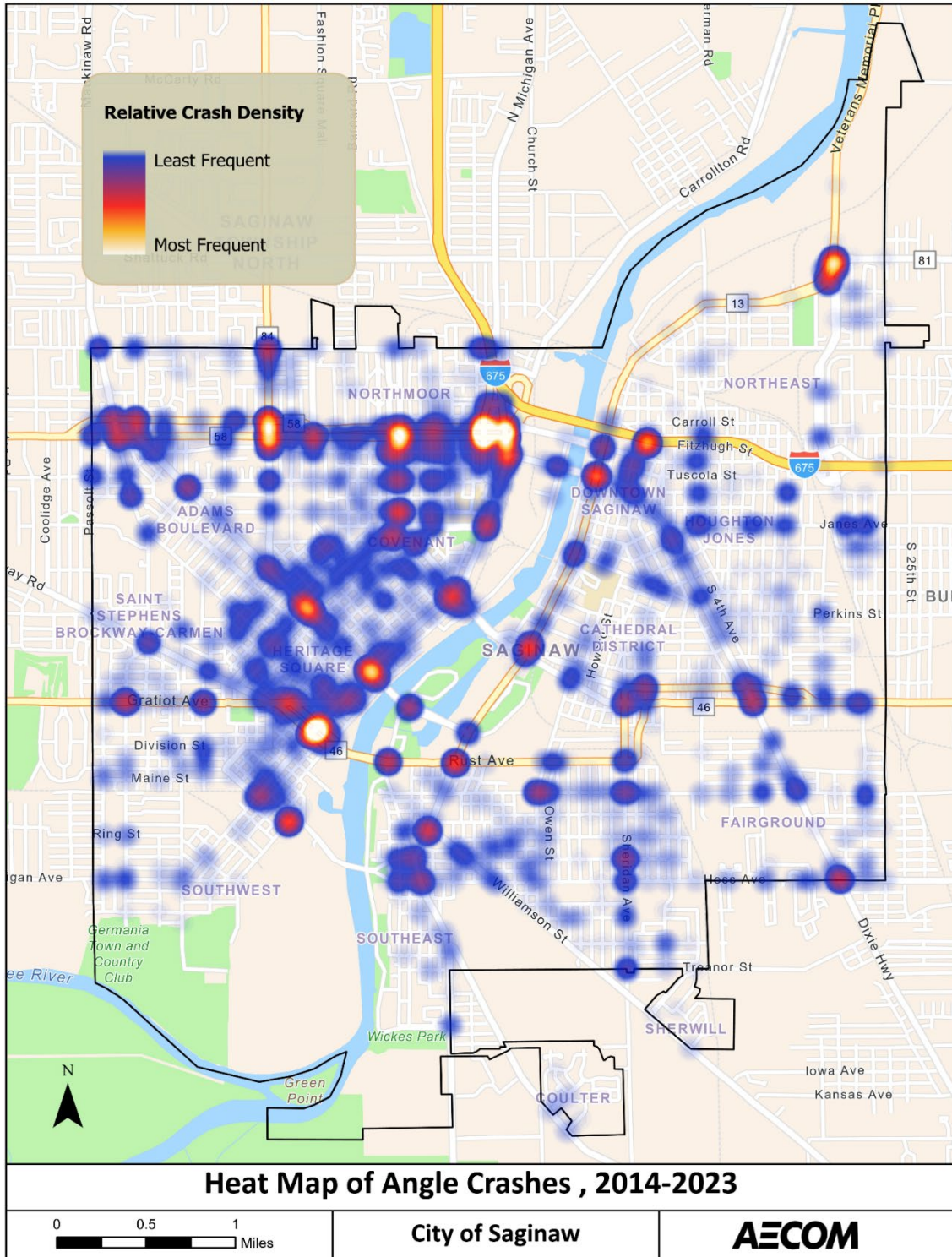


Figure 20. Angle Crash Frequency Heat Map



Figure 21, showing the heat map of rear-end crashes, highlights hotspot locations such as State Street at Michigan Avenue, State Street at Hill Street, State Street at Bay Street, Davenport Avenue at Bay Street, M-13 (Washington Avenue) at M-46 (Williams Street), and Genesee Avenue at Michigan Avenue.

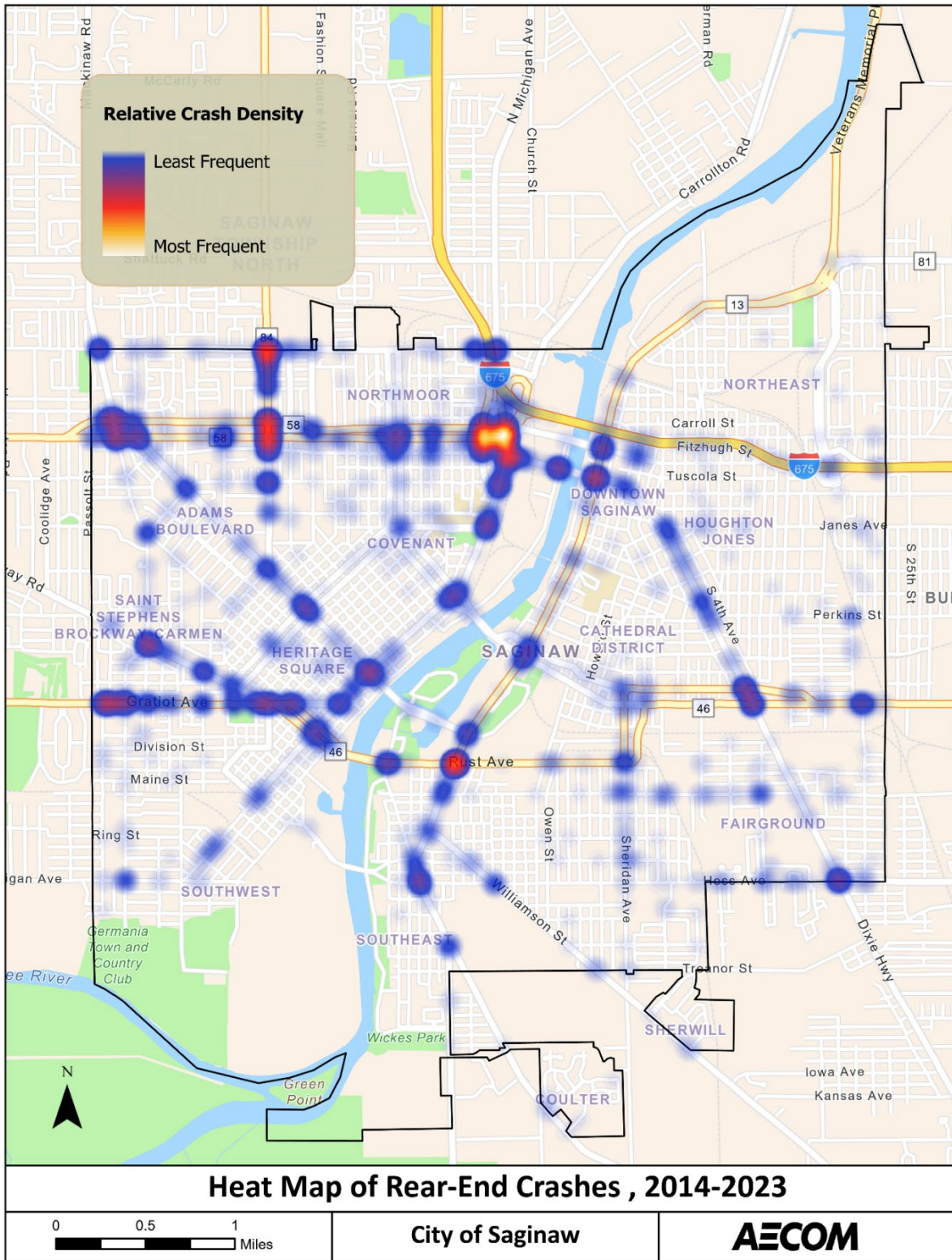


Figure 21. Rear-End Crash Frequency Heat Map



Figure 22 displays the heat map of fixed-object crashes. A concentration of crashes is observed along I-675, from the off-ramp at State Street to Weiss Street and from South 14th Street to Veterans Memorial Parkway. Additional clusters of crashes are noted near Remington Street at Water Street and Gallagher Street at M-13 (Washington Avenue). The most struck fixed objects were signal/sign supports and poles (39%), trees (17%), and guardrails/barriers (15%).

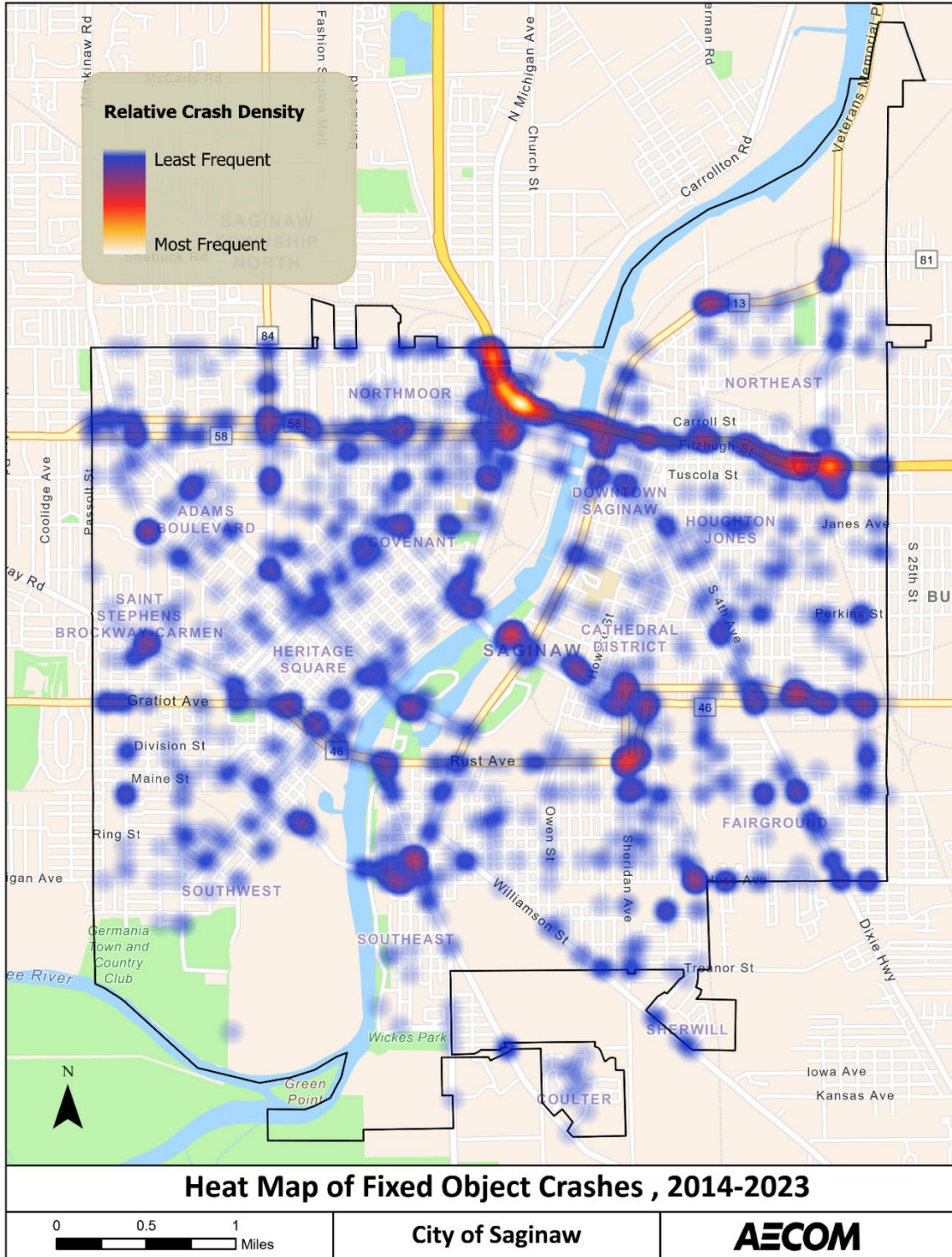


Figure 22. Fixed Object Crash Frequency Heat Map



In terms of crash location, **Figure 23** shows that most FI crashes involving motorized vehicles and VRUs occurred at intersections, followed by midblock areas and interchanges. **Figure 24** reveals that from 2014 to 2023, the most common roadway classification on which FI crashes occurred, across all modes, was Other Principal Arterials, accounting for 47% of motorized vehicle crashes, 37% of bicycle crashes, and 38% of pedestrian crashes. Minor arterials were the second most common roadway type for motorized vehicle and pedestrian FI crashes, representing 25% and 28% respectively. Local streets were the second most common roadway type for bicycle FI crashes, accounting for 26% of such crashes.

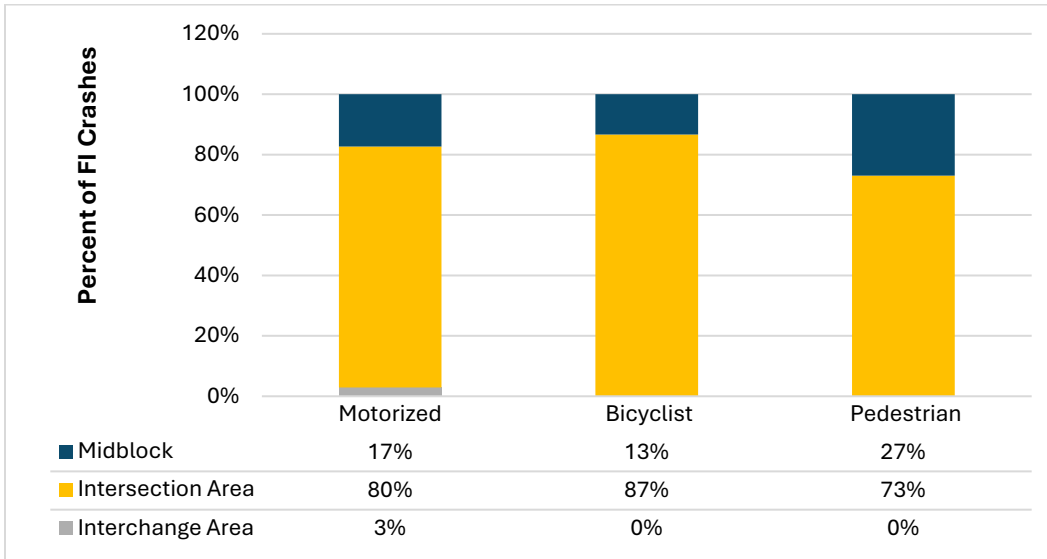


Figure 23. FI Crashes by Location in the City of Saginaw (2014-2023)

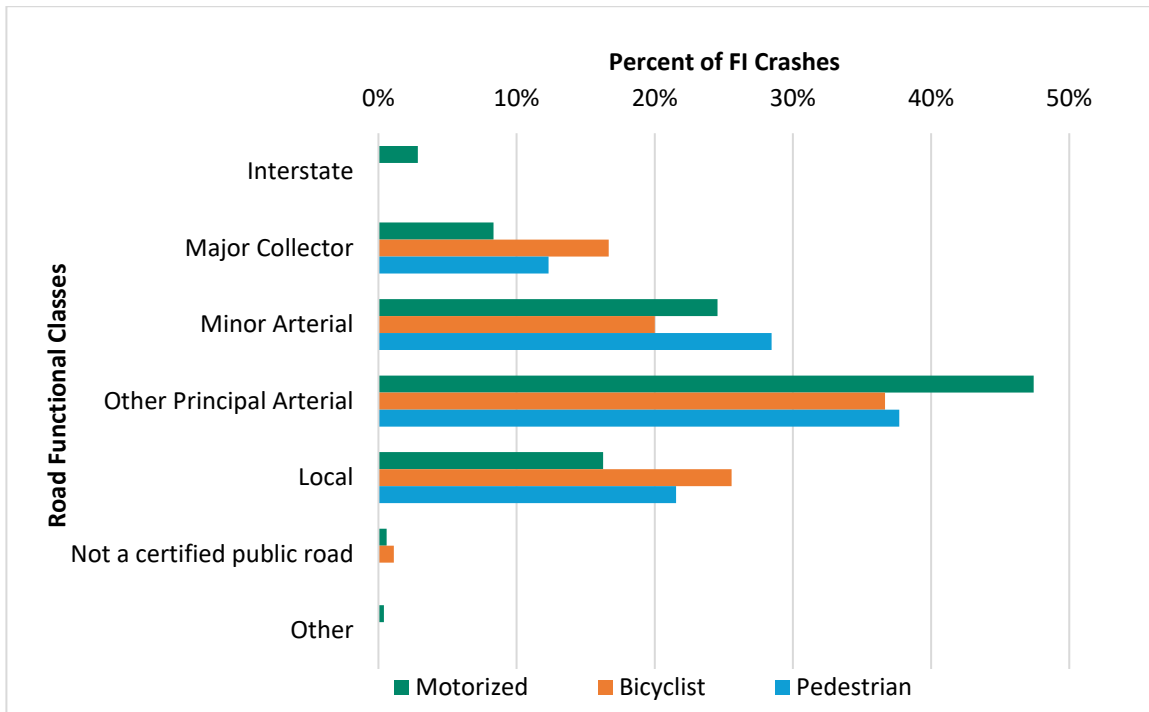


Figure 24. FI Crashes by Road Type in the City of Saginaw (2014-2023)



Generally, different types of land uses tend to generate and attract distinct patterns of trips, which influence travel behavior and, consequently, contribute to traffic crashes. As shown in **Figure 25**, most FI crashes occurred in residential areas (37%), followed by mixed-use areas (28%). This suggests that these areas should be prioritized for the implementation of various safety measures, including traffic calming, speed and access management strategies, sidewalk improvements, and public engagement and education initiatives.

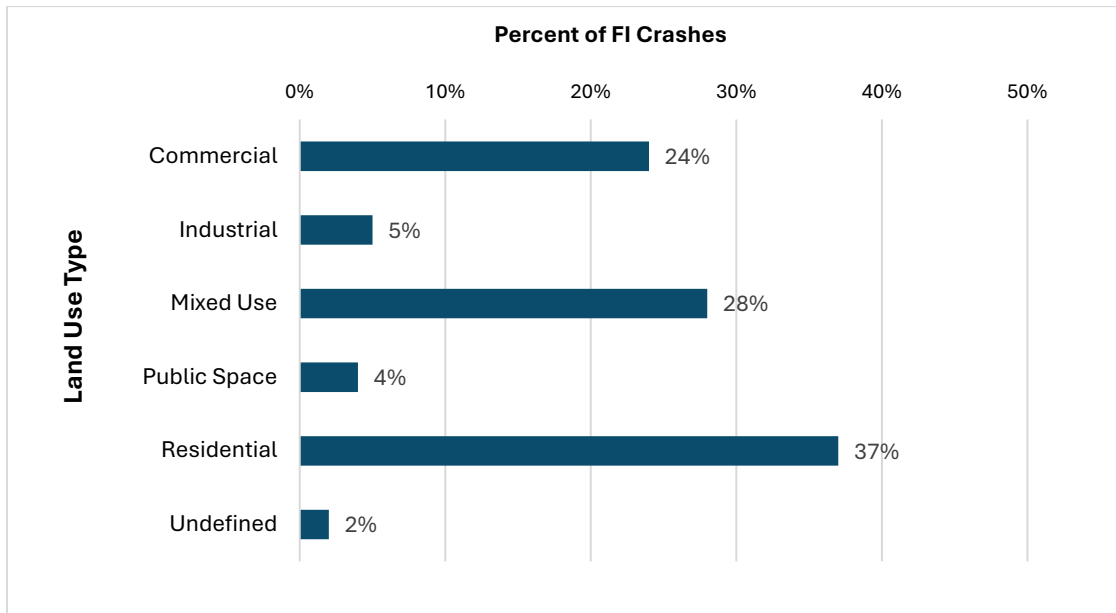


Figure 25. FI Crashes by Land Use Type in the City of Saginaw (2014-2023)

To further explore the relationship between land use and crash types, **Table 5** presents the correlation coefficients between the percentage of land use types and the number of crashes by type at the census tract level. A correlation coefficient with an absolute value of 0.6 or greater is generally considered to indicate a moderate to strong and statistically significant relationship between two variables. The sign of the coefficient indicates the direction of the relationship: a positive value means that as the percentage of a specific land use type increases, the number of a certain crash type tends to increase as well; a negative value indicates that as the percentage of a specific land use type increases, the number of a certain crash type tends to decrease. According to Table 5, industrial land use is highly and positively correlated with miscellaneous single-vehicle crashes (0.61), overturn crashes (0.81), and animal-related crashes (0.77). In addition, commercial land use shows a strong positive correlation with the number of bicycle crashes (0.61), while residential land use is positively and strongly associated with backing crashes (0.70). Other crash types do not appear to be strongly influenced by variations in land use across census tracts within the city of Saginaw.



Table 5. Correlation Coefficients Between Land Use and Crashes by Type at the Census Tract Level

Crash Type	Percentage of Land Use Type per Census Tract				
	Industrial	Mixed	Commercial	Public Space	Residential
Angle	-0.12	0.22	0.57	-0.51	0.29
Rear-End	-0.14	0.09	0.35	-0.44	0.34
Sideswipe	0.22	-0.02	0.02	-0.34	0.13
Fixed Object	0.37	0.12	0.08	-0.48	0.10
Backing	-0.24	-0.21	0.44	-0.47	0.70
Misc. Multiple Vehicles	-0.02	0.15	0.56	-0.49	0.24
Misc. Single Vehicle	0.61	0.07	-0.06	-0.37	-0.08
Pedestrian	-0.21	0.15	0.41	-0.40	0.29
Head-on	0.42	0.06	0.20	-0.55	0.14
Parking	-0.20	0.14	0.46	-0.49	0.38
Bicycle	-0.05	0.26	0.61	-0.55	0.19
Animal	0.77	-0.05	-0.07	-0.13	-0.28
Other Driveway	-0.15	0.09	0.39	-0.22	0.13
Overturn	0.81	-0.01	-0.13	-0.34	-0.20
Other Object	0.22	-0.17	0.23	-0.29	0.26
Hit Train	0.02	0.42	0.25	-0.21	-0.23



3.0 High-Injury Network (HIN)

The high-injury network (HIN) consists of high-injury intersections (HII) and high-injury segments (HIS), and it was created using the Model Inventory of Roadway Elements (MIRE) road network from Michigan’s open data portal along with the 10 years of crash data (2014-2023) used for the historical baseline safety analysis.

The goal of the HIN aligns with the Vision Zero initiative, which aims to eliminate all traffic-related fatalities and serious injuries. Therefore, the analysis focuses on identifying and prioritizing locations with the highest concentration of FI crashes to guide effective safety improvements. First, 100-foot buffers were created around intersections to separate intersection crashes from segment crashes. Next, crash data were spatially joined to the corresponding street segments and intersections. Crashes were counted by severity for each segment and intersection, and a weighted sum score was calculated using 3:3:2:1 weighting factors, as shown in **Table 6**. The weighted sum scores served as a basis for ranking the intersections. For all segments, the weighted sum scores were divided by segment length to normalize the scores. Finally, all intersections and segments were ranked from highest to lowest based on the weighted scores and normalized weighted scores, respectively.

The HII consist of the intersections with the worst crashes, together accounting for 65% of all intersection-related FI crashes in the city, while the HIS consist of the segments with the worst crashes, together accounting for 80% of all segment-related FI crashes in the city.

Table 7 summarizes the core components of the HIN methodology, and **Table 8** summarizes how much of the roadway network and how many FI and FSI crashes the HIN accounts for. **Figure 26** illustrates the HIN for the City of Saginaw, including both HII and HIS.

Table 6. Weighting Factors for Fatal and Injury Crash Severities

Severity	Weighting Factor
Fatal (K)	3
Incapacitating Injury (A)	3
Non-Incapacitating Injury (B)	2
Possible Injury (C)	1



Table 7. HIN Core Components

Component	Description
Data Period	10 years (2014-2023) of statewide crash data were used.
Level of Analysis	Traffic crashes were analyzed at both the segment and intersection levels.
Consideration of Severity	All FI crashes were analyzed.
Consideration of Mode	All transportation modes were considered in the analysis.
Roadway Network and Road Type	The MIRE road network was pulled from Michigan’s open data portal.
Threshold	The HIN consists of HII and HIS, which together account for at least 65% of intersection-related FI crashes and 80% of segment-related FI crashes.
Weighting	For each intersection and segment, a weighted sum score was calculated using 3:3:2:1 weighting factors. For segments, the resulting scores were divided by their respective segment lengths for normalization.

Table 8. HIN Coverage Summary

HIN Component	Network Share	Jurisdiction	Share of FI Crashes	Share of FSI Crashes
High-Injury Intersections (HII)	9% of all intersections	55% City 4% County 41% MDOT	65% of FI intersection crashes	70% of FSI intersection crashes
High-Injury Segments (HIS)	6% of total road mileage	64% City 4% County 32% MDOT	80% of FI segment crashes	94% of FSI segment crashes

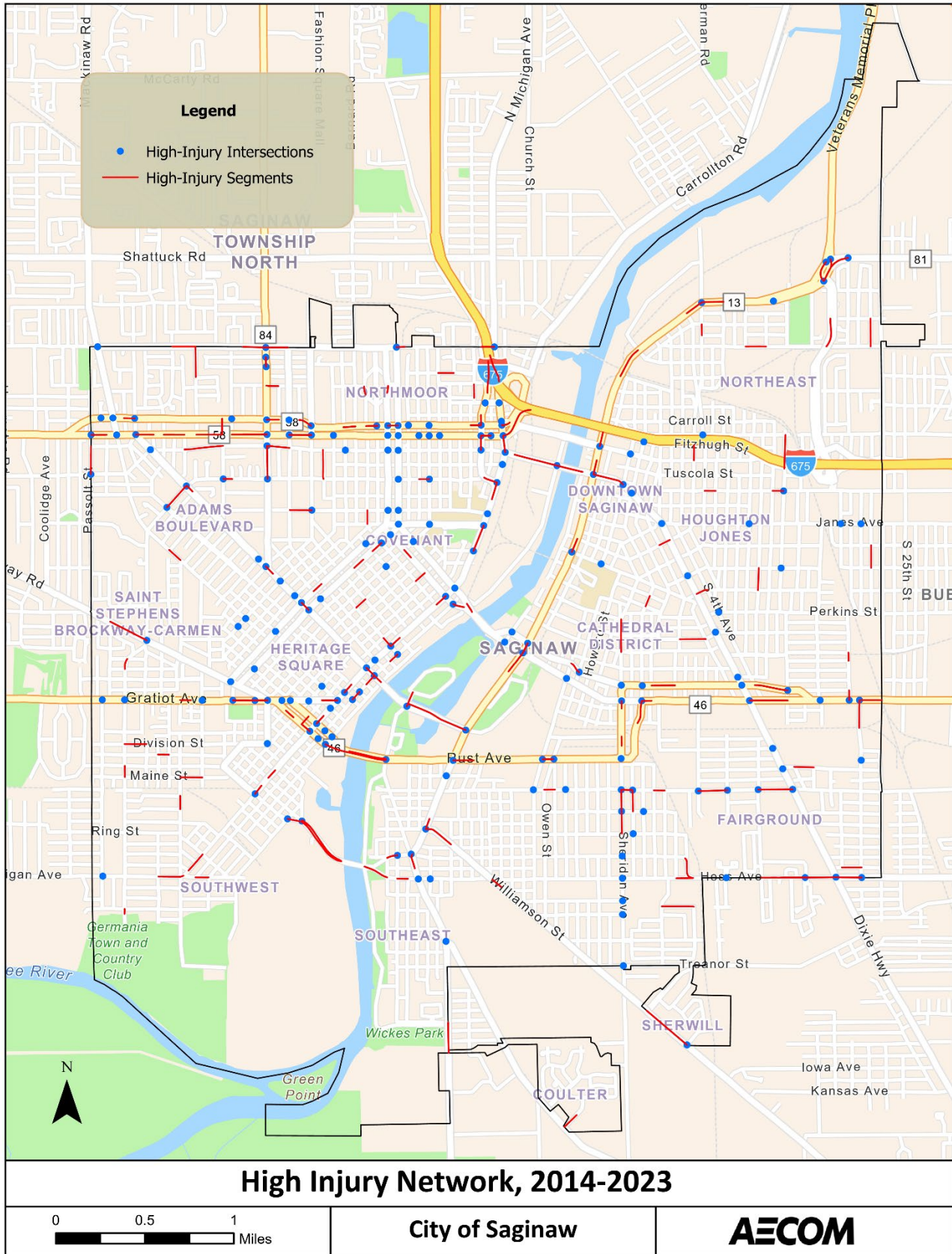


Figure 26. High-Injury Network Map



4.0 Predictive Safety Analysis

The primary purpose of this predictive analysis is to identify potential high-risk locations that may not be captured through historical crash data alone. These locations are typically expected to experience higher frequencies of fatal and injury (FI) crashes compared to similar sites. Consequently, they can supplement the High-Injury Network (HIN).

To identify the specific road segments and intersections in Saginaw that have a higher-than-expected number of crashes, a well-established safety analysis method called Empirical Bayes (EB) was used. This method combines two types of information:

- **Observed Crash Data:** The actual number of crashes that occurred at each location over a 10-year period (2014-2023).
- **Predicted Crash Data:** An estimate of the number of crashes that would be expected to happen at a location, given its specific characteristics.

To get a reliable estimate of the predicted crashes, separate statistical models were created for intersections and road segments. These models, known as Safety Performance Functions (SPFs), predict the number of FI crashes. The models considered key factors that influence crash frequency, such as traffic volume (AADT), road segment Length, and land use type. By combining the actual crashes with the predicted crashes from these models, the analysis was able to calculate the excess crash count for each location. A positive excess crash count means a location has more crashes than would be expected, indicating a higher safety risk.

This approach provides a more robust and accurate way to identify high-risk locations compared to simply ranking locations based on crash history alone. The results of this analysis, including the specific locations with excess crash counts, are highlighted in **Figure 27**. The SPFs are presented in **Table 9**. The model outputs, summarized in **Appendix A**.

Table 9. Developed SPFs

Road Facility	SPF
Local Two-Way Two-Lane Roads	$L \cdot \exp[- 6.94 + 0.6023 \cdot \ln(\text{AADT}) - 0.0395 \cdot X_1 - 1.7679 \cdot X_2 - 0.7118 \cdot X_3 + 0.8651 \cdot X_4 + 0.1685 \cdot X_5]$
One-Way Roads	$L \cdot \exp[- 7.1739 + 7039 \cdot \ln(\text{AADT}) + 1.3256 \cdot X_1 - 0.7096 \cdot X_2 - 0.3339 \cdot X_3 - 0.8965 \cdot X_4 - 0.8311 \cdot X_5]$
4-Legged Signalized Intersections	$\exp[- 11.1494 + 0.4708 \cdot \ln(\text{AADT}_{\text{major}}) + 0.8197 \cdot \ln(\text{AADT}_{\text{minor}}) - 0.3848 \cdot X_1 + 0.9855 \cdot X_2 + 0.0622 \cdot X_3 - 1.0265 \cdot X_4 + 0.2785 \cdot X_5]$
4-Legged Stop Controlled Intersections	$\exp[- 7.6408 + 0.4298 \cdot \ln(\text{AADT}_{\text{major}}) + 0.3802 \cdot \ln(\text{AADT}_{\text{minor}}) - 0.2163 \cdot X_1 + 0.3645 \cdot X_2 - 0.6133 \cdot X_3 - 0.5440 \cdot X_4 + 0.2256 \cdot X_5]$
3-Legged Stop Controlled Intersections	$\exp[- 12.2953 + 0.8734 \cdot \ln(\text{AADT}_{\text{major}}) + 0.4081 \cdot \ln(\text{AADT}_{\text{minor}}) + 0.1853 \cdot X_1 + 1.2116 \cdot X_2 - 0.1636 \cdot X_3 - 0.8455 \cdot X_4 - 0.3213 \cdot X_5]$

L: Segment Length

AADT = Annual Average Daily Traffic on a Road Segment

AADT_{major} = Annual Average Daily Traffic on Major Approach of an Intersection

AADT_{minor} = Annual Average Daily Traffic on Minor Approach of an Intersection

X₁ = Distance from a Segment or Intersection to the Nearest Mixed Land Use Area

X₂ = Distance from a Segment or Intersection to the Nearest Residential Land Use Area

X₃ = Distance from a Segment or Intersection to the Nearest Public Land Use Area

X₄ = Distance from a Segment or Intersection to the Nearest Commercial Land Use Area

X₅ = Distance from a Segment or Intersection to the Nearest Industrial Land Use Area

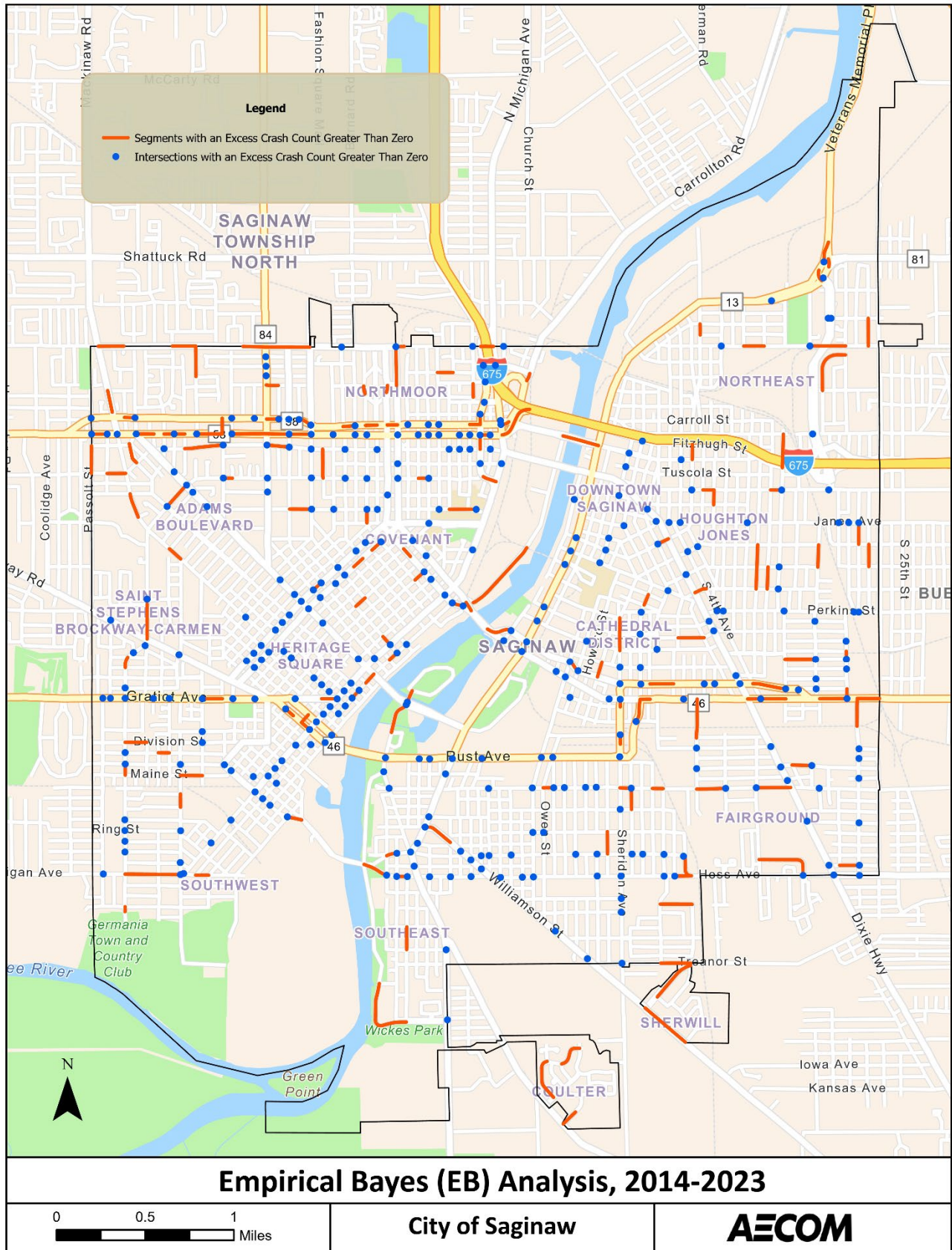


Figure 27. Map of Intersections and Segments with Excess Crash Counts Greater Than Zero



5.0 High-Risk Network (HRN)

A detailed review was conducted to identify gapped segments along corridors where multiple individual segments were highlighted in the HIN and EB networks. These gapped segments were evaluated for similarities in surrounding land use, roadway characteristics, and proximity to previously identified high-risk intersections. Segments with comparable attributes were incorporated into the network based on contextual risk, resulting in the creation of the High-Risk Network (HRN). This approach allows for the inclusion of segments that, while not flagged by crash data alone, may still present elevated risk due to their alignment with high-crash conditions. This supports the Safe System Approach principle that “Safety is proactive: Proactive tools should be used to identify and address safety issues in the transportation system, rather than waiting for crashes to occur and reacting afterwards”¹.

Approximately 54% of the HRN falls within City jurisdiction, 11% within County jurisdiction, and 34% within MDOT jurisdiction. A map of the High-Risk Network segments is provided in **Figure 28**.

¹ USDOT National Roadway Safety Strategy - Safe System Approach <https://www.transportation.gov/safe-system-approach>

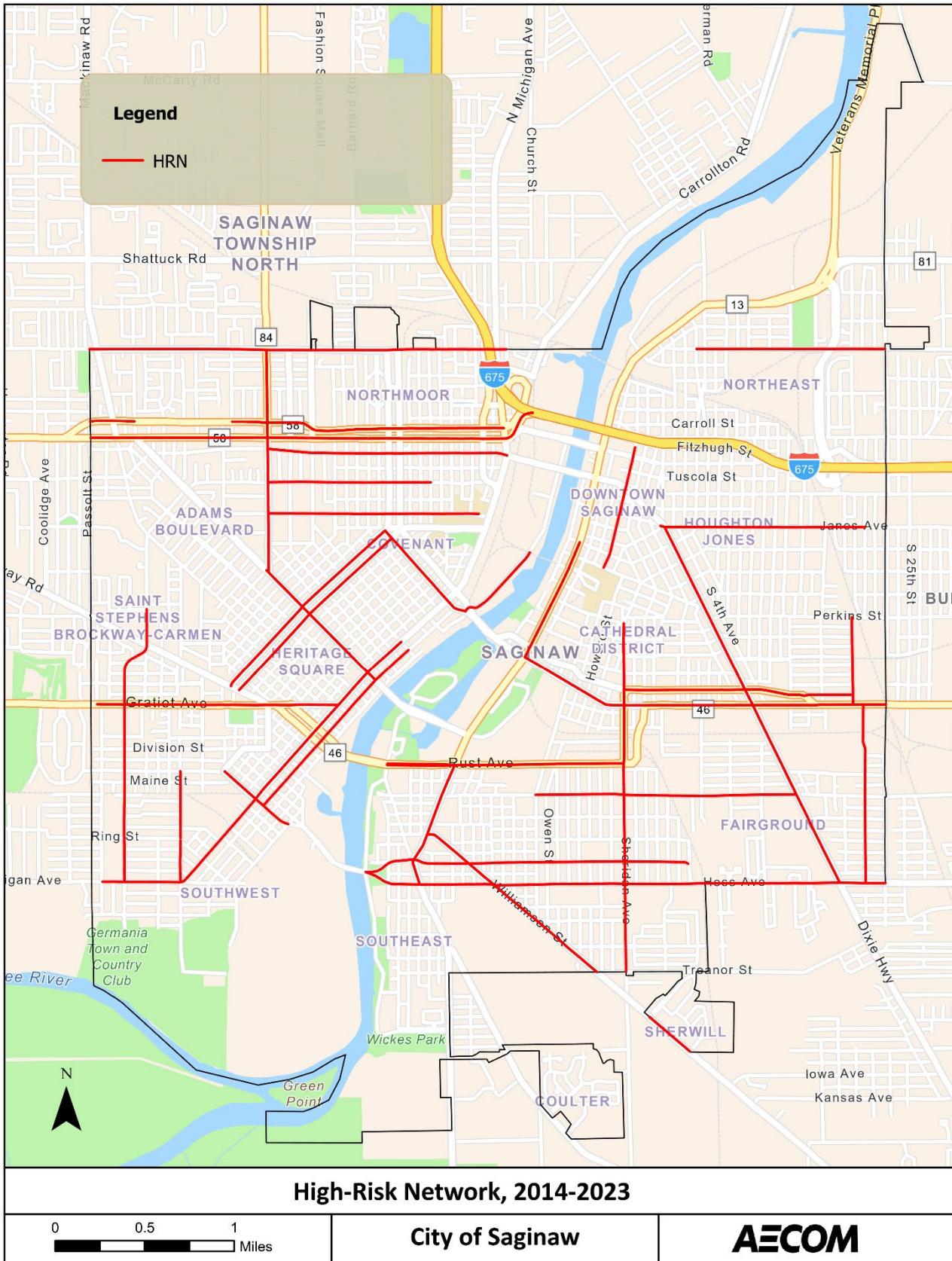


Figure 28. High-Risk Network Map



6.0 Conclusion

The historical baseline safety analysis provides a comprehensive overview of traffic crash data in the City of Saginaw from 2014 to 2023. By examining key aspects such as crash frequency, types, and contributing factors, the analysis offers insights into the city's safety challenges, taking a Safe System Approach to prioritize the elimination of crashes that result in death and serious injuries.

One of the key takeaways is the **substantial variation in total crash rates over time**, particularly in 2016, 2020, and 2021, when the city's crash rates exceeded statewide trends. However, the city's total crash rates show a declining trend from 2021 to 2023, especially in comparison to statewide trends. Both the city's **serious injury and fatal crash rates have shown an overall increasing trend since 2014, surpassing statewide trends in recent years**. This highlights the need for intervention, which the Safe Streets for Saginaw Safety Action Plan is intended to provide a roadmap for.

The data also highlights that **angle and rear-end crashes** are the top two crash types of FI crashes. Potential contributing factors such as impaired driving, adverse surface and weather conditions, and poor lighting may influence crash severity, with **impaired driving alone accounting for nearly 41% of all fatalities**. Additionally, the **majority of VRU crashes resulted in fatal or injury outcomes**. Time-based analysis reveals that the highest concentration of crashes occurs between 3 PM and 6 PM on both weekdays and weekends, suggesting that **congestion can contribute to elevated crash risks**. Spatial analysis also highlights multiple intersections and corridors within the City's jurisdiction, such as **Michigan Avenue and Court Street**, as crash hotspots, emphasizing the need for targeted safety interventions in these areas. Additionally, most FI crashes were concentrated in **residential areas**. These findings from the historical baseline safety analysis inform emphasis areas for the Safety Action Plan to address through targeted safety measures, including traffic calming, speed and access management strategies, sidewalk improvements, and public engagement and education initiatives.

Building on the historical crash data, the High-Injury Network (HIN), comprised of high-injury intersections (HII) and high-injury segments (HIS), was developed using the same ten-year dataset. Fatal and injury crashes were spatially linked to intersections and segments, and crash severity was weighted using a 3:3:2:1:0 (KABCO) scale to reflect the relative impact of each crash severity. Intersections and segments were then ranked based on total weighted scores, with segment scores normalized by length. The final HIN includes **intersections accounting for 65% of all intersection-related FI crashes and segments accounting for 80% of all segment-related FI crashes**.

To complement the HIN, a predictive analysis was conducted using the Empirical Bayes (EB) method to estimate fatal and injury crashes for each road segment beyond what would be expected. Five safety performance functions were developed using Negative Binomial models, incorporating AADT, land use proximity, and segment length as key predictors. Additionally, a contextual review identified gapped segments not flagged by crash data but sharing similar characteristics with high-risk locations. These segments were incorporated into a High-Risk Network (HRN), enabling a more **proactive approach to identifying areas with elevated safety concerns**.

Together, the HIN and HRN will act as **prioritization tools** for the Safety Action Plan, identifying locations on Saginaw's streets where deaths and serious injuries are already happening and where they are most likely to happen as places to **target future investments** in safety interventions. Whether a location is a high-injury intersection or high-injury/high-risk segment will inform the **types of safety interventions most appropriate** for implementation at that location.



Overall, this safety analysis report provides the City of Saginaw and its stakeholders with valuable insights to **shape safety strategies, prioritize resource allocation, and reduce traffic fatalities and injuries**. The findings underscore the importance of addressing key risk factors such as **impaired driving, adverse road surface and weather conditions, and high-risk locations, particularly urban intersections and arterial roads**. As the City of Saginaw continues its safety efforts under the SS4A program, these insights serve as a foundation for building safer streets and reducing risk in the community.



Appendix A

Predictive Safety Analysis Model Outputs

Local Two-Way Two-Lane Roads

NegativeBinomial Regression Results

```

=====
Dep. Variable:          FI      No. Observations:          3193
Model:                 NegativeBinomial  Df Residuals:              3186
Method:                MLE          Df Model:                   6
Date:                 Tue, 03 Jun 2025  Pseudo R-squ.:            0.1289
Time:                 19:11:08      Log-Likelihood:            -426.25
converged:            True          LL-Null:                   -489.29
Covariance Type:     nonrobust      LLR p-value:               8.530e-25
=====
coef      std err      z      P>|z|      [0.025      0.975]
-----
const      -6.9466      0.447      -15.543      0.000      -7.823      -6.071
Ln_AADT     0.6023      0.057      10.531      0.000      0.490      0.714
Dist_Mixed  -0.0395      0.304      -0.130      0.897      -0.635      0.556
Dist_Resid  -1.7679      1.496      -1.182      0.237      -4.700      1.165
Dist_Publi  -0.7118      0.688      -1.034      0.301      -2.061      0.637
Dist_Comme  0.8651      0.572      1.512      0.131      -0.256      1.987
Dist_Indus  0.1685      0.247      0.683      0.495      -0.315      0.652
alpha       0.7984      0.456      1.749      0.080      -0.096      1.693
=====
  
```

C

One-Way Roads

NegativeBinomial Regression Results

```

=====
Dep. Variable:          FI      No. Observations:          394
Model:                 NegativeBinomial  Df Residuals:              387
Method:                MLE          Df Model:                   6
Date:                 Fri, 06 Jun 2025  Pseudo R-squ.:            0.05394
Time:                 15:56:35      Log-Likelihood:            -184.47
converged:            True          LL-Null:                   -194.98
Covariance Type:     nonrobust      LLR p-value:               0.001809
=====
coef      std err      z      P>|z|      [0.025      0.975]
-----
const      -7.1739      2.117      -3.388      0.001      -11.324      -3.024
Ln_AADT     0.7039      0.248      2.839      0.005      0.218      1.190
Dist_Mixed  1.3256      0.478      2.776      0.006      0.390      2.262
Dist_Resid  -0.7096      1.708      -0.415      0.678      -4.057      2.638
Dist_Publi  -0.3339      1.626      -0.205      0.837      -3.521      2.853
Dist_Comme  -0.8965      1.451      -0.618      0.537      -3.741      1.948
Dist_Indus  -0.8311      0.341      -2.435      0.015      -1.500      -0.162
alpha       3.6308      1.111      3.268      0.001      1.453      5.808
=====
  
```

4-Leg Signalized Intersections

NegativeBinomial Regression Results

```

=====
Dep. Variable:          FI      No. Observations:          82
Model:                 NegativeBinomial  Df Residuals:              74
Method:                MLE          Df Model:                   7
Date:                 Wed, 04 Jun 2025  Pseudo R-squ.:            0.1110
Time:                 14:52:37      Log-Likelihood:            -250.49
converged:            True          LL-Null:                   -281.77
Covariance Type:     nonrobust      LLR p-value:               4.626e-11
=====
coef      std err      z      P>|z|      [0.025      0.975]
-----
const      -11.1494      2.170      -5.139      0.000      -15.402      -6.897
  
```

CO



LnAADT_MJ	0.4708	0.243	1.937	0.053	-0.006	0.947
LnAADT_MN	0.8197	0.109	7.495	0.000	0.605	1.034
Dist_Mixed	-0.3848	0.267	-1.441	0.149	-0.908	0.138
Dist_Resid	0.9855	0.709	1.389	0.165	-0.405	2.376
Dist_Publi	0.0622	0.538	0.116	0.908	-0.992	1.116
Dist_Comme	-1.0265	0.415	-2.471	0.013	-1.841	-0.212
Dist_Indus	0.2785	0.226	1.235	0.217	-0.164	0.720
alpha	0.2941	0.063	4.633	0.000	0.170	0.419

4-Leg Stop-Controlled Intersections

NegativeBinomial Regression Results

Dep. Variable:	FI	No. Observations:	482
Model:	NegativeBinomial	Df Residuals:	474
Method:	MLE	Df Model:	7
Date:	Tue, 03 Jun 2025	Pseudo R-squ.:	0.08835
Time:	18:39:31	Log-Likelihood:	-725.07
converged:	True	LL-Null:	-795.34
Covariance Type:	nonrobust	LLR p-value:	3.930e-27

coef	std err	z	P> z	[0.025	0.975]
const	-7.6408	0.668	-11.437	0.000	-8.950 -6.331
LnAADT_MJ	0.4298	0.075	5.748	0.000	0.283 0.576
LnAADT_MN	0.3802	0.045	8.491	0.000	0.292 0.468
Dist_Mixed	-0.2163	0.195	-1.106	0.269	-0.599 0.167
Dist_Resid	0.3645	0.578	0.630	0.529	-0.769 1.498
Dist_Publi	-0.6133	0.459	-1.337	0.181	-1.512 0.286
Dist_Comme	-0.5440	0.407	-1.337	0.181	-1.341 0.253
Dist_Indus	0.2256	0.134	1.688	0.091	-0.036 0.488
alpha	0.4516	0.082	5.541	0.000	0.292 0.611

C

3-Leg Stop-Controlled Intersections

NegativeBinomial Regression Results

Dep. Variable:	FI	No. Observations:	403
Model:	NegativeBinomial	Df Residuals:	395
Method:	MLE	Df Model:	7
Date:	Tue, 03 Jun 2025	Pseudo R-squ.:	0.1306
Time:	18:41:03	Log-Likelihood:	-399.20
converged:	True	LL-Null:	-459.17
Covariance Type:	nonrobust	LLR p-value:	7.894e-23

coef	std err	z	P> z	[0.025	0.975]
const	-12.2953	1.157	-10.628	0.000	-14.563 -10.028
LnAADT_MJ	0.8734	0.131	6.679	0.000	0.617 1.130
LnAADT_MN	0.4081	0.058	7.060	0.000	0.295 0.521
Dist_Mixed	0.1853	0.241	0.769	0.442	-0.287 0.658
Dist_Resid	1.2116	0.813	1.491	0.136	-0.381 2.804
Dist_Publi	-0.1636	0.561	-0.292	0.770	-1.262 0.935
Dist_Comme	-0.8455	0.480	-1.761	0.078	-1.787 0.096
Dist_Indus	-0.3213	0.186	-1.727	0.084	-0.686 0.043
alpha	0.6908	0.174	3.966	0.000	0.349 1.032

C

Appendix B: Public Engagement



Summary for City of Saginaw Survey: Tell Us Your Transportation Safety Priorities

Open: April 3-June 17, 2025

Total record count: 59 surveys submitted

Questions

Tell Us About Yourself:

1. Which city or township do you live in?
2. What is your ZIP Code?

Tell Us About Your Priorities for Safer Roads:

3. In your daily travel, what safety issues are most important to you?
4. In general, how do you rate safety when traveling in Saginaw while walking or biking?
Please provide a brief reason for why you feel unsafe while walking and/or biking in Saginaw:
5. In general, how do you rate safety when traveling within Saginaw while driving or riding in a motor vehicle?
Please provide a brief reason for why you feel unsafe traveling in a motor vehicle in Saginaw:

Tell Us About Your Modes of Travel:

6. How do you typically travel within the City of Saginaw?
7. How many people in your household drive?
8. Has anyone in your household, including yourself, been involved in a crash in Saginaw with damage to a vehicle, or resulting in injuries, or a fatality?
9. How often do you take public transit?
10. How often do you ride a bicycle as a means of transportation to get to and from places, not just for recreation?
11. What are your typical destinations when traveling within the City of Saginaw?
Describe any other transportation safety issues/concerns not covered in this survey:

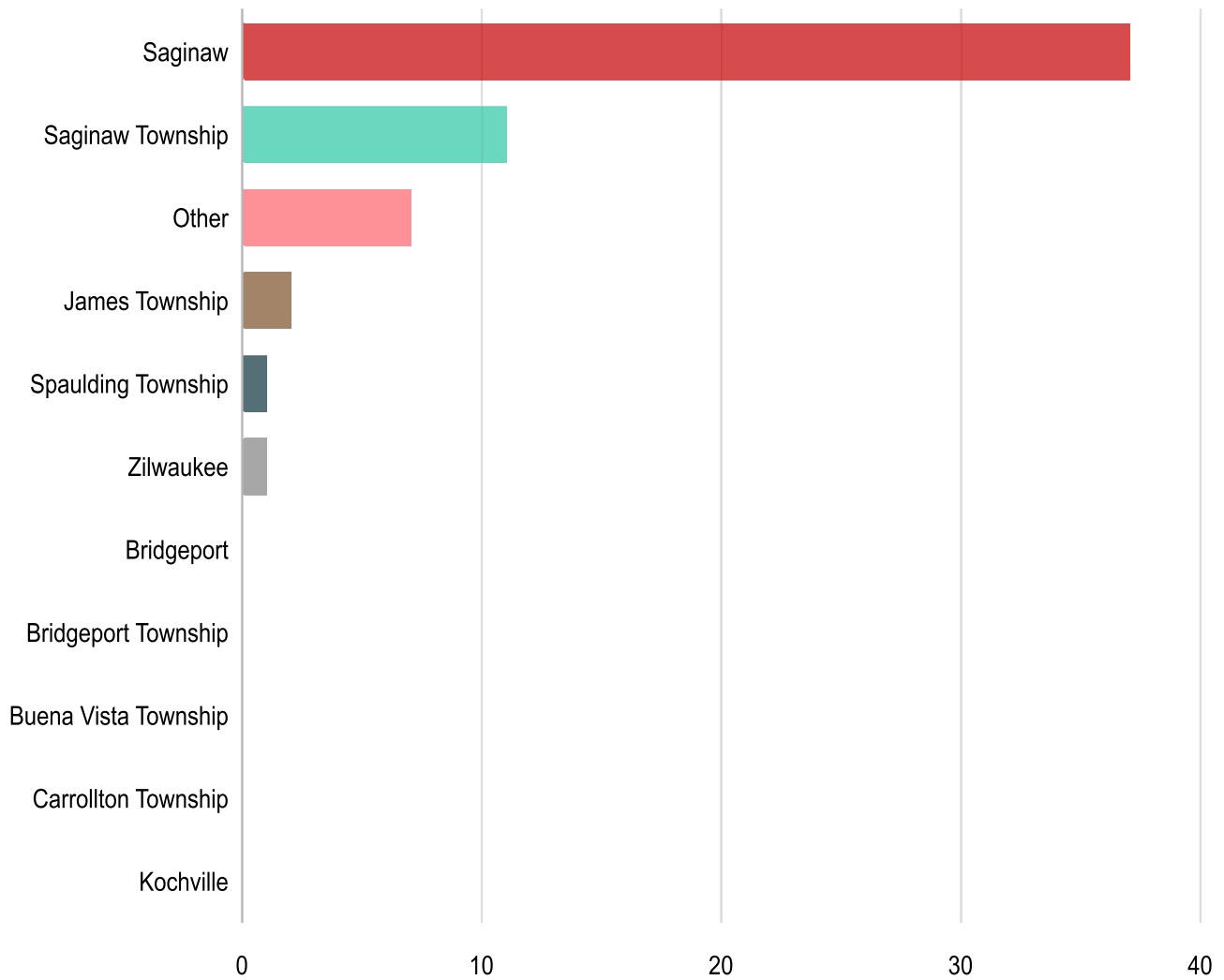
Tell Us About Yourself

12. What is your age?
13. Which of the racial or ethnic designations below best describe you?
14. Which of these categories best describes your household income?

Safe Streets for Saginaw Survey

Tell Us About Yourself:

Which city or township do you live in? *



Response

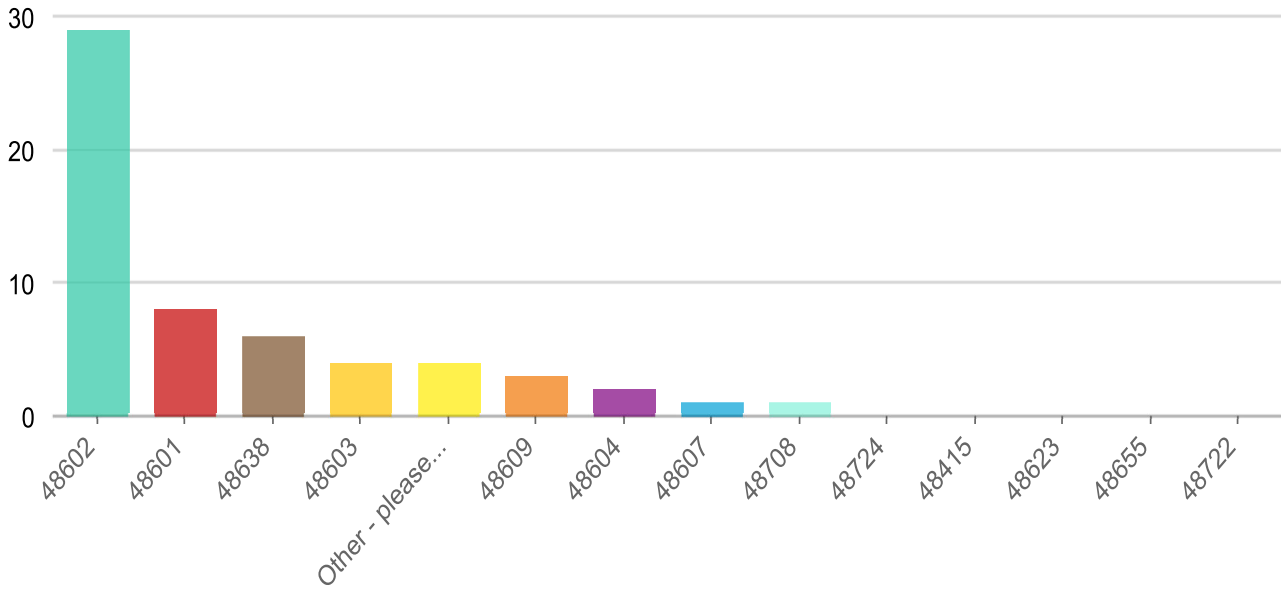
Count

Wyoming	1
Thomas	1
Taymouth	1

Richland Township - Hemlock	1
Birch Run	1
Bay City	1

Answered: 59 Skipped: 0

o What is your ZIP Code?



Response

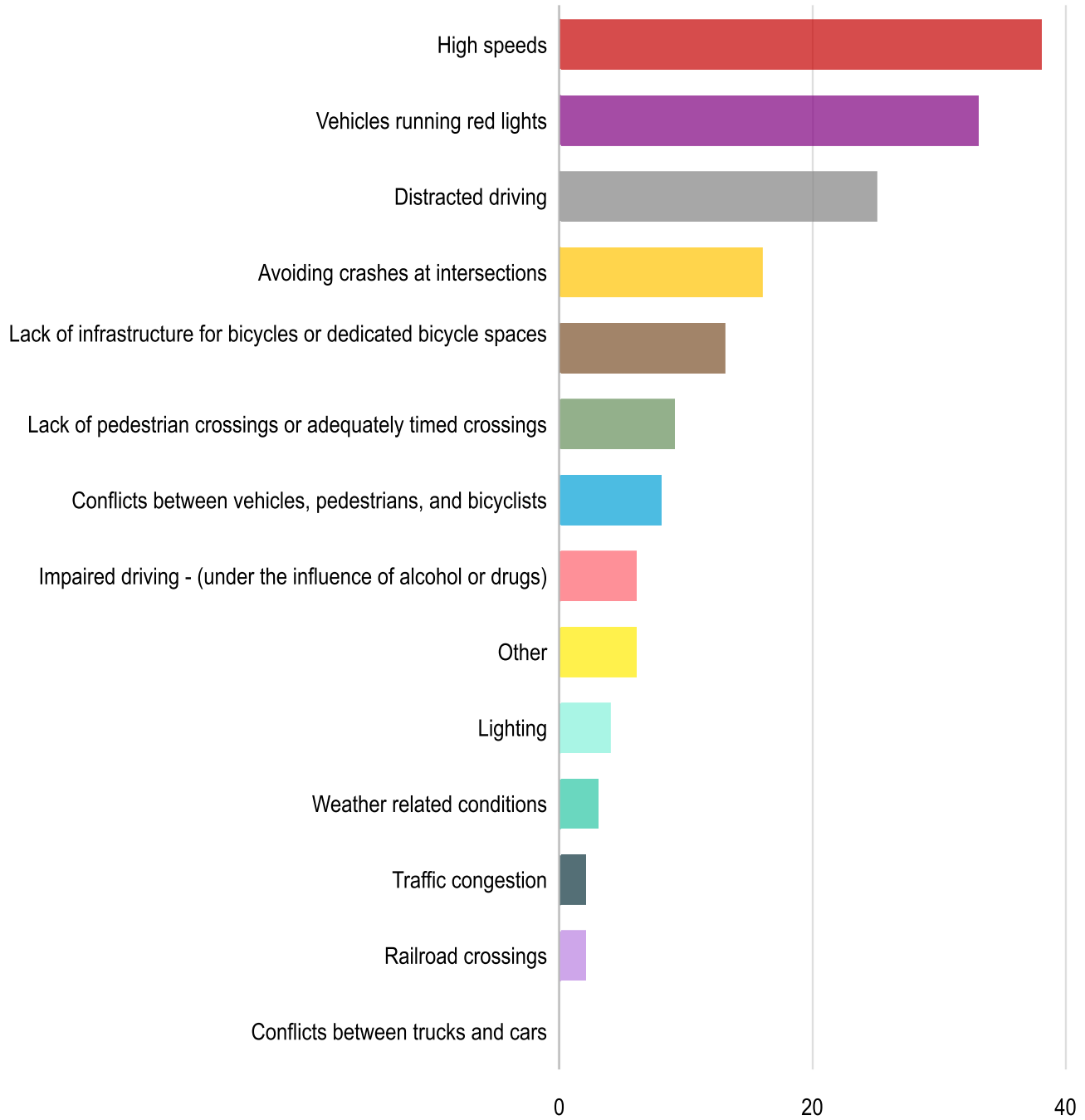
Count

49519	1
48626	1
48417	1
48415	1

Answered: 58 Skipped: 1

Tell Us About Your Priorities for Safer Roads

o In your daily travel, what safety issues are most important to you? *



Response

Count

Railroad Crossings	1
Potholes and tore up streets	1
Children no car seat	1

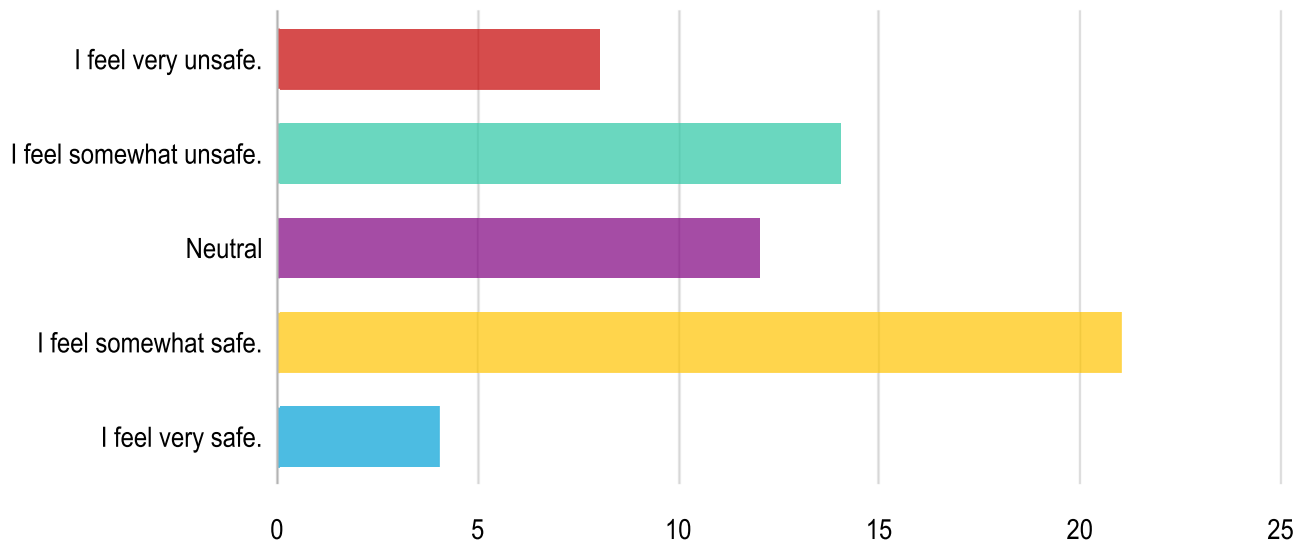
Answered: 59 Skipped: 0

The sidewalks are garbage and need to be redone all over the city. It would make more sense to widen the sidewalks to incorporate a bicycle lane in the sidewalk. They had those when I lived in Germany and that kept pedestrians and cyclists off the roads. Many cyclists do not follow bicycle laws and I feel will get themselves in an accident because they are either ignorant of the laws, or choose not to follow them.	1
The high crime rate, you have a much higher likelihood of being a victim of violent crime; especially while walking or biking.	1
Speeding is ridiculous on Gratiot. Red lights are being run at almost every intersection I stop at.	1
So many loose dogs	1
Potholes, wide streets that people race down, and because of a lack of infrastructure for it, nobody ever looks for bikes.	1
People running and racing to try to beat a yellow light or even after it's red is out of control	1
People do not follow laws for bikes and pedestrians	1
Not all roads have sidewalks and barely any have bicycle lanes. Walking in the road never feels safe to me but especially with children.	1
na	1
Lots of open intersections. People not expecting bikers or walkers, so not on the lookout for them during turns.	1
Lack of curb cuts. Lack of pedestrian infrastructure	1
Lack of bike lanes make roadway bike travel near impossible. Poor condition of sidewalks makes walking hazardous.	1
I find the drivers to be extremely impatient, disrespectful and dangerous. My impression is that many of them are drunk, drugged and distracted. The roadways have far too many lanes for the amount of traffic resulting in excessive speeding. This puts cyclists and pedestrians at increased risk and discourages people to participate in these activities as they don't want to be killed. Having better infrastructure would help, but we need more education and more enforcement. I bike in the city far less than I used to as I feel less safe than in the past. On a positive note, the temporary traffic calming features along Hamilton Street are very welcome as it does encourage drivers to slow down at intersections. It makes it safer to bike as drivers tend to stay more in their lane, making it safer to pass if I'm cycling in the parking lane. It's better for pedestrians crossing the street too.	1

I feel unsafe because everyone is texting and impaired with alcohol and or weed. There is extreme impaired driving. Last year was the first summer of my life that I didn't ride my bike once because I don't feel safe.	1
High speeds, people not paying attention, not a walkable community	1
For example, crossing N Michigan Ave between Holland and Hancock.	1
Feel unsafe in city neighborhoods.	1
Drivers don't pay attention and are in a hurry	1
Drivers do not give way to pedestrians and do not slow down.	1
Drivers aren't paying attention & almost hit me or others walking.	1
Distracted drivers and lack of dedicated bike lanes. Drivers are not educated regarding cyclists and traffic laws.	1
Crossing Court Street from N. Hamilton (where the City parking lot is) to S. Hamilton and from N. Michigan to S. Michigan sometimes feels like taking your life in your hands, even when the light is red at Court to allow for pedestrian crossing. If the light is green coming over the bridge and the light is green at Michigan, cars often race down Court to make the light at Michigan, and vice versa. The lights should be timed so that when the light at Hamilton is green, the light at Michigan is red. This would slow down the cars.	1
Criminal activities.	1
Cars operate at a high speed. Lights are timed so that cars do not have to stop. Pedestrian cross walk are very few.	1
Cars are speeding and very few pedestrian crossing zones	1
People driving fast due to being under the influence during the day. Driving super fast when kids are playing or riding bikes. Sidewalks on wheeler don't make it easy for bike riders due to the curb going over the sidewalk. Which leaves you to drive on the road.	1

Answered: 33 Skipped: 26

o In general, how do you rate safety when traveling within Saginaw while... *



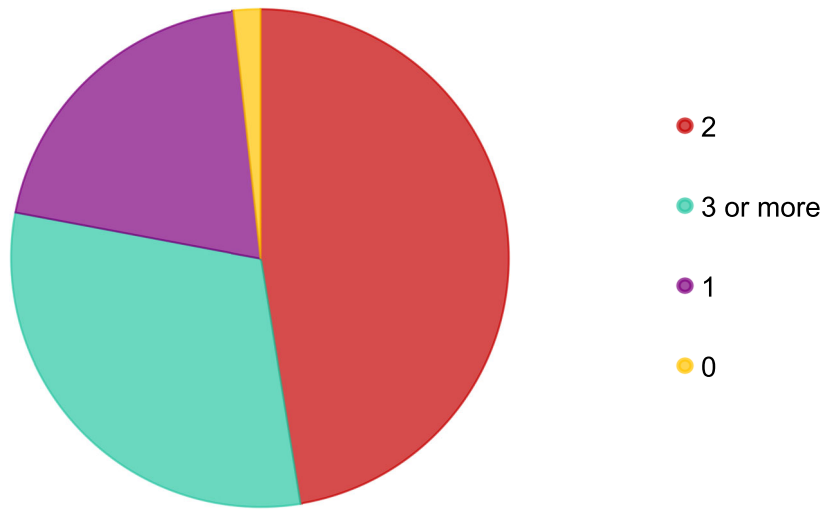
Answers **Count** **Percentage**

I feel very unsafe.	8	13.56%
I feel somewhat unsafe.	14	23.73%
Neutral	12	20.34%
I feel somewhat safe.	21	35.59%
I feel very safe.	4	6.78%

Answered: 59 Skipped: 0

○ Please provide a brief reason for why you feel unsafe traveling in a motor vehicle in...

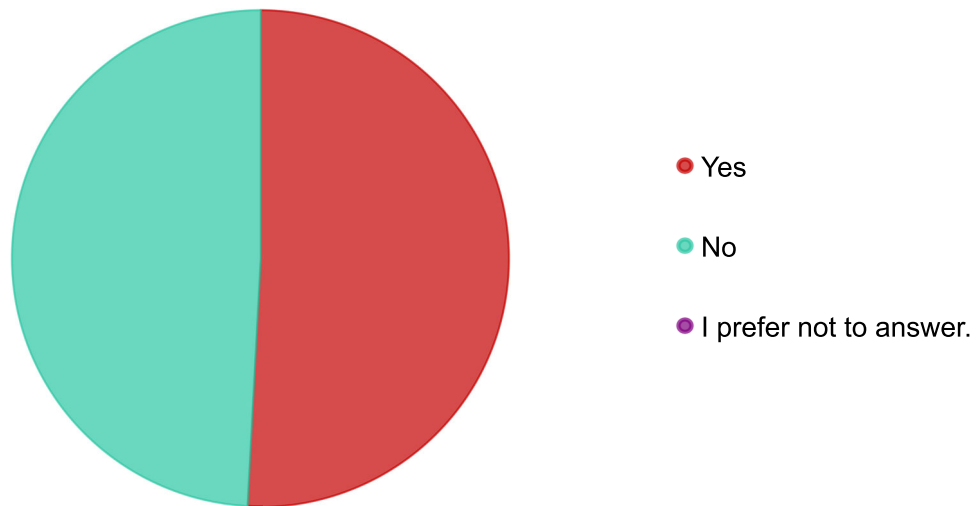
Similar to cycling, excessive speeding, tailgating, running red lights etc. I get the impression that traffic safety isn't at all a concern or priority. I can't stress it enough; the drugged, drunk and distracted shouldn't be on the roads. I've been tailgated so closely that difficult to obey traffic signals in fear of being rear ended while driving along Williamson Road (travelling NW) and approaching the lights at Hess. Traffic calming is desperately needed.	1
Poor condition of roadways. Drivers traveling at high speeds and often distracted. Drivers smoking marijuana. Red light runners.	1
People running red lights or stop signs.	1
People running and racing to try to beat a yellow light or even after it's red is out of control	1
People run lights alot. Speeding and weaving in and out of traffic. Not treating flashing lights accordingly especially during power outages.	1
People in the city don't know how to drive. Young people on phones and driving high.	1
Once again distracted drivers. Too many people are on there phones	1
na	1
Many people speed, run red lights, pass in turn lanes, run stop signs and do not follow basic laws of driving. I think tickets would help alot!	1
I live on a busy street & have seen people run stop signs. After the car in front of them goes, they start to roll up to the stop sign then proceeds to run it.	1
I feel unsafe because people don't follow the speed limit, they are on their phones & not paying attention at intersections	1
Drivers do not pay attention or just don't care. I cannot tell you the last time I seen vehicles pulled over by police for breaking driving laws.	1
Crime	1
Consistent excessive speeding by other motorist, complete disregard of traffic laws and the well being of others.	1
Citizens speed often. Police officers themselves speed excessively and without lights on. People run red lights all the time. There are hit and runs all the time. I have often glanced at the car next to me and noticed the driver with their phone in their face.	1
Cars run red lights constantly and travel at speeds like they are on an expressway.	1



Answers	Count	Percentage
2	28	47.46%
3 or more	18	30.51%
1	12	20.34%
0	1	1.69%

Answered: 59 Skipped: 0

Has anyone in your household, including yourself, been involved in a... *

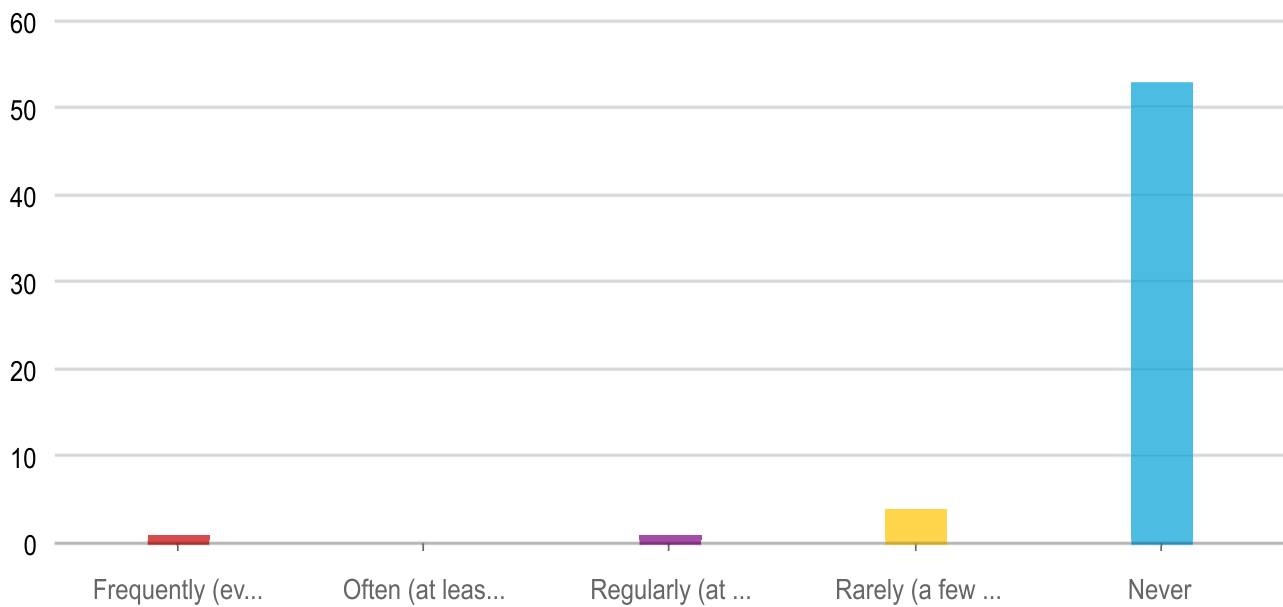


Answers **Count** **Percentage**

Yes	30	50.85%
No	29	49.15%
I prefer not to answer.	0	0%

Answered: 59 Skipped: 0

How often do you take public transit? *

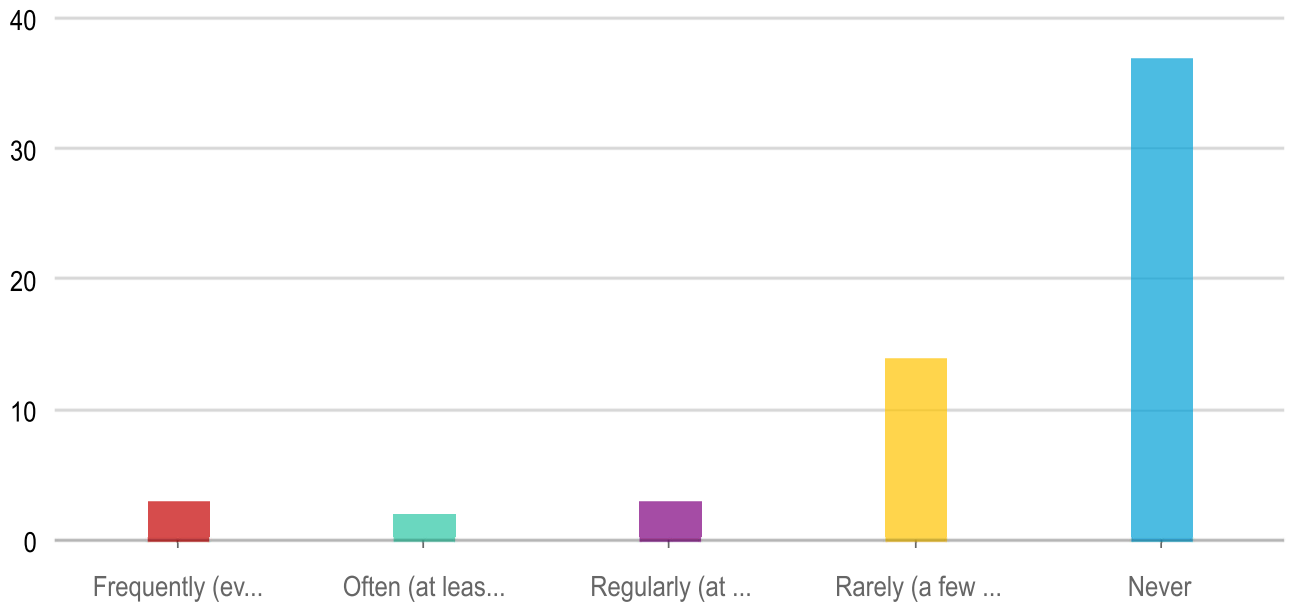


Answers **Count** **Percentage**

Frequently (every day or most days)	1	1.69%
Often (at least once a week)	0	0%
Regularly (at least once a month)	1	1.69%
Rarely (a few times a year)	4	6.78%
Never	53	89.83%

Answered: 59 Skipped: 0

○ How often do you ride a bicycle as a means of transportation to get to a... *

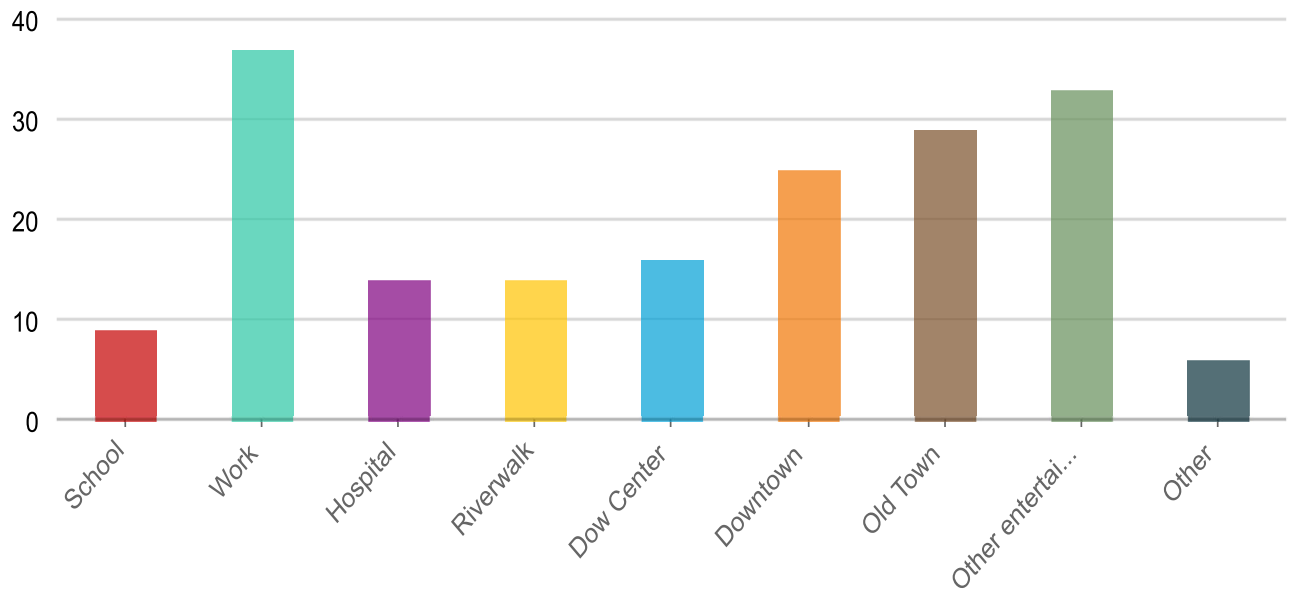


Answers	Count	Percentage
---------	-------	------------

Frequently (every day or most days)	3	5.08%
Often (at least once a week)	2	3.39%
Regularly (at least once a month)	3	5.08%
Rarely (a few times a year)	14	23.73%
Never	37	62.71%

Answered: 59 Skipped: 0

○ What are your typical destinations when traveling within the City of Saginaw? *

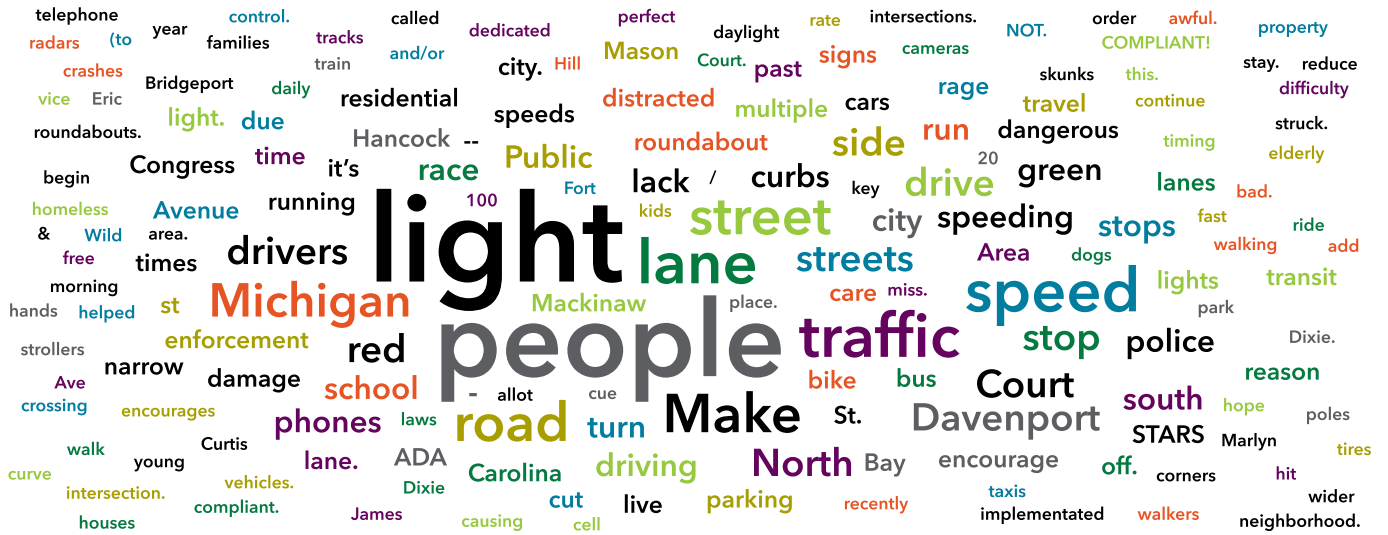


Answers **Count** **Percentage**

Answers	Count	Percentage
School	9	15.25%
Work	37	62.71%
Hospital	14	23.73%
Riverwalk	14	23.73%
Dow Center	16	27.12%
Downtown	25	42.37%
Old Town	29	49.15%
Other entertainment/restaurants/shopping	33	55.93%
Other	6	10.17%

Answered: 59 Skipped: 0

Describe any other transportation safety issues/concerns not covered in this survey:



Word **Count**

Word	Count
light	15
people	13
traffic	7
speed	7
lane	7
Make	6
street	6
road	6
Michigan	5
red	4
Court	4
Davenport	4
North	4
streets	4

stop	4
drivers	4
drive	4
side	4
school	3
speeding	3
curbs	3
city	3
phones	3
stops	3
race	3
green	3
driving	3
Public	3
run	3
police	3
lack	3
-	3
south	3
turn	3
bus	2
running	2
lights	2

enforcement	2
roundabout	2
damage	2
it's	2
ADA	2
Area	2
Avenue	2
Carolina	2
dangerous	2
multiple	2
travel	2
distracted	2
speeds	2
cars	2
Hancock	2
time	2
rage	2
lanes	2
residential	2
Mackinaw	2
st	2
bike	2
times	2

STARS	2
encourage	2
past	2
due	2
reason	2
city.	2
transit	2
parking	2
care	2
St.	2
Congress	2
Bay	2
lane.	2
cut	2
off.	2
narrow	2
light.	2
Mason	2
signs	2
--	2
live	2
20	1
100	1

Wild	1
dogs	1
skunks	1
homeless	1
kids	1
walking	1
morning	1
daylight	1
place.	1
dedicated	1
and/or	1
cameras	1
intersections.	1
timing	1
encourages	1
recently	1
implemented	1
Curtis	1
Dixie.	1
perfect	1
helped	1
daily	1
area.	1

hope	1
continue	1
add	1
roundabouts.	1
Bridgeport	1
train	1
tracks	1
Fort	1
Dixie	1
begin	1
causing	1
vehicles.	1
bad.	1
corners	1
Marlyn	1
Eric	1
James	1
NOT.	1
compliant.	1
called	1
this.	1
elderly	1
walkers	1

young	1
families	1
strollers	1
difficulty	1
crossing	1
walk	1
neighborhood.	1
COMPLIANT!	1
intersection.	1
crashes	1
year	1
telephone	1
poles	1
hit	1
property	1
houses	1
struck.	1
curve	1
excessive	1
rate	1
radars	1
implemented	1
opinion.	1

calming	1
occur	1
order	1
pedestrian	1
friendly.	1
allot	1
holding	1
hands	1
free	1
rolling	1
control.	1
enforced	1
anymore	1
turned	1
blinking	1
apparently	1
removed	1
Gratiot	1
Court.	1
N.	1
Hancock.	1
pedestrians.	1
Cass	1

stay.	1
vice	1
versa.	1
uninsured	1
unsafe	1
vehicles	1
(bald	1
tires	1
example).	1
consequences	1
drunk	1
weed	1
smoking	1
awful.	1
diets—where	1
slimmed	1
down—have	1
shown	1
reduce	1
speeding.	1
posted	1
limit	1
wider	1

motorists	1
subconscious	1
cue	1
higher	1
speed.	1
making	1
narrower	1
neighborhoods.	1
(Congress	1
Ave	1
excellent	1
examples	1
wide.)	1
physically	1
separated	1
provide	1
cyclists	1
space	1
commute	1
safely	1
narrowing	1
lower	1
vehicle	1

speeds.	1
transport	1
option.	1
areas	1
running.	1
covered	1
users	1
system.	1
standing	1
elements	1
inclement	1
weather.	1
increase	1
Uber	1
services	1
taxis	1
7pm	1
transportation	1
work	1
need.	1
things	1
funding	1
reliable	1

alternative	1
driving.	1
afraid	1
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Ave)	1
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Potholes	1
Pot	1
holes	1
disobeying	1
laws	1
past.	1
presence	1
key	1
factor.	1
situation	1
accident.	1
cell	1
road.	1
drivers!!	1
fast	1
Hill	1

Mackinaw.	1
&	1
stopped	1
long	1
compared	1
Bay.	1
Vermont	1
there's	1
left	1
straight	1
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swept	1
completely	1
blocked	1
arrow	1
give	1
space.	1
anyways.	1
track	1
repaved.	1
popular	1
minibikes.	1
week	1

worst	1
spot	1
Houghton.	1
residents	1
realize	1
north/south	1
northbound	1
willy-nilly.	1
miss	1
headed	1
coming	1
red.	1
tickets	1
law!	1
policing	1
needed	1
busy	1
intersections	1
traps	1
DUI	1
checkpoints.	1
glaring	1
foresight	1

vehicular	1
traffic.	1
Multimillion	1
dollar	1
project	1
included	1
curb	1
replacement	1
made	1
reconfiguring	1
feasible.	1
leads	1
high	1
/	1
elementary	1
primary	1
business	1
district	1
footprint	1
wasn't	1
changed	1
pedestrians/bicycles.	1
Accommodating	1

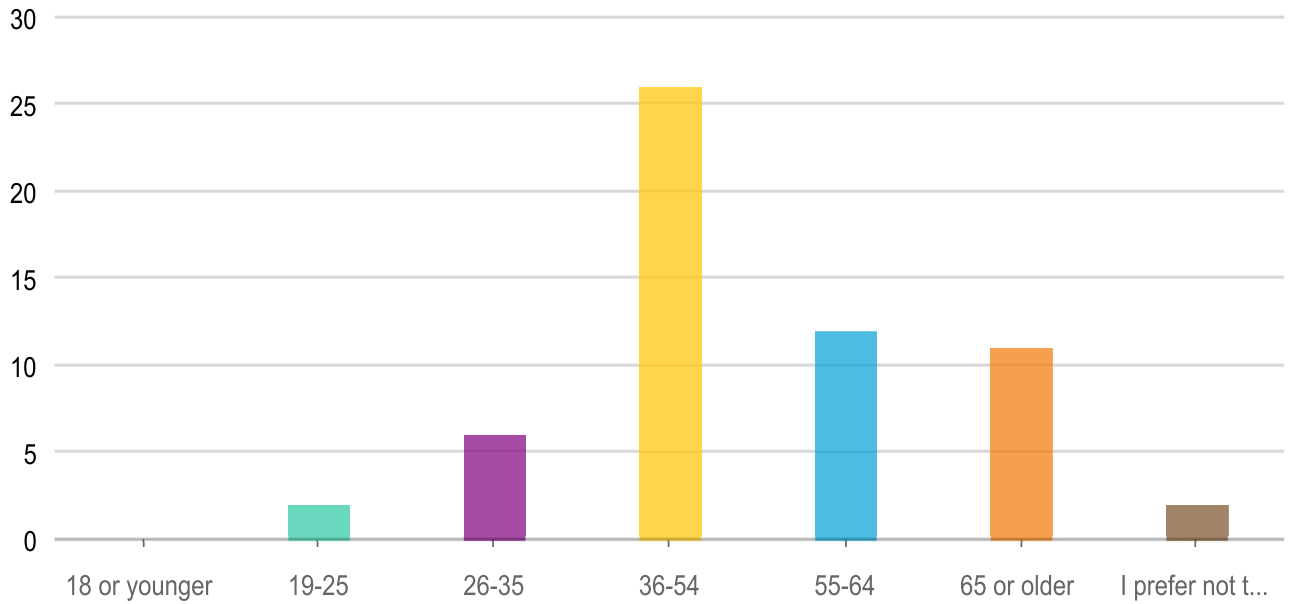
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examples:	1
entirety	1
Malzahn/Congress	1
corridor	1
Brockway	1

Woodbridge	1
Mason/Woodbridge	1
one-way	1
system	1
Genesee	1
majority	1
ride	1
delivered	1
waste	1
money	1
stupid	1
survey	1
plan.	1
Deal	1
POVERTY	1
CRIME.	1
pointless.	1
Thomas	1
twp	1
worth	1
dow	1
about.	1

Answered: 27 Skipped: 32

Tell Us About Yourself

○ **What is your age?**

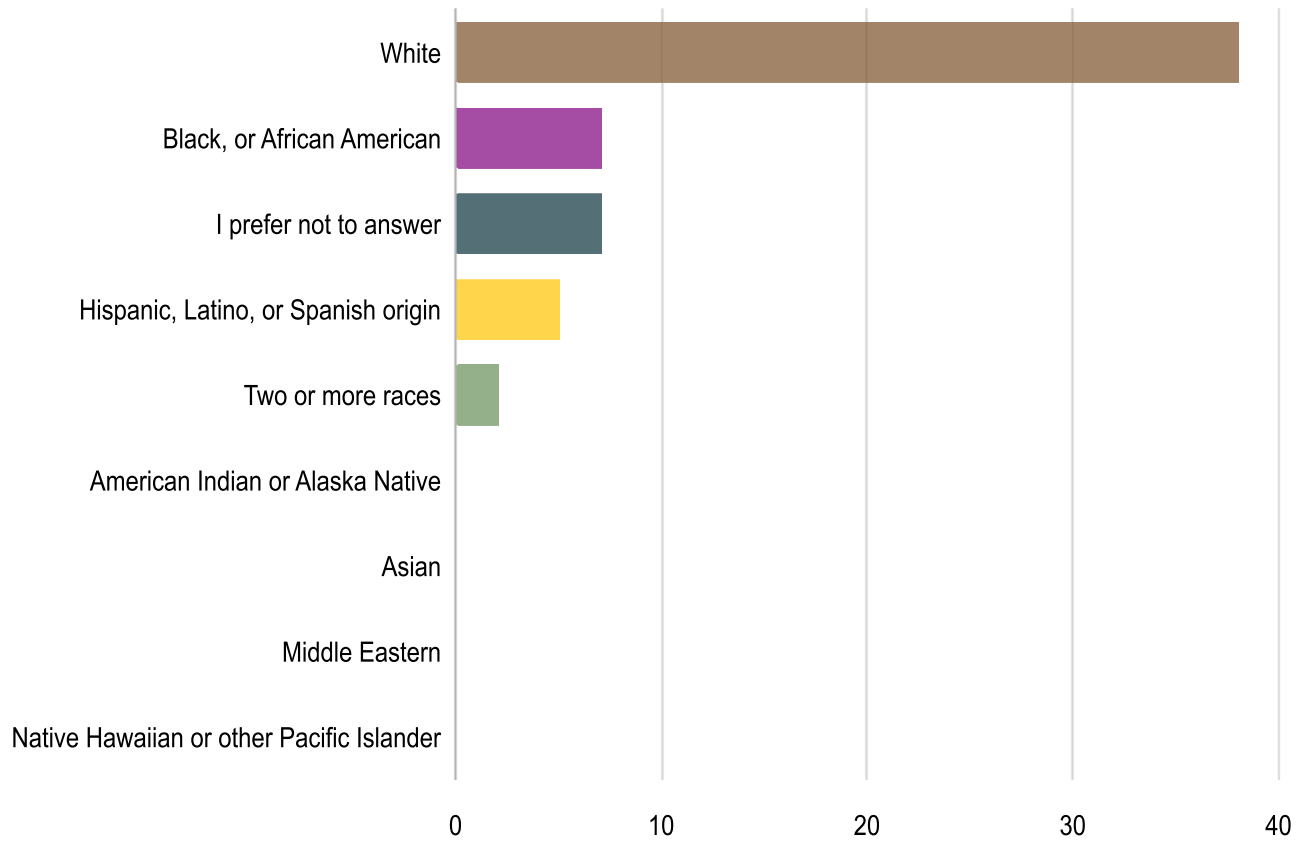


Answers **Count** **Percentage**

18 or younger	0	0%
19-25	2	3.39%
26-35	6	10.17%
36-54	26	44.07%
55-64	12	20.34%
65 or older	11	18.64%
I prefer not to answer.	2	3.39%

Answered: 59 Skipped: 0

○ **Which of the racial or ethnic designations below best describe you?**

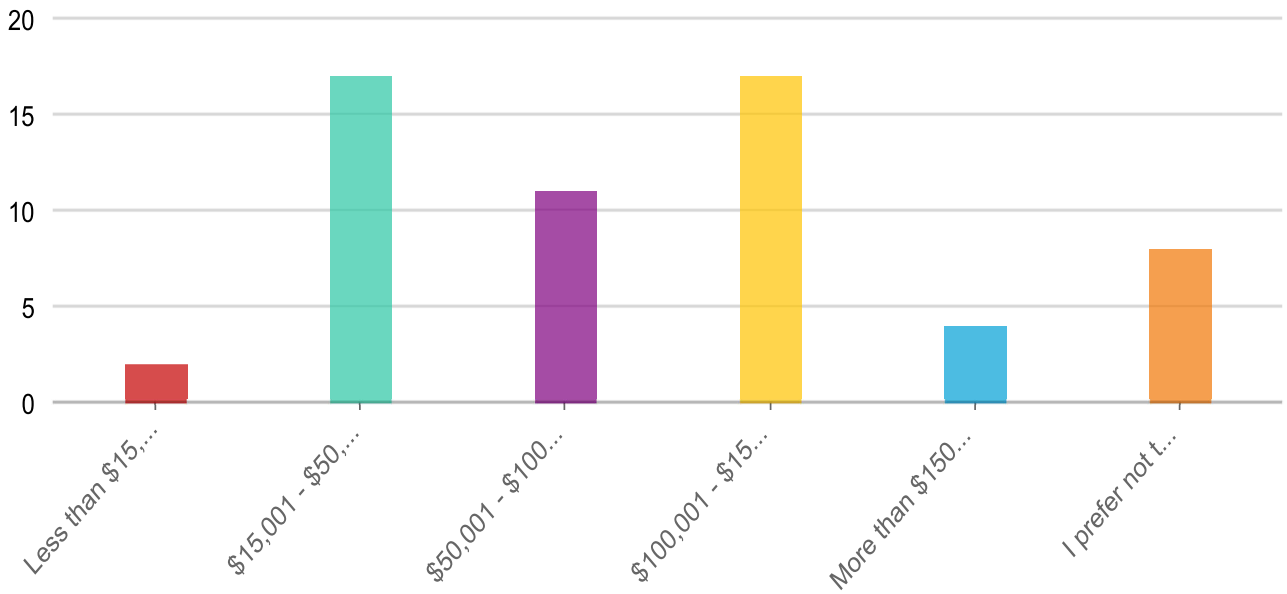


Answers **Count** **Percentage**

Answers	Count	Percentage
White	38	64.41%
Black, or African American	7	11.86%
I prefer not to answer	7	11.86%
Hispanic, Latino, or Spanish origin	5	8.47%
Two or more races	2	3.39%
American Indian or Alaska Native	0	0%
Asian	0	0%
Middle Eastern	0	0%
Native Hawaiian or other Pacific Islander	0	0%

Answered: 59 Skipped: 0

○ Which of these categories best describes your household income?



Answers **Count** **Percentage**

Less than \$15,000	2	3.39%
\$15,001 - \$50,000	17	28.81%
\$50,001 - \$100,000	11	18.64%
\$100,001 - \$150,000	17	28.81%
More than \$150,000	4	6.78%
I prefer not to answer.	8	13.56%

Answered: 59 Skipped: 0

SAFE STREETS FOR SAGINAW



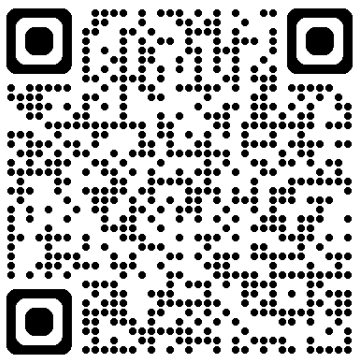
The City of Saginaw has obtained a U.S. Department of Transportation Safe Streets and Roads for All (SS4A) grant to conduct a comprehensive review of all roads in the City and to develop a strategy to help prevent roadway fatalities and serious injuries.

With this grant, the City of Saginaw is creating a Safety Action Plan (SAP) that will provide a framework for the efficient and effective implementation of safety transportation projects throughout the city.

Your voice matters! Scan the QR codes below to learn more about the SAP, report safety issues and provide feedback.

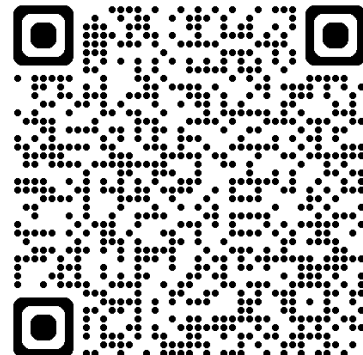


SAP Hubsite



<https://hub.safeststreetsforsaginaw.com>

SAP Mapping Tool



<https://arcg.is/1vWfHv1>

SAP Survey



<https://arcg.is/0jrP5q0>

The survey is available until June 20, 2025

SAFE STREETS FOR SAGINAW AND M-13/M-81 CORRIDOR STUDY *JOINT OPEN HOUSE*



JOIN US!



Wednesday, June 4, 2025

4-6 p.m.

SVRC Marketplace, 2nd Floor Ballroom
203 S Washington Avenue, Saginaw, MI 48607

Attendees may arrive any time between 4-6 p.m. to view informational boards, ask questions, and provide feedback on safety ideas and concerns. Brief presentations to provide an overview of both projects and how they are connected will be given at 4:15 p.m. and 5:15 p.m.

Free parking is available in the lot across S Water Street. The nearest transit stop to the SVRC Marketplace is STARS Bus (Route 7) at S Washington Avenue and Federal Avenue.

Questions? Please contact:

Ronald Rangel, Assistant City Engineer
City of Saginaw
rrangel@saginaw-mi.com
(989) 759-1415

Jay Reithel, Region Planner
MDOT
ReithelJ@Michigan.gov
(989) 573-1433

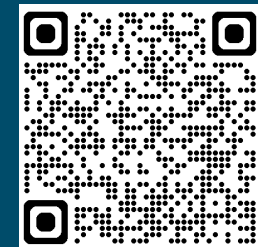
The City of Saginaw, with community input, is developing a Safety Action Plan (SAP), also known as Safe Streets for Saginaw, that will include a comprehensive review of all roads in the City and develop a strategy to help prevent roadway fatalities and serious injuries.

The Michigan Department of Transportation (MDOT) is conducting a corridor study for M-13/M-81 in Saginaw and Buena Vista Township (study limits available on website) to analyze existing multimodal, traffic and safety conditions to explore alternative roadway configurations, identify transportation needs for all users, and create an implementation strategy.

Your voice matters! Provide feedback and learn more by visiting our [Safe Streets for Saginaw and M-13/M-81 Corridor Study websites](#).



<https://safe-streets-for-saginaw-itsc2g.hub.arcgis.com/>



Michigan.gov/M13-M81Study

Joint Open House Summary

On June 4, 2025, City of Saginaw and MDOT staff hosted a joint open house at the SVRC Marketplace for the Safe Streets for Saginaw and the MDOT M-13/M-81 Corridor Study projects. Since both projects address transportation safety in the City, a joint open house was the most effective way to maximize public outreach and reduce the number of meetings attendees would need to attend. This event included a brief presentation overview as well as informational and interactive boards about the project scope and crash history and analysis. There were also opportunities to share corridors, goals and priorities, and location-specific concerns about the corridor.



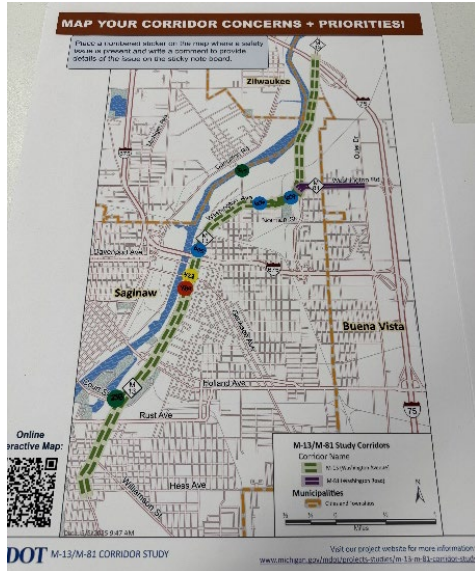
15 members from the public, including council members, attended the event and provided the following general comments:

- Request for more police.
- Reducing traffic speeds and adding traffic calming measures.

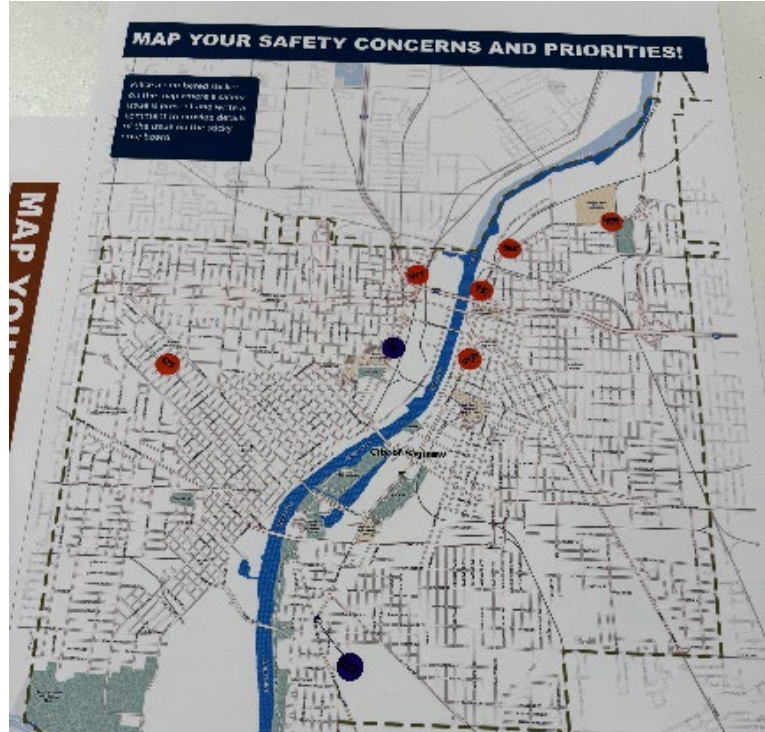
Location specific feedback included comments about speed being too fast, speed signage lacking, signal timing issues, and left turn visibility concerns. The specific comments are noted on the next page.

Safe Streets for Saginaw Joint Open House Summary

Safe Streets for Saginaw Comment Locations:



M-13/M-81 Corridor Map Comment Locations:



Comment Category	Frequency
Speed Issues	5
Connectivity Issue over the River	1
Bicycle Issues	1
Congestion/Signal Timing	1
Visibility Issue	1

Speed

- 489 – Slow downtown traffic way down
- 451-455-459-605-606-607 (marked on both maps): 50 mph is TOO FAST on M-13 north
- 450 Traffic calming measures are imperative in the south end of M-13 specifically downtown segment where residential, businesses have on street parking
- 525: Speed Issues
- 447: No exit speed posted on the turn radius

Congestion/Signal Timing

- “The light at M-13 and Webber Street stays red for Webber Street [traffic] for 8-10 minutes”

Safe Streets for Saginaw Joint Open House Summary

Pedestrian or Bicycle Issue

- 422 – Bike route to go all the way north-south through M-13
- 721 – General safety and wellbeing concerns

Other Transportation Issues

- 345 – “Reopen the bridge at 6th Steet” [over the Saginaw River].
- 722 – “Left turns onto Gallagher difficult. Poor visibility.”

General Conversation

- Crossing Genesee near Thompson/Cherry. Attendee noted difficulty crossing during the day. Must walk/use public transportation and crosses 4-5 times a day.
- Slowing traffic in downtown (Washington).
- Brockway and Helms traffic signal removal, dislike due to poor visibility.

TEXT

WELCOME

to the

**Safe Streets for Saginaw
& M-13/M-81
Corridor Study**

TEXT

JOINT OPEN HOUSE



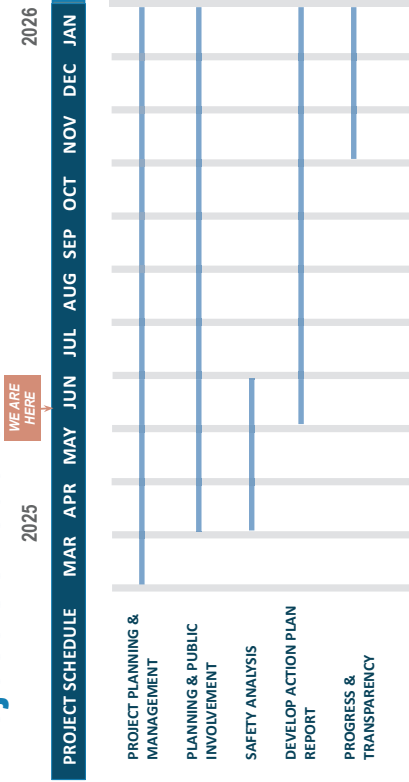
SAFE STREETS FOR SAGINAW ACTION PLAN

Project Overview

The City of Saginaw has obtained a U.S. Department of Transportation Safe Streets and Roads for All (SS4A) grant to conduct a comprehensive review of all roads in the City and to develop a strategy to help prevent roadway fatalities and serious injuries.

With this grant, the City of Saginaw is creating a Safety Action Plan (SAP), also known as 'Safe Streets for Saginaw', that will provide a framework for the efficient and effective implementation of safety transportation projects throughout the region. The plan will focus on real world, readily implementable solutions to address safety in both a proactive and reactive way.

Project Schedule



CITY OF SAGINAW MAP



Tell Us What You Think!

Please take a few moments to respond to the survey and interactive mapping tool to let us know your thoughts regarding transportation safety in the City of Saginaw.

Take the survey here, deadline June 20, 2025:



Use our interactive mapping tool to place your safety priorities at specific locations throughout the region:



Visit our project website for more information:

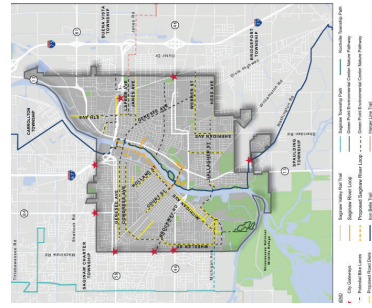
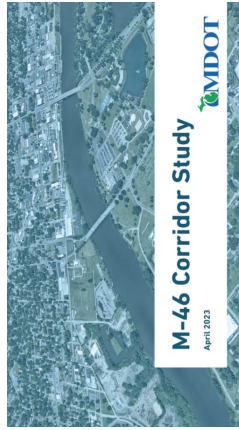
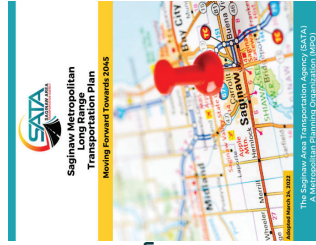


EXISTING PLANS AND POLICIES

Plan and Policy Review

Plans and policies from the City of Saginaw were reviewed and summarized to understand previous initiatives and goals related to transportation and development. These plans and policies will be taken into consideration throughout the development of the Safety Action Plan.

- **Transportation Plans**
 - SATA Saginaw Metropolitan Long Range Transportation Plan (LRT), 2045
 - Saginaw Metropolitan Transportation Plan (Master Plan Appendix C, 2022)
 - Saginaw Parking Study (Master Plan Appendix D, 2022)
 - M-46 Corridor Study (2023)
- **Additional Plans**
 - City of Saginaw Master Plan (2022)
 - City of Saginaw Economic Development Strategy (2018)

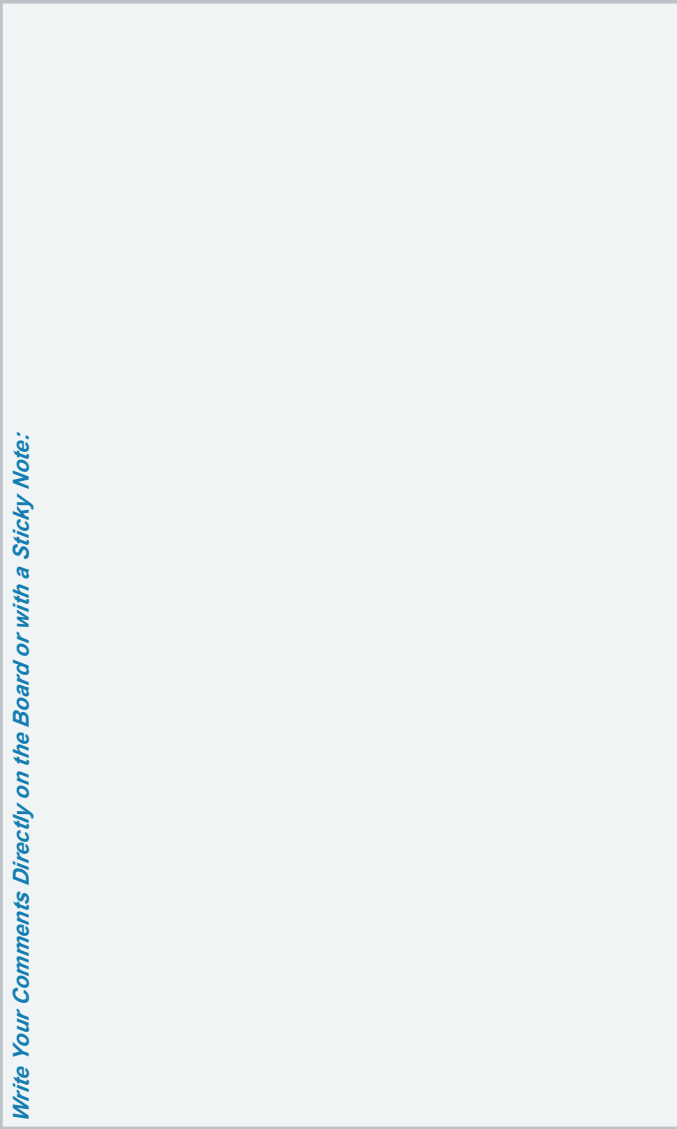


Key Takeaways from all Plans/Policies reviewed:

- Enhance Saginaw's **nonmotorized transportation** infrastructure and safety to be less reliant on vehicles and better **connect neighborhoods to city amenities** (schools, parks, the riverfront, frequented destinations, medical campuses, and Old Town to Downtown).
- Enhance the **pedestrian experience** with improved sidewalks/crossings, pedestrian-only areas, and mixed use development to **transform roads to be corridors**.
- Adding **safety** and **comfort** features (i.e. lighting, landscape buffers, and traffic calming) for people to feel safer while walking or using trails.
- Implement **Complete Streets** principles in future road projects to ensure road design safely accommodates **all transportation modes** and complete trails (Iron Belle, Saginaw River Loop).
- Better **connect Saginaw** with other cities and places throughout the **region** by improving and expanding **transit options** as well as rehabilitating major roads.

What other policies would you like to see included in the Safety Action Plan?

Write Your Comments Directly on the Board or with a Sticky Note:



WHAT IS YOUR VISION FOR TRANSPORTATION SAFETY IN THE CITY OF SAGINAW?

On a sticky note, briefly list your top transportation safety priorities for Saginaw.

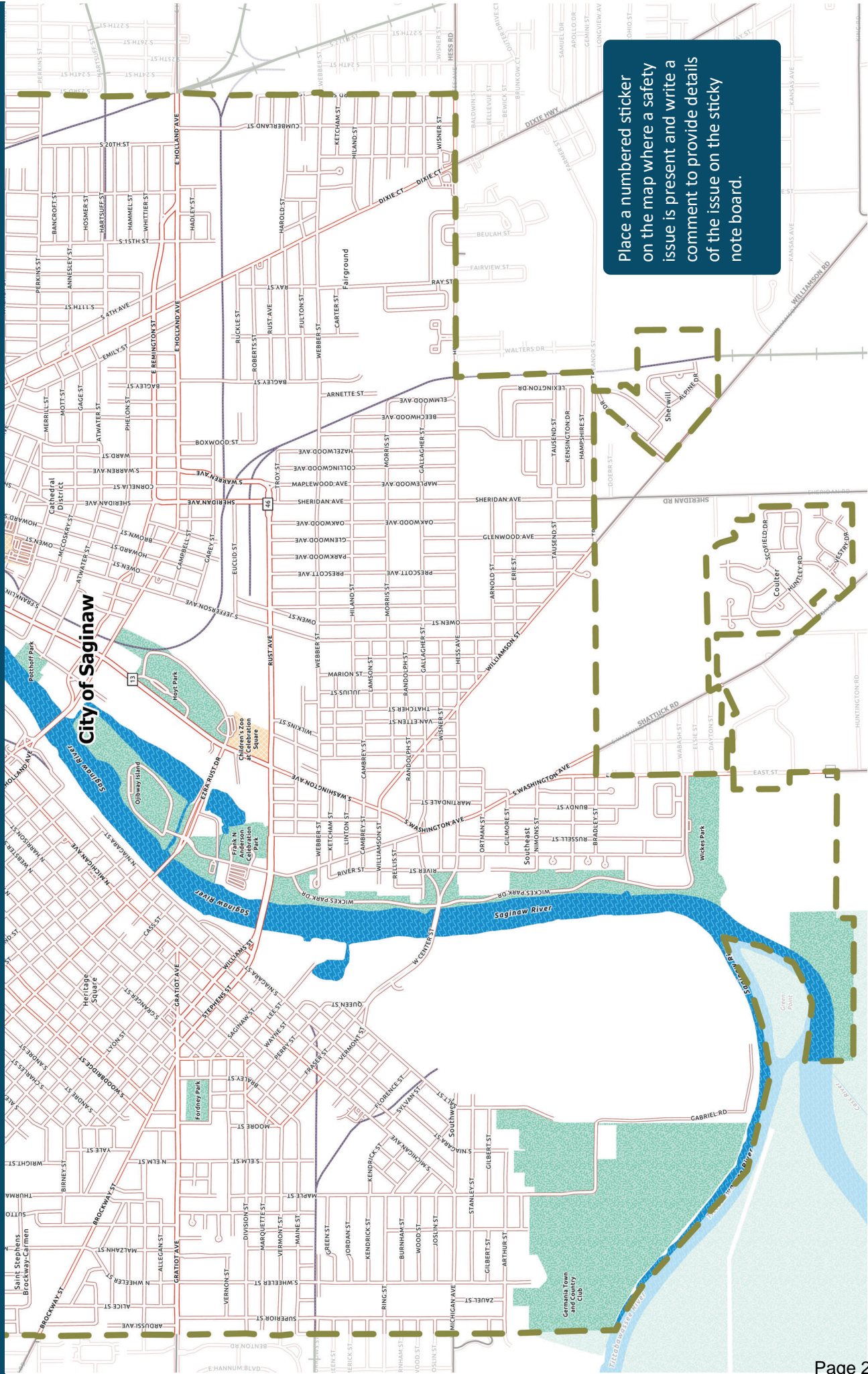


MAP YOUR SAFETY CONCERNS AND PRIORITIES!

Place a numbered sticker on the map where a safety issue is present and write a comment to provide details of the issue on the sticky note board.



MAP YOUR SAFETY CONCERNS AND PRIORITIES!



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Visit our project website for more information:



<https://safe-streets-for-saginaw-itsc2g.hub.arcgis.com/>

SAFE STREETS FOR SAGINAW



MAP YOUR SAFETY PRIORITIES!

Place a numbered dot sticker on the map where each of following issues are present within the city:


Speed Issue	
Congestion Issue	
Pedestrian or Bicycle Issue	
Other Transportation Issues	

Write down, directly on the board, which safety issues you encounter in Saginaw or improvements you would like to see as part of the Safety Action Plan. Include the corresponding number from the dot sticker on your note.

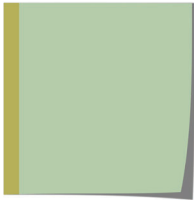
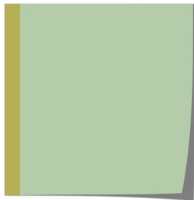
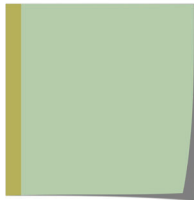


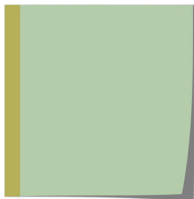
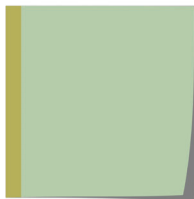

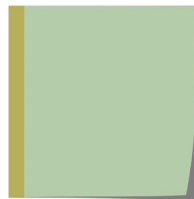

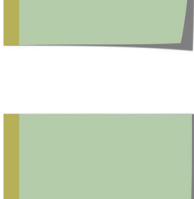




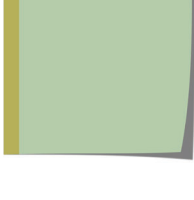









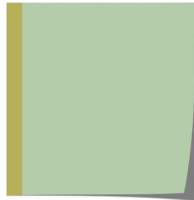
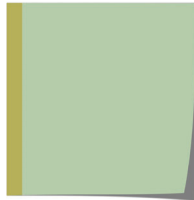
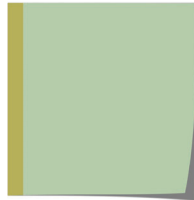
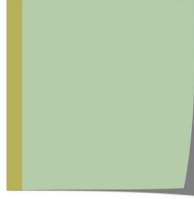
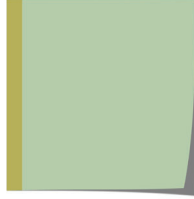
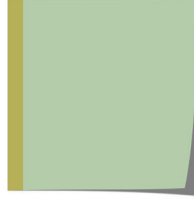
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Write down, directly on the board, which safety issues you encounter in Saginaw or improvements you would like to see as part of the Safety Action Plan. Include the corresponding number from the dot sticker on your note.



SAGINAW CRASH DATA ANALYSIS

In Saginaw from 2014-2023, there were...

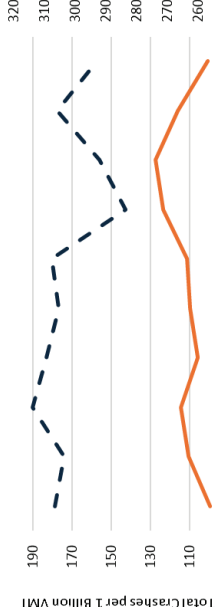
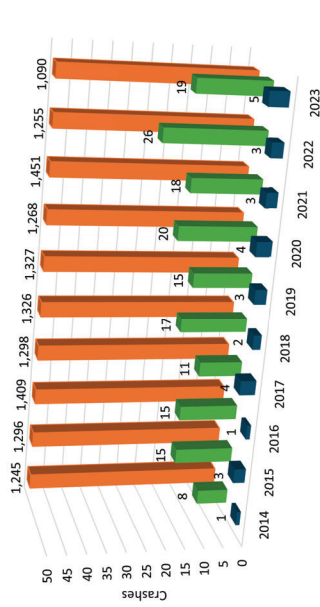
12,965 crashes

192 people seriously injured

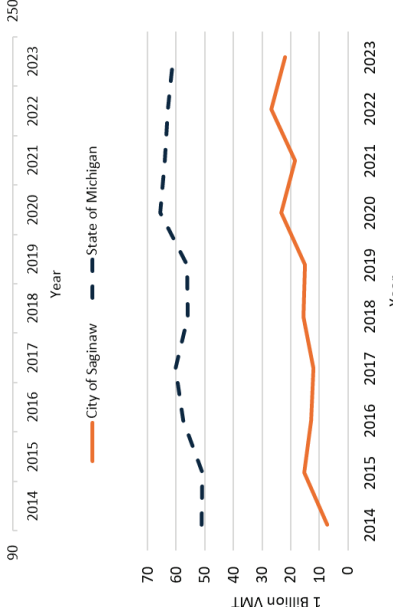
29 people killed

Crashes Over Time

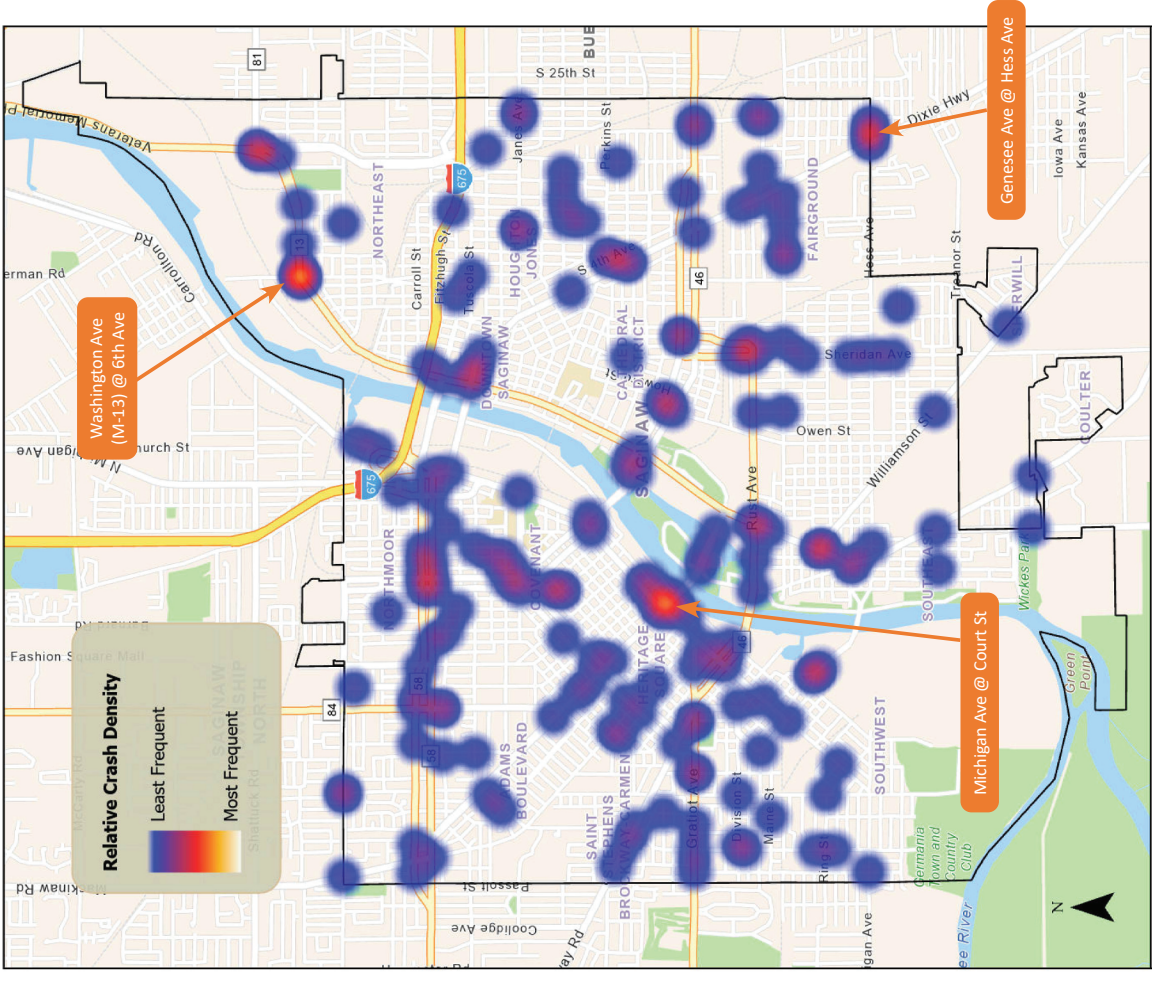
The crash data used in this analysis comes from UD-10 Traffic Crash Reports completed by police officers. The most severe crashes are categorized as **fatal** (someone was killed) or **serious injury** (someone sustained a longer-term or permanent injury, such as a broken arm or being paralyzed).



Crash patterns in Saginaw follow state trends, with **declining overall crashes** over the past several years but **increasingly many fatal and serious injury** crashes.

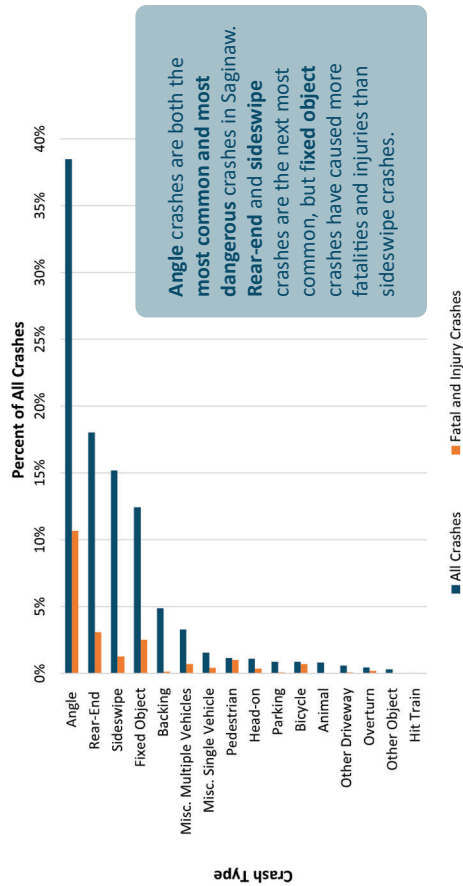


Top Locations for Fatal and Serious Injury Crashes



SAGINAW CRASH DATA ANALYSIS

What kind of crashes happen in Saginaw?



Crash Facts

49% of crashes involved young drivers (age 24 and under) or older drivers (age 65+).

649 crashes involved distracted driving.

16% of fatal and serious injury crashes involved people walking or biking.

65% of crashes happened at intersections.

23% of fatal and serious injury crashes involved alcohol or drugs.

23% of crashes happened in dark conditions.

Top Crash Types for Saginaw

Angle Crashes



Angle crashes happen when vehicles traveling perpendicular to each other collide. These crashes are often referred to as "T-Bone crashes". Angle crashes can involve one vehicle driving straight into another vehicle crossing its path, or a vehicle attempting to turn at an intersection or driveway.

Sideswipe Crashes



Sideswipe crashes happen when vehicles traveling parallel to each other in the same direction collide. Sideswipe crashes often happen when a vehicle travels outside its lane or when a moving vehicle hits a vehicle parked on the street.

Rear-End Crashes



Rear end crashes happen when one vehicle collides with the back of another vehicle. Rear end crashes often happen when the lead vehicle slows or stops for a red light, a stop sign, or to turn into a driveway. These collisions can involve multiple vehicles, where the initial crash causes the vehicles behind it to crash into one another.

Fixed Object Crashes



Fixed object crashes happen when a moving vehicle collides with a non-moving, stationary object that is permanently located alongside the roadway. Common fixed objects include utility poles, traffic signs, trees, curbs and drainage ditches, and guardrails.



SAFE STREETS FOR SAGINAW

Visit our project website for more information:
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M-13 / M-81 CORRIDOR STUDY FOR MDOT AND SAFE STREETS FOR SAGINAW PLAN

JOINT OPEN HOUSE
JUNE 4, 2025



Introductions: Project Teams



Why a Joint Open House?

MDOT and City of Saginaw are working collaboratively throughout the entire process on each project:

MDOT is leading the M-13/M-81 Corridor Study.

City of Saginaw is leading the Safe Streets for Saginaw Plan.

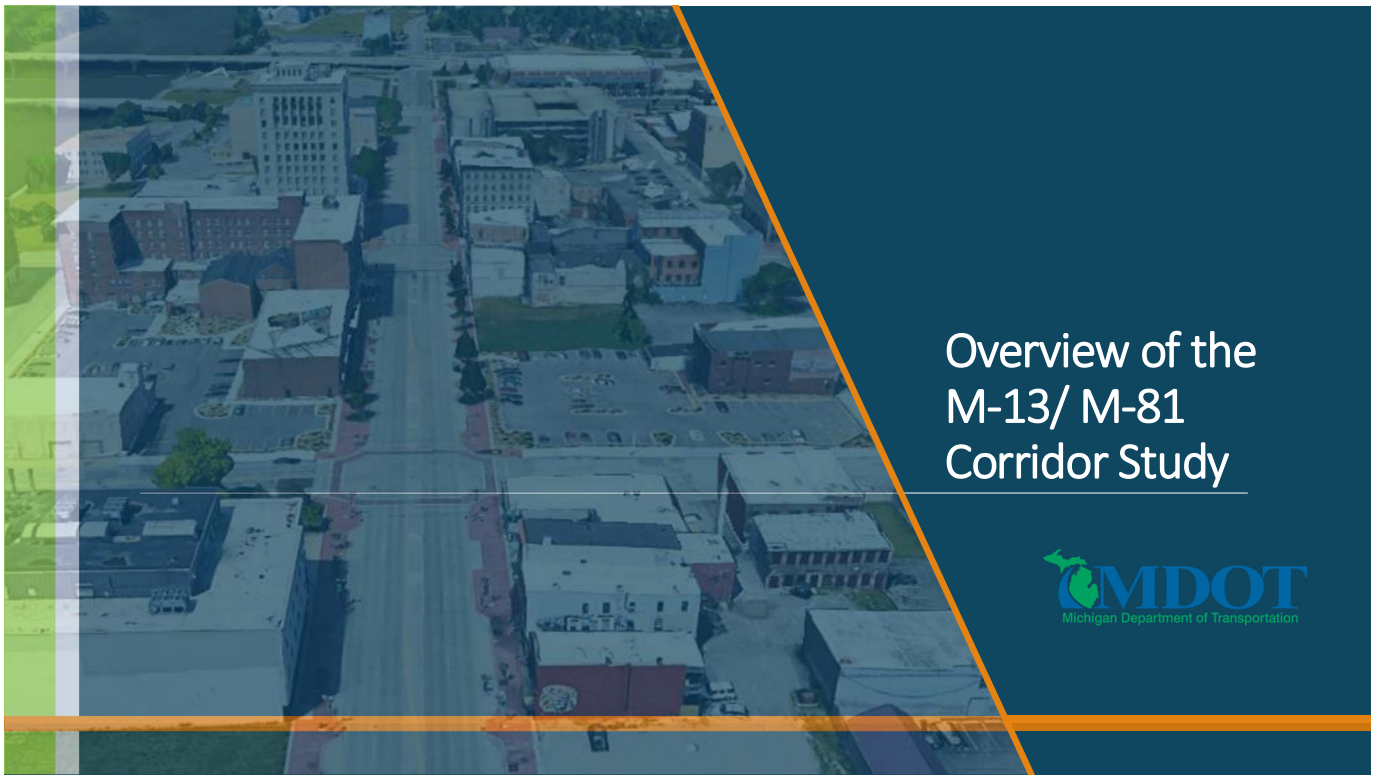
Both planning efforts started around the same time and aim to improve transportation safety.

A joint Open House allows for a seamless and efficient engagement process.



Overview of Open House

- This brief presentation (10-15 min) will give an overview of both projects.
- Review the project boards and give your feedback on our interactive activities and prompts.
- Please reserve your questions and comments for the project team representatives who will be stationed around the room to help.
- We appreciate your attendance today and look forward to hearing your feedback!

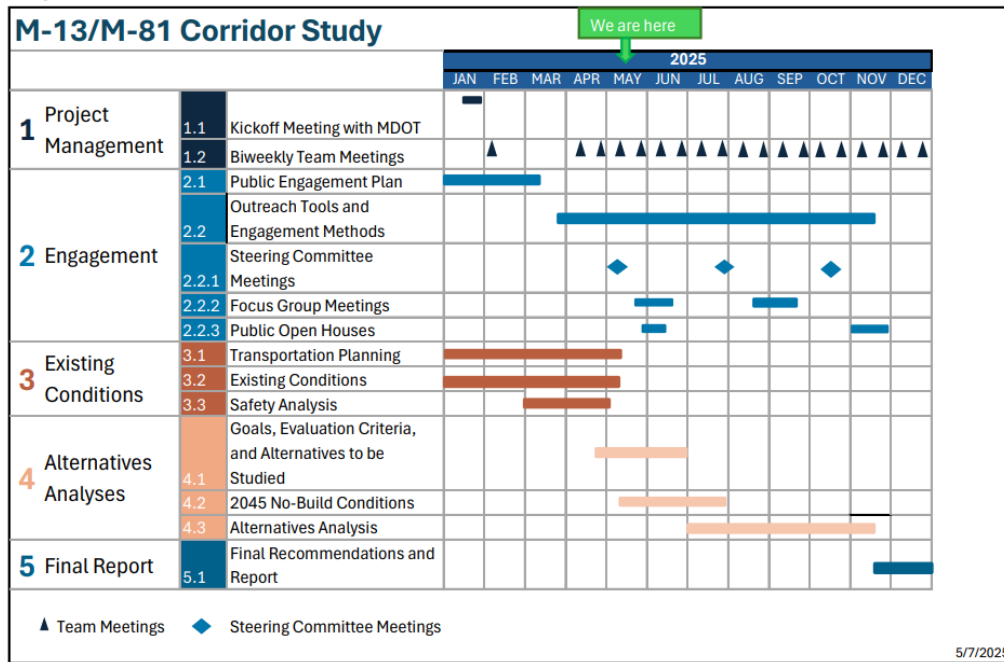


Corridor Study Overview

- Study the M-13/M-81 corridor through integrated land use and transportation planning.
- Identify and evaluate short, medium, and long-term transportation system needs to enhance mobility for all modes of transportation.
- Consider plans and studies in the area for proposed developments, traffic studies, master plans, etc. to align with those recommendations.
- Evaluate alternative solutions for the corridor to balance the needs of all modes while still aligning with future land use and development plans.

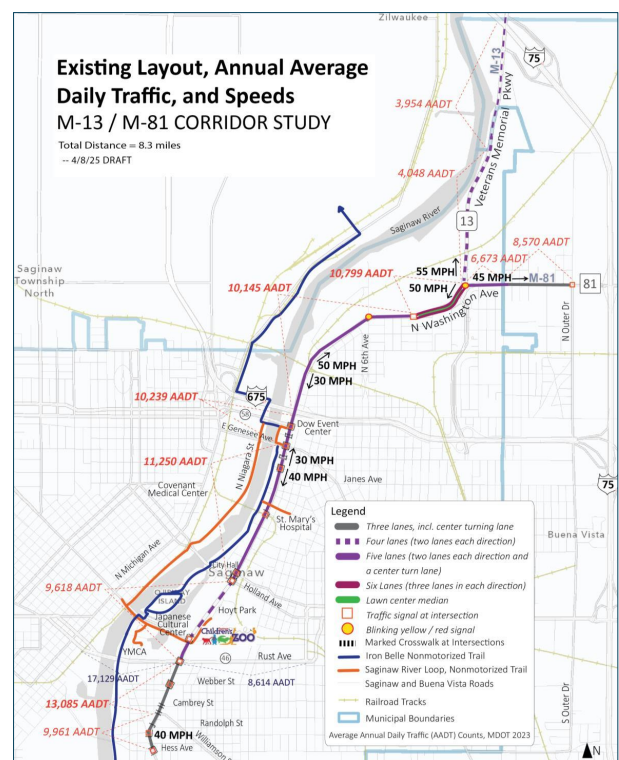


Project Schedule



Existing Conditions

- Speed, traffic volumes, and lane configurations vary throughout the corridor.
- The Saginaw Transit Authority Regional Services (STARS) has two routes along the corridor:
 - Route 2
 - Route 7
- Transit is an important consideration as future improvements are being developed for this corridor.



Level of Service Assessment

Intersection Location	AM/PM Peak Hour Intersection Levels of Service (LOS)
M-13 & Hess Avenue	A/A
M-13 & Gallagher Street	A/A
M-13 & Webber Street	A/A
M-13 & M-46 (Rust Avenue)	B/B
M-13 & Ezra Rust Drive/Hoyt Park Lower Drive	B/B
M-13 & E Holland Avenue	A/A
M-13 & E Remington Street	A/A
M-13 & Emerson Street	A/A
M-13 & Janes Avenue	A/A
M-13 & E Genessee Avenue	B/B
M-13 & Johnson Street	C/C
M-13 & N 10th Street*	B/C

* = Unsignalized intersection

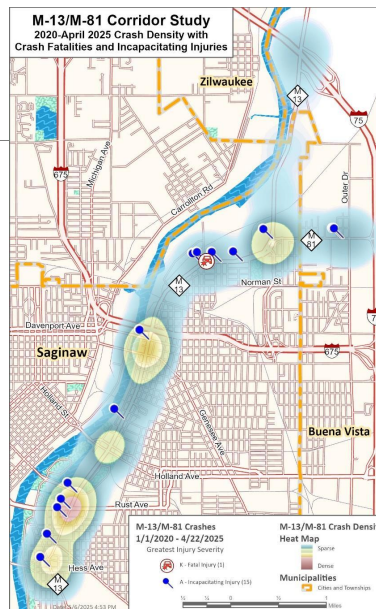
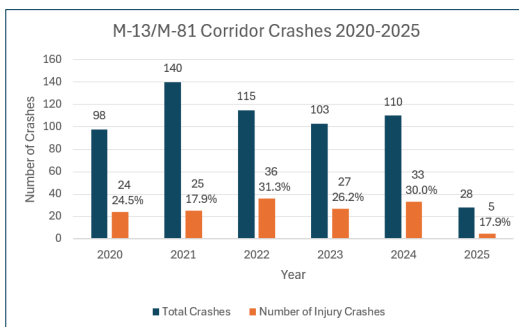
Highway Capacity Manual Level of Service (LOS)

LOS	Brief Description	Unsignalized Average Delay ** (seconds/vehicle)	Signalized Average Delay (seconds/vehicle)
A	Excellent operational levels with minimal or no delay.	0 - 10	0 - 10
B		> 10 - 15	> 10 - 20
C		> 15 - 25	> 20 - 35
D	Typical operational levels with moderate delay.	> 25 - 35	> 35 - 55
E		> 35 - 50	> 55 - 80
F	Operational levels with severe congestion and delay.*	> 50	> 80

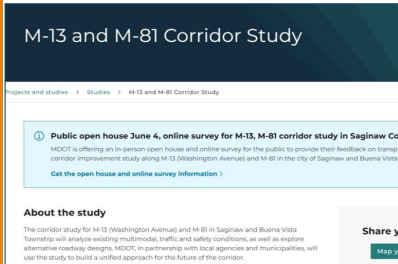
* Mitigation or improvements are usually considered with LOS E and LOS F designations.
 **Overall intersection LOS and delay values at two-way stop-controlled intersections are equivalent to LOS and delay values of the worst performing stop-controlled approach per HCM guidance.



Existing Safety Summary



How to Stay Engaged...



Project Website
<https://www.michigan.gov/mdot/projects-studies/studies/m-13-m-81-corridor-study>

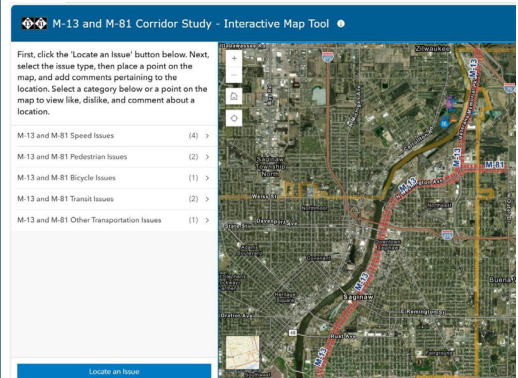
Safety Rating
 Select how safe you feel when traveling along the area being studied on M-13/M-81 for each of the modes of transportation that is relevant to you. Select N/A if not relevant.

	Very Safe	Safe	Unsafe	Very Unsafe	N/A
Driving a motor vehicle	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bus	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Walking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Riding a bicycle	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

What are your top three (3) concerns for the corridor?
 Select up to three (3) options.

- Roadway safety (congestion, speeding, etc.)
- Pedestrian safety
- Bicyclist safety

Online Survey
 Survey ends June 20, 2025



Interactive Mapping Tool



Next Steps



Meet with Focus Groups to discuss their concerns, future development plans (Medical Diamond)



Analyze and summarize feedback from stakeholders and the community



Determine priority areas and Growth of network to 2045



Develop goals, evaluation criteria, and draft alternatives

Please share and take the survey and use the interactive mapping tool to give your feedback! 2nd Open House will take place sometime this fall where recommendations will be presented





Safe Streets for Saginaw Plan Overview

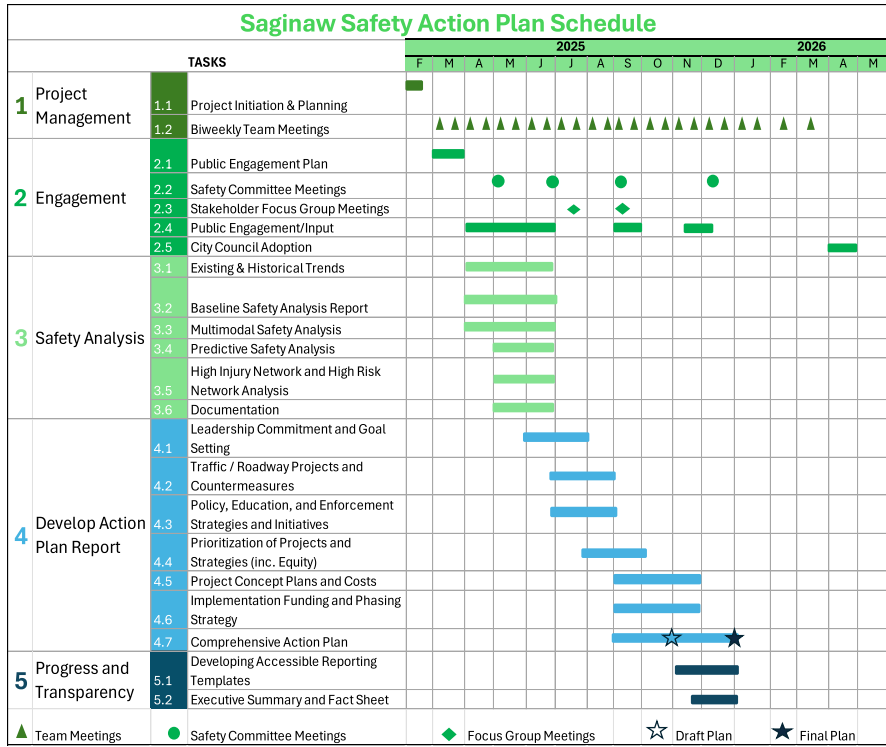


Purpose of the Plan

The City of Saginaw has obtained a U.S. Department of Transportation Safe Streets and Roads for All (SS4A) grant to:

- Review and evaluate existing regional and local safety related policies, plans, and guidelines.
- Determine and recommend target safety goals.
- Develop a program of projects and strategies targeted at improving safety.
- Prioritize projects based on project readiness, funding, economic benefit analysis, equity, safety and other relevant factors.



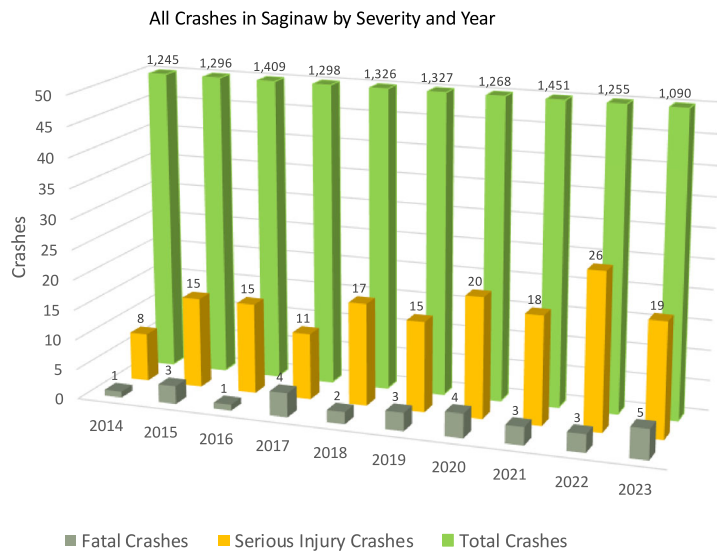


Crash History (2014-2023)

12,965 total crashes

29 people killed

192 people seriously injured



VRU Crash History (2014-2023)

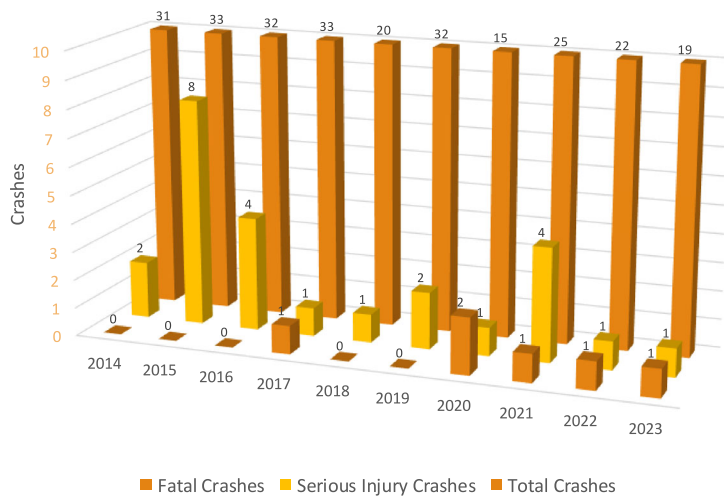
Vulnerable Road Users (VRUs) = people walking or biking

16% of all fatal or serious injury crashes involved VRUs

While **walking**: 14 people killed, 35 seriously injured

While **biking**: 0 people killed, 19 people seriously injured

All VRU Crashes in Saginaw by Severity and Year



Emphasis Areas to Reduce Fatality, Serious Injury, and Vulnerable Road User Crashes

49%
of all traffic crashes involved **young drivers** (age 24 and under) and **older drivers** (age 65+).

649
distracted driving crashes within the City of Saginaw.

262
crashes involving **bicycles or pedestrians**.

65%
of all crashes reported occurred **at intersections**.

23%
of all crashes resulting in a fatality or serious injury involved **alcohol or drugs**.

23%
of total crashes occurred **under dark conditions**.

Data analysis period: 2014 - 2023



How to Stay Engaged...

<https://safe-streets-for-saginaw-itsc2g.hub.arcgis.com/>



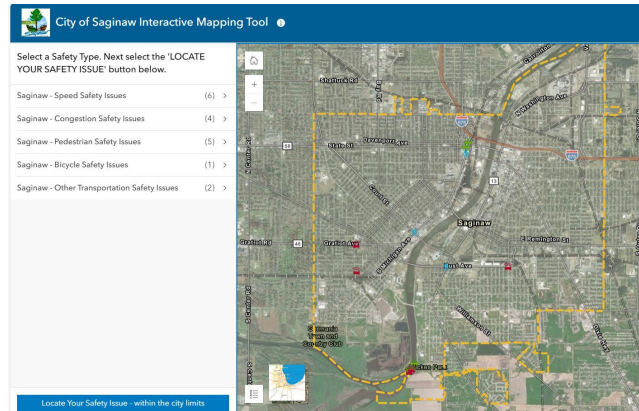
City of Saginaw: Tell Us Your Transportation Safety Priorities

Tell Us About Your Priorities for Safer Roads

In your daily travel, what safety issues are most important to you?*
Select up to 3 of your top safety issues below.

High speeds

Weather related conditions



Interactive Mapping Tool
Online Survey
Survey ends June 20, 2025



Next Steps



Identify High Injury Intersections and Segments



Meet with Focus Groups and Analyze Public Feedback



Set Goals, Identify Countermeasures, and Review Policies



Prioritize Projects and Develop Conceptual Plans

More public engagement opportunities this Fall!





Please share and take the survey and use the interactive mapping tool to give your feedback!



THANK YOU FOR PARTICIPATING!

SAFE STREETS FOR SAGINAW

The U.S. Department of Transportation awarded the City of Saginaw with a Safe Streets and Roads for All (SS4A) grant. The City has been developing a comprehensive review of all roads to create a Safety Action Plan (SAP) to help prevent roadway fatalities and serious injuries.

Interested in learning more?

Visit our project website for more information and recent updates including:

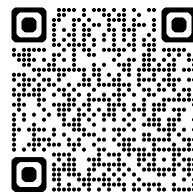
- A summary of the public survey
- A summary of mapped priority locations
- Focus group presentations
- Vision and goals for the plan based on public feedback

Questions? Contact:



Ronald Rangel,
Assistant City Engineer
rrangel@saginaw-mi.com
(989) 759-1415

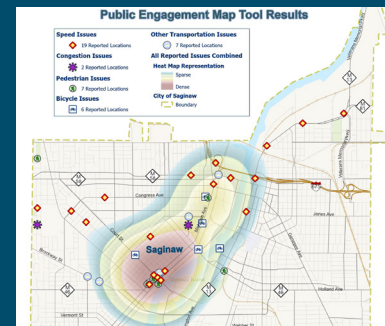
Project Website



<https://hub.safestreeetsforsaginaw.com>



Project Vision: "The City of Saginaw envisions a future where every resident and visitor can travel safely while walking, biking, driving, or using transit. The City of Saginaw commits to building a connected and accessible transportation network that prioritizes transportation safety. With a goal of moving towards zero traffic-related deaths by 2050, we are investing in safer infrastructure, smarter policies, and community-driven solutions that ensures every journey in Saginaw begins and ends safely."



Snapshot of the Safety Action Plan Project Website

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Interested in learning more or participating?

Visit our project website for more information and recent updates including:

- A summary of the public survey
- A summary of mapped priority locations
- Focus group presentations
- Vision and goals for the plan based on public feedback
- A survey for feedback on the draft plan

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Visit the Project Website:



Scan the QR code to access more information online

<https://hub.safeststreetsforsaginaw.com>

Safety Action Plan Vision and Goals

Vision: “The City of Saginaw envisions a future where every resident and visitor can travel safely while walking, biking, driving, or using transit. The City of Saginaw commits to building a connected and accessible transportation network that prioritizes transportation safety. With a goal of moving towards zero traffic-related deaths by 2050, we are investing in safer infrastructure, smarter policies, and community-driven solutions that ensures every journey in Saginaw begins and ends safely.”



Safer People

Promote responsible behavior among all road users through education, enforcement, and community engagement to reduce traffic-related injuries and fatalities.



Safer Roads

Design, maintain, and upgrade transportation infrastructure to minimize crash risks and improve safety for all users, with a focus on high-risk areas and vulnerable populations.



Safer Speeds

Implementation strategies to manage vehicle speeds through policy, design, and enforcement to create safer travel environments and reduce the severity of crashes.



Post Crash Care

Enhance emergency response systems and coordination to ensure timely, effective medical care and support services following traffic incidents.

Appendix C: Project Prioritization & Project List



Project Number	Location	Project Description	Targeted Safety Concern	Anticipated Safety Benefits	Timeline for Implementation (short, mid, long)	Cost (high, med, low)	Context / Public Score	HIN	VRU	FHWA (1-2pts)	Reduces K or A Crashes	Reduces Speeds	Final Sum
1	Court St from Niagara St to Alexander St/Bay St	Road diet / Traffic calming	Urban - All applicable crashes. Speeding, VRU, head-on left turn	30% reduction	Long	High	5	1	1	2	1	1	11
		Curb extensions	VRU	30% reduction (all crashes)	Short to Mid	Low to Med							
		Protected-only left turn phases	Left turn crashes	30% reduction	Short	Low							
		Signal optimization and timing updates	Rear end, angle, sideswipe-same direction crashes	10% reduction	Short	Low							
		Signal backplates	All crash types	15% reduction	Short	Low							
		Box span modernization	Rear end, angle, sideswipe-same direction crashes	10% reduction	Long	High							
		Leading pedestrian intervals	VRU	13% reduction	Short to Mid	Low							
		High-visibility crosswalks	VRU	19% reduction	Short	Low							
2	Congress Ave from Mackinaw St to Bay St	Curb extensions	VRU	30% reduction (all crashes)	Short to Mid	Low to Med	5	1	1	2	1	1	11
		Advanced warning signage at the intersection of Adams Ave	Angle and rear end crashes	30% reduction	Short	Low							
		Improve/Upgrade pavement markings	Angle and rear end crashes	30% reduction	Short	Low							
		Box span modernization	Rear end, angle, sideswipe-same direction crashes	10% reduction	Long	High							
		Leading pedestrian intervals	VRU	13% reduction	Short to Mid	Low							
		High-visibility crosswalks	VRU	19% reduction	Short	Low							
		Signal backplates	All crash types	15% reduction	Short	Low							
		Protected-only left turn phases	Left turn crashes	30% reduction	Short	Low							
		Signal optimization and timing updates	Rear end, angle, sideswipe-same direction crashes	10% reduction	Short	Low							
		Restrict passing	Head-on, Angle, and Sideswipe crashes	N/A	Short	Low							
		Stop sign improvements/upgrades (retroreflectivity, pre warning, double post)	Angle and rear end crashes	30% reduction	Short	Low							
Convert Brenner St from TWSC to AWSC	Injury crashes	70% reduction (injury crashes)	Short	Low									

3	Michigan Ave from Williams St to Genesee Ave	Road diet / Traffic calming	Urban - All applicable crashes. Speeding, VRU, head-on left turn	30% reduction	Long	High	5	1	1	2	1	1	11
		Install Cycle Track	Vehicle/Bicycle	41% reduction	Long	High							
		Install Bike Lanes	Vehicle/Bicycle	42% reduction	Med	Low							
		Prohibit minor street left-turns	Fatal and injury crashes	67% reduction	Short	Low							
		Improve/Upgrade pavement markings	Angle and rear end crashes	30% reduction	Short	Low							
		Box span modernization	Rear end, angle, sideswipe-same direction crashes	10% reduction	Long	High							
		Protected-only left turn phases (Court specifically with others evaluated)	Left turn crashes	30% reduction	Short	Low							
		Leading pedestrian intervals	VRU	13% reduction	Short to Mid	Low							
		High-visibility crosswalks crossing Michigan and side streets	VRU	19% reduction	Short	Low							
		Curb extensions	VRU	30% reduction (all crashes)	Short to Mid	Low to Med							
		Mid-block crossings at Bliss Park (RRFB) and Adams St	VRU	36% reduction in vehicle/ped crashes	Mid	Med							
Consider additional mid-block crossings between Hancock St and W Holland St, between W Remington St and Houghton Ave, and between Cooper Ave and W Genesee Ave. This is an initial screening based only on distance between signalized intersections. Further refinement could also take into consideration land uses with demand for pedestrian crossing (e.g. restaurants, hospitals, churches, etc.), history of pedestrian crashes, presence of on-street parking, outdoor dining, etc.	VRU	36% reduction in vehicle/ped crashes	Mid	Med									
Convert Taco Bell drive through to a one way in one way out access to reduce conflicting movements (or consolidate two driveways -- keep one that lines up with signal at intersection)	Driveway crashes	15% reduction	Short	Low									
4	Webber St from S Washington Ave to E Genesee Ave	Stop sign improvements/upgrades (retroreflectivity, pre warning, double post)	Angle and rear end crashes	30% reduction	Short	Low	5	1	1	2	1	1	11
		Improve/Upgrade pavement markings add edgeline / narrow lanes	Angle and rear end crashes	30% reduction	Short	Low							
		Remove/trim vegetation (sight distance)	Angle crashes	30% reduction	Short	Low							
		Install "Cross Traffic Does Not Stop" W4-4P plaque	All crash types	35% reduction	Short	Low							
		Curb extensions (could use extra space created for parking)	VRU	30% reduction (all crashes)	Short to Mid	Low to Med							
		Improve/Upgrade signing (e.g. install larger "All Way" plaques at Sheridan and Webber; install reflective sheeting on sign posts at newer two-way or all-way stop control locations)	Angle, Rear-end crashes	30% reduction	Short	Low							
		High-visibility crosswalks	VRU	19% reduction	Short	Low							
		Add School Speed Zone	VRU	N/A	Short	Short							
		Raised crosswalks near school	VRU	45% reduction	Short	Low							
5	Davenport Ave/Johnson St from M-58 to N 2nd Ave	Signal backplates	All crash types	15% reduction	Short	Low	5	1	1	2	1	1	11
		Signal optimization and timing updates	Rear end, angle, sideswipe-same direction crashes	10% reduction	Short	Low							
		Protected-only left turn phases	Left turn crashes	30% reduction	Short	Low							
		Leading pedestrian intervals	VRU	13% reduction	Short to Mid	Low							
		Roundabout at M-58	Fatal and serious injury crashes	78% reduction	Long	High							

6	S Hamilton St from Vermont St to Court St	Curb extensions	VRU	30% reduction (all crashes)	Short to Mid	Low to Med	5	1	1	1	1	1	10
		High-visibility crosswalks	VRU	19% reduction	Short	Low							
		Box span modernization	Rear end, angle, sideswipe-same direction crashes	10% reduction	Long	High							
		Improve/Upgrade pavement markings	Angle and rear end crashes	30% reduction	Short	Low							
7	Brockway St at S Woodbridge St	Box span modernization (west intersection)	Rear end, angle, sideswipe-same direction crashes	10% reduction	Long	High	4	1	1	2	1	0	9
		Leading pedestrian intervals (west intersection)	VRU	13% reduction	Short to Mid	Low							
		High-visibility crosswalks (both intersections)	VRU	19% reduction	Short	Low							
8	Congress Ave from Hill St to N Michigan Ave	Improve pavement friction	Wet crashes	35% reduction	Mid	Med	5	1	0	2	1	0	9
		Install advanced warning signage on Hill St	Angle and rear end crashes	30% reduction	Short	Low							
9	Gallagher St from Douglass St to S Washington Ave	Stop sign improvements/upgrades (retroreflectivity, pre warning, double post)	Angle and rear end crashes	30% reduction	Short	Low	4	1	0	2	1	1	9
		Improve/Upgrade pavement markings	Angle and rear end crashes	30% reduction	Short	Low							
		Remove/trim vegetation (sight distance)	Angle crashes	30% reduction	Short	Low							
		Advanced warning signage at the intersection of S Washington Ave	Angle and rear end crashes	30% reduction	Short	Low							
		Roundabout at S Washington Ave	Fatal and serious injury crashes	78% reduction	Long	High							
		Protected-only left turn phases	Left turn crashes	30% reduction	Short	Low							
10	Genesee Ave from Hess Ave to Janes Ave	Pedestrian Hybrid Beacons (HAWK Signals)	VRU	55% reduction	Mid	High	3	1	1	2	1	1	9
		Maintain sidewalk buffer throughout corridor	VRU	N/A	Mid	High							
		Repair sidewalk	VRU	N/A	Mid	High							
		Widen sidewalks	VRU	N/A	Mid	High							
		Install sidewalk	VRU	85% reduction	Mid	High							
		High-visibility crosswalks	VRU	19% reduction	Short	Low							
		Standardize ADA ramps, and realign or move curb ramps if needed	VRU	N/A	Long	High							
		Leading pedestrian intervals	VRU	13% reduction	Short to Mid	Low							
		Curb extensions	VRU	30% reduction (all crashes)	Short to Mid	Low to Med							
		Road diet / Traffic calming	Urban - All applicable crashes. Speeding, VRU, head-on left turn	30% reduction	Long	High							
		Install Bike Lanes	Vehicle/Bicycle	42% reduction	Med	Low							
		Improve/Upgrade pavement markings	Angle and rear end crashes	30% reduction	Short	Low							
		Develop and improve access management	Driveway crashes	15% reduction	Short	Low							
		T-up intersections, narrow approaches, reduce large curb radii	Head-on, Sideswipe, Pedestrian, Bicycle, Left-Turn Related; Rear-End; Angle	10 to 30% reduction	Mid to Long	Med to High							
		Box span modernization	Rear end, angle, sideswipe-same direction crashes	10% reduction	Long	High							
		Install pedestrian signals/pushbuttons	VRU	30% reduction	Mid	Med							
		Protected-only left turn phases	Left turn crashes	30% reduction	Short	Low							
Plan for 2-way conversions on Cherry Street and Thompson Street, keeping current signal as a pedestrian signal	May help reduce speeding and pedestrian crashes	N/A	Long	Med to High									
Roundabout at Janes Avenue	Fatal and serious injury crashes	78% reduction	Long	High									
Improve/upgrade signing	Angle, Rear-end crashes	30% reduction	Short	Low									
11	Hoyt Ave at S Jefferson Ave	Remove/trim vegetation (sight distance)	Angle crashes	30% reduction	Short	Low	4	1	1	1	1	1	9
		Assess if brick wall on NW corner is blocking line of sight	Angle crashes	30% reduction	Short	Low							
		Raised crosswalks	VRU	45% reduction	Short	Low							
12	Ames St from N Michigan Ave to N Hamilton St	Improve/Upgrade pavement markings	Angle and rear end crashes	30% reduction	Short	Low	5	0	1	1	1	1	9
		Stop sign improvements/upgrades (retroreflectivity, pre warning, double post)	Angle and rear end crashes	30% reduction	Short	Low							
		Curb extensions	VRU	30% reduction (all crashes)	Short to Mid	Low to Med							

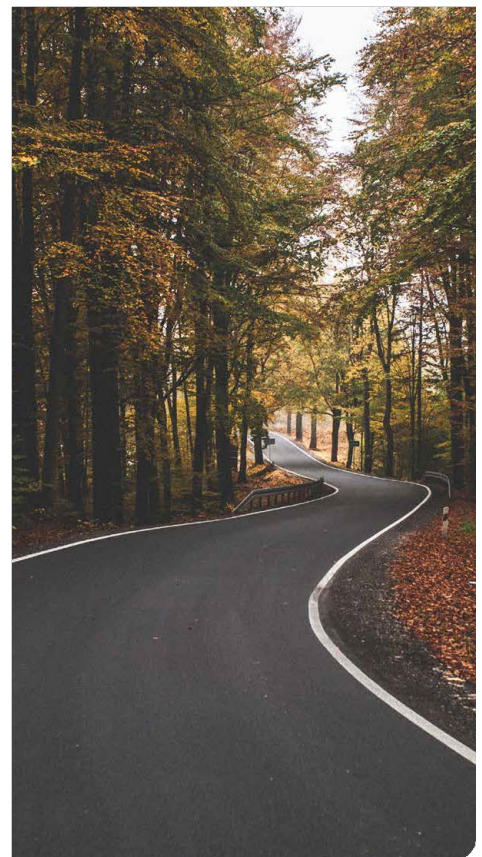
13	Niagara St at W Remington St	Improve/Upgrade pavement markings	Angle and rear end crashes	30% reduction	Short	Low	4	0	0	2	1	1	8
		Stop sign improvements/upgrades (retroreflectivity, pre warning, double post)	Angle and rear end crashes	30% reduction	Short	Low							
		Install "Cross Traffic Does Not Stop" W4-4P plaque	All crash types	35% reduction	Short	Low							
		Vacation of Bristol St approach at Remington St	N/A	N/A	Long	Low							
		Roundabout	Fatal and serious injury crashes	78% reduction	Long	High							
14	Houghton Ave at N Mason St	Roundabout	Fatal and serious injury crashes	78% reduction	Long	High	4	1	0	1	1	1	8
15	E Genesee Ave at N Jefferson Ave	Protected-only left turn phases	Left turn crashes	30% reduction	Short	Low	5	1	0	1	1	0	8
		Add flashing yellow arrow (FYA)	Left turn crashes	14% reduction	Mid	Med							
		Signal optimization and timing updates	Rear end, angle, sideswipe-same direction crashes	10% reduction	Short	Low							
16	Janes Ave at S 11th St	Install "Cross Traffic Does Not Stop" W4-4P plaques	All crash types	35% reduction	Short	Low	4	1	0	1	1	0	7
		Stop sign improvements/upgrades (retroreflectivity, pre warning, double post)	Angle and rear end crashes	30% reduction	Short	Low							
		Improve/Upgrade pavement markings	Angle and rear end crashes	30% reduction	Short	Low							
17	Adams St from S Hamilton St to S Niagara St	Stop sign improvements/upgrades (retroreflectivity, pre warning, double post)	Angle and rear end crashes	30% reduction	Short	Low	5	0	0	1	1	0	7
		Improve/Upgrade pavement markings	Angle and rear end crashes	30% reduction	Short	Low							
18	Brockway St at N Elm St	High-visibility crosswalks	VRU	19% reduction	Short	Low	4	0	1	1	1	0	7
		Upgrade crosswalk signing: Change to fluorescent yellow (W11-2) with plaque (W16-7P).	Angle and rear end crashes	30% reduction	Short	Low							
19	Adams Ave at Borland Ct/Ave	Remove/trim vegetation (sight distance)	Angle crashes	30% reduction	Short	Low	4	0	0	1	0	0	5
		Replace yield sign with a stop sign	Failure to yield crashes	N/A	Short	Low							
20	Houghton Ave at Harrison St	Update roundabout pavement markings per MMUTCD Chapter 3C (Roundabout Markings)	Angle and rear end crashes	30% reduction	Short	Low	4	0	0	0	0	0	4
		Update roundabout signs per MMUTCD Part 2B and 2C	Angle and rear end crashes	30% reduction	Short	Low							
		Confirm roundabout geometry meets standards (MDOT Roundabout Design Aid)	Compliance	N/A	Long	High							

Appendix D: Countermeasure Toolkit





Countermeasure Toolkit



City of Saginaw, Michigan

November 2025

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General Segment Elements Countermeasures	21
Bike-Pedestrian Countermeasures.....	31
Speed Management Countermeasures.....	48





Countermeasure Toolkit Summary



To help stakeholders quickly identify and apply the most effective and context-appropriate safety solutions, each countermeasure was categorized by targeted crash type, implementation timeframe, land use context, crash reduction factor, and estimated per-unit cost range.

Countermeasure Types

Four (4) main countermeasure types were identified for implementation. Some countermeasures apply to more than one type. When this applies, both icons are displayed in the countermeasure name title block. Countermeasure types include the following:



Intersection Countermeasures



General Segment Elements Countermeasures (Including roadway departures)

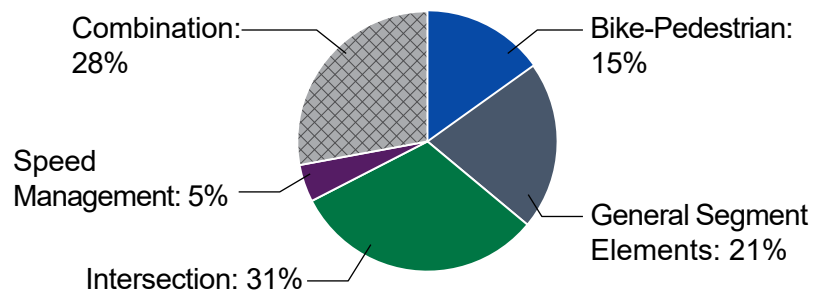


Bike-Pedestrian Countermeasures



Speed Management Countermeasures

Figure D.1: Percentage of Countermeasures by Type



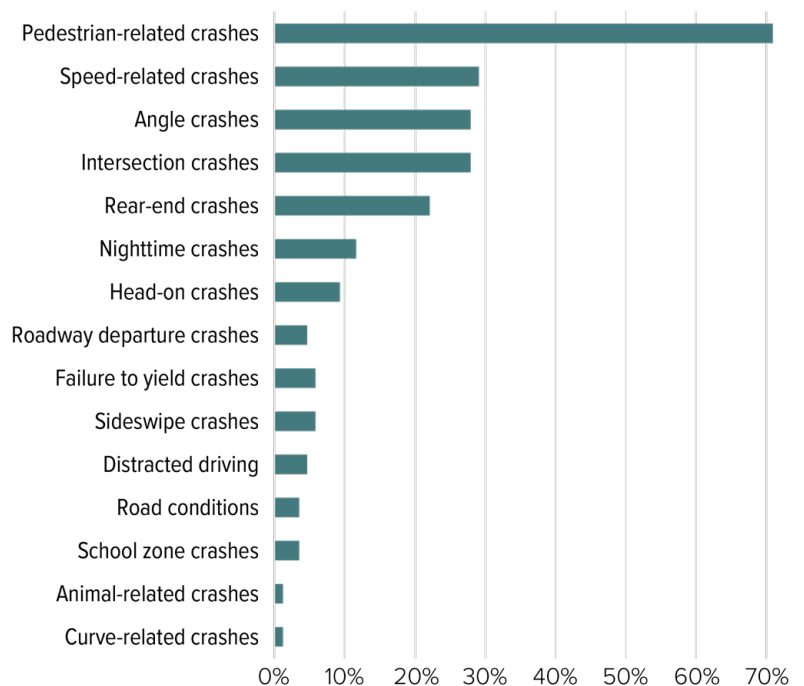
Almost a third of the countermeasures (28%) were categorized as meeting multiple criteria, and therefore categorized as a combination countermeasure.

Targeted Safety Issues

The countermeasures developed under this effort address a wide range of safety issues. The most common types of safety issues addressed by the countermeasures include those related to non-motorized crashes (71%), angle crashes (28%), intersection crashes (28%), rear-end crashes (22%), speed-related crashes (29%), and roadway departure crashes (5%). Other issues addressed by the countermeasures include:

- Failure to yield
- Night/dark conditions
- Head-on crashes
- Distracted driving
- Animal/wildlife collisions
- Sideswipe crashes
- Multimodal safety
- General roadway surface safety
- School zone safety
- Curve-related safety

Figure D.2: Percent of Countermeasures Addressing Each Safety Issue

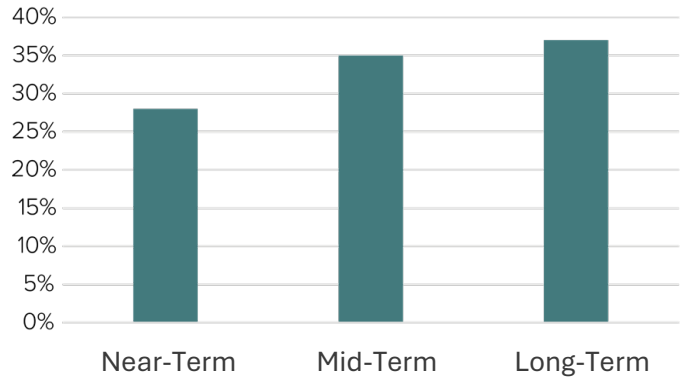


Implementation Timeframes

The countermeasures developed through this effort include twenty-nine (29) that could be developed in the near-term¹, thirty-nine (39) that could be implemented in the mid-term², and twenty-nine (29) that would most likely be implemented in the long-term³.

1. Near-term defined here as within the first two years
2. Mid-term defined here as between five and ten years
3. Long-term defined here as ten years or more into the future

Figure D.3: Percentage of countermeasures by implementation timeframe



Land Use Context

Land use and development intensity influence the character and needs of an area, impacting factors like travel speeds, parking needs, recreational events, and commercial activities. Not all countermeasures are most effective in every land use or development context. Tailoring countermeasures to various land use and development contexts can be an effective way to ensure implementation aligns with the character and needs of the area. The following categories for land use and development intensities are presented based on the Evaluating Transportation Land Use Impacts, Victoria Transport Policy Institute (March 2023):



Urban Core

Considered the typical downtown or central business district area, this context is defined by a high diversity of uses, including multi-family residential, office, retail, entertainment, civic, and cultural facilities. Development is high-density and includes high-rise structures with minimal setbacks, high street wall frontage, minimal building gaps, and off-street structured parking. Because of its development density and diversity of uses, this land-use pattern generates a high proportion of non-motorized trips, including walking, transit, and bicycling.



Urban Center

Similar to Urban Core, this context is characterized by a high diversity of uses, including multi-family residential, office, retail, entertainment, civic, and cultural facilities, while having a moderately high-density of development. Urban Centers are typically characterized by mid-rise structures, minimal setbacks, a variety of street wall frontages, and off-street parking. Urban Centers may be either large commercial business districts in historic towns or newer, transit-oriented developments centered around a transit station. Because of its development density and diversity of uses, this land-use pattern generates a moderate to high volume of non-motorized trips.



Town Center

While smaller and less dense than either of the urban contexts, the Traditional Town Center is still characterized by a high diversity of use types, including residential, office, retail, civic, and cultural facilities. Structures are typically mid- to low-rise buildings and are oriented toward the street with no setbacks. Parking is often provided on-street along the main thoroughfare, with additional parking at the rear of the building accessible by alleys or other minor streets. These areas often serve the dual purpose of accommodating both short trips in the areas surrounding the commercial corridor as well as longer pass-through trips.



Suburban Activity Center

Located outside of the major Urban Centers, the Suburban Activity Center is typically found along or at the intersection of major arterials. They feature a medium diversity of uses, including residential (both multi-family and single-family), office, and retail facilities. Development is at a much lower density than that in the Urban Core, Urban Center, and Traditional Town Center, and typically consists of detached low-rise structures with a range of setbacks.



Suburban

With a moderate to low diversity of uses, the suburban context typically contains primarily single-family residential development on lot sizes ranging from one-eighth of an acre to one acre. Office parks and small commercial strip retail are scattered throughout the area, along with neighborhood-level civic and cultural facilities. Developments are typically larger in area and single-use, discouraging non-automobile trips. Buildings are primarily oriented toward parking, which is usually provided off-street.



Rural

Rural areas are the lowest density of the six contexts. These areas are primarily a mix of agricultural uses and green space, with some scattered development in large-lot residential clusters. Trip distances are long, as origins and destinations are few and far between. Mobility is the primary transportation need.

Each countermeasure was assigned the appropriate land use and development intensity in which it would be considered most effective. All of the countermeasures identified in this study align with at least two of these land use and development intensity categories and several of them are suitable for implementation across all land use and development intensities.

Crash Reduction Factor

Crash Reduction Factors (CRF) measure the expected percentage reduction in fatal and serious injury crashes after implementing a specified safety improvement. For this study, CRFs were collected from National or State research organizations such as the Federal Highway Administration (FHWA), the National Cooperative Highway Research Program (NCHRP), and various State Departments of Transportation (DOT) to provide an effective platform for comparing the countermeasures. Information was not available in every instance, but in the end, a CRF was identified for 66% (57) of the identified countermeasures.

The median CRF predicted for countermeasures in this study is 35%, with a minimum CRF of 3% and a maximum CRF of 90%.

Figure D.4: Example CRF range, roundabouts countermeasure

High Level Safety Benefit (CRF) - Total	
58-67%	
Fatality/Injury	Property Damage Only
78-82%	NA

Estimated Per-Unit Cost Range

Cost is a critical factor in selecting safety countermeasures. Agencies must allocate limited resources to projects with the greatest safety impacts. An estimated per unit cost range for each countermeasure helps understand its relative cost and cost-effectiveness. This approach ensures transparency, aids in cost-benefit analysis, and supports efficient resource allocation.

Cost can vary greatly based on the size and scope of a roadway safety project. Starting with a survey of background and field research, a cost range was estimated per unit for each countermeasure. These cost ranges were categorized into three tiers.

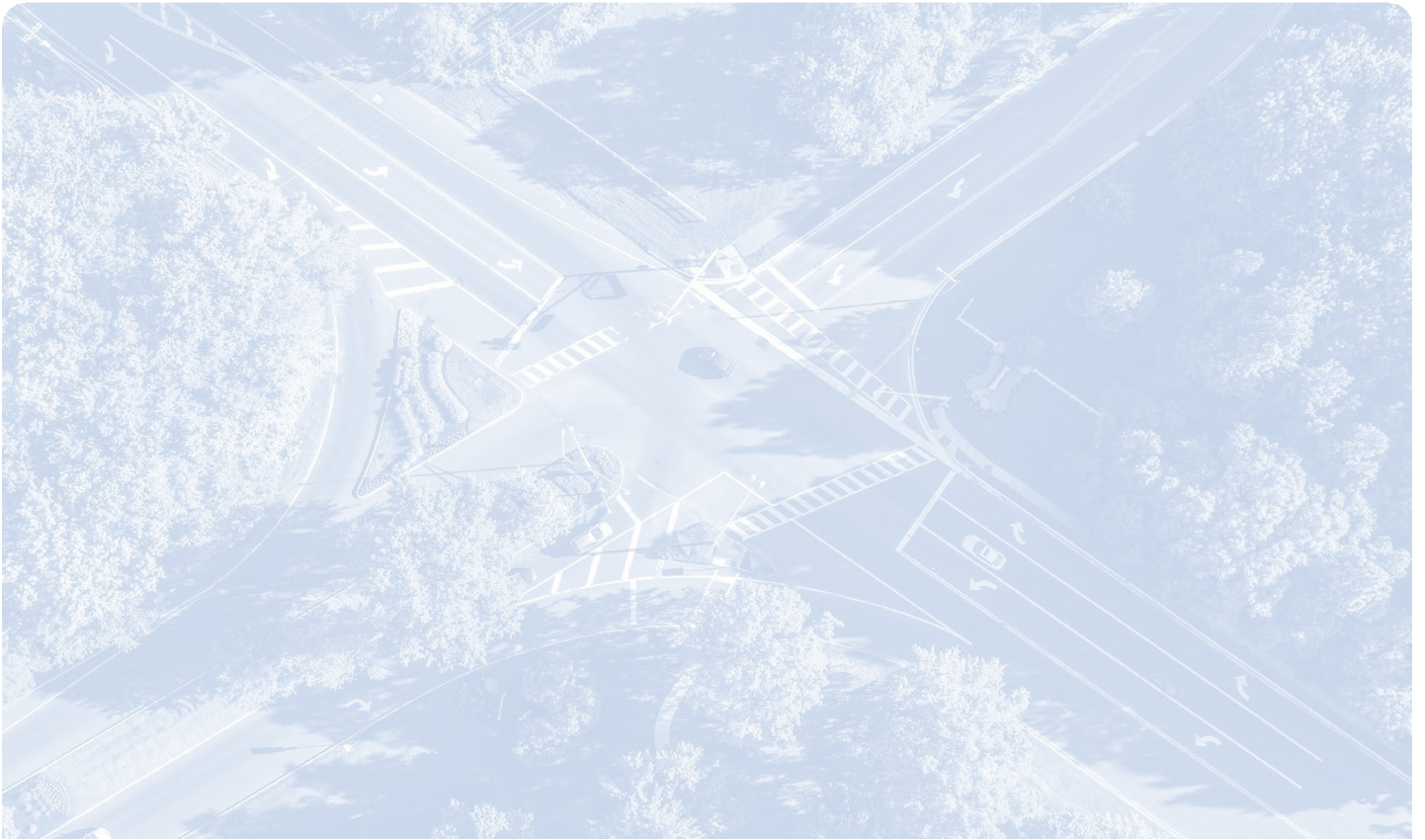
- 💰 Tier 1: Up to \$149,999
- 💰💰 Tier 2: From \$150,000 to \$499,999
- 💰💰💰 Tier 3: \$500,000 or greater

Ascribing a per unit cost range allows an agency to estimate planning-level cost estimates using the cost tiers and the dimensions for per-unit cost estimate ranges based on 2024 dollars.

Tier 1 cost countermeasures are mostly comprised of signs, striping, delineators, minor lighting upgrades, modest intersection updates, and weather/vegetation mitigation.

Tier 2 cost countermeasures include signal upgrades, bus stop extensions, chicanes, mid-block crossings, smaller roundabouts, driveway closures, shoulder improvements, and speed safety cameras.

Tier 3 cost countermeasures include road diets, new turn lanes and interchanges, center concrete medians, new sidewalks and shared use paths, larger or more complex roundabouts, corridor lighting, variable speed limits, corridor lighting, and corridor access management.



Intersection Countermeasures



1 Advance Dilemma Zone Detection



Technology that detects vehicles approaching an intersection at unsafe speeds and adjusts signal timing to prevent sudden stops or red-light entries.



Advance Dilemma Zone Detection

Targeted Crash Type and/or Behavior

Traffic safety; failure to stop at red traffic signal lights

Facility Type



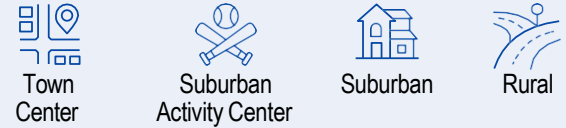
Timeframe



Design Hierarchy Tier

Tier 3: Manage Conflicts in Time

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

8.2% (All); 43.6% (Angle)

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999



Estimated Cost:

Site and need specific each intersection

Source: CMF Clearinghouse; <https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=4854>

2 Advanced Signal Warning Systems (Flashing Lights)



Supplementary warning devices that use flashing lights to alert drivers of upcoming traffic signals, signal changes, or specific intersection conditions to improve driver awareness and reduce crashes.



How to use a pedestrian hybrid beacon

Source: flickr.com/photos/sfbike/

Targeted Crash Type and/or Behavior

Red light running crashes; Intersection crashes during poor visibility conditions; High-speed approach crashes; T-bone crashes

Facility Type



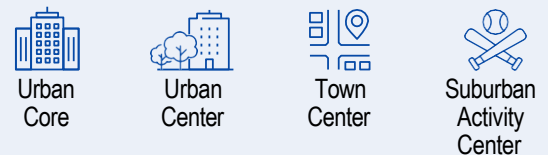
Timeframe



Design Hierarchy Tier

Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

N/A

Fatality/Injury

N/A

Property Damage Only

N/A

Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999



Estimated Cost: \$10,000-\$75,000 per unit

Source: N/A



3 Advanced Signals at Intersections



Traffic signal technologies and timing strategies that go beyond basic red-yellow-green operations to provide enhanced safety and operational benefits for all road users.



Dynamic warning sign used as a collision avoidance system

Credit: PennDOT

Source: https://nacto.org/wp-content/uploads/hchrp613_ray.pdf on page 32

Targeted Crash Type and/or Behavior

Pedestrian-vehicle crashes during crossing movements; Right-hook and left-hook crashes between vehicles and bicycles; Bicycle-vehicle crashes at complex intersections with multiple conflict points; Crashes involving pedestrians with visual disabilities due to inadequate signal information

Facility Type



Intersection

Timeframe



Mid-Term

Design Hierarchy Tier

Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



Urban Core



Urban Center



Town Center



Suburban Activity Center



Suburban

High Level Safety Benefit (CRF) - Total

N/A

Fatality/Injury

NA

Property Damage Only

NA



Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999



Estimated Cost:

\$6,000-\$65,000 per intersection

Source: N/A

4 Advanced Stop/Yield Markings



Markings set back from crosswalks to guide vehicles on where to stop or yield. They reduce multiple threat crashes resulting from having multiple travel lanes in the same direction by improving visibility for both drivers and pedestrians.



Advanced Stop/Yield Markings
Photo courtesy of Free Range Stock,
www.freerangestock.com

Targeted Crash Type and/or Behavior

Failure to stop crashes; failure to yield crashes; pedestrian and bicycle-related crashes

Facility Type



Intersection

Timeframe



Near-term

Design Hierarchy Tier

Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



Urban Core



Urban Center



Town Center



Suburban Activity Center



Suburban



Rural

High Level Safety Benefit (CRF) - Total

90%

Fatality/Injury

96%

Property Damage Only

100%



Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999



Estimated Cost:

New Markings, Signs & Posts: \$500-\$1,000 per unit

Source: CMF Clearinghouse; <https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=9070>

5 Concrete Curb Extensions



Extending curbs into the roadway at intersections narrows the road, shortens crossing distances, and tightens turning radii, improving pedestrian safety by enhancing visibility and slowing traffic.



Concrete Curb Extension
Original photo taken in field

Targeted Crash Type and/or Behavior

Speed-related crashes; pedestrian-related crashes; angle crashes

Facility Type



Timeframe



Design Hierarchy Tier

- Tier 1: Remove Severe Conflicts
- Tier 2: Reduce Vehicle Speeds
- Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

35%

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999



Estimated Cost:

>\$150,000 per unit

Source: <https://menlopark.gov/files/sharedassets/public/v/3/public-works/documents/transportation/transportation-projects/menloparkvzap-countermeasuretoolbox.pdf>

6 Cross Traffic Does Not Stop - Adding Signage for Awareness



Signs placed at stop-controlled intersections to alert drivers that cross-traffic does not stop, reducing the risk of collisions due to misinterpretation of traffic flow.



Cross Traffic Does Not Stop Sign
Photo courtesy of Wikimedia Commons, <https://commons.wikimedia.org/>

Targeted Crash Type and/or Behavior

Unsignalized intersection safety

Facility Type



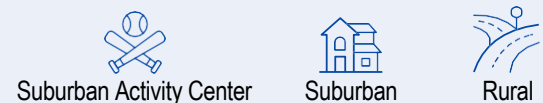
Timeframe



Design Hierarchy Tier

- Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

NA

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999



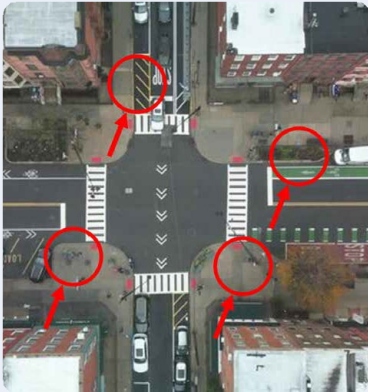
Estimated Cost:

\$500-\$1,000 per intersection

Source: NA



Restricting parking near intersections improves sightlines, enhancing safety for drivers and pedestrians.



Daylighting/Intersection Parking Restrictions

Photo courtesy of Wirestock Creators/Adobe Stock

Targeted Crash Type and/or Behavior

Angle crashes; pedestrian-related crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 1: Remove Severe Conflicts
Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

11%

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):
Tier 1: \$ <\$149,999
\$ \$ \$ \$



Estimated Cost:
\$2,000-\$20,000 per intersection

Source: CMF Clearinghouse;
<https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=161>



Dedicated lanes for left and right-turns help organize traffic flow and reduce conflicts between turning vehicles and other road users.



Dedicated Left and Right Turn at Intersections

Photo courtesy of Vitakot/istock photo

Targeted Crash Type and/or Behavior

Rear end crashes; angle crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 1: Remove Severe Conflicts
Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

14%

Fatality/Injury

23%

Property Damage Only

NA

Cost

Cost Tier Level (1-3):
Tier 1: \$ <\$149,999 to \$ \$ \$ \$
Tier 2: \$ \$ \$ \$150,000 - \$499,999



Estimated Cost:
\$120,000 to \$499,999 per intersection

Source: CMF Clearinghouse;
<https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=285>



A traffic control device that blocks through vehicular movement at an intersection by placing a physical barrier diagonally across

the intersection, while still allowing pedestrian and bicycle access and some turning movements.



Diagonal Diverter Extensions

Source: <https://www.sanantonio.gov/PublicWorks/FAQs/Traffic/Traffic-Calming/Diagonal-Diverter-Extensions>

Targeted Crash Type and/or Behavior

Pedestrian-vehicle crashes from high-speed cut-through traffic; Bicycle-vehicle crashes from vehicles using residential streets inappropriately for through movement; Intersection crashes from vehicles traveling at excessive speeds through neighborhood intersections; Vehicle-vehicle crashes

Facility Type



Intersection

Timeframe



Design Hierarchy Tier

Tier 1: Remove Severe Conflicts

Applicable Context Zone



Suburban Activity Center



Suburban

High Level Safety Benefit (CRF) - Total

N/A

Fatality/Injury

NA



Property Damage Only

NA



Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999



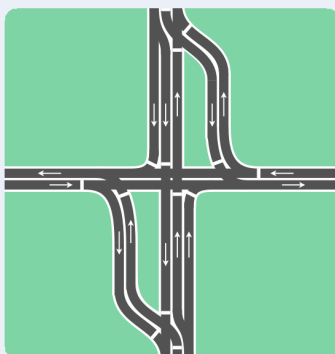
Estimated Cost:

\$5,000 to \$85,000 per unit

Source: N/A



Intersection design that relocates the left-turn movements from the main intersection to an upstream signalized crossover intersection. This eliminates the left-turn signal phase at the main intersection and allows execution of the left-turn simultaneously with the through traffic at the main intersection.



Displaced Left-Turn

Targeted Crash Type and/or Behavior

Speed-related crashes; run-off-road crashes; head-on crashes; nighttime crashes

Facility Type



Intersection

Timeframe



Design Hierarchy Tier

Tier 1: Remove Severe Conflicts
Tier 3: Manage Conflicts in Time

Applicable Context Zone



Town Center



Suburban Activity Center



Suburban



Rural

High Level Safety Benefit (CRF) - Total

N/A

Fatality/Injury

TBD



Property Damage Only

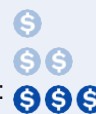
TBD



Cost

Cost Tier Level (1-3):

Tier 3: \$ >\$500,000



Estimated Cost:

\$3-5M per intersection

Source: FHWA, FHWA-SA-14-068 <https://safety.fhwa.dot.gov/intersection/crossover/fhwasa14068.pdf>

11 Diverging Diamond Interchange (DDI)



Intersection design that eliminates the need for left-turns across opposing traffic by creating crossovers that transition traffic from the right side of the road to the left side and back again. DDIs are best utilized in locations with high volumes of left-turns.



Diverging Diamond Interchange (DDI)
Photo courtesy of George/Adobe Stock

Targeted Crash Type and/or Behavior

Left-turn crashes at intersections; lack of pedestrian and bicyclists separated facilities

Facility Type



Timeframe



Design Hierarchy Tier

Tier 1: Remove Severe Conflicts

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

14.2%

Fatality/Injury

44.2%



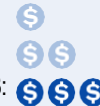
Property Damage Only

8.0%



Cost

Cost Tier Level (1-3):



Tier 3: >\$500,000

Estimated Cost:
\$2,000,000-
\$10,000,000
per interchange

Source: CMF Clearinghouse;
<https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=10762>

12 Intersection Lighting and Illumination



Improved intersection lighting increases visibility during low-light conditions. Adequate illumination reduces crash rates by helping drivers and pedestrians see each other more clearly.



Intersection Lighting/Illumination
Photo courtesy of Peter de Kievith/Adobe Stock

Targeted Crash Type and/or Behavior

Nighttime crashes; angle crashes; rear-end crashes; pedestrian-related crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

32.6% (Angle); 43.8% (Vehicle/Pedestrian)

Fatality/Injury

NA



Property Damage Only

NA



Cost

Cost Tier Level (1-3):

Tier 1: <\$149,999



Estimated Cost:
\$2,000-\$4,000
per unit

Source: CMF Clearinghouse; CMF Clearinghouse; <https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=2376>; <https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=2379>

13 Intersection Realignment



Intersections realigned to improve sightlines, enhance predictability, and reduce conflict points to elevate safety.



Intersection Realignment
Photo courtesy of Ceogh/Freerange Stock

Targeted Crash Type and/or Behavior
Rear-end crashes; angle crashes; pedestrian-related crashes

Facility Type

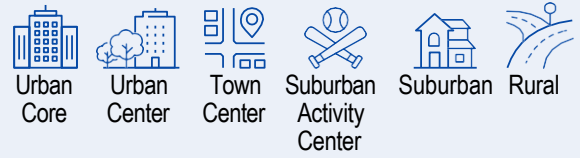


Timeframe



Design Hierarchy Tier
Tier 1: Remove Severe Conflicts
Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

NA

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):
Tier 1: \$ <\$149,999 to
Tier 3: \$ \$ \$ >\$500,000

Estimated Cost:
\$100,000-\$2.5M per intersection

Source: https://cmfclearinghouse.fhwa.dot.gov/study_detail.php?stid=565

14 Intersection Signal Coordination



A timing system that synchronizes traffic signals along a corridor or within a network of intersections, helping to reduce stop-and-go traffic, improve flow, and enhance safety by reducing vehicle conflicts.



Intersection Signal Coordination
Photo courtesy of Max Safaniuk/Adobe Stock

Targeted Crash Type and/or Behavior
Rear-end crashes; angle crashes; pedestrian-related crashes

Facility Type

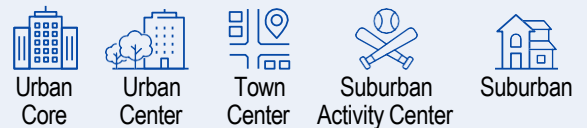


Timeframe



Design Hierarchy Tier
Tier 2: Reduce Vehicle Speeds
Tier 3: Manage Conflicts in Time

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

62%

Fatality/Injury

NA

Property Damage Only

59%

Cost

Cost Tier Level (1-3):
Tier 1: \$ <\$149,999
\$ \$ \$ \$ \$

Estimated Cost:
\$2,000 per phase or \$10,000-\$65,000 per signal

Source: <https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=9859>; <https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=9861>





Regulatory signs placed at intersections to control vehicle movements reduce conflicts and provide clear guidance for yielding or stopping, thereby minimizing crash risks.



Intersection Stop Ahead Warning Sign
Photo courtesy of Carlos Santa Maria/Adobe Stock

Targeted Crash Type and/or Behavior

Failure to stop crashes; failure to yield crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

NA

Fatality/Injury

27%

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999



Estimated Cost:

\$500 - \$1,000 per intersection



Source: <https://highways.dot.gov/safety/proven-safety-countermeasures/systemic-application-multiple-low-cost-countermeasures-stop>



Stop signs with LED lights along the edge that flash continuously to increase visibility, especially in low-light or high-speed areas.



LED Bordered Stop Sign
Photo courtesy of knelson20/Adobe Stock

Targeted Crash Type and/or Behavior

Nighttime crashes; angle crashes; rear-end crashes; pedestrian-related crashes; distracted driving and attentiveness mitigation

Facility Type



Timeframe



Design Hierarchy Tier

Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

9.1%

Fatality/Injury

9.4%

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999



Estimated Cost:

\$500-\$1,500 per unit



Source: CMF Clearinghouse;
<https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=6051>
<https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=6052>

17 No Turn On Red



Prohibited right-turns on red at intersections reduce conflicts with pedestrians and other motorists.



No Turn on Red Sign
Photo courtesy of ml/Adobe Stock

Targeted Crash Type and/or Behavior

Angle crashes; pedestrian-related crashes

Facility Type



Intersection

Timeframe



Design Hierarchy Tier

Tier 3: Manage Conflicts in Time

Applicable Context Zone



Urban Core



Urban Center



Town Center

High Level Safety Benefit (CRF) - Total

3%

Fatality/Injury

NA



Property Damage Only

NA



Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999



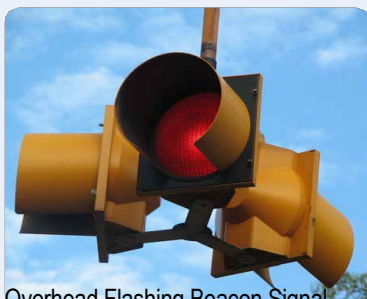
Estimated Cost: \$200-\$3,500 per unit

Source: https://safety.fhwa.dot.gov/ped_bike/tools_solve/fnwas18041/#ref

18 Overhead Flashing Beacon Signal



Flashing beacons positioned above the roadway to warn of hazards or intersections, increasing visibility and alerting drivers to potential conflicts.



Overhead Flashing Beacon Signal
Photo courtesy of Christina Xu/flickr Creative Commons

Targeted Crash Type and/or Behavior

Nighttime crashes; angle crashes; rear-end crashes; pedestrian-related crashes; distracted driving and attentiveness mitigation

Facility Type



Intersection



Street

Timeframe



Design Hierarchy Tier

Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



Urban Core



Urban Center



Town Center



Suburban Activity Center



Suburban

High Level Safety Benefit (CRF) - Total

NA

Fatality/Injury

10.2%



Property Damage Only

NA



Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999



Estimated Cost:

\$10,000 - \$150,000 per unit

Source: <https://highways.dot.gov/sites/fhwa.dot.gov/files/FHWA-HRT-08-044.pdf>





Stop signs that flash when a vehicle approaches too quickly, warning drivers to slow down in time to stop safely.



Radar Activated Flashing Border Stop Sign
Photo courtesy of knelson20/Adobe Stock

Targeted Crash Type and/or Behavior

Nighttime crashes; angle crashes; rear-end crashes; pedestrian-related crashes; distracted driving and attentiveness mitigation

Facility Type



Timeframe



Design Hierarchy Tier

Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

41.1% (Angle Crashes)

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 1: <\$149,999



Estimated Cost:

\$1,500-\$2,500 per unit

Source: CMF Clearinghouse; <https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=4074>



Elevating the entire intersection area above the normal roadway level, creating a flat, table-like surface that forces vehicles to slow down when approaching and traversing the intersection.

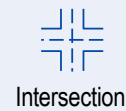


Raised Intersection
Source: <https://nacto.org/publication/urban-street-design-guide/intersections/raised-intersections/>

Targeted Crash Type and/or Behavior

Pedestrian-vehicle crashes from excessive vehicle speeds through intersections; Right-angle crashes from vehicles failing to yield or stop at intersections; Pedestrian crashes from vehicles making high-speed turning movements; Bicycle-vehicle crashes due to aggressive driving behavior at intersections; Severe injury crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 2: Reduce Vehicle Speeds

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

N/A

Fatality/Injury

N/A

Property Damage Only

N/A

Cost

Cost Tier Level (1-3):

Tier 1: <\$149,999



Estimated Cost:

\$12,500 - \$114,000 per intersection

Source: UNC Highway Research Center (2013)



Design adjustments, such as restricted or modified left-turn lanes and signals, installed to reduce the risk of collisions between turning vehicles and oncoming traffic or pedestrians.



Reduced Left-Turn Conflict

Source: <https://highways.dot.gov/sites/fhwa.dot.gov/files/2022-06/fhwasa14062.pdf>

Targeted Crash Type and/or Behavior

Angle crashes; rear-end crashes; head-on crashes

Facility Type



Intersection

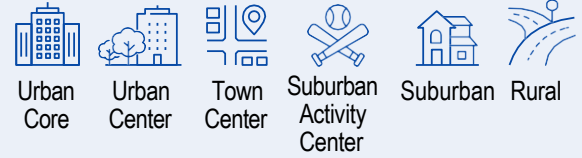
Timeframe



Design Hierarchy Tier

Tier 1: Remove Severe Conflicts

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

NA

Fatality/Injury

54% - RCUT;
63% - Unsignalized RCUT;
30% - MUT



Property Damage Only

NA



Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999 to
\$ \$
Tier 3: \$ \$ \$ >\$500,000

Estimated Cost:

\$100,000-\$2.5M per intersection

Source: FHWA; <https://highways.dot.gov/safety/proven-safety-countermeasures/reduced-left-turn-conflict-intersections>



Backplates added to signal heads with reflective material or LED borders to enhance signal visibility and increase driver awareness and compliance, especially in low light conditions.



Reflective Signal Backplate

Photo courtesy of Tracy Elford/Pexels

Targeted Crash Type and/or Behavior

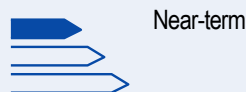
Intersection crashes; angle crashes; rear-end crashes; pedestrian-related crashes

Facility Type



Intersection

Timeframe



Design Hierarchy Tier

Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

15%

Fatality/Injury

NA



Property Damage Only

NA



Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999
\$ \$
\$ \$ \$

Estimated Cost:

\$6,000 - \$12,000 per unit

Source: FHWA; <https://safety.fhwa.dot.gov/provencountermeasures/backplate.cfm#psc-footnote>



Eliminating dedicated right-turn lanes (slip lanes) that allow vehicles to bypass the main intersection or converting them to serve other functions to improve safety for pedestrians and cyclists.



What used to be a driving shortcut is now a bike-share station with a street mural from NYC DOT's Urban Art program.

Source: <https://usa.streetsblog.org/2018/07/13/cities-are-replacing-dangerous-slip-lanes-with-space-for-people>

Targeted Crash Type and/or Behavior

Right-turn vehicle crashes with pedestrians in crosswalk; Bicycle-vehicle crashes from high-speed right turns across bike lanes; Pedestrian crashes from vehicles making free-flowing right turns without stopping; Multiple-threat crashes; High-speed turning crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 1: Remove Severe Conflicts

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

10-40%

Fatality/Injury

N/A

Property Damage Only

N/A

Cost

Cost Tier Level (1-3):	Estimated Cost:
Tier 1: \$ <\$149,999 to	\$100,000 - \$500,000+ per intersection
Tier 3: \$ \$ \$ >\$500,000	

Source: NCHRP Report 617: Accident Modification Factors for Traffic Engineering and ITS Improvements



Roundabouts are circular intersections where traffic flows counterclockwise around a central island, reducing speeds and greatly reducing many severe crash types, including head-on, rear-end, and angle crashes by reducing crossing conflict points.



Roundabout
Photo courtesy of Cavan Images/Adobe Stock

Targeted Crash Type and/or Behavior

Speed-related crashes; angle crashes; rear-end crashes; pedestrian-related crashes

Facility Type



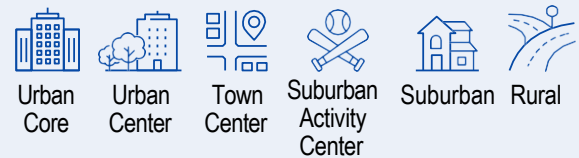
Timeframe



Design Hierarchy Tier

Tier 1: Remove Severe Conflicts
Tier 2: Reduce Vehicle Speeds

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

58-67%

Fatality/Injury

78-82%

Property Damage Only

NA

Cost

Cost Tier Level (1-3):	Estimated Cost:
Tier 3: \$ \$ \$ >\$500,000	\$500,000 - \$2.5M site and location specific

Source: FHWA; <https://highways.dot.gov/safety/proven-safety-countermeasures/roundabouts>



Signs placed in advance of traffic signals to warn drivers of an upcoming signal, giving them time to adjust speed and reducing rear-end collisions.



Signal Ahead Sign
Photo courtesy of jeffwqc/Adobe Stock

Targeted Crash Type and/or Behavior

Failure to stop at signalized intersections

Facility Type



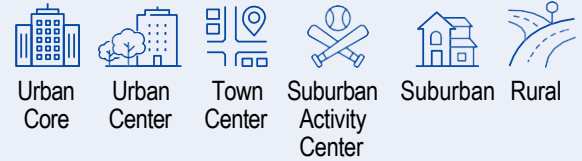
Timeframe



Design Hierarchy Tier

Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

NA

Fatality/Injury

10-27%



Property Damage Only

NA



Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999

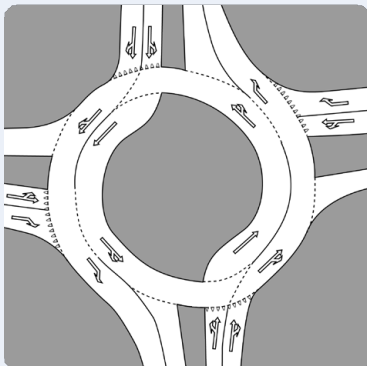


Estimated Cost: \$500-\$1,000 per intersection

Source: FHWA; <https://highways.dot.gov/safety/proven-safety-countermeasures/systemic-application-multiple-low-cost-countermeasures-stop>



The turbo roundabout operates like a standard roundabout but features distinct geometry and traffic controls, effectively reducing lane-change conflicts and addressing crash types common in traditional multilane roundabouts.



Turbo Roundabout
Photo courtesy of livq/Wikimedia Creative Commons

Targeted Crash Type and/or Behavior

Speed-related crashes; angle crashes; rear-end crashes; pedestrian-related crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 1: Remove Severe Conflicts
Tier 2: Reduce Vehicle Speeds

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

NA

Fatality/Injury

76%



Property Damage Only

NA



Cost

Cost Tier Level (1-3):

Tier 3: \$ \$ \$ >\$500,000

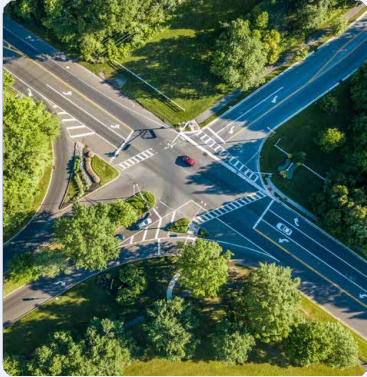


Estimated Cost: \$2M-\$5M Site/project specific

Source: <https://safety.fhwa.dot.gov/intersection/roundabouts/fhwasa20019.pdf>



Vegetation control around intersections to ensure clear sightlines for drivers and pedestrians, reducing the risk of crashes due to obstructed views.



Vegetation near Intersection
Photo courtesy of oldmn/Adobe Stock

Targeted Crash Type and/or Behavior

Angle crashes; failure to yield crashes; pedestrian-related crashes

Facility Type



Intersection

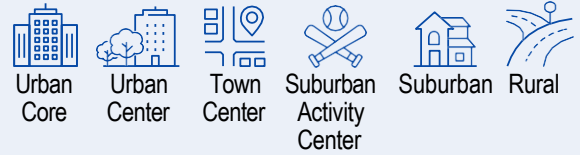
Timeframe



Design Hierarchy Tier

Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

NA

Fatality/Injury

NA



Property Damage Only

NA



Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999



Estimated Cost:

\$100-\$600 per acre

Source: https://safety.fhwa.dot.gov/local_rural/training/fhwas07018/vegetationfv1108.pdf



Extended or decreased yellow light durations to reduce red-light violations and enhance safety at signalized intersections.



Yellow Change Interval
Photo courtesy of Luis/Adobe Stock

Targeted Crash Type and/or Behavior

Intersection crashes; failure to yield crashes; rear-end crashes; angle crashes

Facility Type



Intersection

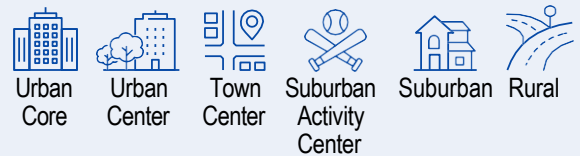
Timeframe



Design Hierarchy Tier

Tier 3: Manage Conflicts in Time

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

8-14%

Fatality/Injury

12%



Property Damage Only

NA



Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999



Estimated Cost:

\$25,000 - \$50,000 per intersection

Source: FHWA;

<https://highways.dot.gov/safety/proven-safety-countermeasures/yellow-change-intervals>



General Segment Elements Countermeasures





Weather data from nearby stations used to activate de-icing mechanisms on roadways or to display dynamic message signs (DMS) alerting drivers to road conditions, such as ice or snow, enhance safety by preemptively managing hazardous conditions.



Automated Message on DMS Sign
Photo courtesy of spiritofamerica/Adobe Stock

Targeted Crash Type and/or Behavior

Road condition safety

Facility Type



Street

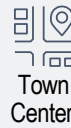
Timeframe



Design Hierarchy Tier

Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



Town Center



Suburban Activity Center



Suburban



Rural

High Level Safety Benefit (CRF) - Total

NA

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 2: \$ \$ \$ \$ \$ 150,000 - \$499,999

Estimated Cost:

\$150,000-
\$200,00 per
installation

Source: NA



Center turn lanes enable left-turns from both directions, improving predictability, and keeping turning vehicles out of through traffic to reduce congestion and rear-end collision risks.



Center Left-Turn Lane
Photo courtesy of Chameck.org/Flickr Creative Commons

Targeted Crash Type and/or Behavior

Speed-related crashes

Facility Type



Street

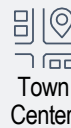
Timeframe



Design Hierarchy Tier

Tier 1: Remove Severe Conflicts

Applicable Context Zone



Town Center



Suburban Activity Center



Suburban



Rural

High Level Safety Benefit (CRF) - Total

36%

Fatality/Injury

34.8%

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999
Tier 3: \$ \$ \$ \$ \$ >\$500,000

Estimated Cost:

\$125,000-\$1M
per mile

Source: FHWA; <https://www.fhwa.dot.gov/publications/research/safety/08046/index.cfm>

31 Corridor Access Management



Strategies to control access to major roads to improve safety by managing access points along corridors, which minimizes conflict points, reduces potential crashes, and enhances flow.



Corridor Access Management
Photo courtesy of Song_about_summer/Adobe Stock

Targeted Crash Type and/or Behavior

Rear end crashes; angle crashes

Facility Type



Street

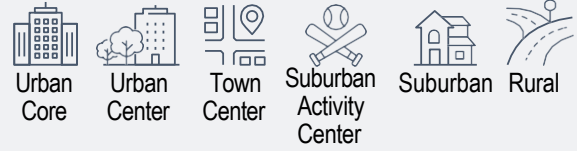
Timeframe



Design Hierarchy Tier

Tier 1: Remove Severe Conflicts

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

NA

Fatality/Injury

11% (A,B,C)



Property Damage Only

5%



Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999



Tier 3: \$ \$ \$ >\$500,000

Estimated Cost:

\$50,000-\$500,000 per unit

Source: CMF Clearinghouse; <https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=586>

32 Led Lighting Fixture Upgrades



Replacement of traditional lights with LEDs for better roadway illumination, enhanced visibility and reduced energy costs.



LED Lighting Fixture
Photo courtesy of Peter de Kievith/Adobe Stock

Targeted Crash Type and/or Behavior

Nighttime crashes; angle crashes; rear end crashes; pedestrian-related crashes

Facility Type



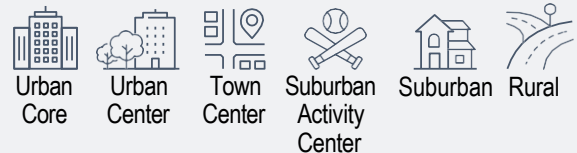
Timeframe



Design Hierarchy Tier

Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

NA

Fatality/Injury

28%-nighttime injury crashes; 42%-nighttime injury pedestrian crashes at intersections



Property Damage Only

NA



Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999



Estimated Cost:

\$2,500-\$3,000 per unit, assume fewer than 50 new units

Source: FHWA; <https://highways.dot.gov/safety/other/visibility/roadway-lighting>





Additional lighting fixtures along roads to improve visibility for both drivers and pedestrians, particularly in high-use areas.



Continuous Corridor Lighting
Photo courtesy of rh2010/Adobe Stock

Targeted Crash Type and/or Behavior

Nighttime crashes; roadway departure crashes; pedestrian-related crashes

Facility Type



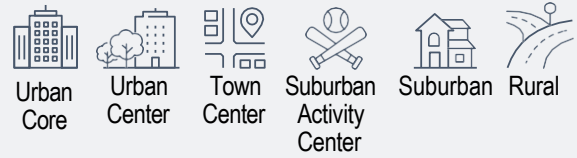
Timeframe



Design Hierarchy Tier

Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

21%

Fatality/Injury

27%



Property Damage Only

NA



Cost

Cost Tier Level (1-3):

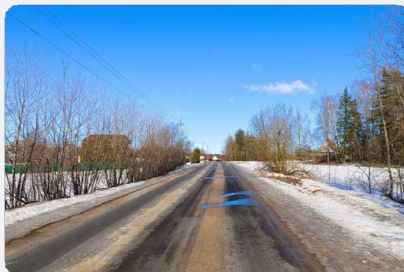
Tier 2: \$ \$ \$ \$150,000 - \$499,999 to
Tier 3: \$ \$ \$ \$ >\$500,000

Estimated Cost:
\$1,000 per unit, assumed over 150 new units

Source: https://safety.fhwa.dot.gov/ped_bike/tools_solve/ped_tctpepc/#crash



Rows of vegetation planted along roadways to reduce snow drifting onto roads, improving visibility and road safety in snowy regions.



Living Snow Fence
Photo courtesy of Ilya Yurkin/Pxhere

Targeted Crash Type and/or Behavior

Road condition safety and visibility

Facility Type



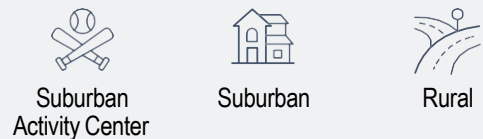
Timeframe



Design Hierarchy Tier

Tier 3: Manage Conflicts in Time

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

11%

Fatality/Injury

NA



Property Damage Only

NA



Cost

Cost Tier Level (1-3):

Tier 1: \$ \$ \$ \$ <\$149,999

Estimated Cost:
\$5,000 per mile

Source: <https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=189>; CMF Clearinghouse



Community-specific plans designed to address unique traffic safety challenges through tailored interventions along specific roadways.



Local Road Safety Plans
Photo courtesy of troyanphoto/Adobe Stock

Targeted Crash Type and/or Behavior

Roadway departure crashes; intersection crashes; pedestrian and bicycle-related crashes; driver behavior concerns

Facility Type



Street

Timeframe



Design Hierarchy Tier

- Tier 1: Remove Severe Conflicts
- Tier 2: Reduce Vehicle Speeds
- Tier 3: Manage Conflicts in Time
- Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

NA

Fatality/Injury

17%

Property Damage Only

NA



Cost

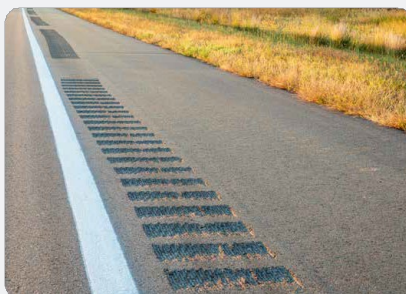
Cost Tier Level (1-3):
 Tier 1: \$ <\$149,999
 Tier 2: \$ \$
 Tier 3: \$ \$ \$ >\$500,000

Estimated Cost:
 \$10,000 - \$1M+ per unit
 Cost Specific to location and needs

Source: FHWA; <https://highways.dot.gov/safety/proven-safety-countermeasures/local-road-safety-plans>



Raised strips along road edges or centerlines that create noise and vibrations when driven over, alerting drivers who may be veering out of lanes.



Longitudinal Rumble Strips
Photo courtesy of MarekPhotoDesign/Adobe Stock

Targeted Crash Type and/or Behavior

Run-off road crashes; head-on crashes

Facility Type



Street

Timeframe



Design Hierarchy Tier

- Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

NA

Fatality/Injury

Centerline rumble strips (44-64%-) head-on fatal and injury crashes; Shoulder Rumble strips (13-51%) - single vehicle, fatal run-off-road and injury crashes



Property Damage Only

NA



Cost

Cost Tier Level (1-3):
 Tier 1: \$ <\$149,999
 Tier 2: \$ \$
 Tier 3: \$ \$ \$

Estimated Cost:
 \$500 - \$6,000 per mile

Source: FHWA; <https://highways.dot.gov/safety/proven-safety-countermeasures/longitudinal-rumble-strips-and-stripes-two-lane-roads>



37 Median Barriers



Physical barriers in the center of multi-lane roads that prevent head-on collisions by separating opposing traffic flows. Barriers may be rigid (concrete), semi-rigid (guardrail) or flexible (high tension cable) based on roadway context.



Median Barriers
Photo courtesy of Kenneth Sponsler/Adobe Stock

Targeted Crash Type and/or Behavior

Head-on crashes; opposite-direction sideswipe crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 1: Remove Severe Conflicts

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

86%

Fatality/Injury

88%



Property Damage Only

NA



Cost

Cost Tier Level (1-3):



Tier 3: \$\$\$ >\$500,000

Estimated Cost:
\$500,000 per mile

Source: CMF Clearinghouse; <https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=974>

38 Pavement Friction Management



Increased pavement friction, especially in high-risk areas like curves or intersections. Techniques include high-friction surface treatments to reduce skidding and enhance control during adverse weather.



Pavement Friction Management
Photo courtesy of ArtificialHorizons/Adobe Stock

Targeted Crash Type and/or Behavior

Roadway departure crashes; intersection crashes; pedestrian-related crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 1: Remove Severe Conflicts
Tier 2: Reduce Vehicle Speeds

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

20%

Fatality/Injury

63%



Property Damage Only

NA



Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999



Estimated Cost:
\$20-\$30 per sq. yard

Source: FHWA; https://highways.dot.gov/sites/fhwa.dot.gov/files/2022-06/walkways_brochure.pdf





Reviewing and potentially expanding the geographic boundaries, operational hours, or coverage area of existing school zones to improve safety for children walking, biking, or being dropped off at school.



School zone signs in effect and enforceable

Source: <https://www.radarsign.com/applications/school-zone-safety-2/>

Targeted Crash Type and/or Behavior

Pedestrian-vehicle crashes involving school-age children; Bicycle-vehicle crashes during school travel times; Vehicle-vehicle crashes due to sudden speed changes near schools; Pedestrian crashes outside existing school zone boundaries but within school walking areas

Facility Type



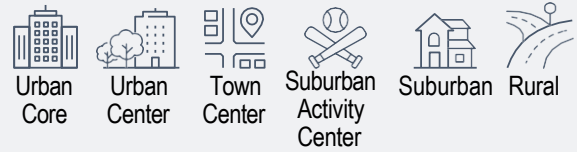
Timeframe



Design Hierarchy Tier

Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

N/A

Fatality/Injury

N/A

Property Damage Only

N/A

Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999
 \$ \$
 \$ \$ \$

Estimated Cost:

\$50-\$150 per sign plus installation

Source: N/A



Converting one-way street configurations back to two-way traffic operations to improve traffic flow, enhance pedestrian safety, and restore balanced traffic patterns.



East Wells Street in downtown Milwaukee was recently converted from a one-way street to a two-way street.

Source: Flickr - Dave Reid (2011); http://www.pedbikesafe.org/pedsafe/countermeasures_detail.cfm?CM_NUM=23

Targeted Crash Type and/or Behavior

Multiple-threat pedestrian crashes; High-speed vehicle-pedestrian crashes due to excessive speeds; Bicycle-vehicle crashes from vehicles overtaking cyclists at high speeds; Intersection angle crashes from vehicles approaching at high speeds; Rear-end crashes from sudden speed changes when transitioning between street types; Reduce vehicle speeds and vehicle miles traveled and improve access and economic activity in areas with a dense mixture of land uses such as downtown and commercial streets.

Facility Type



Timeframe



Design Hierarchy Tier

Tier 1: Remove Severe Conflicts

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

Studies and case histories show significant drop in total crashes after the restoration from one-way to two-way but the actual CRF varies

Fatality/Injury

N/A

Property Damage Only

N/A

Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999 to \$200,000
 Tier 2: \$ \$ \$150,000 - \$499,999
 \$ \$ \$

Estimated Cost:

\$20,000 to \$200,000 per mile

Sources: Indiana University, Environmental Resilience Institute, New Albany Downtown Redesign (eri.iu.edu)





Eliminating dedicated passing lanes to reduce lane width, lower speeds, and create space for other safety improvements or different road configurations.



Passing lane on a multilane roadway
 Wikimedia Commons (commons.wikimedia.org); Mr. Matte; Connecticut passing-travel-slow lane sign, I-84 eb, April 2022 (https://commons.wikimedia.org/wiki/File:Connecticut_passing-travel-slow_lane_sign,_I-84_eb,_April_2022.jpg)

Targeted Crash Type and/or Behavior

Head-on crashes; Sideswipe crashes; Rear-end crashes; High-speed differential crashes between fast-moving passing vehicles and slower traffic

Facility Type



Timeframe



Design Hierarchy Tier

Tier 1: Remove Severe Conflicts

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

N/A

Fatality/Injury

N/A

Property Damage Only

NA

Cost

Cost Tier Level (1-3):	Estimated Cost:
Tier 1: \$ <\$149,999 to	\$10,000 - \$50,000 per mile for restriping
Tier 3: \$\$\$ >\$500,000	\$100,000 - \$500,00+ per mile for pavement removal or reconstruction

Source: N/A



Formal examination of the safety performance of an existing or future road segment or intersection by an independent team to identify potential safety concerns and recommend improvements.

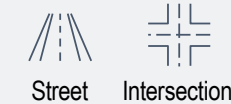


Road Safety Audit

Targeted Crash Type and/or Behavior

Rear-end crashes; angle crashes

Facility Type



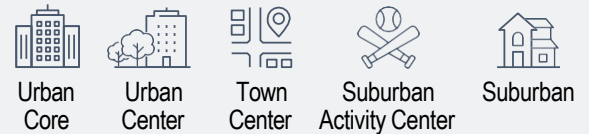
Timeframe



Design Hierarchy Tier

Tier 1: Remove Severe Conflicts
 Tier 2: Reduce Vehicle Speeds
 Tier 3: Manage Conflicts in Time
 Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

10-60%

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):	Estimated Cost:
Tier 1: \$ <\$149,999	\$25,000-\$50,000 per specific needs

Source: FHWA;

<https://highways.dot.gov/safety/proven-safety-countermeasures/road-safety-audit>



Enhanced roadside environment near curves with features like clear zones, barriers, or improved signage to reduce risks of road departure crashes.



Roadsign Design at Curves
Photo courtesy of sumroeng/Adobe Stock

Targeted Crash Type and/or Behavior

Run-off road crashes

Facility Type



Street

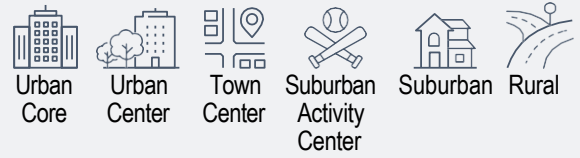
Timeframe



Design Hierarchy Tier

Tier 1: Remove Severe Conflicts
Tier 2: Reduce Vehicle Speeds

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

NA

Fatality/Injury

27%



Property Damage Only

NA



Cost

Cost Tier Level (1-3):
Tier 1: \$ <\$149,999 to
Tier 2: \$ \$
Tier 3: \$ \$ \$ >\$500,000

Estimated Cost:
Site and need specific

Source: FHWA; <https://highways.dot.gov/safety/proven-safety-countermeasures/roadside-design-improvements-curves>



A sloped pavement edge applied during road construction or resurfacing, allowing vehicles that drift off the road to return safely by reducing the risk of tire scrubbing against a vertical edge.



Safety Edge
Photo courtesy of Fenny/Adobe Stock

Targeted Crash Type and/or Behavior

Run-off road crashes

Facility Type



Street

Timeframe



Design Hierarchy Tier

Tier 1: Remove Severe Conflicts

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

21%-Run-off road crashes; 19%- Head-On crashes

Fatality/Injury

11%



Property Damage Only

NA



Cost

Cost Tier Level (1-3):
Tier 1: \$ <\$149,999
Tier 2: \$ \$
Tier 3: \$ \$ \$

Estimated Cost:
\$2,000-\$5,000 per mile

Source: FHWA; <https://highways.dot.gov/safety/proven-safety-countermeasures/safetyedgesm>



A wide shoulder area provides a safe space for vehicles to pull over, emergency stops, or non-motorized use. Using consistent material, either gravel or paved, prevents uneven surfaces that could affect vehicle control when exiting or re-entering the roadway.



Wide Shoulder Area
Photo courtesy of Ravi/Adobe Stock

Targeted Crash Type and/or Behavior

Speed-related crashes; run-off-road crashes; head-on crashes; nighttime crashes

Facility Type



Street

Timeframe



Mid-Term to



Long-Term

Design Hierarchy Tier

Tier 1: Remove Severe

Conflicts

Applicable Context Zone



Suburban Activity Center



Suburban



Rural

High Level Safety Benefit (CRF) - Total

34%

Fatality/Injury

49%



Property Damage Only

NA



Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999 to

Tier 2: \$ \$ \$ \$150,000 - \$499,999



Estimated Cost:

\$5,000-

\$150,000 per mile

Source: CMF Clearinghouse; <https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=7755>; <https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=7757>



Bike-Pedestrian Countermeasures





To provide audible tones, speech messages, and vibrating surfaces to communicate crossing timing and pushbutton locations for pedestrians with visual disabilities at signalized intersections.



A pedestrian push button allows pedestrians to activate a pedestrian signal and reassure pedestrians that they will receive a crossing indication. Source: pedbikeimages.org - Dan Burden (2006)

Targeted Crash Type and/or Behavior

Pedestrian-vehicle crashes at signalized intersections; Right-turn and left-turn vehicle conflicts with pedestrians; Pedestrian violations of signal timing due to inability to detect signal changes

Facility Type



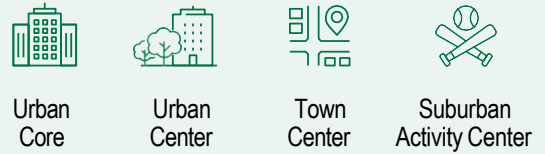
Timeframe



Design Hierarchy Tier

Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

N/A

Fatality/Injury

N/A

Property Damage Only

NA

Cost

Cost Tier Level (1-3):	Estimated Cost:
Tier 1: \$ <\$149,999	\$4,000-
Tier 2: \$ \$ \$150,000 - \$499,999	\$150,000 per intersection

Source: <https://highways.dot.gov/sites/fhwa.dot.gov/files/FHWA-HRT-23-052.pdf>



Pavement marking boxes placed at intersections allow cyclists to wait in front of vehicles during red lights, reducing conflicts and giving cyclists a head start when the light turns green.



Bicycle Box Photo courtesy of itdp/Flickr Creative Commons

Targeted Crash Type and/or Behavior

Bicycle-related intersection crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 1: Remove Severe Conflicts

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

15% (Pedestrian, Bicycle)

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):	Estimated Cost:
Tier 1: \$ <\$149,999	\$15 per square foot

Source: <https://menlopark.gov/files/sharedassets/public/v/3/public-works/documents/transportation/transportation-projects/menloparkvzap-countermeasuretoolbox.pdf>



Dedicated traffic signals for cyclists to provide safe and efficient movement through intersections.



Bicycle Signal
Photo courtesy of Adam L. Coppola/Flickr Creative Commons

Targeted Crash Type and/or Behavior

Bicycle-related intersection crashes

Facility Type



Intersection

Timeframe



Design Hierarchy Tier

Tier 3: Manage Conflicts in Time

Applicable Context Zone



Urban Core



Urban Center



Town Center

High Level Safety Benefit (CRF) - Total

87.5%

Fatality/Injury

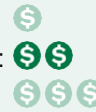
NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):



Tier 2: \$150,000 - \$499,999

Estimated Cost:

\$250,000 per four-leg intersection (includes APS/CPS)

Source: NACTO;

<https://nacto.org/case-study/bicycle-signal-at-russell-boulevard-at-sycamore-lane-davis-ca/>



Coordinating pedestrian and cyclist signals/phases to provide adequate crossing time.



Bike/Ped Signal Concurrency Sign
Photo courtesy of Isaac Mitchell/Pexels Public Domain

Targeted Crash Type and/or Behavior

Bicycle-pedestrian-related intersection crashes

Facility Type



Intersection

Timeframe



Design Hierarchy Tier

Tier 3: Manage Conflicts in Time

Applicable Context Zone



Urban Core



Urban Center



Town Center

High Level Safety Benefit (CRF) - Total

NA

Fatality/Injury

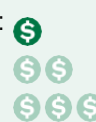
NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):



Tier 1: <\$149,999

Estimated Cost:

Signal time adjustment \$2,000 - \$5,000 per phase

Source: NA

50 Bus Stop Extensions or Safety Improvements



Extending bus stop zones (increasing pedestrian space) improves access and safety for transit riders, pedestrians, and bicyclists while boarding or exiting buses.



Bus Stop Extensions/Safety Improvements
Photo courtesy of Austin Transportation and Public Works/Flickr Public Domain

Targeted Crash Type and/or Behavior

Pedestrian-related crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 1: Remove Severe Conflicts

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

NA

Fatality/Injury

50%



Property Damage Only

NA



Cost

Cost Tier Level (1-3):

Tier 1: $\\$ <math>< \\$149,999</math>
 Tier 2: $\\$ $\\$ $\\$150,000 - \\$499,999$
 $\\$ $\\$ $\\$

Estimated Cost:
 \$35,000-
 \$50,000 site
 and location
 specific

Source: http://pedbikesafe.org/PEDSAFE/casestudies_detail.cfm?CM_NUM=5&CS_NUM=50

51 Crosswalk Visibility Enhancements Including Pavement Marking Striping and Signing



High-visibility markings, such as ladder or zebra patterns, increasing the visibility of crosswalks, alerting drivers to potential pedestrian crossings.



Crosswalk Visibility Enhancements

Targeted Crash Type and/or Behavior

Pedestrian-related crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

19%

Fatality/Injury

NA



Property Damage Only

NA



Cost

Cost Tier Level (1-3):

Tier 1: $\\$ <math>< \\$149,999</math>
 $\\$ $\\$
 $\\$ $\\$ $\\$

Estimated Cost:
 \$500-\$15,000
 per crossing

Source: CMF Clearinghouse; <https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=4124>



52 Curb Ramps and Sidewalk Utility Coordination



Ramps provide smooth, safe transitions between sidewalks and crosswalks, benefiting pedestrians with mobility aids. Coordinating utilities on sidewalks maintains clear walk zones and proper delineation.



Curb Ramps/Sidewalk Utility Coordination
Photo courtesy of knelson20/Adobe Stock

Targeted Crash Type and/or Behavior

Pedestrian-related crashes

Facility Type



Intersection

Timeframe



Med-Term

Design Hierarchy Tier

Tier 1: Remove Severe Conflicts

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

NA

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999



Estimated Cost:

\$500 - \$10,000 per square foot

Source: NA

53 Hardened Centerlines



Physical barriers in the centerline of a road discourage vehicles from crossing into opposing lanes, reducing head-on collision risks, and slowing driver turning movements by delineating tighter turning radii.



Hardened Centerline
Photo courtesy of Portland Bureau of Transportation/
Creative Commons

Targeted Crash Type and/or Behavior

Speed-related crashes at intersections; angle crashes; pedestrian-related crashes

Facility Type



Intersection

Timeframe

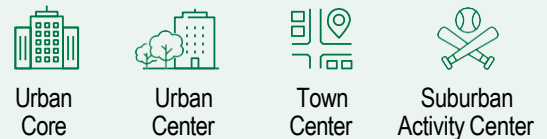


Near-term

Design Hierarchy Tier

Tier 2: Reduce Vehicle Speeds
Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

67%

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999



Estimated Cost:

\$500-\$5,000 per leg of the intersection

Source: CMF Clearinghouse;

<https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=1692>



Signs placed at pedestrian crossings to increase driver awareness and encourage yielding to pedestrians.



In-street Pedestrian Crossing Sign
Photo courtesy of karagrubis/Adobe Stock

Targeted Crash Type and/or Behavior

Pedestrian-related crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 4: Increase Attentiveness and Awareness

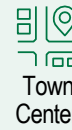
Applicable Context Zone



Urban Core



Urban Center



Town Center



Suburban Activity Center

High Level Safety Benefit (CRF) - Total

18%

Fatality/Injury

NA

Property Damage Only

NA



Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999



Estimated Cost:

\$500-\$1,000 per unit

Source: CMF Clearinghouse; <https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=9022>



Traffic signal strategy that gives pedestrians and bicyclists a head start at crosswalks before vehicles receive a green light, improving their visibility and reducing conflicts with turning vehicles.



Leading Pedestrian Interval
Photo courtesy of methaphum/Adobe Stock

Targeted Crash Type and/or Behavior

Pedestrian-related crashes; Bicycle-related crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 3: Manage Conflicts in Time

Applicable Context Zone



Urban Core



Urban Center



Town Center

High Level Safety Benefit (CRF) - Total

13%

Fatality/Injury

14%

Property Damage Only

NA



Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999



Estimated Cost:

\$2,000-\$100,000 per phase or signal (APS/CPS may be needed)

Source: CMF Clearinghouse; <https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=9918>



Raised barriers in the middle of the road provide pedestrian refuge, allowing them to cross one direction of traffic at a time.



Crossing Island
Josip Ivankovic/Unsplash

Targeted Crash Type and/or Behavior

Pedestrian-related crashes

Facility Type



Timeframe



Design Hierarchy Tier

- Tier 1: Remove Severe Conflicts
- Tier 2: Reduce Vehicle Speeds

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

46-56% (pedestrian crashes)

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

- Tier 1: \$ <\$149,999 to
- Tier 2: \$ \$
- Tier 3: \$ \$ \$ >\$500,000

Estimated Cost:

\$50,000 - \$500,000 per unit

Source: <https://highways.dot.gov/safety/proven-safety-countermeasures/medians-and-pedestrian-refuge-islands-urban-and-suburban-areas>



Curb extensions, or “bulb-outs,” narrow the roadway, shorten pedestrian crossings, slow vehicles, and improve pedestrian visibility at intersections.



Intersection/Mid-block Curb Extension/Bulb-out
Photo courtesy of Richard Drdul/Wikimedia Commons

Targeted Crash Type and/or Behavior

Pedestrian-related crashes; angle crashes

Facility Type



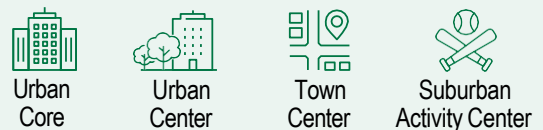
Timeframe



Design Hierarchy Tier

- Tier 1: Remove Severe Conflicts
- Tier 2: Reduce Vehicle Speeds
- Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

35%

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

- Tier 1: \$ <\$149,999 to
- Tier 2: \$ \$ \$ \$150,000 - \$499,999

Estimated Cost:

\$5,000 - \$150,000 per unit

Source: NA



Increased separation between vehicle and pedestrian spaces or bike lanes enhances safety by minimizing conflicts.



New/Wider Buffers Between Traffic/ User Types
Photo courtesy of alpegor/Adobe Stock

Targeted Crash Type and/or Behavior

Pedestrian and bicycle-related crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 1: Remove Severe Conflicts
Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

50-56% (bicycle crashes)

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999 to
Tier 2: \$ \$
Tier 3: \$ \$ \$ >\$500,000

Estimated Cost:
\$5,000 - \$30,000 per mile

Source: FHWA; <https://highways.dot.gov/sites/fhwa.dot.gov/files/FHWA-HRT-23-025.pdf>



Strategically placed parking along streets helps create a buffer for pedestrians and manage traffic speeds.



On-Street Parking
Photo courtesy of Kirk Fisher/Adobe Stock

Targeted Crash Type and/or Behavior

Speed-related crashes; sideswipe crashes; pedestrian-related crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 1: Remove Severe Conflicts
Tier 2: Reduce Vehicle Speeds

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

52%

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

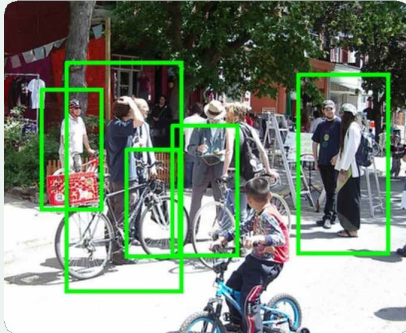
Tier 1: \$ <\$149,999
Tier 2: \$ \$
Tier 3: \$ \$ \$

Estimated Cost:
\$5,000-\$10,000 per parking space

Source: CMF Clearinghouse; <https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=9253>



Automatic pedestrian detection at intersections or crosswalks without requiring a push button. Using sensors, cameras, or thermal imaging, the system detects when a pedestrian is waiting to cross, triggering the pedestrian signal phase accordingly.



Passive Pedestrian Detection
Photo courtesy of Greg Borenstein/Flickr

Targeted Crash Type and/or Behavior

Pedestrian-related crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 1: Remove Severe Conflicts
Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

22% (pedestrian)

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999

Estimated Cost:

\$2,000-\$10,000 per unit

Source: <http://www.pedbikesafe.org/pedsafe/>



Paved shoulder areas provide a separate space for bicyclists and pedestrians. It also provides space for vehicles to recover, reducing roadway departure crashes and space for vehicles needing to pull over.



Paved Shoulder
Photo courtesy of Balsem/Adobe Stock

Targeted Crash Type and/or Behavior

Pedestrian and bicycle-related crashes

Facility Type



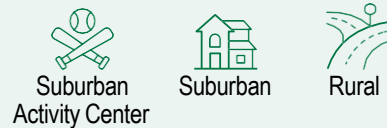
Timeframe



Design Hierarchy Tier

Tier 1: Remove Severe Conflicts

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

71% (pedestrian)

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999 to

Tier 3: \$ \$ \$ >\$500,000

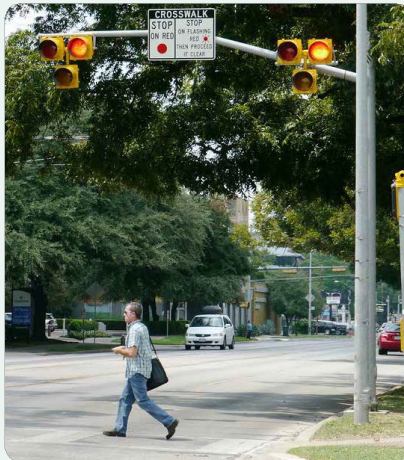
Estimated Cost:

\$100,000-\$500,000 per mile

Source: FHWA; https://highways.dot.gov/sites/fhwa.dot.gov/files/2022-06/walkways_brochure.pdf



Traffic control devices activated by pedestrians at mid-block crossings or unsignalized intersections. The unique PHB red lights flash to alert drivers and provide a safe crossing interval for pedestrians.



Pedestrian Hybrid Beacon (PHB)
Photo courtesy of Austin Transportation and Public Works/Flickr

Targeted Crash Type and/or Behavior

Pedestrian-related crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 3: Manage Conflicts in Time

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

29%

Fatality/Injury

15%



Property Damage Only

NA



Cost

Cost Tier Level (1-3):		Estimated Cost:
Tier 1:	\$ <\$149,999 to	\$125,000 -
Tier 2:	\$ \$ \$150,000 - \$499,999	\$250,000 per unit

Source: CMF Clearinghouse; <https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=2911>



Warning signs that alert drivers to upcoming pedestrian crossings or other conditions, improving driver awareness and reducing collision risks.



Pedestrian Crossing Sign
Photo courtesy of Arvind Balaraman/Adobe Stock

Targeted Crash Type and/or Behavior

Pedestrian-related crashes; animal-related crashes; intersection-related crashes; curve-related crashes; school zone crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 2: Reduce Vehicle Speeds
Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

12.1%

Fatality/Injury

18.6%



Property Damage Only

NA



Cost

Cost Tier Level (1-3):		Estimated Cost:
Tier 1:	\$ <\$149,999	\$500- \$1,000 per unit

Source: CMF Clearinghouse; <https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=8892>; <https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=8893>



Lighting positioned to illuminate sidewalks and crosswalks, specifically enhancing pedestrian visibility at night.



Pedestrian-Scale Lighting
Photo courtesy of Fotolyse/Adobe Stock

Targeted Crash Type and/or Behavior

Pedestrian-related crashes

Facility Type



Street

Timeframe



Design Hierarchy Tier

Tier 4: Increase Attentiveness and Awareness

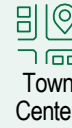
Applicable Context Zone



Urban Core



Urban Center



Town Center



Suburban Activity Center

High Level Safety Benefit (CRF) - Total

60%

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999
 Tier 3: \$\$\$ >\$500,000

Estimated Cost:

\$2,500-\$4,000 per unit

Source: http://www.pedbikesafe.org/pedsafe/casestudies_detail.cfm?CM_NUM=8&CS_NUM=86



Dedicated signal phase that halts all vehicle movement to allow pedestrians to cross in all directions simultaneously, reducing conflicts with turning vehicles.



Pedestrian Scramble
Photo courtesy of anyo/Adobe Stock

Targeted Crash Type and/or Behavior

Pedestrian-related crashes

Facility Type



Intersection

Timeframe



Design Hierarchy Tier

Tier 3: Manage Conflicts in Time
 Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



Urban Core



Urban Center



Town Center

High Level Safety Benefit (CRF) - Total

51%

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999
 Tier 3: \$\$\$ >\$500,000

Estimated Cost:

\$50,000-\$100,000 per unit

Source: CMF Clearinghouse;
<https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=4117>



Intersection designs that separate cyclists, pedestrians, and motor vehicles using physical barriers or islands to reduce collision risks, particularly between turning vehicles and vulnerable road users.



Protected Intersection
Photo courtesy of Beyond DC/Flickr

Targeted Crash Type and/or Behavior

Bicycle-related intersection crashes

Facility Type



Intersection

Timeframe



Design Hierarchy Tier

Tier 1: Remove Severe Conflicts
Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

NA

Fatality/Injury

NA

Property Damage Only

NA

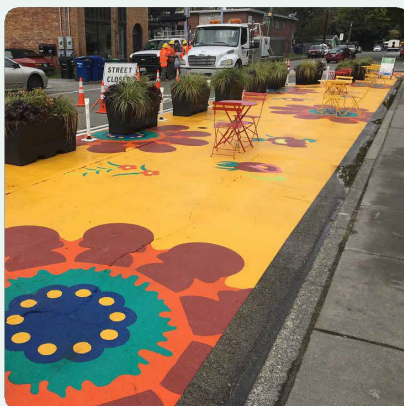
Cost

Cost Tier Level (1-3):
Tier 1: \$ <\$149,999 to \$50,000-250,000+ per intersection
Tier 2: \$ \$
Tier 3: \$ \$ \$ >\$500,000

Source: <https://www.arlingtonva.us/Government/Programs/Transportation/Vision-Zero/Tools-and-Guidelines/Multimodal-Safety-Engineering-Toolbox-Web-Format/Protected-Intersections>



Street space repurposed into pedestrian-friendly areas such as plazas or small parks (parklets), often in urban settings, to enhance public space while improving delineation for driving lanes.

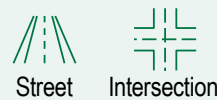


Public Plaza/Parklet
Photo courtesy of Seattle DOT Photos/Flickr

Targeted Crash Type and/or Behavior

Pedestrian-related crashes; angle crashes, rear-end crashes; speed-related crashes

Facility Type



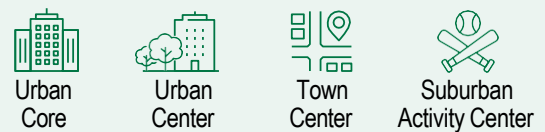
Timeframe



Design Hierarchy Tier

Tier 1: Remove Severe Conflicts
Tier 2: Reduce Vehicle Speeds
Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

NA

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):
Tier 1: \$ <\$149,999 to \$20,000-
Tier 2: \$ \$ \$150,000 - \$499,999 \$150,000 per unit
Tier 3: \$ \$ \$

Source: <https://nacto.org/publication/urban-street-design-guide/interim-design-strategies/parklets/>



A Raised Crosswalk is an elevated pedestrian crossing designed to slow vehicle speeds, improve visibility of pedestrians, and enhance safety by aligning the crossing with the sidewalk level. It acts as a traffic calming measure.



Raised Crosswalk
Photo courtesy of Arnold Reinhold/Wikimedia Commons

Targeted Crash Type and/or Behavior

Pedestrian and bicycle-related crashes

Applicable Context Zone



Urban Core



Urban Center



Town Center



Suburban Activity Center

Facility Type



Street



Intersection

Timeframe



Mid-Term

Design Hierarchy Tier

Tier 2: Reduce Vehicle Speeds

High Level Safety Benefit (CRF) - Total

46% (pedestrian crashes)

Fatality/Injury

46%



Property Damage Only

NA



Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999



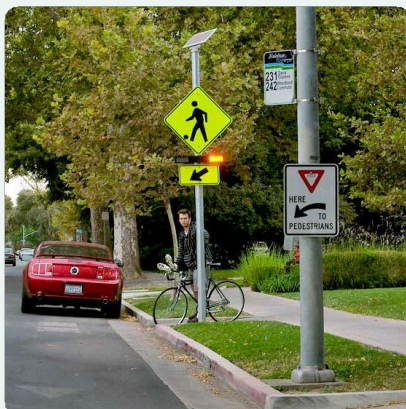
Estimated Cost:

\$5,000-
\$30,000 per unit

Source: CMF Clearinghouse: <https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=136>



Flashing beacons activated by pedestrians at unsignalized crosswalks to alert drivers of pedestrian presence, increasing crossing visibility and safety.



Flashing Rectangular Beacon
Photo courtesy of Seattle Lara Justine/Flickr

Targeted Crash Type and/or Behavior

Pedestrian-related crashes

Applicable Context Zone



Urban Core



Urban Center



Town Center



Suburban Activity Center

Facility Type



Street



Intersection

Timeframe



Near-term

Design Hierarchy Tier

Tier 4: Increase Attentiveness and Awareness

High Level Safety Benefit (CRF) - Total

47.4% (pedestrian)

Fatality/Injury

NA



Property Damage Only

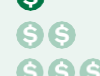
NA



Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999



Estimated Cost:

\$10,000 -
\$100,000 per unit

Source: CMF Clearinghouse; <https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=9024>



Crosswalks and stop bars repainted to improve visibility and encourage drivers to be aware of pedestrian crossing areas and where to stop.



Restripe crosswalks/stop bars
Photo courtesy of Mario Cuadros/Pexels

Targeted Crash Type and/or Behavior

Pedestrian-related crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

8.3%-18.9%

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999



Estimated Cost:

\$1,000-\$5,000 per unit



Source: CMF Clearinghouse; <https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=8955>



Physically separated bicycle lanes prevent interactions with motor vehicles, improving safety for cyclists by reducing collision risks.



Separated Bicycle Lane

Targeted Crash Type and/or Behavior

Bicycle-related crashes

Facility Type



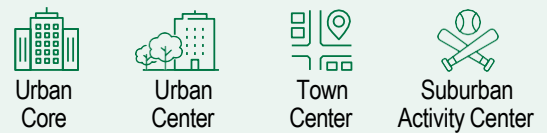
Timeframe



Design Hierarchy Tier

Tier 1: Remove Severe Conflicts

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

30-49%; 53%- Bicycle/Vehicle crashes

Fatality/Injury

NA

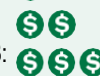
Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999



Estimated Cost:

\$50,000-\$500,000 per mile



Source: FHWA; <https://highways.dot.gov/safety/proven-safety-countermeasures/bicycle-lanes>

72 Shorter Crossing Distance / Crosswalk Alignment



Design modifications that optimize both the distance and geometric positioning of pedestrian crossings to create more direct, perpendicular paths that minimize exposure time to vehicle traffic and improve safety.



Shortened Crosswalk Distance

<https://nacto.org/publication/urban-street-design-guide/street-design-elements/curb-extensions/>
Pedestrian Refuge: <https://www.usreflector.com/product/pedestrian-refuge/>

Targeted Crash Type and/or Behavior

Pedestrian-vehicle crashes at intersections and midblock locations; Right-turn and left-turn vehicle conflicts with pedestrians in crosswalks; Multiple-threat crashes (pedestrian struck by second vehicle after first vehicle stops); Pedestrian crashes due to extended exposure time in roadway

Facility Type



Intersection

Timeframe



Mid-Term

Design Hierarchy Tier

Tier 1: Remove Severe Conflicts

Applicable Context Zone



Urban Core



Urban Center



Town Center



Suburban Activity Center

High Level Safety Benefit (CRF) - Total

46-56%

Fatality/Injury

32%



Property Damage Only

15%



Cost

Cost Tier Level (1-3):

Tier 1: $\\$<math><149,999</math>



Estimated Cost:

\$2,140-\$41,170 for pedestrian refuge island
\$2,000-\$20,000 for curb extensions
\$500 to \$1,500 for waiting area

Sources: CMF Clearinghouse and NCHRP Report 841

73 Shorter Signal Cycle Length



Reduced cycle length to decrease pedestrian and bicyclist wait times, making it safer and more efficient for pedestrians to cross intersections, and ultimately reducing non-intersection pedestrian crossings.



Shorter Signal Cycle Length

Photo courtesy of Ryan Smith/Flickr

Targeted Crash Type and/or Behavior

Bicycle and pedestrian-related intersection crashes

Facility Type



Intersection

Timeframe



Mid-Term

Design Hierarchy Tier

Tier 3: Manage Conflicts in Time

Applicable Context Zone



Urban Core



Urban Center



Town Center



Suburban Activity Center

High Level Safety Benefit (CRF) - Total

37%

Fatality/Injury

12%



Property Damage Only

NA



Cost

Cost Tier Level (1-3):

Tier 1: $\\$<math><149,999</math>

Tier 2: $\\$$150,000 - \\$499,999$



Estimated Cost:

\$30,000 to \$250,000 per intersection (if new signal required to add APS/CPS)

Source: CCMF Clearinghouse; <https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=383>



Designated pathways for pedestrians or multiple users (eg, cyclists and pedestrians), often separated from traffic to provide safe travel alternatives for non-motorized users.



Sidewalks/Shared-Use Path
Photo courtesy of Phil Champion/Wikimedia Commons

Targeted Crash Type and/or Behavior

Pedestrian and bicycle-related crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 1: Remove Severe Conflicts

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

Sidewalks (65-89%)- Pedestrians; Paved Shoulders (71%) - Pedestrian crashes

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999
Tier 2: \$ \$
Tier 3: \$ \$ \$ >\$500,000

Estimated Cost: \$100,000-\$4.5M per mile

Source: FHWA; https://highways.dot.gov/sites/fhwa.dot.gov/files/Walkways_508.pdf



Transverse striping and flex posts used to change the dimensions of driving lanes within the right-of-way. Typical applications include temporary islands, median extensions, chicanes, tightened intersection turning radii, and buffers between different user types.



Transverse Striping and Flex-Post/Bollard Curb Extensions
Photo courtesy of Tricky Shark/Adobe Stock

Targeted Crash Type and/or Behavior

Speed-related crashes; pedestrian-related crashes; angle crashes

Facility Type



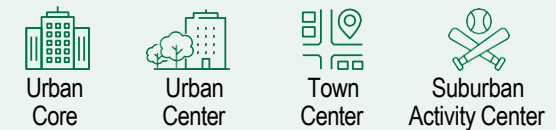
Timeframe



Design Hierarchy Tier

Tier 2: Reduce Vehicle Speeds
Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

34%

Fatality/Injury

36% (A,B,C)

Property Damage Only

28%

Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999
Tier 2: \$ \$
Tier 3: \$ \$ \$

Estimated Cost: \$500- \$5,000 per unit

Source: CMF Clearinghouse; <https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=138>



Signs (MUTCD R10-15) remind drivers to yield to pedestrians when turning at intersections, enhancing safety by reducing conflicts between vehicles and crossing pedestrians.



Turning Vehicles Yield To Pedestrians
Photo courtesy of elvis901/Adobe Stock

Targeted Crash Type and/or Behavior

Pedestrian-related crashes

Facility Type



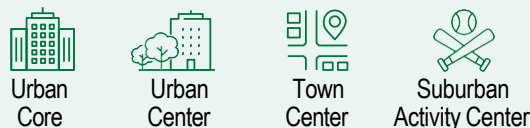
Timeframe



Design Hierarchy Tier

Tier 2: Reduce Vehicle Speeds
Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

25% (Pedestrian crashes)

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999



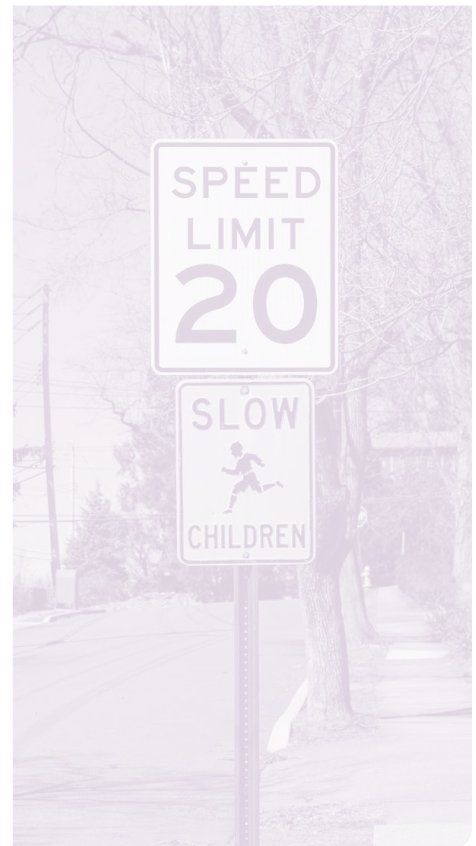
Estimated Cost:

\$500 - \$2,000 per unit (overhead/mast-mounted signs will cost more)

Source: <https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=9017>



Speed Management Countermeasures



77 Appropriate Speed Limits for All Road Users



Speed limits that reflect road type, surrounding environment/land use, and traffic volume help manage driving speeds, reduce crash severity, and accommodate all road users safely.



Appropriate Speed Limits for All Road Users

Photo courtesy of ansyvan/Adobe Stock

Targeted Crash Type and/or Behavior

Speed-related crashes

Facility Type



Street

Timeframe



Med-Term

Design Hierarchy Tier

Tier 2: Reduce Vehicle Speeds

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

NA

Fatality/Injury

26%



Property Damage Only

NA



Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999



Estimated Cost:

New signs & posts
\$500 - \$1,500 per unit

Source: <https://safety.fhwa.dot.gov/provencountermeasures/appropriate-speed-limits.cfm>

78 Chicanes



Alternating curb extensions or other design features along a road create a winding pattern, slowing traffic by encouraging drivers to reduce speed.



Chicanes

Photo courtesy of Zigmunds/Adobe Stock

Targeted Crash Type and/or Behavior

Speed-related crashes

Facility Type



Street

Timeframe



Mid-Term

Design Hierarchy Tier

Tier 2: Reduce Vehicle Speeds

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

NA

Fatality/Injury

NA



Property Damage Only

NA



Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999

Tier 2: \$ \$ \$ \$150,000 - \$499,999



Estimated Cost:

\$10,000-
\$50,000 per unit, assume multiple units installed

Source: NA



Visual cues and markings enhance the visibility of curved road sections, guiding drivers safely through these areas. Chevron-shaped signs marking curves, often with radar-activated flashing features, to alert drivers to reduce speed in advance of sharp turns.



Horizontal Curves/Chevron Signing
Photo courtesy of Suthin/Adobe Stock

Targeted Crash Type and/or Behavior

Roadway departure crashes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

35%-44%

Fatality/Injury

15%-60%

Property Damage Only

NA



Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999



Estimated Cost:

Static signs \$500-\$1,000 per unit, radar-activated flashing signs \$2,500-\$8,000 per unit, pavement markings \$10,000 per mile

Source: CMF Clearinghouse; <https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=10362> FHWA; https://safety.fhwa.dot.gov/provencountermeasures/enhanced_delineation.cfm#psc-footnote



Designing or reconfiguring roadways with narrower travel lanes to encourage lower vehicle speeds and create space for other safety improvements.



Narrower travel lanes on a multi-lane roadway

Source: <https://www.flickr.com/photos/ncdot/16742085346>

Targeted Crash Type and/or Behavior

Pedestrian-vehicle crashes due to excessive vehicle speeds; Bicycle-vehicle crashes; Intersection crashes; Multiple-vehicle crashes due to aggressive driving on wide lanes

Facility Type



Timeframe



Design Hierarchy Tier

Tier 2: Reduce Vehicle Speeds

Applicable Context Zone



Urban Core



Urban Center



Town Center



Suburban Activity Center

High Level Safety Benefit (CRF) - Total

15%

Fatality/Injury

10-20%

Property Damage Only

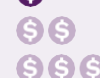
5-15%



Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999



Estimated Cost:

\$5,000 to \$30,000 per mile

Source: FHWA Desktop Reference for Crash Reduction Factors (FHWA-SA-08-011)



Reconfiguration of travel lanes, often converting a four-lane road to two through lanes and a center left-turn lane, which calms traffic, improves safety, and creates space for bike lanes or wider sidewalks.



Road Diet
Photo courtesy of Complete Streets/Flickr

Targeted Crash Type and/or Behavior

Speed-related crashes; rear-end crashes; sideswipe crashes; pedestrian-related crashes

Facility Type



Timeframe



Design Hierarchy Tier

- Tier 1: Remove Severe Conflicts
- Tier 2: Reduce Vehicle Speeds

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

19-47%

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

- Tier 2: \$ \$ \$ \$ 150,000 - \$499,999 to
- Tier 3: \$ \$ \$ \$ >\$500,000

Estimated Cost:
\$150,000 - \$1M per mile

Source: FHWA; <https://highways.dot.gov/safety/proven-safety-countermeasures/road-diets-roadway-reconfiguration>



Raised sections of pavement used on low-speed roads (usually <5,000 annual average daily traffic) to slow vehicles and improve safety in residential or pedestrian-heavy areas.



Speed Hump
Photo courtesy of Richard Drdul/Wikimedia Commons

Targeted Crash Type and/or Behavior

Speed-related crashes; intersection crashes; rear-end crashes; pedestrian-related crashes

Facility Type



Timeframe



Design Hierarchy Tier

- Tier 2: Reduce Vehicle Speeds
- Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

NA

Fatality/Injury

NA

Property Damage Only

NA

Cost

Cost Tier Level (1-3):

- Tier 1: \$ <\$149,999

Estimated Cost:
\$1,000 - \$10,000 per unit

Source: <https://nacto.org/publication/urban-street-design-guide/street-design-elements/vertical-speed-control-elements/speed-cushion/>



Cameras or radar systems can monitor vehicle speeds. If legalized in Michigan, it can help to enforce speed limits and reduce speeding-related crashes by deterring violations.



Speed Safety Cameras
Photo courtesy of Andrei Armiagov/Adobe Stock

Targeted Crash Type and/or Behavior

Speed-related crashes

Facility Type



Street

Timeframe



Mid-Term

Design Hierarchy Tier

Tier 2: Reduce Vehicle Speeds
Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

54%

Fatality/Injury

48%



Property Damage Only

NA



Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999

Tier 2: \$ \$ \$150,000 - \$499,999



Estimated Cost:

\$100,000 -

\$350,000 per unit

Source: FHWA; https://highways.dot.gov/sites/fhwa.dot.gov/files/Speed%20Safety%20Cameras_508.pdf



Strips running across the roadway (typically before intersections or stop signs) to alert drivers with sound and vibration, helping to reduce speeds and increase awareness. Strips can either be traditional rumble strip grooves in pavement or installed raised rubber or plastic strips.



Transverse Rumble Strips
Photo courtesy of trainman111/Adobe Stock

Targeted Crash Type and/or Behavior

Nighttime crashes; speed-related crashes; pedestrian-related crashes; distracted driving and attentiveness mitigation

Facility Type



Street Intersection

Timeframe

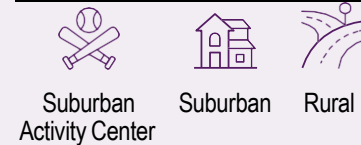


Near-term

Design Hierarchy Tier

Tier 2: Reduce Vehicle Speeds
Tier 4: Increase Attentiveness and Awareness

Applicable Context Zone



High Level Safety Benefit (CRF) - Total

13%

Fatality/Injury

29%



Property Damage Only

14%



Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999



Estimated Cost:

\$2,000 -

\$3,000 per unit

Source: CMF Clearinghouse; <https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=9046>



Speed limits that adjust based on real-time road conditions (e.g., weather, traffic volume), enhancing safety by reducing speed differentials between vehicles.



Variable Speed Limits
Photo courtesy of Wonderlane/Flickr

Targeted Crash Type and/or Behavior

Speed-related crashes

Facility Type



Street

Timeframe



Design Hierarchy Tier

Tier 2: Reduce Vehicle Speeds
Tier 4: Increase Attentiveness and Awareness

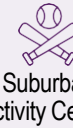
Applicable Context Zone



Urban Core



Urban Center



Suburban Activity Center

High Level Safety Benefit (CRF) - Total

34%

Fatality/Injury

51%



Property Damage Only

NA



Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999



Tier 3: \$\$\$ >\$500,000



Estimated Cost:
\$50,000-
\$500,000 per
unit

Source: FHWA; <https://highways.dot.gov/safety/proven-safety-countermeasures/variable-speed-limits>



Wider white edge lines improve lane visibility and support lane-keeping, particularly in low-light or adverse weather conditions.



Wider Edge Lines
Photo courtesy of lanu Arius/Adobe Stock

Targeted Crash Type and/or Behavior

Speed-related crashes; run-off-road crashes; head-on crashes; nighttime crashes

Facility Type



Street

Timeframe



Design Hierarchy Tier

Tier 4: Increase Attentiveness and Awareness

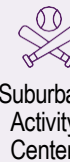
Applicable Context Zone



Urban Center



Town Center



Suburban Activity Center



Suburban



Rural

High Level Safety Benefit (CRF) - Total

37%

Fatality/Injury

42%



Property Damage Only

NA



Cost

Cost Tier Level (1-3):

Tier 1: \$ <\$149,999



Estimated Cost:
\$1,500 - \$2,500
per mile

Source: FHWA; <https://cmfclearinghouse.fhwa.dot.gov/detail.php?facid=4737>



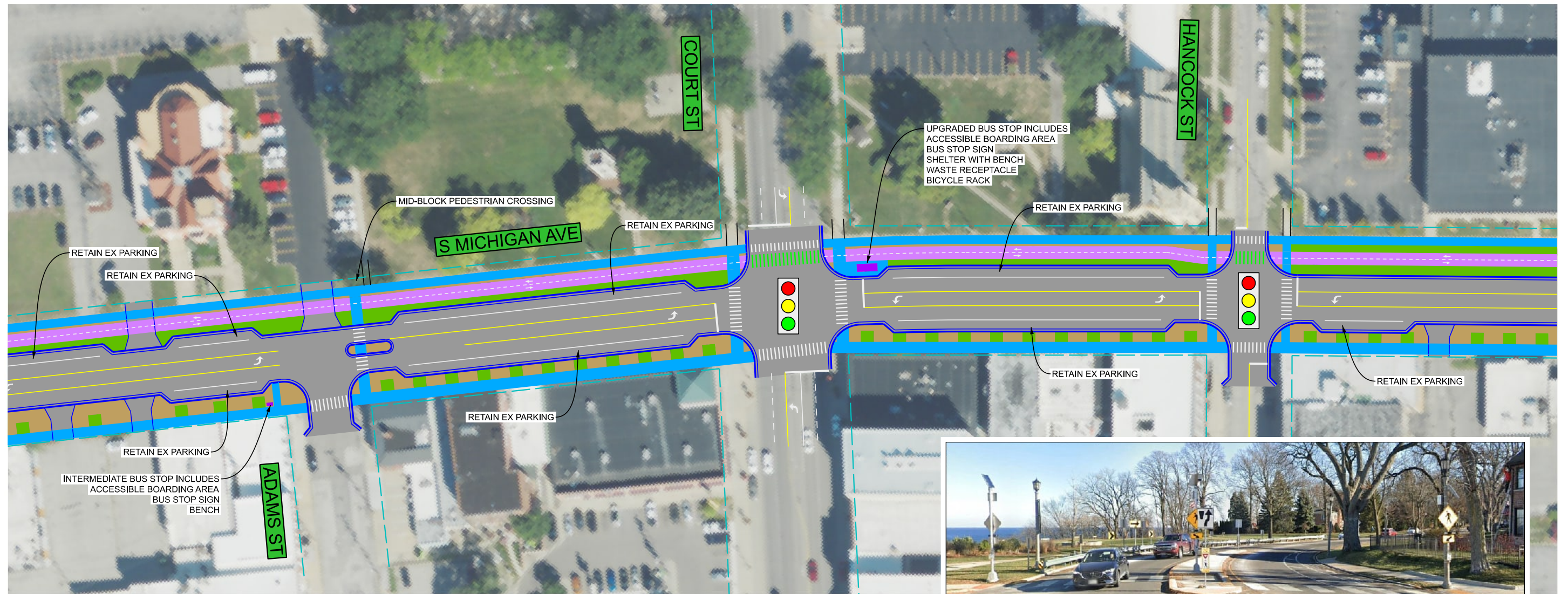
City of Saginaw, Michigan

November 2025

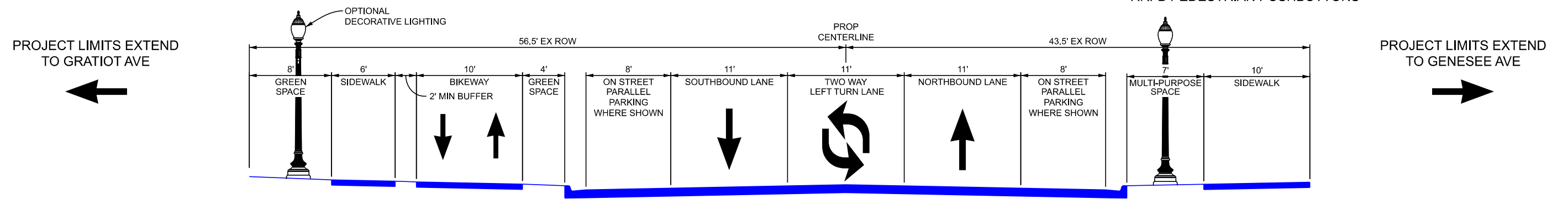


Appendix E: Concept Plans with Cost Estimates





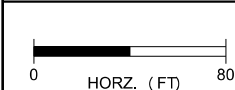
MID-BLOCK PEDESTRIAN CROSSING WITH STAGGERED MEDIAN AND RRFB PEDESTRIAN PUSHBUTTONS



CONCEPT TYPICAL CROSS SECTION
FACING NORTHLY
SCALE: 1"=10'



LEGEND



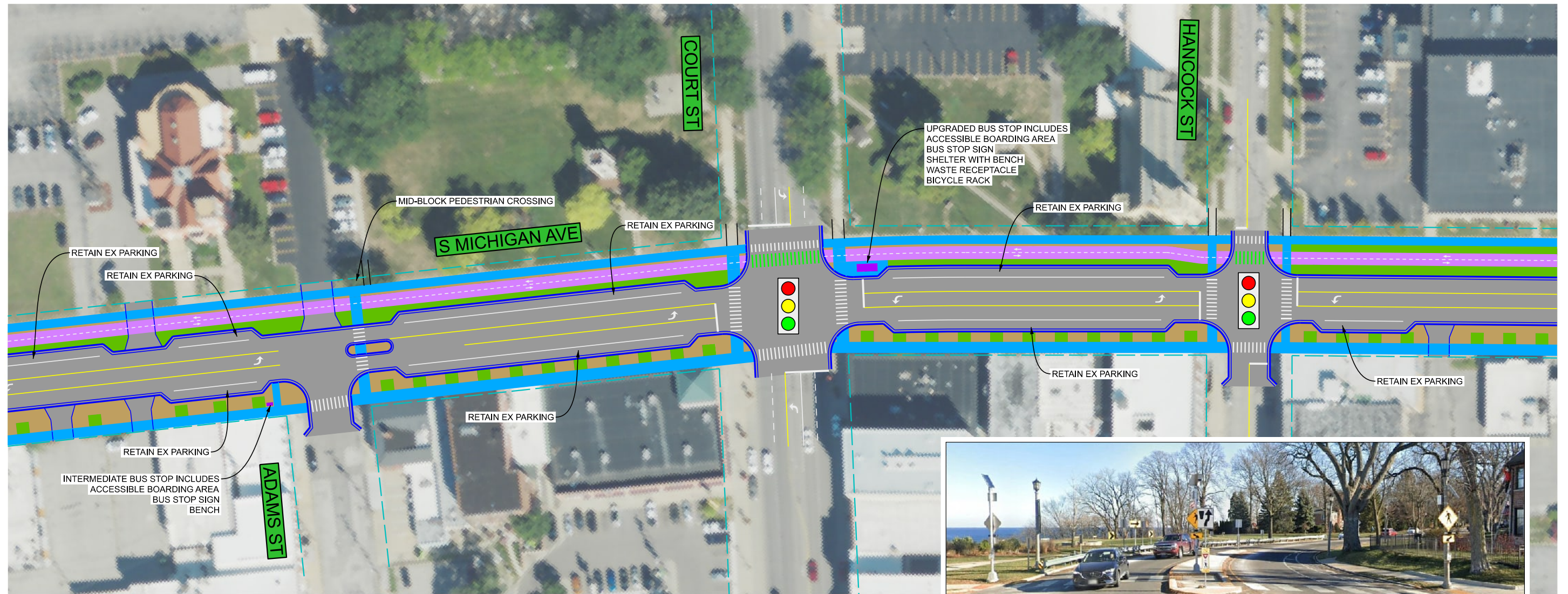
- PROPOSED ROADWAY
- PROPOSED SIDEWALK
- PROPOSED BIKEWAY
- PROPOSED LANDSCAPING
- PROPOSED MULTI-PURPOSE SPACE
- EXISTING ROW
- PROPOSED ROW
- TRAFFIC SIGNAL

SAGINAW SS4A

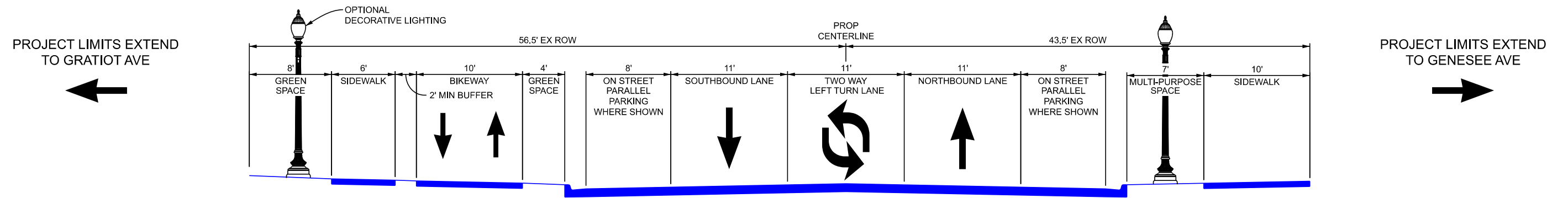
MICHIGAN AVE AT COURT ST
THREE LANES WITH BIKEWAY CONCEPT

FIGURE

1



MID-BLOCK PEDESTRIAN CROSSING WITH STAGGERED MEDIAN AND RRFB PEDESTRIAN PUSHBUTTONS



CONCEPT TYPICAL CROSS SECTION
FACING NORTHLY
SCALE: 1"=10'



LEGEND



- PROPOSED ROADWAY
- PROPOSED SIDEWALK
- PROPOSED BIKEWAY
- PROPOSED LANDSCAPING
- PROPOSED MULTI-PURPOSE SPACE
- EXISTING ROW
- PROPOSED ROW
- TRAFFIC SIGNAL

SAGINAW SS4A

MICHIGAN AVE AT COURT ST
THREE LANES WITH BIKEWAY CONCEPT

FIGURE

1

Project	Saginaw SS4A
Alternative	Michigan Ave from south of Gratiot Ave to south of Genesee Ave
Source	MDOT Average Unit Prices as of 10/19/2025
Date	2/4/2026

Pay Item Code	Item Description	Unit	Unit Price	Quantity	Cost
Removal and Construction					
Miscellaneous					
2020004	Tree, Rem, 6 inch to 18 inch	Each	\$ 460.00	86	\$ 39,560
8157050	Decorative Tree, 2 inch (incl watering)	Each	\$ 400.00	472	\$ 188,800
8162002	Slope Restoration, Non-Freeway, Type B	Syd	\$ 8.00	38113	\$ 304,904
8207050A	Replace Traffic Signal, Span Wire	Each	\$ 200,000.00	8	\$ 1,600,000
302	Pair, RRFB, AC Power, Two Sided	Each	\$ 40,000.00	6	\$ 240,000
81100XX	Pavt, Mrg, Polyurea, 4 inch, White/Yellow	Ft	\$ 1.70	23416	\$ 39,807
8110110	Pavt Mrkg, Polyurea, 12 inch, Crosswalk	Ft	\$ 6.50	7056	\$ 45,864
81121XX	Pavt Mrkg, Polyurea, Symbol	Each	\$ 275.00	126	\$ 34,650
8117010	Pavt Mrkg, Bike Lane, Green, 12 inch, Crosswalk	Ft	\$ 13.00	2100	\$ 27,300
	Basic Roadway Lighting, 120' spacing	Ft	\$ 89.00	18732	\$ 1,667,148
	Basic Bus Stop (acesible boarding area + sign)	Each	\$ 3,000.00	11	\$ 33,000
	Intermediate Bus Stop (basic + bench)	Each	\$ 5,000.00	2	\$ 10,000
	Upgraded Bus Stop (intermediate + shelter, waste receptacle, bicycle rack)	Each	\$ 18,000.00	6	\$ 108,000
Roadway					
2040020	Curb and Gutter, Rem	Ft	\$ 14.00	18954	\$ 265,356
2040055	Sidewalk, Rem	Syd	\$ 16.00	12538	\$ 200,608
5010005	HMA Surface, Rem	Syd	\$ 5.00	61922	\$ 309,610
2050010	Embankment, CIP	Cyd	\$ 11.50	5527	\$ 63,561
2050016	Excavation, Earth	Cyd	\$ 14.00	19627	\$ 274,778
2057051	Subgrade Corrections	LSUM	\$ 1.00	20287	\$ 20,287
3010002	Subbase, CIP (6" under sidewalk & decorative conc)	Cyd	\$ 16.00	2900	\$ 46,400
3020016	Aggregate Base, 6 inch (under non-motorized path)	Syd	\$ 11.00	10994	\$ 120,934
3027011	Aggregate Base, 8 inch, 21AA, Limestone	Syd	\$ 15.00	46637	\$ 699,555
4040063	Underdrain, Subbase, 6 inch	Ft	\$ 8.00	20132	\$ 161,056
5012012	HMA, 3EL (3.0" leveling/base course)	Ton	\$ 85.00	7451	\$ 633,335
5012024	HMA, 4EL (2.0" leveling/base course)	Ton	\$ 85.00	4968	\$ 422,280
5012036	HMA, 5EL (1.5" top course)	Ton	\$ 85.00	3726	\$ 316,710
8020036	Curb and Gutter, Conc, Det F2	Ft	\$ 30.00	20132	\$ 603,960
8030046	Sidewalk, Conc, 6 inch	Sft	\$ 7.00	114172	\$ 799,204
6027011	Conc Pavt, Decorative, Nonreinf, 6 inch	Syd	\$ 95.00	1802	\$ 171,190
8060040	Shared use Path, HMA	Ton	\$ 132.00	1665	\$ 219,780
8017000A	Driveways	Each	\$ 9,000.00	85	\$ 765,000
Drainage					
2030011	Dr Structure, Rem	Each	\$ 575.00	67	\$ 38,525
2030015	Sewer, Rem, Less than 24 inch	Ft	\$ 25.00	1321	\$ 33,025
4027000	Storm Sewer (use 24" conc)	Ft	\$ 130.00	1402	\$ 182,260
4037000	Drainage Structures and Covers	Each	\$ 4,200.00	71	\$ 298,200
SUBTOTAL					\$ 10,984,647

Project	Saginaw SS4A
Alternative	Michigan Ave from south of Gratiot Ave to south of Genesee Ave
Source	MDOT Average Unit Prices as of 10/19/2025
Date	2/4/2026

Miscellaneous Removal and Construction					
-	Maintaining Traffic	LS	5%	\$ 10,984,647	\$ 549,232
-	Environmental	LS	1%	\$ 10,984,647	\$ 109,846
-	Permanent Signing	LS	1%	\$ 10,984,647	\$ 109,846
-	Drainage Items	LS	1%	\$ 10,984,647	\$ 109,846
-	Soil Erosion and Sedimentation Control	LS	1%	\$ 10,984,647	\$ 109,846
-	Public Utility Relocation	LS	1%	\$ 10,984,647	\$ 109,846
SUBTOTAL					\$ 1,098,465

SUBTOTAL REMOVAL AND CONSTRUCTION COST				\$ 12,083,111
--	--	--	--	---------------

Percentage-Based Construction Cost					
1500001	Mobilization, Max	LS	10%	\$ 12,083,111	\$ 1,208,311
8240001	Contractor Staking	LS	2%	\$ 12,083,111	\$ 241,662
	Contingency	LS	20%	\$ 13,533,085	\$ 2,706,617
	Construction Engineering and Inspection	LS	15%	\$ 16,239,702	\$ 2,435,955
SUBTOTAL					\$ 6,592,546

SUBTOTAL CONSTRUCTION ESTIMATE (ROUNDED)				\$ 18,676,000
--	--	--	--	---------------

Engineering and Design Services					
-	Preliminary Engineering	LS		\$ 16,240,045	15% \$ 2,436,007
PE ESTIMATE (ROUNDED)					\$ 2,437,000

TOTAL PROJECT COSTS (Present Year Value)				\$ 21,113,000
--	--	--	--	---------------

TOTAL PROJECT COSTS SUMMARY (With Inflation)					
	Present Year Value		Inflation		
			Rate	Years	Future Year Value
PE Estimate	\$ 2,437,000		4.0%	5	\$ 2,964,983
CON Estimate	\$ 18,676,000		4.0%	8	\$ 25,559,396
Total Estimate	\$ 21,113,000				\$ 28,524,379

ADDITIONAL COST TO UPGRADE LIGHTING (With Engineering and Inflation)					
Upgrade to Decorative Pedestrian Lighting, Single Luminaire, 80' spacing		Ft	\$ 190.00	18732	\$ 3,559,080

