CITY OF MADISON HEIGHTS

COUNCIL CHAMBERS - CITY HALL, 300 W. 13 MILE RD.

PLANNING COMMISSION MEETING AGENDA

SEPTEMBER 17, 2024 AT 5:30 PM

CALL TO ORDER

ROLL CALL

ADDITIONS/DELETIONS

APPROVAL OF MINUTES

1. August 20th, 2024 Meeting Minutes

PUBLIC HEARING

2. ZTA 24-01 - Accessory Buildings, Structures and Uses - Gazebos, Pergolas and Utility Structures
3. ZTA 24-02 - Detached One-Family Dwelling Standards - Driveways
4. ZTA 24-03 - Temporary Uses
5. ZTA 24-04 - Signs - Wall Sign Allowances

MEETING OPEN TO THE PUBLIC: Items not listed on agenda

UNFINISHED BUSINESS

NEW BUSINESS

MEMBER UPDATES

PLANNER UPDATES

6. 11 Mile/Downtown Streetscape Update

ADJOURNMENT

NOTICE: Persons with disabilities needing accommodations for effective participation through electronic means in this meeting should contact the City Clerk at (248) 583-0826 or by email: clerks@madison-heights.org at least two working days in advance of the meeting. An attempt will be made to make reasonable accommodations.

CITY OF MADISON HEIGHTS
PLANNING COMMISSION MEETING MINUTES (DRAFT)
August 20, 2024
Council Chambers – City Hall
300 W. 13 Mile, Madison Heights, MI 48071

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1. CALL TO ORDER

Chair Champagne called the meeting of the Madison Heights Planning Commission to order at 5:30 p.m.

2. ROLL CALL

Present:	Chair Josh Champagne
	Mayor Roslyn Grafstein
	City Manager Melissa Marsh
	Commissioner Eric Graettinger
	Commissioner Melissa Kalnasy
Also Present:	City Planner Matt Lonnerstater
	Assistant City Attorney Tim Burns
	Business Services Coordinator Mary Daley

3. EXCUSE ABSENT MEMBERS

Motion by Commissioner Marsh, seconded by Commissioner Graettinger to excuse Commissioners Bliss, Sylvester, and Oglesby.

Motion carries unanimously.

4. APPROVAL OF THE MINUTES

Motion by Commissioner Graettinger, seconded by Marsh to approve the minutes of the regular Planning Commission meeting of April 16, 2024.

Motion carries unanimously.

5. PUBLIC COMMENT - For items not listed on the agenda

Chair Champagne opened the floor for public comment at 5:31p.m. Seeing none, public comment was closed at 5:32 pm.

5. NEW BUSINESS

Planner Lonnerstater reviewed the following text amendments to the new Zoning Ordinance that Madison Heights City Council adopted on May 13th, 2024. Since going into effect, Staff felt several sections that could benefit from clarification or refinement:

Discussion: ZTA 24-01 - Accessory Buildings, Structures and Uses - Gazebos, Pergolas, and Utility Structures

The proposed amendments to section Section 8.03, addressed in the packet, were discussed and reviewed by the Commission.

Motion by Marsh, seconded by Kalnasy to hold a public hearing for Section 8.03 – Accessory Buildings, Structures, and Uses at the September 17th, 2024 regular meeting of the Planning Commission.

Motion carries unanimously.

Discussion: ZTA 24-02 - Detached One-Family Dwelling Standards – Driveways

The proposed amendments to section Section 7.03.10, addressed in the packet, were discussed and reviewed by the Commission.

Motion by Marsh, seconded by Kalnasy to hold a public hearing for Section 7.03.10 - Use Specific Standards related to Detached One-Family Dwellings at the September 17th, 2024 regular meeting of the Planning Commission.

Motion carries unanimously.

Discussion: ZTA 24-03 - Temporary Uses

The proposed amendments to section Section 7.03.43, addressed in the packet, were discussed and reviewed by the Commission.

Motion by Marsh, seconded by Graettinger to hold a public hearing for Section 7.03.43 - Use Specific Standards related to Temporary Uses at the September 17th, 2024 regular meeting of the Planning Commission.

Motion carries unanimously.

Discussion: ZTA 24-04 - Signs - Wall Sign Allowances

The proposed amendments to section Section 12.06 and 12.07, addressed in the packet, were discussed and reviewed by the Commission.

Motion by Marsh, seconded by Graettinger to hold a public hearing for Sections 12.06 and 12.07 – Signs – Wall Signs at the September 17th, 2024 regular meeting of the Planning Commission.

Motion carries unanimously.

7. PLANNER UPDATES

SE Oakland County Safe Streets for All (SS4A)- Action Plan Update

Lonnerstater shared some of the updates from the second public open house which was held on July

17, 2024. This study includes the following communities: Oak Park, Ferndale, Hazel Park, Pleasant Ridge, Huntington Woods, Berkley, and Madison Heights. Those present at the open house discussed crash data and how to prioritize improvements.

Special Use and Site Plan Development Report

Planner Lonnerstater reviewed the Special use and site plan submittals for January 2024 to July 2024.

8. PUBLIC COMMENT

Seeing no further comments, Chair Champagne adjourned the meeting at 6:23 p.m.

MEMORANDUM

Date: September 10th, 2024
To: City of Madison Heights Planning Commission
From: Matt Lonnerstater, AICP – City Planner
Subject: Zoning Text Amendment (24-01) – Accessory Buildings, Structures, and Uses – Gazebos, Pergolas, and Utility Structures

Introduction

Madison Heights City Council adopted the new Zoning Ordinance on May 13th, 2024. Since going into effect, staff has encountered several ordinance sections that could benefit from clarification or refinement:

- Section 7.03.10 – Use Specific Standards related to Detached One-Family Dwellings
- Section 7.03.43 – Use Specific Standards related to Temporary Uses
- **Section 8.03 – Accessory Buildings, Structures, and Uses [Addressed in this Memo]**
- Sections 12.06 and 12.07 - Signs

This memo addresses proposed text amendments to Section 8.03 – Accessory Buildings, Structures, and Uses – pertaining to the regulation of small gazebos, pergolas and utility structures (e.g. exterior air conditioner units). A public hearing has been scheduled for the September 17th Planning Commission meeting.

Background and Proposed Amendments

Gazebos, Pergolas and Open/Unenclosed Accessory Structures

Since the adoption of the new Zoning Ordinance, staff has received several building permit applications for detached gazebos, pergolas, or other similar small unenclosed accessory structures located on rear decks or patios. Under the current standards, unenclosed accessory structures (roofed, but open on all sides) such as gazebos and pergolas are subject to the same minimum setback standards as all other accessory structures, including detached garages or sheds: five (5) feet from side/rear property lines and ten (10) feet from the principal structures.

Due to the ten-foot building setback requirement, gazebos, pergolas, and other unenclosed patio covers either need to be physically attached to the main house as a building addition or be located ten feet from the house. In order to provide more flexibility for homeowners and reduce the need for future variances, staff recommends exempting small unenclosed accessory structures such as gazebos and pergolas from the building setback requirement; such structures would still be subject to other accessory structure standards, such as minimum yard setbacks, height, and lot coverage.

Staff has confirmed with the Building Official and Fire Marshal that the proposed amendments are compatible with building and fire codes.

Detached Pergolas and Gazebos on Patios

Utility Structures

Current ordinance language restricts utility structures such as generators and air conditioner units to the rear yard, with the exception that such structures may be permitted in a side yard only if enclosed by a masonry enclosure (e.g. bricks or stone). Since the adoption of the Ordinance, staff has received several requests for new or replacement side yard air conditioner units which would require the construction/installation of a masonry enclosure. Due to the price of masonry materials and needed labor to install, the additional cost adds a financial burden to homeowners.

In order to provide more flexibility for screening methods (while keeping the general intent) and to reduce the cost burden of replacing or installing air conditioning units or exterior generators, staff recommends removing the masonry enclosure requirement and replacing it with a standard that screening be constructed of, *"materials similar/compatible to the building(s) to which they are accessory."* Evergreen shrubbery or plant material would also be appropriate in certain cases. The revised language would allow screening methods to include wood, vinyl, evergreen landscaping, etc., and provide administrative flexibility on a case-by-case basis.

A/C Unit Screening

Next Step

After the required public hearing, staff recommends that the Planning Commission recommend approval of the text amendment ZTA 24-01 to City Council.

City of Madison Heights
Oakland County, Michigan
Zoning Text Amendment 24-01

An ordinance to amend Ordinance 2198, being an ordinance codifying and adopting a new Zoning Ordinance for the City of Madison Heights.

SECTION 8.03. ACCESSORY BUILDINGS, STRUCTURES, AND USES is hereby amended as follows:

Section 8.03 Accessory Buildings, Structures, and Uses

1. **Accessory Buildings, Structures, and Uses.** Accessory buildings and uses, except as otherwise permitted in this Ordinance, shall be subject to the following regulations:

    A. Use. Accessory buildings and uses are permitted only in connection with, incidental to and on the same lot with, a principal building, structure or use which is permitted in the particular zoning district. No accessory building, structure or use shall be occupied or utilized unless the principal structure to which it is accessory is occupied or utilized. Accessory structures shall not be constructed until the principal building is constructed; however, a principal building and detached accessory structure may be constructed simultaneously. A detached accessory building can be used for parking or storage of motor vehicles, but not for commercial servicing or repair, unless approved as an element of a Special Land Use and/or Site Plan approval.

    B. Permit. Any accessory building greater than 200 square feet shall require a building permit. All accessory buildings in non-residential districts also require a site plan, unless otherwise determined by the Planning and Zoning Administrator.

    C. Accessory Dwelling Units. Accessory Dwelling Units (ADUs) are further subject to the use-specific standards of Section 7.03(1). Where there is a conflict between the standards of this Section and Section 7.03, the standards of Section 7.03 shall apply.

    D. Location. Unless noted otherwise, detached accessory buildings shall only permitted in the rear yard subject to setbacks listed in this section. In the case of corner lots, detached accessory structures may be permitted abutting the secondary street in accordance with street side yard setbacks for the principal structure.

E. Height.

(1) Residential Districts: With the exception of detached accessory dwelling units (Section 7.03(1)), detached accessory structures shall not exceed fifteen (15) feet in height. Attached accessory structures shall be subject to height regulations applicable to the principal structure in the associated zoning district.

(2) Non-Residential and Mixed-Use Districts: Detached accessory structures shall not exceed twenty (20) feet in height. Attached accessory structures shall be subject to the height regulations applicable to the principal structure in the associated zoning district.

F. Lot Coverage. All attached and detached accessory buildings shall be in in compliance with zoning ordinance provisions concerning the maximum percentage of lot coverage.

G. Setbacks. Accessory structures are subject to the following setbacks listed below:

(1) Where the accessory building is structurally attached to a principal building, it shall be subject to, and must conform to all regulations of this Ordinance applicable to main buildings.

(2) No detached accessory building shall be located closer than ten (10) feet to any main building (including buildings on adjacent parcels) nor shall it be located closer than five feet to any side or rear lot line, with eaves no closer than four feet to any lot line. Detached accessory buildings may be located up to three feet to the rear lot line or side lot line, if construction is fire-resistance rated according to the current Michigan Residential Code, with eaves no closer than two feet to any lot line.

~~(2)~~ (a) Exemption for Gazebos/Pergolas and Unenclosed Structures: For single-family, townhome, duplex, or multiplex uses, detached, freestanding, and unenclosed gazebos, pergolas, or similar roofed but unenclosed accessory structures up to 200 square feet in area are exempt from the minimum ten (10) foot building setback requirement if open/unenclosed on all sides, unless a greater minimum separation distance is required by the Building Official.

(3) In those instances where the rear lot line is coterminous with an alley right-of-way, the accessory building shall not be closer than one foot to such rear lot line. In no instance shall an accessory building be located within a dedicated easement right-of-way. In those instances where the

rear lot line abuts a street right-of-way, with the exception of an alley, the accessory building shall be no closer to this line than the required front yard setback in the district in which the property is located.

(4) Corner Lots: In the case of a corner lot, a detached accessory structure shall be subject to the street side yard setbacks applicable to the principal structure.

H. Design. When a permit is required, all attached and detached accessory buildings, including garages, sheds, and carports, shall be designed and constructed of materials and design, including roof style, compatible with the principal structure and other buildings in the vicinity, as determined by the Planning and Zoning Administrator. The Planning and Zoning Administrator may allow modifications to the design if the alternate design is compatible with surrounding architecture.

I. Pavement. All accessory buildings which are used as garages shall have paved driveways from the street to the garage. The paved driveway shall be a minimum of nine feet wide unless otherwise approved by the Community and Economic Development Department, and are further subject to use-specific standards of Article 7. The Community and Economic Development Department shall base its determination upon such factors as the narrowness, shallowness, shape, or area of a specific piece of property, topographical conditions, or extraordinary or exceptional conditions of the property by which the strict application of this Ordinance would result in a practical difficulty; however, such practical difficulty shall not be self-created by the property owner.

J. Drainage. All driveways and garages shall be paved with asphalt or concrete and drained in accordance with the requirements of and upon approval of the city engineer.

K. Foundation and Rat Walls. All detached accessory structures, regardless of size, shall be built on a concrete or masonry foundation or feature a rat wall, both in accordance with Chapter 6 of the Code of Ordinances, Buildings and Building Regulations.

2. **Portable On-Site Storage Units.** Portable On-Site Storage Units may be permitted on a temporary basis in accordance with the following:

A. Residential Districts:

(1) One portable on-site storage unit shall be permitted per dwelling unit.

(2) Portable on-site storage units shall be located on a paved surface and shall be subject to the location and setback standards for accessory

structures, Section 8.03 (1), above. The Planning and Zoning Administrator may approve alternate locations through the submittal/approval of a Temporary Use Permit.

(3) Such unit shall be permitted without a temporary use permit for up to 30 days in a one 12-month period, unless otherwise noted in this Section.

(4) For multi-family residential sites, on-site portable storage units shall not obstruct drive aisles or block a required parking space.

(5) A portable on-site storage unit may be permitted for up to six months for use on-site during substantial construction or renovation on the property as evidenced by active building permits and upon application for a Temporary Use Permit, approved by the Planning and Zoning Administrator.

B. Non-residential and Mixed-Use Districts

(1) Two (2) portable on-site storage units shall be permitted per parcel, upon approval of a Temporary Use Permit.

(2) Portable on-site storage units shall be located on a paved surface, and only in the rear yard. The portable unit(s) shall maintain the minimum rear yard setbacks for accessory structures per Section 8.03 (1), above.

(3) Such unit(s) shall be permitted for up to 30 days in a one 12-month period, unless otherwise noted below.

(4) Portable on-site storage unit may be permitted for up to six months for use on-site during substantial construction or renovation on the property as evidenced by active building permits and upon application for a Temporary Use Permit, approved by the Planning and Zoning Administrator.

(5) Portable on-site storage units may be placed on a permanent basis within an approved accessory outdoor storage area without the need for a ~~a~~ temporary use permit. Such accessory outdoor storage areas shall be subject to the requirements of Section 8.03 (6), below.

(6) Containers exceeding 16 feet in length, such as cargo/shipping containers, shall only be placed within an approved accessory outdoor storage area. Such accessory outdoor storage areas shall be subject to the requirements of Section 8.03 (6), below.

C. General Regulations

(1) No portable storage unit shall be located in a public right-of-way.

(2) No electrical, gas, or plumbing services shall be connected to the portable storage unit.

(3) Portable storage containers shall not be used to store hazardous materials, as defined by the Michigan Fire Code.

(4) Portable storage containers shall not be used as living quarters for humans or animals.

3. **Utility Structures.** All ground-mounted transformers, generators, air conditioner units, mechanical equipment, and similar equipment shall be subject to the following regulations.

A. Such structures, when unenclosed or not screened, shall only be permitted in the rear yard and shall be placed immediately adjacent to the building to be served.

~~A.~~B. The utility structure shall be located a minimum of three (3) feet from any property line. However, a non-conforming existing utility structure may be replaced with a new unit of a similar size in the same location without meeting the setback requirements; such structures in the side yard shall be screened in accordance with sub-section C, below.

C. The ~~Technical Review Committee~~Planning and Zoning Administrator may permit such utility structures within an interior side yard or street side yard, subject to the following requirements:

(1) , ~~provided it is screened~~The utility structure shall be placed immediately adjacent to the building to be served and shall be screened on at least three (3) sides ~~completely with an enclosure~~ so as to not be visible from the street. The wall of the principal building may count toward one of the three sides. ~~-~~Such ~~enclosure~~ screening shall be constructed of ~~masonry~~ materials similar/compatible to the building(s) to which they are accessory and shall ~~obscure all utility structures within.~~be constructed to a height not less than that of the unit to be screened. Evergreen shrubbery or plant material may be substituted for enclosures. Chain link fencing is not permissible as screening material.

~~B.~~ Utility structures are exempt from, and do not count towards, the maximum lot coverage standards of Article 4, Schedule of Regulations.

D. ~~Such structures shall be subject to screening requirements listed in Section 11.08(2), unless otherwise noted above.~~

[…]

NOTICE OF PUBLIC HEARING

Notice is hereby given that the Planning Commission for the City of Madison Heights will hold a public hearing on **Tuesday, September 17th, at 5:30 p.m.** in the **City Council Chambers of City Hall at 300 W. 13 Mile Road, Madison Heights, Michigan 48071** to consider the following zoning text amendments:

Zoning Text Amendment 24-01

An ordinance to amend Appendix A of Ordinance 2198, being an ordinance codifying and adopting a new Zoning Ordinance for the City of Madison Heights, by amending *Section 8.03 – Accessory Buildings, Structures, and Uses* – pertaining to gazebos, pergolas, unenclosed detached structure, and utility structures.

Zoning Text Amendment 24-02

An ordinance to amend Appendix A of Ordinance 2198, being an ordinance codifying and adopting a new Zoning Ordinance for the City of Madison Heights, by amending *Section 7.03.10 – Use-Specific Standards [Detached One-Family Dwellings]* – pertaining to driveway width and location.

Zoning Text Amendment 24-03

An ordinance to amend Appendix A of Ordinance 2198, being an ordinance codifying and adopting a new Zoning Ordinance for the City of Madison Heights, by amending Section *7.03.43 – Use-Specific Standards [Temporary Uses]* – pertaining to recurring special events.

Zoning Text Amendment 24-04

An ordinance to amend Appendix A of Ordinance 2198, being an ordinance codifying and adopting a new Zoning Ordinance for the City of Madison Heights, by amending *Section 12.06 – Measurement of Sign Area and Height – and Section 12.07 – Regulations for Permitted Signs* – pertaining to the measurement and maximum permitted sizes of wall signs.

For further information, please contact the Community & Economic Development Department at (248) 583-0831. Please refer to the Agenda Center at https://madisonheights-mi.municodemeetings.com/ for the posted agenda and any meeting updates.

Public Comment:
Send your public comment through email at: MaryDaley@Madison-Heights.org and your comment will be read at the meeting. Written comments may also be mailed prior to the meeting to 300 West Thirteen Mile Road, Madison Heights, Michigan, 48071. All comments will be heard at the public hearing.

City of Madison Heights
Mary Daley
Business Services Coordinator

Madison Park News 08/28/24

MEMORANDUM

Date: September 10th, 2024
To: City of Madison Heights Planning Commission
From: Matt Lonnerstater, AICP – City Planner
Subject: Zoning Text Amendment (24-02) – Use Specific Standards related to Detached One-Family Dwellings (Driveways)

Introduction

Madison Heights City Council adopted the new Zoning Ordinance on May 13th, 2024. Since going into effect, staff has encountered several ordinance sections that could benefit from clarification or refinement:

- **Section 7.03.10 – Use Specific Standards related to Detached One-Family Dwellings (Driveways) [Addressed in this Memo]**
- Section 7.03.43 – Use Specific Standards related to Temporary Uses
- Section 8.03 – Accessory Buildings, Structures, and Uses
- Sections 12.06 and 12.07 - Signs

This memo addresses proposed text amendments to Section 7.03.10– Use Specific Standards related to Detached One-Family Dwellings – pertaining to the width and design of residential driveways. A public hearing has been scheduled for the September 17th Planning Commission meeting

Background and Proposed Amendments

Current ordinance language restricts the overall width of a residential driveway to the width (outer edges) of the garage door. Since the adoption of the new Zoning Ordinance, staff has received several requests for slightly wider driveways to accommodate larger vehicles and provide the ability to step out from a vehicle without stepping onto grass.

The intent of the existing driveway width limitation is to ensure that front yards are not completely inundated with pavement, which can lead to poor pedestrian environments and unsightly appearances. The existing ordinance language limits the width of a driveway at the property line to 12 feet for detached garages and 20 feet for attached garages but allows a driveway to taper/widen to the outer edges of the garage door. Staff acknowledges that a modest additional width beyond the edges of the garage door (staff proposes 18 inches) would allow for the storage of larger vehicles and provide for a paved area in which to step out from the vehicle without compromising the general intent of the width limitation.

Wide Driveways

Wide driveways, especially at the front property line, create unsafe environments for pedestrians and may detract from the appearance and character of a residential neighborhood.

The proposed language explains where and how a taper can begin on a property and clarifies that driveways cannot be located directly in front of the main residential portion of the structure, with certain exceptions.

Limited Width Driveways with Tapers

Both of these driveways have limited widths at the front property line, but taper/widen to a point approximately eighteen (18") inches beyond the outer edges of the garage door.

Next Step

After the required public hearing, staff recommends that the Planning Commission recommend approval of text amendment ZTA 24-02 to City Council.

City of Madison Heights
Oakland County, Michigan
Zoning Text Amendment 24-02

An ordinance to amend Ordinance 2198, being an ordinance codifying and adopting a new Zoning Ordinance for the City of Madison Heights.

SECTION 7.03. USE SPECIFIC STANDARDS is hereby amended as follows:

Section 7.03.10 – Detached One-Family Dwellings

A. DWELLING UNIT DESIGN:

(1) Dwelling units that front a public street shall have at least one (1) entrance facing, or visible from, the public street.

(2) Exterior Finish Materials. Primary materials shall include brick, natural stone, cultured stone, smooth wood siding, or fiber cement siding. Accent materials (up to 25% of the net façade) may include architectural metal, asphalt siding, stucco, aluminum siding, EIFS, reflective glass, vinyl cladding, or concrete. The Planning and Zoning Administrator may consider alternative accent materials.

B. GARAGES:

(1) Detached Garages. Detached garages shall comply with the Accessory Buildings standards, Section 8.03.

(2) Attached Garages. Garages shall not be the prominent feature of the front elevation of the home or of the street frontage. Attached garages shall comply with the following standards:

(a) Attached garages are subject to the minimum building setback provisions for the principal structure.

(b) The total width of front-loaded attached garages shall not occupy more than 50% of the total width of the front façade of the house, as measured along any building line that faces the street, which excludes any architectural elements such as bay windows or unenclosed porches. The width of the garage is measured at the width of the door and not necessarily the space it occupies in the dwelling behind the door. Garage width may be increased to not more than 60% of the total width of the front façade on parcels with a lot width of 40 ft. or less.

(c) Front-loaded attached garages shall be recessed at least two (2) feet from the front façade of the house. Front porches may be considered the front façade and be used as the point of measurement for those homes where the porch comprises at least 30 percent of the front façade.

C. DRIVEWAYS

(1) Minimum driveway width at the right-of-way line: 9 feet.

(2) All driveways or approaches within the public right-of-way shall be paved with concrete and all other driveways shall be paved with asphalt or concrete.

(3) Driveways shall be set back a minimum of one (1) foot from side and rear lot lines, except in cases where the driveway is accessed from a rear alley or where a driveway is shared between two or more properties. Driveways shall not be permitted ~~within the front yard~~ in front of the residential dwelling, except as permitted within this Section.

(4) Driveways leading to an Attached Garage: A driveway providing access to an attached garage shall be no wider than 20 feet at the front or street side lot line but may taper to ~~the~~ a width up to, but not to exceed, eighteen inches beyond the exterior edges of the garage door opening; ~~beginning at a distance of~~ the taper shall begin a minimum of 5 feet from the property line adjacent to the street and shall be angled no greater than 45 degrees. However, in no case shall any part of the driveway be located directly in front of the residential dwelling, with the exception of living spaces above the garage. ~~exceed the width of the garage door, except where an additional parking pad is permitted, below.~~

(5) Driveways leading to a Detached Garage: A driveway that provides access to a detached garage shall be no wider than twelve (12) feet in width at the property line but may taper to a width up to, but not to exceed, eighteen inches beyond the exterior edges of the garage door opening; the taper shall begin in the side or rear yard and shall be angled no greater than 45 degrees. ~~the width of the garage in the side and rear yard. However, i~~ In no case shall any part of the driveway be located directly in front of the residential dwelling, with the exception of accessory dwelling living spaces above/within the detached garage. ~~exceed the width of the garage, except where an additional parking pad is permitted, below.~~

On a corner property, a driveway leading to a detached garage facing a side street shall be no wider than 20 feet at the side street property line but may taper to ~~the~~ a width up to, but not to exceed, eighteen inches beyond the exterior edges; the taper shall begin a minimum ~~of the garage door opening at a distance~~ of 5 feet from the side street property line. However, in no case shall any part of the driveway be located directly in front of the residential dwelling, with the exception of accessory dwelling living spaces above/within the garage. ~~exceed the width of the garage, except where an additional parking pad is permitted, below.~~

(6) Driveways on Properties without a Garage: Where no garage exists, a driveway shall be no wider than twelve (12) feet in width at the property line but may taper to a maximum of twenty (20) feet in the side and rear yard. In no case shall any part of the driveway be located directly in front of the residential dwelling.

(7) Circular Driveways: A circular driveway with two approaches on the same street, or one per street on a corner lot, is permitted on parcels containing 200 feet or more of combined lot width.

(8) Ribbon Driveways: Ribbon driveways are permitted for residential driveways, subject to the same dimensions and paving standards for standard driveways. Individual ribbons shall only be permitted within the boundary of the lot and shall not be less than eighteen (18) inches or more than thirty (30) inches wide.

(9) Additional Parking Pad: One (1) additional parking pad for parking and turnarounds, no greater than 18 x 20 feet, is permitted adjacent to a permitted driveway within a side or rear yard. Parking pads shall be set back a minimum of one (1) foot from side and rear property lines.

For properties fronting an arterial or collector street, as denoted within the Master Plan, one (1) parking pad, no greater than 18 x 20 feet, may be located within a required front or street side yard setback to allow for safe vehicular turnaround. Such parking pad shall be screened from the abutting street with plant materials or an alternative screening method approved by the Planning and Zoning Administrator, and shall be set back a minimum of five (5) feet from the street right-of-way line.

MEMORANDUM

Date: September 10th, 2024
To: City of Madison Heights Planning Commission
From: Matt Lonnerstater, AICP – City Planner
Subject: Zoning Text Amendment (24-03) – Use Specific Standards related to Temporary Uses

Introduction

Madison Heights City Council adopted the new Zoning Ordinance on May 13th, 2024. Since going into effect, staff has encountered several ordinance sections that could benefit from clarification or refinement:

- Section 7.03.10 – Use Specific Standards related to Detached One-Family Dwellings (Driveways)
- **Section 7.03.43 – Use Specific Standards related to Temporary Uses [Addressed in this Memo]**
- Section 8.03 – Accessory Buildings, Structures, and Uses
- Sections 12.06 and 12.07 - Signs

This memo addresses proposed text amendments to Section 7.03.43– Use Specific Standards related to Temporary Uses – pertaining to recurring special events. A public hearing has been scheduled for the September 17th Planning Commission meeting.

Background

The Zoning Ordinance contains specific provisions for temporary uses and divides them into three general categories: temporary outdoor displays/sales, seasonal sales lots, and special events. Since Ordinance adoption, staff has received several requests for weekly cornhole tournaments in the parking lots of bars and restaurants. While this type of recurring event most appropriately fits into the "special events" category, the current language limits properties to three (3) special events per calendar year, with a fourteen (14) day gap between events.

When drafted, the original intent of the "special event" category was to accommodate larger events such as fairs and carnivals. In its application, the current language would only permit restaurants to hold three recurring events per year, separated by fourteen days; this is fairly restrictive, and inhibits the ability for restaurants and bars to hold unique recurring events such as cornhole tournaments, farmers markets, craft markets, etc.

To allow more flexibility to business owners and allow for more active and unique events throughout the community, staff recommends adding a "recurring event" provision to the Special Events category, allowing business owners/property owners to hold a recurring event (1-2 consecutive days each) up to a total of ten (10) days per calendar year. A recurring event could be applied for under a single special event permit, which would count toward the total number of special events allotted per year.

An additional minor modification clarifies that if the applicant for a temporary use permit is not the property owner, they shall provide a signed letter of authorization from the property owner with the application.

Next Step

After the required public hearing, staff recommends that the Planning Commission recommend approval of text amendment ZTA 24-03 to City Council.

City of Madison Heights
Oakland County, Michigan
Zoning Text Amendment 24-03

An ordinance to amend Ordinance 2198, being an ordinance codifying and adopting a new Zoning Ordinance for the City of Madison Heights.

SECTION 7.03. USE SPECIFIC STANDARDS is hereby amended as follows:

Section 7.03.43 – Temporary Uses

43. TEMPORARY USES.

A. Except as otherwise provided in this Zoning Ordinance, the temporary uses listed in this Section shall require the issuance of a Temporary Use Permit in accordance with this Section and the process/requirements of Section 10.08. Temporary/Seasonal Business Licenses shall also be required in accordance with Chapter 7 of the Madison Heights Code of Ordinances.

B. Applicants seeking a temporary use permit for a time period longer than otherwise allowed by this chapter, or for a temporary use not specifically permitted in this chapter (or not deemed similar by the Planning and Zoning Administrator), shall submit for approval through the Planning Commission; provided, that it complies with all other relevant development and operational standards for the use as provided in this Zoning Ordinance.

C. Exempt Temporary Uses: The following temporary uses are exempt from the procedural and licensing requirements of this section but remain subject to other Sections of this Zoning Ordinance and the Madison Heights Code of Ordinances.

(1) Emergency Facilities: Temporary facilities to accommodate emergency health and safety needs and activities.

(2) Temporary Construction Yards – on-site: Yards and sheds for the storage of materials and equipment used as part of a construction project, provided a valid building permit has been issued and the materials and equipment are stored on the same site as the construction activity.

(3) Temporary Construction Office or Temporary Real Estate Office. A temporary construction or real estate office used during the construction of a principal building, buildings, or uses on the same site, subject to building permits and trade permits.

(4) Activities conducted on public property or within the public right-of-way that are approved by the city or as otherwise required by the Zoning Ordinance or Municipal Code.

(5) Temporary events or activities occurring within, or upon the grounds of, a private residence or upon the common areas of a multi-family residential development.

(6) Mobile Food Sites, in accordance with Section 7.03(28)

(7) Temporary portable on-site storage units in accordance with Section 8.03(2).

D. Standards Applicable to all Temporary Uses. All temporary uses, including but not limited to those listed in this Section, shall comply with the following standards:

(1) No temporary use shall be established or conducted so as to cause a threat to the public health, safety, comfort, convenience, and general welfare, either on or off the premises.

(2) Temporary uses shall be set back a minimum of twenty-five (25) feet from abutting residentially-zoned parcels or residential uses, with the exception of existing mixed-use buildings.

~~(2)~~(3) Temporary use applicants shall either be the property owner or, if not the property owner, present a signed letter of authorization from the property owner agreeing to such temporary use.

~~(3)~~(4) Temporary uses shall not obstruct required fire lanes, access to buildings or utility equipment, clear vision triangle, ADA spaces or aisles, or egress from buildings on the lot or on adjoining property.

~~(4)~~(5) Temporary uses shall provide adequate parking area and improvements adequate to accommodate anticipated vehicular traffic. Safe pedestrian accessibility shall be provided between parking areas and the temporary use, with a separation between vehicular and pedestrian traffic areas.

~~(5)~~(6) Temporary uses shall be conducted completely within the lot on which the principal use is located, unless the City authorizes the use of City-owned property or right-of-way.

~~(6)~~(7) During the operation of the temporary use, the lot on which it is located shall be maintained in an orderly manner, shall be kept free of litter, debris, and other waste material, and all storage and display of goods shall be maintained within the designated area.

~~(7)~~(8) Signs for temporary uses shall be permitted only in accordance with Article 12, Signs.

~~(8)~~(9) Temporary uses shall comply with all requirements of the Fire Prevention Code and other applicable codes and regulations.

E. Allowed Temporary Uses and Use-Specific Standards. The following temporary uses may be permitted via approval from the Planning and Zoning Administrator, subject to satisfying use-specific standards. Such uses shall also require the issuance of a valid Temporary/Seasonal Business License:

(1) **Temporary Outdoor Displays/Sales.** The establishment of temporary outdoor sales and the temporary display of goods, including promotional sales, sidewalk sales, and parking lot sales, may be conducted accessory to an otherwise lawfully permitted or allowed principal use on the same site, subject to the following:

(a) Temporary outdoor displays and sales shall only be permitted in a non-residential or mixed-use zoning district, accessory to an existing business located on the same property.

(b) Products displayed and sold outdoors shall relate to the on-site use and business, and all activities shall be conducted within the lot.

(c) Temporary outdoor displays and sales are limited to a maximum of ninety (90) total days per calendar year, which may or may not be consecutive.

(d) Sales and display areas may not occupy more than fifteen percent (15%) of the parking area and shall not substantially alter the existing circulation or fire access on site.

(2) **Seasonal Sales Lots.** Temporary seasonal sales activity (e.g., Christmas trees, pumpkin sales, plant sales, fireworks sales) may be permitted, subject to the following:

(a) Seasonal sales lots may be permitted in any non-residential or mixed-use zoning district, or on any public, quasi-public, or institutional site that abuts an arterial or collector road.

~~(b) Seasonal sales applicants shall have an established physical presence in the City of Madison Heights and maintain a valid business license with the City or shall provide evidence that such seasonal sales are conducted for a charitable, religious, civic, educational, or philanthropic purpose.~~

~~(c)~~(b) Temporary seasonal sales are limited to a maximum of ninety (90) total days per calendar year, which may or may not be consecutive.

~~(d)~~(c) Sales and display areas may not occupy more than fifteen percent (15%) of a parking area and shall not substantially alter the existing circulation or fire access on site.

(3) **Special Events.** Special events such as auctions, craft fairs, farmers markets, outdoor entertainment, and carnivals, may be permitted, subject to the following:

(a) Special events may be permitted in any non-residential or mixed-use zoning district, or on any property approved for public, quasi-public, or institutional uses that abuts an arterial or collector road, as defined in the Madison Heights Master Plan.

(b) The temporary special event is limited to a maximum of seven (7) consecutive days. A total of three (3) ~~seven-day periods~~ temporary special

events are permitted per business per calendar year, separated by a stretch of fourteen (14) consecutive days.

~~(b)~~ A recurring event that typically does not take place over consecutive days, but may take place on no more than two consecutive days, may be submitted as a single temporary special event permit. A recurring event is not subject to the 14-day separation standard listed in subsection (E)(3)(b), above. A recurring event is limited to a total of ten (10) days per calendar year and shall count toward the total number of special events

(c) Permitted hours of operation shall be limited to between 12:00 (noon) to 10:00 p.m.

F. When a temporary use is not specifically mentioned in this section, the Planning and Zoning Administrator may determine that such use is similar in nature to listed use(s) above and shall establish the term, and make necessary findings and conditions for the particular use. The Planning and Zoning Administrator reserves the right to refer any request for a temporary use permit to the Planning Commission for action, in accordance with Section 15.08.

G. In issuing a temporary use permit, the approving authority may impose conditions which it finds necessary for the protection and preservation of property rights and values of adjacent properties.

MEMORANDUM

Date: August 15th, 2024
To: City of Madison Heights Planning Commission
From: Matt Lonnerstater, AICP – City Planner
Subject: Zoning Text Amendment (24-04) – Regulations for Permitted Signs (Wall Signs)

Introduction

Madison Heights City Council adopted the new Zoning Ordinance on May 13th, 2024. Since going into effect, staff has encountered several ordinance sections that could benefit from clarification or refinement:

- Section 7.03.10 – Use Specific Standards related to Detached One-Family Dwellings (Driveways)
- Section 7.03.43 – Use Specific Standards related to Temporary Uses
- Section 8.03 – Accessory Buildings, Structures, and Uses
- **Sections 12.06 and 12.07 – Signs – Wall Signs [Addressed in this Memo]**

This memo addresses proposed text amendments to Section 12.06 and 12.07– Signs – pertaining to measurement and allowances for wall signs. A public hearing has been scheduled for the September 17th Planning Commission meeting.

For reference, staff has included example images of wall signs and their respective areas at the end of this memo.

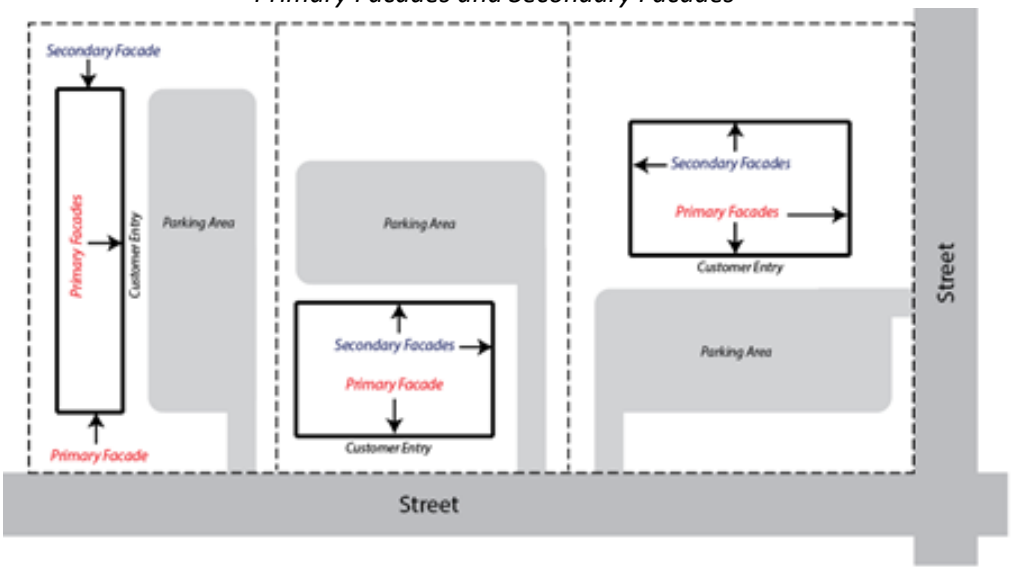
Background and Proposed Amendments

Section 12.06 – Measurement of Sign Area and Height – and Section 12.07 – Regulations for Permitted Signs – contain definitions and calculations pertaining to the measurement of wall signs, as well as the various wall sign allowances per zoning district. The existing language splits wall sign allowances into the categories of "street-facing facades" and "non-street facing facades," with greater bonus allowances for street-facing facades. While these categories work for many properties/buildings in Madison Heights, there are certain buildings within the City whose main building entrances do not face a street, and several properties that do not have street frontage at all. For example, Target's main entrance faces the interior parking lot rather than John R Road, and the tenants in Master's Plaza all face an interior parking lot

Properties/Tenants with Interior-Facing Primary Facades

In order to adequately allocate wall signage allowances and to avoid the need for variances, staff recommends recategorizing building facades into *"primary facades"* and *"secondary facades."* Primary facades would include any façade that fronts a public street *or* any façade that serves as a main entrance to a building or tenant space, regardless of street frontage. Secondary facades would include any other façade, typically along the side or rear of a building. See the image below for clarification.

Primary Facades and Secondary Facades



The existing language provides a bonus wall sign area allowance for tenants that have street-fronting facades length in excess of 200 feet. Staff proposes changing this bonus allowance to apply to primary façade lengths, even those not fronting a street, in excess of 200 feet. Staff also proposes to extend this bonus allowance to buildings/tenants whose primary façade is greater than 150 feet from the right-of-way line of the adjacent street to allow for greater visibility.

Buildings with Significant Setbacks (>150 feet from Right-of-Way)

Next Step

After the required public hearing, staff recommends that the Planning Commission recommend approval of text amendment ZTA 24-04 to City Council.

For Reference: Example Wall Signs and Sign Areas

Goodwill: 80 square feet

O'Reilly Auto Parts: 115 square feet

Gong Cha: 45 square feet

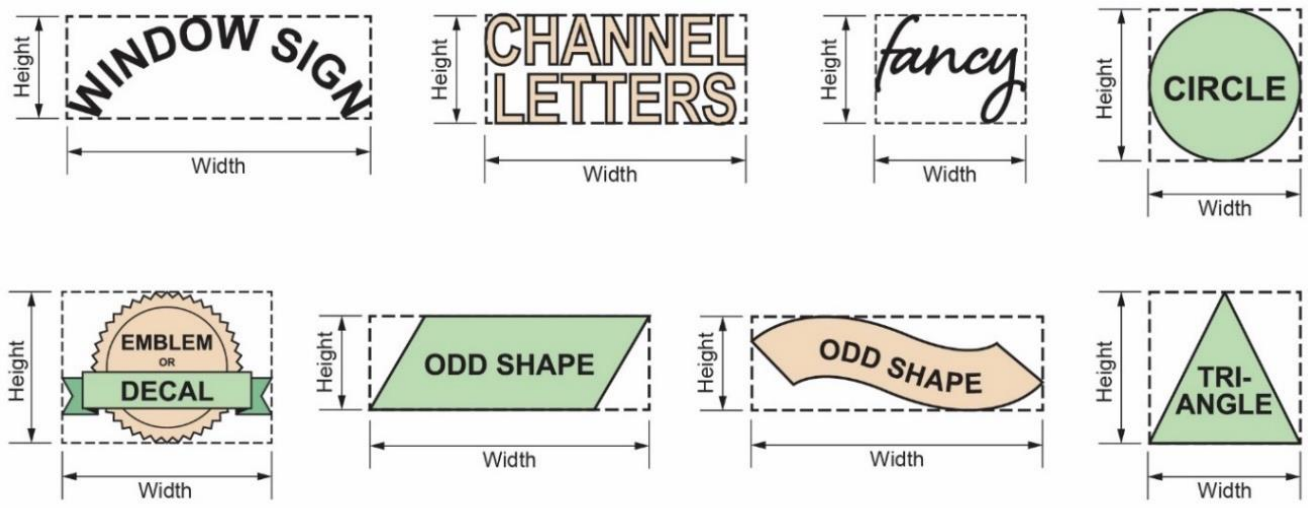
City of Madison Heights
Oakland County, Michigan
Zoning Text Amendment 24-04

An ordinance to amend Ordinance 2198, being an ordinance codifying and adopting a new Zoning Ordinance for the City of Madison Heights.

SECTION 12.06 – MEASUREMENT OF SIGN AREA AND HEIGHT is hereby amended as follows:

Section 12.06 Measurement of Sign Area and Height

1. **Sign Area.** For the purposes of this section, the sign area shall include the total area within any circle, triangle, rectangle or square, or combination of two shapes which are contiguous to each other, enclosing the extreme limits of writing, representation, emblem or any similar figure, together with any frame or other material forming an integral part of the display or used to differentiate such sign from the background against which it is placed. In the case of a broken sign, (a sign with open spaces between the letters or insignia) the sign area to be considered for size shall include all air space between the letters or insignia. Where more than one wall sign is used, each sign may be measured individually, using the procedure above, provided the signs are separated by a distance equal to, or greater than, the width of the largest sign. Any back-lit area of a building exterior shall be considered to be a sign area. Where a sign has two or more faces, the area of all faces shall be included in determining the area of the sign, except that where two such faces are placed back-to-back and less than 24 inches apart, the area of the sign shall equal the area of one face.



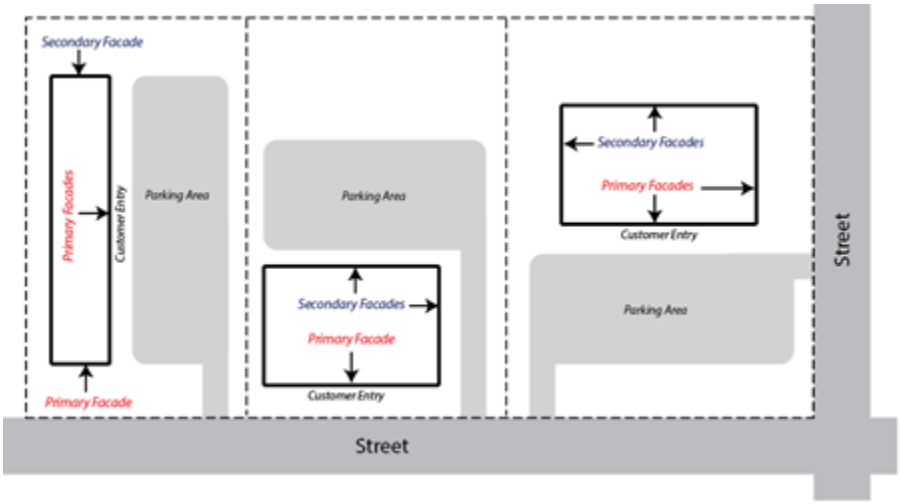
2. **Sign Height.** The height of the sign is measured from the ground to the highest point of the sign from the ground.

3. ~~Lineal~~ Building Street **Frontage.** In certain cases, the lineal street frontage of a building, building unit, or individual tenant space ~~shall~~ may be the basis for determining permissible wall sign area. ~~Lineal~~ Building Street frontage shall be the sum of all wall lengths associated with such building, building unit, or tenant space parallel to a public street, excluding any such wall length determined by the Planning and Zoning Administrator as unrelated to such building, building unit, or tenant space. For multi-tenant buildings, the street frontage shall be measured from the centerline of the party walls defining the tenant's individual space.

4. **Façade Measurements:** In certain cases, sign area calculations may be based on the length of the façade serving as the building or tenant's primary or secondary façades. Primary façades shall include any façade that has building street frontage along a public street (as defined above) or any façade that serves as the main entrance to a building or tenant space, regardless of street frontage. All other facades shall be considered secondary facades for the purposes of this article. A building or tenant space may have multiple primary facades and secondary facades. When a site has primary and secondary facades herein, the Planning and Zoning Administrator shall determine which facades shall serve as the primary facades and which shall be the secondary facades, as applicable. Façade length shall be the sum of all wall lengths associated with said façade. For multi-tenant buildings, façade length shall be measured from the centerline of the party walls defining the tenant's individual space.

Primary and Secondary Facades

~~3.~~



SECTION 12.07- REGULATIONS FOR PERMITTED SIGNS is hereby amended as follows:

Section 12.07 Regulations for Permitted Signs

The following conditions shall apply to all signs erected or located in the specified zoning district(s):

R-1, R-2, R-3, R-MN, R-MF and H-M Districts:

Sign Type	R-1, R-2, R-3, R-MN, R-MF and H-M Districts (Single-family, duplex, and multi-plex lots only)	R-1, R-2, R-3, R-MN, R-MF and H-M Districts (Residential Developments [e.g., subdivisions, site condominiums, multi-family, and mobile home parks] and Non-Residential Uses only)
Awning/ Canopy Signs	Not Permitted	**Maximum Number:** One (1) sign per awning/canopy. **Maximum Area:** 15 square feet per sign. Individual signs greater than 15 sq. ft. may be permitted by allocating permitted wall signage allowances, below, to the awning/canopy sign.
Ground Signs	Not Permitted	**Maximum Number:** One (1) per street frontage. If an individual parcel has frontage that exceeds 300 linear feet on any given street, a total of one (1) additional ground sign may be permitted. Ground signs on a single parcel shall be separated by a minimum of 100 feet. **Minimum Setback:** 3 feet from right of way. Increase setback by 0.5 foot for every 0.5 foot of height increase above 5 feet (up to a maximum of 6 feet).

• **Monument Signs**	Not Permitted	**Maximum Height:** 6 feet **Maximum Area:** 32 square feet
• **Decorative Post Signs**	Not Permitted	**Maximum Height:** 5 feet **Maximum Area:** 24 square feet
Projecting Signs	Not Permitted	**Maximum Number:** One (1) projecting sign per public entrance, minimum separation of 20 feet between projecting signs on a single façade. **Maximum Area:** 10 square feet per individual sign
Wall Signs	Not Permitted	~~**Maximum Area per Individual Sign:** 50 square feet~~ **Maximum Total Sign Area per Façade:** ~~**Street-Facing façades**~~**Street Frontage/Primary Facade:** 1.5 square feet of sign area per lineal feet of building street frontage or primary façade length, not to exceed a total of 100 square feet for each ~~street-facing façade~~ street-fronting façade or ~~.~~primary façade. ~~**Non-street-facing facades**~~**Secondary Facade:** 1.5 square feet of sign area per lineal feet of secondary façade length, not to exceed 75~~100~~ square feet. ~~per façade.~~ **Painted Wall Signs:** Refer to ***Section 12.05(7)***
Window Signs	**Maximum Area:** 25% of the window area.	
Temporary Signs	**Maximum Height:** 4 feet **Maximum Area:** 16 square feet total **Minimum Setback:** 2 feet from right of way or any lot line.	**Maximum Number:** One (1) per street frontage. One (1) per parcel with no street frontage~~.~~ **Maximum Height:** 4 feet **Maximum Area:** 16 square feet **Minimum Setback:** 2 feet from any lot line.

B-1 Neighborhood Business District; B-2 Community Business District; B-3 Re~~g~~gional Business Districts; CC City Center District; and MUI Mixed Use Innovation Districts.

Sign Type	B-1, B-2, B-3, CC, and MUI Districts
Awning/ Canopy Signs	**Maximum Number:** One (1) sign per awning/canopy. **Maximum Area:** 15 square feet per sign. Individual signs greater than 15 square feet may be permitted by allocating permitted wall signage allowances, below, to the awning/canopy sign.
Ground Signs	**Maximum Number:** One (1) per street frontage per parcel. If a parcel has frontage that exceeds 300 linear feet on any given street, a total of one (1) additional ground sign may be permitted. Ground signs on a single parcel shall be separated by a minimum of 100 feet. **Minimum Setback:** 3 feet from right of way. Increase setback by 0.5 foot for every 0.5 foot of height increase above 5 feet (up to a maximum of 8 feet). No sign shall be located closer than 30 feet to any property line of an adjacent residential district.
• **Monument Signs**	**Maximum Height:** 8 feet **Maximum Area:** 0.5 square foot per each lineal foot of lot frontage to a maximum of 60 square feet in area, whichever is less
• **Decorative Post Signs**	**Maximum Height:** 5 feet **Maximum Area:** 24 square feet

Projecting Signs	**Maximum Number:** One (1) per public entrance, minimum separation of 20 feet between projecting signs on a single façade. **Maximum Area:** 10 square feet per individual sign.
Wall Signs	~~**Maximum Height:** 20 feet~~ ~~**Maximum Area per Individual Sign:** 75 square feet. Individual tenants with lineal building frontage in excess of 200 feet along a public roadway shall be permitted a maximum individual sign area allowance of 100 square feet along such street-facing facades.~~ **Maximum Total Sign Area per Façade**: ~~**Street-Facing façades**~~**Street Frontage/Primary Facade:** 1.5 square feet of total sign area per lineal feet of building street frontage or primary façade length, not to exceed a total of 100 square feet per ~~tenant per street facing~~street-fronting façade or primary façade. ~~facade.~~ ~~Individual t~~Buildings/Tenants with an individual ~~lineal~~ building street frontage or primary facade length in excess of 200 feet, ~~along a public street~~or whose primary facade is set back more than 150 feet from the right-of-way line of the adjacent street, shall be permitted a total wall area ~~allowance~~ bonus of 25% along such frontage/façade, not to exceed~~of~~ 150 square feet per facade. ~~along such street-facing facades.~~ ~~**Non-street-facing facades:**~~ **Secondary Facade:** 1.5 square feet of sign area per lineal feet of secondary façade length, not to exceed 100 square feet ~~100 square feet per façade per tenant.~~ **Painted Wall Signs:** Refer to ***Section 12.05(7)***
Window Signs	**Maximum Area:** 25% of the window area. In an enclosed building where the public is not allowed in the building and where food is offered to the public through a window for immediate consumption the maximum coverage shall be 50 percent.
Temporary Signs	**Maximum Number:** One (1) per street frontage. One (1) per parcel with no street frontage. **Maximum Height:** 4 feet **Maximum Area:** 16 square feet **Minimum Setback:** 2 feet from right of way or any lot line.

O-1 Office District:

Sign Type	O-1 Districts
Awning/ Canopy Signs	**Maximum Number:** One (1) sign per awning/canopy. **Maximum Area:** 15 square feet per sign. Individual signs greater than 15 square feet may be permitted by allocating permitted wall signage allowances, below, to the awning/canopy sign.
Ground Signs	**Maximum Number:** One (1) per street frontage of a lot or development. **Maximum Height:** 8 feet **Maximum Area:** 0.5 square foot per each lineal foot of lot frontage to a maximum of 48 square feet in area. **Minimum Setback:** 3 feet from all lot lines. No sign shall be located closer than 30 feet to any property line of an adjacent residential district. Increase setback by 0.5 foot for every 0.5 foot of height increase above 5 feet (up to a maximum of 8 feet).
• **Monument Signs**	**Maximum Height:** 8 feet **Maximum Area:** 48 square feet
• **Decorative Post Signs**	**Maximum Height:** 5 feet **Maximum Area:** 24 square feet
Projecting Signs	**Maximum Number:** One (1) per public entrance, minimum separation of 20 feet between projecting signs on a single façade.

	Maximum Area: 10 square feet per individual sign.
Wall Signs	~~**Maximum Height:** 20 feet~~ ~~**Maximum Area per Individual Sign:** 50 square feet. Individual tenants with lineal building frontage in excess of 200 feet along a public roadway shall be permitted a maximum individual sign area allowance of 75 square feet along such street facing facades.~~ **Maximum Total Sign Area per Façade:** ~~**Street-Facing façades**~~**Street Frontage/Primary Facade:** 1.5 square feet of total sign area per lineal feet of building street frontage or primary façade length, not to exceed a total of 75 square feet per tenant per street-fronting façade or primary facade~~street-facing façade~~. ~~Individual tenants with~~Buildings/Tenants with an individual ~~lineal~~ building street frontage or primary façade length in excess of 200 feet~~ along a public street~~, or whose primary facade is set back more than 150 feet from the right-of-way line of the adjacent street, shall be permitted a total wall area bonus of 25% along such frontage/facade, not to exceed 125 square feet per facade. ~~allowance of 100 square feet along such street-facing facades.~~ ~~**Non-street-facing facades:**~~**Secondary Façade: Secondary Façade:** 1.5 square feet of sign area per lineal feet of secondary façade length, not to exceed 75 square feet~~75 square feet per façade per tenant.~~ **Painted Wall Signs:** Refer to ***Section 12.05(7)***
Window Signs	**Maximum Area:** 25% of the window area.
Temporary Signs	**Maximum Number:** One (1) per street frontage. One (1) per parcel with no street frontage.~~lot.~~ **Maximum Height:** 4 feet **Maximum Area:** 16 square feet **Minimum Setback:** 2 feet from right of way or any lot line.

M-1 Light Industrial District; and M-2 Heavy Industrial Districts:

Sign Type	M-1 and M-2 Districts
Awning/ Canopy Signs	**Maximum Number:** One (1) sign per awning/canopy. **Maximum Area:** 15 square feet per sign. Individual signs greater than 15 square feet may be permitted by allocating permitted wall signage allowances, below, to the awning/canopy sign.
Ground Signs	**Maximum Number:** One (1) per street frontage per parcel. If a parcel has frontage that exceeds 300 linear feet on any given street, a total of one (1) additional ground sign may be permitted. Ground signs on a single parcel shall be separated by a minimum of 100 feet. No sign shall be located closer than 30 feet to any property line of an adjacent residential district. **Minimum Setback**: 5 feet
• **Monument Signs**	**Maximum Height:** 8 feet **Maximum Area:** 0.5 square foot per each lineal foot of lot frontage to a maximum of 60 square feet in area.
• **Decorative Post Signs**	**Maximum Height:** 5 feet **Maximum Area:** 24 square feet
Projecting Signs	**Maximum Number:** One (1) per public entrance, minimum separation of 20 feet between projecting signs on a single façade. **Maximum Area:** 10 square feet per individual sign.

Wall Signs	~~**Maximum Area per Individual Sign:** 100 square feet. Individual tenants with lineal building frontage in excess of 200 feet along a public roadway shall be permitted a maximum individual sign area allowance of 150 square feet along such street-facing facades.~~ **Maximum Total Sign Area per Façade:** ~~**Street-Facing façades**~~**Street Frontage/Primary frontage:** 1.5 square feet of sign area per lineal feet of building street frontage or primary façade length, not to exceed a total of 150 square feet per tenant per ~~street-facing~~street-facing façade or primary façade. ~~Individual tenants~~Buildings/Tenants with an individual ~~lineal~~ building street frontage or primary façade length in excess of 200 feet, or whose primary façade is set back more than 150 feet from the right-of-way of the adjacent street ~~along a public street~~ shall be permitted a total wall area bonus of 25% along such frontage/façade, not to exceed ~~allowance~~ of 175 square feet ~~along such street-facing façades.~~per façade. ~~**Non-street-facing facades:**~~ **Secondary Façade:** 1.5 square feet of sign area per lineal feet of secondary façade length, not to exceed 100 square feet ~~100 square feet per façade per tenant.~~ **Painted Wall Signs:** Refer to ***Section 12.05(7)***
Window Signs	**Maximum Area:** 25% of the window area.
Temporary Signs	**Maximum Number:** One (1) per ~~lot~~street frontage. One (1) per parcel with no street frontage. Maximum Height: 4 feet **Maximum Area:** 16 square feet **Minimum Setback:** 2 feet from right of way or any lot line.

Memorandum

Date: July 30, 2024

To: Melissa Marsh, City Manager

From: Giles Tucker, Community Development Director

Subject: 11 Mile Streetscape Plan- Main Street Placemaking Grant

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11 Mile Rd Streetscape Plan Update

The 11 Mile Streetscape plan was developed to identify opportunities to enhance the pedestrian environment, better use public space, and create more of a "downtown feel" along 11 Mile Road in the Downtown Development Authority (DDA) area. The project area begins at Stephenson Highway and ends at Lorenz. The plan provides an overall vision of the corridor. It offers greater detail, including conceptual engineering for the first phase, which is called the "focus area" of the project and is located between John R Road and Lorenz. The DDA has budgeted $400,000 in FY24-25 for this project to be used as a match for grant funds. The City's CDBG PY24 application also includes an additional $66,756 in sidewalk improvements to be used in this project area. The plan's development was officially kicked off with an Open House held at Woodpile BBQ in October 2023.

The primary grant funding source that city staff targeted for this project was MDOT's Transportation Alternatives Program (TAP) grant. As the Streetscape plan began to take shape, the city provided the plan concepts to MDOT staff for feedback in preparation for grant submittal. Based on these conversations, staff learned that a TAP grant would cover none of the costs associated with the on-street parking and that while we were proposing widening the existing 6ft sidewalks to 8ft, these paths would need to be increased to 10ft multi-use paths to be an eligible grant expense.

In April 2024, the Streetscape Plan was completed by Nowak Fraus and MKSK and included a design for a 4-lane configuration with a landscaping median for the focus area. The only difference between this design and the "preferred option" based on the feedback of the October 2023 Open House was that it now proposed a 6ft wide sidewalk on the south side of 11 Mile and a TAP grant-eligible multi-use path on the north side of 11 Mile. Recognizing the limited amount of TAP grant-eligible project activities with this option and the costs associated with constructing the on-street parking in the existing right-of-way, the DDA board decided to request a 3-lane configuration to the existing Streetscape plan, including a traffic study and cost comparison. This addition was completed on June 3rd.

11 Mile Road Study Results

The most significant component of the added a 3-lane option to the streetscape plan is the Road Diet Corridor Study of 11 Mile Rd conducted by Feis & Vandenbrink (F&V). The Road Study examined the traffic operations and capacity of 11 Mile Rd from Stephenson Hwy to Dequindre. This analysis aimed to determine the feasibility of a road diet and determine what improvements, if any, are recommended to accommodate a 3-lane road configuration.

With the current 4-lane configuration (without landscape medians), all movements at the studied intersections operated acceptably except for Dequindre and 11 Mile Rd, which operated at unacceptable levels during peak periods. V&F indicates that the signal, under the jurisdiction of Macomb County, operates with a 180-second cycle, causing vehicles to experience delays.

The analysis for reducing to three lanes throughout the corridor found that all intersection approaches and movements would continue to operate in a manner like the existing conditions of 11 Mile Rd, with the exemption of Dequindre & 11 Mile Rd. With the 3-lane configuration, it is anticipated that there could be up to a 3-minute delay in the Westbound right turn lane during the school PM peak hour.

In addition to a 3-lane analysis, the F&V study also projected how a 3-lane roadway would operate 20 years from now (2044), given annual population growth estimates. The study found that nearly all observed intersections would see traffic conditions similar to those of the current four-lane configuration. However, traffic simulations found that long periods of vehicle queues would be present at AM, School PM, and PM peak periods at Dequindre & 11 Mile Rd. In addition, the simulation found that there could be up to 4 minutes of delay during school PM peak hour at John R & 11 Mile Rd.

The study concluded that for the most part, a 3-lane configuration throughout the entire 11 Mile corridor has minimal impact on the (6) intersections that were studied, apart from some delays at Dequindre and John R. To help mitigate existing delays already present at Dequindre & 11 Mile Rd, F&V recommended that the signal cycle be reduced to 120 seconds and that the westbound approach be restriped to include a left turn lane, through lane and a right turn lane. The study also found that a 3-lane configuration is anticipated to reduce **crash rates to 15-16% annually**. Based on these findings, F&V recommended that the 3-lane configuration be implemented instead of the 4-lane configuration. The complete Road Diet Corridor Study, 3-lane conceptual design, conceptual engineering, and engineering cost estimates are attached to this memo for review.

3-Lane v. 4-Lane Comparison

The primary benefit of the 4-lane configuration that includes a landscaping median is that it provides modest improvements to the beautification of the downtown area without a significant change to the existing roadway. The landscaping median throughout the focus areas will be around 4-6 feet, slightly narrowing existing lanes. However, this configuration has considerable costs, including more excavation and installation of aggregate within the ROW for on-street parking. Further, because the distance across the roadway remains the same, additional crosswalks require more robust signal structures (HAWK signals). The total costs, including landscaping, are estimated to be **$1,138,896.50 for phase 1.**

By comparison, the 3-lane option is preferred because of its considerable cost savings, improvements to pedestrian safety, reduced crash rates, and the likelihood of its features being TAP grant-eligible. A 3-lane configuration uses less ROW to add in the on-street parking; this means less excavation and aggregate costs. Further, it leaves more room for pathways or amenities such as bike racks, benches, and enhanced features for transit stops. The 3-lane option results in inherent improvements to pedestrian safety because of its bumped-out intersection and the fact there are fewer lanes to cross. This makes it easier for pedestrians to get to downtown businesses, transit stops, and schools. The shorter distances also eliminate the need for higher-intensity crosswalks such as HAWK signals. Finally, a 3-lane option will likely have more costs covered by the TAP grant. The TAP grant covers pedestrian infrastructure such as bump-outs, including curb & gutter and water tap costs. If we successfully receive the Main Street Placemaking grant,

the DDA will be positioned better to use the TAP grant for future project phases. **The total cost of a 3-lane configuration including landscaping is estimated to be $849,703.75.**

Main Street Oakland County Placemaking Grant Opportunity & DDA June 18th Recommendation

On June 4th, Main Street Oakland County contacted staff to inform them that the Main Street Oakland County Placemaking grant had additional funds available for downtown projects and asked if the 11 Mile Streetscape plan was developed enough to apply for a matching grant (60% City/ 40% County) by June 18th. City staff was able to gather all necessary information, a letter of support from the City Manager and a certified resolution from the DDA recommending the City Council support the three-lane configuration of the 11 Mile Streetscape Project and to support City staff in applying for the Placemaking Grant.

On July 18th the Oakland County staff informed the city the Board of Commissioners approved our Place-making Grant application for a total grant request of $313,981.50. To accept this grant and to begin preparing implementation of the project, the City Council must authorize the City Manager to sign the included interlocal agreement between the City of Madison Heights and Oakland County.

Staff Recommendation

Staff recommends the following two motions:

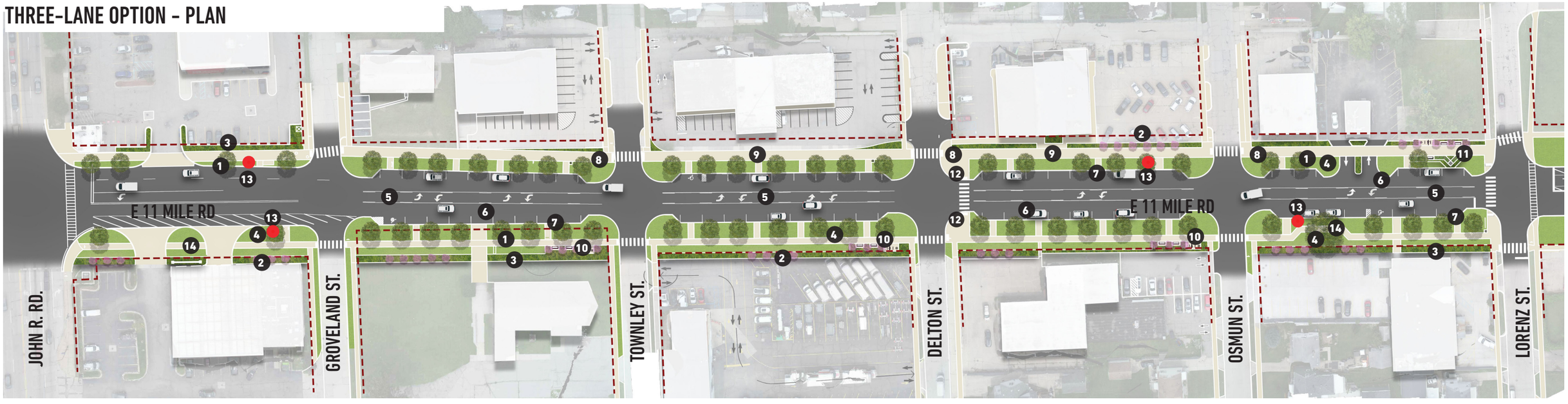
1. That City Council approve the three-lane configuration of the 11 Mile Streetscape Project between John R and Lorenz and to authorize the City Manager to sign the included interlocal agreement between the City of Madison Heights and Oakland County accepting the Oakland County Placemaking grant for a total $313,981.50.

2. That City Council approve a budget amendment to increase the DDA expenditure line item 248-863-987-0006 11 Mile/John R Road Improvements by $313,981.50 for a new total of $713,981.50 and to increase the DDA revenue line item 248-025-588-1000 County Grant to a total of $313,981.50.

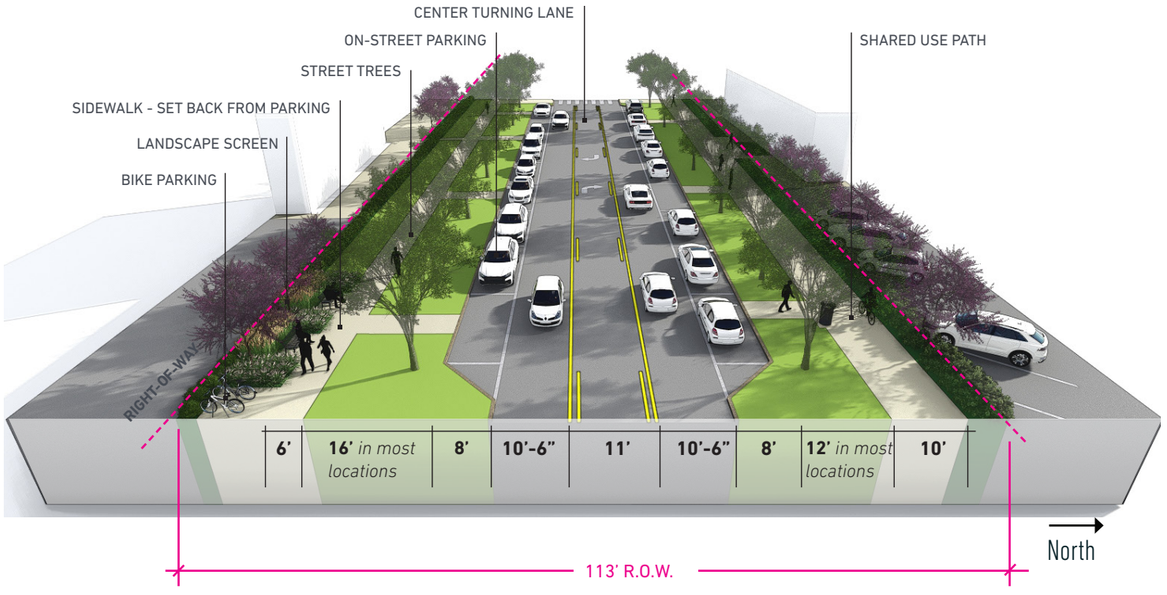
Attachments:

1. Oakland County Placemaking Grant Program Agreement
2. Cost Estimates 11 Mile Corridor Traffic Study
3. Project Support Letters & DDA Certified Resolution

THREE-LANE OPTION - PLAN



THREE LANE OPTION



Three-Lane Option

An alternative alignment suggests narrowing the street to three lanes: two travel lanes and a center turn lane. For roads with suitable traffic volumes, converting four-lane undivided roads to a three-lane cross-section can enhance safety.

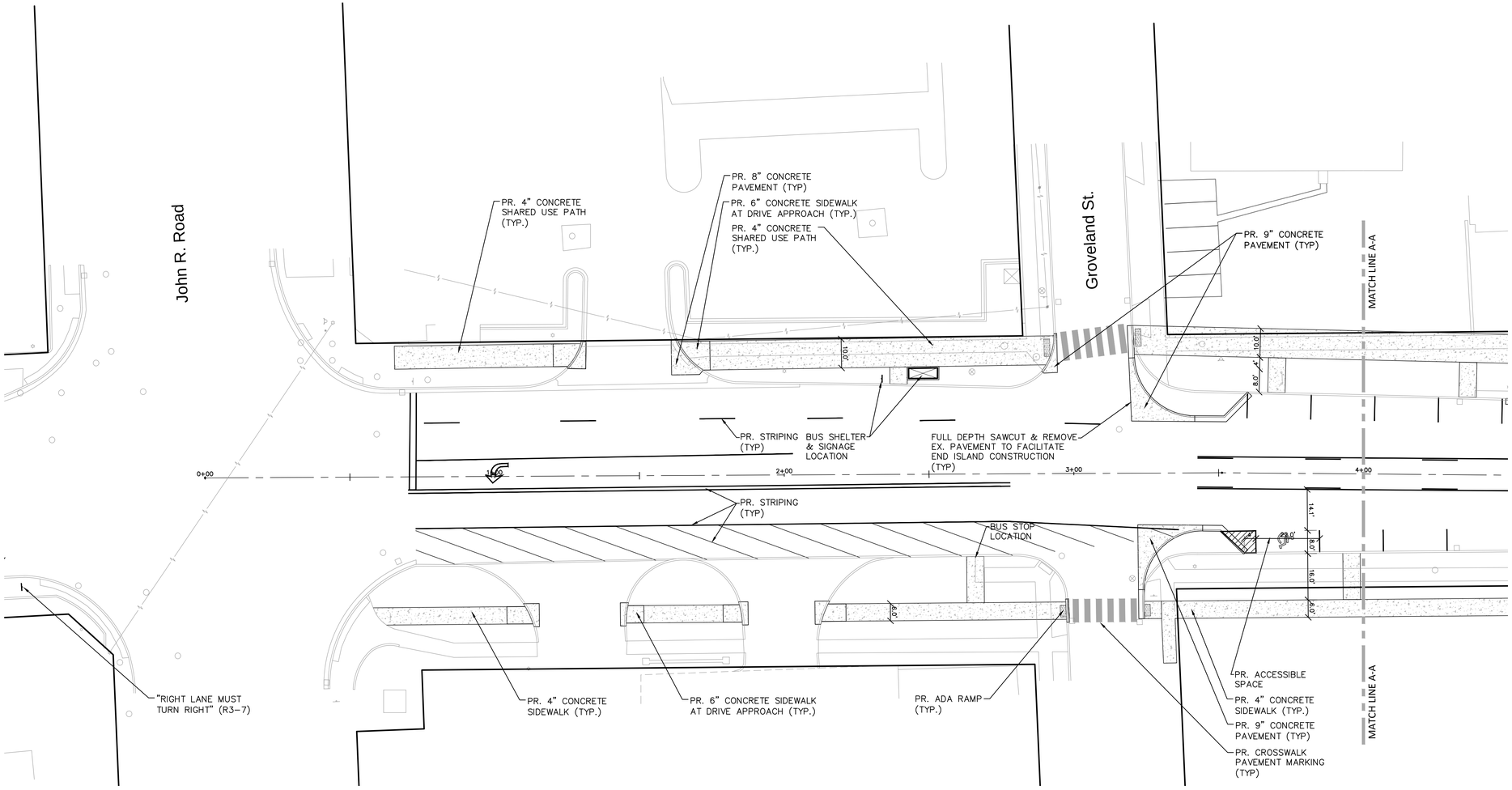
This change can reduce vehicle speeds, lower vehicle-pedestrian conflicts, and simplify left turns, reducing crash risks and collision severity.

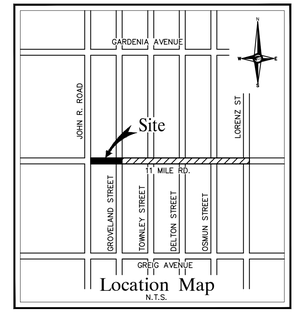
Additionally, lane reduction projects often boost economic vitality by creating space for parking, bike lanes, and other improvements that encourage active transportation and support the local economy.

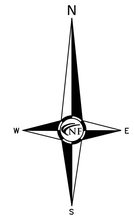
North

LEGEND

1. Deciduous Canopy Tree
2. Ornamental Tree
3. Plant Buffer
4. Tree Lawn
5. Center Turning Lane
6. Reduced Width Vehicle Travel Lanes
7. Parallel Parking Stalls
8. Traffic Calming Bumpouts
9. 10' Wide Shared Use Path
10. Amenity Areas
11. Gateway Area
12. Pedestrian Activated Crossing Signals
13. Bus Stops
14. 6' Wide Sidewalk







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- PROPOSED CONCRETE PAVEMENT
- PROPOSED ASPHALT PAVEMENT

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- MANHOLE — EXISTING SANITARY SEWER
- SAN. CLEAN OUT
- HYDRANT, GATE VALVE — EXISTING WATERMAIN
- MANHOLE, CATCH BASIN — EXISTING STORM SEWER
- EX. R. Y. CATCH BASIN
- EXISTING BURIED CABLES
- UTILITY POLE, GUY POLE, GUY WIRE — OVERHEAD LINES
- LIGHT POLE
- SIGN
- EXISTING GAS MAIN
- C.O., MANHOLE — PR. SANITARY SEWER
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SEAL

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BRAD W. BRICKEL
ENGINEER NO. 54071
LICENSED PROFESSIONAL ENGINEER
Brad Brickel

PROJECT

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11 Mile Rd.
(John R. Rd.- Lorenz St.)

CLIENT

City of Madison Heights
300 W. 13 Mile Rd.
Madison Hts., MI 48071
Contact:
Mr. Giles Tucker
Ph: 248-583-0831
Fax: 248-583-4143

PROJECT LOCATION

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City of Madison Heights,
Oakland County, MI

SHEET

Conceptual Engineering
Plan (Option 3 -
3 Lane w/ Parking)

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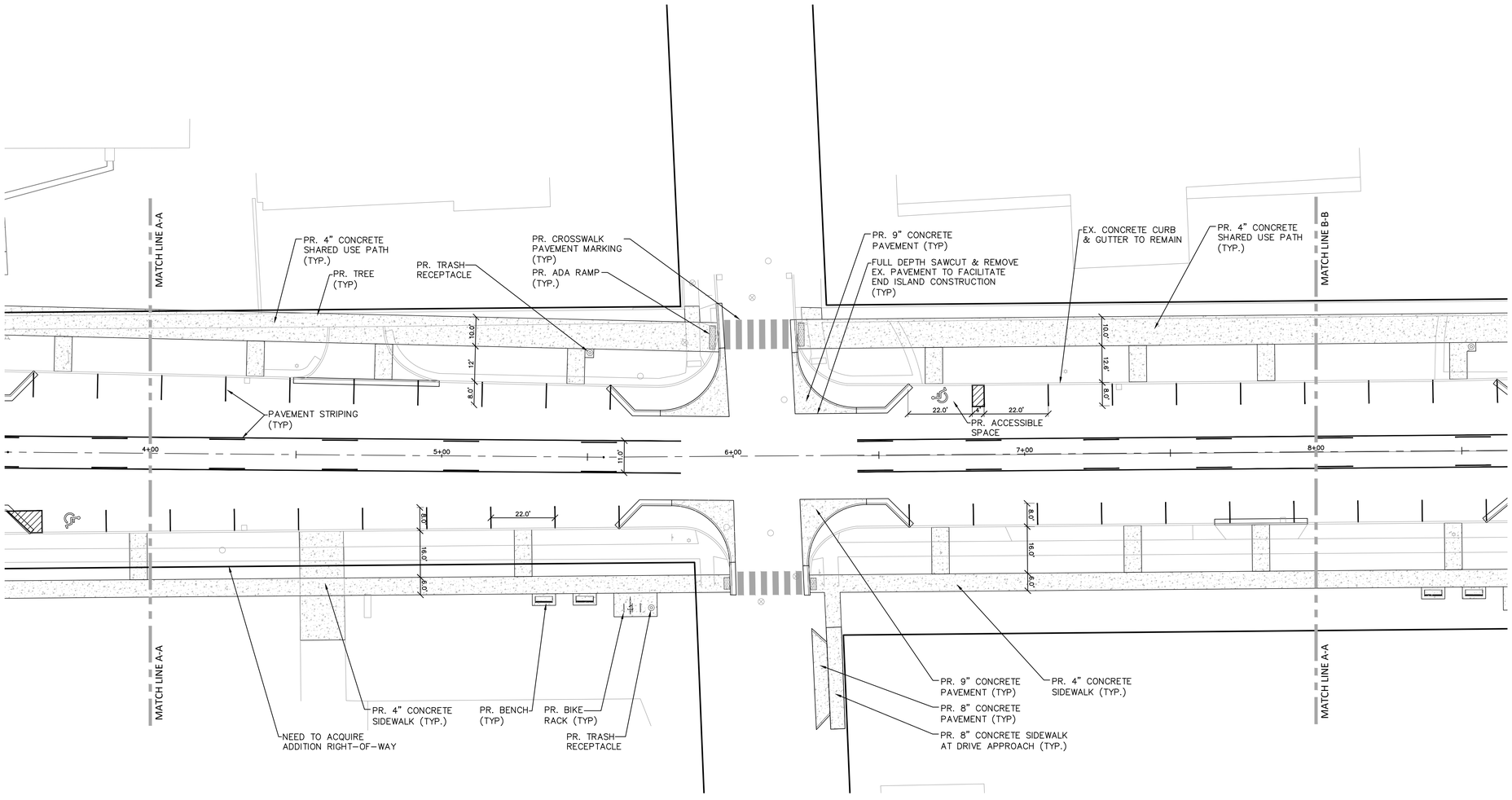

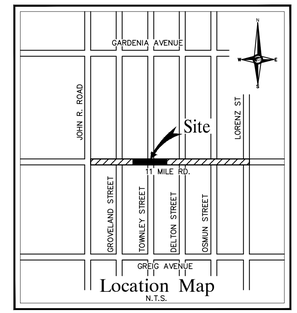

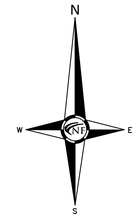

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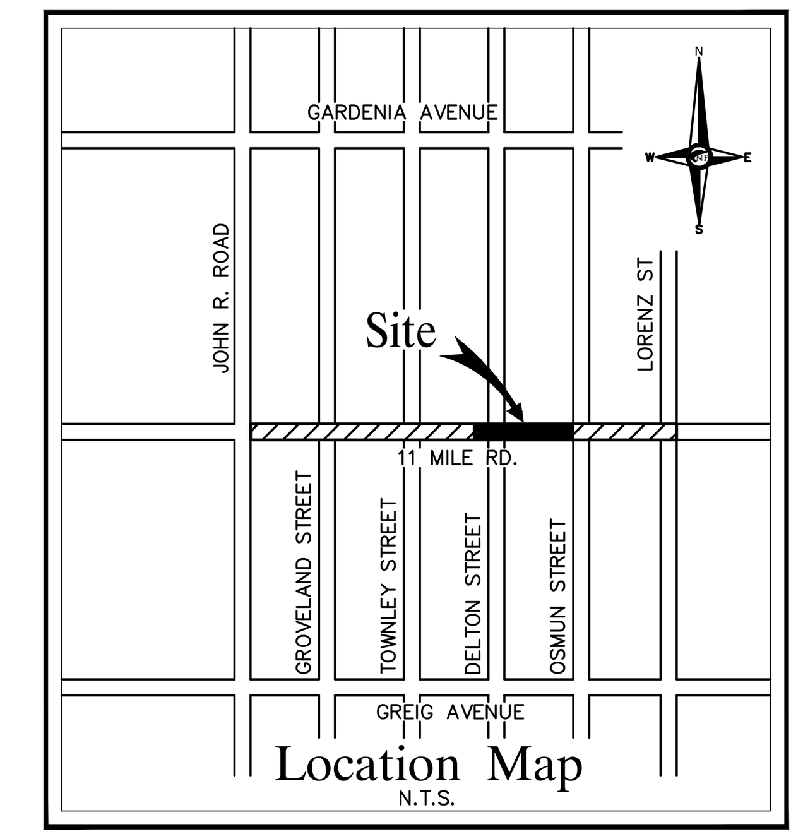
Item 6.



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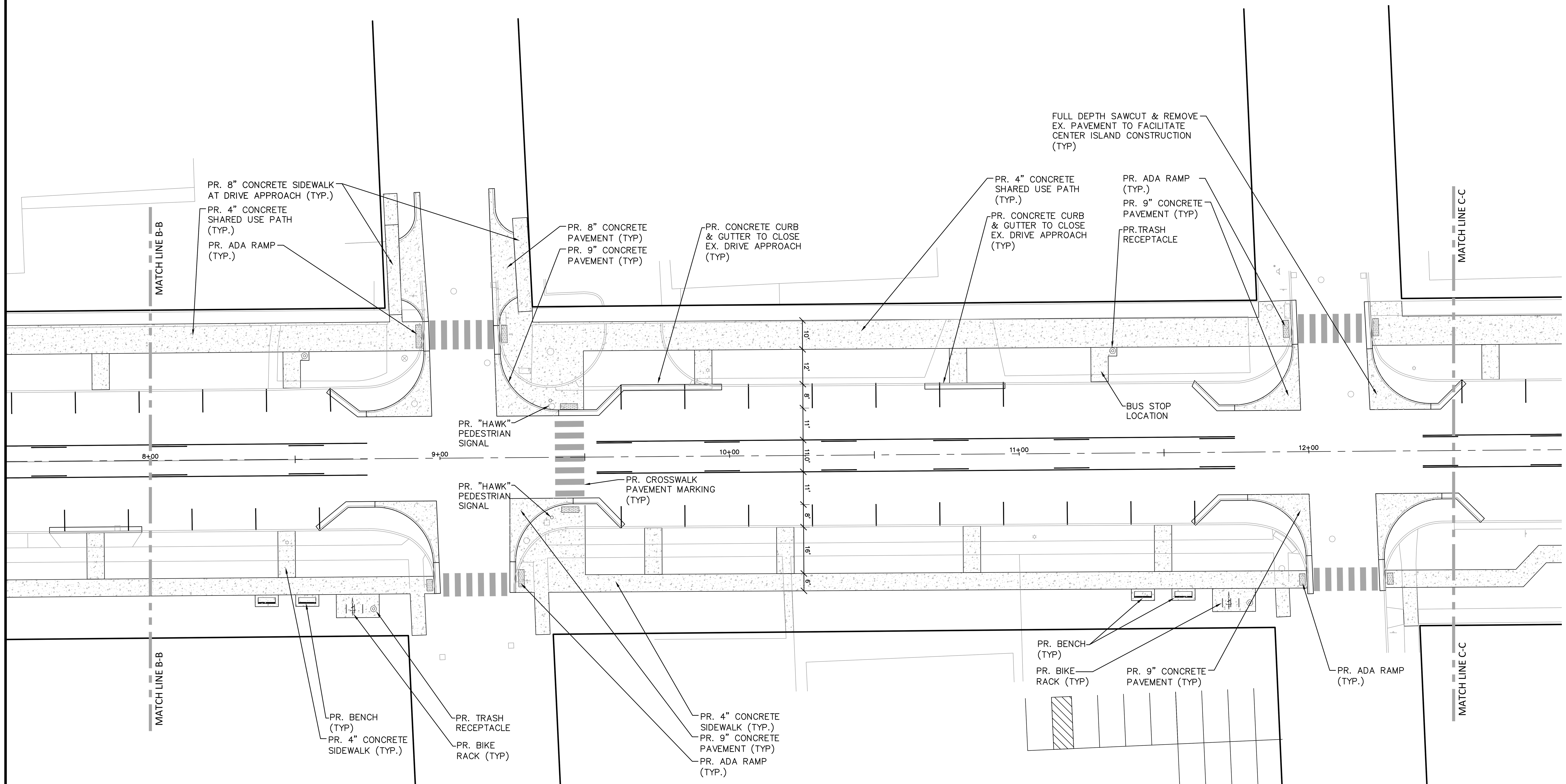

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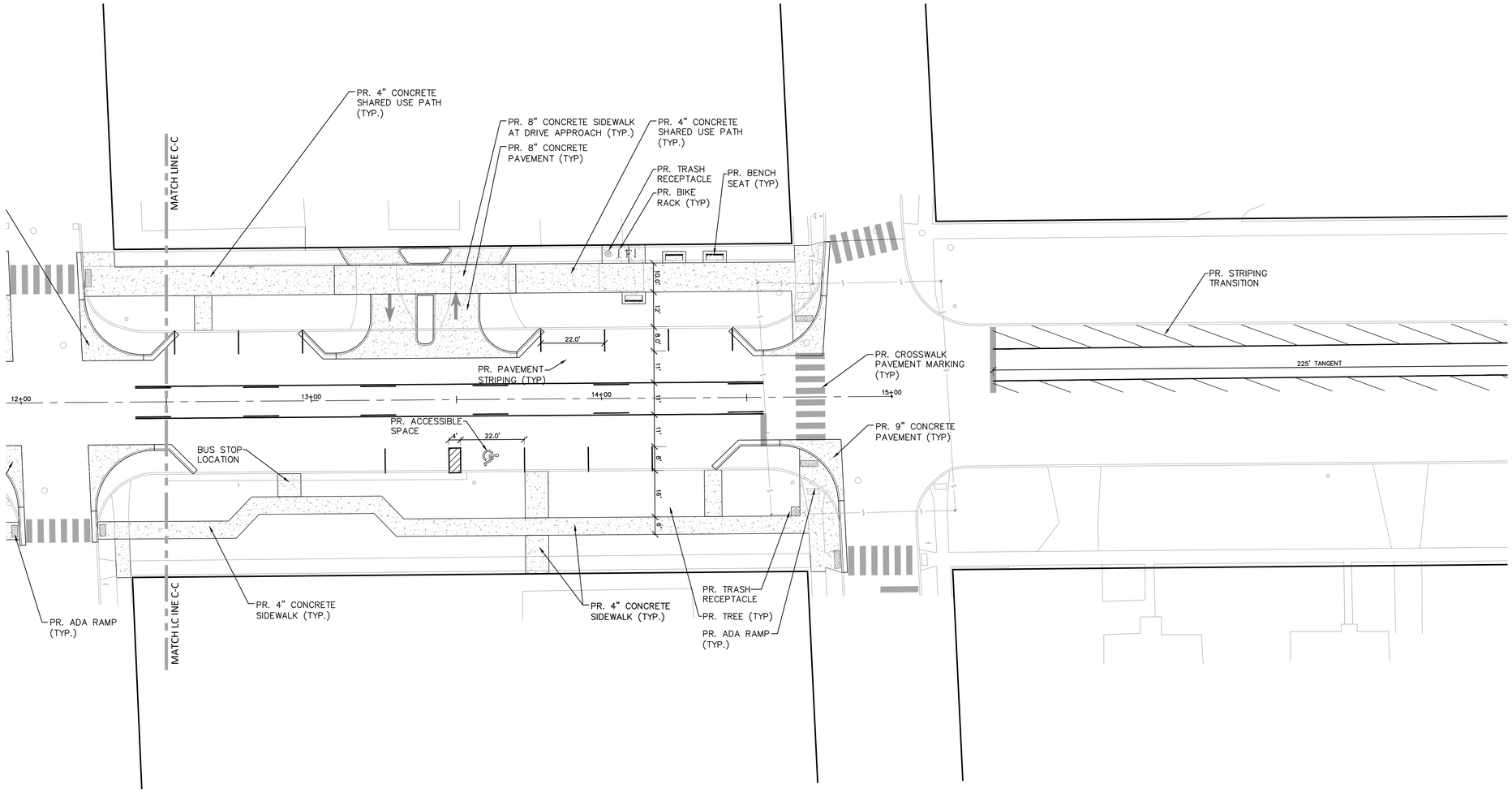

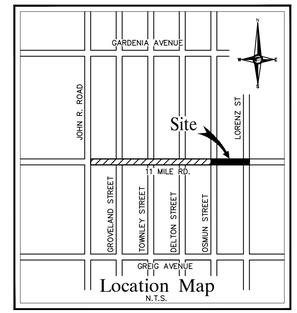

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FLEIS&VANDENBRINK
DESIGN. BUILD. OPERATE.

MEMO

VIA EMAIL BBrickel@nfe-engr.com

To: **Brad Brickel**
Nowak & Fraus Engineers

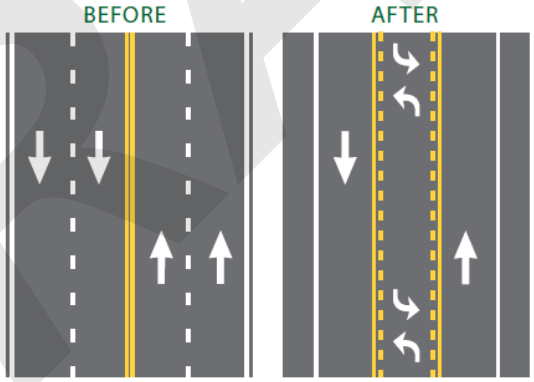
From: **Julie M. Kroll, PE, PTOE**
Paul Bonner, EIT
Fleis & VandenBrink

Date: **May 28, 2024**

Re: **Road Diet Corridor Study, 11 Mile Road**
Madison Heights, Michigan
Traffic Engineering Study

1 INTRODUCTION

This memorandum presents the results of the Road Diet Traffic Study for the 11 Mile Road corridor through the City of Madison Heights, Michigan. The City is evaluating the possibility of a road diet through the City limits, from NB Stephenson Highway to Dequindre Road, to change the existing 4-Lane sections to 3-Lane sections, thereby providing a "road diet" through the corridor. The potential road diet will provide a three-lane cross-section, with one (1) lane in each direction and a center two-way left-turn lane (TWLTL).



The primary goal of the proposed road diet is improved safety and reduce traffic crashes along the corridor. The project limits are shown on the attached **Figure 1** and additional roadway information is summarized in **Table 1**.

Table 1: Existing Roadway Information (11-Mile Road)

11 Mile Road (NB Stephenson Highway to Dequindre Road)	
Lane	4-lanes (2 lanes in each direction)
Average Daily Traffic (2023)	13,360 vpd
Functional Classification	Minor Arterial
Posted Speed Limit	35 mph

27725 Stansbury Boulevard, Suite 195
Farmington Hills, MI 48334
P: 248.536.0080
F: 248.536.0079
www.fveng.com

This study has been completed to examine the traffic operations and capacity, safety, and geometric needs of the corridor, including the following study intersections on 11 Mile Road:

1. Dequindre Road
2. Hales Street
3. Lorenz Street
4. John R Road
5. Hampden Street
6. NB Stephenson Highway

The study includes the evaluation of the existing intersection operations and recommendations, including safety improvements, signal timing optimization along 11 Mile Road, geometric improvements, and other measures that would be effective in improving the operations along the roadway corridor.

This evaluation included the following analyses:

Existing Conditions (2024)	Road Diet Opening Day (2024)	Road Diet Horizon Year (2044)
• Existing Traffic Volumes • 4-Lanes Undivided • Existing Geometry	• Existing Traffic Volumes • 3-Lanes (Center TWLTL) • Proposed Geometry	• Horizon Year Traffic Volumes • 3-Lanes (Center TWLTL) • Proposed Geometry

The purpose of this analysis is to determine the feasibility of a road diet for this study corridor and to determine what improvements, if any, are recommended to accommodate such a road diet. The scope of this study was developed based on Fleis & VandenBrink's (F&V) knowledge of the study area, understanding of the development program, accepted traffic engineering practices and information published by the Institute of Transportation Engineers (ITE). The study analyses were completed using Synchro/SimTraffic (Version 11). Sources of data for this study include F&V subconsultant Quality Counts, LLC (QC), Michigan Department of Transportation (MDOT), Road Commission for Oakland County (RCOC), Monroe County Road Commission (MCRC), and ITE.

2 DATA COLLECTION

The existing weekday turning movement traffic volume data was collected by F&V subconsultant Quality Counts, LLC (QC) on Wednesday, April 24, 2024. Intersection Turning Movement Counts (TMC) were collected during the weekday AM (7:00 AM to 9:00 AM), MD (11:00 AM to 1:00 PM), School PM (2:00 PM to 4:00 PM), and PM (4:00 PM to 6:00 PM) peak periods at all study intersections. The data collection included Peak Hour Factors (PHFs), pedestrian volumes, and commercial trucks percentages which were used in the analysis in accordance with MDOT Electronic Traffic Control Devices guidelines. The peak hours at each intersection were utilized and through volumes were carried along the main study roadways and were balanced upwards through the study roadway network in accordance with MDOT guidelines. Additionally, at locations where access is provided between study intersections, "dummy node" intersections were used in the traffic modeling to account for sink and source volumes. Therefore, the traffic volumes utilized in the analysis and shown on the attached traffic volume figures may not match the raw traffic volumes shown in the data collection.

F&V collected an inventory of existing lane use and traffic controls, as shown on the attached **Figure 2**. Additionally, F&V obtained the current signal timing permits for the signalized study intersections from RCOC and MCRC. The existing 2024 peak hour traffic volumes used in the analysis are shown on the attached **Figure 3**. All applicable background data referenced in this memorandum is attached.

3 EXISTING (2024) CONDITIONS ANALYSIS

The existing AM, MD, School PM, and PM peak hour vehicle delays and Levels of Service (LOS) were calculated at the study intersections using Synchro (Version 11) traffic analysis software. This analysis was performed based on the existing peak hour traffic volumes sown on the attached **Figure 3**, the existing lane use and traffic control shown on the attached **Figure 2**, and methodologies presented in the *Highway Capacity Manual 6th Edition* (HCM6). *Note: The NB Stephenson Highway & 11 Mile Road intersection has a northbound shared through/left-turn lane, which is not supported by the HCM6 methodology; therefore, the HCM 2000 methodology was determined to be more appropriate for use at this study intersection.*

All of the signalized study intersections (with the exception of 11 Mile Road & NB Stephenson Highway and 11 Mile Road & Dequindre Road), operate on RCOC's Sydney Coordinated Adaptive Traffic System (SCATS). Therefore, the baseline timings were input, and the signal timings were optimized for each scenario studied at each of these SCATS intersections, in order to reflect the real time optimizations that are occurring to accommodate the actual traffic volumes observed by the approach lane detectors.

Descriptions of LOS "A" through "F", as defined in the HCM6, are attached. Typically, LOS D is considered acceptable, with LOS A representing minimal delay and LOS F indicating failing conditions. Additionally, SimTraffic network simulations were reviewed to evaluate network operations and vehicles queues. The results of the existing conditions analysis are attached and summarized in **Table 2**.

The results of the existing conditions analysis indicates that all approaches and movements at the study intersections are currently operating acceptably, at LOS D or better during the AM, MD, School PM, and PM peak periods with the following exceptions:

Dequindre Road & 11 Mile Road

- Several intersection approaches and movements currently operate a LOS E or F during the peak periods.
- Review of the operations shows that the signal currently operates with a 180 second cycle length. Therefore, it is not unreasonable for vehicles to experience high delays. Review of SimTraffic network simulations indicates that the majority of vehicle queue were observed to be serviced within each cycle length throughout the study corridor.

Table 2: Existing Geometry (4-Lanes) Intersection Operations

11 Mile Road Intersection		Control	Approach	Existing Conditions (2024)							
				AM Peak		MD Peak		School PM Peak		PM Peak	
				Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS
1	Dequindre Road	Signalized	EBL	136.4	F	69.7	E	151.2	F	133.0	F
			EBTR	87.0	F	47.9	D	84.4	F	85.2	F
			WBL	59.7	E	35.9	D	68.1	E	72.0	E
			WBT	85.4	F	36.2	D	97.5	F	81.9	F
			WBTR	112.3	F	55.0	D	100.2	F	93.3	F
			NBL	42.3	D	25.8	C	50.5	D	51.9	D
			NBTR	81.1	F	48.5	D	71.6	E	71.5	E
			SBL	49.5	D	29.9	C	62.7	E	57.9	E
			SBT	71.5	E	41.6	D	66.7	E	62.9	E
			SBR	46.2	D	27.6	C	41.0	D	34.6	C
			Overall	**80.0**	**E**	**44.6**	**D**	**77.5**	**E**	**73.6**	**E**
2	Hales Street	Signalized	EBTL	0.3	A	1.4	A	12.2	B	2.0	A
			EBTR	0.3	A	1.5	A	12.7	B	2.1	A
			WBTL	3.0	A	1.4	A	3.8	A	1.7	A
			WBTR	3.0	A	1.4	A	3.9	A	1.8	A
			NB	33.5	C	38.4	D	32.3	C	37.6	D
			SB	36.8	D	38.4	D	36.4	D	38.6	D
			Overall	**5.2**	**A**	**2.8**	**A**	**10.3**	**B**	**3.1**	**A**
3	Lorenz Street	Signalized	EBTL	0.2	A	0.2	A	0.4	A	0.4	A
			EBTR	0.3	A	0.2	A	0.4	A	0.5	A
			WBTL	12.9	B	0.2	A	0.6	A	0.4	A
			WBTR	13.0	B	0.2	A	0.7	A	0.5	A
			NB	31.2	C	37.1	D	31.9	C	35.1	D
			SB	35.6	D	38.6	D	36.1	D	37.5	D
			Overall	**12.4**	**B**	**3.6**	**A**	**4.3**	**A**	**3.6**	**A**

11 Mile Road Intersection		Control	Approach	Existing Conditions (2024)							
				AM Peak		MD Peak		School PM Peak		PM Peak	
				Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS
4	John R Road	Signalized	EBL	38.6	D	36.1	D	42.6	D	37.3	D
			EBT	36.6	D	34.8	C	34.1	C	43.0	D
			EBTR	37.3	D	35.2	D	34.7	C	44.1	D
			WBL	33.0	C	33.5	C	32.4	C	36.4	D
			WBT	39.4	D	40.1	D	46.4	D	43.6	D
			WBTR	40.1	D	41.3	D	46.7	D	44.9	D
			NBL	20.8	C	15.3	B	29.2	C	23.8	C
			NBT	29.1	C	24.0	C	31.6	C	26.3	C
			NBR	24.1	C	20.6	C	24.2	C	21.3	C
			SBL	21.0	C	17.4	B	30.2	C	27.9	C
			SBT	26.6	C	23.1	C	30.3	C	25.9	C
			SBR	26.5	C	22.6	C	26.2	C	23.1	C
			Overall	**31.6**	**C**	**27.6**	**C**	**35.4**	**D**	**32.9**	**C**
5	Hampden Street	Signalized	EBTL	0.2	A	0.2	A	0.3	A	0.5	A
			EBTR	0.2	A	0.2	A	0.4	A	0.5	A
			WBTL	2.6	A	2.4	A	3.1	A	2.6	A
			WBTR	2.7	A	2.4	A	3.1	A	2.7	A
			NB	44.2	D	38.3	D	39.1	D	38.6	D
			SB	43.4	D	38.3	D	38.8	D	38.5	D
			Overall	**4.1**	**A**	**3.6**	**A**	**4.0**	**A**	**3.0**	**A**
6	NB Stephenson Highway	Signalized	EBL	18.5	B	3.7	A	15.6	B	7.2	A
			EBT	8.4	A	2.1	A	10.8	B	3.0	A
			WBT	13.2	B	8.2	A	11.6	B	12.0	B
			WBR	14.5	B	8.4	A	13.7	B	12.4	B
			NBL	36.3	D	37.7	D	35.9	D	34.9	C
			NBTL	38.8	D	36.9	D	34.7	C	33.8	C
			NBR	35.5	D	37.2	D	34.0	C	34.3	C
			Overall	**21.9**	**C**	**14.9**	**B**	**18.7**	**B**	**15.2**	**B**

4 ROAD DIET (3-LANES)

4.1 OPENING DAY ANALYSIS (2024)

The proposed road diet configuration (3-lanes) was evaluated along the 11 Mile Road corridor, based on the proposed lane use and traffic control shown on the attached **Figure 4**, existing (2024) peak hour traffic volumes shown on the attached **Figure 3**, and methodologies presented in the HCM. The road diet intersection operations analysis results are attached and summarized in the attached **Table 3**. The results of the road diet evaluation indicate that, with the implementation of the proposed three-lane road-diet, all study intersection approaches and movements will continue to operate in a manner similar to the existing conditions analysis, with additional impacts for LOS for the following location:

Dequindre Road & 11 Mile Road

- During the MD peak hour: The westbound right-turn lane is expected to operate at LOS E.
- Review of SimTraffic network simulations indicates the westbound right-turn movement operates acceptably during the MD peak hour, the majority of vehicle queues were observed to be serviced within each cycle length.

Review of SimTraffic network simulations indicates generally acceptable operations throughout the study roadway network. Vehicle queues were observed to be serviced within each cycle length with minimal residual vehicle queueing. However, the westbound through movement at the intersection of Dequindre Road & 11 Mile

Road was observed to experience periods of long vehicle queues during the School PM peak period. However, these queues were observed to dissipate throughout the School PM peak period.

A corridor travel time evaluation was completed utilizing SimTraffic network simulations to calculate the existing network travel time and the projected travel time with the proposed road diet. The results of this comparison show negligible change in travel time for the peak periods, with the highest increase occurring for the westbound traffic during the School PM peak which is anticipate to increase by approximately three (3) minutes. The travel time summary for each peak period is attached and summarized in **Table 4.**

Table 3: Road Diet Geometry (3-Lanes) Travel Time – Opening Day (2024)

Peak Period	Existing Conditions (2024)		Road Diet Opening Day (2024)		Difference	
	EB (minutes)	WB (minutes)	EB (minutes)	WB (minutes)	EB (minutes)	WB (minutes)
AM Peak	4.36	5.06	4.54	5.35	0.18	0.29
MD Peak	3.85	4.44	3.92	4.63	0.07	0.19
School PM Peak	4.64	5.16	4.74	8.19	0.10	3.04
PM Peak	4.39	5.13	4.47	5.59	0.08	0.46

4.2 HORIZON YEAR ANALYSIS (2044)

Historical population and economic profile data was obtained for the City of Madison Heights from the Southeast Michigan Council of Governments (SEMCOG) database, in order to calculate a background growth rate to project the existing 2024 peak hour traffic volumes to the horizon year of 2044. Population and employment projections from 2020 to 2050 were reviewed and show an average annual growth rate of 0.15% and 0.32%, respectively. Therefore, a conservative background growth rate of **0.5%** per year was applied to the existing peak hour traffic volumes to forecast the horizon year 2044 peak hour traffic volumes, as shown on the attached **Figure 5**.

The Horizon Year (2044) conditions analysis was evaluated based on the recommended lane use and traffic control shown on the attached **Figure 4**, peak hour traffic volumes shown on the attached **Figure 5**, and methodologies presented in the HCM. The Horizon Year (2024) intersection operations analysis results are attached and summarized in the attached **Table 5**. The results of the Horizon Year (2044) road diet evaluation indicate that all study intersection approaches and movements will continue to operate in a manner similar to the Opening Day (2024) conditions analysis, with following additional impacts to LOS:

Dequindre Road & 11 Mile Road

- During the AM peak hour: The southbound left-turn movement is expected to operate at LOS E.
- During the School PM peak hour: The northbound left-turn movement is expected to operate at LOS E.

  Review of SimTraffic network simulations indicate long periods of vehicle queues for the southbound left-turn and westbound through movements during the AM, School PM, and PM peak periods. These queues were observed to be present throughout the School PM peak hour. The 95th percentile queue length for the southbound left-turn and westbound through movements were observed to be the highest during the AM peak hour, at 880 feet, and the School PM peak hour, at 1,650 feet, respectively. This intersection is under the jurisdiction of Macomb County Department of Road (MCDR) and currently operates with a 180 second cycle length. Preliminary analysis indicates that queues would be reduced by optimizing the cycle length to 120 seconds.

John R Road & 11 Mile Road

- During the School PM peak hour: The northbound and southbound through movements are expected to operate at LOS F and the overall intersection is expected to operate at LOS E.

  Review of SimTraffic network simulations indicated periods of long vehicle queues during the School PM peak period for the northbound and southbound approaches. However, these queues were observed to dissipate and were not present throughout the entire peak hour.

A corridor travel time evaluation was completed utilizing SimTraffic network simulations to calculate the projected Opening Day (2024) network travel time and the projected Horizon Year (2044) travel time with the proposed road diet. The results of this comparison show negligible change in travel time for the peak periods, with the highest increase occurring for the westbound traffic during the School PM peak which is anticipate to increase by approximately four (4) minutes. The travel time summary for each peak period is attached and summarized in **Table 6.**

Table 4: Road Diet Geometry (3-Lanes) Travel Time – Horizon Year (2044)

Peak Period	Road Diet Opening Day (2024)		Road Diet Horizon Year (2044)		Difference	
	EB (minutes)	WB (minutes)	EB (minutes)	WB (minutes)	EB (minutes)	WB (minutes)
AM Peak	4.54	5.35	4.44	5.98	-0.10	0.63
MD Peak	3.92	4.63	3.95	4..73	0.04	0.10
School PM Peak	4.74	8.19	4.76	11.91	0.02	3.71
PM Peak	4.47	5.59	4.77	5.78	18.1	0.20

Note: Decreased travel times result from SCATS optimizations, improved progression, and HCM methodologies.

5 Safety Study

5.1 Crash Analysis

A crash analysis was conducted at the study intersections and roadway segments along the 11 Mile Road corridor. F&V obtained the crash data used in the analysis from the Michigan Traffic Crash Facts (MTCF) historical crash database for the most recent **five years** (January 1, 2018 to December 31, 2022) of available data. There were a total of 289 crashes reported along the study corridor in the past five years. There were 86 crashes with injuries, include four (4) "Type A" injury crashes; however, there were no fatalities.

The general crash type along the corridor is Angle (43%), Rear-End – Straight (27%), and Sideswipe – Same Direction (11%) crashes. The majority of crashes at the signalized intersections and angle and rear-end crashes, which is typical of signalized intersections. Review of the UD-10 reports for these intersections indicate that the crashes were distributed equally from all directions of travel, suggesting that a directional crash pattern was not present. All crashes included in this analysis are summarized in **Chart 1**. The individual intersection and segment crash types along the 11 Mile Road corridor are summarized in **Table 7**. Review of the summary data indicate that the majority of crashes occurred at the 11 Mile Road intersections with NB Stephenson Highway and Dequindre Road and along the roadway segments between Hampden Street and John R Road, John R Road and Lorenz Street, and Lorenz Street and Dequindre Road.

Chart 1: Percentage of Crashes by Type

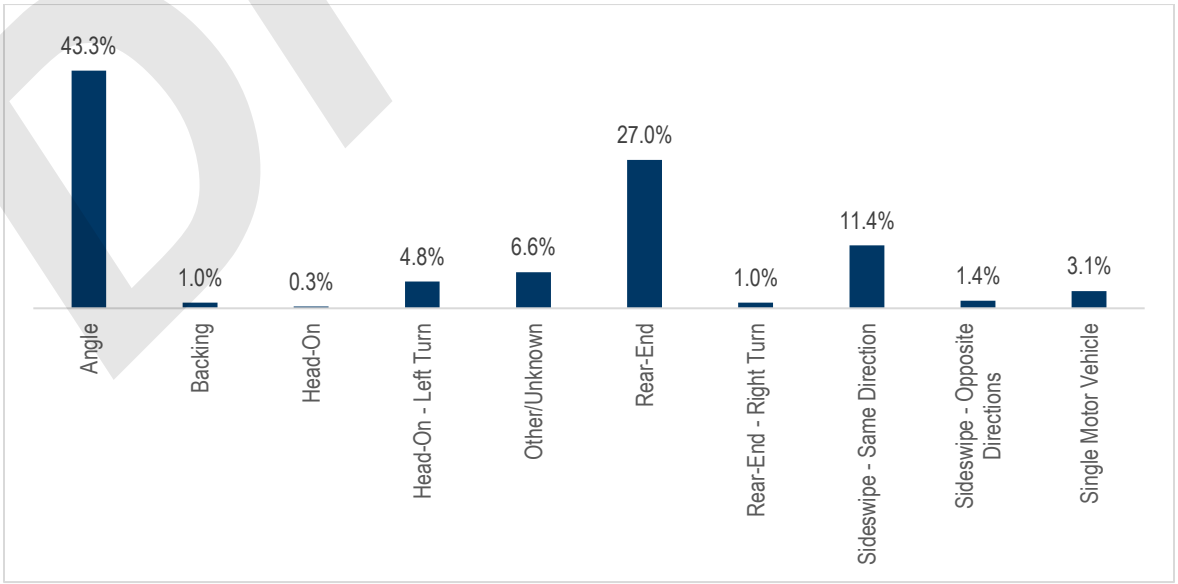


Table 5: Intersection and Segment Crash Summary by Crash Type

11 Mile Road – Road Location		Angle	Backing	Head-On	Head-On Left-Turn	Other/Unknown	Rear-End (Straight)	Rear-End Right-Turn	Sideswipe – Opposite	Sideswipe - Same	Single Motor Vehicle	Total	Percentage
NB Stephenson Hwy	Intersection	22	0	0	4	4	4	0	1	2	1	**38**	13%
NB Stephenson Hwy – Hampden Street	Segment	13	0	0	0	0	6	0	0	6	0	**25**	9%
Hampden Street	Intersection	1	0	0	0	1	1	0	0	0	0	**3**	1%
Hamden Street – John R Road	Segment	14	1	0	1	3	19	1	0	5	6	**50**	17%
John R Road	Intersection	13	0	0	1	3	4	0	1	4	0	**26**	9%
John R Road – Lorenz Street	Segment	17	0	1	1	3	16	1	0	6	0	**45**	16%
Lorenz Street	Intersection	7	0	0	0	1	1	0	0	0	0	**9**	3%
Lorenz Street – Hales Street	Segment	10	0	0	1	1	7	0	0	1	0	**20**	7%
Hales Street	Intersection	3	0	0	0	0	0	0	0	0	0	**3**	1%
Hales Street – Dequindre Road	Segment	9	1	0	1	1	13	0	1	7	2	**35**	12%
Dequindre Road	Intersection	16	1	0	5	2	7	1	1	2	0	**35**	12%
Total		**125**	**3**	**1**	**14**	**19**	**78**	**3**	**4**	**33**	**9**	**289**	**100%**

Table 6: Road Conditions Summary

Road Conditions		
Condition	**Number of Crashes**	**%**
Dry	217	75%
Other/Unknown	2	0%
Wet	53	18%
Snowy/Icy/Slush	17	6%
Total	**289**	**100%**

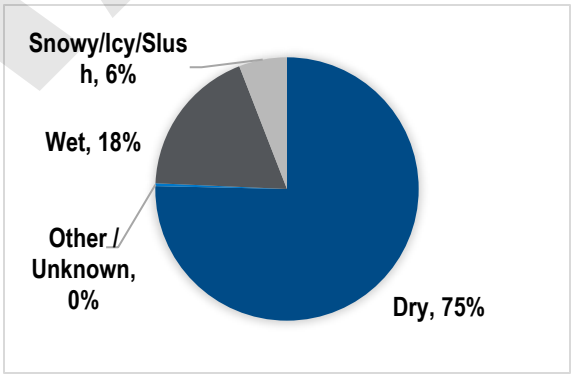


Table 7: Light Conditions Summary

Light Conditions		
Condition	**Number of Crashes**	**%**
Dark-Lighted	52	18%
Dark-Unlighted	1	0%
Dusk	4	1%
Dawn	3	1%
Daylight	229	79%
Total	**289**	**100%**

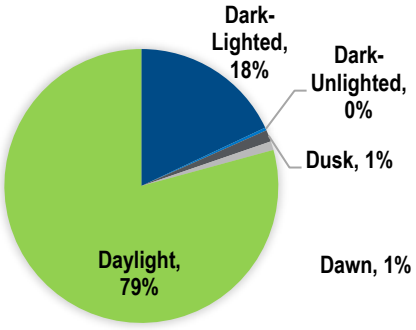
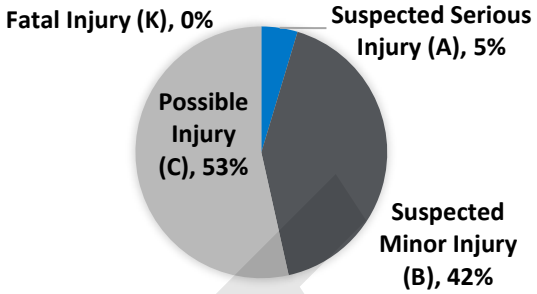


Table8: Crashes with Injury

Worst Injury in Crash		
Severity	**Crashes with Injury**	**% of Injuries**
Fatalities	0	0%
"A" Injuries	4	5%
"B" Injuries	36	42%
"C" Injuries	46	53%
Total	**86**	**100%**



The SEMCOG Crash Analysis Process *Regional Critical Intersection Crash Rates, Frequencies and Casualty Ratios: By Presence or Absence of Signalization* was used to compare the actual crash rates and frequencies to the regional rates for similar intersection operations. The study area included in this analysis is located within the SEMCOG region. Therefore, the data provided by SEMCOG provides an applicable comparison to the crash rates experienced within the study area. The results of the analysis are summarized in **Table 11**.

Table 9: Study Network Intersection Crash Comparison

	Intersection	Average ADT (Entering Volume vpd)	Total (5 years)	Crash Frequency (crashes/year)			Crash Rate (crashes per MV)		
				Intersection Annual Crash Frequency	SEMCOG Average Annual Crash Frequency	Difference	Intersection Crash Rate	SEMCOG Average Crash Rate	Difference
1	11 Mile Road & Dequindre Road	34,223	35	7.0	13.51	-6.51	0.56	1.07	-0.51
2	11 Mile Road & Hales Street	10,373	3	0.6	4.69	-4.09	0.16	0.87	-0.71
3	11 Mile Road & Lorenz Street	10,900	9	1.8	4.69	-2.89	0.45	0.87	-0.42
4	11 Mile Road & John R Road	23,607	26	5.2	8.77	-3.57	0.60	0.96	-0.36
5	11 Mile Road & Hampden Street	11,477	3	0.6	4.69	-4.09	0.14	0.87	-0.73
6	11 Mile Road & NB Stephenson Hwy	17,573	38	7.6	4.69	2.91	1.18	0.87	0.31

The results of the analysis indicates that the majority of the study intersections currently have crash frequencies (crashes per year) and crash rates (crashes per million entering vehicles) below the SEMCOG average for intersections with similar characteristics. The study intersection of 11 Mile Road and NB Stephenson Highway has crash frequency and crash rate above the SEMCOG average. Further review of the crash reports indicates that the majority of crashes at the 11 Mile Road & NB Stephenson Highway intersection were angle crashes (58%). However, NB Stephenson Highway is the project limits for this study; therefore, no changes to the roadway geometry or traffic control operations are recommended as part of this study. It should be noted that the intersection of NB Stephenson Highway and 11 Mile Road is under the jurisdiction of the City of Royal Oak; therefore, any further investigation into this intersection would be completed by the City of Royal Oak.

5.2 Highway Safety Manual Analysis

The Federal Highway Administration (FHWA) has identified Road Diets a proven safety countermeasure and promotes them as a safety-focused design alternative to a traditional four-lane. In order to determine the predictive impact on safety, an analysis was performed according to the Highway Safety Manual (HSM) crash predictive methodology. The analysis included the evaluation of the existing operations along the 11-Mile Road corridor and a safety review of the operations after the implementation of the recommended road diet to provide corridor-wide three-lane striping.

The latest HSM predictive methods analysis spreadsheet, provided by the MDOT Safety Programs Unit, was utilized to determine the expected and predicted crashes associated with the existing conditions and proposed road diet conditions. This analysis used the urban/sub-urban segments model and the crash prediction values

provided by MDOT in the HSM spreadsheet. The results of the analysis are summarized in **Table 12** below and the detailed HSM summary sheets are attached.

Table 12: Highway Safety Analysis Summary

Scenario	Property Damage Only (PDO)		Fatal and Injury (FI)		Total			
	Predicted Crashes per Year	Crash Rate (Crashes / mile / year)	Predicted Crashes per Year	Crash Rate (Crashes / mile / year)	Predicted Crashes per Year	Reduction (%)	Crash Rate (Crashes / mile / year)	Reduction (%)
NB Stephenson Hwy to Hamden St	0.46	4.64	0.10	0.95	0.56		5.59	
Road Diet (4-lane to 3-lane)	0.41	4.11	0.06	0.64	0.47	**15.1%**	4.74	**15.1%**
Hampden St to John R Rd	2.07	4.94	0.43	1.02	2.50		5.96	
Road Diet (4-lane to 3-lane)	1.83	4.35	0.29	0.68	2.12	**15.5%**	5.04	**15.5%**
John R Rd to Lorenz St	1.14	4.06	0.23	.084	1.37		4.89	
Road Diet (4-lane to 3-lane)	1.00	3.58	0.16	0.56	1.16	**15.4%**	4.14	**15.4%**
Lorenz St to Hales St	0.96	2.66	0.22	0.60	1.18		3.27	
Road Diet (4-lane to 3-lane)	0.85	2.36	0.15	0.40	0.99	**15.5%**	2.76	**15.5%**
Hales St to Dequindre Rd	1.90	5.01	0.42	1.10	2.32		6.11	
Road Diet (4-lane to 3-lane)	1.68	4.41	0.28	0.74	1.96	**15.7%**	5.15	**15.7%**

The result of the analysis indicates that the 4-lane to 3-lane road diet is expected to reduce the predicted crash rates and frequencies by approximately 15-16% per year throughout the 11-Mile Road study corridor.

6 CONCLUSIONS

The conclusions of this Traffic Study are as follows:

1. EXISTING CONDITIONS ANALYSIS (4-LANES)

- The results of the existing conditions analysis indicates that all approaches and movements at the study intersections are currently operating acceptably, at LOS D or better, during the AM, MD, School PM, and PM peak periods with the following exceptions:
  - **Dequindre Road & 11 Mile Road**
    - Several intersection approaches and movements currently operate at LOS E or F during the peak periods.
    - Review of the operations show that the signal currently operates with a 180 second cycle length. Therefore, it is not unreasonable for vehicles to experience high delays. Review of SimTraffic network simulations indicates that the majority of vehicle queues were observed to be serviced within each cycle length throughout the study corridor.

2. ROAD DIET ANALYSIS (3-LANES)

Opening Day (2024)

- The results of the road diet evaluation indicate that, with the implementation of the proposed three-lane road-diet, all study intersection approaches and movements will continue to operate in a manner similar to the existing conditions analysis, with the exception of the following:
  - **Dequindre Road & 11 Mile Road**
    - During the MD peak hour: The westbound right-turn lane is expected to operate at LOS E.
- Review of SimTraffic network simulations indicates the westbound right-turn movement operates acceptably during the MD peak hour, the majority of vehicle queues were observed to be serviced within each cycle length.

- A corridor travel time evaluation was completed utilizing SimTraffic network simulations to calculate the existing network travel time and the projected travel time with the proposed road diet. The results of this comparison show negligible change in travel time for the peak periods, with the highest increase occurring for the westbound traffic during the School PM peak which is anticipated to increase by approximately three (3) minutes.

Horizon Year (2044)

- The results of the Horizon Year (2044) road diet evaluation indicates that all study intersection approaches and movements will continue to operate in a manner similar to the Opening Day (2024) conditions analysis, with the exception of the following:
  - **Dequindre Road & 11 Mile Road**
    - During the AM peak hour: The southbound left-turn movement is expected to operate at LOS E.
    - During the School PM peak hour: The northbound left-turn movement is expected to operate at LOS E.
    - Review of SimTraffic network simulations indicates long periods of vehicle queues for the southbound left-turn and westbound through movements during the AM, School PM, and PM peak periods. These queues were observed to be present throughout the School PM peak hour. The 95th percentile queue length for the southbound left-turn and westbound through movemetns were observed to be highest during the AM peak hour, at 880 feet, and the School PM peak hour, at 1,650 feet, respectively. This intersection is under the jurisdiction of MCDR and currently operates with a 180 second cycle length. Preliminary analysis indicates that queues would be reduced by optimizing the cycle length to 120 seconds.
  - **John R Road & 11 Mile Road**
    - During the School PM peak hour: The northbound and southbound through movements are expected to operate at LOS F and the overall intersection is expected to operate at LOS E.
    - Review of SimTraffic network simulations indicated periods of long vehicle queues during the School PM peak period for the northbound and southbound approaches. However, these queues were observed to dissipate and were not present throughout the entire peak hour.
- A corridor travel time evaluation was completed utilizing SimTraffic network simulations to calculate the projected Opening Day (2024) network travel time and the projected Horizon Year (2044) travel time with the proposed road diet. The results of this comparison show negligible change in travel time for the peak periods, with the highest increase occurring for the westbound traffic during the School PM peak which is anticipated to increase by approximately four (4) minutes.

3. SAFETY ANALYSIS

- The result of the crash analysis indicates that there were a total of 289 crashes reported along the 11 Mile Road corridor in the past five year (2018-2022); of these crashes, 86 involved injuries, including four (4) “Type A” injuries. The general crash type trends were Angle (43%), Rear-End – Straight (27%), and Sideswipe – Same Direction (11%) crashes.
- The analysis indicates that the majority of the study intersections have crash frequencies and crash rates below the SEMCOG average for comparable intersections. The study intersection of 11 Mile Road & NB Stephenson Highway has crash frequency and crash rate above the SEMCOG average. It should be noted that the intersection of NB Stephenson Highway & 11 Mile Road is under the jurisdiction of the City of Royal Oak; therefore, any further investigation into this intersection would be completed by the City of Royal Oak.
- A safety review was performed according to the Highway Safety Manual (HSM) crash predictive methodology. The result of the analysis indicates that 4-lane to 3-lane road diet would reduce the

predicted crash rates and frequencies by approximately 15-16% per year throughout the 11 Mile Road study corridor.

7 RECOMMENDATIONS

- The primary goal of this road diet is to improve safety and reduce the crashes along the 11 Mile Road corridor. The result of the analysis indicates that crashes are expected to be reduced by **15-16%.**
- It is recommended that the road diet is implemented. There are several options to consider for the extra space created by the eliminated lanes, such as parking space, bike lanes, additional green space, etc. The use of the additional space is up to the discretion of the city.
- It is recommended that at the intersection of Dequindre Road & 11 Mile Road, that the westbound approach be restriped to include a left-turn lane, a through lane, and a right-turn lane.
- It is recommended that at the intersection of John R Road & 11 Mile Road, that the eastbound and westbound approaches be restriped to include a left-turn lane, a through lane, and a right-turn lane.

Any questions related to this memorandum, study, analysis, and results should be addressed to Fleis & VandenBrink.

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Michigan.

Attached:
Figures 1-5
Traffic Volume Data
HCM LOS Description
Synchro Results
Table 3
Table 5
HSM Crash Analysis

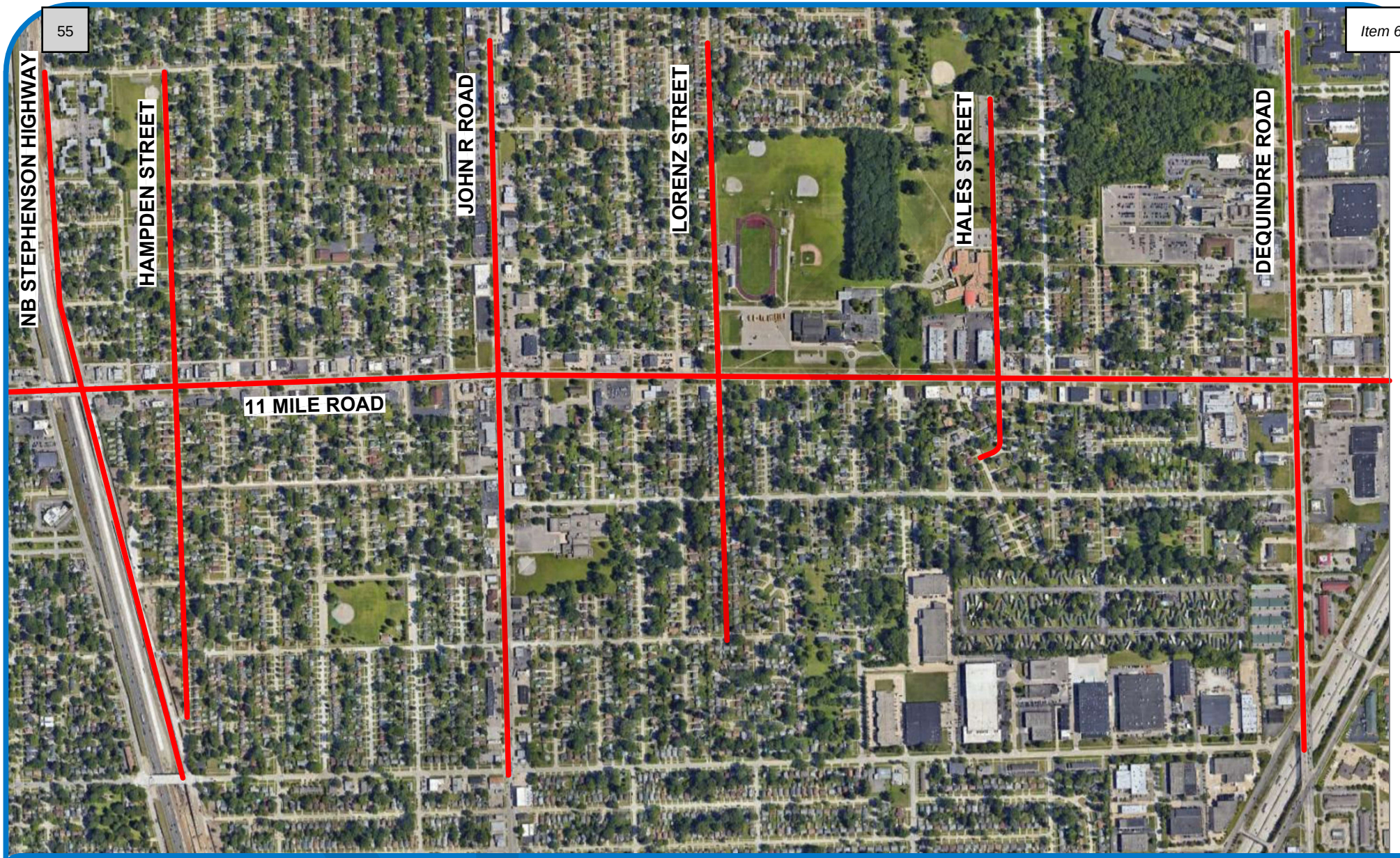


FIGURE 1

SITE LOCATION

11 MILE ROAD - ROAD DIET STUDY, MADISON HEIGHTS, MI

LEGEND

NORTH
SCALE: NOT TO SCALE

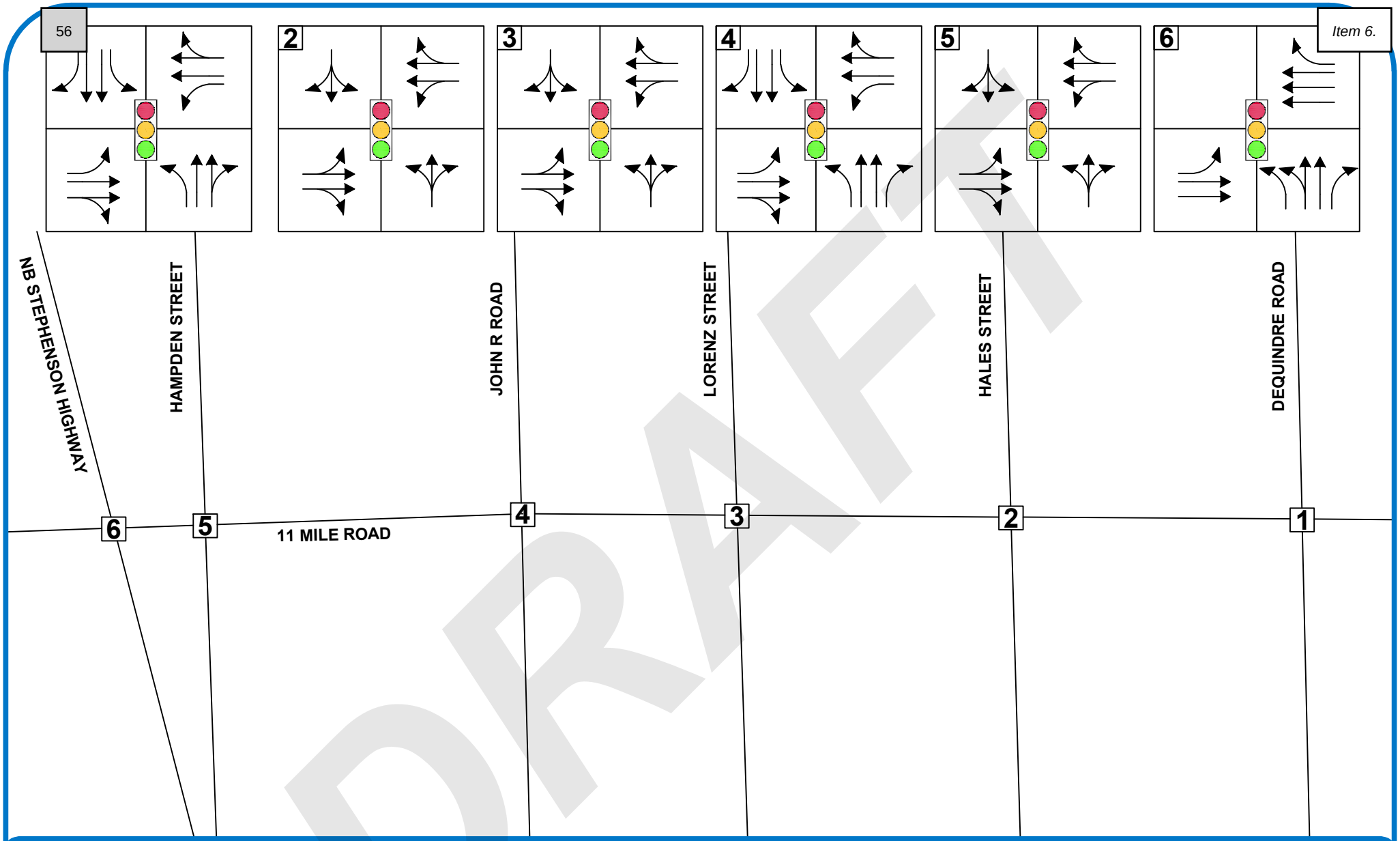


FIGURE 2
EXISTING LANE USE AND TRAFFIC CONTROL

11 MILE ROAD - ROAD DIET STUDY, MADISON HEIGHTS, MI

LEGEND

ROADS

LANE USE

SIGNALIZED INTERSECTION

NORTH

SCALE: NOT TO SCALE

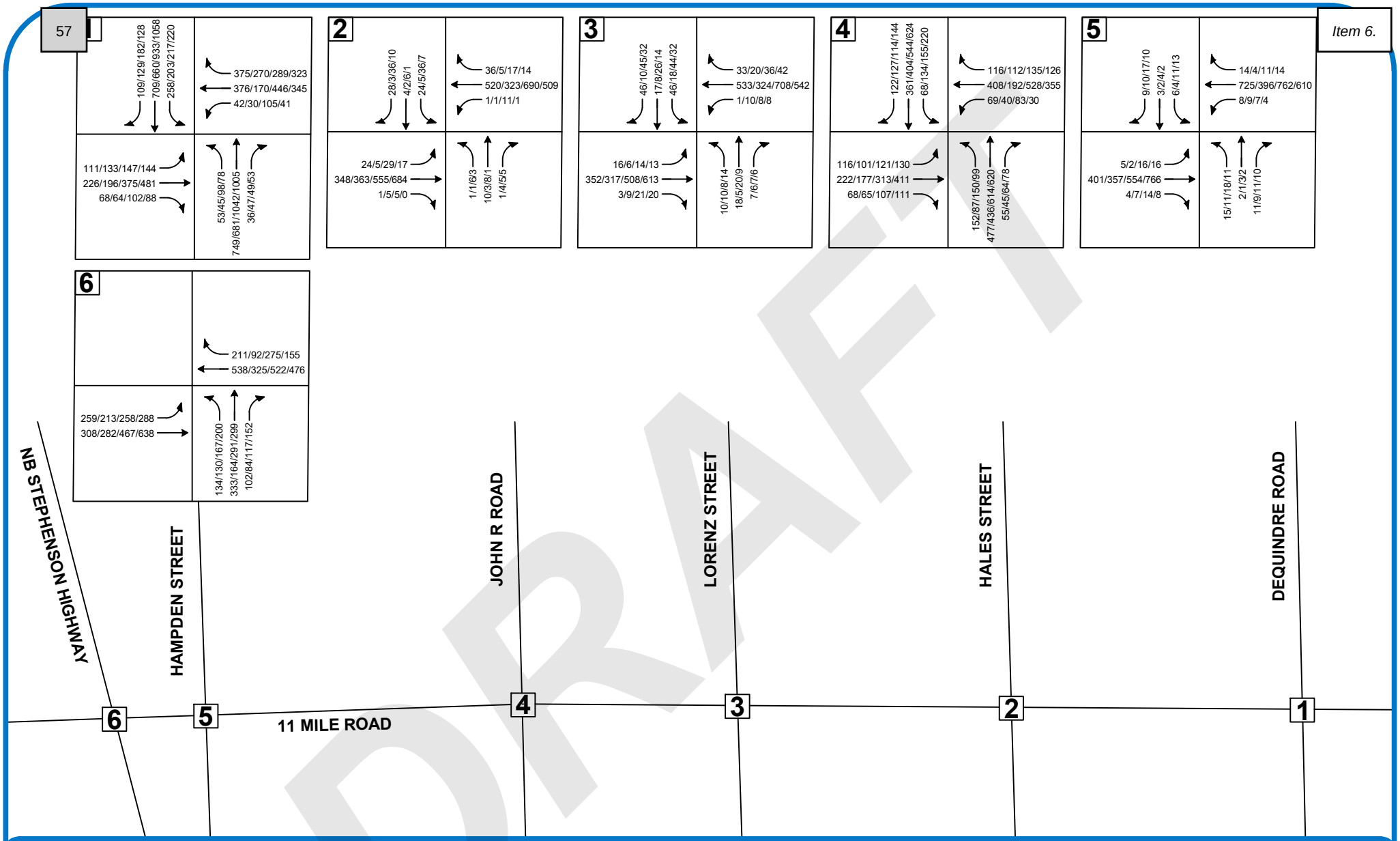


FIGURE 3

EXISTING TRAFFIC VOLUMES

11 MILE ROAD - ROAD DIET STUDY, MADISON HEIGHTS, MI

LEGEND

ROADS

TRAFFIC VOLUMES (AM/MD/School PM/PM)

NORTH

SCALE: NOT TO SCALE

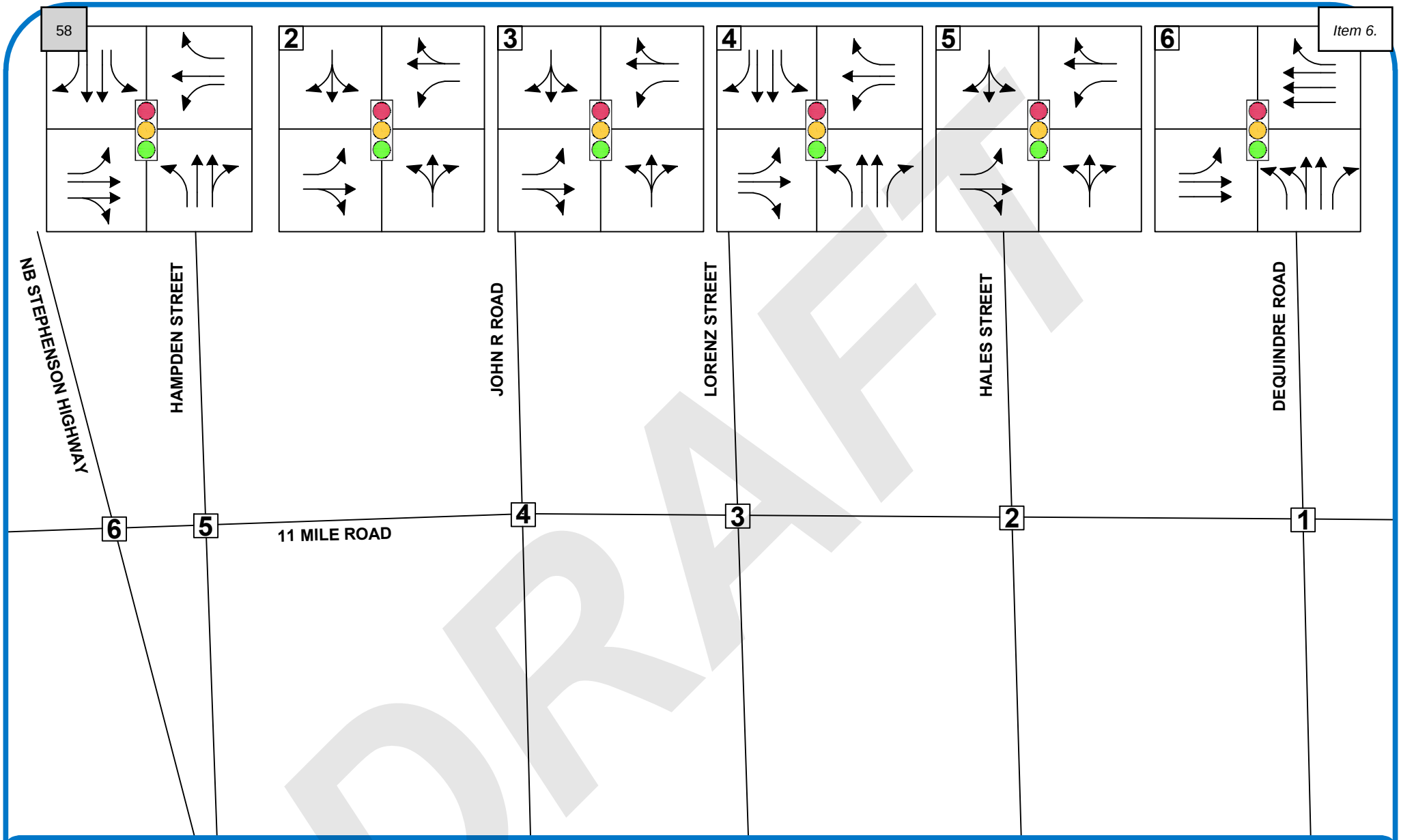


FIGURE 4
ROAD DIET LANE USE W/ RECOMMENDATIONS

11 MILE ROAD - ROAD DIET STUDY, MADISON HEIGHTS, MI

LEGEND

ROADS

ROAD DIET LANE USE

SIGNALIZED INTERSECTION

NORTH

SCALE: NOT TO SCALE

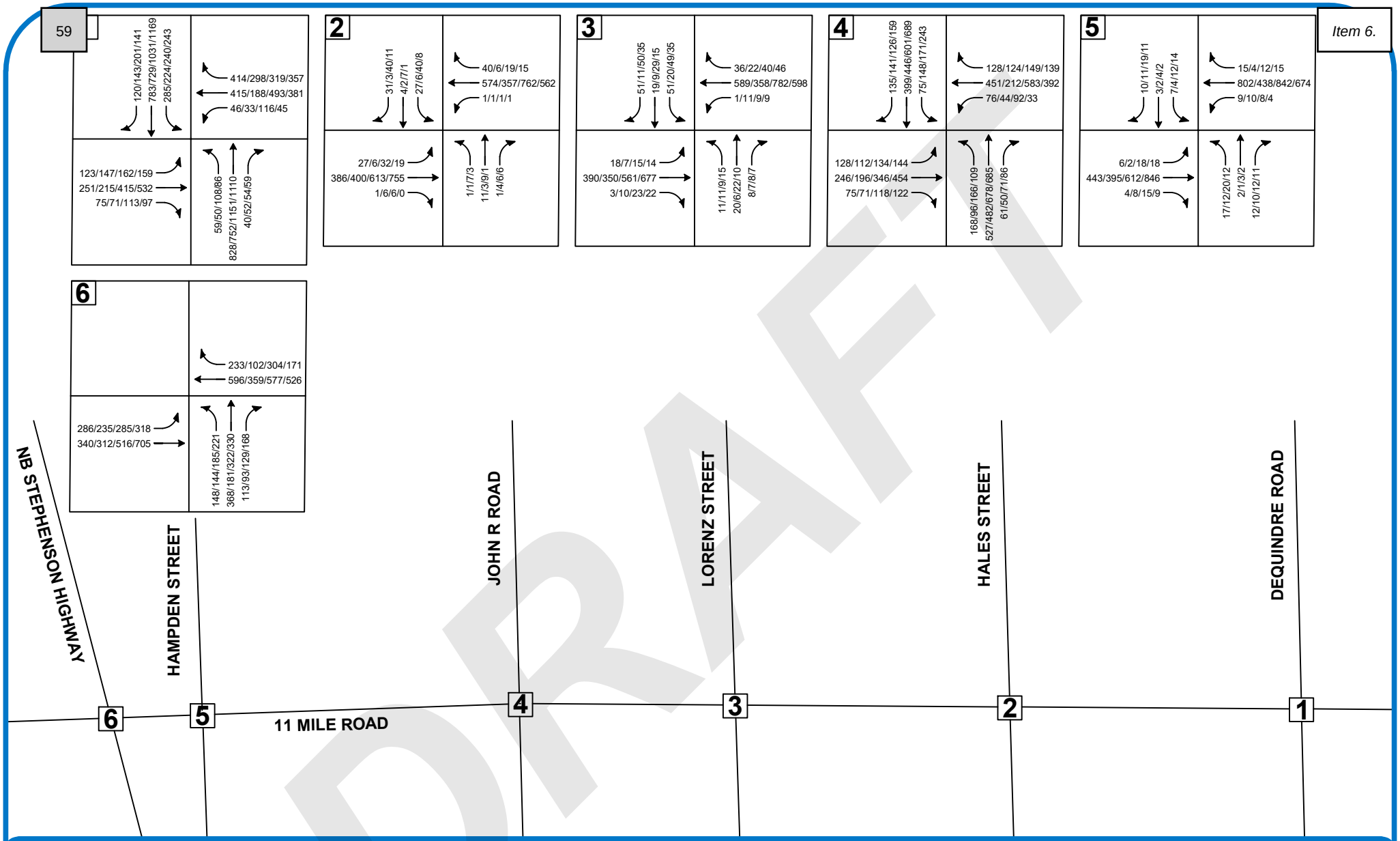


FIGURE 5
HORIZON YEAR (2044) TRAFFIC VOLUMES

11 MILE ROAD - ROAD DIET STUDY, MADISON HEIGHTS, MI

LEGEND

ROADS

TRAFFIC VOLUMES (AM/MD/School PM/PM)

NORTH

SCALE: NOT TO SCALE

Table 3: Road Diet Geometry (3 Lanes) Intersection Operations - Opening Day

	Intersection	Control	Approach	Existing Conditions (2024)								Road Diet (Opening Day 2024)								Difference							
				AM Peak		MD Peak		School PM Peak		PM Peak		AM Peak		MD Peak		School PM Peak		PM Peak		AM Peak		MD Peak		School PM Peak		PM Peak	
				Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS
1	Dequindre Road & 11 Mile Road	Signalized	EBL	136.4	F	69.7	E	151.2	F	133.0	F	136.4	F	63.9	E	151.2	F	119.7	F	0.0	-	-5.8	-	0.0	-	-13.3	-
			EBTR	87.0	F	47.9	D	84.4	F	85.2	F	87.0	F	47.9	D	84.4	F	85.2	F	0.0	-	0.0	-	0.0	-	0.0	-
			WBL	59.7	E	35.9	D	68.1	E	72.0	E	59.7	E	37.6	D	67.6	E	72.5	E	0.0	-	1.7	-	-0.5	-	0.5	-
			WBT	85.4	F	36.2	D	97.5	F	81.9	F	78.3	E	36.1	D	120.4	F	77.3	E	-7.1	F→E	-0.1	-	22.9	-	-4.6	F→E
			WBTR / WBR	112.3	F	55.0	D	100.2	F	93.3	F	112.3	F	56.6	E	74.9	E	94.9	F	0.0	-	1.6	D→E	-25.3	F→E	1.6	-
			NBL	42.3	D	25.8	C	50.5	D	51.9	D	42.3	D	24.3	C	50.9	D	51.5	D	0.0	-	-1.5	-	0.4	-	-0.4	-
			NBTR	81.1	F	48.5	D	71.6	E	71.5	E	81.1	F	48.5	D	71.6	E	71.5	E	0.0	-	0.0	-	0.0	-	0.0	-
			SBL	49.5	D	29.9	C	62.7	E	57.9	E	49.5	D	28.3	C	63.2	E	57.4	E	0.0	-	-1.6	-	0.5	-	-0.5	-
			SBT	71.5	E	41.6	D	66.7	E	62.9	E	71.5	E	41.6	D	66.7	E	62.9	E	0.0	-	0.0	-	0.0	-	0.0	-
			SBR	46.2	D	27.6	C	41.0	D	34.6	C	46.2	D	29.1	C	41.0	D	34.7	C	0.0	-	1.5	-	0.0	-	0.1	-
			Overall	**80.0**	**E**	**44.6**	**D**	**77.5**	**E**	**73.6**	**E**	**79.2**	**E**	**44.4**	**D**	**78.3**	**E**	**72.8**	**E**	**-0.8**	**-**	**-0.2**	**-**	**0.8**	**-**	**-0.8**	**-**
2	Hales Street & 11 Mile Road	Signalized	EBTL / EBL	0.3	A	1.4	A	12.2	B	2.0	A	1.0	A	0.1	A	8.6	A	0.3	A	0.7	-	-1.3	-	-3.6	B→A	-1.7	-
			EBTR	0.3	A	1.5	A	12.7	B	2.1	A	0.5	A	0.4	A	4.7	A	1.0	A	0.2	-	-1.1	-	-8.0	B→A	-1.1	-
			WBTL / WBL	3.0	A	1.4	A	3.8	A	1.7	A	2.1	A	1.1	A	5.6	A	1.3	A	-0.9	-	-0.3	-	1.8	-	-0.4	-
			WBTR	3.0	A	1.4	A	3.9	A	1.8	A	4.3	A	1.7	A	6.1	A	2.3	A	1.3	-	0.3	-	2.2	-	0.5	-
			NB	33.5	C	38.4	D	32.3	C	37.6	D	33.5	C	38.4	D	32.4	C	37.6	D	0.0	-	0.0	-	0.1	-	0.0	-
			SB	36.8	D	38.4	D	36.4	D	38.6	D	36.9	D	38.4	D	36.8	D	38.6	D	0.1	-	0.0	-	0.4	-	0.0	-
			Overall	**5.2**	**A**	**2.8**	**A**	**10.3**	**B**	**3.1**	**A**	**6.0**	**A**	**2.4**	**A**	**8.5**	**A**	**2.8**	**A**	**0.8**	**-**	**-0.4**	**-**	**-1.8**	**B→A**	**-0.3**	**-**
3	Lorenz Street & 11 Mile Road	Signalized	EBTL / EBL	0.2	A	0.2	A	0.4	A	0.4	A	2.9	A	0.0	A	1.0	A	0.1	A	2.7	-	-0.2	-	0.6	-	-0.3	-
			EBTR	0.3	A	0.2	A	0.4	A	0.5	A	0.5	A	0.4	A	0.9	A	1.1	A	0.2	-	0.2	-	0.5	-	0.6	-
			WBTL / WBL	12.9	B	0.2	A	0.6	A	0.4	A	5.5	A	0.0	A	0.0	A	0.0	A	-7.4	B→A	-0.2	-	-0.6	-	-0.4	-
			WBTR	13.0	B	0.2	A	0.7	A	0.5	A	11.0	B	0.4	A	2.0	A	1.1	A	-2.0	-	0.2	-	1.3	-	0.6	-
			NB	31.2	C	37.1	D	31.9	C	35.1	D	31.4	C	37.1	D	32.1	C	35.1	D	0.2	-	0.0	-	0.2	-	0.0	-
			SB	35.6	D	38.6	D	36.1	D	37.5	D	35.9	D	38.6	D	36.5	D	37.7	D	0.3	-	0.0	-	0.4	-	0.2	-
			Overall	**12.4**	**B**	**3.6**	**A**	**4.3**	**A**	**3.6**	**A**	**11.5**	**B**	**3.8**	**A**	**5.3**	**A**	**4.2**	**A**	**-0.9**	**-**	**0.2**	**-**	**1.0**	**-**	**0.6**	**-**
4	John R Road & 11 Mile Road	Signalized	EBL	38.6	D	36.1	D	42.6	D	37.3	D	39.8	D	36.5	D	44.4	D	33.5	C	1.2	-	0.4	-	1.8	-	-3.8	D→C
			EBT	36.6	D	34.8	C	34.1	C	43.0	D	36.4	D	38.3	D	33.5	C	43.9	D	-0.2	-	3.5	C→D	-0.6	-	0.9	-
			EBTR / EBR	37.3	D	35.2	D	34.7	C	44.1	D	30.3	C	32.8	C	26.3	C	22.9	C	-7.0	D→C	-2.4	D→C	-8.4	-	-21.2	D→C
			WBL	33.0	C	33.5	C	32.4	C	36.4	D	31.4	C	34.7	C	30.0	C	37.1	D	-1.6	-	1.2	-	-2.4	-	0.7	-
			WBT	39.4	D	40.1	D	46.4	D	43.6	D	43.0	D	40.7	D	54.8	D	43.5	D	3.6	-	0.6	-	8.4	-	-0.1	-
			WBTR / WBR	40.1	D	41.3	D	46.7	D	44.9	D	29.8	C	37.1	D	26.0	C	31.2	C	-10.3	D→C	-4.2	-	-20.7	D→C	-13.7	D→C
			NBL	20.8	C	15.3	B	29.2	C	23.8	C	25.3	C	15.8	B	38.6	D	29.8	C	4.5	-	0.5	-	9.4	C→D	6.0	-
			NBT	29.1	C	24.0	C	31.6	C	26.3	C	32.2	C	23.0	C	39.5	D	30.5	C	3.1	-	-1.0	-	7.9	C→D	4.2	-
			NBR	24.1	C	20.6	C	24.2	C	21.3	C	25.9	C	19.9	B	27.0	C	23.9	C	1.8	-	-0.7	C→B	2.8	-	2.6	-
			SBL	21.0	C	17.4	B	30.2	C	27.9	C	25.3	C	18.0	B	43.6	D	36.0	D	4.3	-	0.6	-	13.4	C→D	8.1	C→D
			SBT	26.6	C	23.1	C	30.3	C	25.9	C	28.8	C	22.2	C	36.4	D	29.9	C	2.2	-	-0.9	-	6.1	C→D	4.0	-
			SBR	26.5	C	22.6	C	26.2	C	23.1	C	28.8	C	21.7	C	29.6	C	26.2	C	2.3	-	-0.9	-	3.4	-	3.1	-
			Overall	**31.6**	**C**	**27.6**	**C**	**35.4**	**D**	**32.9**	**C**	**33.1**	**C**	**27.2**	**C**	**39.6**	**D**	**33.9**	**C**	**1.5**	**-**	**-0.4**	**-**	**4.2**	**-**	**1.0**	**-**
5	Hampden Street & 11 Mile Road	Signalized	EBTL / EBL	0.2	A	0.2	A	0.3	A	0.5	A	1.1	A	0.2	A	2.3	A	0.7	A	0.9	-	0.0	-	2.0	-	0.2	-
			EBTR	0.2	A	0.2	A	0.4	A	0.5	A	0.5	A	0.4	A	0.8	A	1.4	A	0.3	-	0.2	-	0.4	-	0.9	-
			WBTL / WBL	2.6	A	2.4	A	3.1	A	2.6	A	1.8	A	1.9	A	2.0	A	1.9	A	-0.8	-	-0.5	-	-1.1	-	-0.7	-
			WBTR	2.7	A	2.4	A	3.1	A	2.7	A	4.1	A	3.0	A	5.4	A	3.7	A	1.4	-	0.6	-	2.3	-	1.0	-
			NB	44.2	D	38.3	D	39.1	D	38.6	D	44.2	D	38.3	D	39.2	D	38.6	D	0.0	-	0.0	-	0.1	-	0.0	-
			SB	43.4	D	38.3	D	38.8	D	38.5	D	43.4	D	38.3	D	38.8	D	38.5	D	0.0	-	0.0	-	0.0	-	0.0	-
			Overall	**4.1**	**A**	**3.6**	**A**	**4.0**	**A**	**3.0**	**A**	**5.0**	**A**	**4.0**	**A**	**5.5**	**A**	**3.9**	**A**	**0.9**	**-**	**0.4**	**-**	**1.5**	**-**	**0.9**	**-**
6	NB Stephenson Highway & 11 Mile Road	Signalized	EBL	18.5	B	3.7	A	15.6	B	7.2	A	18.5	B	3.7	A	15.6	B	7.2	A	0.0	-	0.0	-	0.0	-	0.0	-
			EBT	8.4	A	2.1	A	10.8	B	3.0	A	8.4	A	2.1	A	10.8	B	3.0	A	0.0	-	0.0	-	0.0	-	0.0	-
			WBT	13.2	B	8.2	A	11.6	B	12.0	B	12.9	B	8.4	A	12.4	B	12.5	B	-0.3	-	0.2	-	0.8	-	0.5	-
			WBR	14.5	B	8.4	A	13.7	B	12.4	B	13.8	B	8.5	A	14.0	B	12.7	B	-0.7	-	0.1	-	0.3	-	0.3	-
			NBL	36.3	D	37.7	D	35.9	D	34.9	C	36.3	D	37.7	D	35.9	D	34.9	C	0.0	-	0.0	-	0.0	-	0.0	-
			NBTL	38.8	D	36.9	D	34.7	C	33.8	C	38.8	D	36.9	D	34.7	C	33.8	C	0.0	-	0.0	-	0.0	-	0.0	-
			NBR	35.5	D	37.2	D	34.0	C	34.3	C	35.5	D	37.2	D	34.0	C	34.3	C	0.0	-	0.0	-	0.0	-	0.0	-
			Overall	**21.9**	**C**	**14.9**	**B**	**18.7**	**B**	**15.2**	**B**	**21.7**	**C**	**15.0**	**A**	**19.0**	**B**	**15.3**	**B**	**-0.2**	**-**	**0.1**	**B→A**	**0.3**	**-**	**0.1**	**-**

** Decreased delays and improved LOS are the result of improved progression and arrival on green factors and HCM methodology*

Table 5: Road Diet Geometry (3 Lanes) Intersection Operations - Horizon Year (2044)

	Intersection	Control	Approach	Road Diet (Opening Day 2024)								Road Diet (Horizon Year 2044)								Difference							
				AM Peak		MD Peak		School PM Peak		PM Peak		AM Peak		MD Peak		School PM Peak		PM Peak		AM Peak		MD Peak		School PM Peak		PM Peak	
				Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS
1	Dequindre Road & 11 Mile Road	Signalized	EBL	136.4	F	63.9	E	151.2	F	119.7	F	166.0	F	66.7	E	179.9	F	146.5	F	29.6	-	2.8	-	28.7	-	26.8	-
			EBTR	87.0	F	47.9	D	84.4	F	85.2	F	85.7	F	47.3	D	85.4	F	86.6	F	-1.3	-	-0.6	-	1.0	-	1.4	-
			WBL	59.7	E	37.6	D	67.6	E	72.5	E	61.3	E	36.3	D	70.8	E	72.3	E	1.6	-	-1.3	-	3.2	-	-0.2	-
			WBT	78.3	E	36.1	D	120.4	F	77.3	E	92.8	F	35.0	D	157.6	F	78.7	E	14.5	E→F	-1.1	-	37.2	-	1.4	-
			WBTR / WBR	112.3	F	56.6	E	74.9	E	94.9	F	143.0	F	59.9	E	85.5	F	100.4	F	30.7	-	3.3	-	10.6	E→F	5.5	-
			NBL	42.3	D	24.3	C	50.9	D	51.5	D	45.8	D	27.9	C	55.4	E	59.1	E	3.5	-	3.6	-	4.5	D→E	7.6	D→E
			NBTR	81.1	F	48.5	D	71.6	E	71.5	E	77.5	E	47.1	D	68.6	E	68.5	E	-3.6	F→E	-1.4	-	-3.0	-	-3.0	-
			SBL	49.5	D	28.3	C	63.2	E	57.4	E	55.9	E	32.8	C	73.8	E	69.5	E	6.4	D→E	4.5	-	10.6	-	12.1	-
			SBT	71.5	E	41.6	D	66.7	E	62.9	E	68.2	E	40.3	D	63.2	E	59.4	E	-3.3	-	-1.3	-	-3.5	-	-3.5	-
			SBR	46.2	D	29.1	C	41.0	D	34.7	C	42.9	D	27.0	C	37.6	D	31.1	C	-3.3	-	-2.1	-	-3.4	-	-3.6	-
			Overall	79.2	E	44.4	D	78.3	E	72.8	E	**84.1**	**F**	**44.4**	**D**	**83.5**	**F**	**73.5**	**E**	**4.9**	**E→F**	**0.0**	**-**	**5.2**	**E→F**	**0.7**	**-**
2	Hales Street & 11 Mile Road	Signalized	EBTL / EBL	1.0	A	0.1	A	8.6	A	0.3	A	1.4	A	0.1	A	4.5	A	0.4	A	0.4	-	0.0	-	-4.1	-	0.1	-
			EBTR	0.5	A	0.4	A	4.7	A	1.0	A	0.5	A	0.4	A	1.4	A	1.3	A	0.0	-	0.0	-	-3.3	-	0.3	-
			WBTL / WBL	2.1	A	1.1	A	5.6	A	1.3	A	2.2	A	1.2	A	3.0	A	1.3	A	0.1	-	0.1	-	-2.6	-	0.0	-
			WBTR	4.3	A	1.7	A	6.1	A	2.3	A	4.8	A	1.8	A	7.6	A	2.6	A	0.5	-	0.1	-	1.5	-	0.3	-
			NB	33.5	C	38.4	D	32.4	C	37.6	D	33.4	C	38.3	D	31.7	C	37.5	D	-0.1	-	-0.1	-	-0.7	-	-0.1	-
			SB	36.9	D	38.4	D	36.8	D	38.6	D	37.3	D	38.4	D	36.3	D	38.5	D	0.4	-	0.0	-	-0.5	-	-0.1	-
			Overall	6.0	A	2.4	A	8.5	A	2.8	A	**6.2**	**A**	**2.4**	**A**	**7.9**	**A**	**2.9**	**A**	**0.2**	**-**	**0.0**	**-**	**-0.6**	**-**	**0.1**	**-**
3	Lorenz Street & 11 Mile Road	Signalized	EBTL / EBL	2.9	A	0.0	A	1.0	A	0.1	A	3.9	A	0.0	A	0.1	A	0.1	A	1.0	-	0.0	-	-0.9	-	0.0	-
			EBTR	0.5	A	0.4	A	0.9	A	1.1	A	0.6	A	4.0	A	1.1	A	1.4	A	0.1	-	3.6	-	0.2	-	0.3	-
			WBTL / WBL	5.5	A	0.0	A	0.0	A	0.0	A	5.8	A	0.0	A	0.0	A	0.1	A	0.3	-	0.0	-	0.0	-	0.1	-
			WBTR	11.0	B	0.4	A	2.0	A	1.1	A	12.4	A	0.4	A	2.8	A	1.4	A	1.4	B→A	0.0	-	0.8	-	0.3	-
			NB	31.4	C	37.1	D	32.1	C	35.1	D	30.7	C	37.0	D	31.3	C	34.9	C	-0.7	-	-0.1	-	-0.8	-	-0.2	D→C
			SB	35.9	D	38.6	D	36.5	D	37.7	D	35.5	D	38.7	D	36.1	D	37.4	D	-0.4	-	0.1	-	-0.4	-	-0.3	-
			Overall	11.5	B	3.8	A	5.3	A	4.2	A	**12.2**	**B**	**3.9**	**A**	**5.8**	**A**	**4.4**	**A**	**0.7**	**-**	**0.1**	**-**	**0.5**	**-**	**0.2**	**-**
4	John R Road & 11 Mile Road	Signalized	EBL	39.8	D	36.5	D	44.4	D	33.5	C	42.7	D	37.0	D	50.5	D	34.9	C	2.9	-	0.5	-	6.1	-	1.4	-
			EBT	36.4	D	38.3	D	33.5	C	43.9	D	35.8	D	37.9	D	32.3	C	49.3	D	-0.6	-	-0.4	-	-1.2	-	5.4	-
			EBTR / EBR	30.3	C	32.8	C	26.3	C	22.9	C	29.4	C	32.1	C	25.0	C	21.9	C	-0.9	-	-0.7	-	-1.3	-	-1.0	-
			WBL	31.4	C	34.7	C	30.0	C	37.1	D	31.1	C	34.7	C	27.1	C	37.1	D	-0.3	-	0.0	-	-2.9	-	0.0	-
			WBT	43.0	D	40.7	D	54.8	D	43.5	D	45.1	D	40.7	D	48.8	D	45.7	D	2.1	-	0.0	-	-6.0	-	2.2	-
			WBTR / WBR	29.8	C	37.1	D	26.0	C	31.2	C	29.0	C	36.7	D	20.5	C	30.6	C	-0.8	-	-0.4	-	-5.5	-	-0.6	-
			NBL	25.3	C	15.8	B	38.6	D	29.8	C	28.3	C	17.5	B	46.4	D	32.0	C	3.0	-	1.7	-	7.8	-	2.2	-
			NBT	32.2	C	23.0	C	39.5	D	30.5	C	30.5	C	24.7	C	134.6	F	38.6	D	-1.7	-	1.7	-	95.1	D→F	8.1	C→D
			NBR	25.9	C	19.9	B	27.0	C	23.9	C	24.3	C	20.7	C	31.8	C	26.0	C	-1.6	-	0.8	B→C	4.8	-	2.1	-
			SBL	25.3	C	18.0	B	43.6	D	36.0	D	28.1	C	20.3	C	52.3	D	46.7	D	2.8	-	2.3	B→C	8.7	-	10.7	-
			SBT	28.8	C	22.2	C	36.4	D	29.9	C	27.2	C	23.6	C	100.9	F	36.8	D	-1.6	-	1.4	-	64.5	D→F	6.9	C→D
			SBR	28.8	C	21.7	C	29.6	C	26.2	C	27.1	C	23.0	C	37.6	D	29.4	C	-1.7	-	1.3	-	8.0	C→D	3.2	-
			Overall	33.1	C	27.2	C	39.6	D	33.9	C	**33.0**	**C**	**28.2**	**C**	**69.6**	**E**	**39.1**	**D**	**-0.1**	**-**	**1.0**	**-**	**30.0**	**D→E**	**5.2**	**C→D**
5	Hampden Street & 11 Mile Road	Signalized	EBTL / EBL	1.1	A	0.2	A	2.3	A	0.7	A	1.6	A	0.3	A	3.5	A	0.9	A	0.5	-	0.1	-	1.2	-	0.2	-
			EBTR	0.5	A	0.4	A	0.8	A	1.4	A	0.5	A	0.4	A	1.0	A	1.7	A	0.0	-	0.0	-	0.2	-	0.3	-
			WBTL / WBL	1.8	A	1.9	A	2.0	A	1.9	A	1.8	A	2.0	A	2.0	A	1.9	A	0.0	-	0.1	-	0.0	-	0.0	-
			WBTR	4.1	A	3.0	A	5.4	A	3.7	A	4.6	A	3.1	A	6.3	A	4.0	A	0.5	-	0.1	-	0.9	-	0.3	-
			NB	44.2	D	38.3	D	39.2	D	38.6	D	44.4	D	38.3	D	39.3	D	38.7	D	0.2	-	0.0	-	0.1	-	0.1	-
			SB	43.4	D	38.3	D	38.8	D	38.5	D	43.6	D	38.3	D	39.0	D	38.5	D	0.2	-	0.0	-	0.2	-	0.0	-
			Overall	5.0	A	4.0	A	5.5	A	3.9	A	**5.4**	**A**	**4.0**	**A**	**6.1**	**A**	**4.2**	**A**	**0.4**	**-**	**0.0**	**-**	**0.6**	**-**	**0.3**	**-**
6	NB Stephenson Highway & 11 Mile Road	Signalized	EBL	18.5	B	3.7	A	15.6	B	7.2	A	23.5	C	4.2	A	19.3	B	9.2	A	5.0	B→C	0.5	-	3.7	-	2.0	-
			EBT	8.4	A	2.1	A	10.8	B	3.0	A	10.2	B	2.1	A	12.2	B	3.2	A	1.8	A→B	0.0	-	1.4	-	0.2	-
			WBT	12.9	B	8.4	A	12.4	B	12.5	B	14.1	B	8.9	A	13.9	B	13.1	B	1.2	-	0.5	-	1.5	-	0.6	-
			WBR	13.8	B	8.5	A	14.0	B	12.7	B	15.2	B	8.9	A	16.1	B	13.5	B	1.4	-	0.4	-	2.1	-	0.8	-
			NBL	36.3	D	37.7	D	35.9	D	34.9	C	34.8	C	37.7	D	34.9	C	34.5	C	-1.5	D→C	0.0	-	-1.0	D→C	-0.4	-
			NBTL	38.8	D	36.9	D	34.7	C	33.8	C	37.4	D	36.7	D	33.6	C	33.3	C	-1.4	-	-0.2	-	-1.1	-	-0.5	-
			NBR	35.5	D	37.2	D	34.0	C	34.3	C	34.0	C	37.0	D	32.8	C	34.0	C	-1.5	D→C	-0.2	-	-1.2	-	-0.3	-
			Overall	21.7	C	15.0	A	19.0	B	15.3	B	**22.5**	**C**	**15.2**	**B**	**20.0**	**C**	**15.8**	**B**	**0.8**	**-**	**0.2**	**A→B**	**1.0**	**B→C**	**0.5**	**-**

** Decreased delays and improved LOS are the result of improved progression and arrival on green factors and HCM methodology*