HINO MOTOS USA
(fka as Commerce Park)
JSP17-02

HINO MOTORS USA FKA COMMERCE PARK JSP 17-02

Public hearing at the request of D& G Investments for Preliminary Site Plan, land bank parking, non-minor wetland permit, woodland permit and Storm water Management Plan Approval. The subject property is located in section 16, southwest corner of Twelve Mile Road and Taft Road and is zoned OST (Office Service Technology). The subject parcel is approximately 15.56 acres. The applicant is proposing to build a 124,418 square foot building along with associated site improvements, including parking and utilities. The proposed site plan also proposes to land bank up to 77 parking spaces of the 398 required spaces.

Required Action

Approval/Denial of the Preliminary Site Plan, Non-Minor Wetland Permit, Woodland Permit, and Stormwater Management Plan

REVIEW	RESULT	DATE	COMMENTS
Planning	Approval recommended	04-05-17	• **Approval of 77 (about nineteen percent) land bank parking spaces, subject to conditions listed in the approved Memorandum of Understanding** *(Staff supports)* • Items to be addressed on the final site plan submittal
Engineering	Approval recommended	04-11-17 05-02-17 (Revised)	• **Deviation for proposing water main within the property, instead of Taft Road's Right-of-way is approved based on Memo of Understanding, approved by City Council on March 27, 2016** *(Staff supports, provided revisions as requested in Engineering review are made with Final Site Plan submittal)* • **City Council variance for payment into the sidewalk fund in lieu of building the pathway along Taft Road** *(Staff supports)* • Items to be addressed on the final site plan submittal
Landscaping	Approval recommended	03-30-17	• **Waiver for absence of berm along entire Twelve Mile frontage, for not providing berm along a small portion along Taft Road Frontage, reduction in required greenbelt trees and reduction of interior parking lot trees** *(Staff Supports)* • **Waiver for reduction of parking lot perimeter trees** *(Staff supports if proposed trees along the perimeter are not counted towards woodland replacement)* • Items to be addressed on the final site plan submittal

Wetland	Approval recommended	04-10-17	• **Requires a City of Novi Wetland Permit and an Authorization to encroach the 25-Foot Natural Features Setback** • **Current wetland permit if approved, will not include possible impacts to wetlands in the area where land bank parking is proposed** • **A MDEQ permit may be required for the impacts proposed** • Items to be addressed on the final site plan submittal
Woodland	Approval recommended	04-10-17	• **Requires a City of Novi Woodland Permit** • **Woodland permit does not include possible impacts to wetlands in the area where land bank parking is proposed** • **Remove proposed woodland trees from possible future ROW for Taft Road** • **Current woodland permit, if approved, will not include possible impacts to wetlands in the area where land bank parking is proposed** • Items to be addressed on the final site plan submittal
Traffic	Approval recommended	04-06-17	• Items to be addressed on the final site plan submittal
Traffic Study	Approval recommended	04-06-17	• Items to be addressed on the final site plan submittal
Facade	Approval recommended	04-05-17	• Full Compliance
Fire	Approval recommended	04-03-17	• Items to be addressed on the final site plan submittal

Motion Sheet

Approval – Preliminary Site Plan

In the matter of Hino Motors USA fka Commerce Park JSP 17-02, motion to **approve** the Preliminary Site Plan with landbank parking based on and subject to the following conditions:

a. Approval of 77 land bank parking spaces based on Planning Commission finding that:
   i. The applicant has demonstrated through substantial evidence that the specified occupant and building use will require less parking than what is required by the Zoning Ordinance;
   ii. Parking will not occur on any street or driveway;
   iii. Parking will not occur on any area not approved and developed for parking;
   iv. Parking will not occur on that area where parking construction has been land banked until such time as that area is constructed for such parking;
   v. The requested parking land banking will not create traffic or circulation problems on or off site; and
   vi. The requested parking land banking will be consistent with the public health, safety and welfare of the City and the purposes of the Zoning Ordinance;

b. Subject to additional conditions listed in the Memorandum of Understanding, approved by the City Council on March 27, 2017, with regards to potential realignment of Taft Road by Road Commission of Oakland County;

c. The applicant shall apply for Planning Commission's approval of a site plan amendment and any associated wetland and woodland permit prior to construction of land bank parking. Per Memo of Understanding, Property Owner is allowed to provide "land bank" parking as contemplated under the City's Zoning Ordinance approximately as shown on the site plan without the requirement to identify protected trees within the area or to pay any tree preservation or tree replacement amounts unless and until the area is in fact improved with parking improvements in the future;

d. A Landscape waiver to permit the absence of required greenbelt plantings between Twelve Mile Road and existing wetlands (approximately 140 linear feet), as listed in Section 5.5.3.B.ii.f (4 canopy and 7 sub canopy trees required; 0 provided) in order to preserve the natural condition of the wetland, which is hereby granted;

e. A Landscape waiver to permit the reduction of vehicular use area perimeter trees by 3 trees (approximately 55 trees required, 34 provided on plan), as listed in Section 5.5.3.C.iii Chart footnote. The applicant has proposed using woodland replacement trees in place of 18 required perimeter trees. Woodland replacement trees cannot be used in place of otherwise required trees. The waiver for 3 trees not provided because of lack of space on the property, but not the requested 21, which is hereby granted;

f. A Landscape waiver to permit the reduction of parking lot interior trees, as listed in Sec. 5.5.3.C (approximately 108 trees required, 68 provided) due to a lack of space on the site to meet the full requirement, which is hereby granted;

g. A Landscape waiver for absence of required berm for the area west of entry drive along Twelve Mile Road frontage (approximately 140 lf), as listed in Sec. 5.5.3.B.ii and iii, to leave the area in the natural state, which is hereby granted;

h. A Landscape waiver for absence of required berm between Taft Road (approximately 120 lf) and proposed detention pond along Taft Road Frontage as listed in Sec. 5.5.3.B.ii

and iii, due to the lack of need for the screening berm since the greenbelt is backed up by a landscaped detention pond, which is hereby granted;

i. A Landscape waiver for to allow absence of any of the required twelve street trees in Twelve Mile Road Right of Way contingent upon Road Commission of Oakland County decision on applicant's request, which is hereby granted;

j. The applicant to update the woodlands replacement tree calculations at the time Final Site Plan submittal to address the comments provided in Landscape and Woodland review letters,

    (1) To remove proposed woodland replacements (approximately 11) provided in the area of potential realignment of Taft Road; and
    (2) To remove the woodland replacements planted along parking lot perimeters along east, south and west parking lot edges ;

k. The applicant to address the comments listed in Engineering review letter satisfactorily, at the time of Final Site Plan submittal, to provide public water main to serve existing and future customers as part of the development;

l. City Council Variance from Section 11-256.b of Design and Construction Standards Manual for absence of required pathway along Taft Road due to potential realignment of Taft Road by Road Commission of Oakland County, provided the applicant pays the city the current construction cost of the pathway into City sidewalk fund, as approved by the City Engineer;

m. The findings of compliance with Ordinance standards in the staff and consultant review letters, and the conditions and items listed in those letters being addressed on the Final Site Plan; and

n. *(additional conditions here if any).*

(This motion is made because the plan is otherwise in compliance with Article 3, Article 4 and Article 5 of the Zoning Ordinance and all other applicable provisions of the Ordinance.)

– AND –

Approval – Wetland Permit

In the matter of Hino Motors USA fka Commerce Park JSP 17-02, motion to **approve** the Wetland Permit based on and subject to the following:

a. The findings of compliance with Ordinance standards in the staff and consultant review letters, and the conditions and items listed in those letters being addressed on the Final Site Plan; and
b. *(additional conditions here if any).*

(This motion is made because the plan is otherwise in compliance with Chapter 12, Article V of the Code of Ordinances and all other applicable provisions of the Ordinance.)

– AND –

Approval – Woodland Permit
In the matter of Hino Motors USA fka Commerce Park JSP 17-02, to **approve** the Woodland Permit based on and subject to the following:

a. The findings of compliance with Ordinance standards in the staff and consultant review letters, and the conditions and items listed in those letters being addressed on the Final Site Plan; and
b. (additional conditions here if any).

(This motion is made because the plan is otherwise in compliance with Chapter 37 of the Code of Ordinances and all other applicable provisions of the Ordinance.)

– AND –

Approval – Stormwater Management Plan
In the matter of Hino Motors USA fka Commerce Park JSP 17-02, motion to **approve** the Stormwater Management Plan, based on and subject to:

a. The findings of compliance with Ordinance standards in the staff and consultant review letters, and the conditions and items listed in those letters being addressed on the Final Site Plan; and
b. (additional conditions here if any).

(This motion is made *because it otherwise in compliance with Chapter 11 of the Code of Ordinances and all other applicable provisions of the Ordinance.)*

– OR –

Denial – Preliminary Site Plan
In the matter of Hino Motors USA fka Commerce Park JSP 17-02,, motion to **deny** the Preliminary Site Plan...*(because the plan is not in compliance with Article 3, Article 4 and Article 5 of the Zoning Ordinance and all other applicable provisions of the Ordinance.)*

– AND –

Denial – Wetland Permit
In the matter of Hino Motors USA fka Commerce Park JSP 17-02, motion to **deny** the Wetland Permit...*(because the plan is not in compliance with Chapter 12, Article V of the Code of Ordinances and all other applicable provisions of the Ordinance.)*

– AND –

Denial – Woodland Permit
In the matter of Hino Motors USA fka Commerce Park JSP 17-02, motion to **deny** the Woodland Permit...*(because the plan is not in compliance with Chapter 37 of the Code of Ordinances and all other applicable provisions of the Ordinance.)*

– AND –

Denial – Stormwater Management Plan
In the matter of Hino Motors USA fka Commerce Park JSP 17-02, motion to **deny** the Stormwater Management Plan...(*because the plan is not in compliance with Chapter 11 of the Code of Ordinances and all other applicable provisions of the Ordinance.)*

MAPS

Location

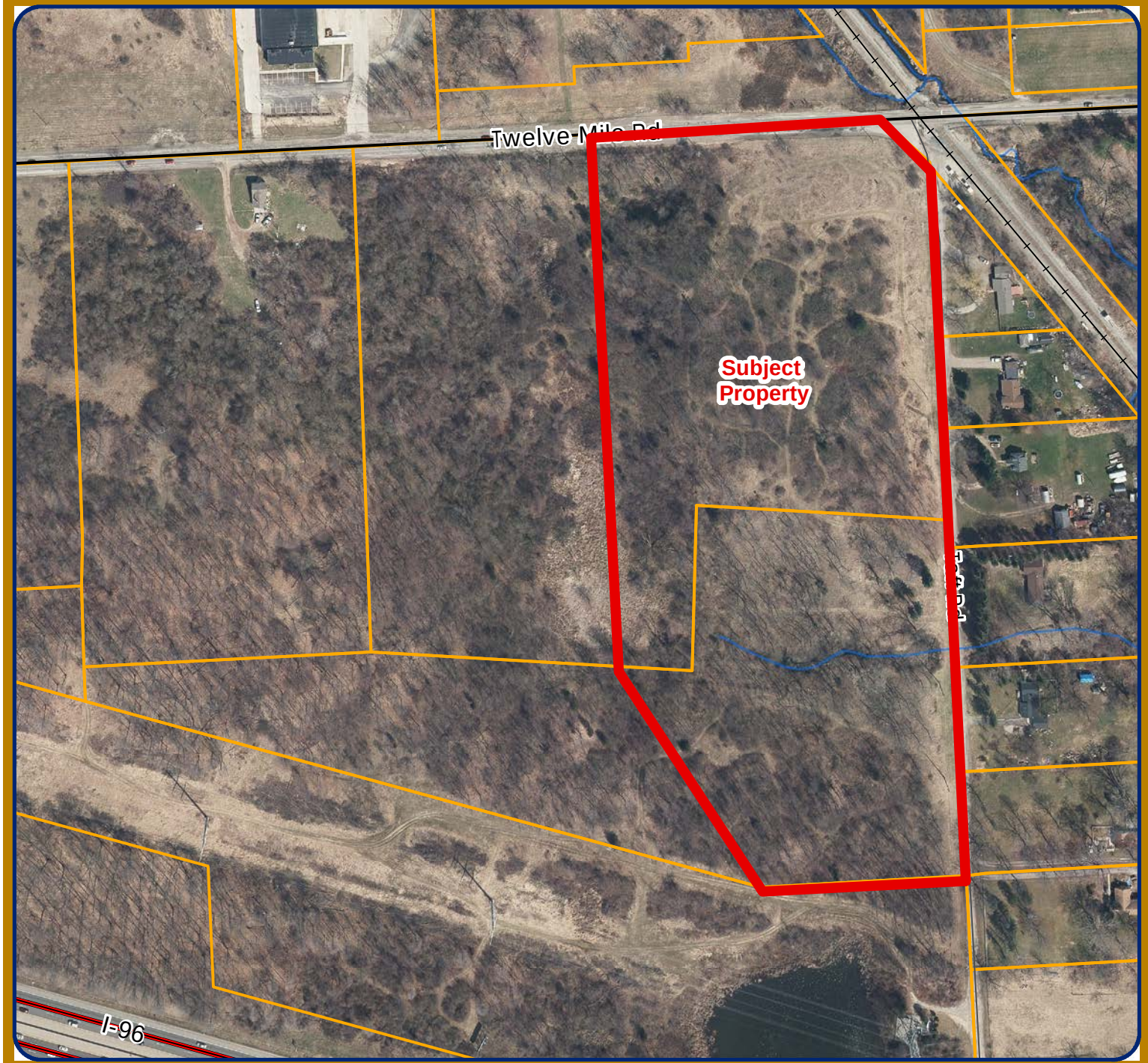
Zoning

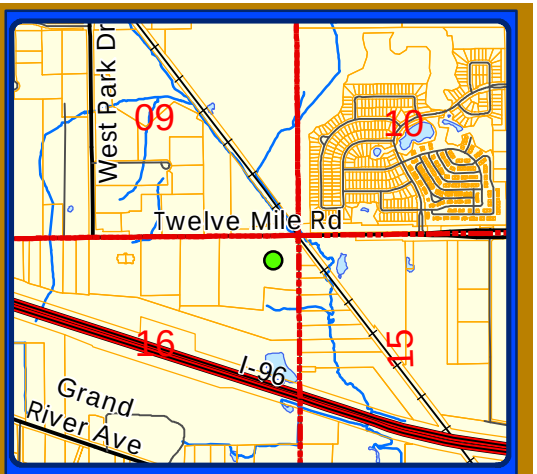
Future Land Use

Natural Features

17-02 Hino Motors USA

Location Map





LEGEND

Sections

City of Novi

Dept. of Community Development
City Hall / Civic Center
45175 W Ten Mile Rd
Novi, MI 48375
cityofnovi.org

Map Author: Sri Komaragiri
Date: 05/04/17
Project:17-02 Hino Motors USA
Version #: 1

Feet
0 55 110 220 330

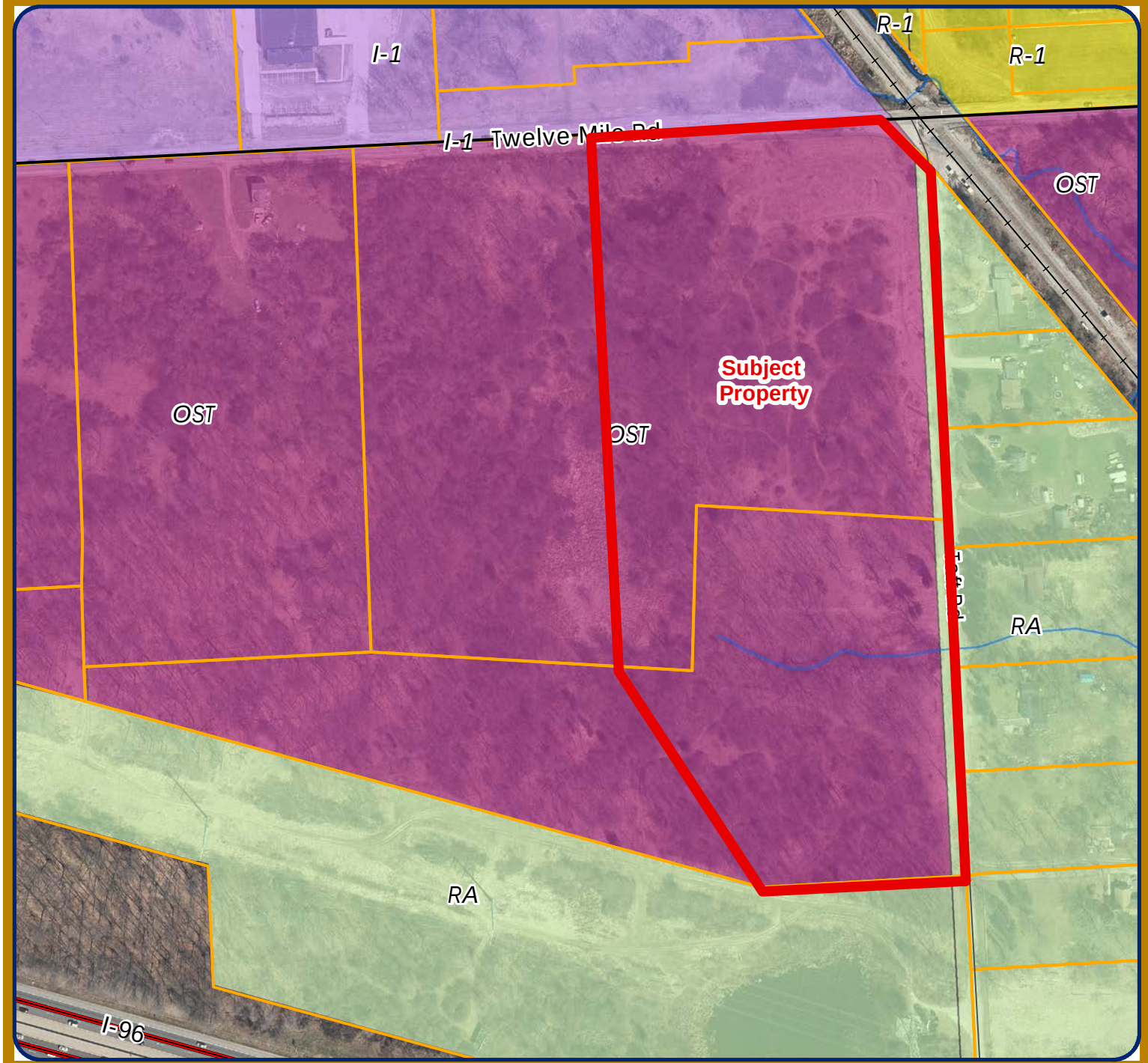
1 inch = 250 feet

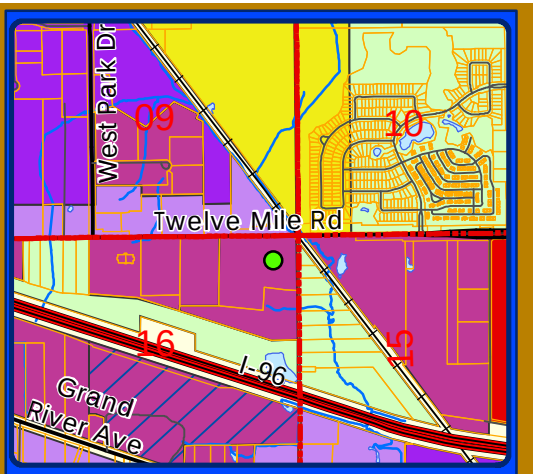
MAP INTERPRETATION NOTICE

Map information depicted is not intended to replace or substitute for any official or primary source. This map was intended to meet National Map Accuracy Standards and use the most recent, accurate sources available to the people of the City of Novi. Boundary measurements and area calculations are approximate and should not be construed as survey measurements performed by a licensed Michigan Surveyor as defined in Michigan Public Act 132 of 1970 as amended. Please contact the City GIS Manager to confirm source and accuracy information related to this map.

17-02 Hino Motors USA

Zoning Map





LEGEND

- Sections
- R-A: Residential Acreage
- R-1: One-Family Residential District
- EXO: OST District with EXO Overlay
- I-1: Light Industrial District
- I-2: General Industrial District
- OST: Office Service Technology
- RC: Regional Center District

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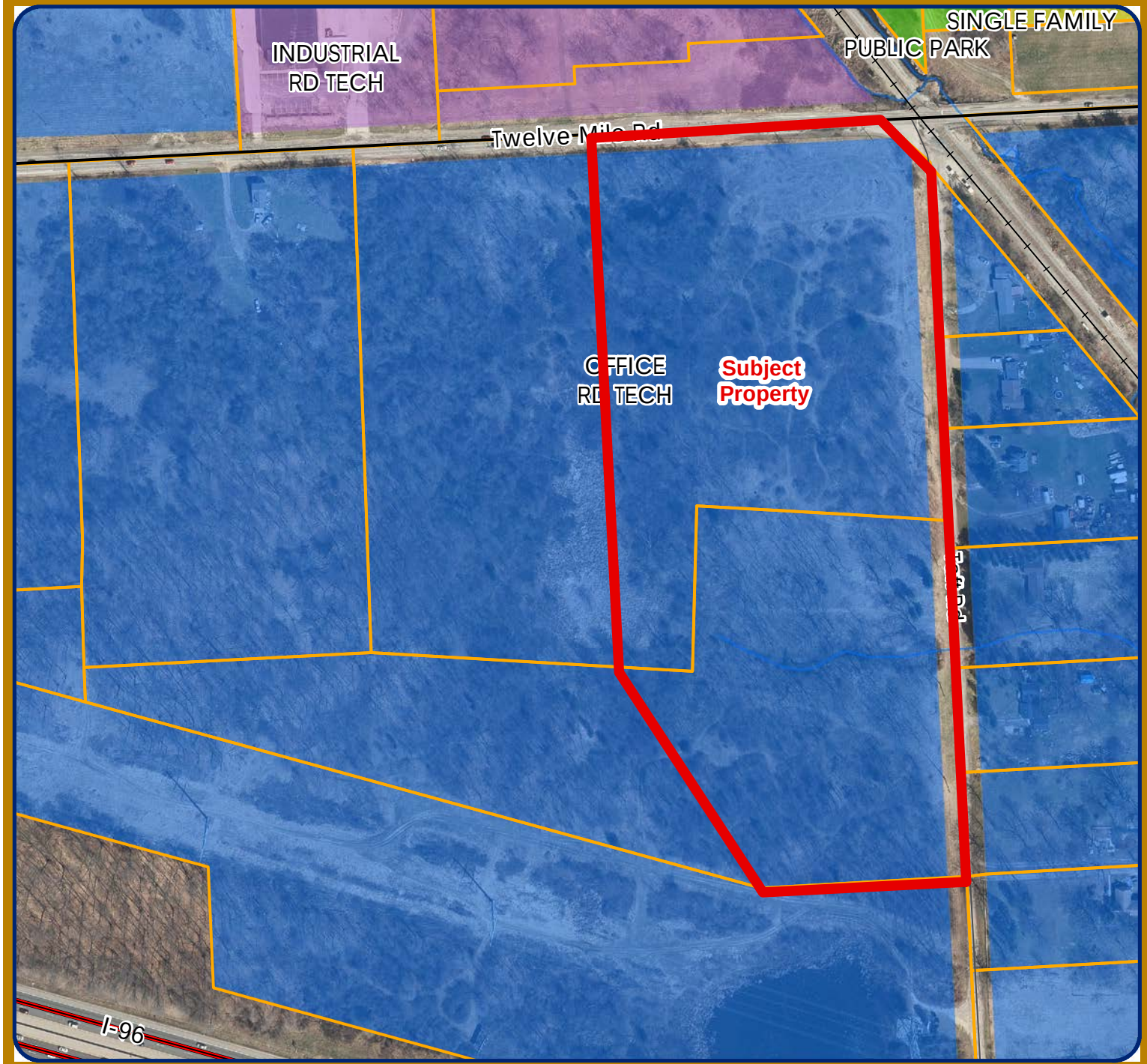
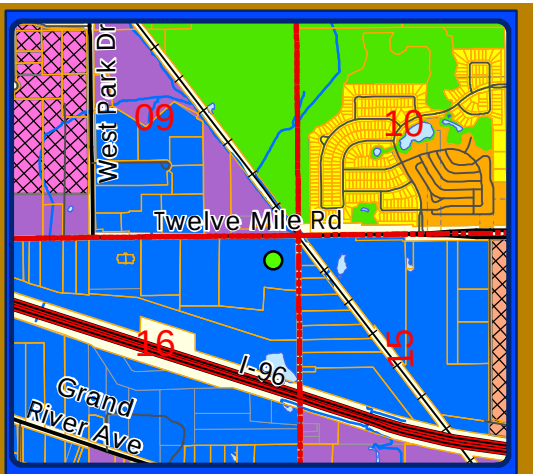
17-02 Hino Motors USA

Future Land Use Map





LEGEND

- Sections

FUTURE LAND USE

- Single Family
- Multiple Family
- Office RD Tech
- Industrial RD Tech
- Heavy Industrial
- Regional Commercial
- Public Park

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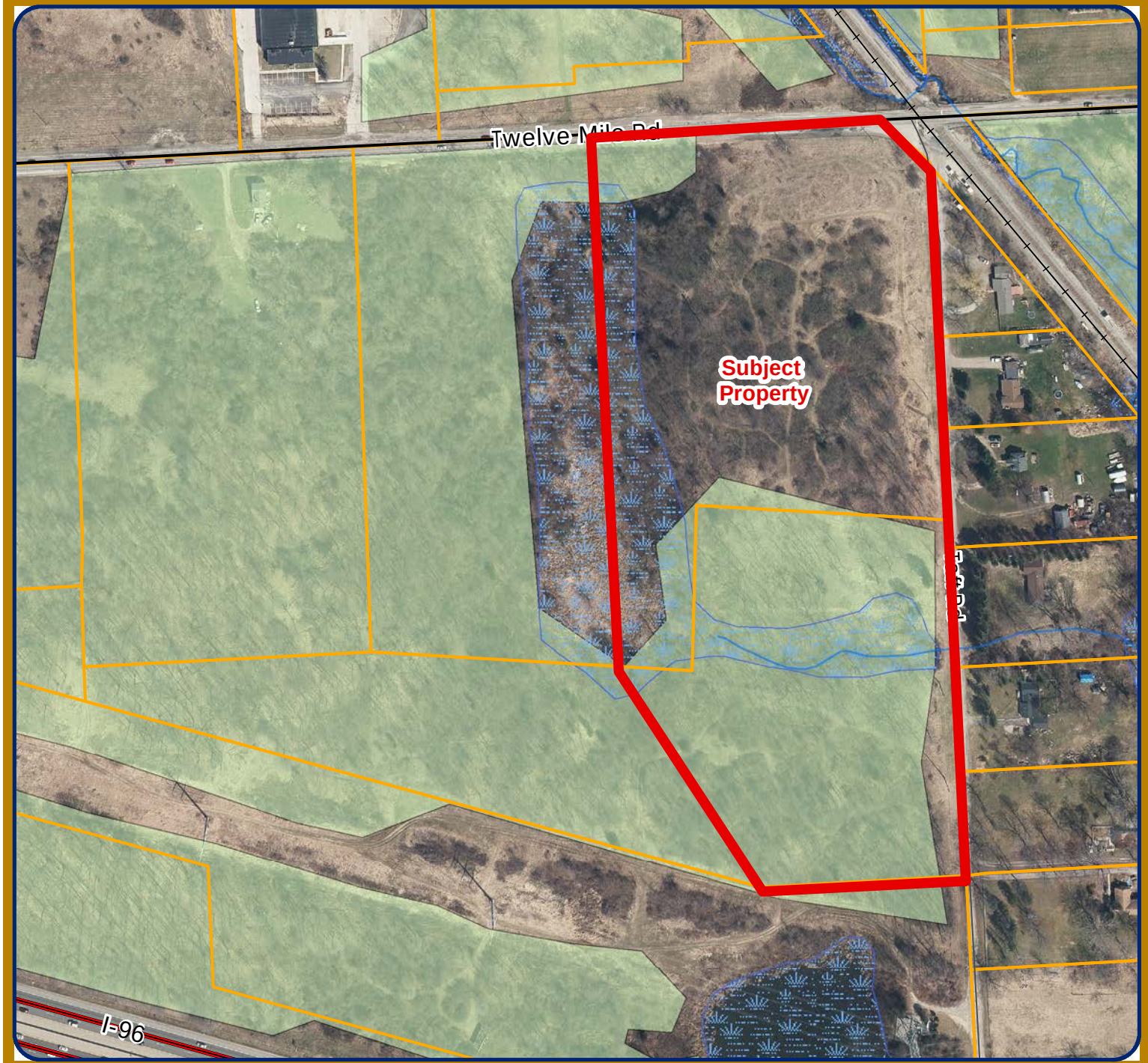
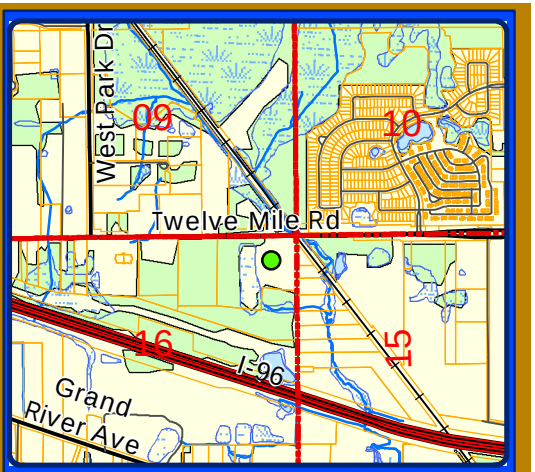
MAP INTERPRETATION NOTICE

17-02 Hino Motors USA

Natural Features Map





LEGEND

- Sections
- WETLANDS
- WOODLANDS

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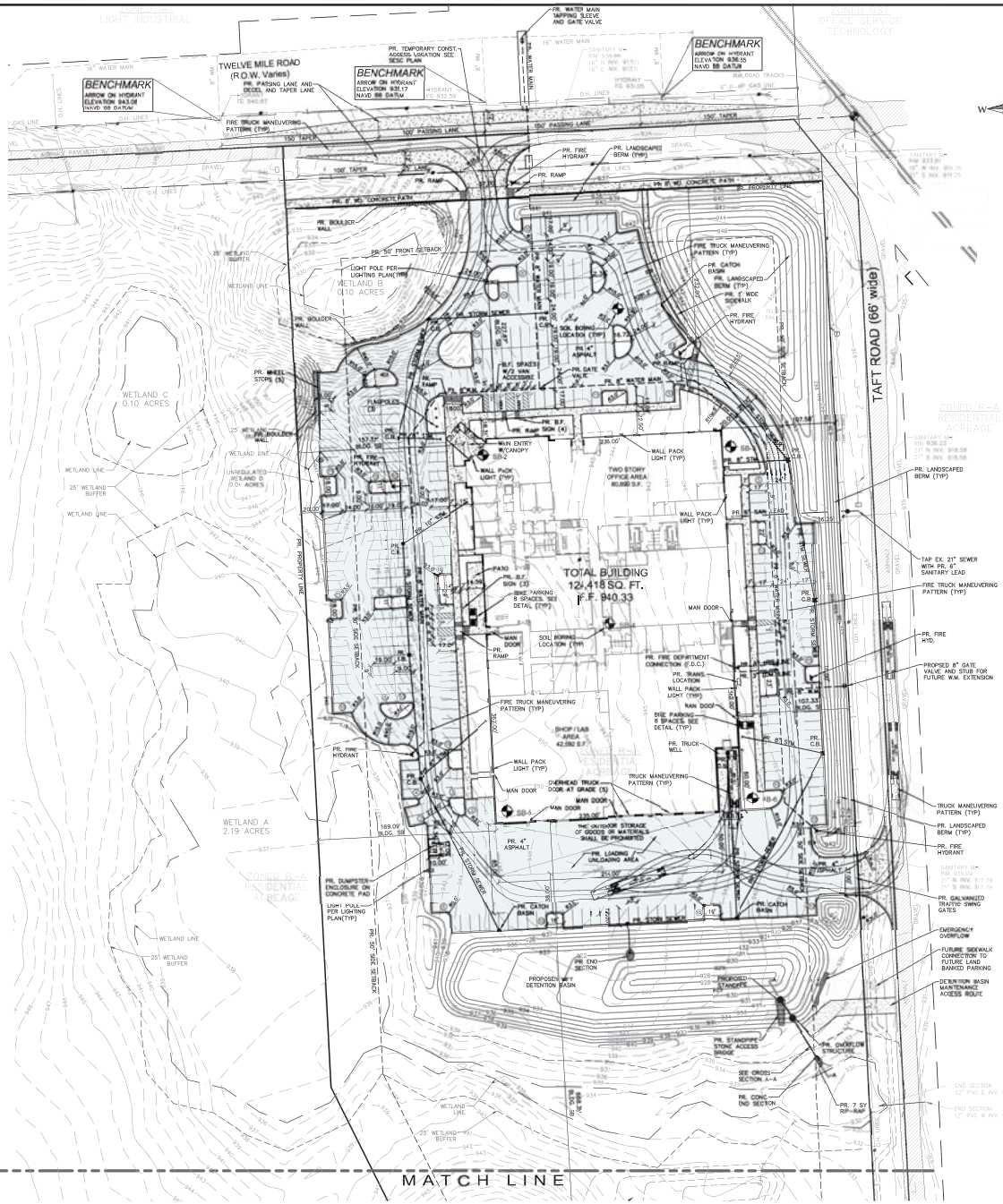
SITE PLAN

(Full plan set available for viewing at the Community Development Department.)



SITE DATA

SITE ACREAGE – EXISTING PARCEL 1
TOTAL: 805,307.80 SQUARE FEET OR 18.49 ACRES
MET: 752,910.24 SQUARE FEET OR 17.28 ACRES

SITE ACREAGE – EXISTING PARCEL 2
TOTAL: 529,461.87 SQUARE FEET OR 12.15 ACRES
MET: 508,529.03 SQUARE FEET OR 11.67 ACRES

SITE ACREAGE – PROPOSED PARCEL A
TOTAL / NET: 605,898.45 SQUARE FEET OR 13.91 ACRES

BUILDING AREA: 124,418 SQUARE FEET

BUILDING HEIGHT: 30'-4"

ZONING: OST (OFFICE SERVICE TECHNOLOGY)

BUILDING SETBACK	REQUIRED	PROVIDED
FRONT NORTH (12 MILE):	50'	227.53'
SIDE WEST:	50'	157.53'
SIDE EAST (TAFT RD):	50'	107.33'
REAR SOUTH:	50'	668.35'

PARKING SETBACK	REQUIRED	PROVIDED
FRONT NORTH (12 MILE):	20'	20.00'
SIDE WEST:	20'	20.00'
SIDE EAST (TAFT RD):	20'	28.25'
REAR SOUTH:	20'	565.85'

PARKING CALCULATION:
BUILDING AREA FOR PARKING CALCULATION (PER ATTACHED FLOOR PLAN) = 103,597 GROSS SQUARE FEET

OFFICE:
MAIN LEVEL GROSS = 42,445 S.F.
UPPER LEVEL GROSS = 38,445 S.F.

OFFICE PARKING REQUIRED (PER ATTACHED FLOOR PLAN) = 80,900 S.F./222 = 365 SPACES

SHOP/LAB:
GROSS S.F. = 42,593 S.F.
SHOP/LAB PARKING REQUIRED:
(USEABLE AREA PER FLOOR PLAN) = 22,707 S.F./700 = 33 SPACES

TOTAL PARKING SPACES REQUIRED = 398 SPACES

PARKING PROVIDED:
REGULAR PARKING SPACES = 313
BARRIER FREE SPACES (INC 2 VAN) = 8
TOTAL PARKING SPACES PROVIDED = 321 SPACES
LAND BANKED PARKING SPACES = 77
ULTIMATE PARKING SPACES PROVIDED = 398 SPACES

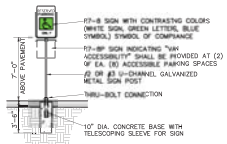
LOADING
REQUIRED: 5 S.F. PER BUILDING LENGTH ALONG FRONTAGE (597 X 5 = 2,985 S.F.)
PROVIDED 12,792 S.F. OF LOADING / UNLOADING AREA

IMPERVIOUS AREA
PROPOSED IMPERVIOUS AREA = 228,128 S.F. OR 37%

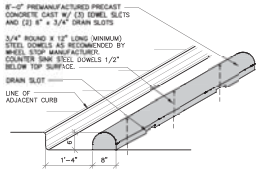
BIKE PARKING
5% OF PROVIDED PARKING SPACES (321) = 16 REQUIRED
16 PROVIDED

SITE NOTES

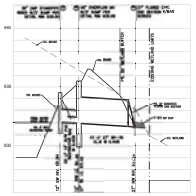
1. THE OUTDOOR STORAGE OF GOODS OR MATERIALS SHALL BE PROHIBITED.
2. THE OWNER OF THE PROPERTY SHALL REPORT ANY PROPOSED CHANGE IN USE OR OCCUPANCY



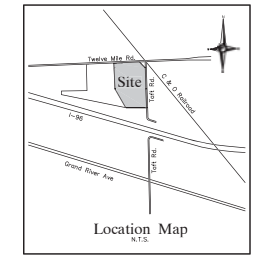
BARRIER FREE PARKING SIGN DETAIL
N.T.S.
Provide (1) for each accessible parking space



CONCRETE WHEEL STOP DETAIL
N.T.S.



SECTION A-A
HORIZ. 1" = 50'
VERT. 1" = 5'



Location Map
N.T.S.

LEGEND

- EXISTING SANITARY SEWER
- EXISTING WATER MAIN
- EXISTING STORM SEWER
- EXISTING BURIED CABLES
- EXISTING GAS MAIN
- EXISTING OVERHEAD LINES
- PR. SANITARY SEWER
- PROPOSED WATER MAIN
- PROPOSED STORM SEWER
- PR. SAND BACKFILL
- UTILITY CROSSING
- PR. TOP OF CURB ELEVATION
- PROPOSED GUTTER ELEVATION
- PR. TOP OF WALK ELEVATION
- PR. TOP OF PAVEMENT ELEV.
- PROPOSED FINISH GRADE
- PROPOSED CONTOUR
- PROPOSED SWALE
- PR. DRAINAGE DIRECTION
- PROPOSED INLET FILTER
- DRAINAGE AREA LIMITS
- PROPOSED SILT FENCE
- LIMITS OF SOIL DISTURBANCE

PAVING LEGEND

- PROPOSED CONCRETE PAVEMENT
- PROPOSED ASPHALT PAVEMENT

LEGAL DESCRIPTION

PART OF THE NORTHEAST 1/4 OF SECTION 16, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN, BEING MORE PARTICULARLY DESCRIBED AS BEGINNING AT A POINT ON THE EAST LINE OF SAID SECTION 16 BEING A DISTANT S00°05'00"W 78.78 FEET FROM THE NORTHEAST CORNER OF SAID SECTION 16; THENCE CONTINUING SOUTH 00 DEGREES 05 MINUTES 00 SECONDS WEST, 1243.10 FEET ALONG SAID EAST LINE OF SECTION 16; THENCE SOUTH 89 DEGREES 46 MINUTES 00 SECONDS WEST, 357.82 FEET; THENCE NORTH 23 DEGREES 31 MINUTES 09 SECONDS WEST, 494.59 FEET; THENCE NORTH 00 DEGREES 02 MINUTES 08 SECONDS EAST, 897.68 FEET TO A POINT ON THE NORTH LINE OF SAID SECTION 16; THENCE SOUTH 89 DEGREES 57 MINUTES 52 SECONDS EAST, 487.32 FEET ALONG SAID NORTH LINE; THENCE SOUTH 35 DEGREES 56 MINUTES 39 SECONDS EAST, 97.35 FEET TO THE POINT OF BEGINNING.

CONTAINING A GROSS AREA OF 677,960.73 SQUARE FEET OR 15.56 ACRES. CONTAINING A NET AREA OF 605,898.45 SQUARE FEET OR 13.91 ACRES.

PARCEL ID 50-22-16-226-004

BICYCLE PARKING LAYOUT DETAIL (TYP)
1" = 5'

NF ENGINEERS
CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS

NOWAK & FRAUS ENGINEERS
46777 WOODWARD AVE.
PONTIAC, MI 48342-5032
TEL. (248) 332-7931
FAX. (248) 332-8257

SEAL
STATE OF MICHIGAN
PATRICK J. WILLIAMS
ENGINEER
NO. 44351

PROJECT
Hino Motors U.S.A.
45450 Twelve Mile Road
Novi, MI

CLIENT
General Development
Two Town Square
Suite 850
Southfield, MI 48076

Contact: Bruce Brickman
Ph: (248) 357-3777
Fax: (248) 357-1929
Cell: (248) 514-7111

PROJECT LOCATION
Part of the Northeast ¼ of Section 16
T. 1 North, R. 8 East
City of Novi,
Oakland County, Michigan

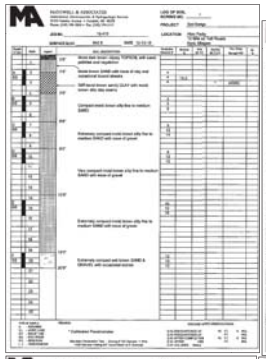
SHEET
General Site Plan

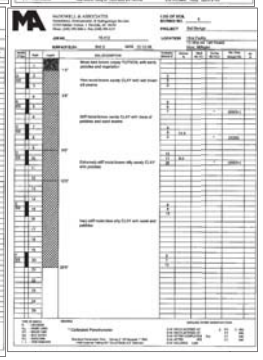
811 Know what's below Call before you dig.

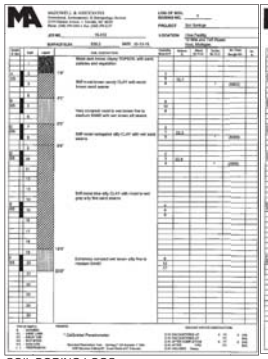
DATE:	ISSUED / REVISED:
02/14/17	Preliminary Site Plan
03/24/17	Revised Prelim. S.P.
04/19/17	Revised Prelim. S.P.

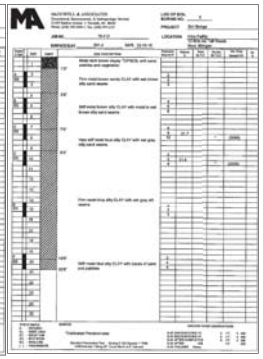
DRAWN BY: A. Wiseman
DESIGNED BY: A. Wiseman
APPROVED BY: P. Williams
DATE: April 12, 2017
SCALE: 1" = 50' / 1"=5'
50 25 0 25 50 75

NFE JOB NO. J497-01
SHEET NO. SP-4

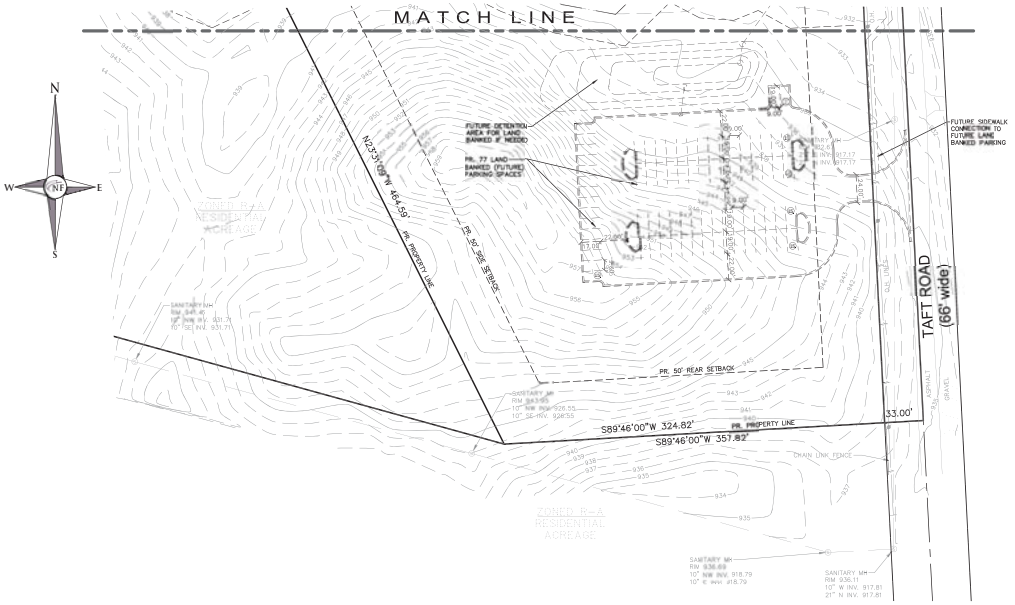


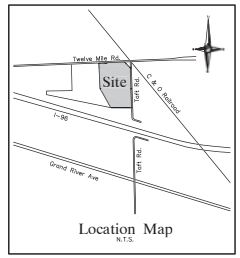


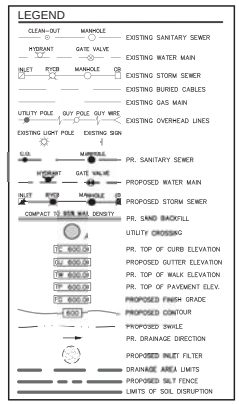


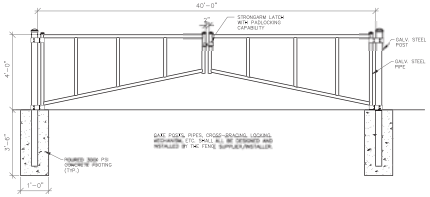


SOIL BORING LOGS

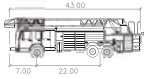






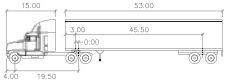


40' WIDE TRAFFIC GATE DETAIL
N.T.S.



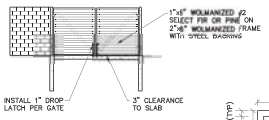
Aerial Fire Truck

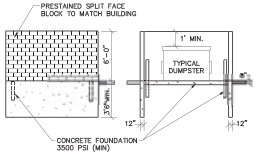
	feet
Width	: 8.50
Track	: 8.50
Lock to Lock Time	: 6.0
Steering Angle	: 33.3

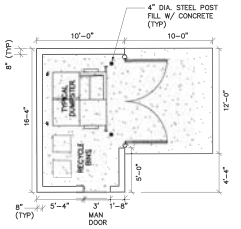


WB-67

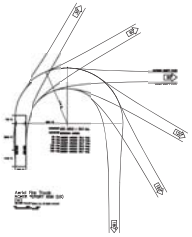
	feet		
Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.50	Steering Angle	: 28.4
Tractor Track	: 8.00	Articulating Angle	: 75.0
Trailer Track	: 8.50		

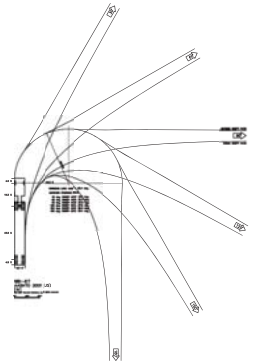




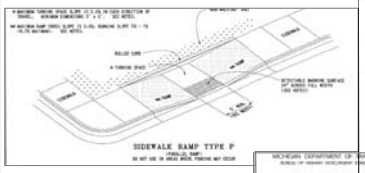


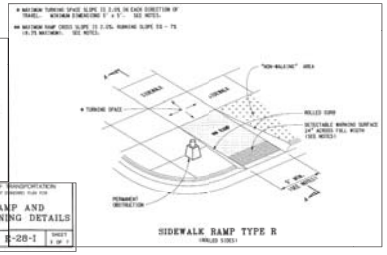
DUMPSTER ENCLOSURE DETAIL
N.T.S.





TRUCK PROFILES AND TEMPLATES
N.T.S.





MICHIGAN DEPARTMENT OF TRANSPORTATION
SIDEWALK RAMP AND DETECTABLE WARNING DETAILS
R-28-1

NF ENGINEERS
CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS

NOWAK & FRAUS ENGINEERS
46777 WOODWARD AVE.
PONTIAC, MI 48342-5032
TEL. (248) 332-7931
FAX. (248) 332-8257

SEAL

STATE OF MICHIGAN
PATRICK J. WILLIAMS
ENGINEER
No. 44351
REGISTERED PROFESSIONAL

PROJECT
Hino Motors U.S.A.
45450 Twelve Mile Road
Novi, MI

CLIENT
General Development
Two Town Square
Suite 850
Southfield, MI 48076

Contact: Bruce Brickman
Ph: (248) 357-3777
Fax: (248) 357-1929
Cell: (248) 514-7111

PROJECT LOCATION
Part of the Northeast 1/4
of Section 16
T. 1 North, R. 8 East
City of Novi,
Oakland County, Michigan

SHEET
General Site Plan

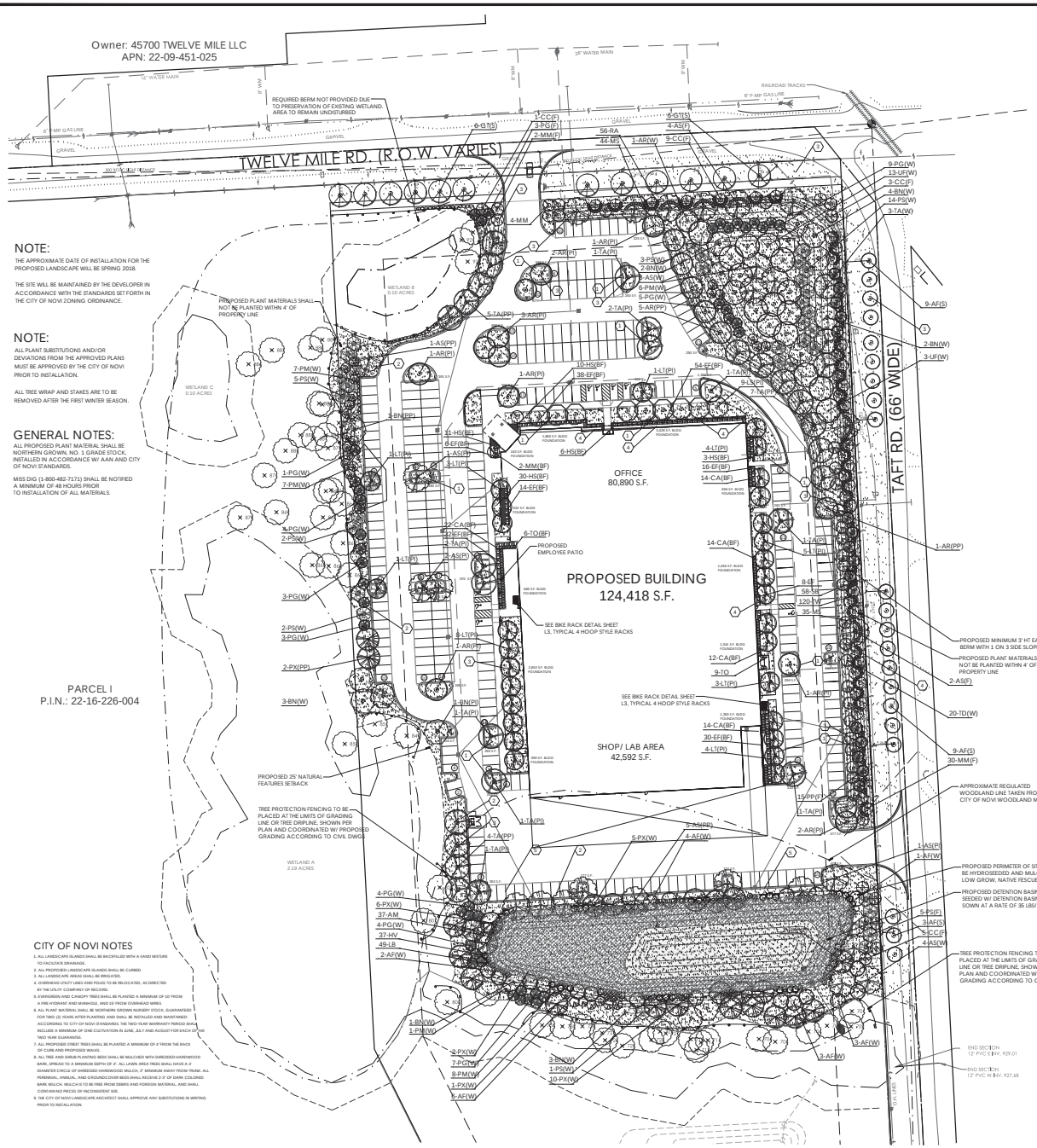
Know what's below. Call before you dig. 811

DATE:	ISSUED / REVISED:
02/14/17	Preliminary Site Plan
03/24/17	Revised Prelim. S.P.
04/19/17	Revised Prelim. S.P.

DRAWN BY: A. Wiseman
DESIGNED BY: A. Wiseman
APPROVED BY: P. Williams
DATE: Submitted 2/27/2017
SCALE: 1" = 50'

50 25 0 25 50 75

NFE JOB NO. J497-01
SHEET NO. SP-5



NOTE:

THE APPROXIMATE DATE OF INSTALLATION FOR THE PROPOSED LANDSCAPE WILL BE SPRING 2018.

THE SITE WILL BE MAINTAINED BY THE DEVELOPER IN ACCORDANCE WITH THE STANDARDS SET FORTH IN THE CITY OF NOVI ZONING ORDINANCE.

NOTE:

ALL PLANT SUBSTITUTIONS AND/OR DEVIATIONS FROM THE APPROVED PLANS MUST BE APPROVED BY THE CITY OF NOVI PRIOR TO INSTALLATION.

ALL TREE WRAP AND STAKES ARE TO BE REMOVED AFTER THE FIRST WINTER SEASON.

GENERAL NOTES:

ALL PROPOSED PLANT MATERIAL SHALL BE NORTHERN GROWN, NO. 1 GRADE STOCK, INSTALLED IN ACCORDANCE W/ AAN AND CITY OF NOVI STANDARDS.

MISS DIG (1-800-482-7171) SHALL BE NOTIFIED A MINIMUM OF 48 HOURS PRIOR TO INSTALLATION OF ALL MATERIALS.

CITY OF NOVI NOTES

1. ALL LANDSCAPE ISLANDS SHALL BE BACKFILLED WITH A SAND MIXTURE TO FACILITATE DRAINAGE.
2. ALL PROPOSED LANDSCAPE ISLANDS SHALL BE CURBED.
3. ALL LANDSCAPE AREAS SHALL BE IRRIGATED.
4. OVERHEAD UTILITY LINES AND POLES TO BE RELOCATED, AS DIRECTED BY THE UTILITY COMPANY OF RECORD.
5. EVERGREEN AND CANOPY TREES SHALL BE PLANTED A MINIMUM OF 10' FROM A FIRE HYDRANT AND MANHOLE, AND 15' FROM OVERHEAD WIRES.
6. ALL PLANT MATERIAL SHALL BE NORTHERN GROWN NURSERY STOCK, GUARANTEED FOR TWO (2) YEARS AFTER PLANTING AND SHALL BE INSTALLED AND MAINTAINED ACCORDING TO CITY OF NOVI STANDARDS. THE TWO-YEAR WARRANTY PERIOD SHALL INCLUDE A MINIMUM OF ONE CULTIVATION IN JUNE, JULY AND AUGUST FOR EACH OF THE TWO YEAR GUARANTEE.
7. ALL PROPOSED STREET TREES SHALL BE PLANTED A MINIMUM OF 4' FROM THE BACK OF CURB AND PROPOSED WALKS.
8. ALL TREE AND SHRUB PLANTING BEDS SHALL BE MULCHED WITH SHREDDED HARDWOOD BARK, SPREAD TO A MINIMUM DEPTH OF 4", ALL LAWN AREA TREES SHALL HAVE A 3' DIAMETER CIRCLE OF SHREDDED HARDWOOD MULCH, 3" MINIMUM AWAY FROM TRUNK. ALL PERENNIAL, ANNUAL, AND GROUNDCOVER BEDS SHALL RECEIVE 2-3" OF DARK COLORED BARK MULCH. MULCH IS TO BE FREE FROM DEBRIS AND FOREIGN MATERIAL, AND SHALL CONTAIN NO PIECES OF INCONSISTENT SIZE.
9. THE CITY OF NOVI LANDSCAPE ARCHITECT SHALL APPROVE ANY SUBSTITUTIONS IN WRITING PRIOR TO INSTALLATION.

LANDSCAPE REQUIREMENTS

EXISTING SITE ZONING: RA, RESIDENTIAL ACREAGE DISTRICT
PROPOSED SITE ZONING: OST, OFFICE SERVICE TECHNOLOGY
EXISTING SITE AREA: 605,898.45 S.F. OR 13.91 ACRES

LANDSCAPE ABUTTING A R.O.W.

STREET TREES: 1 DECIDUOUS TREE PER 35 L.F. OF FRONTAGE (W/ PKG)
1 DECIDUOUS TREE PER 40 L.F. OF FRONTAGE (W/O PKG)

12 MILE ROAD
REQUIRED: 325 L.F. OF FRONTAGE / 35 L.F. = 9 TREES REQUIRED
REQUIRED: 140 L.F. OF FRONTAGE / 45 L.F. = 3 TREES REQUIRED
REQUIRED: 12 TREES
PROVIDED: 12 TREES

TAFT ROAD
REQUIRED: 640 L.F. OF FRONTAGE / 35 L.F. = 18 TREES REQUIRED
140 L.F. OF FRONTAGE / 45 L.F. = 3 TREES REQUIRED
REQUIRED: 21 TREES
PROVIDED: 21 TREES

ROW LANDSCAPE SCREENING : (F)
1 TREE PER 35 L.F (ADJACENT TO PKG)
1 TREE PER 40 L.F. (W/O PKG)
1 ORNAMENTAL TREE PER 20 L.F. (W/ PKG)
1 ORNAMENTAL TREE PER 25 L.F. (W/O PKG)
12 MILE ROAD
REQUIRED: 325 L.F. / 35 L.F. = 9 TREES REQUIRED
140 L.F. / 40 L.F. = 4 TREES REQUIRED
325 L.F. / 20 L.F. = 16 ORNAMENTAL TREES REQUIRED
140 L.F. / 25 L.F. = 6 ORNAMENTAL TREES REQUIRED
REQUIRED: 13 CANOPY TREES AND 22 SUB-CANOPY TREES
PROVIDED: 9 TREES AND 16 ORNAMENTAL TREES. A WAIVER WILL BE SOUGHT DUE TO THE PRESERVATION OF WETLAND AREA B

TAFT ROAD
REQUIRED: 640 L.F. / 35 L.F. = 18 TREES
140 L.F. / 40 L.F. = 4 TREES
640 L.F. / 20 L.F. = 32 TREES
140 L.F. / 25 L.F. = 6 TREES
REQUIRED: 22 CANOPY TREES AND 38 ORNAMENTAL TREES
PROVIDED: 22 TREES AND 38 ORNAMENTAL TREES

PARKING LOT LANDSCAPE REQUIREMENTS

PARKING SPACE AREA
10% OF TOTAL PARKING SPACE AREA
51,856.90 S.F. (CALCULATED)
51,856.90 X 10% = 5,186 S.F.

VEHICLE USE AREA
5% OF TOTAL VEHICLE USE AREA UPTO 50,000 S.F. THEN 1%
86,516.55 S.F. (CALCULATED)
50,000 S.F. X 5% = 2,500 S.F.
36,516.55 X 1% = 365 S.F.

REQUIRED PARKING LOT LANDSCAPE AREA
REQUIRED: 5,186 S.F. + 2500 S.F. + 365 S.F. = 8,051 S.F. REQUIRED
FOR PARKING LOT ISLANDS
PROVIDED: 8,372 S.F.

PARKING LOT DECIDUOUS SHADE TREES (P)
1 DECIDUOUS CANOPY TREE PER 75 S.F. REQUIRED LANDSCAPE AREA
REQUIRED: 8,051 S.F. / 75 S.F. = 107.35 OR 108 TREES REQUIRED
PROVIDED: 69 TREES A WAIVER WILL BE SOUGHT FOR 39 TREES DUE TO LACK OF AVAILABLE SPACE

PARKING PERIMETER GREEN SPACE (PP)
1 TREE PER 35 L.F. OF PARKING PERIMETER
1,938 L.F. / 35 L.F. = 55.37 TREES REQUIRED
PROVIDED: 40 TREES, A WAIVER WILL BE SOUGHT FOR THE REMAINDER DUE TO LACK OF AVAILABLE SPACE

INTERIOR BUILDING LANDSCAPE (BF)
BUILDING PERIMETER X 8', 60 % REQUIRED TO BE LANDSCAPED
REQUIRED:
958 L.F. X 8' = 7,664 S.F. TOAL AREA REQUIRED
588 L.F. X 8' X 60% = 2,822 S.F. MIN TO BE LANDSCAPED ON N. AND E. SIDE
PROVIDED:
14,992 S.F. OVERALL
2,920.47 S.F. (62%) OF 12 MILE AND TAFT FACADES

WOODLAND REPLACEMENTS (W)
TOTAL WOODLAND REPLACEMENT TREES REQUIRED: 191
TOTAL WOODLAND REPLACEMENT TREES PROVIDED: 191

PLANT SCHEDULE

KEY	QTY	BOTANICAL/COMMON NAME	SIZE	SPACING	ROOT	COMMENT	UNIT/TOTAL COST
TREES							
AF	40	Acer x freemanii 'Armstrong' / Armstrong Maple	3" CAL	SEE PLAN	B&B	FULLY BRANCHED HEADS	$400 / $16,000
AR	20	Acer rubrum 'Red Sunset' / Red Sunset Maple	3" CAL	SEE PLAN	B&B	FULLY BRANCHED HEADS	$400 / $8,000
AS	27	Acer saccharum 'Legacy' / Legacy Sugar Maple	3" CAL	SEE PLAN	B&B	FULLY BRANCHED HEADS	$400 / $10,800
BN	17	Betula nigra / River Birch	14' HT	SEE PLAN	B&B	CLUMP FORM	$400 / $6,800
CC	18	Cercis canadensis / Eastern Redbud	2" CAL	SEE PLAN	B&B	FULLY BRANCHED HEADS	$250 / $4,500
GT	12	Gleditsia triacanthos 'Sunburst' / Sunburst Honey Locust	3" CAL	SEE PLAN	B&B	FULLY BRANCHED HEADS	$400 / $4,800
LS	9	Liquidambar styraciflua / Sweet Gum	3" CAL	SEE PLAN	B&B	FULLY BRANCHED HEADS	$400 / $3,600
LT	30	Liriodendron tulipifera / Tulip Tree	3" CAL	SEE PLAN	B&B	FULLY BRANCHED HEADS	$400 / $12,000
MM	36	Malus 'Marilee' / Marilee Crabapple	2" CAL	SEE PLAN	B&B	FULLY BRANCHED HEADS	$250 / $9,000
PG	43	Picea glauca 'Densata' / Black Hills Spruce	8' HT	SEE PLAN	B&B	FULL TO GROUND	$325 / $13,975
PP	15	Picea pungens / Colorado Green Spruce	8' HT	SEE PLAN	B&B	FULL TO GROUND	$325 / $4,875
PS	32	Pinus strobus / White Pine	8' HT	SEE PLAN	B&B	FULL TO GROUND	$325 / $10,400
PX	25	Platanus x acerifolia 'Columbia' / Columbia Plane Tree	3" CAL	SEE PLAN	B&B	FULLY BRANCHED HEADS	$400 / $10,000
PM	26	Pseudotsuga menzies / Douglas fir	8' HT	SEE PLAN	B&B	FULL TO GROUND	$325 / $8450
TD	20	Taxodium distichum 'Mickelson' / Shawnee Brave Bald Cypress	3" CAL	SEE PLAN	B&B	FULLY BRANCHED HEADS	$400 / $8,000
TA	29	Tia americana 'Boulevard' / Boulevard Linden	3" CAL	SEE PLAN	B&B	FULLY BRANCHED HEADS	$400 / $11,600
UF	16	Ulmus x 'Frontier' / Frontier Elm	3" CAL	SEE PLAN	B&B	FULLY BRANCHED HEADS	$400 / $6,400
SHRUBS							
AM	37	Aronia melanocarpa / Black Chokeberry	30" HT	3' OC	B&B		$50 / $1,850
EF	198	Euonymous fortunei 'Green Lane' / Green Lane Euonymous	30" HT	3' OC	B&B	MAINTAIN AS HEDGE	$50 / $9,900
RA	56	Ribes alpinum 'Green Mound' / Green Mound Alpine Currant	30" HT	30" OC	B&B		$50 / $2,800
LB	49	Lindera benzoin / Spice bush	24" HT	36" OC	CONT		$50 / $2,450
SB	58	Spiraea x b. 'Anthony Waterer' / Anthony Waterer Spiraea	24" HT	30" OC	CONT		$50 / $2,900
TW	120	Taxus x m. 'Wardii' / Wardii's Yew	30" HT	30" OC	B&B	MAINTAIN AS HEDGE	$50 / $6,000
TO	14	Thuja occidentalis 'Nigra' / Dark Green Arborvitae	5' HT	36" OC	B&B	MAINTAIN AS HEDGE	$50 / $700
HV	37	Hamamelis virginiana / Witch Hazel	36" HT	5' OC	B&B		$50 / $1,850
GROUNDCOVERS/PERENNIALS							
CA	76	Calamagrostis a. 'Karl Foerster' / Karl Foerster Feather Reed Grass	3 GAL	30" OC	CONT		$15 / $1,140
HS	24	Hemerocallis 'Stella D'Oro' / Stella D'Oro Daylily	2 GAL	24" OC	CONT		$15 / $360
MS	79	Misc anthus sinesis 'Morning Light' / Morning Light Maiden Hair Grass	5 GAL	36" OC	CONT		$15 / $1,185

GROUNDCOVER KEY

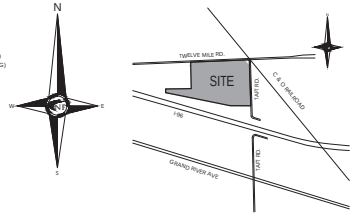
1. TYPICAL SOD LAWN AREAS, SOWN ON 3" TOPSOIL
2. RESTORE EXISTING LAWN AREAS W/ HYDROSEED AND MULCH
3. 4' DIA SPADE CUT EDGE W/ 3" SHREDDED BARK MULCH
4. 3" DEPTH DOUBLE SHREDDED HARDWOOD BARK MULCH
5. POSSIBLE SNOW DEPOSITION AREA, TO BE COORDINATED WITH REMOVAL SERVICE

SOIL NOTE:

EXISTING SOILS ON-SITE ARE COMPRISED OF MARLETTE SANDY LOAM (10B), 1-6% SLOPES; MARLETTE SANDY LOAM (10B), 6-12% SLOPES; CAPAC SANDY LOAM (11B), 0-4% SLOPES; AND LESSER LOAMS AND MUCKS.

IRRIGATION NOTE:

AN UNDERGROUND AUTOMATIC IRRIGATION SYSTEM SHALL BE PROVIDED FOR ALL LANDSCAPE AREAS



LOCATION MAP

N.T.S.

LOW-GROW LAWN MIX:

ALL LAWN AREAS DESIGNATED TO BE SEEDED, SHALL BE HYDROSEEDED WITH LOW-GROW LAWN SEED MIX, AT A RATE OF 5 LBS/1,000 S.F.
SEED AVAILABLE FROM:
NATIVESCAPES, LLC
(T) 1-517-456-7245
* MIX IS COMPRISED OF
22.8% PENNLAWN RED FESCUE
22.5% CREEPING RED FESCUE
21.7% CHEWINGS FESCUE
11.8% VICTORY II CHEWINGS FESCUE
9.8% SPARTAN HEAD FESCUE
9.9% AZAY SHEEPS FESCUE

GENERAL SOD NOTE:

ALL LAWN AREAS DESIGNATED TO BE SODDED, SHALL BE SODDED WITH A BLENDED DURABLE BLUEGRASS SOD, TYPICALLY GROWN IN THE REGION. ALL TURF SHALL BE PLACED ON A MINIMUM 3" PREPARED TOPSOIL, AND WATERED DAILY UNTIL ESTABLISHMENT. IN AREAS SUBJECT TO EROSION, SODDED LAWN SHALL BE STABILIZED WHERE NECESSARY, AND LAID PERPENDICULAR TO SLOPES
SOD INSTALLATION SHALL OCCUR ONLY:
SPRING: APRIL 1 TO JUNE1
FALL: AUGUST 15 TO OCTOBER 15

GENERAL SEED NOTE:

ALL LAWN AREAS DESIGNATED TO BE SEEDED, SHALL BE HYDRO-SEEDED WITH SPECIFIED BLENDS, AND STABILIZED WITH WOOD CELLULOSE FIBER MULCH (2,000 LBS PER ACRE). IN AREAS SUBJECT TO EROSION, SEEDED LAWN SHALL BE FURTHER STABILIZED WHERE NECESSARY WITH BIODEGRADABLE EROSION BLANKET AND STAKED UNTIL ESTABLISHED. ALL SEED SHALL BE APPLIED OVER A MINIMUM 3" PREPARED TOPSOIL, AND SHALL BE KEPT MOIST AND WATERED DAILY UNTIL ESTABLISHED.
SEEDING INSTALLATION SHALL OCCUR ONLY:
SPRING: APRIL 1 TO JUNE1
FALL: AUGUST 15 TO OCTOBER 15

DETENTION BASIN SEED MIX

*CONTAINS AT LEAST 12 WILDFLOWERS AND 3 GRASSES

WILDFLOWERS	GRASSES
NEW ENGLAND ASTER	BIG BLUESTEM
PALE INDIAN PLANTAIN	CANADA WILD RYE
BONESET	DARK GREEN BULRUSH
OX EYE SUNFLOWER	INDIAN GRASS
DENSE BLAZINGSTAR	PRAIRIE CORD GRASS
GREAT BLUE LOBELIA	
CARDINAL FLOWER	
BERGAMOT (BEEBALM)	
YELLOW CONEFLOWER	
GRAY-HEADED CONEFLOWER	
BLACK EYED SUSAN	
CUPPLANT	
OHIO GOLDENROD	
BLUE VERVAIN	
CULVER'S ROOT	
IRONWEED	

RECOMMENDED SEEDING RATE: 35 LBS/ACRE
SEED MIX AVAILABLE:
NATIVESCAPES, LLC
PO BOX 122
MANCHESTER, MI 48158
T 517.456.9696

NF ENGINEERS
CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS

NOWAK & FRAUS ENGINEERS
46777 WOODWARD AVE.
PONTIAC, MI 48342-5032
TEL. (248) 332-7931
FAX. (248) 332-8257

SEAL

PROJECT
Hino Truck Facility
27515 Taft
Novi, MI

CLIENT
General Development
Two Town Square
Suite 850
Southfield, MI 48076

Contact: Bruce Brickman
Ph: (248) 357-3777
Fax: (248) 357-1929
Cell: (248) 514-7111

PROJECT LOCATION
Part of the Northeast ¼ of Section 16
T. 1 North, R. 8 East
City of Novi,
Oakland County, Michigan

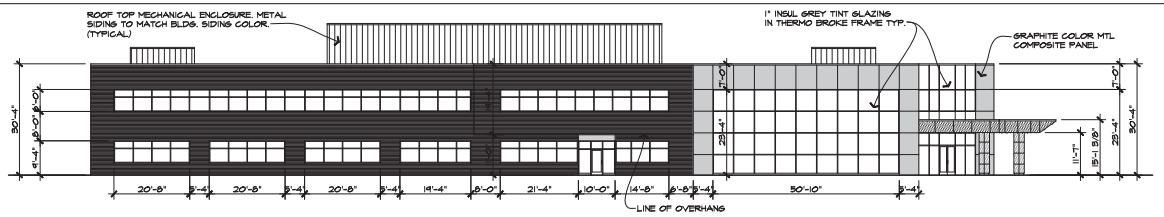
SHEET
Landscape Plan

Know what's below Call before you dig.

REVISIONS
02-14-17 PRELIMINARY SITE PLAN
03-24-17 PRELIMINARY SITE PLAN

DRAWN BY: G. Ostrowski
DESIGNED BY: G. Ostrowski
APPROVED BY: G. Ostrowski
DATE: February 14, 2017
SCALE: 1" = 50'
50 25 0 25 50 75

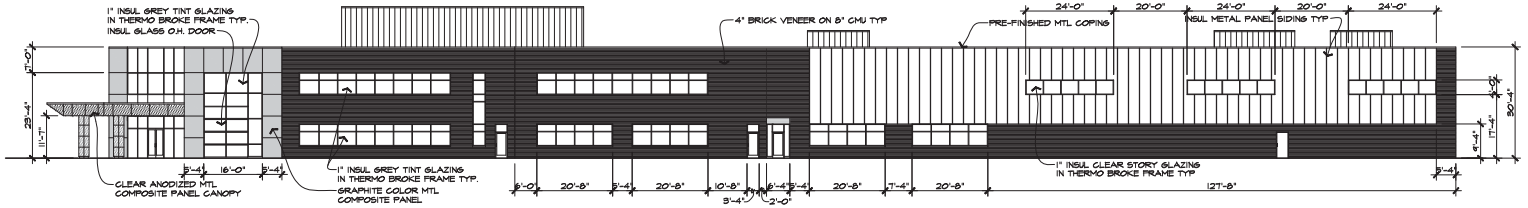
NFE JOB NO. J497-01
SHEET NO. L2



NORTH ELEVATION

SCALE: 1/16" = 1'-0"

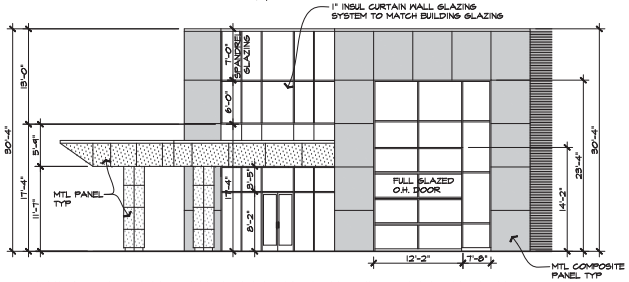
FACADE PERCENTAGE OF MATERIAL:
TOTAL FACADE: 7,472 S.F.
7,472 - 3,023 S.F. (GLAZING) = 4,449 S.F. OF FACADE MATERIAL
INSUL MTL PANEL SIDING = 920 S.F.
920/4,449 = 21%
MASONRY = 3,380 S.F.
3,387/4,449 = 76%
SPANDREL GLASS = 142 S.F.
142/4449 = 3%



WEST ELEVATION

SCALE: 1/16" = 1'-0"

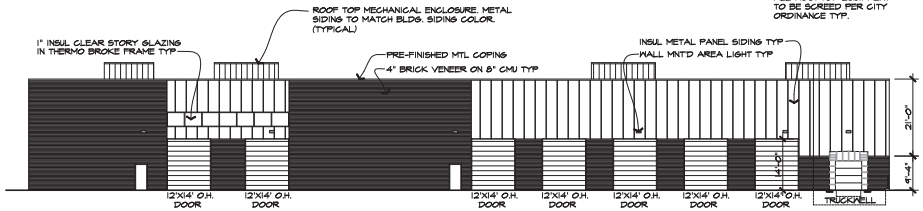
FACADE PERCENTAGE OF MATERIAL:
TOTAL FACADE: 11,142 S.F.
11,142 - 2,368 S.F. (GLAZING) - 25 S.F. (MAN DOOR) = 8,754 S.F. OF FACADE MATERIAL
INSUL MTL PANEL SIDING = 3,970 S.F.
3,970/8,754 = 45%
BRICK = 4,592 S.F.
4,592/8,754 = 53%
SPANDREL GLASS = 142 S.F.
142/8,754 = 2%



ENLARGED ENTRANCE ELEVATION: WEST ELEVATION

SCALE: 1/8" = 1'-0"

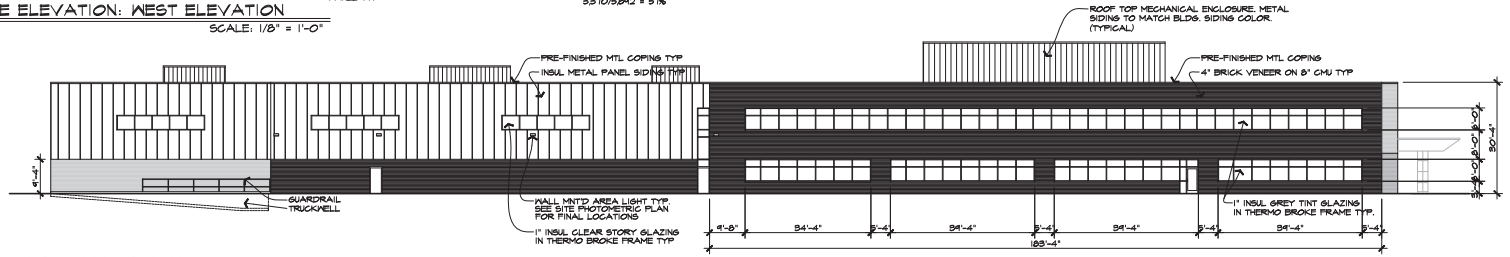
NOTE:
ALL ROOFTOP EQUIPMENT TO BE SCREED PER CITY ORDINANCE TYP.



SOUTH ELEVATION

SCALE: 1/16" = 1'-0"

FACADE PERCENTAGE OF MATERIAL:
TOTAL FACADE: 7,118 S.F.
7,118 - 1,176 S.F. (O.H. DOORS) - 50 S.F. (MAN DOORS) = 5,892 S.F. OF FACADE MATERIAL
INSUL MTL PANEL SIDING = 2,522 S.F.
2,522/5,892 = 43%
BRICK = 3,370 S.F.
3,370/5,892 = 57%



EAST ELEVATION

SCALE: 1/16" = 1'-0"

FACADE PERCENTAGE OF MATERIAL:
TOTAL FACADE: 11,142 S.F.
11,142 - 2,268 S.F. (GLAZING) - 87 S.F. (MAN DOORS) = 8,781 S.F. OF FACADE MATERIAL
INSUL MTL PANEL SIDING = 3,627 S.F.
3,471/8,781 = 40%
BRICK = 5,073 S.F.
5,310/8,781 = 60%

ISSUED FOR	DATE
PRELIM	2.1.2017
REVIEW	2.10.2017
SPA	2.15.2017

ARCHITECTURAL DESIGN
RESIDENTIAL
COMMERCIAL
INDUSTRIAL

G.A.V. ASSOCIATES, INC
BRIAN GRZESKOWIAK, A.I.A., NCIDA
FARMINGTON, MICHIGAN 48335
PH: (248) 888-4080
WEB: WWW.GAVASSOCIATES.COM

GAV ASSOCIATES

GENERAL DEVELOPMENT COMPANY
TWO TOWNE SQUARE SUITE 850
SOUTHFIELD, MI 48076
(248) 557-3777

PROPOSED NEW BUILDING FOR:
HINO
NOVI, MICHIGAN

DRAWN:	DESIGNED:	CHECKED:
RB	AV/RB	AV

SCALE : 1/16"=1'-0"

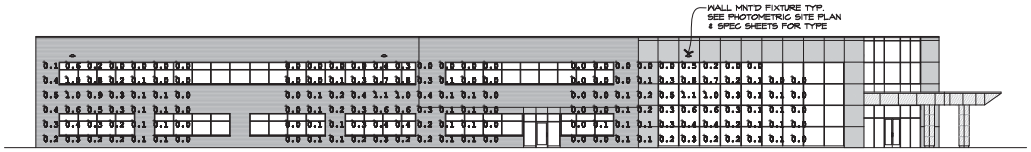
FILE NAME : .

JOB #: 16127

SHEET TITLE
EXTERIOR ELEVATIONS

SHEET #
A.201

STATE OF MICHIGAN
FREEMAN T. GREER
ARCHITECT
No. 36947
REGISTERED ARCHITECT



NORTH ELEVATION

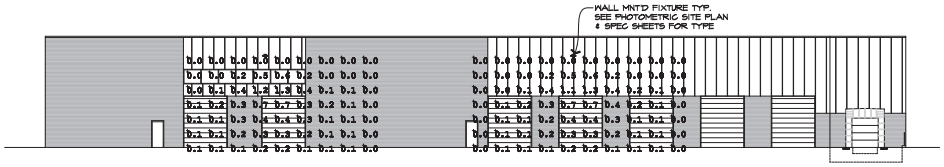
SCALE: 1/16" = 1'-0"

WEST ELEVATION

SCALE: 1/16" = 1'-0"

GENERAL PHOTOMETRIC & LIGHTING NOTES:

1. SEE PHOTOMETRIC SITE PLAN BY 'OTHERS' FOR FIXTURE TYPES & SPECIFICATIONS.
2. EXTERIOR LIGHT FIXTURES TO BE ON A DUSK TO DAWN PHOTCELL SENSOR.
3. ELECTRICAL SERVICE TO SITE LIGHTING SHALL BE PROVIDED BY MEANS OF UNDERGROUND CONDUIT PER ALL N.E.C. PROVISIONS.
4. FLASHING LIGHTS SHALL NOT BE PERMITTED.
5. SITE LIGHTING FOR AFTER HOURS SHALL BE FOR NECESSARY LIMITED OPERATIONS & NECESSARY SECURITY PURPOSES ONLY.
6. ALL SITE LIGHTING FIXTURES AND BUILDING MOUNTED FIXTURES SHALL BE SHIELDED. SEE SITE PHOTOMETRIC PLAN FOR FIXTURE TYPES.



SOUTH ELEVATION

SCALE: 1/16" = 1'-0"

EAST ELEVATION

SCALE: 1/16" = 1'-0"

NOTE:
DRAWING ASSEMBLED BASED ON INFORMATION PROVIDED BY McDONOUGH & ASSOCIATES

ISSUED FOR	DATE
PRELIM	2.1.2017
REVIEW	2.10.2017
SPA	2.15.2017
SPA CITY COMMENTS	3.1.2017

ARCHITECTURAL DESIGN
RESIDENTIAL
COMMERCIAL
INDUSTRIAL

G.A.V. ASSOCIATES, INC
[illegible]
FARMINGTON, MICHIGAN 48335
PH: (248) 888-4981
WEB: WWW.GAVASSOCIATES.COM

GAV ASSOCIATES

GENERAL DEVELOPMENT COMPANY
TWO TOWNE SQUARE SUITE 850
SOUTHFIELD, MI 48076
(248) 357-3777

PROPOSED NEW BUILDING FOR:
HINO
NOVI, MICHIGAN

DRAWN:	DESIGNED:	CHECKED:
RB	AV/RB	AV

SCALE : 1/16"=1'-0"

FILE NAME : .

JOB #: 16127

SHEET TITLE
EXTERIOR WALL PHOTOMETRICS

SHEET #
A.202

MEMORANDUM MOF UNDERSTANDING

MArch 27, 2017 Council Packet Item

CITY of NOVI CITY COUNCIL

Agenda Item 9
March 27, 2017

SUBJECT: Consideration to approve Memorandum of Understanding Regarding Future Realignment of Taft Road (Commerce Park Development) relating to property on the south side of Twelve Mile and west side of Taft Road.

SUBMITTING DEPARTMENT: Community Development - Planning

CITY MANAGER APPROVAL:

BACKGROUND INFORMATION:

Premier-Novi, L.L.C. owns the approximately 30.5-acre property on the south side of Twelve Mile and the west side of Taft Road. It has proposed development of an office/industrial/research building of approximately 124,418 sq. ft., together with associated site improvements, including parking and utilities on the east 15.56 acres. As initially presented to the City, the conceptual site plan included parking on the northeast side of the site adjacent to the Twelve Mile and Taft Road intersection. The City noted that it was possible that Taft Road might ultimately be realigned in this area, given the proximity of the intersection to the CSX railroad.

After discussion, Premier-Novi agreed to make some adjustments to the site plan, shifting the building by a few feet to the southwest, realigning some of the parking, and making some other improvements. The potential area of Taft Road realignment will be reserved in green space, as shown on the revised plan. However, as part of its discussions with the City, Premier-Novi has raised some potential concerns about the development approval process, and the effect on its development of shifting the building and realigning the parking. City Administration has prepared for City Council's consideration a brief Memorandum of Understanding (MOU) that outlines some of these, including:

- Allowing a curb cut on Taft Road (gated unless/until property on the east side of Taft Road is developed for nonresidential purposes).
- Terminating the water main extension along Taft short of the southern property line of Premier-Novi's property.
- Authorizing land bank parking without immediate payment into the City's tree fund.
- Authorizing grading within the 25-foot buffer of Wetland "A".

Each of these issues would need to be approved by the City during the site plan/land development review process. Since that process is done primarily through the Planning Commission, the City Council cannot simply tell Premier-Novi that such approvals *will* occur; rather, the attached Memorandum of Understanding acknowledges that the property owner, Premier-Novi, is agreeing to submit the revised site plan accommodating the Taft Road realignment with the understanding that these items will occur during the approval process. If they do not, though, then Premier-Novi would have the right to withdraw the revised site plan and develop the property without reference to the Taft Road realignment.

The MOU acknowledges that Premier-Novi is not waiving any compensation rights it might have if Taft Road is realigned at some point in the future, and if the property needed for such realignment is taken by eminent domain of condemnation (similarly, the City is not waiving any positions or defenses that it might have in such event based on its accommodation of Premier-Novi's land development requests). Again, if the development is not authorized as contemplated, then the MOU would lapse and be null and void.

In sum, the MOU is an effort to indicate City Council's support for a development plan that accommodates the potential future realignment of Taft Road on reasonable terms and conditions.

RECOMMENDED ACTION: Approval of Memorandum of Understanding Regarding Future Realignment of Taft Road (Commerce Park Development) relating to property on the south side of Twelve Mile and west side of Taft Road, subject to approval of final form by the City Manager and City Attorney.

A MEMORANDUM OF UNDERSTANDING
REGARDING FUTURE REALIGNMENT OF TAFT ROAD

This Memorandum of Understanding is by and between Premier-Novi, L.L.C., whose address is 560 Kirts Boulevard, Suite 100, Troy, MI 48084 ("Property Owner') and the City of Novi, a Michigan municipal corporation, whose address is 45175 Ten Mile Road, Novi, MI 48375 ("City").

RECITALS

A. Property Owner is the owner of two parcels of land located on the west side of Taft Road and the south side of Twelve Mile Road in the City of Novi. The land is identified as Parcel ID Nos. 22-16-226-004 and 22-16-226-008 and for purposes of this Memorandum will be known together as the "Property." The property is legally described and depicted on attached **Exhibit A**

B. Property Owner desires to develop the Property (or a portion of it) with an office/industrial/research building of approximately 124,418 square feet, together with associated site improvements, including parking and utilities. Property Owner submitted a proposed site plan to the City showing such improvements in February, 2017 (Initial Proposed Site Plan, **Exhibit B**).

C. At its review of the Initial Proposed Site Plan, the City indicated to Property Owner that there might be future improvements to Taft Road, which such improvements could include a realignment of Taft Road. Such potential realignment could impact Property Owner's Property. More specifically, the Road Commission of Oakland County ("RCOC") proposed a plan for possible realignment of Taft Road that shows a realigned Taft Road to the west, encroaching into the Property (Conceptual Realignment Plan, **Exhibit C**).

D. Property Owner and the City have discussed possible changes to the Property Owner's Initial Proposed Site Plan for the Property as a result of the RCOC Conceptual Realignment Plan. Following such discussions, Property Owner prepared a Revised Proposed Site Plan (**Exhibit D**). These revisions contemplated the building and parking being repositioned on the Property such that Taft Road, if realigned in the future, would not require the removal of any portion of the building or the required parking for the building improvement.

E. Property Owner has agreed to alter its development proposal as provided in the Revised Proposed Site Plan only under certain circumstances and with the approval of certain conditions that would lessen or eliminate the impact of the road realignment upon Property Owner's improvement plans.

F. The City of Novi has agreed to review the Revised Proposed Site Plan and other related land use development plans with such conditions in mind.

NOW, THEREFORE, IN CONSIDERATION OF THE FOREGOING, the parties agree as follows:

1. Property Owner will submit the Revised Proposed Site Plan and other land use development plans as required under the Novi Code of Ordinances, Zoning Ordinance, and any

other applicable rules and regulations, leaving the land area for the potential future Taft Road realignment as a vacant or greenbelt area without any required improvement shown thereon, under and subject to the following conditions:

a. A curb cut is allowed onto Taft Road approximately as shown on the Revised Proposed Site plan; provided, however, that the City may require the drive to be gated in accordance with City regulations unless and until the residential property on the east side of Taft Road is redeveloped for non-residential purposes.

b. The water main is required to be extended only a portion of the length of Taft Road to a location shown on the Revised Proposed Site Plan; provided, however, that the City reserves the right to require the Property Owner to extend the water main to and through the remainder of Property Owner's Property as would normally be required by the City, subject to the City bearing the additional cost of such added water main.

c. Property Owner is allowed to provide "land bank" parking as contemplated under the City's Zoning Ordinance approximately as shown on the Revised Proposed Site Plan without the requirement to identify protected trees within the area or to pay any tree preservation or tree replacement amounts unless and until the area is in fact improved with parking improvements in the future.

d. Property Owner is allowed to grade within the 25-foot Wetland "A" buffer to accommodate the installation of the boulder retaining wall shown on the Revised Proposed Site Plan, or any other retaining walls along the wetland buffer areas on the final plans which have been necessitated by the shifting of the building area for the potential future Taft Road realignment.

2. Property Owner acknowledges that site plan approval for the development is required and that Property Owner remains subject to all City ordinances, rules, and regulations with regard to same. Property Owner also acknowledges that some of the items in paragraph 1(a)-(d) above can only be granted during the site plan and development review process, and may require relief that cannot be granted by the City Council (e.g., is within the jurisdiction of the Planning Commission or Zoning Board of Appeals). The parties therefore both acknowledge and agree that Property Owner shall only be obligated under this agreement to leave the land area for the potential future Taft Road alignment as a vacant or greenbelt area if it secures the relief set forth in paragraph 1(a)-(d) above during the land development approval process. The City further agrees that, if the development proposed by Property Owner requires any ZBA approvals, such meeting will be scheduled at the earliest available meeting.

3. The City acknowledges that by agreeing to adjust its proposed development and submit the Revised Proposed Site Plan leaving the potential Taft Road realignment area vacant/greenbelt, Property Owner is not waiving any rights to be compensated for the fair value of its Property in the event Taft Road is realigned in the future; provided, however, that Property Owner acknowledges that it is not seeking compensation now for the revisions to its development plans, and is not asserting that this voluntary amendment to its plans requires compensation now by the City or Oakland County or RCOC. In the event that the Taft Road

realignment occurs, and necessary property is acquired by the City and/or Oakland County/RCOC by eminent domain over the Property, both parties (and Oakland County/RCOC) retain any and all rights to make all claims and assert all positions and defenses as are available to them with regard to compensation in such a case.

4. This Agreement shall constitute the entire agreement between the parties. Any prior understanding or representation of any kind preceding the date of this Agreement shall not be binding upon either party except to the extent incorporated in this Agreement.

5. The covenants and conditions contained in this Agreement shall apply to and bind the successor's legal representatives, assigns of the parties to this Agreement, and successors-in-interest to the Property, and all covenants are to be construed as conditions of this Agreement; provided, however, that if a site plan for the development of the property as contemplated herein (i.e., leaving the land area for the potential future Taft Road realignment as a vacant or greenbelt area without any required improvement shown thereon) is not approved by the City of Novi, then this Agreement shall be null and void.

PREMIER-NOVI, L.L.C.

_____

By:
Its: Managing Member

ACKNOWLEDGMENT

STATE OF MICHIGAN)
) ss
COUNTY OF OAKLAND)

The foregoing Memorandum of Understanding was acknowledged before me by _____, the Managing Member of Premier-Novi, L.L.C. on the _____ day of March, 2017.

_____

Notary Public
_____ County, Michigan
Acting in _____ County, Michigan
My Commission Expires: _____

[Signatures continued on next page]

CITY OF NOVI

_____

By: Robert J. Gatt
Its: Mayor

_____

By: Cortney Hanson
Its: City Clerk

ACKNOWLEDGMENT

STATE OF MICHIGAN)
) ss
COUNTY OF OAKLAND)

The foregoing Memorandum of Understanding was acknowledged before me by Robert J. Gatt, Mayor, and Cortney Hanson, Clerk on behalf of the City of Novi, on the _____ day of _____, 2017.

_____

Notary Public
_____ County, Michigan
Acting in _____ County, Michigan
My Commission Expires: _____

EXHIBIT A

LEGAL DESCRIPTION

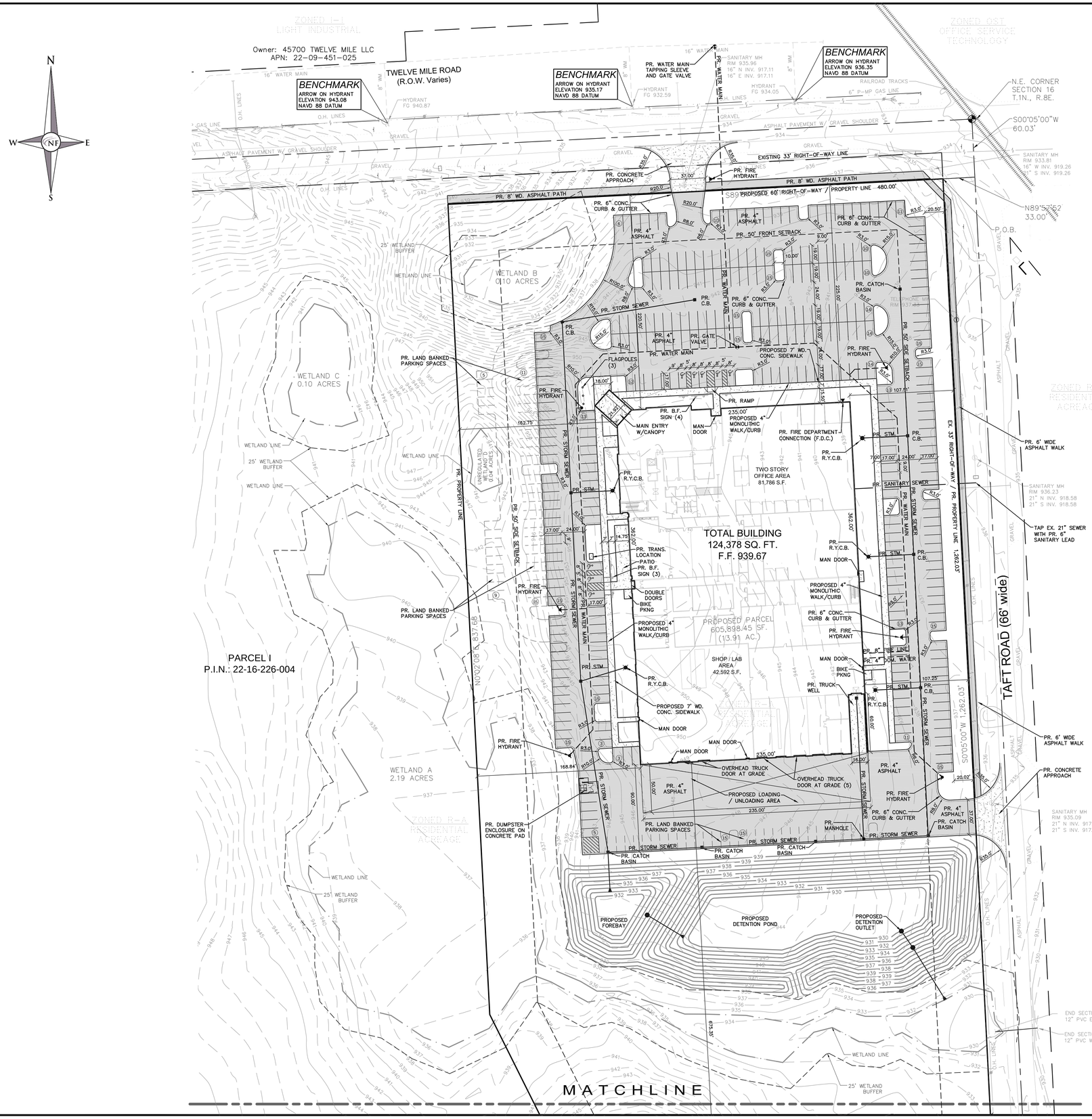
LEGAL DESCRIPTION

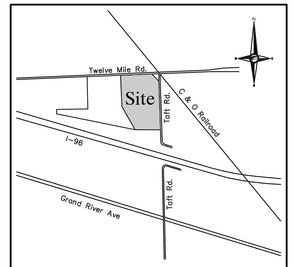
PART OF THE NORTHEAST 1/4 OF SECTION 16, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN, BEING MORE PARTICULARLY DESCRIBED AS BEGINNING AT A POINT ON THE EAST LINE OF SAID SECTION 16 BEING A DISTANT S00°05'00"W 78.78 FEET FROM THE NORTHEAST CORNER OF SAID SECTION 16; THENCE CONTINUING SOUTH 00 DEGREES 05 MINUTES 00 SECONDS WEST, 1243.10 FEET ALONG SAID EAST LINE OF SECTION 16; THENCE SOUTH 89 DEGREES 46 MINUTES 00 SECONDS WEST, 357.82 FEET; THENCE NORTH 23 DEGREES 31 MINUTES 09 SECONDS WEST, 464.59 FEET; THENCE NORTH 00 DEGREES 02 MINUTES 08 SECONDS EAST, 897.68 FEET TO A POINT ON THE NORTH LINE OF SAID SECTION 16; THENCE SOUTH 89 DEGREES 57 MINUTES 52 SECONDS EAST, 487.32 FEET ALONG SAID NORTH LINE; THENCE SOUTH 35 DEGREES 56 MINUTES 39 SECONDS EAST, 97.35 FEET TO THE POINT OF BEGINNING.

CONTAINING A GROSS AREA OF 677,960.73 SQUARE FEET OR 15.56 ACRES.
CONTAINING A NET AREA OF 605,898.45 SQUARE FEET OR 13.91 ACRES.

EXHIBIT B

INITIAL PROPOSED SITE PLAN





Location Map
N.T.S.

LEGEND

- EXISTING SANITARY SEWER (CLEAN-OUT, MANHOLE)
- EXISTING WATER MAIN (HYDRANT, GATE VALVE)
- EXISTING STORM SEWER (INLET, RYCB, MANHOLE, CB)
- EXISTING BURIED CABLES
- EXISTING GAS MAIN
- EXISTING OVERHEAD LINES (UTILITY POLE, GUY POLE, GUY WIRE)
- EXISTING LIGHT POLE, EXISTING SIGN
- PR. SANITARY SEWER (C.O., MANHOLE)
- PROPOSED WATER MAIN (HYDRANT, GATE VALVE)
- PROPOSED STORM SEWER (INLET, RYCB, MANHOLE, CB)
- PR. SAND BACKFILL (COMPACT TO 95% MAX. DENSITY)
- UTILITY CROSSING (A)
- PR. TOP OF CURB ELEVATION (TC 600.00)
- PROPOSED GUTTER ELEVATION (GU 600.00)
- PR. TOP OF WALK ELEVATION (TW 600.00)
- PR. TOP OF PAVEMENT ELEV. (TP 600.00)
- PROPOSED FINISH GRADE (FG 600.00)
- PROPOSED CONTOUR (600)
- PROPOSED SWALE
- PR. DRAINAGE DIRECTION
- PROPOSED INLET FILTER
- DRAINAGE AREA LIMITS
- PROPOSED SILT FENCE
- LIMITS OF SOIL DISRUPTION

PAVING LEGEND

- PROPOSED CONCRETE PAVEMENT
- PROPOSED ASPHALT PAVEMENT

SITE DATA

SITE ACREAGE – EXISTING PARCEL I
TOTAL: 805,307.80 SQUARE FEET OR 18.49 ACRES
NET: 752,910.24 SQUARE FEET OR 17.28 ACRES

SITE ACREAGE – EXISTING PARCEL II
TOTAL: 529,461.87 SQUARE FEET OR 12.15 ACRES
NET: 508,529.03 SQUARE FEET OR 11.67 ACRES

SITE ACREAGE – PROPOSED PARCEL
TOTAL / NET: 591,738.26 SQUARE FEET OR 13.58 ACRES

PROPOSED BUILDING AREA
GROSS: 124,378 SQUARE FEET
OFFICE: 81,786 SQUARE FEET
SHOP/LAB: 42,592 SQUARE FEET

EXISTING ZONING: R-A (RESIDENTIAL ACREAGE)

PROPOSED ZONING: OST (OFFICE SERVICE TECHNOLOGY)

BUILDING SETBACK

	REQUIRED	PROVIDED	COMMENT
FRONT:	45' (R-A), 50' (OST)	220.50'	(MEETS STANDARD)
SIDE:(W)	20' (R-A), 50' (OST)	162.75'	(MEETS STANDARD)
SIDE:(E)	30' (R-A), 50' (OST)	107.25'	(MEETS STANDARD)
REAR:	50' (R-A), 50' (OST)	675.35'	(MEETS STANDARD)

PARKING SETBACK
FRONT: 20'
SIDE:(W) 20'
SIDE:(E) 20'
REAR: 20'

PARKING REQUIRED:
BUILDING AREA = 124,378 GROSS SQUARE FEET

OFFICE:
MAIN LEVEL GROSS = 42,410 S.F.
NET (GROSS LEASABLE) = 41,220 S.F.
UPPER LEVEL GROSS = 39,376 S.F. (INCLUDES TWO STORY SPACE)
NET (GROSS LEASABLE) = 37,825 S.F.

OFFICE PARKING REQUIRED = 79,045 S.F. / 222 = 356 SPACES

SHOP/LAB:
42,592 GROSS S.F. X 81% = 34,500 S.F. (USEABLE AFTER CIRCULATION)
SHOP/LAB PARKING REQUIRED = 34,500 S.F. / 700 = 49 SPACES

TOTAL PARKING SPACES REQUIRED = 405 SPACES

PARKING PROVIDED:
REGULAR PARKING SPACES = 334 SPACES
BARRIER FREE SPACES (INC. 1 VAN ACCESSIBLE) = 8 SPACES
TOTAL PARKING SPACES PROVIDED = 342 SPACES

LAND BANKED PARKING SPACES = 70
DRIVE / ISLAND SPACES LOST = -7
TOTAL LAND BANK SPACES PROPOSED = 63

ULTIMATE PARKING SPACES PROVIDED = 405

LOADING
REQUIRED: 5 S.F. PER BUILDING LENGTH ALONG FRONTAGE (597 X 5 = 2,985 S.F.)
PROVIDED: 12,792 S.F. OF LOADING / UNLOADING AREA

IMPERVIOUS AREA
PROPOSED IMPERVIOUS AREA = 230,779 SF OR 39%

SOIL DATA:

10C – MARLETTE SANDY LOAM, 6 TO 12 PERCENT SLOPES (98.4%)
26 – SLOAN SILT LOAM (1.6%)
PER USDA SOIL SURVEY, 1977

NOT FOR CONSTRUCTION

NF ENGINEERS
CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS

NOWAK & FRAUS ENGINEERS
46777 WOODWARD AVE.
PONTIAC, MI 48342-5032
TEL. (248) 332-7931
FAX. (248) 332-8257

SEAL
STATE OF MICHIGAN
PATRICK J. WILLIAMS
ENGINEER
NO. 44351
LICENSED PROFESSIONAL ENGINEER

PROJECT
Hino Trucks Facility
27515 Taft Road
Novi, MI

CLIENT
General Development
Two Town Square
Suite 850
Southfield, MI 48076

Contact: Bruce Brickman
Ph: (248) 357-3777
Fax: (248) 357-1929
Cell: (248) 514-7111

PROJECT LOCATION
Part of the Northeast ¼ of Section 16
T. 1 North, R. 8 East
City of Novi,
Oakland County, Michigan

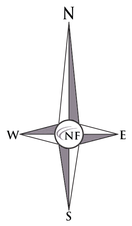
SHEET
Preliminary Site Plan

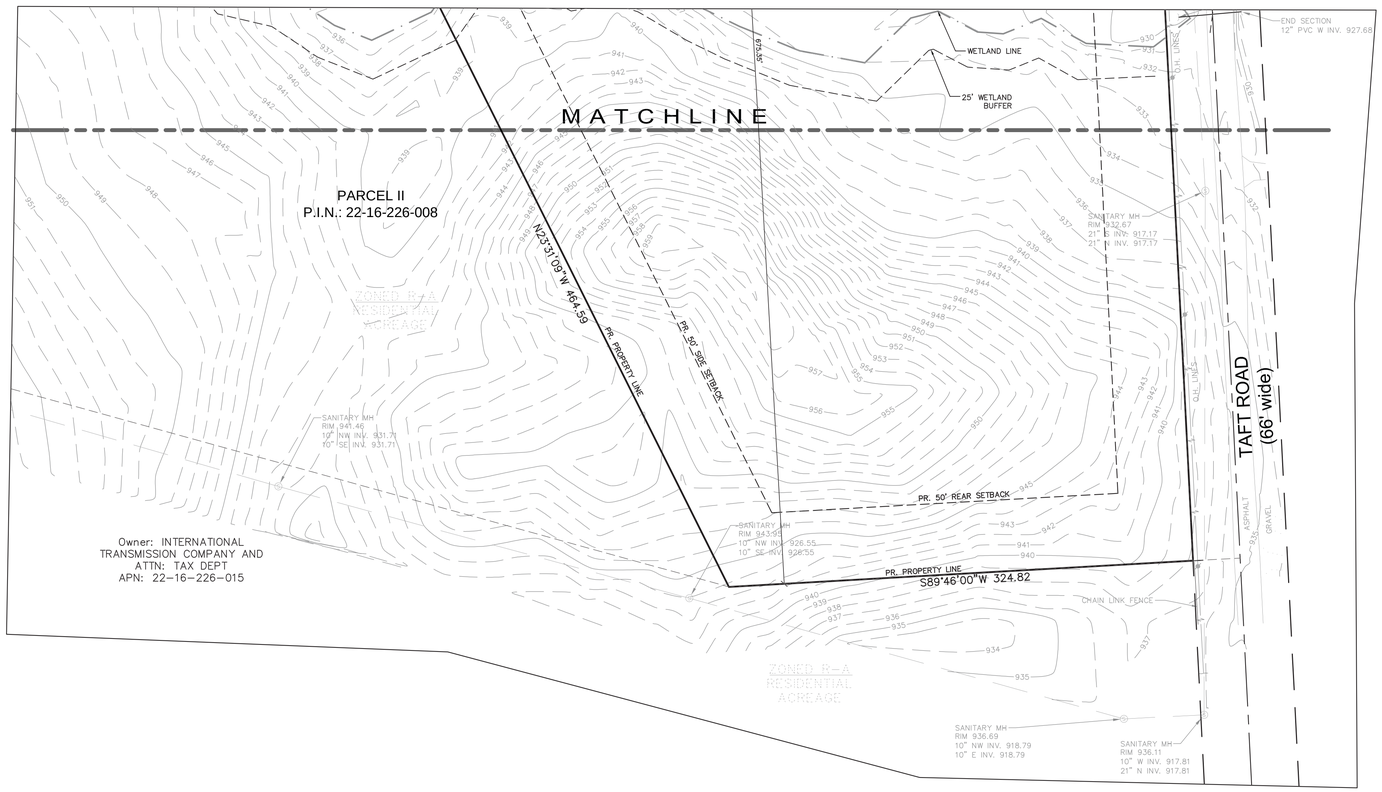
Know what's below Call before you dig.

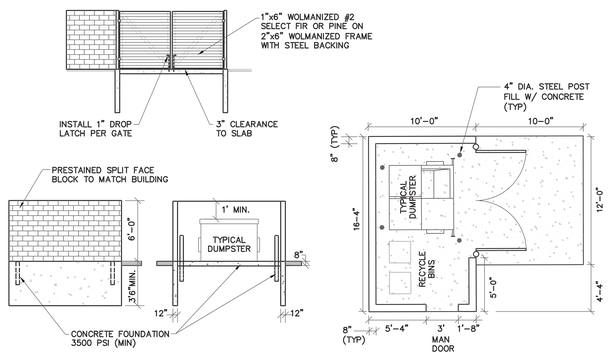
DATE	ISSUED / REVISED

DRAWN BY: A. Wiseman
DESIGNED BY: A. Wiseman
APPROVED BY: P. Williams
DATE: January 27, 2017
SCALE: 1" = 50'
50 25 0 25 50 75

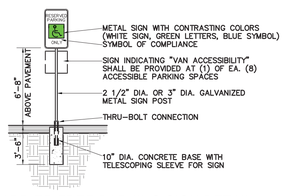
NFE JOB NO. J497-01
SHEET NO. SP-5



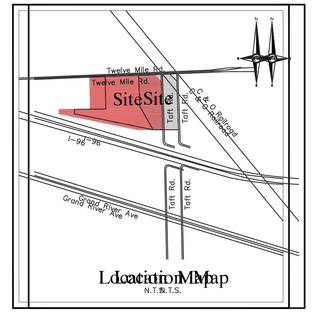




DUMPSTER ENCLOSURE DETAIL
N.T.S.



BARRIER FREE PARKING SIGN DETAIL
N.T.S.
Provide (1) for each accessible parking space



Location Map
N.T.S.

LEGEND

- CLEAN-OUT / MANHOLE — EXISTING SANITARY SEWER
- HYDRANT / GATE VALVE — EXISTING WATER MAIN
- INLET / RYCB / MANHOLE / CB — EXISTING STORM SEWER
- EXISTING BURIED CABLES
- EXISTING GAS MAIN
- UTILITY POLE / GUY POLE / GUY WIRE — EXISTING OVERHEAD LINES
- EXISTING LIGHT POLE / EXISTING SIGN
- C.O. / MANHOLE — PR. SANITARY SEWER
- HYDRANT / GATE VALVE — PROPOSED WATER MAIN
- INLET / RYCB / MANHOLE / CB — PROPOSED STORM SEWER
- COMPACT TO 95% MAX. DENSITY — PR. SAND BACKFILL
- A — UTILITY CROSSING
- TC 600.00 — PR. TOP OF CURB ELEVATION
- GU 600.00 — PROPOSED GUTTER ELEVATION
- TW 600.00 — PR. TOP OF WALK ELEVATION
- TP 600.00 — PR. TOP OF PAVEMENT ELEV.
- FG 600.00 — PROPOSED FINISH GRADE
- 600 — PROPOSED CONTOUR
- PROPOSED SWALE
- PR. DRAINAGE DIRECTION
- PROPOSED INLET FILTER
- DRAINAGE AREA LIMITS
- PROPOSED SILT FENCE
- LIMITS OF SOIL DISRUPTION

PAVING LEGEND

- PROPOSED CONCRETE PAVEMENT
- PROPOSED ASPHALT PAVEMENT

SOIL DATA:
10C – MARLETTE SANDY LOAM, 6 TO 12 PERCENT SLOPES (98.4%)
26 – SLOAN SILT LOAM (1.6%)
PER USDA SOIL SURVEY, 1977

NOT FOR CONSTRUCTION

NF ENGINEERS
CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS

NOWAK & FRAUS ENGINEERS
46777 WOODWARD AVE.
PONTIAC, MI 48342-5032
TEL. (248) 332-7931
FAX. (248) 332-8257

SEAL
STATE OF MICHIGAN
PATRICK J. WILLIAMS
ENGINEER NO. 44351
LICENSED PROFESSIONAL ENGINEER

PROJECT
Hino Trucks Facility
27515 Taft Road
Novi, MI

CLIENT
General Development
Two Town Square
Suite 850
Southfield, MI 48076

Contact: Bruce Brickman
Ph: (248) 357-3777
Fax: (248) 357-1929
Cell: (248) 514-7111

PROJECT LOCATION
Part of the Northeast ¼
of Section 16
T. 1 North, R. 8 East
City of Novi,
Oakland County, Michigan

SHEET
Preliminary Site Plan

Know what's below Call before you dig.

DATE	ISSUED / REVISED

DRAWN BY: A. Wiseman
DESIGNED BY: A. Wiseman
APPROVED BY: P. Williams
DATE: January 27, 2017
SCALE: 1" = 50'
50 25 0 25 50 75

NFE JOB NO. J497-01
SHEET NO. SP-6

EXHIBIT C

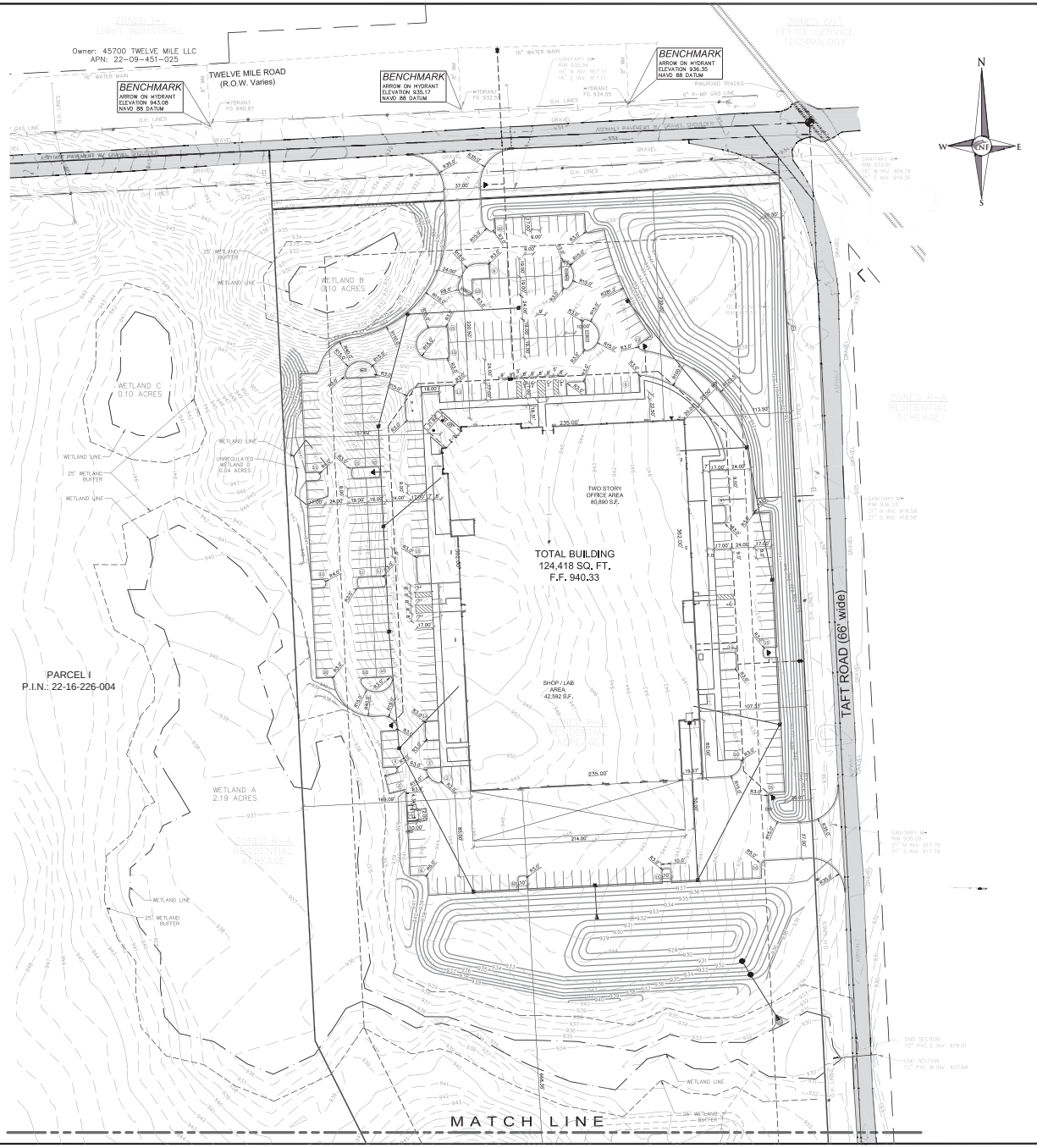
CONCEPTUAL REALIGNMENT PLAN

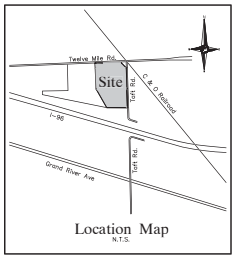
ROAD COMMISSION FOR OAKLAND COUNTY Bloomfield Hills, Michigan	DATE	PROJECT NO.	PROJECT NAME	SHEET NO.	TOTAL SHEETS
	01/27/17	N/A	12 MILE AT TAFT	1	1

SCALE 1"=40'

EXHIBIT D

REVISED PROPOSED SITE PLAN





Location Map
N.T.S.

LEGEND

- EXISTING SANITARY SEWER
- EXISTING WATER MAIN
- EXISTING STORM SEWER
- EXISTING BURIED CABLES
- EXISTING GAS MAIN
- EXISTING OVERHEAD LINES
- PR. SANITARY SEWER
- PROPOSED WATER MAIN
- PROPOSED STORM SEWER
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- TW 600.00 — PR. TOP OF WALK ELEVATION
- TP 600.00 — PR. TOP OF PAVEMENT ELEV.
- FG 600.00 — PROPOSED FINISH GRADE
- 600 — PROPOSED CONTOUR
- PROPOSED SWALE
- PR. DRAINAGE DIRECTION
- PROPOSED INLET FILTER
- DRAINAGE AREA LIMITS
- PROPOSED SILT FENCE
- LIMITS OF SOIL DISRUPTION

PAVING LEGEND

- PROPOSED CONCRETE PAVEMENT
- PROPOSED ASPHALT PAVEMENT

SITE NOTES

1. THE OUTDOOR STORAGE OF GOODS OR MATERIALS SHALL BE PROHIBITED.
2. THE OWNER OF THE PROPERTY SHALL REPORT ANY PROPOSED CHANGE IN USE OR OCCUPANCY

SITE DATA

SITE ACREAGE – EXISTING PARCEL I
TOTAL: 805,307.80 SQUARE FEET OR 18.49 ACRES
NET: 752,910.24 SQUARE FEET OR 17.28 ACRES

SITE ACREAGE – EXISTING PARCEL II
TOTAL: 529,461.87 SQUARE FEET OR 12.15 ACRES
NET: 508,529.03 SQUARE FEET OR 11.67 ACRES

SITE ACREAGE – PROPOSED PARCEL A
TOTAL / NET: 605,898.45 SQUARE FEET OR 13.91 ACRES

BUILDING AREA: 124,418 SQUARE FEET

BUILDING HEIGHT: 30'-4"

ZONING: OST (OFFICE SERVICE TECHNOLOGY)

BUILDING SETBACK	REQUIRED	PROVIDED
FRONT NORTH (12 MILE):	50'	220.50'
SIDE WEST:	50'	168.84'
SIDE EAST (TAFT RD):	50'	107.25'
REAR SOUTH:	50'	675.35'

PARKING SETBACK	REQUIRED	PROVIDED
FRONT NORTH (12 MILE):	20'	20.00'
SIDE WEST:	20'	82.00'
SIDE EAST (TAFT RD):	20'	20.02'
REAR SOUTH:	20'	584.05'

PARKING CALCULATION:
BUILDING AREA FOR PARKING CALCULATION (PER ATTACHED FLOOR PLAN) = 103,597 GROSS SQUARE FEET

OFFICE:
MAIN LEVEL GROSS = 42,445 S.F.
UPPER LEVEL GROSS = 38,445 S.F.

OFFICE PARKING REQUIRED (PER ATTACHED FLOOR PLAN) = 80,900 S.F./222 = 365 SPACES

SHOP/LAB:
GROSS S.F. = 42,592 S.F.
SHOP/LAB PARKING REQUIRED:
(USEABLE AREA PER FLOOR PLAN) = 22,707 S.F./700 = 33 SPACES

TOTAL PARKING SPACES REQUIRED = 398 SPACES
PARKING PROVIDED:

REGULAR PARKING SPACES	= 313
BARRIER FREE SPACES (INC. 1 VAN)	= 8
TOTAL PARKING SPACES PROVIDED	= 321 SPACES
LAND BANKED PARKING SPACES	= 77
ULTIMATE PARKING SPACES PROVIDED	= 398 SPACES

LOADING
REQUIRED: 5 S.F. PER BUILDING LENGTH ALONG FRONTAGE (597 X 5 = 2,985 S.F.)
PROVIDED: 12,792 S.F. OF LOADING / UNLOADING AREA

IMPERVIOUS AREA
PROPOSED IMPERVIOUS AREA = 228,128 SF OR 37%

SOIL DATA:

10C – MARLETTE SANDY LOAM, 6 TO 12 PERCENT SLOPES (98.4%)
26 – SLOAN SILT LOAM (1.6%)

PER USDA SOIL SURVEY, 1977

LEGAL DESCRIPTION - PR. PARCEL A

PART OF THE NORTHEAST 1/4 OF SECTION 16, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN, BEING MORE PARTICULARLY DESCRIBED AS BEGINNING AT A POINT ON THE EAST LINE OF SAID SECTION 16 BEING A DISTANT S00°05'00"W 78.78 FEET FROM THE NORTHEAST CORNER OF SAID SECTION 16; THENCE CONTINUING SOUTH 00 DEGREES 05 MINUTES 00 SECONDS WEST, 1243.10 FEET ALONG SAID EAST LINE OF SECTION 16; THENCE SOUTH 89 DEGREES 46 MINUTES 00 SECONDS WEST, 307.82 FEET; THENCE NORTH 23 DEGREES 31 MINUTES 09 SECONDS WEST, 464.59 FEET; THENCE NORTH 00 DEGREES 02 MINUTES 08 SECONDS EAST, 897.68 FEET TO A POINT ON THE NORTH LINE OF SAID SECTION 16; THENCE SOUTH 89 DEGREES 57 MINUTES 52 SECONDS EAST, 487.32 FEET ALONG SAID NORTH LINE; THENCE SOUTH 35 DEGREES 58 MINUTES 39 SECONDS EAST, 97.35 FEET TO THE POINT OF BEGINNING.

CONTAINING A GROSS AREA OF 677,960.73 SQUARE FEET OR 15.56 ACRES.
CONTAINING A NET AREA OF 605,898.45 SQUARE FEET OR 13.91 ACRES.

NOT FOR CONSTRUCTION

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SEAL
STATE OF MICHIGAN
PATRICK J. WILLIAMS
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PROJECT
Hino Motors U.S.A.
27515 Taft Road
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General Development
Two Town Square
Suite 850
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Contact: Bruce Brickman
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Part of the Northeast ¼ of Section 16
T. 1 North, R. 8 East
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Oakland County, Michigan

SHEET
Preliminary Site Plan

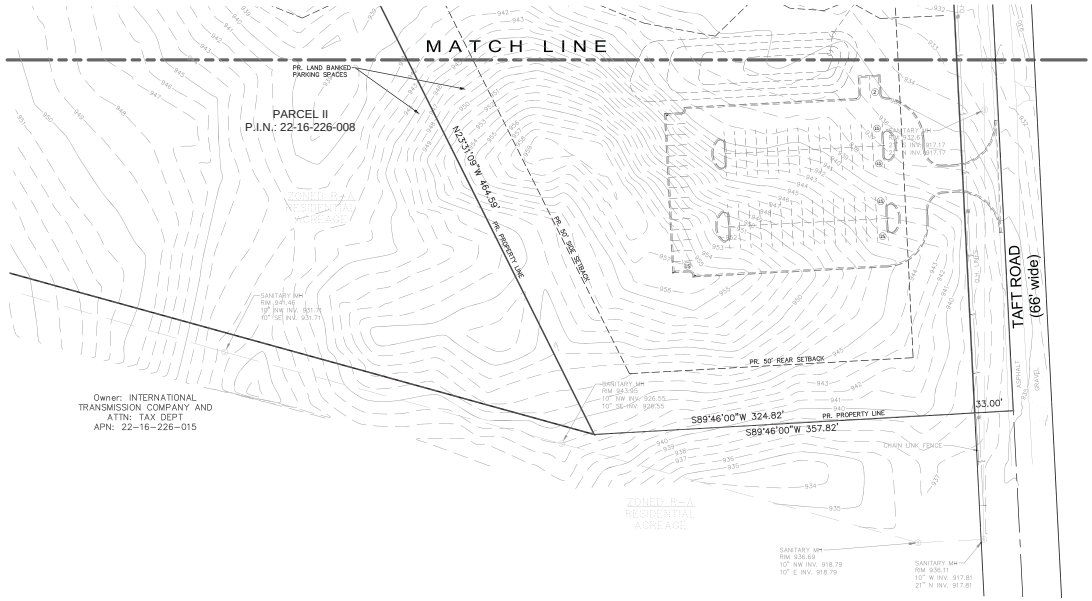
Know what's below Call before you dig.

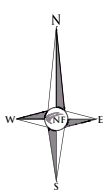
DATE:	ISSUED / REVISED:
02/14/17	Preliminary Site Plan
03/20/17	Revised Prelim. S.P.

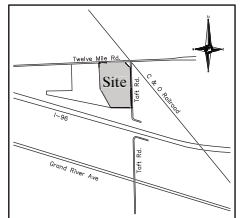
DRAWN BY: A. Wiseman
DESIGNED BY: A. Wiseman
APPROVED BY: P. Williams
DATE: February 14, 2017
SCALE: 1" = 50'

50 25 0 25 50 75

NFE JOB NO. J497-01
SHEET NO. SP-5







Location Map
N.T.S.

LEGEND

- EXISTING SANITARY SEWER
- EXISTING WATER MAIN
- EXISTING STORM SEWER
- EXISTING BURIED CABLES
- EXISTING GAS MAIN
- EXISTING OVERHEAD LINES
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- PROPOSED STORM SEWER
- PR. SAND BACKFILL
- UTILITY CROSSING
- PR. TOP OF CURB ELEVATION (TC 600.00)
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- PR. TOP OF WALK ELEVATION (TW 600.00)
- PR. TOP OF PAVEMENT ELEV. (TP 600.00)
- PROPOSED FINISH GRADE (FG 600.00)
- PROPOSED CONTOUR (600)
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- PR. DRAINAGE DIRECTION
- PROPOSED INLET FILTER
- DRAINAGE AREA LIMITS
- PROPOSED SILT FENCE
- LIMITS OF SOIL DISRUPTION

PAVING LEGEND

- PROPOSED CONCRETE PAVEMENT
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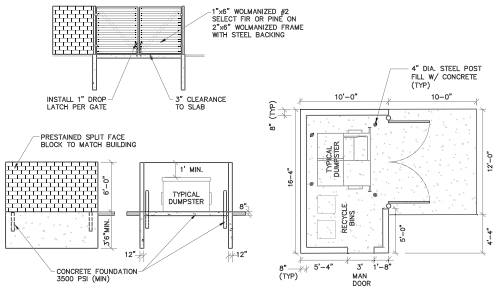
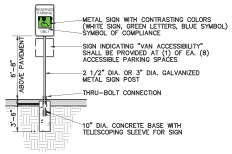


DUMPSTER ENCLOSURE DETAIL
N.T.S.



BARRIER FREE PARKING SIGN DETAIL
N.T.S.
Provide (1) for each accessible parking space

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CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS

NOWAK & FRAUS ENGINEERS
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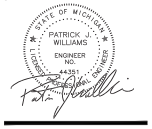
PONTIAC, MI 48342-5032
TEL. (248) 332-7931
FAX. (248) 332-8257

SEAL



PROJECT
Hino Motors U.S.A.
27515 Taft Road
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CLIENT
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Suite 850
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Contact: Bruce Brickman
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Preliminary Site Plan

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DATE:	ISSUED / REVISED:
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03/20/17	Revised Prelim. S.P.

DRAWN BY: A. Wiseman
DESIGNED BY: A. Wiseman
APPROVED BY: P. Williams
DATE: ~~February 27, 2017~~ February 14, 2017
SCALE: 1" = 50'

50 25 0 25 50 75

NFE JOB NO. J497-01
SHEET NO. SP-6

PLANNING REVIEW

PLAN REVIEW CENTER REPORT

Planning Review

April 5, 2017

HINO MOTORS USA (fka Commerce Park)

JSP 17-02

Petitioner

General Development

Review Type

Preliminary Site Plan

Property Characteristics

Section	16	
Site Location	South of Twelve Mile Road, west of Taft Road	
Site School District	Novi Community School District	
Site Zoning	OST: Office Service Technology	
Adjoining Zoning	North	I-1 Light Industrial
	East	RA: Residential Acreage
	West	OST: Office Service Technology
	South	RA: Residential Acreage
Current Site Use	Vacant	
Adjoining Uses	North	Vacant/industrial office
	East	Single Family Residential
	West	Vacant
	South	Vacant
Site Size	15.56 Gross Acres (13.91 Net Acres)	
Plan Date	March 24, 2017	

Project Summary

The applicant is proposing to build a 124,418 square foot two story building to serve as headquarters for Hino Motors USA. The proposed site plan also includes associated site improvements, including parking and utilities. The proposed improvements would require a non-minor wetland permit and woodland permit. The proposed site plan also proposes to land bank upto 77 parking spaces of 398 required spaces.

The first floor with a gross floor area of 84,850 s.f. which includes lobby, training rooms with a training auditorium facility, conference rooms and a big open office area. In addition, a majority of the first floor includes a warehouse with five truck bays and a truck well and Hino Motors training and display area with an ability to host up to eight 10 foot x 40 foot truck (typical). The second floor with a gross floor area of approximately 40,500 s.f. with additional office spaces and few conference rooms. The applicant anticipates up to a maximum of 275 team members within the next 10 years. Floor plans are included in the site plan set.

Please refer to Previous City Council actions for details on a Memorandum of Understanding between the City and the applicant. A copy of the memo is attached to the review letter.

Recommendation

Approval of the ***Preliminary Site Plan is recommended***. The plan mostly conforms to the requirements of the Zoning Ordinance, with a few deviations listed in this and other review letters. **Planning Commission's**

approval for Preliminary Site Plan, land bank parking, non-minor wetland permit and woodland permit and Storm Water Management Plan is required.

Previous City Council Actions

The subject property was recently rezoned from RA (Residential Acreage) to OST (Office Service Technology). City Council approved the rezoning request on March 13, 2017 based on the following motion:

Approval of the request of Commerce Park, JSP 17-02, for Zoning Map Amendment 18.716 to rezone property in Section 16, located on the southwest corner of Twelve Mile Road and Taft Road from RA (Residential Acreage) to OST (Planned Office Service and Technology). The subject property is approximately 30.64 acres.

At the time of Pre-application meeting, City staff noted that it was possible that Taft Road might ultimately be realigned in this area, given the proximity of the intersection to the CSX railroad. On March 27, 2017 meeting City Council approved a Memorandum of Understanding to indicate City Council's support for a development plan that accommodates the potential future realignment of Taft Road on reasonable terms and conditions based on following motion. The Memorandum of Understanding is attached to the review letter.

Approval of the Memorandum of Understanding regarding future alignment of Taft Road (Commerce Park Development) relating to property on the south side of Twelve Mile and west side of Taft Road.

Ordinance Requirements

This project was reviewed for conformance with the Zoning Ordinance with respect to Article 3 (Zoning Districts), Article 4 (Use Standards), Article 5 (Site Standards), and any other applicable provisions of the Zoning Ordinance**. Deviations from the Zoning Ordinance are listed below.**

Ordinance Deviations

1. Planning Commission waivers/consideration of standards
    I. Consideration of 77 land bank parking spaces.
2. City Council/Administrative DCS Variances
    I. City Council waiver for absence of sidewalk along Taft Road
3. Zoning Board of Appeals Variances
    I. None Required

Please see the attached chart for information pertaining to ordinance requirements. Items in **bold** below must be addressed and incorporated as part of the Final Site Plan submittal:

1. Section 5.13 Access to Major Thouroughfare: *For uses making reference to this Section, vehicular access shall be provided only to an existing or planned major thoroughfare or freeway service drive. Provided, however, that access driveways may be permitted to other than a major thoroughfare or freeway service drive, where such access is provided to a street where the property directly across the street between the driveway and the major thoroughfare or freeway service drive is zoned for multiple-family use or any nonresidential uses, is developed with permanent uses other than single-family residences or is an area which, in the opinion of the City, will be used for other than single -family purposes in the future. This exception shall apply only if the City finds that there are special circumstances which indicate that there will be a substantial improvement in traffic safety by reducing the number of driveways to a thoroughfare.* **Properties zoned OST would require access to Major Thoroughfare only. The site plan indicates primary access from Twelve Mile road and additional access to Taft Road. The site plan also indicates another access from Taft Road for future land bank parking.** ***Taft Road is not a Major Thoroughfare. However, it is allowed and subject to conditions listed in Memorandum of Understanding between City Council and the applicant approved on March 27, 2017*** **.The applicant indicated in the response letter to add a double swing gate the Taft Road entrance (not the entrance for proposed land banking). Provide details of the proposed swing gate with the revised plans.**

2. Landbank Parking: Per Section 5.2.13. *landbanking may be permitted on the request of the applicant if an applicant can demonstrate that the number of parking spaces required under this Section are in excess of the actual requirements for the functional use of the building, for up to twenty five (25) percent of the required number of parking spaces on the site, subject to the conditions listed in section 5.13. (also listed in the Plan Review Chart).*

   As per the Memo of Understanding, *"Property Owner is allowed to provide "land bank" parking as contemplated under the City's Zoning Ordinance approximately as shown on the Revised Proposed Site Plan without the requirement to identify protected trees within the area or to pay any tree preservation or tree replacement amounts unless and until the area is in fact improved with parking improvements in the future."* **The applicant is proposing to landbank 77 spaces (about nineteen percent) of the required 398 spaces. The landbank parking spaces are proposed closer to southern property line with access from Taft Road. Internal vehicular connection is not established between the two proposed parking lots due to proposed location of storm water detention in between. The proposed landbank parking lot has no pedestrian connection with the proposed parking lot. The applicant is requesting to waive the requirement of sidewalk along Taft Road. The applicant should propose a pedestrian to land bank parking lot to the proposed building.**

   If the Planning Commission approves the landbank parking request, the applicant should note that, all the required information and necessary permits should be obtained from Planning Commission prior to construction of the landbank parking spaces.

3. Planning Commission's findings for approval of Land bank Parking: *Approval for land banking of parking lot construction shall be granted only upon finding by the Planning Commission that the proposal meets the following:*
   - *i. The applicant has demonstrated through substantial evidence that the specified occupant or building use would require less parking than what would typically be required by this Section;*
   - *ii. Parking will not occur on any street or driveway;*
   - *iii. Parking will not occur on any area not approved and developed for parking;*
   - *iv. Parking will not occur on that area where parking construction has been landbanked until such time as that area is constructed for such parking;*
   - *v. The requested parking landbanking shall not create traffic or circulation problems on or off site;*
   - *vi. The requested parking landbanking shall be consistent with the public health, safety, and welfare of the City and the purposes of this Ordinance.*

   The applicant should address the above standards in a response letter prior to Planning Commission meeting.

4. Barrier free parking: **Barrier free spaces shall be located closest to the main entrance. Move the spaces further west closer to main entry.**

5. Bicycle Parking General requirements *(Sec. 5.16):* **Provide bike parking layout plan as required as indicated in section 5.16.6**

6. Pathway along Taft Road: An eight foot asphalt pathway is required along Taft Road. The applicant indicated that the pathway along Taft is not proposed due to potential realignment of Taft. **The applicant shall either provide a pathway as required or apply for DCS variance by contributing to City sidewalk fund. Refer to Engineering for more details**

7. Pedestrian Connectivity: A connection is not provided to public sidewalks from internal sidewalks. The applicant indicated they are not proposed due to potential realignment of Taft.

Potential realignment of Taft would not effect the sidewalk connections from internal site to the public walks. Provide the connections as required

8. Plan Review Chart**: Please refer to Plan Review Chart for other minor comments and Lighting review comments.**

9. Memorandum of Understanding: City Council approved the draft Memorandum at their March 27, 2017 meeting. **The applicant shall submit a executed version of the Memo for further processing. Please find the attached Legal transmittal and the draft memo with exhibits.**

Other Reviews

a. Engineering Review: DCS variances may be required for this site plan. Additional comments to be addressed with Final Site Plan. Engineering is currently **not recommending approval** due to absence of storm water management plan.
b. Landscape Review: Landscape review has identified waivers that may be required. Refer to review letter for more comments. Landscape recommends approval.
a. Wetlands Review: A City of Novi Non-Minor Wetland Permit and Buffer Authorization are required for the proposed impacts to wetlands and regulated wetland setbacks. Additional comments to be addressed with Final Site Plan. Wetlands recommend approval.
b. Woodlands Review: A City of Novi Woodland permit is required for the proposed impacts to regulated woodlands. Additional comments to be addressed with Final Site Plan. Woodlands recommend approval.
c. Traffic Review: Additional comments to be addressed with Final Site Plan. Traffic recommends approval.
d. Traffic Study Review: Traffic is requesting a revised traffic impact study as we are requesting additional support documentation and information. Traffic recommends approval.
e. Facade Review: Façade recommends approval. **A sample board is required prior to Planning Commission meeting.**
f. Fire Review: Additional comments to be addressed with Final Site Plan. Fire recommends approval.

NEXT STEP: Revised Preliminary Site Plan

All reviews except Engineering are recommending approval. Refer to letters for more details. Please submit the following for reconsideration

1. A site plan revision application
2. Two copies of revised site plan addressing pending Engineering comments from as they are currently not recommending approval.
3. Response letter **addressing all comments and refer to sheet numbers where the change is reflected.**

Planning Commission Meeting

After receiving tentative approvals from all reviewing agencies, the Site Plan will be scheduled to go before Planning Commission for 5-day public hearing. The following information will be required at that time.

1. Original Site plan submittal in PDF format. **NO CHANGES MADE. The applicant has already provided the PDF submittal.**
2. A response letter addressing ALL the comments from ALL the review letters and **a request for waivers as you see fit.**
3. A color rendering of the Site Plan, if any.
4. A sample board of building materials if requested by our Façade Consultant. (Required for projects with Section 9 waiver request).

Final Site Plan Submittal

After receiving the Preliminary Site Plan approval, please submit the following for Final site plan review and approval

1. Seven copies of Final Site Plan addressing all comments from Preliminary review
2. Response letter **addressing all comments and refer to sheet numbers where the change is reflected.**
3. Final Site Plan Application
4. Final Site Plan Checklist
5. Engineering Estimate
6. Landscape Estimate
7. Other Agency Checklist
8. Hazardous Materials Packet (Non-residential developments)
9. Non-Domestic User Survey (Non-residential developments)
10. No Revision Façade Affidavit (if no changes are proposed for Façade)
11. Legal Documents as required per the attached Planning and Engineering Legal Transmittals

Electronic Stamping Set Submittal and Response Letter

After receiving Final Site Plan approval, please submit the following for Electronic stamping set approval:

1. Plans addressing the comments in all of the staff and consultant review letters in PDF format.
2. Response letter addressing all comments in ALL letters and ALL charts and **refer to sheet numbers where the change is reflected.**

Stamping Set Approval

Stamping sets are still required for this project. After having received all of the review letters from City staff the applicant should make the appropriate changes on the plans and submit **10 size 24" x 36" copies with original signature and original seals,** to the Community Development Department for final Stamping Set approval. Plans addressing the comments in all of the staff and consultant review letters should be submitted electronically for informal review and approval prior to printing Stamping Sets.

Site Addressing

A new address is required for this project. The applicant should contact the Building Division for an address prior to applying for a building permit. Building permit applications cannot be processed without a correct address. The address application can be found by clicking on this link. Please contact Jeannie Niland [248.347.0438] in the Community Development Department with any specific questions regarding addressing of sites.

Signage

A sign permit can be applied along with the Preliminary Site Plan or as a separate permit application. Exterior Signage is not regulated by the Planning Division or Planning Commission. Please contact Jeannie Niland (248.347.0438) for information regarding sign permits.

Street and Project Name

This project does not require approval from the Street and Project Naming Committee. Please contact Richelle Leskun (248-347-0579) in the Community Development Department for additional information. The address application can be found by clicking on this link.

Parcel Split/Combination:

At this time, an application for the proposed lot split is applied for review. The applicant must create this parcel prior to Stamping Set approval and/or applying for new site address. Plans will not be stamped until the parcel is created.

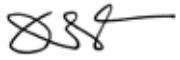
Pre-Construction Meeting

A Pre-Construction meeting is required for this project. Prior to the start of any work on the site, Pre-Construction (Pre-Con) meetings must be held with the applicant's contractor and the City's consulting engineer. Pre-Con meetings are generally held after Stamping Sets have been issued and prior to the start of any work on the site. There are a variety of requirements, fees and permits that must be issued before a Pre-Con can be scheduled. If you have questions regarding the checklist or the Pre-Con itself, please contact Sarah Marchioni [248.347.0430 or smarchioni@cityofnovi.org] in the Community Development Department.

Chapter 26.5

Chapter 26.5 of the City of Novi Code of Ordinances generally requires all projects be completed within two years of the issuance of any starting permit. Please contact Sarah Marchioni at 248-347-0430 for additional information on starting permits. The applicant should review and be aware of the requirements of Chapter 26.5 before starting construction.

If the applicant has any questions concerning the above review or the process in general, do not hesitate to contact me at 248.735.5607 or skomaragiri@cityofnovi.org.



_____

Sri Ravali Komaragiri – Planner

Attachments: Memorandum of Understanding

PLANNING REVIEW CHART: Office Service Technology (OST)

Review Date: April 4, 2017
Review Type: Preliminary Site Plan
Project Name: **HINO MOTORS**
Plan Date: March 24, 2017
Prepared by: Sri Komaragiri, Planner
E-mail: skomaragiri@cityofnovi.org; **Phone:** (248) 735-5607

Bold	To be addressed with the next submittal
Underline	o be addressed with final site plan submittal
Bold and Underline	Requires Planning Commission and / or City Council Approval
Italics	Noted to be noted

Item	Required Code	Proposed	Meets Code	Comments
Zoning and Use Requirements				
Master Plan *(adopted August 25, 2010)*	Office research development and technology	Office	Yes	**The Preliminary Site Plan will require a Planning Commission approval**
Area Study	The site does not fall under any special category	NA	Yes	
Zoning *(Effective December 25, 2013)*	OST: Office Service and Technology	OST	Yes	*City Council approved the Rezoning request on March 13, 2017*
Uses Permitted (Sec 3.1.23.B & C)	Sec. 3.1.23.B. - Principal Uses Permitted. Sec. 3.1.23.C. – Special Land Uses Permitted.	Office/Research	Yes	
Height, bulk, density and area limitations *(Sec 3.1.23.D)*				
Frontage on a Public Street. *(Sec. 5.12)*	Frontage on a Public Street is required	The site has frontage on Twelve Mile Road	**Yes**	
Access To Major Thoroughfare *(Sec. 5.13)*	Access to Major Thoroughfare only Access to other roads only if other side of the street has multi-family or non-residential uses, or City makes a determination the property meets the requirements of this section	The site has access to Twelve Mile road and Taft Road The response letter indicated that a double swing gate will be added at Taft Road entrance	**Yes**	*Taft Road is not a Major Thoroughfare. However, it is allowed and subject to conditions listed in Memorandum of Understanding between City Council and the applicant approved on March 27, 2017* **Show the location of the proposed swing gate on the plans.**

Item	Required Code	Proposed	Meets Code	Comments
Minimum Zoning Lot Size for each Unit in Ac *(Sec 3.6.2.D)*	Except where otherwise provided in this Ordinance, the minimum lot area and width, and the maximum percent of lot coverage shall be determined on the basis of off-street parking, loading, greenbelt screening, yard setback or usable open space		**NA**	
Minimum Zoning Lot Size for each Unit: Width in Feet *(Sec 3.6.2.D)*			**NA**	
Maximum % of Lot Area Covered (By All Buildings)	*(Sec 3.6.2.D)*	124,418 Square feet (21%)	Yes	
Building Height *(Sec. 3.1.23.D & Sec. 3.20.1)*	46 feet or 3 stories Additional height can be proposed if met with the conditions listed in Section 3.20	Maximum height: 30'-4"	Yes	
Building Setbacks *(Sec 3.1.23.D)*				
Front west @ Twelve Mile	50 ft.	227.87 ft.	Yes	
Exterior Side @ Taft Road	50 ft.	107.33 ft.	Yes	
Rear south	50 ft.	668.35 ft.	Yes	
Side west	50 ft.	157.57 ft.	Yes	
Parking Setback *(Sec 3.1.23.D)Refer to applicable notes in Sec 3.6.2*				
Front west @ Twelve Mile	20 ft.	20 ft.	Yes	
Exterior Side @ Taft Road	20 ft	26.25 ft.	Yes	
Rear south	20 ft.	565.85 ft.	Yes	
Side west	20 ft.	20 ft.	Yes	
Note To District Standards *(Sec 3.6.2)*				
Exterior Side Yard Abutting a Street *(Sec 3.6.2.C)*	All exterior side yards abutting a street shall be provided with a setback equal to front yard.	A 107.33' setback is provided along Taft Road	Yes	
Off-Street Parking in Front Yard *(Sec 3.6.2.E)*	Off-street parking is allowed in front yard	Parking is proposed in front yard and meets the parking setback requirements	Yes	
Distance between buildings *(Sec 3.6.2.H)*	It is governed by sec. 3.8.2 or by the minimum setback requirements, whichever is greater	Single building proposed	NA	
Wetland/Waterco	A setback of 25ft from	Wetlands buffers are	Yes	

Item	Required Code	Proposed	Meets Code	Comments
urse Setback *(Sec 3.6.2.M)*	wetlands and from high watermark course shall be maintained	shown on the plan		
Parking setback screening *(Sec 3.6.2.P)*	Required parking setback area shall be landscaped per sec 5.5.3.	A landscape plan is provided	Yes	**Please refer to landscape review for additional information**
Modification of parking setback requirements *(Sec 3.6.2.Q)*	The Planning Commission may modify setback requirements in those instances where it determines that such modification may result in improved use of the site and/ or in improved landscaping; provided, however, that such modification of the setback requirements does not reduce the total area of setback on a site below the minimum setback area requirements of this Section	Setbacks reduction is not proposed	NA	
OST District Required Conditions *(Sec 3.20)*				
Additional Height *(Sec 3.20.1)*	Properties north of Grand River Avenue: Max height: 65 ft with additional setbacks of 2 ft for every 1 ft in excess of 46 ft.	Maximum height: 30'-4"	NA	
Loading and Unloading Screening *(Sec 3.20.2.A)*	Truck service areas and overhead truck loading/unloading doors shall be totally screened from view from any public right-of -way, including freeway right-of-way, and adjacent properties, except for required driveway access.	The loading dock is proposed in the rear side of the building.	Yes	
Required Parking Calculation *(Sec 3.20.2.B)*	A floor plan indicating different uses, leasable floor space used for calculating parking should be shown on the plans	Floor plans for two floors are submitted. Gross Leasable (80,900 SF) and Usable (22,707 SF) is listed on the plan.	Yes	*Applicant has provided revised floor plans indicating the area including in the area calculations.*
Additional conditions for	Uses permitted under subsections 3.1.23.B.ii - v	Unable to determine the type of uses. The	NA	

Item	Required Code	Proposed	Meets Code	Comments
permitted uses in 3.1.23.B.ii – v *(Sec 3.20.2.C)*	shall not be located on property sharing a common boundary with property zoned for R-A, R-1, R-2, R-3, R-4 or MH district use unless conditions in section 3.20.2.C are met	properties zoned RA are separated by a Public right of way, so the conditions of this section would not apply.		
Outdoor storage *(Sec 3.20.2.D)*	The outdoor storage of goods or materials shall be prohibited.	A note has been added to the plans to clarify	Yes	
Parking, Loading and Dumpster Requirements				
Number of Parking Spaces Professional Office *(Sec.5.2.12.D)*	- For buildings upto 100,000 square feet, 1 space per 222 SF GLA For 80,900 GLA, **required spaces = 365** One (1) space for each seven hundred (700) square feet of usable floor area For 22,707 UFA = 33 **Total= 398 spaces**	Total Proposed = 321 spaces Proposed land banking = 77 spaces	Yes	**Include the hatched floor plans in the plan set with Final site plan**
Landbank Parking *(Sec.5. 2.14)* Land banking may be permitted on the request of the applicant if an applicant can demonstrate that the number of parking spaces required under this Section are in excess of the actual requirements for the functional use of the building, for up to twenty five (25) percent of the required number of	Maximum number of Landbank spaces: 25% of required parking **25 % of 398 spaces = 100 spaces**	Proposed land banking = 77 spaces The response letter indicated that the proposed facility will have up to a maximum of 275 team members in the next 10 years and up to 25 visitors at one time.	Yes	
	minimum number of spaces required prior to request for land banking: 45 spaces	Minimum required spaces: 398 Spaces	Yes	
	Alternative layout plan showing land bank parking	Land bank parking is provided on the southern portion of the property independent of the current development	Yes	
	All areas designated for land banking shall be landscaped open space and may not be used for any other purposes	Proposed Land Bank parking is located within regulated woodlands and is proposed to be left in its natural stage	Yes	

Item	Required Code	Proposed	Meets Code	Comments
parking spaces on the site, subject to the following conditions	Planning Commission grants the request based on certain conditions	The		**The conditions are listed in the review letter. The Planning Commission approval will only include the number of Land bank parking spaces, not the location and design.**
	The owner of the property shall report any proposed change in use or occupancy for further evaluation	A note has been added to the plan	Yes	
	Land bank spaces may be installed prior to change in use or occupancy, if determined			**<u>As per Memorandum of understanding, the applicant shall note necessary approvals from Planning Commission have to be obtained prior to installation of proposed Land bank Parking.</u>**
Parking Space Dimensions and Maneuvering Lanes *(Sec. 5.3.2)*	- 90° Parking: 9 ft. x 19 ft. - 24 ft. two way drives - 9 ft. x 17 ft. parking spaces allowed along 7 ft. wide interior sidewalks as long as detail indicates a 4" curb at these locations and along landscaping	- 90° Parking: 9 ft. x 19 ft. - 24 ft. two way drives - 9 ft. x 17 ft. parking spaces with buffer or sidewalk as required	Yes	
Parking stall located adjacent to a parking lot entrance(public or private) *(Sec. 5.3.13)*	- shall not be located closer than twenty-five (25) feet from the street right-of-way (ROW) line, street easement or sidewalk, whichever is closer	Not applicable	NA	
End Islands *(Sec. 5.3.12)*	- End Islands with landscaping and raised curbs are required at the end of all parking bays that abut traffic circulation aisles. - The end islands shall generally be at least 8 feet wide, have an outside radius of 15 feet, and be constructed 3' shorter than the adjacent parking stall as	End Islands are proposed wherever applicable	Yes	**Include dimensions on the plan. Refer to Traffic comments.**

Item	Required Code	Proposed	Meets Code	Comments
	illustrated in the Zoning Ordinance			
Barrier Free Spaces *Barrier Free Code*	For total 401 to 500 = 9 spaces including 2 van accessible	9 barrier Free parking provided	Yes	
Barrier Free Space Dimensions *Barrier Free Code*	- 8‘ wide with an 8’ wide access aisle for van accessible spaces - 5’ wide with a 5’ wide access aisle for regular accessible spaces	Two types of accessible spaces are provided	Yes	**Per building code, handicap spaces should be located closest to the main entry door. Move the spaces further west closer to main Entry.**
Barrier Free Signs *Barrier Free Code*	One sign for each accessible parking space.	One sign is proposed for each space	Yes	
Minimum number of Bicycle Parking *(Sec. 5.16.1)*	General Offices: Five (5) percent of required automobile spaces, minimum two (2) spaces For 398 spaces, 20 spaces For 329 spaces, 16 spaces	16 spaces provided	Yes	*Note that additional four spaces have to be provided at the time of installation of land bank parking*
Bicycle Parking General requirements *(Sec. 5.16)*	- No farther than 120 ft. from the entrance being served - When 4 or more spaces are required for a building with multiple entrances, the spaces shall be provided in multiple locations - Spaces to be paved and the bike rack shall be inverted “U” design - Shall be accessible via 6 ft. paved sidewalk	Distance appears to be in conformance Bike parking is indicated in two locations Accessible by 7 foot wide sidewalk Typical inverted “U” racks proposed	Yes	
Bicycle Parking Lot layout *(Sec 5.16.6)*	Parking space width: 6 ft. One tier width: 10 ft. Two tier width: 16 ft. Maneuvering lane width: 4 ft. Parking space depth: 2 ft. single, 2 ½ ft. double	Not provided	No	**Provide the bike layout plan as required at a larger scale as indicated section 5.16.6**
Loading Spaces *Sec. 5.4.1*	- Within the OS districts, loading space shall be provided in the rear yard or - in the case of a double frontage lot, in the	Loading Area in the rear yard 12,792 SF is provided (5x597 = 2,985 sf	Yes	**Refer to Traffic comments on loading circulation.**

Item	Required Code	Proposed	Meets Code	Comments
	interior side yard, - in the ratio of five (5) square feet per front foot of building up to a total area of three-hundred sixty (360) square feet per building.	required)		
Dumpster *Sec 4.19.2.F*	- Located in rear yard - Attached to the building or - No closer than 10 ft. from building if not attached - Not located in parking setback - If no setback, then it cannot be any closer than 10 ft, from property line. - Away from Barrier free Spaces	Dumpster located in the rear yard Farther than 10 ft. Outside the parking setback Farther away from the barrier free spaces	Yes	**Refer to Traffic review for comments regarding the conflicts with the proposed location.**
Dumpster Enclosure *Sec. 21-145. (c) Chapter 21 of City Code of Ordinances*	- Screened from public view - A wall or fence 1 ft. higher than height of refuse bin - And no less than 5 ft. on three sides - Posts or bumpers to protect the screening - Hard surface pad. - Screening Materials: Masonry, wood or evergreen shrubbery	- An enclosure is shown. Material does not meet the standard	Yes?	**Provide other details as required** **Refer to Façade comments on enclosure material**
Exterior lighting *Sec. 5.7*	Photometric plan and exterior lighting details needed at time of Final Site Plan submittal	A lighting and photometric plan is provided at this time		Refer to comment below
Roof top equipment and wall mounted utility equipment *Sec. 4.19.2.E.ii*	- All roof top equipment must be screened and all wall mounted utility equipment must be enclosed and integrated into the design and color of the building	Roof top equipment is proposed and indicated on elevations	Yes	
Roof top appurtenances screening	Roof top appurtenances shall be screened in accordance with applicable facade	Screening matches building	Yes	

Item	Required Code	Proposed	Meets Code	Comments
	regulations, and shall not be visible from any street, road or adjacent property.			
Non-Motorized Facilities				
Article XI. Off-Road Non-Motorized Facilities	8 foot pathway is required along Twelve Mile and Taft Road	8 foot asphalt pathway along Twelve Mile road The applicant indicated that the pathway along Taft is not proposed due to potential realignment of Taft.	No	**The applicant shall either provide a pathway as required or apply for DCS variance by contributing to City sidewalk fund. Refer to Engineering for more details** **Refer to Traffic comments on Twelve mile path. The material should be changed to concrete.**
Pedestrian Connectivity	Assure safety and convenience of both vehicular and pedestrian traffic both within the site and in relation to access streets	Sidewalks are proposed around the building. The applicant indicated they are not proposed due to potential realignment of Taft.	No	**Potential realignment of Taft would not effect the sidewalk connections from internal site to the public walks.** **Provide the connections as required**
Building Code and Other Requirements				
Building Code	Building exits must be connected to sidewalk system or parking lot.	All exits are connected to sidewalk	Yes	
Design and Construction Standards Manual	Land description, Sidwell number (metes and bounds for acreage parcel, lot number(s), Liber, and page for subdivisions).	Legal description for the all the parcel is provided	Yes	
General layout and dimension of proposed physical improvements	Location of all existing and proposed buildings, proposed building heights, building layouts, (floor area in square feet), location of proposed parking and parking layout, streets and drives, and indicate square footage of pavement area (indicate public or private).	Provided	Yes	**Refer to all review letters for additional information requested**
Economic Impact	- Total cost of the proposed building & site improvements	The total cost of construction will be +/- 10 million. There will be	Yes	

Item	Required Code	Proposed	Meets Code	Comments
	- Number of anticipated jobs created (during construction & after building is occupied, if known)	upto a maximum of 275 team members within the next 10 years		
Development/ Business Sign & Street addressing	- Signage if proposed requires a permit. - The applicant should contact the Building Division for an address prior to applying for a building permit.	Site address will not be issued without a Site plan permit Signage will be proposed at a later date	Yes	**A sign permit can be applied along with Preliminary Site plan or as a separate permit application. Staff recommends indicating the location of any proposed signage for reference purpose.** **Apply for lot addressing prior to stamping set approval** For further information contact Jeannie Niland 248-347-0438.
Project and Street naming	Some projects may need approval from the Street and Project Naming Committee.	This project does not need approval of the Project Name		For approval of project and street naming contact Richelle Leskun at 248-735-0579
Property Split	All property splits and combination must be submitted to the Assessing Department for approval.	The site plan indicates one split and one combination. The applicant indicated that they have applied for the lot combination	No	Property split needs to be recorded prior to stamping set approval
Lighting and Photometric Plan *(Sec. 5.7)*				
Intent *(Sec. 5.7.1)*	Establish appropriate minimum levels, prevent unnecessary glare, reduce spillover onto adjacent properties & reduce unnecessary transmission of light into the night sky	A lighting and photometric plan is provided at this time		**Include the photometric plan and the spec sheets in 24" x 36" size in the submittal packet**
Lighting Plan *(Sec. 5.7.A.i)*	Site plan showing location of all existing & proposed buildings, landscaping, streets, drives, parking areas & exterior lighting fixtures			
Building Lighting *(Sec. 5.7.2.A.iii)*	Relevant building elevation drawings showing all fixtures, the portions of the walls to be illuminated,	Provided. Does not indicate lighting above few doors in north, south and east elevations	Yes?	**Please provide clarification**

Item	Required Code	Proposed	Meets Code	Comments
	illuminance levels of walls and the aiming points of any remote fixtures.			
Lighting Plan *(Sec.5.7.2.A.ii)*	Specifications for all proposed & existing lighting fixtures	Provided	Yes	**Provide hours of operation**
	Photometric data	Provided	Yes	
	Fixture height	25 ft	Yes	
	Mounting & design	Not Provided	No	
	Glare control devices			
	Type & color rendition of lamps	LED	Yes	
	Hours of operation	Not indicated		
	Photometric plan illustrating all light sources that impact the subject site, including spill-over information from neighboring properties			
Maximum Height *(Sec. 5.7.3.A)*	Height not to exceed maximum height of zoning district (or 25 ft. where adjacent to residential districts or uses	25 ft.	Yes	
Standard Notes *(Sec. 5.7.3.B)*	- Electrical service to light fixtures shall be placed underground - Flashing light shall not be permitted - Only necessary lighting for security purposes & limited operations shall be permitted after a site's hours of operation	Notes added to Building lighting sheet	Yes	
Security Lighting *(Sec. 5.7.3.H)* Lighting for security purposes shall be directed only onto the area to be secured.	- All fixtures shall be located, shielded and aimed at the areas to be secured. - Fixtures mounted on the building and designed to illuminate the facade are preferred	Unable to determine	No	**Provide additional information as required.** **Indicate the hours of operation and what lights will be on after hours for security purposes. Provide photometric for site, when only Security lights are turned on.**
Average Light Levels *(Sec.5.7.3.E)*	Average light level of the surface being lit to the lowest light of the	Unable to determine	No	**Provide additional information as required**

Item	Required Code	Proposed	Meets Code	Comments
	surface being lit shall not exceed 4:1			
Type of Lamps *(Sec. 5.7.3.F)*	Use of true color rendering lamps such as metal halide is preferred over high & low pressure sodium lamps	LED	Yes	
Min. Illumination *(Sec. 5.7.3.k)*	Parking areas: 0.2 min	0.2 min	Yes	
	Loading & unloading areas: 0.4 min	0.4 min	Yes	
	Walkways: 0.2 min	0.2 min	Yes	
	Building entrances, frequent use: 1.0 min	1.0 min	Yes	
	Building entrances, infrequent use: 0.2 min	0.2 min	Yes	
Max. Illumination adjacent to Non-Residential *(Sec. 5.7.3.K)*	When site abuts a non-residential district, maximum illumination at the property line shall not exceed 1 foot candle	Does not exceed 1.0	Yes	
Cut off Angles *(Sec. 5.7.3.L)*	when adjacent to residential districts - All cut off angles of fixtures must be 90° - maximum illumination at the property line shall not exceed 0.5 foot candle	Not abutting residential districts. The residential district to the east is separated by Taft Road right of way		

NOTES:

1. This table is a working summary chart and not intended to substitute for any Ordinance or City of Novi requirements or standards.
2. The section of the applicable ordinance or standard is indicated in parenthesis. Please refer to those sections in Article 3, 4 and 5 of the zoning ordinance for further details
3. Please include a written response to any points requiring clarification or for any corresponding site plan modifications to the City of Novi Planning Department with future submittals.

ENGINEERING REVIEW

PLAN REVIEW CENTER REPORT

04/11/2017

Engineering Review

JSP17-0002
Hino Motors

Applicant
General Development

Review Type
Preliminary Site Plan

Property Characteristics

- Site Location: South of Twelve Mile Road, west of Taft Road
- Site Size: 13.5 acres
- Plan Date: March 24, 2017
- Design Engineer: Nowak & Fraus Engineers

Project Summary

- Construction of an approximately 124,418 square-foot office/industrial building and associated parking. Site access is proposed by a new curb cut in Twelve Mile Road and secondary access by a new curb cut in Taft Road.
- Water service would be provided by a proposed water main extension from the existing 16-inch water main in 12 Mile Road. A 3-inch domestic lead and an 8-inch fire lead would be provided to serve the building, with additional fire hydrants provided as required on the site.
- Sanitary sewer service would be provided by a 6-inch sewer lead to the building from the existing 21-inch sanitary sewer main in Taft Road.
- Storm water would be collected by a single storm sewer collection system and detention provided on site.

Recommendation
Approval of the Preliminary Site Plan and Storm Water Management Plan is not recommended.

Comments:
The Preliminary Site Plan meets the general requirements of the design and construction standards as set forth in Chapter 11 of the City of Novi Codified Ordinance and the Engineering Design Manual with items to be addressed at the time of Final Site Plan submittal. The Preliminary Storm Water Management plan was not submitted.

To be addressed prior to Preliminary Storm Water Management Plan recommendation for approval**:**

1. Provide a Storm Water Management Plan (SWMP). The SWMP shall comply with the Storm Water Ordinance and Chapter 5 of the Engineering Design Manual (refer to the runoff coefficients, 1V:4H allowable basin slopes, etc.).
2. The SWMP must detail the storm water system design and calculations. The SWMP must address the discharge of storm water off-site, and evidence of its adequacy must be provided. This should be done by comparing pre- and post-development discharge rates.
3. An adequate maintenance access route to the basin outlet structure shall be provided (15 feet wide, maximum slope of 1V:5H, and able to withstand the passage of heavy equipment). Verify the access route does not conflict with proposed landscaping.
4. A 4-foot wide safety shelf is required one-foot below the permanent water surface elevation within the basin.
5. A 25-foot vegetated buffer shall be provided around the perimeter of the storm water basin.

To be addressed prior to the Final Site Plan submittal**:**

General

1. Provide existing topography with 2-foot contours and property lines/parcel information extending at least 100 feet past the site boundary. Show all existing drive approaches within 200 feet on both sides of Twelve Mile Road and Taft Road.
2. A right-of-way permit is required from the Road Commission for Oakland County for work in the Twelve Mile Road right-of-way. A right-of-way permit is required from City of Novi for work in the Twelve Mile Road and Taft Road right-of-way. Include a note on the plans indicating the required permits.

Water Main

3. As described in the Design and Construction Standards, Section 11-68 a) 1), public water main must be provided along the Taft Road frontage of the parcel being developed. **Any deviations from these standards require a written request for Variance from the Design and Construction**. The Request for Variance form can be found on the City's website. Refer to Section 11-10 of the Design and Construction Standards for a description of the conditions for granting such variances.

a. The intent of this requirement is to serve existing and future customers. Public water main is typically placed 7.5 feet off the right-of-way line, along the east side of the street. The water main can be placed under the influence of Taft Road to avoid conflicts with existing and proposed utilities, light poles and tree plantings.

b. The proposed water main must be a minimum size of 12 inch from the connection at the 16 inch water main in Twelve Mile and along the Taft frontage in order to provide for future infrastructure extensions and service connections.

c. Provide 8 inch water main stubs to the right-of-way to serve the existing parcels on the east side of Taft. The one stub as shown can provide connection for customers at 27700 and 27650 Taft Road. Provide an additional 8 inch stub to the right-of-way for future service to 27750 Taft Road.

d. Provide and show on the plans water main easement for future extension of the 12 inch water main to the south along the remainder of the parcel.

4. A 20 foot wide water main easement is required for any water main (8 inch or larger) placed outside the public right-of-way. Show on the plans and provide draft easements for the extent of water main easement to be provided in this development for proposed and future water main construction.

5. Provide profiles for all proposed water main 8-inch and larger.

6. Provide a unique shut-off valve for each of the building leads for domestic and fire service.

7. Maintain barrel-to-barrel horizontal separation of at least ten (10) feet between water mains and sewers.

8. Upon approval of water main design, provide three (3) signed and sealed sets of revised utility plans along with the MDEQ permit application (1/07 rev.) for water main construction. The Streamlined Water Main Permit Checklist should be submitted to the Engineering Division for review, assuming no further design changes are anticipated. Utility plan sets shall include only the cover sheet, any applicable utility sheets and the relevant standard detail sheets.

<u>Sanitary Sewer</u>

9. Provide a sanitary sewer monitoring manhole, unique to this site, within the right-of-way or in a dedicated access easement. If the manhole is placed outside the right-of-way, provide a 20-foot wide access easement to the monitoring manhole from the right-of-way (rather than a public sanitary sewer easement).

<u>Storm Sewer</u>

10. Provide a site drainage area map and storm sewer sizing calculations.

11. Provide a four-foot deep sump and an oil/gas separator in the last storm structure prior to discharge to the storm water detention basin.

Storm Water Management Plan

12. The SWMP must detail the storm water system design, calculations, details, and maintenance as stated in the ordinance. The SWMP must address the discharge of storm water off-site, and evidence of its adequacy must be provided. This should be done by comparing pre- and post-development discharge rates.
13. An adequate maintenance access route to the basin outlet structure shall be provided. Verify the access route does not conflict with proposed landscaping. Provide and show on plans a Storm Drain Facility Maintenance Easement for the access route to the basin outlet from the public road right-of-way.
14. Provide a 5-foot wide stone bridge allowing direct access to the standpipe from the bank of the basin during high-water conditions (i.e. stone 6-inches above high water elevation). Provide a detail and/or note as necessary.

Paving & Grading

15. Clearly label the existing, proposed and master planned right-of-way lines.
16. The master planned 8 foot pathway along Taft Road is required by ordinance. The ordinance allows for an administrative variance when there are no existing pathways within 300-feet of the property if the applicant provides payment to the City equal to the cost of the pathway (as approved by the City Engineer) for City use to construct pathways elsewhere in the City. **This site plan does not meet the criteria for administrative approval, therefore, any requested variance for payment into the sidewalk fund in lieu of building the pathway is subject to City Council approval**.
17. The pathway on Twelve Mile Road should be concrete rather than asphalt to match surrounding existing pathways.
18. Parking stalls may be 17 feet in length with a 2 foot overhang provided, otherwise parking spaces must be 19 feet in length. The site plan shows 17 feet for parking stall length with a 6-inch curb. Curb height must be reduced to 4 inches to provide the 2 foot overhand in this area. Revise parking stalls to 19 feet in length and/or provide for the 2 foot overhang on 17 foot stalls.

Soil Erosion and Sediment Control

19. A Soil Erosion Sediment Control (SESC) permit is required. The review checklist detailing all SESC requirements is attached to this letter. An informal review will be completed with the Final Site Plan if SESC plans are included in the submittal.

Off-Site Easements

20. Any off-site easements anticipated must be executed **prior to final approval of the plans**. Drafts of these documents must be submitted with the final site plan for review and approval by City Engineer and City Attorney. Fully approved and executed off-site easements are required prior to final approval of the plans.

The following must be provided at the time of Final Site Plan resubmittal:

21. A letter from either the applicant or the applicant's engineer must be submitted with the Final Site Plan highlighting the changes made to the plans addressing each of the comments listed above and indicating the revised sheets involved.
22. The Non-Domestic User Survey form is required for this development. Submit this form to the City, and the City will forward the completed form to the Oakland County Water Resources Commissioner.
23. An itemized construction cost estimate must be submitted to the Community Development Department at the time of Final Site Plan submittal for the determination of plan review and construction inspection fees. This estimate should only include the civil site work and not any costs associated with construction of the building or any demolition work. ***The cost estimate must be itemized*** for each utility (water, sanitary, storm sewer), on-site paving, right-of-way paving (including proposed right-of-way), grading, and the storm water basin (basin construction, control structure, pretreatment structure and restoration).
24. Draft copies of any off-site easements, a recent title search, and legal escrow funds must be submitted to the Community Development Department for review and approved by the Engineering Division and the City Attorney prior to signatures.

The following must be submitted at the time of Stamping Set submittal:

(Please note that all documents must be submitted together as a package with the Stamping Set submittal with a legal review transmittal form that can be found on the City's website. Partial submittals will not be accepted.)

25. The City standard detail sheets are required with the Stamping Set submittal. They can be found on the City website (www.cityofnovi.org/DesignManual). (Note that these standard detail sheets are not required with the Final Site Plan submittal.)
26. A draft copy of the Storm Drainage Facility Maintenance Easement Agreement, as outlined in the Storm Water Management Ordinance, must be submitted to the Community Development Department. Once the form of the agreement is approved, this agreement must be approved by City Council and shall be recorded in the office of the Oakland County Register of Deeds. This document is available on our website.
27. Draft copies of any required utility and/or access easements.
28. Draft warranty deed for any right-of-way to be dedicated.
29. Executed copies of any required off-site easements.
30. To the extent this review letter addresses items and requirements that require the approval of or a permit from an agency or entity other than the City, this review shall not be considered an indication or statement that such approvals or permits will be issued.

Please contact Darcy Rechtien at 248/735-5695 with any questions.

Darcy N. Rechtien

Darcy N. Rechtien, P.E.

cc: Theresa Bridges, Engineering
George Melistas, Engineering
Sri Komaragiri, Community Development
Tina Glenn, Treasurers
Kristen Pace, Treasurers
Ben Croy, Water and Sewer

CITY OF NOVI ENGINEERING DIVISION
SOIL EROSION AND SEDIMENTATION CONTROL PLAN CHECKLIST

PROJECT:

Contact Name:

Phone Number:

Fax Number:

SESC Application #: SE -

DATE COMPLETED:

DATE OF PLAN:

STATUS:

General Requirements – Following the initial Soil Erosion and Sedimentation Control permit application to the Community Development Department, all SESC plan revisions shall be submitted directly to the Engineering Department for further review and/or permit approval. One (1) copy of revised soil erosion plans, including response letter addressing the comments below, shall be submitted for each subsequent review until the plan has been given approval by the Engineering Department, at which point five (5) copies will be required for permit approval. Plans shall be signed and sealed, and the bond must be submitted to the Treasurer's Office prior to permit issuance.

ITEM NO.	ITEM	Provided on Plans	COMMENTS
1.	Plan shall be at scale of not more than 1" = 200', include legal description, location, proximity to lakes, streams or wetlands, slopes, etc.	☐	
2.	Plan shall include a soil survey or a written description of soil types of the exposed land area.	☐	
3.	Plan shall show the limits of earth disruption.	☐	
4.	Plan shall show tree protection fencing and location of trees to be protected.	☐	
5.	Plan shall show all existing and proposed on-site drainage and dewatering facilities (i.e. structure details, rim elev., etc.)	☐	
6.	Detailed sequence of construction shall be provided on plans structured similar to the following, supplemented with site specific items: 1) Install tracking mat, 2) Install temp. SESC measures, 3) Construct storm water basins and install treatment structures, if applicable, 4) Install storm sewer, with inlet protection to follow immediately, 5) Remove all temp. SESC measures once site is stabilized.	☐	
7.	Plan must address maintenance of soil erosion and sedimentation control measures (temporary and permanent)	☐	
8.	Provide a note stating if dewatering is anticipated or encountered during construction a dewatering plan must be submitted to the Engineering Division for review.	☐	
9.	A grading plan shall be provided, or grade information shown on plan.	☐	

10.	Note that it is the developer's responsibility to grade and stabilize disturbances due to the installation of public utilities.	☐	
11.	The CSWO shall be listed on permit application.	☐	
12.	Plan sealed by registered civil engineer with original signature.	☐	
13.	An itemized cost estimate (Silt Fence, Inlet Filters, Topsoil/Seed/Mulch, Const. Access, etc.) shall be provided.	☐	The SESC financial guarantee will be $. The SESC inspection fees will be $.
14.	Potential stockpile areas shall be shown on the plan, with note stating a ring of silt fence will be installed surrounding any stockpiled material.	☐	
15.	Sediment basin: Provide filter on standpipe outlet structure until site is stabilized, then removed. Noted on plan and standpipe detail(s).	☐	
16.	Provide a note on the plan stating the storm water basin will be stabilized prior to directing flow to the basin.	☐	
17.	Pretreatment Structures: Noted to inspect weekly for sediment accumulation until site is stabilized, and will clean as required.	☐	.
18.	Attach the Oakland County standard detail sheet.	☐	
19.	Construction mud tracking entrance: 75'x20', 6" of 1" to 3" stone, on geotextile fabric.	☐	
20.	Silt fence: 6" anchor trench, stakes 6' on center. Prominent line type on plan, with legend.	☐	
21.	Provide Silt Sack with overflow capability as the inlet protection, and provide detail on plans.	☐	
22.	Catch basin inlet filters shall be provided on existing roadways along construction route for reasonable distance from site.	☐	
23.	Street sweeping and dust control shall be noted on plan as responsibility of contractor.	☐	
24.	Vegetation shall be established within 5 days of final grade, or whenever disturbed areas will remain unchanged for 30 days or greater. 3-4" of topsoil will be used where vegetation is required.	☐	
25.	Vegetated buffer strips (25' wide wherever possible) shall be created or retained along the edges of all water bodies, water courses or wetlands.	☐	
26.	Diversion berms or terracing shall be implemented where necessary.	☐	
27.	All drainage ditches shall be stabilized with erosion control blanket and shall utilize check	☐	

	dams as necessary. Drainage ditches steeper than 3% shall be sodded.		
28.	Slopes steeper than 1V:6H (16%) shall be stabilized with erosion control blanket. Add this note as a general note, and also in a prominent location near any berm, etc. where a significant slope is proposed.	☐	
29.	All culvert end sections must contain grouted rip-rap in accordance with ordinance specifications.	☐	

ADDITIONAL COMMENTS:

1. Please note that installation of silt fencing or tree protection fencing shall not occur prior to the initial City pre-construction meeting. When natural features exist on the site, inspection of staking may be required prior to installation of the fencing.
2. **2.**

Reviewed By:

LANDSCAPE REVIEW

PLAN REVIEW CENTER REPORT

March 30, 2017

Preliminary Site Plan - Landscaping

Hino Motors

Review Type

Preliminary Site Plan Landscape Review

Property Characteristics

· Site Location:	Southwest Corner of Twelve Mile Road and Taft Road
· Site Acreage:	15.56 acres (after combination/split)
· Site Zoning:	RA being rezoned to OST
· Adjacent Zoning:	North – I-1, East and West – RA; South – RA (ITC corridor)
· Plan Date:	3/24/2017

Ordinance Considerations

This project was reviewed for conformance with Chapter 37: Woodland Protection, Zoning Article 5.5 Landscape Standards, the Landscape Design Manual and any other applicable provisions of the Zoning Ordinance. Items in **bold** below must be addressed and incorporated as part of the Preliminary Site Plan submittal. Underlined items will need to be addressed on the Final Site Plans. Please follow guidelines of the Zoning Ordinance and Landscape Design Guidelines. The comments on the accompanying Landscape Chart should also be addressed. This review is a summary and not intended to substitute for any Ordinance.

Recommendation

This project is **recommended for approval, subject to the items listed in this letter and on the accompanying landscape chart are addressed in the next submittal.** That said, the future Taft Road re-alignment needs to be shown on the landscape plan and all street tree and right-of-way greenbelt landscaping needs to reflect that and be aligned with the future right-of-way. The area within the future right-of-way cannot be used for required landscaping or woodland replacements. All related calculations need to be modified to use the future Taft Road right-of-way as its basis, and provided landscaping needs to be modified accordingly.

Ordinance Considerations

Existing Soils (Preliminary Site Plan checklist #10, #17)

Provided

Existing and proposed overhead and underground utilities, including hydrants. (LDM 2.e.(4))

1. Provided.
2. Distances from closest proposed tree(s) to overhead utility lines are provided.

Existing Trees (Sec 37 Woodland Protection, Preliminary Site Plan checklist #17 and LDM 2.3 (2))

1. A complete tree survey is provided, and trees to be removed are shown on Sheet L1.
2. Please show the proposed removals on the tree chart on Sheet SP-4
3. Tree fencing and tree protection detail are shown on Sheet L1.

Adjacent to Residential - Buffer (Zoning Sec. 5.5.3.B.ii and iii)

Property is not adjacent to Residential except across Taft Road.

Adjacent to Public Rights-of-Way – Berm (Wall) & Buffer (Zoning Sec. 5.5.3.B.ii and iii)

1. **See the note above regarding the Taft Road re-alignment future right-of-way. The calculations provided should be revised to reflect the future Twelve Mile Road and Taft Road frontages and the correct number of trees based on those calculations provided along the future rights-of-way frontage, not the existing rights-of-way. This will result in a reduction in the landscaping required along Twelve Mile and probably an increase along the existing/future Taft Road.**
2. The ordinance calls for a 3 foot tall (minimum) berm along both Twelve Mile and Taft Roads. The required berms are provided everywhere except between Twelve Mile and the Wetland and between Taft and the detention pond. **A landscape waiver is requested for the berm not provided along Twelve Mile west of the entry drive because that area is to be left in its natural state and is supported by staff. A landscape waiver is also required to not provide the berm between Taft and the detention pond. This waiver would also be supported if a berm is provided between the parking bay just north of the basin and Taft.**
3. A landscape waiver is also requested for the greenbelt canopy and ornamental trees not provided between Twelve Mile and the wetland in order to preserve the existing natural conditions. **This waiver is supported by staff.**
4. **Please add a list of all landscape waivers requested to either the Landscape Plan Sheet L2 or the cover sheet.**

Street Tree Requirements (Zoning Sec. 5.5.3.E.i.c and LDM 1.d.)

1. Based on the frontages for the current alignment, the required street trees are provided along Twelve Mile Road and Taft Road.
2. **See the note above regarding the Taft Road re-alignment future right-of-way. The calculations provided should be revised to reflect the future Twelve Mile Road and Taft Road frontages and the correct number of trees based on those calculations provided along the future rights-of-way frontage, not the existing rights-of-way.**

Parking Lot Landscaping (Zoning Sec. 5.5.3.C.)

1. Based on the vehicular use areas, 8,051 sf of islands and 107 trees are required. 8,372 sf of islands and 69 trees are provided.
2. **While the minimum island area is 300sf, some leniency can be given for islands that connect with peripheral open space. However, spaces with less than 200sf are not sufficiently large to justify that leniency. Please enlarge all edge islands with less than 200sf between curbs to at least 200sf.**
3. **The 165sf island at the southwest corner of the building cannot be counted toward the provided interior space.**
4. **Interior landscape islands need to have a tree planted in them to count toward the total. Please add canopy trees to areas with the minimum area required and shown as counting toward the total.**
5. **Please add the waiver request for the interior trees that aren't provided to the list noted above. This will be supported as the parking lot is well-landscaped.**

Parking Lot Perimeter Canopy Trees (Zoning Sec. 5.5.3.C.(3) Chart footnote)

1. Based on the 1938 lf of perimeter, 55 canopy trees are required. 40 canopy trees are proposed.
2. **Please add the waiver request for the interior trees that aren't provided to the list noted above. This will be supported as the parking lot is well-landscaped.**

Loading Zone screening (Zoning Sec. 3.14, 3.15, 4.55, 4.56, 5.5)

The dense plantings in the Taft Road greenbelt frontage provide as much screening as the configuration will allow.

Building Foundation Landscape (Zoning Sec 5.5.3.D.)

1. **Based on the building perimeter of 958lf, 7,664sf of foundation landscaping is required.**
2. **While the plans indicate that 14,992sf of landscaping is provided, most of this is lawn. The ordinance requires that the landscaping consist of planted beds, not lawn.**
3. **Please restrict the measurement of the area provided to actual planted beds and increase the area of foundation landscape beds if required.**
4. The provided landscaping covers 62% of the building fronting on Twelve Mile or Taft Roads. This exceeds the requirement of 60% coverage.

Plant List (LDM 2.h. and t.)

1. Woodland Replacement trees need to be species listed on the Section 37 (Woodland Protection) Woodland Replacement Chart.
2. **Columbia planetree, Armstrong maple, Douglas Fir, River Birch and Frontier elm do not qualify as eligible Woodland Replacement selections and should be replaced with species from that list.**

Planting Notations and Details (LDM)

Planting details are provided.

Storm Basin Landscape (Zoning Sec 5.5.3.E.iv and LDM 1.d.(3)

The shrubs and seed mix provided satisfy the requirements.

Irrigation (LDM 1.a.(1)(e) and 2.s)

Irrigation plan for landscaped areas is required for Final Site Plan.

Proposed topography. 2' contour minimum (LDM 2.e.(1))

Provided.

Snow Deposit (LDM.2.q.)

Provided.

Proposed trees to be saved (Sec 37 Woodland Protection 37-9, LDM 2.e.(1))

1. Trees to be removed are clearly marked on L2
2. **Please indicate trees to be removed on the Tree Chart on Sheet SP-4.**

Corner Clearance (Zoning Sec 5.9)

1. Corner clearance triangles are provided as requested.
2. **Please remove the tree within the corner clearance zone on the north side of the Taft Road entry.**

If the applicant has any questions concerning the above review or the process in general, do not hesitate to contact me at 248.735.5621 or rmeader rmeader@cityofnovi.org.

Rick Meader – Landscape Architect

LANDSCAPE REVIEW SUMMARY CHART - Preliminary Site Plan

Review Date: March 30, 2017
Project Name: JSP17 – 0002: HINO MOTORS
Plan Date: March 24, 2017
Prepared by: Rick Meader, Landscape Architect E-mail: rmeader@cityofnovi.org; Phone: (248) 735-5621

Items in **Bold** need to be addressed by the applicant before approval of the Preliminary Site Plan.
Underlined items need to be addressed for Final Site Plan.

Item	Required	Proposed	Meets Code	Comments
Landscape Plan Requirements (LDM (2)				
Landscape Plan *(Zoning Sec 5.5.2, LDM 2.e.)*	§ New commercial or residential developments § Addition to existing building greater than 25% increase in overall footage or 400 SF whichever is less. § 1"=20' minimum with proper North. Variations from this scale can be approved by LA § Consistent with plans throughout set	Yes	Yes	Scale 1"=50'
Project Information *(LDM 2.d.)*	Name and Address	Yes	Yes	
Owner/Developer Contact Information *(LDM 2.a.)*	Name, address and telephone number of the owner and developer or association	Yes	Yes	
Landscape Architect contact information *(LDM 2.b.)*	Name, Address and telephone number of RLA	Yes	Yes	
Sealed by LA. *(LDM 2.g.)*	Requires original signature	Yes	Yes	Required for Final Site Plan
Miss Dig Note (800) 482-7171 *(LDM.3.a.(8))*	Show on all plan sheets	Yes	Yes	
Zoning *(LDM 2.f.)*	Include all adjacent zoning	Yes	Yes	RA being rezoned to OST East & South: RA (ITC) West: RA, North: I-1
Survey information *(LDM 2.c.)*	§ Legal description or boundary line survey § Existing topography	Yes	Yes	
Existing plant material Existing woodlands or	§ Show location type and size. Label to be	Yes	Yes	1. Trees to be removed clearly indicated on

Item	Required	Proposed	Meets Code	Comments
wetlands *(LDM 2.e.(2))*	saved or removed. § Plan shall state if none exists.			L-1. 2. Tree labels on trees to remain shown on Landscape Plan **3. Please indicate trees to be removed on Tree Chart on Sheet SP-4.** **4. Contributions to the city tree fund in the amount of $400 per tree not planted on the site are required. Please add the amount of contribution that will be made to the calculations on Sheet L1.**
Soil types *(LDM.2.r.)*	§ As determined by Soils survey of Oakland county § Show types, boundaries	Yes	Yes	
Existing and proposed improvements *(LDM 2.e.(4))*	Existing and proposed buildings, easements, parking spaces, vehicular use areas, and R.O.W	Yes	Yes	**1. Please show future right-of-way for Taft Road alignment on Landscape Plan and modify landscaping accordingly.** **2. The future right-of-way line should be used for all landscaping calculations and space availability.**
Existing and proposed utilities *(LDM 2.e.(4))*	Overhead and underground utilities, including hydrants	Yes	Yes	Trees are located clear of overhead lines and structures.
Proposed grading. 2' contour minimum *(LDM 2.e.(1))*	Provide proposed contours at 2' interval	Yes	Yes	Contours provided on Landscape Plan, spot elevations on SP-7
Snow deposit *(LDM.2.q.)*	Show snow deposit areas on plan	Yes	Yes	
LANDSCAPING REQUIREMENTS				
Parking Area Landscape Requirements LDM 1.c. & Calculations (LDM 2.o.)				
General requirements *(LDM 1.c)*	§ Clear sight distance within parking islands § No evergreen trees	Yes	Yes	
Name, type and	As proposed on planting	Sod lawn	Yes	

Item	Required	Proposed	Meets Code	Comments
number of ground cover (LDM 1.c.(5))	islands			
General *(Zoning Sec 5.5.3.C.ii)*				
Parking lot Islands *(a, b. i)*	§ A minimum of 300 SF to qualify § 6" curbs § Islands minimum width 10' BOC to BOC	Yes	Yes, except for islands that provide less than 200sf	**1.** Most islands are sufficiently wide. **2. Please widen islands with less than 200sf to provide at least 200sf within the curbs.** **3. 165sf island at southwest corner of building is too small to count toward total.**
Curbs and Parking stall reduction *(c)*	Parking stall can be reduced to 17' and the curb to 4" adjacent to a sidewalk of min. 7 ft.	Yes	Yes	
Contiguous space limit *(i)*	Maximum of 15 contiguous spaces	Yes	Yes	
Plantings around Fire Hydrant *(d)*	No plantings with matured height greater than 12' within 10 ft. of fire hydrants	Yes	Yes	
Landscaped area *(g)*	Areas not dedicated to parking use or driveways exceeding 100 sq. ft. shall be landscaped	Yes	Yes	
Clear Zones (LDM 2.3.(5))	25 ft corner clearance required. Refer to Zoning Section 5.5.9	Yes	Yes	**1.** RCOC sight triangle is provided at 12 Mile Road entrance, and City of Novi sight triangle is provided at Taft Road entrance as requested. **2. Please move Malus tree within Taft Road entry sight triangle (on north side of drive) out of clear zone.**
Category 1: For OS-1, OS-2, OSC, OST, B-1, B-2, B-3, NCC, EXPO, FS, TC, TC-1, RC, Special Land Use or non-residential use in any R district *(Zoning Sec 5.5.3.C.iii)*				
A = Total square footage of parking spaces not including access aisles x 10%	§ A = x 10% = sf § 51,857 * 10% = 5186 sf	Yes		
B = Total square footage of additional paved vehicular use areas (not including	§ B = x 5% = sf § Paved Vehicular access area includes loading areas	Yes		

Item	Required	Proposed	Meets Code	Comments
A) under 50,000 SF) x 5%	§ 50,000 * 5% = 2500			
C= Total square footage of additional paved vehicular use areas (not including A or B) over 50,000 SF) x 1 %	§ C = x 1% = sf § (86517-50000) * 1% = 365 sf	Yes		
Category 2: For: I-1 and I-2 (Zoning Sec 5.5.3.C.iii)				
A. = Total square footage of parking spaces not including access aisles x 7%	§ A = 7% x xx sf = xx sf	NA		
B = Total square footage of additional Paved vehicular use areas (not including A) under 50,000 SF) x 2%	§ B = 2% x xx sf = xx sf	NA		
C= Total square footage of additional paved vehicular use areas (not including A or B) over 50,000 SF) x 0.5%	§ C = 0.5% x 0 sf = 0 SF	NA		
All Categories				
D = A+B or A+C Total square footage of landscaped islands	5186 + 2500 + 365 = 8051 SF	8527 SF	No	**1.** A number of the islands included in the total provided are not sufficiently large to be counted. **2. Islands must have a tree planted within them to be counted.** **3. There are a couple of corners that could be counted toward total that aren't.**
E = D/75 Number of canopy trees required	8051/75=107 Trees	§ 69 trees § A waiver for the missing 38 trees is requested.	No	**1. Please include a list of waivers requested on the landscape plan or cover sheet.** **2. As the plan is well-landscaped with interior trees, the waiver will be supported by staff as long as the notes regarding the minimum island sizes**

Item	Required	Proposed	Meets Code	Comments
				are addressed.
Perimeter Green space	§ 1 Canopy tree per 35 lf of parking lot exterior § 1938/35 = 55 trees	§ 40 trees § A waiver for the missing 15 trees is requested.	No	**1. Please include a list of waivers requested on the landscape plan or cover sheet.** **2. As the plan is well-landscaped with perimeter trees, the waiver will be supported by staff.**
Parking land banked		77 land-banked spaces are proposed south of wetland		A site visit revealed that the site chosen contains 11-15 protected woodland trees, mostly black walnuts of 10-18"dbh, but the location, from a tree protection standpoint, is probably the best location possible on the site. It would require extensive grading to construct.
Berms, Walls and ROW Planting Requirements				
Berms				
§ All berms shall have a maximum slope of 33%. Gradual slopes are encouraged. Show 1ft. contours § Berm should be located on lot line except in conflict with utilities. § Berms should be constructed with 6" of top soil.				
Residential Adjacent to Non-residential (Sec 5.5.3.A) & (LDM 1.a)				
Berm requirements *(Zoning Sec 5.5.A)*	Refer to Residential Adjacent to Non-residential berm requirements chart	NA		Abutting parcels are being rezoned to OST so berms for this are not required.
Planting requirements *(LDM 1.a.)*	LDM Novi Street Tree List	NA		
Adjacent to Public Rights-of-Way (Sec 5.5.B) and (LDM 1.b)				
Berm requirements *(Zoning Sec 5.5.3.A.(5))*	Refer to ROW landscape screening requirements chart for corresponding requirements.	Yes	TBD	**1. The plans note that the area between 12 Mile Road and the wetland will not be disturbed.** **2. A landscape waiver, with the justification being that the natural condition is being**

Item	Required	Proposed	Meets Code	Comments
				preserved is supported by staff. This waiver should be included in the list of waivers requested as noted above.
Cross-Section of Berms (LDM 2.j)				
Slope, height and width	§ Label contour lines § Maximum 33% § Minimum height of 3 feet § Min. 2 feet flat horizontal area § Construction of loam with 6" top layer of topsoil.	Yes	Yes	**Please add callouts showing berm is to be constructed of loam with a 6" top layer of topsoil.**
Type of Ground Cover		Lawn	Yes	Sod and seed areas are indicated.
Setbacks from Utilities	Overhead utility lines and 15 ft. setback from edge of utility or 20 ft. setback from closest pole	Yes	Yes	
Walls (LDM 2.k & Zoning Sec 5.5.3.vi)				
Material, height and type of construction footing	Freestanding walls should have brick or stone exterior with masonry or concrete interior	No walls are proposed.		
Walls greater than 3 ½ ft. should be designed and sealed by an Engineer		3 boulder walls, 2 feet or less in height, are proposed	Yes	
ROW Landscape Screening Requirements*(Sec 5.5.3.B. ii)*				
Greenbelt width (2)(3) (5)	§ Parking: 20 ft. § No pkg: 25 ft	20 ft pkg/25 ft non-pkg	Yes	
Min. berm crest width	§ Parking: 2 ft. § No pkg: 3 ft	2 ft, apparently – no berms between roads and wetland/detention pond.	Yes	1. Details show minimum crest width is provided where berms are provided. 2. No berm is provided to screen the southernmost parking bay and detention pond. **No berm is necessary for the pond, but the bay should be screened from Taft Road with a berm.**

Item	Required	Proposed	Meets Code	Comments
Minimum berm height (9)	§ Parking: 3 ft. § No pkg: 3 ft	3 feet	Yes	
3' wall	§ (4)(7)	3 boulder walls, 2 feet tall or less are proposed		
Canopy deciduous or large evergreen trees Notes (1) (10)	§ Parking: 1 tree per 35 lf -12 Mile Rd: 325/35= 9 -Taft Rd: 640/35= 18 § No Pkg: 1 tree per 40 lf -12 Mile Rd: 140/40= 4 -Taft Rd: 140/40= 4	12 Mile Rd: 9 trees Taft Rd: 22 trees	No	1. As the northeast corner of the property is being reserved for future realignment of Taft Road, the frontages of 12 Mile and Taft should be calculated based on the proposed future rights-of-way for that project. **2. Please revise the calculations and trees provided based on the future right-of-way frontages.** **3. A landscape waiver request to not provide greenbelt plantings between 12 Mile and the wetland in order to preserve the existing conditions is supported by staff.**
Sub-canopy deciduous trees Notes (2)(10)	§ Parking: 1 tree per 20 lf -12 Mile Rd:325/20=16 -Taft Rd: 640/20= 32 § No Pkg: 1 tree per 25 lf -12 Mile Rd: 140/25= 6 -Taft Rd: 140/25= 6	12 Mile Rd: 16 trees Taft Rd: 38 trees	No	**1. See note above regarding future right-of-way.** **2. Please adjust calculations and trees provided based on future right-of-way.** **3. A landscape waiver request to not provide greenbelt plantings between 12 Mile and the wetland in order to preserve the existing conditions is supported by staff.**
Canopy deciduous trees in area between sidewalk and curb	§ Parking: 1 tree per 35 lf -12 Mile Rd: 325/35= 9 -Taft Rd: 640/35= 18	12 Mile Rd: 12 trees Taft Rd: 21 trees	Yes	**1. See note above regarding future right-of-way.**

Item	Required	Proposed	Meets Code	Comments
(Novi Street Tree List)	§ No Pkg: 1 tree per 45 lf -12 Mile Rd: 140/45= 3 -Taft Rd: 140/45= 3			**2. Please adjust calculations and trees provided based on future right-of-way.**
Non-Residential Zoning Sec 5.5.3.E.iii & LDM 1.d (2) Refer to Planting in ROW, building foundation landscape, parking lot landscaping and LDM				
Interior Street to Industrial subdivision *(LDM 1.d.(2))*	§ 1 canopy deciduous or 1 large evergreen per 35 l.f. along ROW § No evergreen trees closer than 20 ft. § 3 sub canopy trees per 40 l.f. of total linear frontage § Plant massing for 25% of ROW	NA		
Screening of outdoor storage, loading/unloading *(Zoning Sec. 3.14, 3.15, 4.55, 4.56, 5.5)*		Yes	Yes	Loading area is screened to maximum amount possible, given driveway positioning.
Transformers/Utility boxes *(LDM 1.e from 1 through 5)*	§ A minimum of 2ft. separation between box and the plants § Ground cover below 4" is allowed up to pad. § No plant materials within 8 ft. from the doors	Arborvitae screening	Yes	
Building Foundation Landscape Requirements (Sec 5.5.3.D)				
Interior site landscaping SF	§ Equals to entire perimeter of the building x 8 with a minimum width of 4 ft. § **958 lf x 8ft = 7664 SF**	14992 sf	No – much of the area shown as foundation landscape area does not fulfill the requirement.	**1.** Per Section 5.5.3.D.ii.a, foundation landscaping must be composed of planted beds, not lawn. **2. Please restrict the calculations of the area provided to actual landscape beds (shrubs, grasses, ornamental trees, perennials, etc), not lawn areas. Additional beds will be required in areas at the base of the building where they**

Item	Required	Proposed	Meets Code	Comments
				are not provided, and some of the beds may need to be increased in area to meet the requirement. **3.** The south edge of the building can be deleted from the building perimeter in calculating the required area.
Zoning Sec 5.5.3.D.ii. All items from (b) to (e)	If visible from public street a minimum of 60% of the exterior building perimeter should be covered in green space	62%	Yes	
Detention/Retention Basin Requirements (Sec. 5.5.3.E.iv)				
Planting requirements *(Sec. 5.5.3.E.iv)*	§ Clusters shall cover 70-75% of the basin rim area § 10" to 14" tall grass along sides of basin § Refer to wetland for basin mix	Yes	Yes	
Woodland Replacement Trees (Sec. 37-8.(d))				
Woodland Replacement Tree Locations	§ Replacement trees shall be planted in a location that will provide the optimum enhancement, preservation and protection of woodland areas. § Evergreen trees shall be counted as 2/3 of a deciduous canopy tree in calculating the replacements provided.	· Woodland trees are proposed around the detention basin and in the northeast corner of the property, in the area of the future Taft Road realignment · Evergreen trees are counted as a full replacement credit.	No	1. The trees around the detention basin are acceptable in terms of location. See below for a discussion of the species selected. **2. The area of the future Taft Road realignment cannot be used for planting replacement trees, as they would be removed in order to re-align Taft Road. Either other locations on the site can be utilized, or a deposit for trees that can't be planted on the site can be made to the tree fund.** **3. Please revise the calculations to show**

Item	Required	Proposed	Meets Code	Comments
				all evergreen trees as counting as 2/3 the value of a deciduous canopy tree.
LANDSCAPING NOTES, DETAILS AND GENERAL REQUIREMENTS				
Landscape Notes – Utilize City of Novi Standard Notes				
Installation date *(LDM 2.l. & Zoning Sec 5.5.5.B)*	Provide intended date	Yes	Yes	
Maintenance & Statement of intent *(LDM 2.m & Zoning Sec 5.5.6)*	§ Include statement of intent to install and guarantee all materials for 2 years. § Include a minimum one cultivation in June, July and August for the 2-year warranty period.	Yes	Yes	
Plant source *(LDM 2.n & LDM 3.a.(2))*	Shall be northern nursery grown, No.1 grade.	Yes	Yes	
Irrigation plan *(LDM 2.s.)*	A fully automatic irrigation system and a method of draining is required with Final Site Plan	No		Need for final site plan
Other information *(LDM 2.u)*	Required by Planning Commission	NA		
Establishment period *(Zoning Sec 5.5.6.B)*	**2 yr. Guarantee**	Yes	Yes	
Approval of substitutions. *(Zoning Sec 5.5.5.E)*	City must approve any substitutions in writing prior to installation.	Yes	Yes	**Please add "in writing" to the relevant note at the upper left side of Sheet L2.**
Plant List (LDM 2.h.) – Include all cost estimates				
Quantities and sizes	Refer to LDM suggested plant list	Yes	Yes	
Root type		Yes	Yes	
Botanical and common names		Yes	Yes	**1. For woodland replacement trees, please use only species listed on the Woodland Replacement Chart in Section 37 – Woodland Protection. London planetrees, hybrids (Armstrong Maple),**

Item	Required	Proposed	Meets Code	Comments
				River Birch and Douglas Fir are not acceptable selections for Woodland Replacements. **2. Please substitute in species from the Woodland Replacement Chart for all trees to be used as replacements.**
Type and amount of lawn		Yes	Yes	
Cost estimate *(LDM 2.t)*	For all new plantings, mulch and sod as listed on the plan	Yes	Yes	Required for Final Site Plans.
Planting Details/Info (LDM 2.i) – Utilize City of Novi Standard Details				
Canopy Deciduous Tree	Refer to LDM for detail drawings	Yes	Yes	
Evergreen Tree		Yes	Yes	
Shrub		Yes	Yes	
Perennial/ Ground Cover		Yes	Yes	
Tree stakes and guys. (Wood stakes, fabric guys)		Yes	Yes	
Tree protection fencing	Located at Critical Root Zone (1' outside of dripline)	Yes	Yes	**Please amend note at lower left corner of L2 and City of Novi Tree Protection Note #3 to say that fencing should be no closer than 1 foot outside of dripline.**
Other Plant Material Requirements (LDM 3)				
General Conditions *(LDM 3.a)*	Plant materials shall not be planted within 4 ft. of property line	Yes	Yes	
Plant Materials & Existing Plant Material *(LDM 3.b)*	Clearly show trees to be removed and trees to be saved.	Yes	Yes	
Landscape tree credit *(LDM3.b.(d))*	Substitutions to landscape standards for preserved canopy trees outside woodlands/ wetlands should be approved by LA. Refer to Landscape tree	No		

Item	Required	Proposed	Meets Code	Comments
	Credit Chart in LDM			
Plant Sizes for ROW, Woodland replacement and others *(LDM 3.c)*	Canopy Deciduous shall be 3" and sub-canopy deciduous shall be 2.5" caliper. Refer to section for more details	Yes	Yes	
Plant size credit *(LDM3.c.(2))*	NA	No		
Prohibited Plants *(LDM 3.d)*	No plants on City Invasive Species List	No	Yes	
Recommended trees for planting under overhead utilities *(LDM 3.e)*	Label the distance from the overhead utilities	Yes	TBD	
Collected or Transplanted trees *(LDM 3.f)*		No		
Nonliving Durable Material: Mulch *(LDM 4)*	§ Trees shall be mulched to 4" depth and shrubs, groundcovers to 3" depth § Specify natural color, finely shredded hardwood bark mulch. Include in cost estimate. § Refer to section for additional information	Yes	Yes	

NOTES:

1. This table is a working summary chart and not intended to substitute for any Ordinance or City of Novi requirements or standards.
2. The section of the applicable ordinance or standard is indicated in parenthesis. For the landscape requirements, please see the Zoning Ordinance landscape section 5.5 and the Landscape Design Manual for the appropriate items under the applicable zoning classification.
3. Please include a written response to any points requiring clarification or for any corresponding site plan modifications to the City of Novi Planning Department with future submittals.

WETLANDS REVIEW

ECT Environmental Consulting & Technology, Inc.

April 10, 2017

Ms. Barbara McBeth
City Planner
Community Development Department
City of Novi
45175 W. Ten Mile Road
Novi, Michigan 48375

Re: Hino Motors (JSP17-0002)
Wetland Review of the Preliminary Site Plan (PSP17-0001)

Dear Ms. McBeth:

Environmental Consulting & Technology, Inc. (ECT) has reviewed the Preliminary Site Plan for the proposed Hino Motors project prepared by Nowak & Fraus Engineers dated March 24, 2017 (Plan). The Plan was reviewed for conformance with the City of Novi Wetland and Watercourse Protection Ordinance and the natural features setback provisions in the Zoning Ordinance. ECT conducted a wetland evaluation for the property on January 31, 2017 with a representative from Nowak & Fraus Engineers.

ECT recommends approval of the Preliminary Site Plan for Wetlands; however, the Applicant should address the items noted below in the *Wetland Comments* Section of this letter prior to receiving Wetland approval of the Final Site Plan.

The following wetland related items are required for this project:

Item	Required/Not Required/Not Applicable
Wetland Permit (specify Non-Minor or Minor)	Required (Non-Minor)
Wetland Mitigation	Not Required
Wetland Buffer Authorization	Required
MDEQ Permit	To Be Determined. It is the applicant's responsibility to contact the MDEQ in order to determine the need for a wetland use permit.
Wetland Conservation Easement	Required

The proposed Hino Motors USA project is located south of Twelve Mile Road and west of Taft Road in Section 16, Novi, Michigan. The subject property consists of the parcels 50-22-16-226-004 and 50-22-16-226-008. The proposed parcel consists of approximately 13.6 acres. Nowak & Fraus previously completed the on-site wetland delineation and tree survey. The project includes the construction of a 124,418 square foot Office Service Technology (OST) building, associated parking and utilities and a proposed storm water detention basin system. Based on our review of the Plan, Novi aerial photos, Novi GIS, and City of Novi Official Wetlands and Woodlands Maps (see Figure 1) it appears as if this proposed project site contains both Regulated Wetlands and Regulated Woodlands.

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Wetland Evaluation

ECT's in-office review of available materials included the City of Novi Regulated Wetland and Watercourse map, USGS topographic quadrangle map, NRCS soils map, USFWS National Wetland Inventory map, and historical aerial photographs. Based on historic aerial photos (1940 and 1963, available from the Oakland County Property Gateway; https://gis.oakgov.com/PropertyGateway/Home.mvc), the eastern half of parcel 50-22-16-226-004 had been agricultural land. The site includes areas indicated as City-regulated wetland on the official City of Novi Regulated Wetland and Watercourse Map (see Figure 1).

ECT visited the site on January 31, 2017 for the purpose of a wetland boundary verification with the applicant's wetland consultant Nowak & Fraus (NF). The focus of the inspection was to review site conditions in order to determine whether on-site wetlands are considered regulated under the City of Novi's Wetland and Watercourse Protection Ordinance. Wetland boundary flagging was in place at the time of this site inspection. ECT and NF identified four wetland areas (Wetlands A, B, C and D) in the field (see Figure 2 and Site Photos):

- Wetland A (2.19 acres);
- Wetland B (0.10-acre);
- Wetland C (0.10-acre);
- Wetland D (0.04-acre).

Wetland A is an emergent wetland located on the south and west sides of the subject property. Many areas of the wetland contained standing water at the time of our site visit. The wetland contains the following species of vegetation: common buckthorn (*Rhamnus cathartica*), American elm (*Ulmus americana*), silky dogwood (*Cornus amomum*), green ash (*Fraxinus pennsylvanica*), narrow-leaved cattail (*Typha angustifolia*), dogbane (*Apocynum cannabinum*), and panicled aster (*Aster lanceolatus*). The upland fringe of Wetland A contains the following species of vegetation: common blackberry (*Rubus allegheniensis*), tall goldenrod (*Solidago altissima*), common buckthorn (*Rhamnus cathartica*), motherwort (*Leonurus cardiaca*), honeysuckle (*Lonicera spp.*), black walnut (Juglans nigra), and tick trefoil (*Desmodium canadense*).

Wetland B is a forested/open-water wetland located south of Twelve Mile Road on the north side of the subject site. This wetland contained a significant amount of standing water at the time of our site inspection; approximately 14-inches at the southern edge of the wetland. The wetland contains the following species of vegetation: cottonwood (*Populus deltoides*), silver maple (*Acer saccharinum*), and silky dogwood (*Cornus amomum*). The upland fringe of Wetland B contains the following species of vegetation: common buckthorn (*Rhamnus cathartica*), black walnut (Juglans nigra), Amur honeysuckle (*Lonicera maackii*), and honeysuckle (*Lonicera spp.*).

Wetland C is an emergent wetland located off of the proposed development site to the west (near the northwest section of the subject site). This wetland contained approximately 4-inches of standing water in the area that was accessed during our site visit. The following species of vegetation were found within the wetland: broad-leaved cattail (*Typha latifolia*), pussy willow (*Salix discolor*), silky dogwood (*Cornus amomum*), water plantain (*Alisma plantago-aquatica*), and panicled aster (*Aster lanceolatus*). The upland fringe of Wetland C contains the following species of vegetation: black walnut (*Juglans nigra*), common buckthorn (*Rhamnus cathartica*), black cherry (*Prunus serotina*), and red cedar (*Juniperus virginiana*).

Wetland D is an open water/vernal pool wetland located in the central, northern section of the site. The wetland contained several inches of open water at the time of our inspection. The following species of vegetation were found within the wetland: silver maple (Acer saccharinum), green ash (*Fraxinus pennsylvanica*), and silky dogwood

(*Cornus amomum*). The upland fringe of Wetland D contains common buckthorn (*Rhamnus cathartica*) and autumn olive (*Elaeagnus umbellata*).

What follows is a summary of the wetland impacts associated with the proposed site design.

Wetland Impact Review

Wetlands A through D all appear be considered essential/regulated wetlands by the City of Novi as each wetland meets one or more of the essentiality criteria outlined in the City of Novi Wetland Ordinance (i.e., wildlife habitat, stormwater storage, etc.). Although not shown individually, these wetlands are generally depicted on the available mapping materials and are shown as regulated wetland on the official City of Novi Regulated Wetland and Watercourse map. Wetlands A, B, C and D all appear to be accurately flagged in the field.

The Michigan Department of Environmental Quality (MDEQ) generally regulates wetlands that are within 500 feet of a waterbody, regulated stream or are part of wetland system greater than 5 acres in size. It is the applicant's responsibility to contact MDEQ in order to confirm the regulatory authority with respect to the on-site wetland areas. At a minimum, it appears as if Wetland B (located at the north end of the subject property) may be within 500 feet of the Walled Lake Branch of the Middle Rouge River (located east of the site).

The Plan appears to avoid impact to a good portion of the on-site wetlands and 25-foot wetland setbacks; however the Plan does include direct impacts to Wetland D (wetland and wetland buffer) for the purpose of constructing the proposed parking on the west side of the site. These wetland impacts are not clearly indicated and quantified on the Plan. The applicant shall show the following information on subsequent site plans:

- Area (square feet) of all existing 25-foot wetland buffers;
- Area (square feet) and volume (cubic yards) of all wetland impacts (both permanent and temporary);
- Area (square feet) of all wetland buffer impacts (both permanent and temporary).

The current Plan also includes the installation of a boulder retaining wall adjacent to the Wetland B 25-foot setback in the northwest portion of the site. The proposed boulder wall will be constructed just south of a proposed 8-foot wide asphalt pedestrian pathway running along the northern portion of the site. If temporary impact to the setback of Wetland B is anticipated for this construction, this should be indicated and quantified on the Plan. Should temporary impacts to either wetland or wetland setback be required, the applicant shall designate on the Plan a proposed native seed mix to be used in the restoration of these areas. The applicant should review and revise the Plan as necessary.

It should be noted that should the seventy-seven (77) land banked parking spaces as shown on the south side of the site be constructed, no additional direct impacts to wetlands or wetland buffer appears to be proposed.

The proposed wetland impacts do not appear to require wetland mitigation as the City's threshold for wetland mitigation is 0.25-acre of wetland impact and the MDEQ's threshold is 0.30-acre.

Permits & Regulatory Status

Any proposed use of Wetlands A, B, C, or D will require a City of Novi *Wetland Use Permit* as well as an *Authorization to Encroach the 25-Foot Natural Features Setback* for any proposed impacts to the 25-foot wetland buffers. As noted, the on-site wetlands are considered essential by the City as they appear to meet one or more of the essentiality criteria set forth in the City's Wetland and Watercourse Protection Ordinance (i.e., storm water

storage/flood control, wildlife habitat, etc.). It is the Applicant's responsibility to contact MDEQ in order to determine if the proposed development would require a wetland use permit from the MDEQ. The on-site wetlands could be regulated by the Michigan Department of Environmental Quality (MDEQ) as some appear to be located within 500-feet of a pond, stream, drain or lake. Final determination of regulatory status should be made by the MDEQ. A permit from this agency may be required for any direct impacts, or potentially for storm water discharge from the proposed detention basin to existing wetlands (i.e., Wetland A on the south side of the site.

Wetland Comments

Please consider the following comments when preparing subsequent site plan submittals:

1. The proposed volume of wetland fill associated with the impact to Wetland D shall be indicated on the Final Site Plan. The proposed impact to the 25-foot wetland buffer should also be quantified (i.e., square feet or acres) and labeled on the Plan. This information is needed in order to prepare the City of Novi Wetland and Watercourse Permit as well as the Authorization to Encroach the 25-foot wetland setback.

2. If temporary impact to the 25-foot setback of Wetland B is anticipated for the construction of the boulder retaining wall in the northwestern portion of the site, this should be indicated and quantified on the Plan.

3. Should the seventy-seven (77) land banked parking spaces as shown on the south side of the site be constructed, no additional direct impacts to wetlands or wetland buffer appear to be proposed. However, based on the Memorandum of Understanding (MOU) that has been agreed upon by the applicant and City Council, the applicant is allowed some flexibility in the site design, specifically as it relates to land bank parking. As noted in the MOU:

   Property Owner is allowed to grade within the 25-foot Wetland "A" buffer to accommodate the installation of the boulder retaining wall shown on the Revised Proposed Site Plan, or any other retaining walls along the wetland buffer areas on the final plans which have been necessitated by the shifting of the building area for the potential future Taft Road realignment.

4. Should temporary impacts to either wetland or wetland setback be required, the applicant shall designate on the Plan a proposed native seed mix to be used in the restoration of these areas. Temporary impacts to wetlands and wetland setbacks shall be restored using a native seed mix; common grass seed or sod is not authorized in these areas. Seed mix details shall be included on the Plan, if applicable. The applicant should review and revise future plan submittals as necessary.

5. The ultimate outfall from the site's stormwater detention basin will be to Wetland A along the southern section of the project. The outfall from the detention basin will be approximately 75-feet from an existing 12-inch PVC culvert under Taft Road. The applicant should provide calculations that illustrate that the existing 12-inch culvert is adequately-sized to handle the discharge from the proposed development and that excessive water will not be backing up within existing Wetland A. ECT recommends that the City of Novi Engineering Department review the hydrology associated with the proposed stormwater outfall and existing 12-inch culvert.

6. The Applicant shall provide wetland conservation easements as directed by the City of Novi Community Development Department for any areas of remaining wetland as well as for any proposed wetland mitigation areas (if applicable). A Conservation Easement shall be executed covering all remaining wetland areas on site as shown on the approved plans. This language shall be submitted to the City Attorney for review. The

executed easement must be returned to the City Attorney within 60 days of the issuance of the City of Novi Wetland and Watercourse permit.

7. It is the Applicant's responsibility to contact MDEQ in order to determine if the proposed development would require a wetland use permit from the MDEQ. The on-site wetlands could be regulated by the Michigan Department of Environmental Quality (MDEQ) as some appear to be located within 500-feet of a pond, stream, drain or lake. Final determination of regulatory status should be made by the MDEQ. A permit from this agency may be required for any direct impacts, or potentially for storm water discharge from the proposed detention basin to existing wetlands (i.e., Wetland A on the south side of the site. A City of Novi Wetland Permit shall not be issued until this information is received from the Applicant.

Recommendation

ECT recommends approval of the Preliminary Site Plan for Wetlands; however, the Applicant should address the items noted below in the *Wetland Comments* Section of this letter prior to receiving Wetland approval of the Final Site Plan.

If you have any questions regarding the contents of this letter, please contact us.

Respectfully submitted,

ENVIRONMENTAL CONSULTING & TECHNOLOGY, INC.

Pete Hill, P.E.
Senior Associate Engineer

cc: Sri Komaragiri, City of Novi Planner
Richelle Leskun, City of Novi Planning Assistant
Rick Meader, City of Novi Landscape Architect
Kirsten Mellem, City of Novi Planner

Attachments: Figure 1 – City of Novi Regulated Wetland and Woodland Map
Figure 2 – Preliminary Site Plan
Site Photos

Figure 1. City of Novi Regulated Wetland & Woodland Map (approximate project boundary shown in red). Regulated Woodland areas are shown in green and regulated Wetland areas are shown in blue).

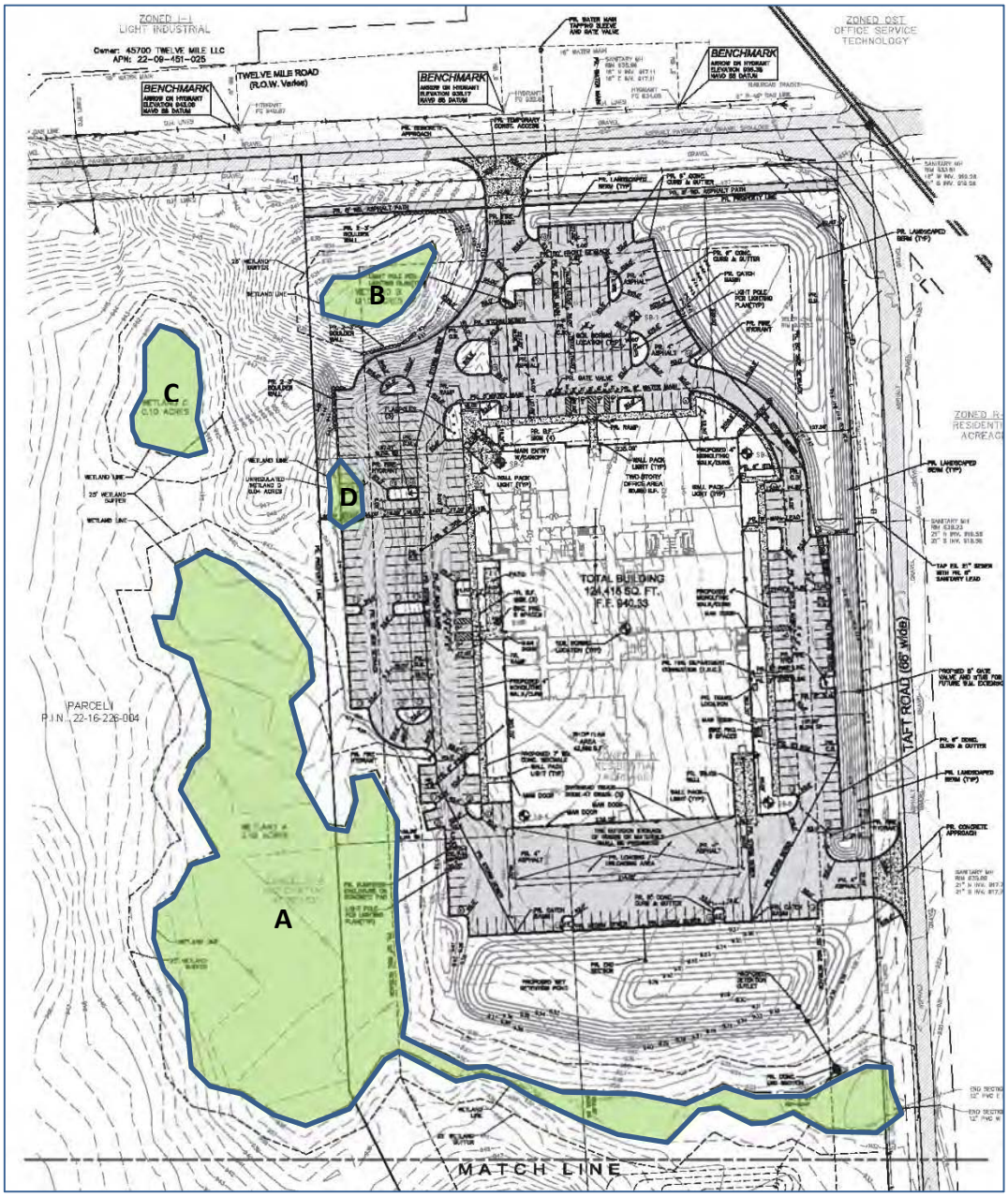

Figure 2. Preliminary Site Plan. Approximate wetland boundaries are shown in green.

Site Photos

Photo 1. Looking south at Wetland A, adjacent to Taft Road. Approximate location of existing 12-inch culvert is indicated with an arrow (ECT 1/31/2017).

Photo 2. Looking northwest at Wetland A in area west of proposed stormwater detention basin (ECT 1/31/2017).

Photo 3. Looking northwest at Wetland B in the northwest section of the site (ECT 1/31/2017).

Photo 4. Looking northeast at Wetland C which is located off the proposed Development site to the west (ECT 1/31/2017).

Photo 5. Looking northeast at Wetland D. This wetland to be filled for the proposed development (ECT 1/31/2017).

WOODLANDS REVIEW

ECT Environmental Consulting & Technology, Inc.

April 10, 2017

Ms. Barbara McBeth
City Planner
Community Development Department
City of Novi
45175 West Ten Mile Road
Novi, MI 48375

Re: Hino Motors (JSP17-0002)
Woodland Review of the Preliminary Site Plan (PSP17-0001)

Dear Ms. McBeth:

Environmental Consulting & Technology, Inc. (ECT) has reviewed the Preliminary Site Plan for the proposed Hino Motors project prepared by Nowak & Fraus Engineers dated March 24, 2017 (Plan). The Plan was reviewed for conformance with the City of Novi Woodland Protection Ordinance Chapter 37. ECT conducted a woodland evaluation for the property on January 31, 2017 with a representative from Nowak & Fraus Engineers.

ECT recommends approval of the Preliminary Site Plan for Woodlands; however, the Applicant should address the items noted below in the *Woodland Comments* Section of this letter prior to receiving Woodland approval of the Final Site Plan.

The following woodland related items are required for this project:

Item	Required/Not Required/Not Applicable
Woodland Permit	Required
Woodland Fence	Required
Woodland Conservation Easement	Required

The proposed Hino Motors USA project is located south of Twelve Mile Road and west of Taft Road in Section 16, Novi, Michigan. The subject property consists of the parcels 50-22-16-226-004 and 50-22-16-226-008. The proposed parcel consists of approximately 13.91 acres. Nowak & Fraus previously completed the on-site wetland delineation and tree survey. The project includes the construction of a 124,418 square foot Office Service Technology (OST) building, associated parking and utilities and a proposed storm water detention basin system.

The purpose of the Woodlands Protection Ordinance is to:

1) *Provide for the protection, preservation, replacement, proper maintenance and use of trees and woodlands located in the city in order to minimize disturbance to them and to prevent damage from erosion and siltation, a loss of wildlife and vegetation, and/or from the destruction of the natural habitat. In this regard, it is the intent of this chapter to protect the integrity of woodland areas as a whole, in recognition that woodlands serve as part of an ecosystem, and to place priority on the preservation of woodlands, trees, similar woody vegetation, and related natural resources over development when there are no location alternatives;*

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2) *Protect the woodlands, including trees and other forms of vegetation, of the city for their economic support of local property values when allowed to remain uncleared and/or unharvested and for their natural beauty, wilderness character of geological, ecological, or historical significance; and*

3) *Provide for the paramount public concern for these natural resources in the interest of health, safety and general welfare of the residents of the city.*

What follows is a summary of our findings regarding on-site woodlands associated with the proposed project.

On-Site Woodland Evaluation

ECT has reviewed the City of Novi Official Woodlands Map and completed an onsite Woodland Evaluation on January 31, 2017. ECT's in-office review of available materials included the City of Novi Regulated Woodland map and other available mapping. The subject property does include a significant area indicated as City-regulated woodland on the official City of Novi Regulated Wetland and Watercourse Map (see Figure 1).

An existing tree survey has been completed for a portion of this property by Nowak & Fraus. The Plan includes a *Surveyed Tree List* (Sheet SP-4) that identifies tree tag numbers, diameter-at-breast-height (DBH), common/botanical name, and condition of all surveyed trees. The *Tree Preservation Plan* (Sheet L1) includes a Replacement Summary that lists the total woodland replacements credits that are required for the proposed tree removals.

The surveyed trees have been marked with aluminum tree tags allowing ECT to compare the tree diameters reported on the *Surveyed Tree List* to the existing tree diameters in the field. ECT found that the Plan appears to accurately depict the location, species composition and the size of the existing trees. ECT took a sample of diameter-at-breast-height (DBH) measurements and found that the data provided on the Plan was consistent with the field measurements. It should be noted that the Plan does not include surveyed tree information for the south side of the project. Specifically, the Plan does not include information related to the existing trees and the proposed removals required for the construction of the seventy-seven (77) land banked parking spaces located on the south side of the site.

The highest quality woodlands on site are found in the southern section of the subject site. These areas are dominated by 8-inch to 20-inch diameter-at-breast-height (DBH) black walnut trees. In general, the on-site trees consist of black walnut (*Juglans nigra*), American elm (*Ulmus americana*), black cherry (*Prunus serotina*), box elder (*Acer negundo*), red maple (*Acer rubrum*), eastern red cedar (*Juniperus virginiana*), black willow (*Salix nigra*), sugar maple (*Acer saccharum*), black locust (*Robinia pseudoacacia*), Colorado blue spruce (*Picea pungens*), and eastern white pine (*Pinus strobus*).

In terms of habitat quality and diversity of tree species, the overall subject site consists of fair to good quality trees. In terms of a scenic asset, wildlife habitat, windblock, noise buffer or other environmental asset, the forested area located on the subject site is considered to be of good to high quality. As noted above, the northern section of the site is not mapped as Regulated Woodland on the City of Novi's Regulated Woodland Map.

City of Novi Woodland Review Standards, Woodland Permit Requirements & Proposed Impacts

Based on Section 37-29 (*Application Review Standards*) of the City of Novi Woodland Ordinance, the following standards shall govern the grant or denial of an application for a use permit required by this article:

> *No application shall be denied solely on the basis that some trees are growing on the property under consideration. However, the protection and conservation of irreplaceable natural resources from pollution, impairment, or destruction is of paramount concern. Therefore, the preservation of woodlands, trees, similar woody vegetation, and related natural resources shall have priority over development when there are location alternatives.*

In addition,

> "*The removal or relocation of trees shall be limited to those instances when necessary for the location of a structure or site improvements and when no feasible and prudent alternative location for the structure or improvements can be had without causing undue hardship".*

The City of Novi regulates all trees 8-inches diameter-at-breast-height (DBH) and greater that are located within the areas delineated as regulated woodlands on the City-Regulated Woodlands Map. The City also regulates any individual tree greater than or equal to 36-inches DBH, irrespective of whether such tree is within a regulated woodland. Proposed woodland impacts will require a Woodland Permit and the regulated trees shall be relocated or replaced by the permit grantee.

The *Surveyed Tree List* (Sheet SP-4) indicates that 116 of the 273 trees that have been surveyed are proposed for removal (42% removal). The tree Replacement Summary notes that these removals require a total of 191 Woodland Replacement tree credits. The *Landscape Plan* (Sheet L2) indicates that 191 Woodland Replacement credits will be provided on-site. The Landscape plan appear to graphically indicate Woodland Replacement tree locations. The applicant should review and revise the Landscape Plan and the associated Plant Schedule to list the quantities and species of Woodland Replacement Trees in table-form (i.e., indicate which trees are being proposed as Woodland Replacement trees in the *Plant Schedule* table).

Woodland Comments

Please consider the following comments when submitting future site development plan submittals:

1. The Plan does not include surveyed tree information for the south side of the project. Specifically, the Plan does not include information related to the existing trees and the proposed removals required for the construction of the seventy-seven (77) land banked parking spaces located on the south side of the site. This is acceptable at this point as the applicant and City Council have agreed on a Memorandum of Understanding (MOU) which allows the applicant some flexibility in the site design, specifically as it relates to land bank parking. The MOU authorizes land bank parking without immediate payment into the City's tree fund. This issue of woodland replacement trees associated with the development of a land bank parking area would need to be approved by the City during the site plan/land development review process (i.e., submittal of a revised site plan). The MOU specifically states:

   > *Property Owner is allowed to provide "land bank" parking as contemplated under the City's Zoning Ordinance approximately as shown on the Revised Proposed Site Plan without the requirement to identify protected trees within the area or to pay any tree preservation or tree replacement amounts unless and until the area is in fact improved with parking improvements in the future.*

2. ECT recommends that the upland woods (mainly black walnut) located south of Wetland A near the southern section of the subject property be preserved by the Applicant during the site development process to the greatest extent practicable.

3. Please add a column to the Tree Inventory List on Sheet SP-4 (Surveyed Tree List) that indicates whether a given tree if being removed or saved.

4. The *Landscape Plan* (Sheet L2) indicates that 191 Woodland Replacement credits will be provided on-site. The Landscape plan appears to graphically indicate Woodland Replacement tree locations. The applicant should review and revise the Landscape Plan and the associated Plant Schedule to list the quantities and species of Woodland Replacement Trees in table-form (i.e., indicate which trees are being proposed as Woodland Replacement trees in the *Plant Schedule* table).

5. A Woodland Permit from the City of Novi would be required for proposed impacts to any trees 8-inch DBH or greater located within the regulated woodland boundaries or any tree greater than 36-inches DBH. Such trees shall be relocated or replaced by the permit grantee either through approved on-site replacement trees or through a payment to the City of Novi Tree Fund. All deciduous replacement trees shall be two and one-half (2 ½) inches caliper or greater and will be counted at a 1:1 replacement ratio. All proposed coniferous replacement trees shall be 6-feet in height (minimum) and will be counted at a 1.5:1 replacement ratio. See the attached City of Novi Woodland Replacement Chart for acceptable woodland replacement species.

6. It should be noted that Columbia Planetree, Armstrong maple, Douglas fir, river birch and Frontier elm do not qualify as eligible for Woodland Replacement tree credit. Please review the City of Novi Woodland Replacement Chart (attached) and revise the landscaping plans as necessary.

7. A Woodland Replacement Performance financial guarantee for the planting of replacement trees will be required. This financial guarantee will be based on the number of on-site woodland replacement trees (credits) being provided at a per tree value of $400.

8. It should be noted that on-site Woodland Replacement credit will not be given for any trees planted within the future right-of-way area for the Taft Road realignment in the northeast section of the site. As noted in the City's landscape review letter:

   > *…the future Taft Road re-alignment needs to be shown on the landscape plan and all street and right-of-way greenbelt landscaping needs to reflect that and be aligned with the future right-of-way. The area within the future right-of-way cannot be used for required landscaping or woodland replacements. All related calculations need to be modified to use the future Taft Road right-of-way as its basis, and provided landscaping needs to be modified accordingly.*

9. The Applicant will be required to pay the City of Novi Tree Fund at a value of $400/credit for any Woodland Replacement tree credits that cannot be placed on site.

10. Based on a successful inspection of the installed on-site Woodland Replacement trees, the Woodland Replacement Performance Guarantee shall be returned to the Applicant. A Woodland Maintenance and Guarantee bond equal to twenty-five percent (25%) of the value of the original Woodland Replacement

material will then be kept for a period of 2-years after the successful inspection of the tree replacement installation.

11. The Applicant shall provide preservation/conservation easements as directed by the City of Novi Community Development Department for any areas of remaining woodland and woodland replacement trees. The applicant shall demonstrate that the all proposed woodland replacement trees and existing regulated woodland trees to remain will be guaranteed to be preserved as planted with a conservation easement or landscape easement to be granted to the city. This language shall be submitted to the City Attorney for review. The executed easement must be returned to the City Attorney within 60 days of the issuance of the City of Novi Woodland permit.

12. Replacement material should not be located 1) within 10' of built structures or the edges of utility easements and 2) over underground structures/utilities or within their associated easements. In addition, replacement tree spacing should follow the *Plant Material Spacing Relationship Chart for Landscape Purposes* found in the City of Novi *Landscape Design Manual.*

Recommendation

ECT recommends approval of the Preliminary Site Plan for Woodlands; however, the Applicant should address the items noted in the *Woodland Comments* Section of this letter prior to receiving Woodland approval of the Final Site Plan.

If you have any questions regarding the contents of this letter, please contact us.

Respectfully submitted,

ENVIRONMENTAL CONSULTING & TECHNOLOGY, INC.

Pete Hill, P.E.
Senior Associate Engineer

cc: Sri Komaragiri, City of Novi Planner
Richelle Leskun, City of Novi Planning Assistant
Rick Meader, City of Novi Landscape Architect
Kirsten Mellem, City of Novi Planner

Attachments: Figure 1 – City of Novi Regulated Wetland & Woodland Map
Woodland Tree Replacement Chart

Figure 1. City of Novi Regulated Wetland & Woodland Map (approximate project boundary shown in red). Regulated Woodland areas are shown in green and regulated Wetland areas are shown in blue).

Site Photos

Photo 1. Looking south at area of regulated woodland on south side of site; south of Wetland A (i.e., area of proposed land banked parking (ECT 1/31/2017).

Photo 2. Looking north from central portion of the site. This area is not located within an area mapped as City of Novi Regulated Woodlands (ECT 1/31/2017).

Woodland Tree Replacement Chart

(from Chapter 37 Woodlands Protection)
(All canopy trees to be 2.5" cal or larger, evergreens as listed)

Common Name	Botanical Name
Black Maple	Acer nigrum
Striped Maple	Acer pennsylvanicum
Red Maple	Acer rubrum
Sugar Maple	Acer saccharum
Mountain Maple	Acer spicatum
Ohio Buckeye	Aesculus glabra
Downy Serviceberry	Amelanchier arborea
Yellow Birch	Betula alleghaniensis
Paper Birch	Betula papyrifera
American Hornbeam	Carpinus caroliniana
Bitternut Hickory	Carya cordiformis
Pignut Hickory	Carya glabra
Shagbark Hickory	Carya ovata
Northern Hackberry	Celtis occidentalis
Eastern Redbud	Cercis canadensis
Yellowwood	Cladrastis lutea
Beech	Fagus sp.
Thornless Honeylocust	Gleditsia triacanthos inermis
Kentucky Coffeetree	Gymnocladus diocus
Walnut	Juglans sp.
Eastern Larch	Larix laricina
Sweetgum	Liquidambar styraciflua
Tuliptree	Liriodendron tulipfera
Tupelo	Nyssa sylvatica
American Hophornbeam	Ostrya virginiana
White Spruce_(1.5:1 ratio) (6' ht.)	Picea glauca
Black Spruce_(1.5:1 ratio) (6' ht.)	Picea mariana
Red Pine	Pinus resinosa
White Pine_(1.5:1 ratio) (6' ht.)	Pinus strobus
American Sycamore	Platanus occidentalis
Black Cherry	Prunus serotina
White Oak	Quercus alba
Swamp White Oak	Quercus bicolor
Scarlet Oak	Quercus coccinea
Shingle Oak	Quercus imbricaria
Burr Oak	Quercus macrocarpa
Chinkapin Oak	Quercus muehlenbergii
Red Oak	Quercus rubra
Black Oak	Quercus velutina
American Bladdernut	Staphylea trifolia
Bald Cypress	Taxodium distichum
American Basswood	Tilia americana
Hemlock (1.5:1 ratio) (6' ht.)	Tsuga canadensis

TRAFFIC REVIEW

AECOM
27777 Franklin Road
Southfield
MI, 48034
USA
aecom.com

Project name:
JSP17-0002 Hino Motors USA Preliminary Traffic Review

To:
Barbara McBeth, AICP
City of Novi
45175 10 Mile Road
Novi, Michigan 48375

From:
AECOM

Date:
April 6, 2017

CC:
Sri Komaragiri, Kirsten Mellem, George Melistas, Richelle Leskun, Theresa Bridges, Darcy Rechtien

Memo

Subject: HINO Motors USA Preliminary Traffic Review

The preliminary site plan was reviewed to the level of detail provided and AECOM **recommends approval** for the applicant to move forward with the condition that the comments provided below are adequately addressed to the satisfaction of the City.

GENERAL COMMENTS

1. The applicant, D&G Investments, is proposing a general office building on the southwest quadrant of the intersection of Twelve Mile Road and Taft Road. The building is two stories and has a total gross floor area of 124,418 square feet. The office building will consist of 42,592 square feet of "shop/lab" space.
2. Twelve Mile Road is under the jurisdiction of the Road Commission for Oakland County and Taft Road is under the City of Novi's jurisdiction.
3. The City Council approved rezoning from RA (Residential Acreage) to OST (Office Service and Technology) on March 27, 2017.
4. There is an at-grade railroad crossing in the vicinity of the site driveway.
5. There are considerations from the County to expand the width of Twelve Mile Road in order to accommodate a boulevard from Beck Road to Taft Road, but specific plans and timeline are not in place.
6. Taft Road may potentially be realigned due to its current alignment with the existing railroad adjacent to the intersection of Taft Road and Twelve Mile Road. The realignment has the potential to affect several site elements.

TRAFFIC IMPACTS

1. AECOM performed an initial trip generation estimate based on the ITE Trip Generation Manual, 9th Edition, as follows:

   ITE Code: 710 (General Office Building) and 760 (Research and Development Center)
   Development-specific Quantity: 81,826 square feet gross floor area (office) and 42,592 sq. ft. gross floor area (shop/lab)
   Zoning Change: RA to OST

Trip Generation Summary					
	City of Novi Threshold	**Estimated Maximum Trips – Existing RA Zoning**	**Estimated Trips – Proposed Office Building**	**Estimated Trips – Proposed Shop/Lab**	**Estimated Trips – Total Proposed Trips**
AM Peak-Hour, Peak-Direction Trips	100	30	144	52	196
PM Peak-Hour, Peak-Direction Trips	100	34	142	55	197
Daily (One-Directional) Trips	750	326	1,128	345	1,473

2. The number of trips does exceed the City's threshold of more than 750 trips per day or 100 trips per either the AM or PM peak hour. The applicant had submitted a rezoning traffic impact study (RTIS) in order to assess the impacts of rezoning the parcel from RA to OST. The RTIS has been approved. AECOM also recommends performing an additional full traffic impact study based on the trip generation estimated from details included in the site plan and in accordance with the City's requirements. The applicant is aware of this requirement and has submitted a traffic impact study that will be reviewed in a separate letter.

Traffic Impact Study Recommendation	
Type of Study	**Justification**
Traffic Impact Study	The estimated number of trips exceeds the City's thresholds.

EXTERNAL SITE ACCESS AND OPERATIONS

The following comments relate to the external interface between the proposed development and the surrounding roadway(s).

1. The City's Code of Ordinances restricts access to streets that are not major thoroughfare. Taft Road is not considered a major thoroughfare. However, City Council has decided to allow access from Taft Road only when the property on the east side of Taft Road is developed for nonresidential purposes. Therefore, until the east side of Taft Road is developed, primary access should only be permitted by means of Twelve Mile Road. The applicant has indicated that the Taft Road entrance will be primarily used for truck traffic and that a double swing gate will be placed at the Taft Road entrance. The applicant should show the gate within the plans and provide details and signing information for the gate.
2. The proposed driveways generally meet the City's standards.
3. The applicant should consider providing delineation on the driveway for Twelve Mile Road. The TIS has stated that the maximum exiting left turn queue has the potential to reach 12+ vehicles. Providing delineation at the driveway

could help with managing the two exiting lanes while maintaining the entrance lane. The applicant should also consider additional measures to manage the exiting queue length during the PM peak hour.

4. The proposed driveway may be constructed in the vicinity of an existing pavement marking symbol on Twelve Mile Road. The pavement marking acts as a warning for the upcoming railroad crossing. Indicate on the plans that the driveway and the existing pavement marking do not overlap.
5. Based on Oakland County Road Commission standards, a right turn taper is required at the proposed driveway. The applicant should show a dimensioned right turn taper for approval in future submittals.
6. Based on Oakland County Road Commission standards, a left turn passing lane is required on Twelve Mile Road for westbound traffic at the proposed driveway. The applicant should show a dimensioned left turn passing lane on Twelve Mile for approval in future submittals.
7. The City requires 460 feet of sight distance in both directions at the proposed driveway. Include dimensions indicating that 460 feet of site distance exist in future submittals.
8. The proposed commercial driveway spacing is in compliance with City standards.
9. There is an adequate number of site access drives provided.

INTERNAL SITE OPERATIONS

The following comments relate to the on-site design and traffic flow operations.

1. General Traffic Flow
    a. The applicant should provide firetruck maneuver patterns to the loading zone in the rear of the site to ensure full maneuverability throughout the site. Firetrucks require a minimum 50 foot outside turning radius and a minimum 30 foot inside turning radius to ensure full maneuverability. The applicant should also provide truck turning movements from the driveway on Taft Road to the proposed truck well.
    b. The applicant has proposed a loading zone of 10,700 square feet which is compliant with City standards.
    c. The proposed trash enclosure location may interfere with parking operations as access to the aisle-way to the north may be blocked. The applicant could consider relocation of the trash enclosure.
    d. In the north parking area, one of the end islands has an outside radius of eight feet. The applicant is required to modify the radius to a minimum of 15 feet.
2. Parking Facilities
    a. The applicant has classified 42,445 square feet of the first floor as gross leasable office floor area and 38,445 square feet of the second floor as gross leasable office floor area, totaling 80,890 square feet of gross leasable office floor area. The City Zoning Ordinance requires one parking space for every 222 square feet of gross leasable office floor area, resulting in a required 365 spaces for the general office portion of the proposed building. The applicant has determined that 22,707 square feet of the shop/lab portion of the building can be classified as leasable floor area. The City of Novi Zoning Ordinance requires one parking space for every 700 square feet of gross leasable floor area for the aforementioned use of the building, resulting in 33 parking spaces. Overall, the site requires 398 total parking spaces.
    b. The applicant has proposed 398 parking spaces, 77 of which are proposed to be land banked parking spaces.
    c. The maximum number of landbanked parking spaces permitted by the City is 25% of the total parking spaces. The applicant is proposing 19.5% of the total parking spaces as land banked.
    d. The applicant is currently only seeking approval for the number of landbanked parking spaces. If landbanked parking spaces were ever to be constructed, dimensioned site plans of the landbanked parking would have to be submitted and approved by City staff and consultants
    e. The applicant has proposed 17 foot parking spaces around the perimeter of the parking lot with six inch curbs. The curb should be reduced to four inches in areas with 17 foot long parking spaces order to provide the required two feet of vehicle overhang. However, it should be noted that in certain areas (i.e. in front of the proposed boulder wall), parking spaces must be 19 feet in length.
    f. The applicant should provide additional parking aisle length dimensions.

g. The two parking rows of three spaces each located on the southwest corner of the building are required to have two feet of overhang given that the spaces are 17 feet in length. There is not enough room to accommodate the two feet of overhang required for the two spaces nearest the end of the sidewalk. The applicant is required to modify that parking area such that the number of required parking spaces will still be met and that two feet of overhang is accounted for at each parking space.
h. The 2010 ADA Design Guidelines requires a minimum of eight barrier free parking spaces for the total amount of proposed parking spaces, two of which are required to be van accessible. The applicant has proposed eight barrier free parking spaces. The applicant should identify which two barrier free spaces are van-accessible.
i. Dimensions for the barrier free parking spaces comply with ADA standards.
j. The applicant should indicate that all end islands and peninsulas are three feet shorter than the adjacent parking space to be checked for compliance in future submittals.
k. The City's Zoning Ordinance requires bicycle parking totaling 5% of the total parking spaces, totaling 16 bicycle parking spaces. However, the applicant has only proposed 16 bicycle parking spaces. However, if landbanked parking spaces are ever incorporated, an additional four bicycle parking spaces will be required.
l. The applicant should also provide a detail for the bicycle parking layout. Consider reviewing Section 5.16 of the City's Zoning Ordinance for required layout dimensions.
m. There is a radius dimension on the east side of the building that should be removed to avoid confusion as it isn't dimensioning any specific item.

3. Sidewalk Requirements
    a. Sidewalks are generally in compliance with City standards. However, the proposed sidewalk on Twelve Mile Road should be constructed of concrete as opposed to asphalt.
    b. Provide ADA ramp locations and details in future submittals.
4. All on-site signing and pavement markings shall be in compliance with the Michigan Manual on Uniform Traffic Control Devices.
    a. The applicant shall provide striping details and a signing quantities table and additional details in future submittals for review.
    b. The sign detail for barrier free parking should indicate that the signs are a R7-8 sign and an R7-8p sign. Additional details for the van-accessible plaque are also required.
    c. The bottom barrier free parking sign is required to be seven feet above the ground.
    d. Details should include information related to the sign post. Sign posts are required to be U-channel in shape and sized at 2# or 3#.
    e. The barrier free parking sign detail shall be a minimum of 7 feet in height from the ground to the bottom of the sign.
    f. The applicant should provide stop signs at driveways, truck access only signs at the Taft Road driveway, and no parking signs around horizontal curvature within the development.

Should the City or applicant have questions regarding this review, they should contact AECOM for further clarification.

Sincerely,

AECOM

Sterling J. Frazier, E.I.T.
Reviewer, Traffic/ITS Engineer

Matthew G. Klawon, PE
Manager, Traffic Engineering and ITS Engineering Services

TRAFFIC STUDY REVIEW

AECOM
27777 Franklin Road
Southfield
MI, 48034
USA
aecom.com

Project name:
JSP17-0002 Hino Motors Traffic Impact Study Review

To:
Barbara McBeth, AICP
City of Novi
45175 10 Mile Road
Novi, Michigan 48375

From:
AECOM

Date:
April 6, 2017

CC:
Sri Komaragiri, Kirsten Mellem, George Melistas, Theresa Bridges, Richelle Leskun, Darcy Rechtien

Memo

Subject: Hino Motors Traffic Impact Study Review

The traffic impact study was reviewed to the level of detail provided and AECOM **recommends approval** for the applicant to move forward with the condition that the comments provided below are adequately addressed to the satisfaction of the City. It should be noted that AECOM is requesting additional support documentation and evaluation information as part of this review letter.

GENERAL COMMENTS

1. Hino Motors USA is proposing an office research and development center located in the southwest quadrant of Twelve Mile Road and Taft Road.
2. The current site plan includes 81,826 square feet of office space and 42,592 square feet of research and development space.
3. The proposed Taft Road driveway, which has been indicated for use by off-peak truck traffic only, was not included in the study.
4. The proposed Twelve Mile Road driveway is located approximately 300 west of Taft Road.

Existing Conditions

1. Turning movement counts were collected at Twelve Mile Road and West Park Drive and Twelve Mile Road and Taft Road during the weekday peak periods on March 14 and 15, 2017.
2. Average Daily Traffic counts were conducted on Twelve Mile Road in front of the proposed development on March 2, 2017.
3. Overall, the intersection of Twelve Mile Road and West Park Drive operate at an acceptable level of service (LOS) under existing conditions; however, the southbound approach of West Park Drive operates below an acceptable LOS during both the AM and PM peak hours. The total intersection experiences a LOS of C and D for the AM and PM peak hours, respectively. The southbound approach of West Park Drive experiences a LOS of E and F for the AM and PM peak hours, respectively.
4. Overall, the intersection of Twelve Mile Road and Taft Road operate at an acceptable level of service under existing conditions. All intersection approaches also operate at acceptable levels of service during both peak hours.

Background Traffic

1. The study uses a growth rate of 0.5% and a build-out year of 2018. The growth rate was based on population data available through the Southeast Michigan Council of Governments (SEMCOG). Additional explanation as to how a growth rate of 0.5% was ascertained should be provided.
2. Overall, the intersection of Twelve Mile Road and West Park Drive operates at an acceptable level of service (LOS) under background conditions; however, the southbound approach of West Park Drive operates below an acceptable LOS during both the AM and PM peak hours. The total intersection experiences a LOS of C and D for the AM and PM peak hour, respectively. The southbound approach of West Park Drive experiences a LOS of E and F for the AM and PM peak hours, respectively.
3. Overall, the intersection of Twelve Mile Road and Taft Road operate at an acceptable level of service under background conditions. All intersection approaches also operate at acceptable levels of service during both peak hours.
4. The traffic study optimized the signal timings for background traffic in order to improve conditions. The optimized signal timings were able to improve the background LOS to acceptable conditions for the intersection of Twelve Mile Road and West Park Drive. The total intersection LOS was improved to a LOS of C for both the AM and PM peak hour and the southbound West Park Drive approach was improved to a LOS of D for both the AM and PM peak hours.
    a. The study should further discuss the changes made to the signal timing in order to evaluate the effectiveness not only with regards to the LOS.

Trip Generation

1. The 9th edition of the ITE *Trip Generation Manual* was used to estimate the number of daily and AM and PM peak hour trips to the proposed development. Land uses 710 (General Office Building) and 760 (Research and Development Center) were used to estimate the number of trips.
2. There are an estimated 225 total trips during the AM peak hour and 235 total trips during the PM peak hour. The site is also expected to generate 1,473 daily total trips.

Future Conditions

1. Trips were distributed for the site based on existing traffic volumes on Twelve Mile Road.
2. Within the report, the details of how the trips were distributed are inaccurate for the PM peak hour. The given percentages are reversed for east and west, and should be updated for consistency. The actual calculations within Figure 4 of the appendices are correct.
3. Overall, the intersection of Twelve Mile Road and West Park Drive operates at an acceptable level of service (LOS) under future conditions given that the proposed improvements for background traffic were also applied to the future traffic scenario. All intersection approaches operate at an acceptable LOS as well.
4. Overall, the intersection of Twelve Mile Road and Taft Road operate at an acceptable level of service (LOS) under future conditions given that the proposed improvements for background traffic were also applied to the future traffic scenario. All intersection approaches operate at an acceptable LOS as well. However, it should be noted that the LOS for the northbound approach of Taft Road declines to a LOS of C during the PM peak hour with the addition of the development traffic.
5. The northbound Hino Motors driveway operates at a level of service (LOS) of D for the AM peak hour and F for the PM peak hour, with a 95th percentile queue length of approximately 12 vehicles for northbound lefts. The study assumes exclusive left and right turn lanes for the northbound driveway approach.

Conclusions and Recommendations

1. Tables 5, 6, and 7 should be updated to indicate the LOS of the movement of the given approach for Twelve Mile Road. The through movement of the approach should be listed as "free" as opposed to LOS A. There is the possibility for confusion by only listing the entire approach.
2. The impact study recommends optimization for the Twelve Mile Road and West Park Drive signal timing; however, it does not provide details regarding how it was optimized. The details of the optimization should be discussed so that the overall impacts to traffic may be more accurately evaluated. For example, the changes to the signal timing may have a positive impact on operations directly at the intersection, while adverse impacts (e.g., reduction of gaps) may become an issue at nearby unsignalized locations.
3. The Road Commission for Oakland County (RCOC) standards indicate that both an eastbound right turn lane and a westbound left turn lane are warranted at the entrance to the development. The study indicates that there is sufficient distance between the proposed driveway and the railroad crossing to the east to accommodate a properly designed westbound left turn passing lane.
4. The study indicates sufficient sight distances in both directions at the proposed Twelve Mile driveway.
5. During the PM peak hour, the northbound site driveway at Twelve Mile experiences a LOS F and 95th percentile queue length of approximately 12 left-turning vehicles assuming exclusive left and right turn lanes.
    a. The study does not suggest any countermeasures for the failing level of service for the site driveway during the PM peak hour.
    b. This could be cause for concern with internal site operations, as the driveway cannot store 12 vehicles without blocking access to parking lots and causing interferences with traffic operations.
6. The study assumes that a signal timing optimization will be applied to the intersection of Twelve Mile Road and West Park Drive. However, if the signal timing optimization is not applied, the southbound approach of West Park Drive will operate below acceptable LOS and other approaches could also potentially fall below acceptable levels of service.
    a. The study should provide analysis of the Future conditions without the optimization of the Twelve Mile Road and West Park Drive signal to assess the overall impacts of the development on the roadway.

Should the City or applicant have questions regarding this review, they should contact AECOM for further clarification.

Sincerely,

AECOM

Sterling J. Frazier, E.I.T.
Reviewer, Traffic/ITS Engineer

Matthew G. Klawon, PE
Manager, Traffic Engineering and ITS Engineering Services

FACADE REVIEW

DRN & ASSOCIATES, ARCHITECTS, PC
Phone: (248) 880-6523
E-Mail: dnecci@drnarchitects.com
Web: drnarchitects.com
50850 Applebrooke Dr., Northville, MI 48167

April 5, 2017

Façade Review Status Summary: **Approved, Building -Full Compliance, Dumpster to be revised to Brick. Sample Board to be provided prior to P.C. Meeting.**

City of Novi Planning Department
45175 W. 10 Mile Rd.
Novi, MI 48375-3024

Re: FACADE ORDINANCE - **Facade Review**
Hino Motors USA, PSP17-0001
Façade Region: 1, Zoning District: RA

Dear Ms. McBeth;

The following is the Facade Review for Final Site Plan Approval of the above referenced project based on the drawings prepared by GAV Architects, dated 2/15/17. The percentages of materials proposed for each façade are as shown on the table below. The maximum percentages allowed by the Schedule Regulating Façade Materials (AKA Façade Chart) of Ordinance Section 5.15 are shown in the right hand column. Materials in non-compliance with the Façade Chart, if any, are highlighted in bold.

Façade Ordinance, Section 5.15	North (Front)	West	South	East	Ordinance Maximum (Minimum)
Brick	76%	53%	57%	60%	30% Minimun
Flat Metal Panels	21%	45%	43%	40%	50%
Spanderal Glass	3%	2%	0%	0%	50%

Recommendation - As shown above the proposed design is in full compliance with the Façade Ordinance. The building exhibits well balanced proportions and composition of materials and a well-defined front entrance. Although a material sample board was not provided the rendering appears to indicate carefully coordinated colors. The dumpster enclosure detail on sheet SP-6 indicates Split Faced Block. The dumpster enclosure should be constructed of materials matching the primary building (brick). A façade material sample board should be submitted not less than five days prior to the Planning Commission meeting. Approval is recommended contingent upon the aforementioned revision to the dumpster enclosure.

Notes to the Applicant:

1. Façade Ordinance requires inspection(s) for all projects. Materials displayed on the approved sample board will be compared to materials delivered to the site. It is the applicant's responsibility to request the inspection of each façade material at the appropriate time. Inspections may be requested using the Novi Building Department's Online Inspection Portal with the following link. Please click on "Click here to Request an Inspection" under "Contractors", then click "Façade". **http://www.cityofnovi.org/Services/CommDev/OnlineInspectionPortal.asp**.

2. The dumpster enclosure should be constructed of materials matching the primary structure.

If you have any questions regarding this project please do not hesitate to call.

Sincerely,
DRN & Associates, Architects PC

Douglas R. Necci, AIA

FIRE REVIEW

April 3, 2017

TO: Barbara McBeth- City Planner
Sri Ravali Komaragiri- Plan Review Center
Kirsten Mellem- Plan Review Center

RE: Hino Motors – Preliminary Site Plan

PSP# 17-0001

Project Description:
New 124,418 SqFt building on 18.49 Acre lot.
Building is 30'4" in height.
Zoned – OST use.
Location - 12 Mile and Taft Area.

Comments:

1. **The minimum width of a posted fire lane is 20 feet. The minimum height of a posted fire lane is 14 feet. *(Fire Prevention Ord.)***
2. **Fire apparatus access drives to and from buildings through parking lots shall have a minimum fifty (50) feet outside turning radius and designed to support a minimum of thirty-five (35) tons. (D.C.S. Sec 11-239(b)(5))**
3. ***Fire department connections shall be located on the street side of buildings, fully visible and recognizable from the street or nearest point of fire department vehicle access or as otherwise approved by the code official. (International Fire Code)***
4. ***Immediate access to fire department connections shall be maintained at all times and without obstruction by fences, bushes, trees, walls or any other object for a minimum of 3 feet (914 mm). (International Fire Code)***
5. ***Proximity to hydrant: In any building or structure required to be equipped with a fire department connection, the connection shall be located within one hundred (100) feet of a fire hydrant. (Fire Prevention Ord. Sec. 15-17)***

Novi Public Safety Administration
45125 W. Ten Mile Road
Novi, Michigan 48375
248.348.7100
248.347.0590 fax

cityofnovi.org

Recommendation:

The Fire Dept. has no objections at this time, pending the notes above are followed.

Sincerely,

Andrew Copeland – FPO/Inspector II - CFPE
City of Novi – Fire Dept.

APPLICANT RESPONSE LETTER

Hino Motors USA

45450 Twelve Mile Road

SPA Response Letter Per City Comments Dated 4/5/17 and 5/3/17

Lot Split:

Approved as of 4/17/17.

Waivers/Forms Requested:

-Land Bank parking spaces

-Non-Domestic User Survey Form

-Storm Drainage Facility Maintenance Easement Agreement

-Draft copies of any required utility/ access easements

-Landscape waiver for the berm not provided along Twelve Mile West of the entry drive because that area is to be left in its natural state (Already supported by staff)

-Landscape waiver for not providing a berm between Taft and the detention pond (a berm has been provided between the parking bay just north of the basin and Taft. Already supported by staff)

-Landscape waiver for the greenbelt canopy and ornamental trees that not provided between Twelve Mile and the wetland in order to preserve the existing natural conditions (Already supported by staff)

-Landscape waiver for the interior trees that are not provided (Already supported by staff as the parking lot is well-landscaped)

-Landscape waiver for the parking lot perimeter trees. (Supported by staff as the site is well-landscaped)

-Wetland Permit (per conversation on 4/17/17, there is not a separate application for this work. This is all reviewed through the SPA process)

-Wetland Buffer Authorization

-Wetland Conservation Easement paperwork/forms

-Woodland Permit (per conversation on 4/17/17, there is not a separate application for this work. This is all reviewed through the SPA process)

-Woodland Fence

-Woodland Conservation Easement paperwork/forms

Planning Response Letter:

1. Details on the proposed swing gate at the Taft Road entrance have been added to the plans. (see sheet SP-5)
2. A proposed future pedestrian path to the land banked parking spaces has been added to the plans. (see sheet SP-6)
3. A formal letter from Hino Motors was submitted with our last review in regards to the amount of employees and maximum number of visitors that would be had at one time. Hino Motors also took in account growth over the next 10 years. Parking will not occur on any street or driveway. Parking will not occur on any areas no approved and developed for parking. Parking will not occur on that area where parking construction has been landbanked until such time as that areas is constructed for such parking. The requested parking land banking shall not create traffic or circulation problems on or off site. The requested parking land banking shall be consistent with the public health, safety and welfare of the City and the purposes of this Ordinance.
4. The barrier free parking spaces have been moved further west closer to the main entry. (see sheet SP-4)
5. The bike parking layout plans has been provided as indicated in section 5.16.6 (see sheet SP-4)
6. An executed version of the Memorandum of Understanding has been submitted to the City of Novi
7. The sidewalks have now been connected to the public sidewalks on the plans
8. See exterior lighting comments below
9. An executed version of the Memorandum of Understanding has been submitted to the City of Novi
10. The hatched floor plans depicting usable areas for the parking count have been included in the package
11. Dimensions have been added to the plans for the end islands (see sheet SP-4)
12. Photometric plans and spec sheets have been provided on 24”x36” in this package
13. Exterior lighting will be on a photo-eye (will come on when sun goes down and will turn off at sunrise)
14. Security Lighting: All exterior lighting will be on a photo-eye. All fixtures will come on every night and used as ‘security’ lighting
15. Average Light Levels: The photometric plans have been updated to provide the average light levels

Engineering Response Letter:

1. Parcel boundaries east of Taft Road will be provided on future drawings
2. The proposed water main will be 12” at the connection to the 16” at Twelve Mile. The norther most water main stub to Taft Road will be 12”
3. An additional 12” stub has been added toward the North side of the property to

4. All profiles for all proposed water main 8" and larger will be provided in next submittal
5. Upon approval of water main design, we will provide (3) signed and sealed sets of revised utility plans along with the MDEQ permit application
6. A site drainage area map and storm sewer sizing calculations have been shown
7. A four-foot deep sump and an oil/gas separator in the last storm structure prior to discharge to the storm water detention basin has been provided.
8. Calculations will be provided showing the required detention volume for the land banked parking and detention
9. The pond meets this requirement except along the parking where we have provided a curb to direct run-off into the storm water system with a four-foot sump prior to discharge into the pond. We feel the vegetated buffer as provided and the three-foot permanent water will provide adequate filtration to ensure water quality.
10. Additional clarification shall be provided with the next submittal in regards to the elevation at which the first flush volume is accommodated
11. The post-development runoff will be held to the City's allowable outflow of 0.15 cfs/acre. Additional calculation for the culvert's capacity shall be provided with the next submittal.
12. The basin outlet has been moved as far west as possible to provide water to the existing wetlands .
13. We will fill out the proper paperwork for a storm drain facility maintenance easement
14. The existing, proposed and master planned right-of-way lines will be clearly labeled on all sheets
15. A variance application has been submitted as of 5/4/17 for the ommitance of the Taft Road pathway.
16. A soil erosion permit has been approved as of 5/1/17 by the City of Novi.
17. There will not be any off-site easements
18. A letter will be submitted by the applicant or engineer highlighting all these changes above and will indicate the sheets that have been revised.
19. A non-domestic user survey forms has already been submitted to the City of Novi for this project.
20. An itemized construction cost estimate will be submitted to the Community Development Department at the time of Final Site Plan submittal
21. There will not be any off site easements
22. City standard detail sheets will be submitted with the Stamping Set Submittal
23. A draft copy of the Storm Drainage Facility Maintenance Easement Agreement will be submitted
24. Draft copies of any required utility and /or access easements
25. No right- of- way to be dedicated
26. There will not be any off site easements

Landscaping Response Letter:

1. The proposed removals are now shown on the tree chart on Sheet SP-4

2. The calculations are based on existing right-of-way not the “proposed future”. This design is still an unknown. This change may not even take place in the future.
3. Waivers have been requested above. A berm has been added between the parking bay just north of the basin and Taft
4. The list of all landscape waivers requested have been added to L2, and the cover sheet.
5. Islands have been revised to be at a minimum of 200 sf
6. Trees have been added to the interior landscape islands.
7. Columbia plane tree, Armstrong maple, Douglas Fir, River Birch and Frontier elm have been replaced with species from the Woodland Replacement Selections
8. Tree has been removed from the corner clearance zone on the north side of the Taft Road Entry
9. Note has been added to the drawings showing the berm to be constructed of loam with a 6” top layer of topsoil
10. Additional beds have been added at the base of the building to meet requirements
11. “in writing” has been added to the relevant note at the upper left side of Sheet L2
12. The note has been amended at the lower left corner of L2 and City of Novi Tree Protection Note #3 to say that fencing should be no closer than 1 foot outside of dripline

Wetland Response Letter:

1. The area (in square feet) has been added to the drawings of all existing 25-foot wetland buffers (see sheet SP-6)
2. The area (in square feet) and volume (in cubic yards) of all wetland impacts (both permanent and temporary) have been added to the plans (see sheet SP-6)
3. The area (in square feet) of all wetland buffer impacts (both permanent and temporary) have been added to the plans (see sheet SP-6)

Woodland Response Letter:

1. A column has been added to the Tree Inventory List on Sheet SP-4 that indicates whether a given tree is being removed or saved
2. Trees have been removed from the area that it is possible to be affected by the “future” realignment of Taft road

Traffic Response Letter:

1. Gate has been shown on drawings (along with signing details “Trucks Only”)
2. A marking symbol will be added on Twelve Mile will be added for warning of the train tracks if county requests
3. Dimensions have been added indicating that 460 feet of sight distance exists
4. Drawings have been submitted to the County and are under review
5. Fire truck moving patterns have been added to the plans

6. Dumpster to remain in current location. There will be no problems with traffic patterns on the site
7. The end island in the north parking lot has been revised to have a radius of at least 15 feet
8. Parking spaces have been revised where necessary to meet the 19' requirement
9. Additional parking aisle length dimensions have been added
10. (2) of the (8) barrier free parking spaces have been labeled as van accessible
11. It has been indicated on the plans that all end islands and peninsulas are three feet shorter than the adjacent parking space
12. A note has been added to the drawings that an additional 4 bicycle parking spaces will be added if and when the land banked parking spaces are constructed
13. The radius dimension on the east side of the building has been removed to avoid confusion
14. The sidewalk along Twelve Mile has been revised to concrete
15. ADA ramp locations have been called out on the plans along with details
16. Striping details and signing quantities table and additional details have been added to the drawings
17. The sign detail for barrier free parking indicates that the signs are a R7-8 sign and an R7-8p sign. Additional details for the van-accessible plaque have also been added.
18. A note has been added to the plans that the bottom of the barrier free parking signs is to be seven feet above the ground
19. Sign post details have been added
20. Stop signs have been added at the driveways. Truck access only signs at the Taft Road driveway have been added. And No parking signs around the horizontal curvature within the development have been added.

Facade Response Letter:

1. A façade material sample board has been submitted to the City of Novi.
2. The dumpster enclosure detail on sheet SP-6 will be revised to match the primary building (brick)

APPLICANT REQUEST FOR LAND BANK PARKING

Hino Motors Manufacturing U.S.A., Inc.
37777 Interchange Dr.
Farmington Hills, MI 48335
Corporate Headquarters

Phone: (248) 442-9077
Fax: (248) 442-9068

Bruce Brickman
General Development Company
Two Towne Square, Suite 850
Southfield, Michigan 48076

Dear Bruce,

The new office facility that you are building for Hino Motors Manufacturing USA and Hino Motor Sales USA will have the following capacity requirements over the next 10 years:

HMM – 160 team members
HMS – 115 team members
Total – 275 team members maximum after 10 years

Visitors – Hino will have up to 25 visitors at one time

Please let me know if you need additional information.

Sincerely,

Brent Craine
Vice President
Corporate Strategy Development
Hino Motors Manufacturing USA Inc.

TRAFFIC STUDY

TETRA TECH

March 31, 2017

Ms. Teresa Bruce
General Development Company
Two Towne Square, Suite 850
Southfield, Michigan 48076

Re: Proposed Hino Motors USA Office and Research Development Center
Traffic Impact Assessment
City of Novi, Michigan
200-163821-17001

Dear Ms. Bruce:

Tetra Tech (Tt) has completed our traffic impact assessment related to the proposed Hino Motors USA office and research development center located on the southwest quadrant of Twelve Mile and Taft Roads. The current site plan indicates approximately 81,826 sq. ft. of office space and 42,592 sq. ft. of research and development space. The site plan also depicts a driveway on Twelve Mile Road and a driveway on Taft Road; however, information from your office indicated that the Taft Road driveway will be gated and used by off-peak truck traffic, so it will not be included in this analysis. This traffic impact assessment has been completed in accordance with the requirements specified by the City of Novi traffic engineering consultant AECOM and the Road Commission for Oakland County (RCOC).

Traffic Counts

Turning movement traffic counts were collected at the intersections of Twelve Mile Road with West Park Drive and Taft Road during the weekday AM (7:00 – 9:00 a.m.) and PM (4:00 – 6:00 p.m.) peak periods on March 14 and 15, 2017. An Average Daily Traffic (ADT) count was previously collected on Twelve Mile Road in front of the proposed site on March 2, 2017. The existing turning movement traffic counts are shown in Figure 2 attached to this letter.

Background Traffic Scenario

Based on a review of historic and projected population data available on the SouthEast Michigan Council Of Governments (SEMCOG) website for the City of Novi, a 0.5% annual growth rate was used in forecasting background increases in traffic, which are unrelated to your proposed development. Additionally, the City of Novi Planning Department indicated that there are no other proposed developments within the vicinity of your site. Based on discussions with your office, a build-out year of 2018 was assumed for this analysis. The background traffic volumes are shown in Figure 3 attached to this letter.

Tetra Tech of Michigan, P.C.
7927 Nemco Way, Suite 100, Brighton, MI 48116
Tel 810.220.2112 Fax 810.225.8458 www.tetratech.com

TETRA TECH

Trip Generation

Using the information and methodologies specified in the latest version of *Trip Generation (9th Edition)* published by the Institute of Transportation Engineers (ITE), Tt forecast the weekday AM and PM peak hour trips associated with the proposed Hino Motors USA office and research development center. At the request of the City's traffic engineering consultant, AECOM, the trip generation for the site was separated based on the amount of office space and research space indicated on the site plan, resulting in a conservative forecast for the site. The results of the trip generation forecasts for the site are provided below in Table 1.

Table 1

ITE Trip Generation for

Proposed Hino Motors USA Office and Research Development Center

Land Use	Land Use Code	Size (sq. ft.)	AM Peak Hour			PM Peak Hour			Week Day
			In	Out	Total	In	Out	Total	
General Office Building	710	81,826	143	20	163	25	145	170	1,127
Research and Development Center	760	42,592	51	11	62	10	55	65	346
TOTAL TRIPS			**194**	**31**	**225**	**35**	**200**	**235**	**1,473**

Trip Distribution

The existing traffic volumes along Twelve Mile Road were used to develop a trip distribution model for the AM and PM peak hours for traffic generated by the proposed development. The existing traffic patterns indicate the following probable distribution for the proposed development:

AM Peak Hour
26% from and 74% to the east
74% from and 26% to the west

PM Peak Hour
40% from and 60% to the east
60% from and 40% to the west

The proposed trip distribution for the site is shown in Figure 4 attached to this letter. The background traffic volumes were combined with the site generated traffic volumes to obtain the total future traffic volumes, which are shown in Figure 5 attached to this letter.

Level of Service Analysis

Level of service (LOS) analyses for existing, background, and total future traffic conditions for the AM and PM peak hours were performed for the intersections of Twelve Mile Road with West Park Drive and Taft Road. The proposed site driveway onto Taft Road was also analyzed under total future traffic conditions for the AM and PM peak hours.

According to the most recent edition (2010 Edition) of the Highway Capacity Manual, level of service is a qualitative measure describing operational conditions of a traffic stream or intersection. Level of service ranges from A to F, with LOS A being the best. LOS D is generally considered to be acceptable. Table 2 presents the criteria for defining the various levels of service for unsignalized intersections.

Table 2
Level of Service Criteria (Unsignalized Intersection)

Level of Service	Average Stopped Vehicle Delay (seconds)
A	≤10
B	>10 and ≤ 15
C	>15 and ≤ 25
D	>25 and ≤ 35
E	>35 and ≤ 50
F	> 50

Note: LOS "D" is considered acceptable in urban/suburban areas.

The results of the level of service analyses are summarized in Tables 3 through 7 for the intersections listed above.

Signalized intersection of Twelve Mile Road and West Park Drive

The results of the level of service analysis for the intersection of Twelve Mile Road and West Park Drive indicate that under existing conditions, all approaches to the intersection operate at a LOS C or better during the AM peak hour, and at a LOS D or better during the PM peak hour, except for the southbound approach, which operates at a LOS E during the AM peak hour and at a LOS F during the PM peak hour. The overall intersection operates at a LOS C during the AM peak hour, and at a LOS D during the PM peak hour

With the addition of background traffic, the intersection would continue to operate in a manner similar to the existing condition during both the AM and PM peak hours. With the background improvement of optimizing the traffic signal timing during the AM and PM peak hours, all approaches to the intersection would operate at a LOS D or better. The overall intersection would operate at a LOS C during both the AM and PM peak hours.

With the addition of site generated traffic, all approaches to the intersection would continue to operate at a LOS D or better during both the AM and PM peak hours. The overall intersection would continue to operate at a LOS C during the AM and PM peak hours. Therefore, the traffic generated by the proposed development would have a minimal impact on the operation of this intersection.

Table 3
AM Peak Hour
Level of Service Analysis for Twelve Mile Road and West Park Drive

Approach	Existing	Background	Background w/ Imp.[1]	Future[2]
Eastbound Twelve Mile Road	B	B	C	C
Westbound Twelve Mile Road	B	B	C	C
Northbound Keystone Medical Building Driveway	C	C	C	C
Southbound West Park Drive	E	E	D	D
Overall	**C**	**C**	**C**	**C**

1. Includes optimizing the traffic signal timing.
2. Future condition assumes background improvements.

Table 4
PM Peak Hour
Level of Service Analysis for Twelve Mile Road and West Park Drive

Approach	Existing	Background	Background w/ Imp.[1]	Future[2]
Eastbound Twelve Mile Road	B	B	B	B
Westbound Twelve Mile Road	B	B	C	C
Northbound Keystone Medical Building Driveway	D	D	D	D
Southbound West Park Drive	F	F	D	D
Overall	**D**	**D**	**C**	**C**

1. Includes optimizing the traffic signal timing.
2. Future condition assumes background improvements.

Unsignalized intersection of Twelve Mile Road and Taft Road

The results of the level of service analysis for the intersection of Twelve Mile Road and Taft Road indicate that under existing conditions, all approaches to the intersection operate at a LOS C or better during the AM peak hour, and at a LOS B or better during the PM peak hour.

With the addition of background traffic, the intersection would continue to operate in a manner similar to the existing condition during both the AM and PM peak hours.

With the addition of site generated traffic, all approaches to the intersection would continue to operate at a LOS C or better during the AM peak hour. During the PM peak hour, all approaches to the intersection would operate at a LOS C or better.

Table 5
AM Peak Hour
Level of Service Analysis for Twelve Mile Road and Taft Road

Approach	Existing	Background	Future
Eastbound Twelve Mile Road	A	A	A
Westbound Twelve Mile Road	A	A	A
Northbound Taft Road	C	C	C

Table 6
PM Peak Hour
Level of Service Analysis for Twelve Mile Road and Taft Road

Approach	Existing	Background	Future
Eastbound Twelve Mile Road	A	A	A
Westbound Twelve Mile Road	A	A	A
Northbound Taft Road	B	B	C

Unsignalized Intersection of Twelve Mile Road and the Hino Motors USA Driveway

The Hino Motors USA site driveway will be located on the south side of Twelve Mile Road approximately 300' west of Taft Road. The results of the level of service analysis for this intersection indicate that under future traffic conditions the Hino Motors USA driveway approach (assuming separate left-turn and right-turn lanes on the driveway approach) would operate at LOS D during the AM peak hour, and at a LOS F during the PM peak hour. All other approaches would operate at LOS A during both peak hours.

The Road Commission for Oakland County requirements for left turn passing lanes and right turn deceleration lanes at driveways were evaluated for the Hino Motors USA driveway. The daily traffic volume on Twelve Mile Road in the vicinity of the Hino Motors USA driveway is approximately 16,550 vehicles per day. At the Hino Motors USA driveway, the peak hour left turn volume would be 50 vehicles, and the peak hour right turn volume would be 144 vehicles. Based on RCOC standards, both a right turn deceleration taper and a left turn passing lane are warranted at this driveway. The RCOC requirements can be found in the Appendix materials attached to this memo.

A review of the anticipated queue lengths for the westbound left-turn movement into the site during the AM peak hour (highest volume condition for this movement) indicated a 95th percentile queue length of 9 feet, or less than one vehicle. Given the proposed location of the Hino Motors USA driveway, as indicated on the site plan, left-turn vehicle queues into the site should not block (stack past) the intersection of Twelve Mile Road and Taft Road.

At the request of the RCOC, a sight distance evaluation was performed at the location of the proposed site driveway on Twelve Mile Road. According to RCOC standards, for a two lane roadway with a 45 MPH speed limit, the required site distance is 500 feet. A field review of the available sight distance at the location of the proposed site driveway was performed on March 23, 2017, and the available sight distance to the west was approximately 700 feet, and greater than 1,000 feet to the east. The available sight distance to the west could be improved if some of the brush near the existing utility pole to the west of the proposed site driveway were trimmed back.

Table 7
Level of Service Analysis for Twelve Mile Road and the Hino Motors USA Driveway

Approach	AM Peak Hour	PM Peak Hour
Eastbound Twelve Mile Road	A	A
Westbound Twelve Mile Road	A	A
Northbound Hino Motors USA Driveway	D	F

Conclusions and Recommendations

The proposed Hino Motors USA research and development center consists of approximately 81,826 sq. ft. of office space and 42,592 sq. ft. of research and development space. The proposed development will have access to Twelve Mile Road via a single driveway located approximately 300 feet west of Taft Road.

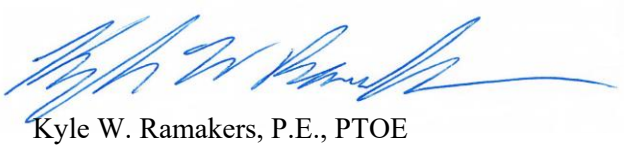
The proposed development is forecast to generate 225 new trips during the AM peak hour (194 inbound and 31 outbound from the site) and 235 new trips during the PM peak hour (35 inbound and 200 outbound from the site).

An operational analysis of the signalized intersections of Twelve Mile Road with West Park Drive and Taft Road were performed for the Existing, Background and Total Future conditions, as well as for the proposed site driveway under Total Future conditions. This operational review indicated that the intersection of Twelve Mile Road and West Park Drive require optimizing the traffic signal timing during both the AM and PM peak hours, regardless of whether traffic from the proposed development is considered.

A review of RCOC standards indicates that both an eastbound right-turn lane and a westbound left-turn lane are warranted at the site driveway on Twelve Mile Road. There is sufficient sight distance (greater than 500 feet) in both directions at the location of the proposed site driveway, based on RCOC standards

We trust that this letter fulfills your current transportation needs regarding your site. If you have any questions, please feel free to call our office at (810)-220-2112.

Sincerely,



Kyle W. Ramakers, P.E., PTOE
Transportation Engineer

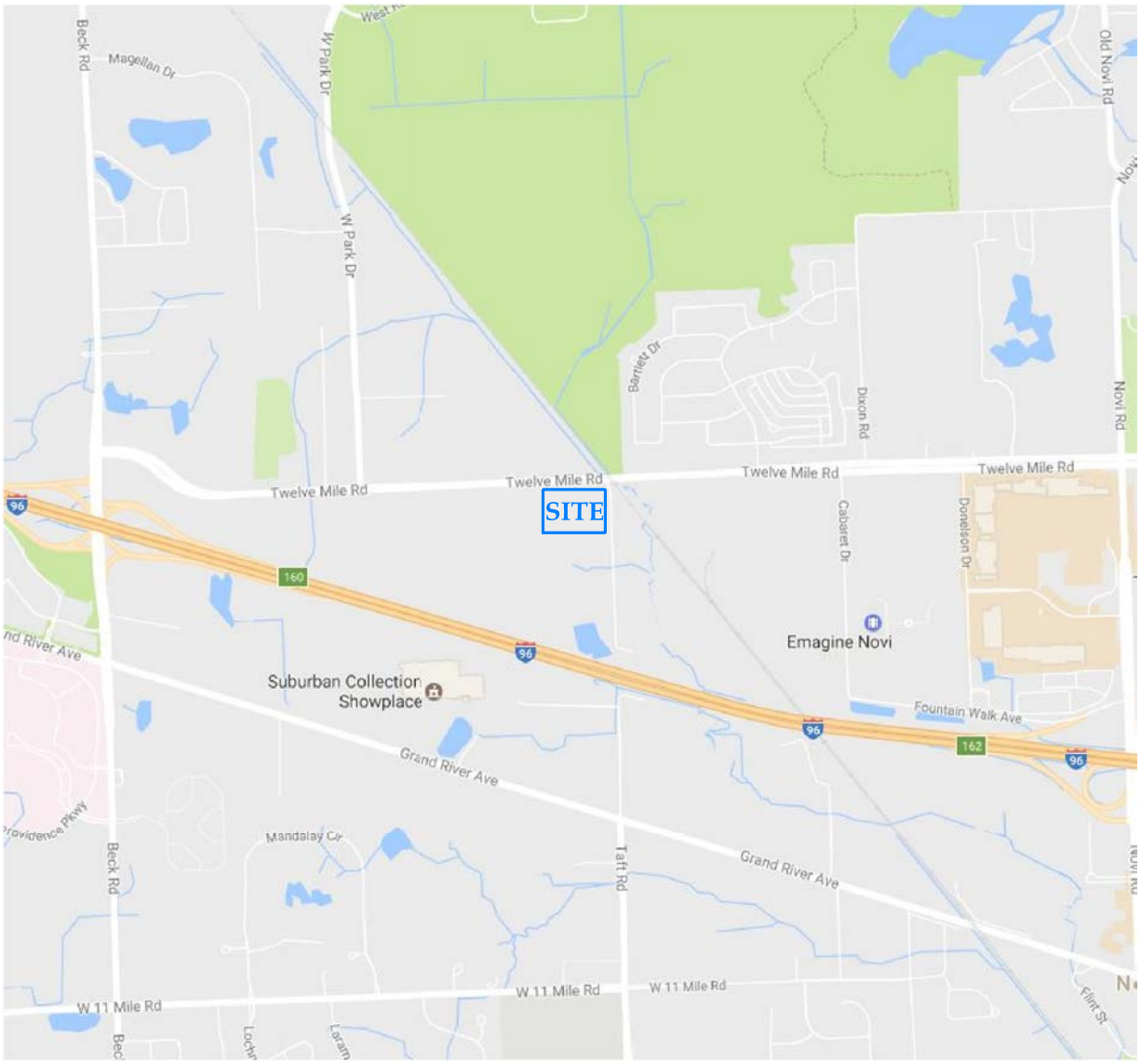
Attachments

P:\IER\163821\200-163821-17001\SupportDocs\Calcs\Traffic\Deliverables\TIA_Letter.docx

REPORT FIGURES

N

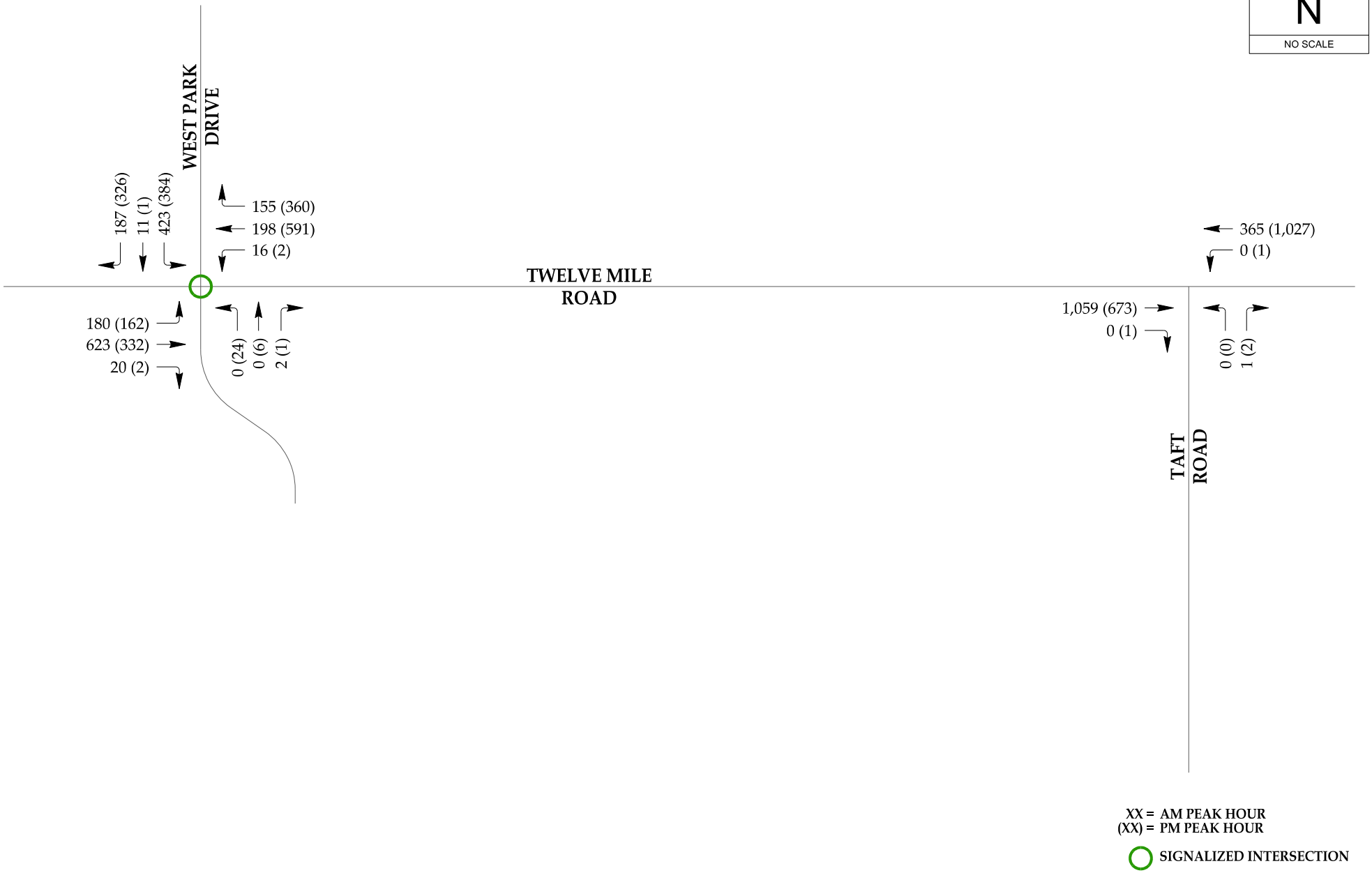
NO SCALE



TETRA TECH

SITE LOCATION MAP

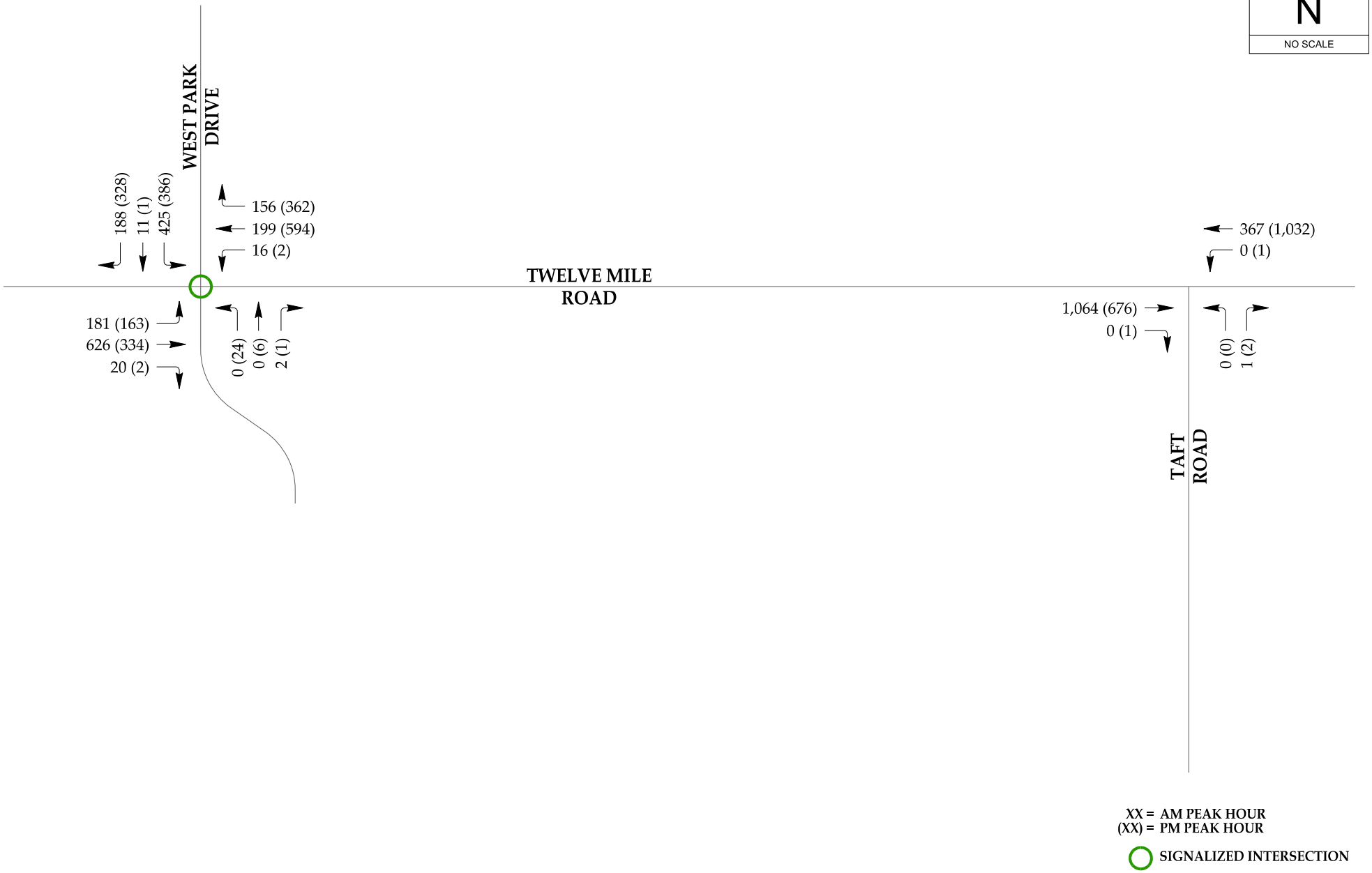
FIGURE 1



TETRA TECH

2017 EXISTING AM (PM) PEAK HOUR TRAFFIC VOLUMES

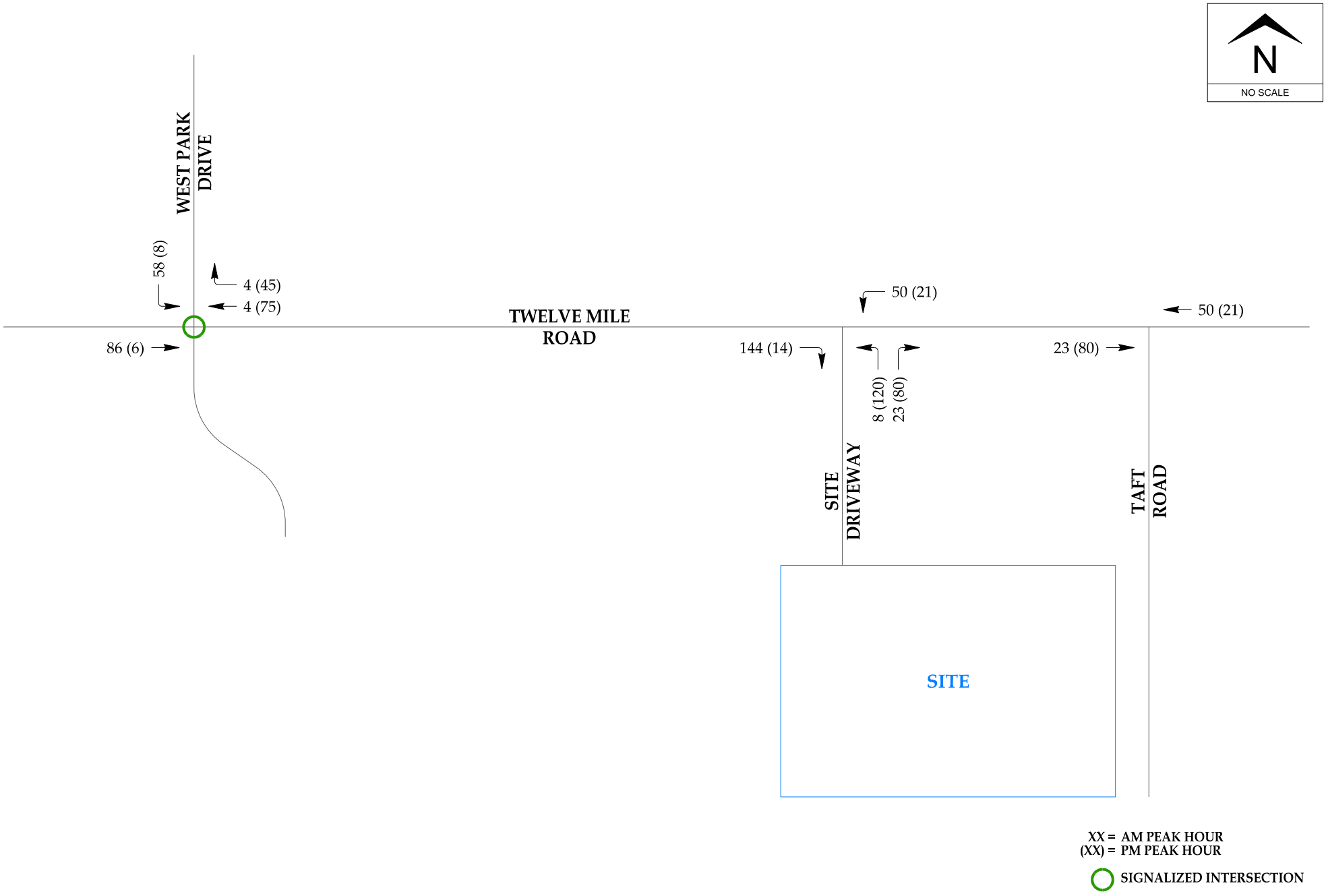
FIGURE 2



TETRA TECH

2018 BACKGROUND AM (PM) PEAK HOUR TRAFFIC VOLUMES

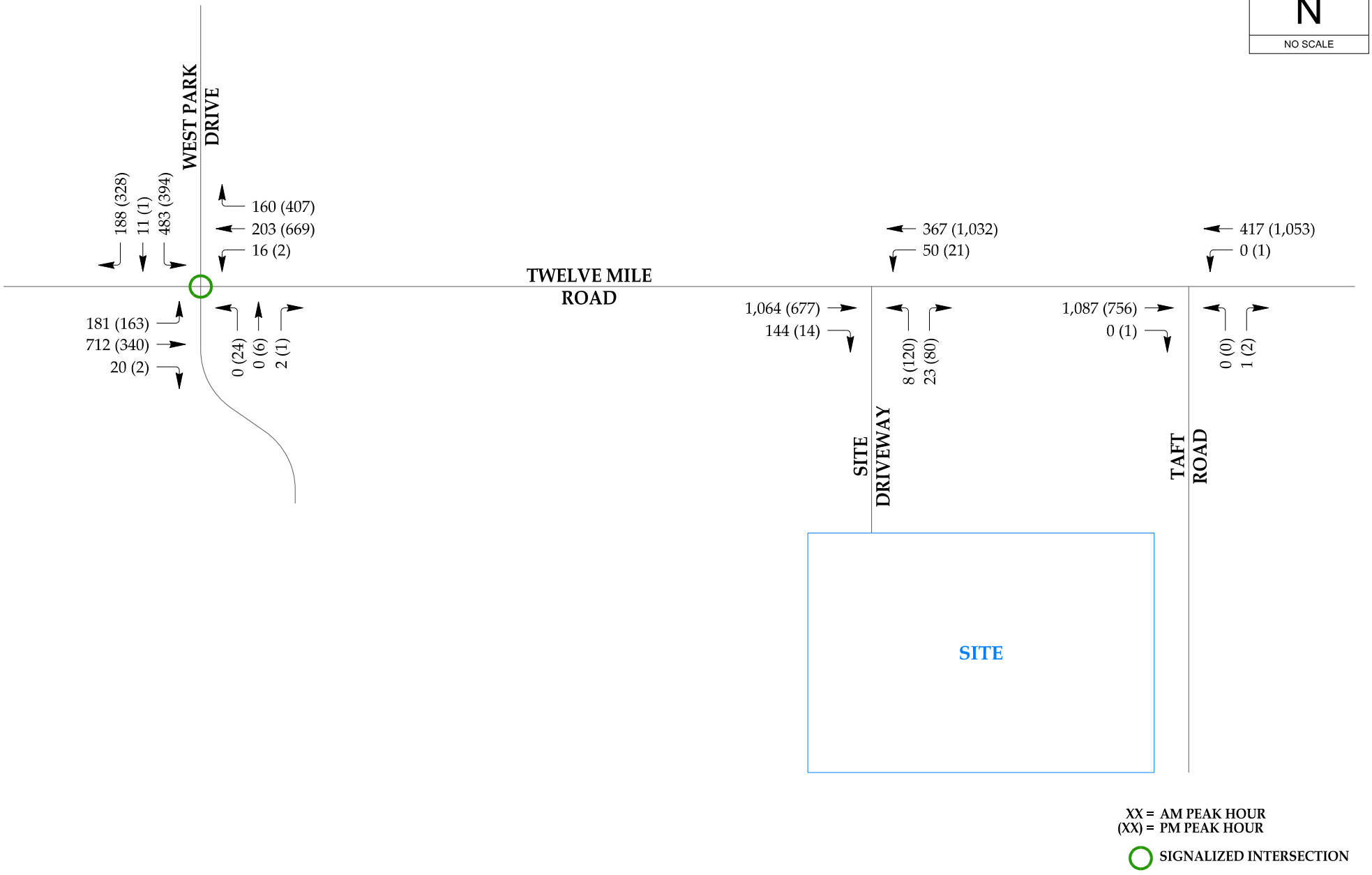
FIGURE 3



TETRA TECH

SITE GENERATED AM (PM) PEAK HOUR TRAFFIC VOLUMES

FIGURE 4



TETRA TECH

2018 TOTAL FUTURE AM (PM) PEAK HOUR TRAFFIC VOLUMES

FIGURE 5

TRAFFIC COUNTS

AND PROJECTIONS

TRIP GENERATION FORECASTS

Growth Rate: 0.5%

Buildout Year: 2018

Count Year: 2017

Intersection	Time period	Year	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Twelve Mile Rd	A.M. Peak		PHF		0.94			0.83			0.25			0.87	
& West Park Dr	03/15/17	2017	Existing	**180**	**623**	**20**	**16**	**198**	**155**	**0**	**0**	**2**	**423**	**11**	**187**
		2018	Background	181	626	20	16	199	156	0	0	2	425	11	188
A.M.			Total Background	**181**	**626**	**20**	**16**	**199**	**156**	**0**	**0**	**2**	**425**	**11**	**188**
			Site Generated		86			4	4				58		
			Total Future	**181**	**712**	**20**	**16**	**203**	**160**	**0**	**0**	**2**	**483**	**11**	**188**

Intersection	Time period	Year	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Twelve Mile Rd	A.M. Peak		PHF		0.90			0.88			0.25				
& Taft Rd	03/15/17	2017	Existing		**1059**	**0**	**0**	**365**		**0**		**1**			
		2018	Background	0	1064	0	0	367	0	0	0	1	0	0	0
A.M.			Total Background	**0**	**1064**	**0**	**0**	**367**	**0**	**0**	**0**	**1**	**0**	**0**	**0**
			Site Generated		23			50							
			Total Future	**0**	**1087**	**0**	**0**	**417**	**0**	**0**	**0**	**1**	**0**	**0**	**0**
					0.74			0.26							

Intersection	Time period	Year	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Twelve Mile Rd	A.M. Peak		PHF		0.90			0.88							
& Site Driveway	03/15/17	2017	Existing		**1059**			**365**							
		2018	Background	0	1064	0	0	367	0	0	0	0	0	0	0
A.M.			Total Background	**0**	**1064**	**0**	**0**	**367**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
			Site Generated			144	50			8		23			
			Total Future	**0**	**1064**	**144**	**50**	**367**	**0**	**8**	**0**	**23**	**0**	**0**	**0**

Intersection	Time period	Year	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Twelve Mile Rd	P.M. Peak		PHF		0.94			0.94			0.70			0.87	
& West Park Dr	03/14/17	2017	Existing	**162**	**332**	**2**	**2**	**591**	**360**	**24**	**6**	**1**	**384**	**1**	**326**
		2018	Background	163	334	2	2	594	362	24	6	1	386	1	328
P.M.			Total Background	**163**	**334**	**2**	**2**	**594**	**362**	**24**	**6**	**1**	**386**	**1**	**328**
			Site Generated		6			75	45				8		
			Total Future	**163**	**340**	**2**	**2**	**669**	**407**	**24**	**6**	**1**	**394**	**1**	**328**

Intersection	Time period	Year	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Twelve Mile Rd	P.M. Peak		PHF		0.88			0.92			0.50				
& Taft Rd	03/14/17	2017	Existing		**673**	**1**	**1**	**1027**		**0**		**2**			
		2018	Background	0	676	1	1	1032	0	0	0	2	0	0	0
P.M.			Total Background	**0**	**676**	**1**	**1**	**1032**	**0**	**0**	**0**	**2**	**0**	**0**	**0**
			Site Generated		80			21							
			Total Future	**0**	**756**	**1**	**1**	**1053**	**0**	**0**	**0**	**2**	**0**	**0**	**0**
					0.40			0.60							

Intersection	Time period	Year	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Twelve Mile Rd	P.M. Peak		PHF		0.88			0.92							
& Site Driveway	03/14/17	2017	Existing		**674**			**1027**							
		2018	Background	0	677	0	0	1032	0	0	0	0	0	0	0
P.M.			Total Background	**0**	**677**	**0**	**0**	**1032**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
			Site Generated			14	21			120		80			
			Total Future	**0**	**677**	**14**	**21**	**1032**	**0**	**120**	**0**	**80**	**0**	**0**	**0**

File Name: *C:\Users\Owner\Documents\TDC\Clients\TetraTech\Novi\TMC_1 12 Mile & WestPark_3-14-17.ppd*
Start Date: *3/14/2017*
Start Time: *7:00:00 AM*
Site Code: *TMC_1*
Comment 1: *Project: Novi Traffic Impact Study*
Comment 2: *Type: 4 Hr. Video Turning Movement Count*
Comment 3: *Weather: Clear, Dry Deg's 20's*
Comment 4: *Count By: Miovision Video VCU 4SY*

	West Park Drive Southbound				12 Mile Road Westbound				Medical Center Dw. Northbound				12 Mile Road Eastbound				15 Minute	60 Minute	Peak Hour
Start Time	Rgt	Thru	Left	Peds	Rgt	Thru	Left	Peds	Rgt	Thru	Left	Peds	Rgt	Thru	Left	Peds	Totals	Totals	Periods
07:00 AM	29	0	69	0	13	33	0	0	0	2	0	0	2	129	23	0	300		
07:15 AM	53	2	91	0	32	28	1	0	0	0	0	0	3	137	23	0	370	**1815**	**7:45 - 8:45**
07:30 AM	38	1	111	0	42	33	1	0	0	0	0	0	2	149	34	0	411		
07:45 AM	49	1	128	0	44	64	3	0	0	0	0	0	3	168	49	0	509	1590	7:00 - 8:00
08:00 AM	39	2	99	0	34	45	3	0	0	0	0	0	3	162	50	0	437	1727	7:15 - 8:15
08:15 AM	48	6	94	0	44	47	8	0	2	0	0	0	6	149	39	0	443	1800	7:30 - 8:30
08:30 AM	51	2	102	0	33	42	2	0	0	0	0	0	8	144	42	0	426	1815	7:45 - 8:45
08:45 AM	32	1	90	0	28	59	6	0	0	0	0	0	9	125	30	0	380	1686	8:00 - 9:00
04:00 PM	60	0	61	0	98	136	2	0	0	4	8	0	4	75	32	0	480		
04:15 PM	41	0	50	0	99	152	0	0	0	0	6	0	4	87	30	0	469	**2191**	**4:30 - 5:30**
04:30 PM	75	0	82	0	98	145	2	0	0	1	5	0	2	65	41	0	516		
04:45 PM	70	0	97	0	92	161	0	0	0	0	6	0	0	89	39	0	554	2019	4:00 - 5:00
05:00 PM	99	0	105	0	93	156	0	0	0	4	4	0	0	90	42	0	593	2132	4:15 - 5:15
05:15 PM	82	1	100	0	77	129	0	0	1	1	9	0	0	88	40	0	528	2191	4:30 - 5:30
05:30 PM	94	1	52	0	42	82	1	0	0	1	6	0	0	76	35	0	390	2065	4:45 - 5:45
05:45 PM	57	0	98	0	119	135	0	0	0	2	2	0	1	93	78	0	585	2096	5:00 - 6:00
TOTALS:	**917**	**17**	**1429**	**0**	**988**	**1447**	**29**	**0**	**3**	**15**	**46**	**0**	**47**	**1826**	**627**	**0**	**7391**		
Trucks:		1.1%				1.1%				1.6%				1.6%					

	West Park Drive Southbound				12 Mile Road Westbound				Medical Center Dw. Northbound				12 Mile Road Eastbound						
	Rgt	Thru	Left	Peds	Rgt	Thru	Left	Peds	Rgt	Thru	Left	Peds	Rgt	Thru	Left	Peds			
AM Peak	187	11	423	0	155	198	16	0	2	0	0	0	20	623	180	0	**1815**	Check	**7:45 - 8:45**
AM PHF			0.87				0.83				0.25				0.94				
PM Peak	326	1	384	0	360	591	2	0	1	6	24	0	2	332	162	0	**2191**	Check	**4:30 - 5:30**
PM PHF			0.87				0.94				0.70				0.94				

File Name: *C:\Users\Owner\Documents\TDC\Clients\TetraTech\Novi\TMC_2 12 Mile & Taft_3-14-17.ppd*
Start Date: *3/14/2017*
Start Time: *7:00:00 AM*
Site Code: *TMC_2*
Comment 1: *Project: Novi Traffic Impact Study*
Comment 2: *Type: 4 Hr. Video Turning Movement Count*
Comment 3: *Weather: Clear, Dry Deg's 20's*
Comment 4: *Count By: Miovision Video VCU 34O*

	NA Southbound				12 Mile Road Westbound				Taft Road (Dead End) Northbound				12 Mile Road Eastbound				15 Minute Totals	60 Minute Totals	Peak Hour Periods
	Rgt	Thru	Left	Peds	Rgt	Thru	Left	Peds	Rgt	Thru	Left	Peds	Rgt	Thru	Left	Peds			
07:00 AM	0	0	0	0	0	49	0	0	1	0	0	0	0	209	0	0	259		
07:15 AM	0	0	0	0	0	60	0	0	0	0	0	0	0	230	0	0	290	**1425**	**7:30 - 8:30**
07:30 AM	0	0	0	0	0	77	0	0	1	0	0	0	0	258	0	0	336		
07:45 AM	0	0	0	0	0	104	0	0	0	0	0	0	0	294	0	0	398	1283	7:00 - 8:00
08:00 AM	0	0	0	0	0	89	0	0	0	0	0	0	0	251	0	0	340	1364	7:15 - 8:15
08:15 AM	0	0	0	0	0	95	0	0	0	0	0	0	0	256	0	0	351	1425	7:30 - 8:30
08:30 AM	0	0	0	0	0	74	0	0	0	0	1	0	0	228	0	0	303	1392	7:45 - 8:45
08:45 AM	0	0	0	0	0	88	0	0	0	0	1	0	0	232	0	0	321	1315	8:00 - 9:00
04:00 PM	0	0	0	0	0	246	0	0	0	0	0	0	0	138	0	0	384		
04:15 PM	0	0	0	0	0	245	1	0	1	0	0	0	0	137	0	0	384	**1704**	**4:15 - 5:15**
04:30 PM	0	0	0	0	0	239	0	0	1	0	0	0	1	160	0	0	401		
04:45 PM	0	0	0	0	0	264	0	0	0	0	0	0	0	184	0	0	448	1617	4:00 - 5:00
05:00 PM	0	0	0	0	0	279	0	0	0	0	0	0	0	192	0	0	471	1704	4:15 - 5:15
05:15 PM	0	0	0	0	0	149	0	0	0	0	1	0	0	132	0	0	282	1602	4:30 - 5:30
05:30 PM	0	0	0	0	0	132	0	0	0	0	0	0	1	137	0	0	270	1471	4:45 - 5:45
05:45 PM	0	0	0	0	0	253	2	0	1	0	0	0	0	202	0	0	458	1481	5:00 - 6:00
TOTALS:	**0**	**0**	**0**	**0**	**0**	**2443**	**3**	**0**	**5**	**0**	**3**	**0**	**2**	**3240**	**0**	**0**	**5696**		
Trucks:	#DIV/0!				1.1%				12.5%				1.2%						

	NA Southbound				12 Mile Road Westbound				Taft Road (Dead End) Northbound				12 Mile Road Eastbound						
	Rgt	Thru	Left	Peds	Rgt	Thru	Left	Peds	Rgt	Thru	Left	Peds	Rgt	Thru	Left	Peds			
AM Peak	0	0	0	0	0	365	0	0	1	0	0	0	0	1059	0	0	**1425**	Check	**7:30 - 8:30**
AM PHF			#DIV/0!				0.88				0.25				0.90				
PM Peak	0	0	0	0	0	1027	1	0	2	0	0	0	1	673	0	0	**1704**	Check	**4:15 - 5:15**
PM PHF			#DIV/0!				0.92				0.50				0.88				

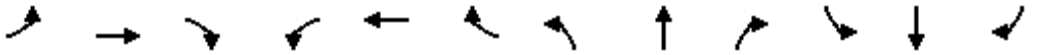
Proposed Research Park Development
Proposed Development Trip Generation Forecast
City of Novi, Oakland County

Land Use:	710	**Research and Development Center**						
Size:	**81,826**	Sq. Ft.						
Daily Trip Generation - per 1,000 sq. ft.					Split		Split	Check
Equation:	Ln(T) = 0.76*Ln(X)+3.68	R2 = 0.81 > 0.75	Result:	**1127**	50 \ 50	**564**	**\ 563**	Good
A.M. Peak Hour - per 1,000 sq. ft.					Split		Split	
Equation:	Ln(T) = 0.80*Ln(X)+1.57	R2 = 0.73 > 0.75	Result:	**163**	**88 \ 12**	**143**	**\ 20**	Good
P.M. Peak Hour - per 1,000 sq. ft.					Split		Split	
Equation:	T = 1.12*(X)+78.45	R2 = 0.82 > 0.75	Result:	**170**	**15 \ 85**	**25**	**\ 145**	Good

Land Use:	760	**Research and Development Center**						
Size:	**42,592**	Sq. Ft.	124,418					
Daily Trip Generation - per 1,000 sq. ft.					Split		Split	Check
Ave. Rate:	8.11		Result:	**346**	**50 \ 50**	**173**	\ **173**	Good
A.M. Peak Hour - per 1,000 sq. ft.					Split		Split	
Equation:	Ln(T) = 0.87*Ln(X)+0.86	R2 = 0.76 > 0.75	Result:	**62**	**83 \ 17**	**51**	**\ 11**	Good
P.M. Peak Hour - per 1,000 sq. ft.					Split		Split	
Equation:	Ln(T) = 0.83*Ln(X)+1.06	R2 = 0.78 > 0.75	Result:	**65**	**15 \ 85**	**10**	**\ 55**	Good

LEVEL OF SERVICE

OUTPUT REPORTS



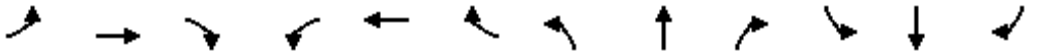
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	623	20	16	198	155	0	0	2	423	11	187
Future Volume (veh/h)	180	623	20	16	198	155	0	0	2	423	11	187
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1961	1961	2000	1961	1961	1961	1961	1961	2000	1961	1961	2000
Adj Flow Rate, veh/h	191	663	21	19	239	187	0	0	8	486	13	215
Adj No. of Lanes	1	2	0	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.83	0.83	0.83	0.25	0.25	0.25	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	567	1777	56	425	874	743	72	0	505	492	29	480
Arrive On Green	0.08	0.48	0.48	0.04	0.45	0.45	0.00	0.00	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1867	3686	117	1867	1961	1667	1148	0	1667	1402	96	1585
Grp Volume(v), veh/h	191	335	349	19	239	187	0	0	8	486	0	228
Grp Sat Flow(s),veh/h/ln	1867	1863	1940	1867	1961	1667	1148	0	1667	1402	0	1681
Q Serve(g_s), s	5.4	11.4	11.4	0.5	7.7	7.0	0.0	0.0	0.3	30.0	0.0	10.9
Cycle Q Clear(g_c), s	5.4	11.4	11.4	0.5	7.7	7.0	0.0	0.0	0.3	30.3	0.0	10.9
Prop In Lane	1.00		0.06	1.00		1.00	1.00		1.00	1.00		0.94
Lane Grp Cap(c), veh/h	567	898	935	425	874	743	72	0	505	492	0	509
V/C Ratio(X)	0.34	0.37	0.37	0.04	0.27	0.25	0.00	0.00	0.02	0.99	0.00	0.45
Avail Cap(c_a), veh/h	614	898	935	538	874	743	72	0	505	492	0	509
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.1	16.4	16.4	13.7	17.5	17.3	0.0	0.0	24.4	37.1	0.0	28.1
Incr Delay (d2), s/veh	0.3	1.2	1.1	0.0	0.8	0.8	0.0	0.0	0.0	37.3	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	6.2	6.4	0.3	4.4	3.4	0.0	0.0	0.2	18.5	0.0	5.2
LnGrp Delay(d),s/veh	13.4	17.5	17.5	13.7	18.2	18.1	0.0	0.0	24.4	74.4	0.0	28.7
LnGrp LOS	B	B	B	B	B	B			C	E		C
Approach Vol, veh/h		875			445			8			714	
Approach Delay, s/veh		16.6			18.0			24.4			59.8	
Approach LOS		B			B			C			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.9	54.1		36.0	13.5	50.5		36.0
Change Period (Y+Rc), s	* 5.9	* 5.9		* 5.7	* 5.9	* 5.9		* 5.7
Max Green Setting (Gmax), s	* 10	* 42		* 30	* 10	* 42		* 30
Max Q Clear Time (g_c+I1), s	2.5	13.4		32.3	7.4	9.7		2.3
Green Ext Time (p_c), s	0.0	3.5		0.0	0.2	3.6		2.4

Intersection Summary	
HCM 2010 Ctrl Delay	32.0
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	181	626	20	16	199	156	0	0	2	425	11	188
Future Volume (veh/h)	181	626	20	16	199	156	0	0	2	425	11	188
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1961	1961	2000	1961	1961	1961	1961	1961	2000	1961	1961	2000
Adj Flow Rate, veh/h	193	666	21	19	240	188	0	0	8	489	13	216
Adj No. of Lanes	1	2	0	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.83	0.83	0.83	0.25	0.25	0.25	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	567	1777	56	423	873	742	72	0	505	492	29	480
Arrive On Green	0.08	0.48	0.48	0.04	0.45	0.45	0.00	0.00	0.30	0.30	0.30	0.30
Sat Flow, veh/h	1867	3687	116	1867	1961	1667	1147	0	1667	1402	95	1586
Grp Volume(v), veh/h	193	336	351	19	240	188	0	0	8	489	0	229
Grp Sat Flow(s),veh/h/ln	1867	1863	1940	1867	1961	1667	1147	0	1667	1402	0	1681
Q Serve(g_s), s	5.5	11.4	11.4	0.5	7.7	7.1	0.0	0.0	0.3	30.0	0.0	11.0
Cycle Q Clear(g_c), s	5.5	11.4	11.4	0.5	7.7	7.1	0.0	0.0	0.3	30.3	0.0	11.0
Prop In Lane	1.00		0.06	1.00		1.00	1.00		1.00	1.00		0.94
Lane Grp Cap(c), veh/h	567	898	935	423	873	742	72	0	505	492	0	509
V/C Ratio(X)	0.34	0.37	0.37	0.04	0.27	0.25	0.00	0.00	0.02	0.99	0.00	0.45
Avail Cap(c_a), veh/h	612	898	935	537	873	742	72	0	505	492	0	509
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.1	16.4	16.4	13.7	17.5	17.3	0.0	0.0	24.4	37.1	0.0	28.1
Incr Delay (d2), s/veh	0.4	1.2	1.1	0.0	0.8	0.8	0.0	0.0	0.0	38.9	0.0	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.8	6.2	6.4	0.3	4.4	3.4	0.0	0.0	0.2	18.8	0.0	5.2
LnGrp Delay(d),s/veh	13.5	17.6	17.5	13.7	18.3	18.2	0.0	0.0	24.4	76.1	0.0	28.7
LnGrp LOS	B	B	B	B	B	B			C	E		C
Approach Vol, veh/h		880			447			8			718	
Approach Delay, s/veh		16.7			18.0			24.4			61.0	
Approach LOS		B			B			C			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.9	54.1		36.0	13.6	50.4		36.0
Change Period (Y+Rc), s	* 5.9	* 5.9		* 5.7	* 5.9	* 5.9		* 5.7
Max Green Setting (Gmax), s	* 10	* 42		* 30	* 10	* 42		* 30
Max Q Clear Time (g_c+I1), s	2.5	13.4		32.3	7.5	9.7		2.3
Green Ext Time (p_c), s	0.0	3.6		0.0	0.2	3.6		2.4

Intersection Summary	
HCM 2010 Ctrl Delay	32.5
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

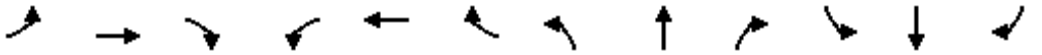
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	181	626	20	16	199	156	0	0	2	425	11	188
Future Volume (veh/h)	181	626	20	16	199	156	0	0	2	425	11	188
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1961	1961	2000	1961	1961	1961	1961	1961	2000	1961	1961	2000
Adj Flow Rate, veh/h	193	666	21	19	240	188	0	0	8	489	13	216
Adj No. of Lanes	1	2	0	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.83	0.83	0.83	0.25	0.25	0.25	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	506	1556	49	368	744	632	72	0	605	576	35	576
Arrive On Green	0.08	0.42	0.42	0.04	0.38	0.38	0.00	0.00	0.36	0.36	0.36	0.36
Sat Flow, veh/h	1867	3687	116	1867	1961	1667	1147	0	1667	1402	95	1586
Grp Volume(v), veh/h	193	336	351	19	240	188	0	0	8	489	0	229
Grp Sat Flow(s),veh/h/ln	1867	1863	1940	1867	1961	1667	1147	0	1667	1402	0	1681
Q Serve(g_s), s	6.2	12.7	12.8	0.6	8.7	7.9	0.0	0.0	0.3	34.3	0.0	10.0
Cycle Q Clear(g_c), s	6.2	12.7	12.8	0.6	8.7	7.9	0.0	0.0	0.3	34.6	0.0	10.0
Prop In Lane	1.00		0.06	1.00		1.00	1.00		1.00	1.00		0.94
Lane Grp Cap(c), veh/h	506	786	819	368	744	632	72	0	605	576	0	610
V/C Ratio(X)	0.38	0.43	0.43	0.05	0.32	0.30	0.00	0.00	0.01	0.85	0.00	0.38
Avail Cap(c_a), veh/h	540	786	819	482	744	632	72	0	605	576	0	610
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.4	20.4	20.4	17.4	22.0	21.7	0.0	0.0	20.4	31.5	0.0	23.5
Incr Delay (d2), s/veh	0.5	1.7	1.6	0.1	1.1	1.2	0.0	0.0	0.0	11.4	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	6.9	7.2	0.3	4.9	3.8	0.0	0.0	0.1	15.0	0.0	4.7
LnGrp Delay(d),s/veh	16.9	22.1	22.0	17.5	23.1	22.9	0.0	0.0	20.4	42.9	0.0	23.9
LnGrp LOS	B	C	C	B	C	C			C	D		C
Approach Vol, veh/h		880			447			8			718	
Approach Delay, s/veh		20.9			22.8			20.4			36.8	
Approach LOS		C			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.9	48.1		42.0	14.2	43.8		42.0
Change Period (Y+Rc), s	* 5.9	* 5.9		* 5.7	* 5.9	* 5.9		* 5.7
Max Green Setting (Gmax), s	* 10	* 36		* 36	* 10	* 36		* 36
Max Q Clear Time (g_c+I1), s	2.6	14.8		36.6	8.2	10.7		2.3
Green Ext Time (p_c), s	0.0	3.4		0.0	0.1	3.5		2.5

Intersection Summary		
HCM 2010 Ctrl Delay		26.9
HCM 2010 LOS		C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



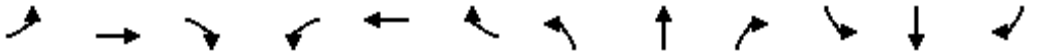
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	181	712	20	16	203	160	0	0	2	483	11	188
Future Volume (veh/h)	181	712	20	16	203	160	0	0	2	483	11	188
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1961	1961	2000	1961	1961	1961	1961	1961	2000	1961	1961	2000
Adj Flow Rate, veh/h	193	757	21	19	245	193	0	0	8	555	13	216
Adj No. of Lanes	1	2	0	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.83	0.83	0.83	0.25	0.25	0.25	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	502	1563	43	336	744	632	72	0	605	576	35	576
Arrive On Green	0.08	0.42	0.42	0.04	0.38	0.38	0.00	0.00	0.36	0.36	0.36	0.36
Sat Flow, veh/h	1867	3703	103	1867	1961	1667	1147	0	1667	1402	95	1586
Grp Volume(v), veh/h	193	381	397	19	245	193	0	0	8	555	0	229
Grp Sat Flow(s),veh/h/ln	1867	1863	1943	1867	1961	1667	1147	0	1667	1402	0	1681
Q Serve(g_s), s	6.2	14.9	14.9	0.6	8.9	8.1	0.0	0.0	0.3	36.0	0.0	10.0
Cycle Q Clear(g_c), s	6.2	14.9	14.9	0.6	8.9	8.1	0.0	0.0	0.3	36.3	0.0	10.0
Prop In Lane	1.00		0.05	1.00		1.00	1.00		1.00	1.00		0.94
Lane Grp Cap(c), veh/h	502	786	820	336	744	632	72	0	605	576	0	610
V/C Ratio(X)	0.38	0.48	0.48	0.06	0.33	0.31	0.00	0.00	0.01	0.96	0.00	0.38
Avail Cap(c_a), veh/h	536	786	820	450	744	632	72	0	605	576	0	610
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	0.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.5	21.0	21.0	17.6	22.0	21.8	0.0	0.0	20.4	33.6	0.0	23.5
Incr Delay (d2), s/veh	0.5	2.1	2.0	0.1	1.2	1.2	0.0	0.0	0.0	28.3	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.2	8.1	8.4	0.3	5.0	4.0	0.0	0.0	0.1	19.8	0.0	4.7
LnGrp Delay(d),s/veh	16.9	23.1	23.0	17.7	23.2	23.0	0.0	0.0	20.4	61.9	0.0	23.9
LnGrp LOS	B	C	C	B	C	C			C	E		C
Approach Vol, veh/h		971			457			8			784	
Approach Delay, s/veh		21.9			22.9			20.4			50.8	
Approach LOS		C			C			C			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.9	48.1		42.0	14.2	43.8		42.0
Change Period (Y+Rc), s	* 5.9	* 5.9		* 5.7	* 5.9	* 5.9		* 5.7
Max Green Setting (Gmax), s	* 10	* 36		* 36	* 10	* 36		* 36
Max Q Clear Time (g_c+I1), s	2.6	16.9		38.3	8.2	10.9		2.3
Green Ext Time (p_c), s	0.0	3.8		0.0	0.1	3.9		2.8

Intersection Summary		
HCM 2010 Ctrl Delay		32.3
HCM 2010 LOS		C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



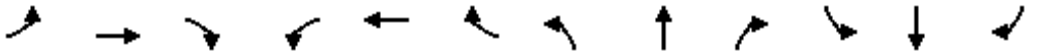
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	162	332	2	2	591	360	24	6	1	384	1	326
Future Volume (veh/h)	162	332	2	2	591	360	24	6	1	384	1	326
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1961	1961	2000	1961	1961	1961	1961	1961	2000	1961	1961	2000
Adj Flow Rate, veh/h	172	353	2	2	629	383	34	9	1	441	1	375
Adj No. of Lanes	1	2	0	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.70	0.70	0.70	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	353	2059	12	653	1015	863	95	421	47	406	1	404
Arrive On Green	0.06	0.54	0.54	0.04	0.52	0.52	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1867	3798	22	1867	1961	1667	1003	1734	193	1399	4	1663
Grp Volume(v), veh/h	172	173	182	2	629	383	34	0	10	441	0	376
Grp Sat Flow(s),veh/h/ln	1867	1863	1957	1867	1961	1667	1003	0	1927	1399	0	1667
Q Serve(g_s), s	4.2	4.7	4.7	0.0	22.8	14.4	2.3	0.0	0.4	23.9	0.0	22.0
Cycle Q Clear(g_c), s	4.2	4.7	4.7	0.0	22.8	14.4	24.3	0.0	0.4	24.3	0.0	22.0
Prop In Lane	1.00		0.01	1.00		1.00	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	353	1010	1061	653	1015	863	95	0	468	406	0	405
V/C Ratio(X)	0.49	0.17	0.17	0.00	0.62	0.44	0.36	0.00	0.02	1.09	0.00	0.93
Avail Cap(c_a), veh/h	421	1010	1061	767	1015	863	95	0	468	406	0	405
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.4	11.6	11.6	9.8	17.1	15.1	49.2	0.0	28.8	40.2	0.0	37.0
Incr Delay (d2), s/veh	1.0	0.4	0.4	0.0	2.8	1.7	2.3	0.0	0.0	69.4	0.0	27.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	2.5	2.6	0.0	13.0	7.0	1.0	0.0	0.2	19.0	0.0	13.2
LnGrp Delay(d),s/veh	14.4	11.9	11.9	9.8	20.0	16.8	51.5	0.0	28.8	109.6	0.0	64.5
LnGrp LOS	B	B	B	A	B	B	D		C	F		E
Approach Vol, veh/h		527			1014			44			817	
Approach Delay, s/veh		12.7			18.7			46.4			88.8	
Approach LOS		B			B			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.9	60.1		30.0	12.3	57.7		30.0
Change Period (Y+Rc), s	* 5.9	* 5.9		* 5.7	* 5.9	* 5.9		* 5.7
Max Green Setting (Gmax), s	* 10	* 48		* 24	* 10	* 48		* 24
Max Q Clear Time (g_c+I1), s	2.0	6.7		26.3	6.2	24.8		26.3
Green Ext Time (p_c), s	0.0	5.0		0.0	0.2	4.8		0.0

Intersection Summary			
HCM 2010 Ctrl Delay		41.8	
HCM 2010 LOS		D	

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



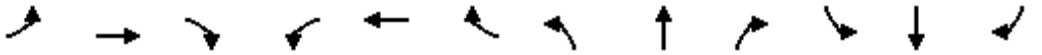
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	163	334	2	2	594	362	24	6	1	386	1	328
Future Volume (veh/h)	163	334	2	2	594	362	24	6	1	386	1	328
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1961	1961	2000	1961	1961	1961	1961	1961	2000	1961	1961	2000
Adj Flow Rate, veh/h	173	355	2	2	632	385	34	9	1	444	1	377
Adj No. of Lanes	1	2	0	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.70	0.70	0.70	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	351	2059	12	651	1015	862	93	421	47	406	1	404
Arrive On Green	0.06	0.54	0.54	0.04	0.52	0.52	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1867	3798	21	1867	1961	1667	1001	1734	193	1399	4	1663
Grp Volume(v), veh/h	173	174	183	2	632	385	34	0	10	444	0	378
Grp Sat Flow(s),veh/h/ln	1867	1863	1957	1867	1961	1667	1001	0	1927	1399	0	1667
Q Serve(g_s), s	4.3	4.7	4.7	0.0	23.0	14.5	2.1	0.0	0.4	23.9	0.0	22.2
Cycle Q Clear(g_c), s	4.3	4.7	4.7	0.0	23.0	14.5	24.3	0.0	0.4	24.3	0.0	22.2
Prop In Lane	1.00		0.01	1.00		1.00	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	351	1010	1061	651	1015	862	93	0	468	406	0	405
V/C Ratio(X)	0.49	0.17	0.17	0.00	0.62	0.45	0.37	0.00	0.02	1.09	0.00	0.93
Avail Cap(c_a), veh/h	420	1010	1061	765	1015	862	93	0	468	406	0	405
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	13.5	11.6	11.6	9.8	17.2	15.1	49.3	0.0	28.8	40.2	0.0	37.1
Incr Delay (d2), s/veh	1.1	0.4	0.4	0.0	2.9	1.7	2.4	0.0	0.0	71.9	0.0	28.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.3	2.5	2.6	0.0	13.1	7.0	1.0	0.0	0.2	19.3	0.0	13.4
LnGrp Delay(d),s/veh	14.5	11.9	11.9	9.8	20.1	16.8	51.7	0.0	28.8	112.0	0.0	65.5
LnGrp LOS	B	B	B	A	C	B	D		C	F		E
Approach Vol, veh/h		530			1019			44			822	
Approach Delay, s/veh		12.8			18.8			46.5			90.6	
Approach LOS		B			B			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.9	60.1		30.0	12.4	57.6		30.0
Change Period (Y+Rc), s	* 5.9	* 5.9		* 5.7	* 5.9	* 5.9		* 5.7
Max Green Setting (Gmax), s	* 10	* 48		* 24	* 10	* 48		* 24
Max Q Clear Time (g_c+I1), s	2.0	6.7		26.3	6.3	25.0		26.3
Green Ext Time (p_c), s	0.0	5.1		0.0	0.2	4.8		0.0

Intersection Summary		
HCM 2010 Ctrl Delay		42.4
HCM 2010 LOS		D

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



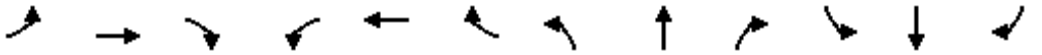
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	163	334	2	2	594	362	24	6	1	386	1	328
Future Volume (veh/h)	163	334	2	2	594	362	24	6	1	386	1	328
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1961	1961	2000	1961	1961	1961	1961	1961	2000	1961	1961	2000
Adj Flow Rate, veh/h	173	355	2	2	632	385	34	9	1	444	1	377
Adj No. of Lanes	1	2	0	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.70	0.70	0.70	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	316	1869	11	595	907	771	158	508	56	477	1	487
Arrive On Green	0.07	0.49	0.49	0.04	0.46	0.46	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	1867	3798	21	1867	1961	1667	1001	1734	193	1399	4	1663
Grp Volume(v), veh/h	173	174	183	2	632	385	34	0	10	444	0	378
Grp Sat Flow(s),veh/h/ln	1867	1863	1957	1867	1961	1667	1001	0	1927	1399	0	1667
Q Serve(g_s), s	4.8	5.2	5.2	0.1	25.6	16.1	3.2	0.0	0.4	28.9	0.0	20.7
Cycle Q Clear(g_c), s	4.8	5.2	5.2	0.1	25.6	16.1	23.9	0.0	0.4	29.3	0.0	20.7
Prop In Lane	1.00		0.01	1.00		1.00	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	316	916	963	595	907	771	158	0	565	477	0	489
V/C Ratio(X)	0.55	0.19	0.19	0.00	0.70	0.50	0.22	0.00	0.02	0.93	0.00	0.77
Avail Cap(c_a), veh/h	375	916	963	709	907	771	158	0	565	477	0	489
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	16.8	14.2	14.2	12.4	21.3	18.8	43.3	0.0	25.1	36.8	0.0	32.3
Incr Delay (d2), s/veh	1.5	0.5	0.4	0.0	4.4	2.3	0.7	0.0	0.0	25.2	0.0	7.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	2.8	2.9	0.0	14.8	7.9	0.9	0.0	0.2	15.5	0.0	10.6
LnGrp Delay(d),s/veh	18.3	14.7	14.7	12.4	25.7	21.1	43.9	0.0	25.1	62.0	0.0	39.9
LnGrp LOS	B	B	B	B	C	C	D		C	E		D
Approach Vol, veh/h		530			1019			44			822	
Approach Delay, s/veh		15.9			23.9			39.7			51.8	
Approach LOS		B			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.9	55.1		35.0	12.8	52.2		35.0
Change Period (Y+Rc), s	* 5.9	* 5.9		* 5.7	* 5.9	* 5.9		* 5.7
Max Green Setting (Gmax), s	* 10	* 43		* 29	* 10	* 43		* 29
Max Q Clear Time (g_c+I1), s	2.1	7.2		31.3	6.8	27.6		25.9
Green Ext Time (p_c), s	0.0	5.0		0.0	0.2	4.3		1.1

Intersection Summary	
HCM 2010 Ctrl Delay	31.9
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	163	340	2	2	669	407	24	6	1	394	1	328
Future Volume (veh/h)	163	340	2	2	669	407	24	6	1	394	1	328
Number	5	2	12	1	6	16	3	8	18	7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1961	1961	2000	1961	1961	1961	1961	1961	2000	1961	1961	2000
Adj Flow Rate, veh/h	173	362	2	2	712	433	34	9	1	453	1	377
Adj No. of Lanes	1	2	0	1	1	1	1	1	0	1	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.70	0.70	0.70	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	278	1869	10	591	907	771	158	508	56	477	1	487
Arrive On Green	0.07	0.49	0.49	0.04	0.46	0.46	0.29	0.29	0.29	0.29	0.29	0.29
Sat Flow, veh/h	1867	3799	21	1867	1961	1667	1001	1734	193	1399	4	1663
Grp Volume(v), veh/h	173	177	187	2	712	433	34	0	10	453	0	378
Grp Sat Flow(s),veh/h/ln	1867	1863	1957	1867	1961	1667	1001	0	1927	1399	0	1667
Q Serve(g_s), s	4.8	5.3	5.4	0.1	30.6	18.9	3.2	0.0	0.4	28.9	0.0	20.7
Cycle Q Clear(g_c), s	4.8	5.3	5.4	0.1	30.6	18.9	23.9	0.0	0.4	29.3	0.0	20.7
Prop In Lane	1.00		0.01	1.00		1.00	1.00		0.10	1.00		1.00
Lane Grp Cap(c), veh/h	278	916	963	591	907	771	158	0	565	477	0	489
V/C Ratio(X)	0.62	0.19	0.19	0.00	0.78	0.56	0.22	0.00	0.02	0.95	0.00	0.77
Avail Cap(c_a), veh/h	337	916	963	705	907	771	158	0	565	477	0	489
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.3	14.3	14.3	12.4	22.7	19.5	43.3	0.0	25.1	37.1	0.0	32.3
Incr Delay (d2), s/veh	2.5	0.5	0.4	0.0	6.8	2.9	0.7	0.0	0.0	29.0	0.0	7.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.6	2.9	3.0	0.0	18.1	9.3	0.9	0.0	0.2	16.3	0.0	10.6
LnGrp Delay(d),s/veh	21.8	14.7	14.7	12.4	29.4	22.5	43.9	0.0	25.1	66.0	0.0	39.9
LnGrp LOS	C	B	B	B	C	C	D		C	E		D
Approach Vol, veh/h		537			1147			44			831	
Approach Delay, s/veh		17.0			26.8			39.7			54.1	
Approach LOS		B			C			D			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	9.9	55.1		35.0	12.8	52.2		35.0
Change Period (Y+Rc), s	* 5.9	* 5.9		* 5.7	* 5.9	* 5.9		* 5.7
Max Green Setting (Gmax), s	* 10	* 43		* 29	* 10	* 43		* 29
Max Q Clear Time (g_c+I1), s	2.1	7.4		31.3	6.8	32.6		25.9
Green Ext Time (p_c), s	0.0	5.9		0.0	0.2	4.1		1.2

Intersection Summary	
HCM 2010 Ctrl Delay	33.8
HCM 2010 LOS	C

Notes

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Vol, veh/h	1059	0	0	365	0	1
Future Vol, veh/h	1059	0	0	365	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	88	88	25	25
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1177	0	0	415	0	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1177	0	1592	1177
Stage 1	-	-	-	-	1177	-
Stage 2	-	-	-	-	415	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	593	-	118	233
Stage 1	-	-	-	-	293	-
Stage 2	-	-	-	-	666	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	593	-	118	233
Mov Cap-2 Maneuver	-	-	-	-	118	-
Stage 1	-	-	-	-	293	-
Stage 2	-	-	-	-	666	-

Approach	EB	WB	NW
HCM Control Delay, s	0	0	20.7
HCM LOS			C

Minor Lane/Major Mvmt	NWLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	233	-	-	593	-
HCM Lane V/C Ratio	0.017	-	-	-	-
HCM Control Delay (s)	20.7	-	-	0	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Vol, veh/h	1064	0	0	367	0	1
Future Vol, veh/h	1064	0	0	367	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	88	88	25	25
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1182	0	0	417	0	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1182	0	1599	1182
Stage 1	-	-	-	-	1182	-
Stage 2	-	-	-	-	417	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	591	-	117	231
Stage 1	-	-	-	-	291	-
Stage 2	-	-	-	-	665	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	591	-	117	231
Mov Cap-2 Maneuver	-	-	-	-	117	-
Stage 1	-	-	-	-	291	-
Stage 2	-	-	-	-	665	-

Approach	EB	WB	NW
HCM Control Delay, s	0	0	20.9
HCM LOS			C

Minor Lane/Major Mvmt	NWLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	231	-	-	591	-
HCM Lane V/C Ratio	0.017	-	-	-	-
HCM Control Delay (s)	20.9	-	-	0	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Vol, veh/h	1087	0	0	417	0	1
Future Vol, veh/h	1087	0	0	417	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	88	88	25	25
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1208	0	0	474	0	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1208	0	1682	1208
Stage 1	-	-	-	-	1208	-
Stage 2	-	-	-	-	474	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	578	-	104	223
Stage 1	-	-	-	-	283	-
Stage 2	-	-	-	-	626	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	578	-	104	223
Mov Cap-2 Maneuver	-	-	-	-	104	-
Stage 1	-	-	-	-	283	-
Stage 2	-	-	-	-	626	-

Approach	EB	WB	NW
HCM Control Delay, s	0	0	21.4
HCM LOS			C

Minor Lane/Major Mvmt	NWLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	223	-	-	578	-
HCM Lane V/C Ratio	0.018	-	-	-	-
HCM Control Delay (s)	21.4	-	-	0	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Vol, veh/h	673	1	1	1027	0	2
Future Vol, veh/h	673	1	1	1027	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	92	92	50	50
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	765	1	1	1116	0	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	766	0	1883	765
Stage 1	-	-	-	-	765	-
Stage 2	-	-	-	-	1118	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	847	-	78	403
Stage 1	-	-	-	-	459	-
Stage 2	-	-	-	-	312	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	847	-	78	403
Mov Cap-2 Maneuver	-	-	-	-	78	-
Stage 1	-	-	-	-	459	-
Stage 2	-	-	-	-	311	-

Approach	EB	WB	NW
HCM Control Delay, s	0	0	14
HCM LOS			B

Minor Lane/Major Mvmt	NWLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	403	-	-	847	-
HCM Lane V/C Ratio	0.01	-	-	0.001	-
HCM Control Delay (s)	14	-	-	9.3	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Vol, veh/h	676	1	1	1032	0	2
Future Vol, veh/h	676	1	1	1032	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	92	92	50	50
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	768	1	1	1122	0	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	769	0	1893	769
Stage 1	-	-	-	-	769	-
Stage 2	-	-	-	-	1124	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	845	-	77	401
Stage 1	-	-	-	-	457	-
Stage 2	-	-	-	-	310	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	845	-	77	401
Mov Cap-2 Maneuver	-	-	-	-	77	-
Stage 1	-	-	-	-	457	-
Stage 2	-	-	-	-	309	-

Approach	EB	WB	NW
HCM Control Delay, s	0	0	14.1
HCM LOS			B

Minor Lane/Major Mvmt	NWLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	401	-	-	845	-
HCM Lane V/C Ratio	0.01	-	-	0.001	-
HCM Control Delay (s)	14.1	-	-	9.3	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	EBT	EBR	WBL	WBT	NWL	NWR
Lane Configurations						
Traffic Vol, veh/h	756	1	1	1053	0	2
Future Vol, veh/h	756	1	1	1053	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	92	92	50	50
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	859	1	1	1145	0	4

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	860	0	2007	860
Stage 1	-	-	-	-	860	-
Stage 2	-	-	-	-	1147	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	781	-	65	356
Stage 1	-	-	-	-	414	-
Stage 2	-	-	-	-	303	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	781	-	65	356
Mov Cap-2 Maneuver	-	-	-	-	65	-
Stage 1	-	-	-	-	414	-
Stage 2	-	-	-	-	302	-

Approach	EB	WB	NW
HCM Control Delay, s	0	0	15.2
HCM LOS			C

Minor Lane/Major Mvmt	NWLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	356	-	-	781	-
HCM Lane V/C Ratio	0.011	-	-	0.001	-
HCM Control Delay (s)	15.2	-	-	9.6	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	1064	144	50	367	8	23
Future Vol, veh/h	1064	144	50	367	8	23
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	100	100	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	88	88	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1182	160	57	417	9	25

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1182	0	1713	1182
Stage 1	-	-	-	-	1182	-
Stage 2	-	-	-	-	531	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	591	-	99	231
Stage 1	-	-	-	-	291	-
Stage 2	-	-	-	-	590	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	591	-	89	231
Mov Cap-2 Maneuver	-	-	-	-	89	-
Stage 1	-	-	-	-	291	-
Stage 2	-	-	-	-	533	-

Approach	EB	WB	NB
HCM Control Delay, s	0	1.4	29.5
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	89	231	-	-	591	-
HCM Lane V/C Ratio	0.098	0.108	-	-	0.096	-
HCM Control Delay (s)	49.8	22.5	-	-	11.7	-
HCM Lane LOS	E	C	-	-	B	-
HCM 95th %tile Q(veh)	0.3	0.4	-	-	0.3	-

Intersection	
Int Delay, s/veh	33.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	677	14	21	1032	120	80
Future Vol, veh/h	677	14	21	1032	120	80
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	100	100	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	88	88	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	769	16	23	1122	130	87

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	769	0	1936	769
Stage 1	-	-	-	-	769	-
Stage 2	-	-	-	-	1167	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	845	-	~ 72	401
Stage 1	-	-	-	-	457	-
Stage 2	-	-	-	-	296	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	845	-	~ 70	401
Mov Cap-2 Maneuver	-	-	-	-	~ 70	-
Stage 1	-	-	-	-	457	-
Stage 2	-	-	-	-	288	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	$ 327.6
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	70	401	-	-	845	-
HCM Lane V/C Ratio	1.863	0.217	-	-	0.027	-
HCM Control Delay (s)	$ 535	16.4	-	-	9.4	-
HCM Lane LOS	F	C	-	-	A	-
HCM 95th %tile Q(veh)	11.7	0.8	-	-	0.1	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

ROAD COMMISSION FOR OAKLAND COUNTY (RCOC)

TURN LANE WARRANTS

ROAD COMMISSION FOR OAKLAND COUNTY

PERMIT RULES, SPECIFICATIONS AND GUIDELINES

ROAD COMMISSION FOR OAKLAND COUNTY

DEPARTMENT OF CUSTOMER SERVICES

PERMITS DIVISION

2420 PONTIAC LAKE ROAD

WATERFORD, MI 48328

MARCH 14, 2013

FIGURE 6-2

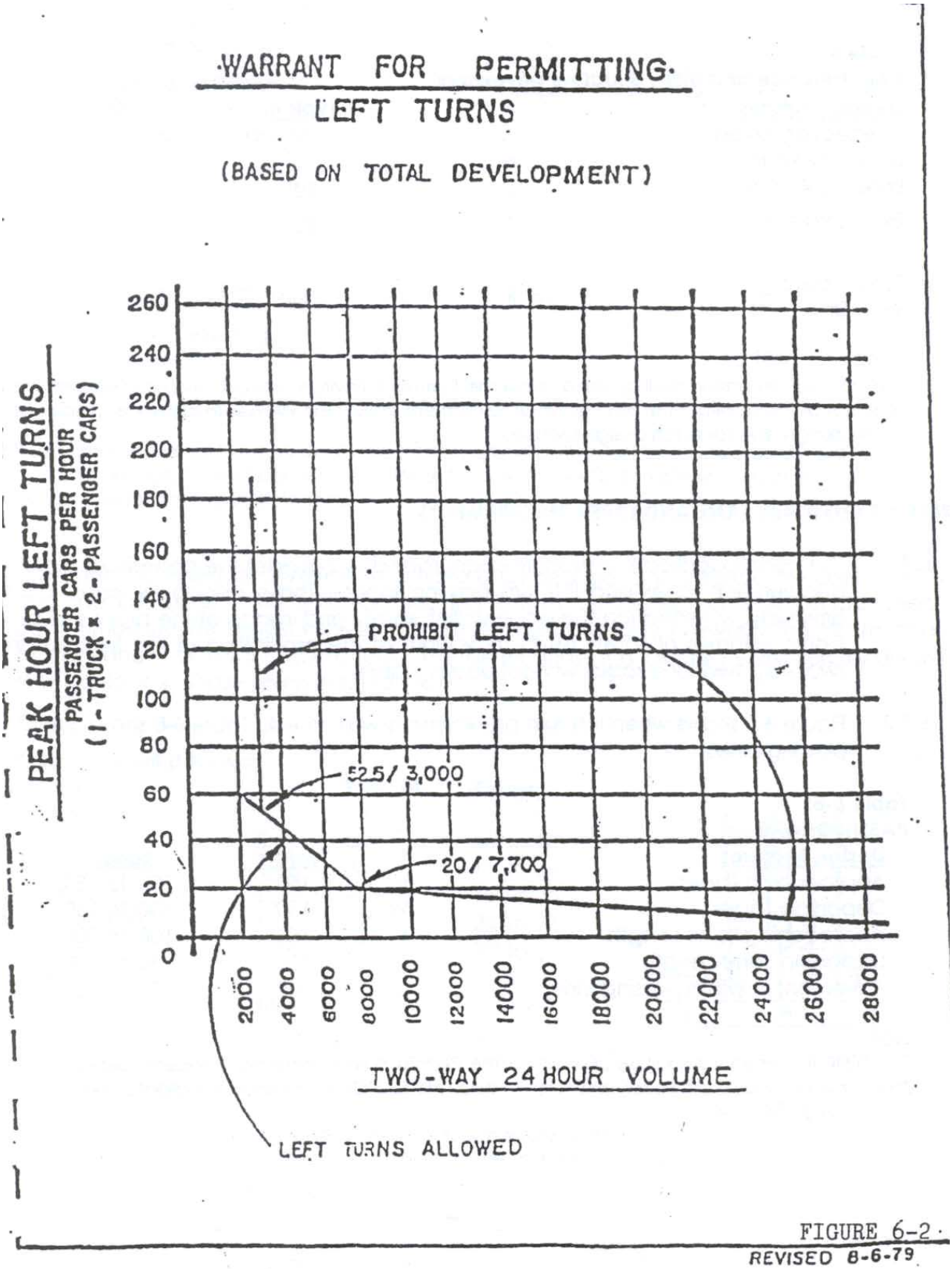


FIGURE 6-2
REVISED 8-6-79

FIGURE 6-3

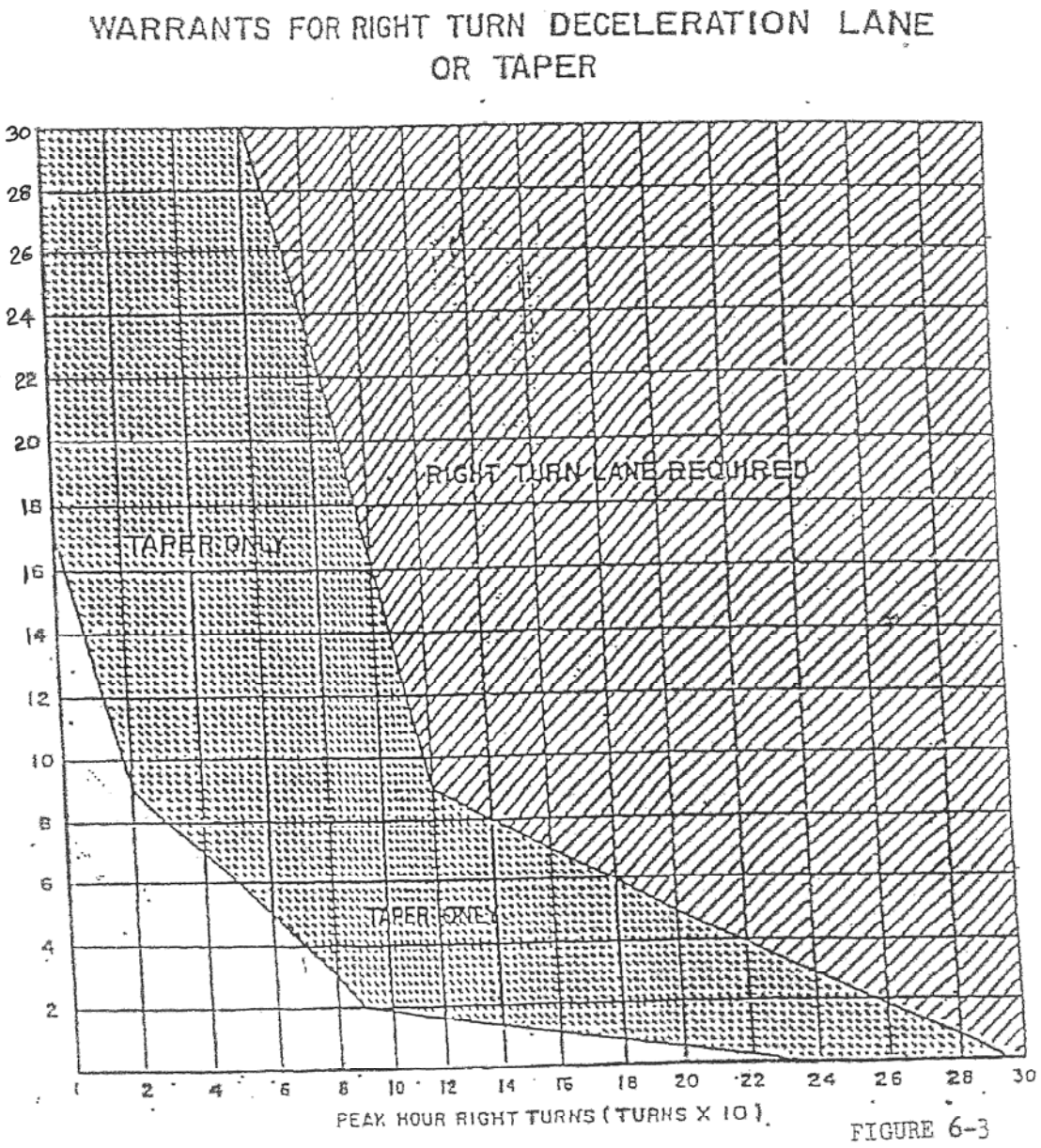


FIGURE 6-3

SOUTHEAST MICHIGAN COUNCIL OF GOVERNMENTS (SEMCOG)

CITY OF NOVI
COMMUNITY PROFILE

SEMCOG | Southeast Michigan Council of Governments

Community Profiles

YOU ARE VIEWING DATA FOR:

City of Novi

45175 W 10 Mile Rd
Novi, MI 48375-3024
http://www.cityofnovi.org

SEMCOG MEMBER

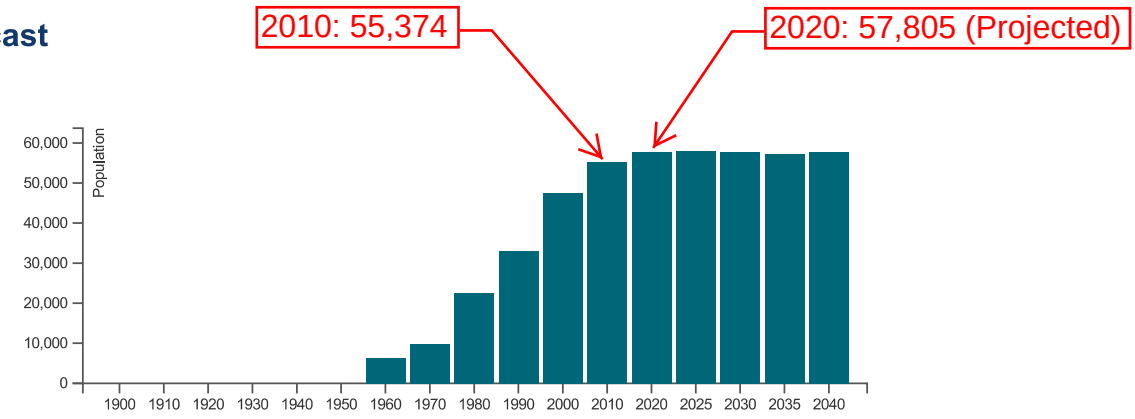
Census 2010 Population: 55,374
Area: 31.2 square miles

Population and Households

Link to American Community Survey (ACS) Profiles: **Select a Year** 2011-2015 ▼ **Social** | **Demographic**

Population and Household Estimates for Southeast Michigan, August 2016

Population Forecast



Note for City of Novi : Incorporated as of the 1970 Census from Village of Novi. Population numbers prior to 1970 are of the village. The Village of Novi was incorporated in 1958 from the majority of Novi Township. Population numbers not available before 1960 as area was part of Novi Township.

Population and Households

Population and Households	Census 2010	Change 2000-2010	Pct Change 2000-2010	SEMCOG Jul 2016	SEMCOG 2040
Total Population	55,374	7,795	16.4%	59,324	57,897
Group Quarters Population	360	93	34.8%	360	407
Household Population	55,014	7,702	16.3%	58,964	57,490
Housing Units	24,286	4,569	23.2%	25,735	-
Households (Occupied Units)	22,317	3,525	18.8%	24,237	24,234
Residential Vacancy Rate	8.1%	3.4%	-	5.8%	-
Average Household Size	2.47	-0.05	-	2.43	2.37

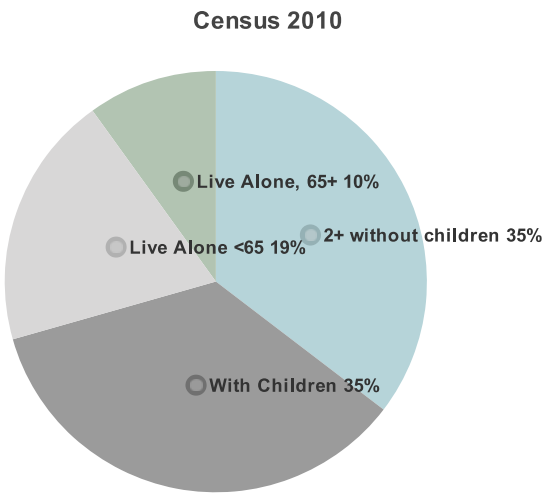
Source: **U.S. Census Bureau** and **SEMCOG 2040 Forecast** produced in 2012.

Components of Population Change

Components of Population Change	2000-2005 Avg.	2006-2010 Avg.
Natural Increase (Births - Deaths)	326	280
Births	586	587
Deaths	260	307
Net Migration (Movement In - Movement Out)	598	355
Population Change (Natural Increase + Net Migration)	924	635

Source: **Michigan Department of Community Health** Vital Statistics **U.S. Census Bureau,** and **SEMCOG.**

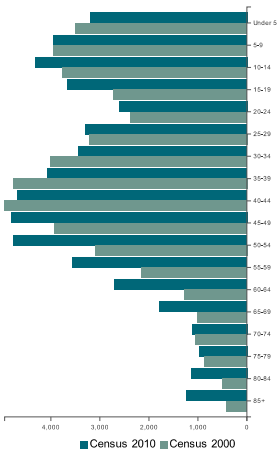
Household Types



Household Types	Census 2000	Census 2010	Pct Change 2000-2010
With Seniors 65+	2,693	4,615	71.4%
Without Seniors	16,033	17,702	10.4%
Two or more persons without children	6,450	7,898	22.4%
Live alone, 65+	1,110	2,217	99.7%
Live alone, under 65	4,157	4,350	4.6%
With children	7,009	7,852	12%
Total Households	**18,726**	**22,317**	**19.2**

Source: **U.S. Census Bureau** and **Decennial Census**.

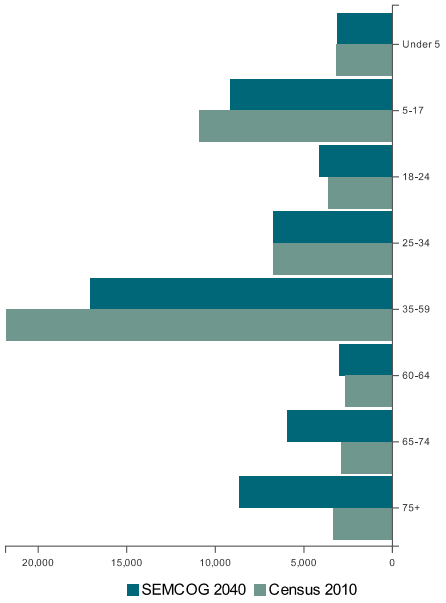
Population Change by Age, 2000-2010



Age Group	Census 2000	Census 2010	Change 2000-2010
Under 5	3,506	3,207	-299
5-9	3,954	3,953	-1
10-14	3,768	4,325	557
15-19	2,723	3,668	945
20-24	2,372	2,613	241
25-29	3,230	3,291	61
30-34	4,002	3,441	-561
35-39	4,771	4,069	-702
40-44	4,945	4,682	-263
45-49	3,925	4,818	893
50-54	3,106	4,766	1,660
55-59	2,147	3,561	1,414
60-64	1,274	2,711	1,437
65-69	1,015	1,782	767
70-74	1,050	1,125	75
75-79	875	985	110
80-84	499	1,144	645
85+	417	1,233	816
Total	47,579	55,374	7,795
Median Age	35.2	39.1	3.9

Source: **U.S. Census Bureau** and **Decennial Census**.

Forecasted Population Change 2010-2040



Source: **SEMCOG 2040 Forecast** produced in 2012.

Age Group	2010	2015	2020	2025	2030	2035	2040	Change 2010 - 2040
Under 5	3,204	3,326	3,268	3,291	3,262	3,122	3,151	-53
5-17	10,898	10,447	9,635	9,154	9,008	9,047	9,177	-1,721
18-24	3,630	4,806	4,729	4,523	4,246	4,165	4,158	528
25-34	6,723	6,551	6,594	7,433	7,289	6,789	6,715	-8
35-59	21,832	21,571	19,770	17,726	16,898	16,682	17,048	-4,784
60-64	2,689	3,405	3,981	3,968	3,675	3,284	3,028	339
65-74	2,893	4,267	5,413	6,441	6,838	6,495	5,970	3,077
75+	3,355	3,791	4,415	5,396	6,545	7,760	8,650	5,295
Total	55,224	58,164	57,805	57,932	57,761	57,344	57,897	2,673

Source: **U.S. Census Bureau** and **SEMCOG 2040 Forecast** produced in 2010.

Senior and Youth Populations

Senior and Youth Population	Census 2000	Census 2010	Pct Change 2000-2010	SEMCOG 2040	Pct Change 2010-2040
65 and over	3,856	6,248	62%	14,620	134%
Under 18	13,127	14,102	7.4%	12,328	-12.6%
5 to 17	9,621	10,898	13.3%	9,177	-15.8%
Under 5	3,506	3,204	-8.6%	3,151	-1.7%

Note: Population by age changes over time because of the aging of people into older age groups, the movement of people, and the occurrence of births and deaths.

Source: **U.S. Census Bureau**, **Decennial Census** and **SEMCOG 2040 Forecast** produced in 2012.

Race and Hispanic Origin

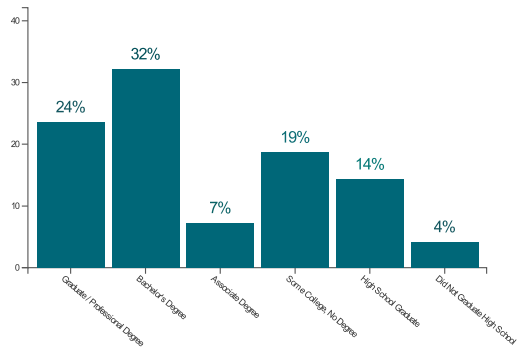
Race and Hispanic Origin	Census 2000	Percent of Population (2000)	Census 2010	Percent of Population (2010)	Percentage Point Change 2000-2010
Non-Hispanic	46,724	98.2%	53,734	97%	-1.2%
White	40,960	86.1%	39,367	71.1%	-15%
Black	899	1.9%	4,451	8%	6.1%
Asian	4,098	8.6%	8,761	15.8%	7.2%
Multi-Racial	640	1.3%	1,019	1.8%	0.5%
Other	127	0.3%	136	0.2%	0%
Hispanic	855	1.8%	1,640	3%	1.2%
Total	47,579	100%	55,374	100%	0%

Source: **U.S. Census Bureau** and **Decennial Census**.

Highest Level of Education

Highest Level of Education*	5-Yr ACS 2010	Percentage Point Chg 2000-2010
Graduate / Professional Degree	23.6%	4.5%
Bachelor's Degree	32.1%	2%
Associate Degree	7.2%	0.4%
Some College, No Degree	18.6%	-2.6%
High School Graduate	14.3%	-2.4%
Did Not Graduate High School	4.2%	-1.9%

* Population age 25 and over

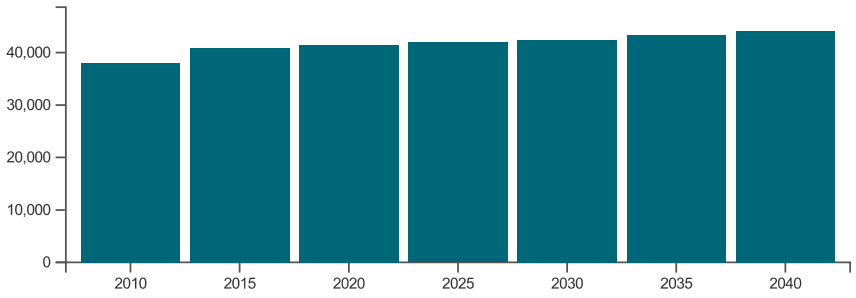


Source: **U.S. Census Bureau**, **Census 2000** and **2010 American Community Survey 5-Year Estimates**.

Economy & Jobs

Link to American Community Survey (ACS) Profiles: **Select a Year** 2011-2015 ▼ **Economic**

Forecasted Jobs



Source: **SEMCOG 2040 Forecast** produced in 2012.

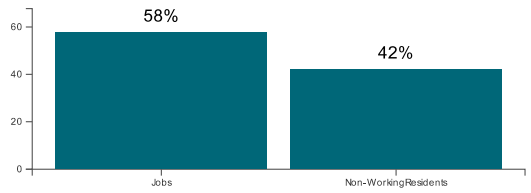
Forecasted Jobs by Industry

Forecasted Jobs By Industry	2010	2015	2020	2025	2030	2035	2040	Change 2010 - 2040
Natural Resources, Mining, & Construction	1,559	1,828	1,904	1,933	1,940	2,009	1,917	358
Manufacturing	1,719	1,807	1,764	1,670	1,639	1,547	1,436	-283
Wholesale Trade, Transportation, Warehousing, & Utilities	4,114	4,268	4,145	4,126	4,064	4,225	4,227	113
Retail Trade	7,823	7,723	7,561	7,569	7,507	7,476	7,413	-410
Knowledge-based Services	6,982	8,035	8,346	8,456	8,398	8,473	8,858	1,876
Services to Households & Firms	3,593	4,064	4,183	4,364	4,697	4,855	4,832	1,239
Private Education & Healthcare	5,342	6,164	6,657	6,914	7,235	7,522	8,026	2,684
Leisure & Hospitality	5,109	5,328	5,133	5,160	5,220	5,473	5,710	601
Government	1,687	1,685	1,726	1,757	1,782	1,801	1,808	121
Total	37,928	40,902	41,419	41,949	42,482	43,381	44,227	6,299

Source: **SEMCOG 2040 Forecast** produced in 2012.
Note: "C" indicates data blocked due to confidentiality concerns of ES-202 files.

Daytime Population

Daytime Population	SEMCOG and ACS 2010
Jobs	37,928
Non-Working Residents	27,701
Age 15 and under	13,391
Not in labor force	12,488
Unemployed	1,822
Daytime Population	65,629



Source: **SEMCOG 2040 Forecast** produced in 2012, **U.S Census Bureau**, and **2010 American Community Survey 5-Year Estimates**.

Note: The number of residents attending school outside Southeast Michigan is not available. Likewise, the number of students commuting into Southeast Michigan to attend school is also not known.

Where Workers Commute From 5-Yr ACS 2010

Rank	Where Workers Commute From *	Workers	Percent
1	**Novi**	4,905	14.3%
2	**Livonia**	1,750	5.1%
3	**Farmington Hills**	1,575	4.6%
4	**Detroit**	1,530	4.5%
5	**Commerce Township or Wolverine Lake**	1,350	3.9%
6	**Westland**	1,155	3.4%
7	**Wixom**	1,025	3%
8	**Canton Township**	925	2.7%
9	**West Bloomfield Township**	900	2.6%
10	**Southfield**	800	2.3%
-	**Elsewhere**	18,448	53.7%
* Workers, age 16 and over employed in Novi		**34,363**	

Source: **U.S. Census Bureau** - CTTP/ACS Commuting Data.
Commuting Patterns in Southeast Michigan

Where Residents Work 5-Yr ACS 2010

Rank	Where Residents Work *	Workers	Percent
1	**Novi**	4,905	18.2%
2	**Farmington Hills**	2,615	9.7%
3	**Detroit**	2,200	8.2%
4	**Southfield**	2,070	7.7%
5	**Livonia**	1,810	6.7%
6	**Dearborn**	1,390	5.2%
7	**Plymouth Township**	855	3.2%
8	**Wixom**	655	2.4%
9	**Commerce Township**	580	2.2%
10	**Ann Arbor**	580	2.2%
-	**Elsewhere**	9,233	34.3%
* Workers, age 16 and over residing in Novi		**26,893**	

Source: **U.S. Census Bureau - CTTP/ACS Commuting Data**.

Household Incomes

Income	5-Yr ACS 2010	Change 2000-2010	Percent Change 2000-2010
Median Household Income (in 2010 dollars)	$80,151	$-14,544	-15.4%
Per Capita Income (in 2010 dollars)	$42,457	$-4,657	-9.9%

Source: **U.S. Census Bureau**, **Census 2000**, and **2010 American Community Survey 5-Year Estimates**.

Annual Household Incomes

Annual Household Income	5-Yr ACS 2010
$200,000 or more	2,301
$150,000 to $199,999	2,635
$125,000 to $149,999	1,610
$100,000 to $124,999	2,215
$75,000 to $99,999	2,877
$60,000 to $74,999	2,252
$50,000 to $59,999	1,619
$45,000 to $49,999	676
$40,000 to $44,999	833
$35,000 to $39,999	584
$30,000 to $34,999	1,003
$25,000 to $29,999	765
$20,000 to $24,999	884
$15,000 to $19,999	586
$10,000 to $14,999	524
Less than $10,000	735
Total	**22,099**

Source: **U.S. Census Bureau** and **2010 American Community Survey 5-Year Estimates**.

Poverty

Poverty	Census 2000	% of Total (2000)	5-Yr ACS 2010	% of Total (2010)	% Point Chg 2000-2010
Persons in Poverty	1,054	2.2%	2,585	4.8%	2.6%
Households in Poverty	387	2.1%	1,145	5.2%	3.1%

Source: **U.S. Census Bureau** and **2010 American Community Survey 5-Year Estimates**.

Housing

Link to American Community Survey (ACS) Profiles: **Select a Year** 2011-2015 ▼ **Housing**

Building Permits 2000 - 2017

Year	Single Family	Two Family	Attach Condo	Multi Family	Total Units	Total Demos	Net Total
2000	208	0	391	0	599	2	597
2001	180	0	134	10	324	16	308
2002	212	0	134	533	879	15	864
2003	277	0	116	340	733	13	720
2004	394	0	223	119	736	16	720
2005	355	28	227	24	634	4	630
2006	185	0	60	0	245	26	219
2007	130	0	42	0	172	6	166
2008	82	0	20	100	202	5	197
2009	54	0	10	0	64	4	60
2010	159	0	22	0	181	5	176
2011	189	0	76	0	265	8	257
2012	230	0	125	0	355	6	349
2013	213	0	0	0	213	7	206
2014	143	0	13	0	156	2	154
2015	173	0	0	94	267	5	262
2016	232	0	0	0	232	9	223
2017	8	0	0	0	8	0	8
2000 to 2017 totals	3,424	28	1,593	1,220	6,265	149	6,116

Source: **SEMCOG Development**.

Note: Permit data for most recent years may be incomplete and is updated monthly.

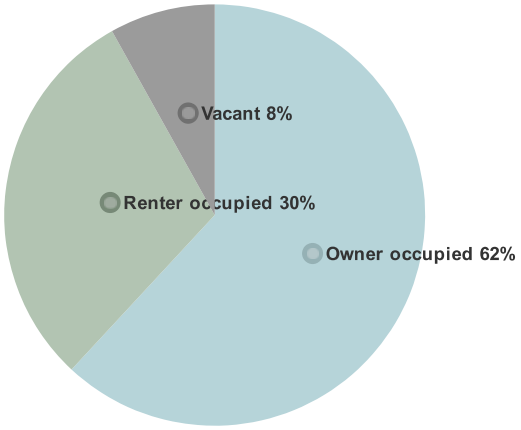
Housing Types

Housing Type	Census 2000	5-Yr ACS 2010	Change 2000-2010	New Units Permitted 2010-2016
Single Family Detached	10,059	12,015	1,956	1,339
Duplex	95	135	40	0
Townhouse / Attached Condo	1,938	2,604	666	236
Multi-Unit Apartment	5,947	8,172	2,225	94
Mobile Home / Manufactured Housing	1,684	1,238	-446	0
Other	0	0	0	
Total	19,723	24,164	4,441	1,669
Units Demolished				-42
Net (Total Permitted Units - Units Demolished)				1,627

Source: **U.S. Census Bureau**, **Census 2000**, and **2010 American Community Survey 5-Year Estimates**.

Housing Tenure

Housing Tenure	Census 2000	Census 2010	Change 2000-2010
Owner occupied	13,374	15,035	1,661
Renter occupied	5,418	7,282	1,864
Vacant	925	1,969	1,044
Seasonal/migrant	103	167	64
Other vacant units	822	1,802	980
Total Housing Units	19,717	24,286	4,569

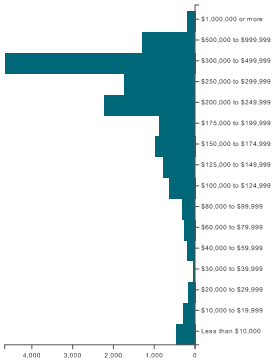


Source: **U.S. Census Bureau**, **Census 2000**, **2010 American Community Survey 5-Year Estimates**.

Housing Value (in 2010 dollars)

Housing Value (in 2010 dollars)	5-Yr ACS 2010	Change 2000-2010	Percent Change 2000-2010
Median housing value	$259,656	$-23,496	-8.3%
Median gross rent	$944	$-134	-12.4%

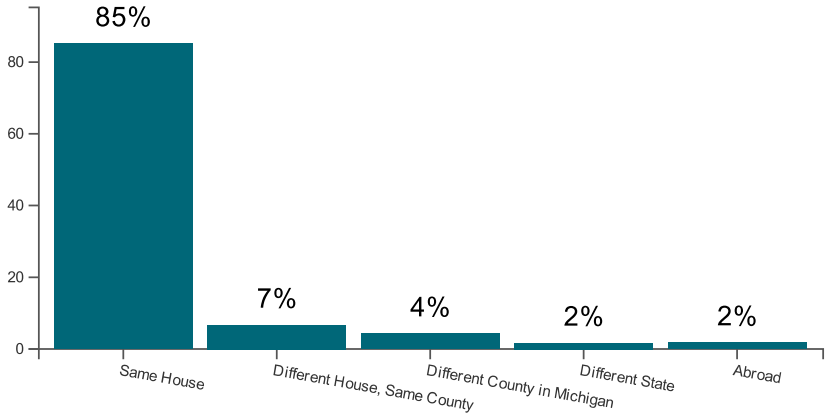
Housing Value



Housing Value	5-Yr ACS 2010
$1,000,000 or more	202
$500,000 to $999,999	1,286
$300,000 to $499,999	4,669
$250,000 to $299,999	1,727
$200,000 to $249,999	2,224
$175,000 to $199,999	873
$150,000 to $174,999	986
$125,000 to $149,999	769
$100,000 to $124,999	641
$80,000 to $99,999	303
$60,000 to $79,999	268
$40,000 to $59,999	186
$30,000 to $39,999	37
$20,000 to $29,999	174
$10,000 to $19,999	285
Less than $10,000	471
Owner-Occupied Units	15,101

Source: **U.S. Census Bureau** and **2010 American Community Survey 5-Year Estimates**.

Residence One Year Ago *



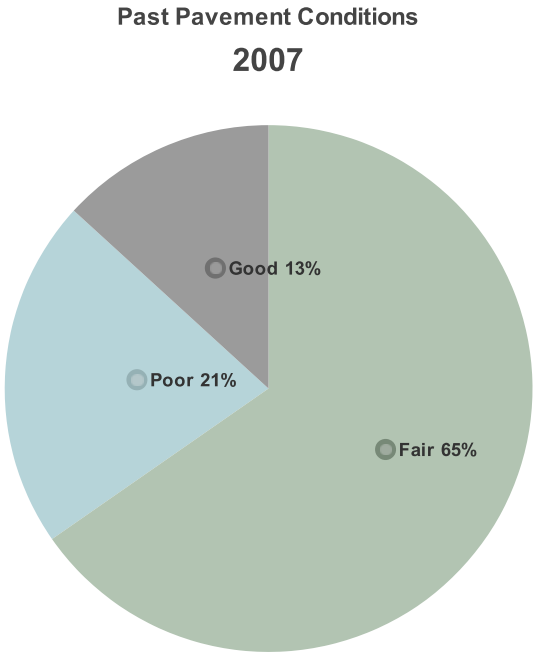
* This table represents persons, age 1 and over, living in City of Novi from 2009-2013. The table does not represent person who moved out of City of Novi from 2009-2013.

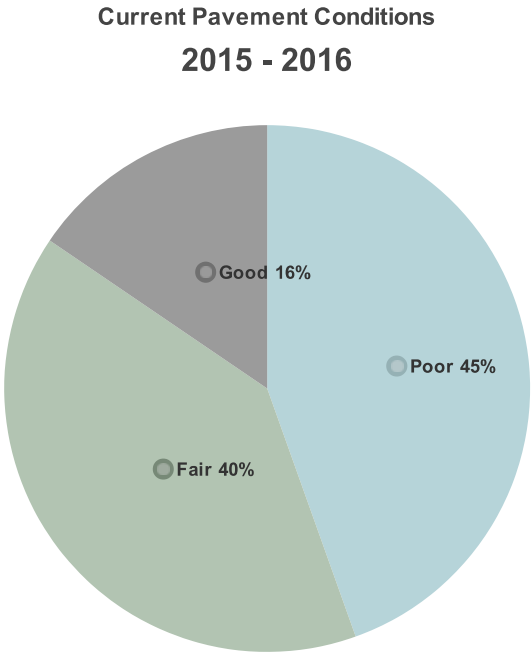
Source: **2010 American Community Survey 5-Year Estimates**.

Transportation

Miles of public road (including boundary roads): 307
Source: **Michigan Geographic Framework**

Pavement Condition (in Lane Miles)





Note: Poor pavements are generally in need of rehabilitation or full reconstruction to return to good condition. Fair pavements are in need of capital preventive maintenance to avoid deteriorating to the poor classification. Good pavements generally receive only routine maintenance, such as street sweeping and snow removal, until they deteriorate to the fair condition.
Source: **SEMCOG**

Bridge Status

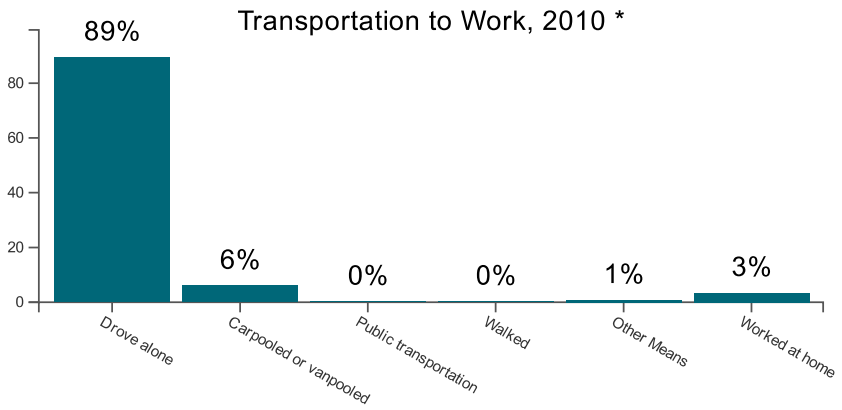
Bridge Status	2008	2008 (%)	2009	2009 (%)	2010	2010 (%)	Percent Point Chg 2008-2010
Open	23	100%	22	95.7%	33	100%	0%
Open with Restrictions	0	0%	0	0%	0	0%	0%
Closed*	0	0%	1	4.3%	0	0%	0%
Total Bridges	23	100.0%	23	100.0%	33	100.0%	0.0%
Deficient Bridges	5	21.7%	6	26.1%	3	9.1%	-12.6%

* Bridges may be closed because of new construction or failed condition.

Note: A bridge is considered deficient if it is structurally deficient (in poor shape and unable to carry the load for which it was designed) or functionally obsolete (in good physical condition but unable to support current or future demands, for example, being too narrow to accommodate truck traffic).

Source: Michigan Structure Inventory and Appraisal Database

Detailed Intersection & Road Data



* Resident workers age 16 and over

Transportation to Work

Transportation to Work	Census 2000	Census 2000 (%)	Census 2010	Census 2010 (%)	% Point Chg 2000-2010
Drove alone	23,331	91.1%	24,212	89.4%	-82.2%
Carpooled or vanpooled	1,332	5.2%	1,621	6%	-4.6%
Public transportation	73	0.3%	59	0.2%	-0.3%
Walked	125	0.5%	62	0.2%	-0.5%
Other Means	124	0.5%	208	0.8%	-0.4%
Worked at home	635	2.5%	915	3.4%	-2.2%
Resident workers age 16 and over	25,620	100.0%	27,077	100.0%	0.0%

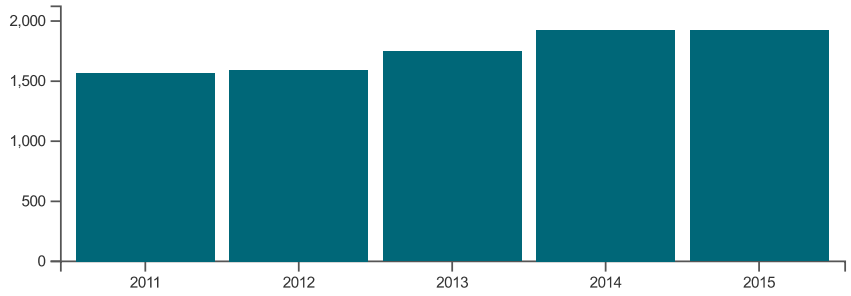
Source: **U.S. Census Bureau** | **Census 2000** | **2010 American Community Survey 5-Year Estimates**

Mean Travel Time to Work

Mean Travel Time To Work	Census 2000	5-Yr ACS 2010	Change 2000-2010
For residents age 16 and over who worked outside the home	26.6 minutes	26.4 minutes	-0.2 minutes

Source: **U.S. Census Bureau Census 2000 2010 American Community Survey 5-Year Estimates**

Crashes, 2011-2015



Source: **Michigan Department of State Police with the Criminal Justice Information Center**, and **SEMCOG.**
Note: Crash data shown is for the entire city.

Crash Severity

Crash Severity	2011	2012	2013	2014	2015	Percent of Crashes 2011 - 2015
Fatal	1	1	1	1	3	0.1%
Incapacitating Injury	18	27	19	23	13	1.1%
Other Injury	296	304	333	342	393	19%
Property Damage Only	1,251	1,263	1,392	1,564	1,511	79.7%
Total Crashes	1,566	1,595	1,745	1,930	1,920	100%

Crashes by Type

Crashes by Type	2011	2012	2013	2014	2015	Percent of Crashes 2011 - 2015
Head-on	10	12	15	7	12	0.6%
Angle or Head-on/Left-turn	214	222	257	272	277	14.2%
Rear-End	762	798	873	957	954	49.6%
Sideswipe	174	200	229	281	278	13.3%
Single Vehicle	202	216	245	261	233	13.2%
Backing	N/A	N/A	N/A	N/A	0	0%
Other or Unknown	204	147	126	152	166	9.1%

Crashes by Involvement

Crashes by Involvement	2011	2012	2013	2014	2015	Percent of Crashes 2011 - 2015
Red-light Running	47	40	43	50	48	2.6%
Lane Departure	149	163	164	207	165	9.7%
Alcohol	34	41	30	30	41	2%
Drugs	13	6	11	10	5	0.5%
Deer	88	80	89	80	86	4.8%
Train	0	0	0	0	0	0%
Commercial Truck/Bus	50	44	48	44	48	2.7%
School Bus	3	4	1	3	4	0.2%
Emergency Vehicle	11	9	7	10	13	0.6%
Motorcycle	5	14	6	9	12	0.5%
Intersection	480	472	488	541	518	28.5%
Work Zone	5	10	17	10	8	0.6%
Pedestrian	6	2	6	4	9	0.3%
Bicyclist	1	13	6	3	6	0.3%
Older Driver (65 and older)	187	198	237	260	277	13.2%
Young Driver (16 to 24)	187	198	653	689	703	27.8%

High Frequency Intersection Crash Rankings

Local Rank	County Rank	Region Rank	Intersection	Annual Avg 2011-2015
1	25	63	Novi Rd @ Grand River Ave	37
2	32	71	8 Mile Rd W @ Haggerty Rd	35.6
3	57	134	10 Mile Rd W @ Beck Rd	29.4
4	59	138	Novi Rd @ 10 Mile Rd W	29
5	63	152	14 Mile Rd W @ Haggerty Hwy	28
6	63	152	Beck Rd @ Grand River Ave	28
7	66	161	8 Mile Rd W @ Beck Rd	27.4
8	86	217	Novi Rd @ Oaks Dr W	25.2
9	90	228	14 Mile Rd W @ N M 5	24.8
10	103	252	N M 5 @ 13 Mile Rd W	23.8

Note: Intersections are ranked by the number of reported crashes, which does not take into account traffic volume. Crashes reported occurred within 150 feet of the intersection.

Source: **Michigan Department of State Police with the Criminal Justice Information Center SEMCOG**

High Frequency Road Segment Crash Rankings

Local Rank	County Rank	Region Rank	Segment	From Road - To Road	Annual Avg 2011-2015
1	39	82	Beck Rd	West Rd - Pontiac Trl	54
2	55	110	Novi Rd	N Novi/E I 96 Ramp - Grand River Ave	49.6
3	67	138	Haggerty Rd	8 Mile Rd W - 9 Mile Rd	47
4	78	168	Novi Rd	12 Mile Rd W - W I 96/Novi Ramp	43.8
5	90	208	Haggerty Rd	9 Mile Rd - 10 Mile Rd W	40.8
6	93	221	Novi Rd	Grand River Ave - 10 Mile Rd W	40.2
7	111	263	8 Mile Rd W	Meadowbrook Rd - Haggerty Rd	37.2
8	128	298	10 Mile Rd W	Novi Rd - Meadowbrook Rd	35.2
9	136	329	10 Mile Rd W	Taft Rd - Novi Rd	34
10	137	334	Grand River Ave	Meadowbrook Rd - Haggerty Rd	33.8

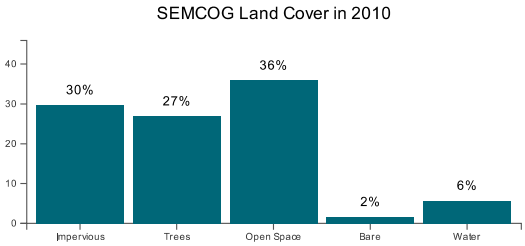
Note: Segments are ranked by the number of reported crashes, which does not take into account traffic volume.

Environment

SEMCOG 2008 Land Use

SEMCOG 2008 Land Use	Acres	Percent
Agricultural	19.1	0.1%
Single-family residential	8,607	42.9%
Multiple-family residential	749.4	3.7%
Commercial	2,419	12%
Industrial	1,436.7	7.2%
Governmental/Institutional	1,658.8	8.3%
Park, recreation, and open space	1,259.6	6.3%
Airport	0	0%
Transportation, Communication, and Utility	3,205.5	16%
Water	724.7	3.6%
Total	20,079.8	

Note: Land Cover was derived from SEMCOG's 2010 Leaf off Imagery.
Source: **SEMCOG**

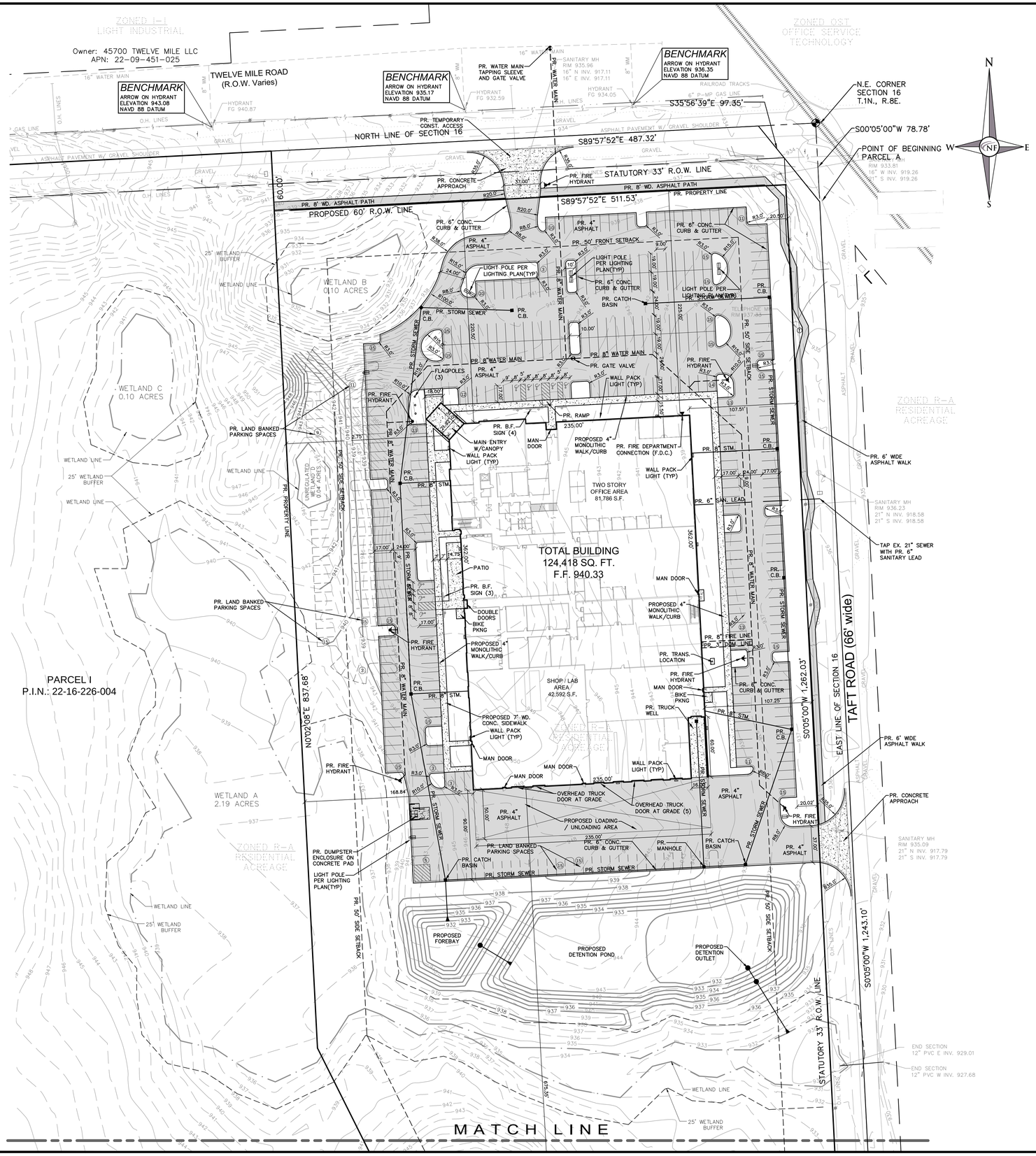


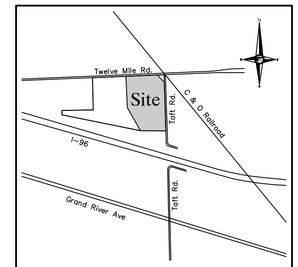
Type	Description	Acres	Percent
Impervious	buildings, roads, driveways, parking lots	5,977.4	29.7%
Trees	woody vegetation, trees	5,414.4	26.9%
Open Space	agricultural fields, grasslands, turfgrass	7,216.7	35.9%
Bare	soil, aggregate piles, unplanted fields	331.5	1.6%
Water	rivers, lakes, drains, ponds	1,155.1	5.7%
Total Acres		20,095.2	

Source Data

SEMCOG - Detailed Data

SITE PLAN





Location Map
N.T.S.

LEGEND

- EXISTING SANITARY SEWER (CLEAN-OUT, MANHOLE)
- EXISTING WATER MAIN (HYDRANT, GATE VALVE)
- EXISTING STORM SEWER (INLET, RYCB, MANHOLE, CB)
- EXISTING BURIED CABLES
- EXISTING GAS MAIN
- EXISTING OVERHEAD LINES (UTILITY POLE, GUY POLE, GUY WIRE)
- EXISTING LIGHT POLE, EXISTING SIGN
- PR. SANITARY SEWER (C.O., MANHOLE)
- PROPOSED WATER MAIN (HYDRANT, GATE VALVE)
- PROPOSED STORM SEWER (INLET, RYCB, MANHOLE, CB)
- PR. SAND BACKFILL (COMPACT TO 95% MAX. DENSITY)
- UTILITY CROSSING (A)
- PR. TOP OF CURB ELEVATION (TC 600.00)
- PROPOSED GUTTER ELEVATION (GU 600.00)
- PR. TOP OF WALK ELEVATION (TW 600.00)
- PR. TOP OF PAVEMENT ELEV. (TP 600.00)
- PROPOSED FINISH GRADE (FG 600.00)
- PROPOSED CONTOUR (600)
- PROPOSED SWALE
- PR. DRAINAGE DIRECTION
- PROPOSED INLET FILTER
- DRAINAGE AREA LIMITS
- PROPOSED SILT FENCE
- LIMITS OF SOIL DISRUPTION

PAVING LEGEND

- PROPOSED CONCRETE PAVEMENT
- PROPOSED ASPHALT PAVEMENT

SITE DATA

SITE ACREAGE – EXISTING PARCEL I
TOTAL: 805,307.80 SQUARE FEET OR 18.49 ACRES
NET: 752,910.24 SQUARE FEET OR 17.28 ACRES

SITE ACREAGE – EXISTING PARCEL II
TOTAL: 529,461.87 SQUARE FEET OR 12.15 ACRES
NET: 508,529.03 SQUARE FEET OR 11.67 ACRES

SITE ACREAGE – PROPOSED PARCEL
TOTAL / NET: 605,898.45 SQUARE FEET OR 13.91 ACRES

PROPOSED BUILDING AREA
GROSS: 124,378 SQUARE FEET
OFFICE: 81,826 SQUARE FEET
SHOP/LAB: 42,592 SQUARE FEET

BUILDING HEIGHT 30'-4"

EXISTING ZONING R-A (RESIDENTIAL ACREAGE)

PROPOSED ZONING OST (OFFICE SERVICE TECHNOLOGY)

BUILDING SETBACK

	REQUIRED	PROVIDED	COMMENT
FRONT:	45' (R-A), 50' (OST)	220.50'	(MEETS STANDARD)
SIDE:(W)	20' (R-A), 50' (OST)	162.75'	(MEETS STANDARD)
SIDE:(E)	30' (R-A), 50' (OST)	107.25'	(MEETS STANDARD)
REAR:	50' (R-A), 50' (OST)	675.35'	(MEETS STANDARD)

PARKING SETBACK
FRONT: 20'
SIDE:(W) 20'
SIDE:(E) 20'
REAR: 20'

PARKING REQUIRED:
BUILDING AREA = 124,418 GROSS SQUARE FEET

OFFICE:
MAIN LEVEL GROSS = 42,410 S.F.
NET (GROSS LEASABLE) = 41,220 S.F.
UPPER LEVEL GROSS = 39,416 S.F. (INCLUDES TWO STORY SPACE)
NET (GROSS LEASABLE) = 37,825 S.F.

OFFICE PARKING REQUIRED = 79,045 S.F. / 222 = 356 SPACES

SHOP/LAB:
42,592 GROSS S.F. X 81% = 34,500 S.F. (USEABLE AFTER CIRCULATION)
SHOP/LAB PARKING REQUIRED = 34,500 S.F. / 700 = 49 SPACES

TOTAL PARKING SPACES REQUIRED = 405 SPACES

PARKING PROVIDED:
REGULAR PARKING SPACES = 321 SPACES
BARRIER FREE SPACES (INC. 1 VAN ACCESSIBLE) = 8 SPACES
TOTAL PARKING SPACES PROVIDED = 329 SPACES

LAND BANKED PARKING SPACES = 83
DRIVE / ISLAND SPACES LOST = -7
TOTAL LAND BANK SPACES PROPOSED = 76

ULTIMATE PARKING SPACES PROVIDED = 405

LOADING REQUIRED: 5 S.F. PER BUILDING LENGTH ALONG FRONTAGE (597 X 5 = 2,985 S.F.)
PROVIDED: 12,792 S.F. OF LOADING / UNLOADING AREA

IMPERVIOUS AREA
PROPOSED IMPERVIOUS AREA = 230,779 SF OR 39%

SOIL DATA:

10C – MARLETTE SANDY LOAM, 6 TO 12 PERCENT SLOPES (98.4%)
26 – SLOAN SILT LOAM (1.6%)

PER USDA SOIL SURVEY, 1977

LEGAL DESCRIPTION - PR. PARCEL A

PART OF THE NORTHEAST 1/4 OF SECTION 16, TOWN 1 NORTH, RANGE 8 EAST, CITY OF NOVI, OAKLAND COUNTY, MICHIGAN, BEING MORE PARTICULARLY DESCRIBED AS BEGINNING AT A POINT ON THE EAST LINE OF SAID SECTION 16 BEING A DISTANT S00°05'00"W 78.78 FEET FROM THE NORTHEAST CORNER OF SAID SECTION 16; THENCE CONTINUING SOUTH 00 DEGREES 05 MINUTES 00 SECONDS WEST, 1243.10 FEET ALONG SAID EAST LINE OF SECTION 16; THENCE SOUTH 89 DEGREES 46 MINUTES 00 SECONDS WEST, 357.82 FEET; THENCE NORTH 23 DEGREES 31 MINUTES 09 SECONDS WEST, 464.59 FEET; THENCE NORTH 00 DEGREES 02 MINUTES 08 SECONDS EAST, 897.68 FEET TO A POINT ON THE NORTH LINE OF SAID SECTION 16; THENCE SOUTH 89 DEGREES 57 MINUTES 52 SECONDS EAST, 487.32 FEET ALONG SAID NORTH LINE; THENCE SOUTH 35 DEGREES 56 MINUTES 39 SECONDS EAST, 97.35 FEET TO THE POINT OF BEGINNING.

CONTAINING A GROSS AREA OF 677,960.73 SQUARE FEET OR 15.56 ACRES.
CONTAINING A NET AREA OF 605,898.45 SQUARE FEET OR 13.91 ACRES.

NOT FOR CONSTRUCTION

NF ENGINEERS
CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS

NOWAK & FRAUS ENGINEERS
46777 WOODWARD AVE.
PONTIAC, MI 48342-5032
TEL. (248) 332-7931
FAX. (248) 332-8257

SEAL
STATE OF MICHIGAN
PATRICK J. WILLIAMS
ENGINEER
NO. 44351
REGISTERED PROFESSIONAL ENGINEER

PROJECT
Hino Motors U.S.A.
27515 Taft Road
Novi, MI

CLIENT
General Development
Two Town Square
Suite 850
Southfield, MI 48076

Contact: Bruce Brickman
Ph: (248) 357-3777
Fax: (248) 357-1929
Cell: (248) 514-7111

PROJECT LOCATION
Part of the Northeast ¼
of Section 16
T. 1 North, R. 8 East
City of Novi,
Oakland County, Michigan

SHEET
Preliminary Site Plan

Know what's below
Call before you dig.

DATE:	ISSUED / REVISED:
2/14/17	Preliminary Site Plan

DRAWN BY: A. Wiseman
DESIGNED BY: A. Wiseman
APPROVED BY: P. Williams
DATE: February 14, 2017
SCALE: 1" = 50'
50 25 0 25 50 75

NFE JOB NO. J497-01
SHEET NO. SP-5