AGENDA

SPECIAL MEETING PLANNING COMMISSION

Wednesday, June 18, 2025

7:00 PM

Orion Township Municipal Complex Board Room, 2323 Joslyn Road, Lake Orion MI 48360

(248) 693-8391 ext. 102

REQUIREMENTS FOR PUBLIC COMMENT:

Anyone that would like to make a public comment at any point during the meeting must first sign the "Sign In" sheet located near the main entrance door.

Prior to making any comment a member of the audience MUST first state your name and address for the record.

1. **Call to Order**
2. **Roll Call and Determination of Quorum**
3. **Approval of Agenda**
4. **Public Hearing**
   - **A.** VLO- 25-01 Eastport Village Special Land Use
5. **Adjournment**

In the spirit of compliance with the Americans with Disabilities Act, individuals with a disability should feel free to contact the Village, at least three (3) business days in advance of the meeting, if requesting accommodations. The Village of Lake Orion will provide foreign language or hearing impaired interpretation services for those individuals who contact the village to request such services at least seven (7) days prior to the meeting.

En el espíritu de la observancia de la Ley de Estadounidenses con Discapacidades, las personas con discapacidad debe sentirse libre para ponerse en contacto con el pueblo, por lo menos tres (3) días hábiles de antelación a la fecha de la reunión, si se solicitan alojamiento. El municipio de Lake Orion proporcionará idioma extranjero o personas con problemas de audición servicios de interpretación para las personas que se ponen en contacto con el pueblo de solicitar dichos servicios con no menos de siete (7) días antes de la reunión.

Village of Lake Orion
EST 1859

COMMISSION ACTION SUMMARY SHEET

MEETING DATE: **Special Meeting:** Wednesday, June 18, 2025

TOPIC: VLO-25-01 Eastport Village Special Land Use (Public Hearing)

BACKGROUND BRIEF:

The applicant, Moceri Lake Orion, LLC, is proposing an interjurisdictional, multi-use development on 11.68 acres of land – a site currently occupied by Jacobsen's Flowers. Of that total acreage, only 2.32 acres are located within the Village, which is currently vacant and zoned for MU, Mixed Use with a Height Overlay closer to M-24. The remaining portion of the site (9.36 acres) is located within Orion Township. As such, the project will be reviewed under each jurisdiction's Zoning Ordinance's for those uses and structures within their respective portions of the site. An **intergovernmental agreement** is being drafted to delegate the administration, review, and maintenance of shared infrastructure on the site, including utilities, public services, stormwater management, grading and paving.

The Village portion of the site is proposed to contain eight (8) single-family, detached dwelling units, which are considered a **Special Land Use** (SLU) in the MU District. A portion of a parking lot serving a proposed retail use within the Township site is also shown within the Village. To achieve the desired development proposed within the Township, the applicant has applied for Planned Unit Development (PUD) Concept review under the Township's ordinances. The entire development is proposed to contain 48 single-family detached dwellings, 11 townhouse dwellings, and a 8,400 sq ft. retail building.

As a joint effort between the Village and Township, the purpose of this Special Meeting is to provide citizens of both communities an opportunity to provide public comment on the entire development – both the SLU and PUD – in the presence of both jurisdiction's reviewing bodies. After the public hearing, the Township Planning Commission will deliberate on the PUD Concept Plan; at a later date and time, the Village Planning Commission will deliberate on the SLU request. All special land uses within the Village must also undergo site plan review – **no action on this project beyond the opening and closing of the public hearing will be undertaken by the Village Planning Commission at this time.**

RECOMMENDED MOTION:

To [**open/close**] the public hearing for case # **VLO-25-01** regarding the **special land use request** for the proposed Eastport Village development partially located on Village Parcel **OL-09-11-278-034.**

ATTACHMENTS:

- Site Plan / Special Land Use Application
- Preliminary Site Plan / PUD Concept Plan
- Traffic Study

VILLAGE OF LAKE ORION
SPECIAL MEETING and **PUBLIC HEARING NOTICE**
PLANNING COMMISSION

The Village of Lake Orion Planning Commission will hold a Special Meeting for the purpose of holding a Public Hearing on **Wednesday, June 18, 2025, at 7:05 p.m., at the Orion Township Municipal Complex Board Room, 2323 Joslyn Rd, Lake Orion, MI 48360** on the following matter:

> VLO-25-01 – Eastport Village Special Land Use Request, located at Parcel ID: OL-09-11-278-034. The applicant, Moceri Lake Orion LLC, is proposing a site plan for the construction of eight (8) single-family homes within the MU, Mixed-Use zoning district. Single-family, detached dwellings are considered a special land use in the Mixed-Use district. The project will be located in both the Village and the Township and includes commercial space (all in the Township), 11 multi-family units (all in the Township), and 48 single-family homes (8 in the Village).

Interested parties are welcome to attend the Public Hearing and offer comments. Written comments will be accepted prior to the date and time of the Public Hearing by the Village Clerk. The site plan is available for inspection and additional information may be obtained by contacting Village Offices at (248) 693-8391 or visiting the Village Hall located at 21 E. Church Street, Lake Orion, MI 48362 during regular business hours, 7:00 a.m. – 4:30 p.m. Monday – Thursday.

In the spirit of compliance with the Americans with Disabilities Act, individuals with a disability should feel free to contact Village Hall, at least seventy-two (72) hours before the meeting, if requesting accommodations.

ADDITIONAL DOCUMENTS

Case information and additional information will be available online **one week** before the noticed meeting on the Village of Lake Orion Website at www.lakeorion.org; choose the **"Agendas, Minutes, and Videos"** tab and scroll to the appropriate meeting date or filter by board, commission, or committee.

Sonja Stout
Village Clerk / Treasurer

Publish and Post by: May 28, 2025

Village of Lake Orion
EST 1859

Village of Lake Orion
21 E. Church Street
Lake Orion, Michigan 48362
Tel 248.693.8391
Fax 248.693.5874
www.lakeorion.org

SITE PLAN and / or SPECIAL LAND USE APPLICATION

PROPERTY INFORMATION

Site Address: 571 S. Broadway Lake Orion, MI 48362

Parcel ID # (Refer to Tax Bill): 09-11-278-034; 09-12-152-001 Zoning District: MU

PROPERTY OWNER INFORMATION

Name: Jacobsen-Orion Properties, LLC Address, City, Zip: 2600 Elizabeth Lake Rd, Waterford, MI 48328

Phone #: 248-642-6656 Owner E-Mail jake@jacobsensflowers.com

APPLICANT INFORMATION *(If applicant is **NOT** property owner)*

Name: Moceri Lake Orion LLC Address, City, Zip: 3005 University Dr. Auburn Hills, MI 48326

Phone #: 248.961.4617 Applicant E-Mail chris.bronzetti@moceri.com

Applicant is: *(i.e. contractor or business owner or architect, etc.)* Contractor

APPLICANT REQUEST

Site Plan Approval: X

Use Permitted After Special Approval: _____

Use Type Requiring Special Approval: SF:2 MU

REQUIRED INFORMATION

Please place your initials below to acknowledge that all applicable items are included with your application.

MLO 1) Final Site Plan. *Two (2) Copies not less than 24 inches by 36 inches in size that meet the requirements of Section 19.02.D.Including, but not limited to:*

a. Dimensioned floor plans and building elevations

b. Hard surface plan identifying parking areas with dimensions and number of spaces provided

c. General landscape and lighting plan

d. Location of trash receptacle and method of screening

MLO 2) Project Narrative. *A Narrative must accompany Special Land Use applications that identifies the detailed use of the property under review.*

MLO 3) Property Owner Verification.

MLO 4) Digital copies of all documents. (*Digital copies are used for Planning Commission review. They may be submitted via email to the Planning & Zoning Coordinator at zoning@lakeorion.org, through Dropbox, or using an external USB drive.)*

MLO 5) Village, Planning, Engineering, and Attorney fees as necessary.

RECEIVED
MAY 05 2025
VILLAGE OF LAKE ORION

By signing below you acknowledge all of the following:

- The undersigned acknowledges that any lack of information which may result in a delay of the review process is the sole responsibility of the applicant.
- The undersigned deposes that the forgoing statements and answers and accompanying information are true and correct.
- The undersigned hereby authorizes Village representatives to enter the subject property in connection with this application, if necessary.

Signature of Property Owner: _____ **Date:** 4-11-25

Signature of Applicant/Contractor: _____ **Date:** 4.9.25

TO BE COMPLETED BY VILLAGE STAFF:

Date Received: 5/5/2025

# of Hard Copies Received: 2

Electronic Copies Included: (Y) / N

Fee: Receipt #: 49547

Anticipated Meeting Date:

EASTPORT VILLAGE

Site Plan

(Village Ordinance)

Conceptual PUD Plan

(Township Ordinance)

Section 11 and 12, T.4N., R.10E.,

Village of Lake Orion and Lake Orion Township, Oakland County, Michigan

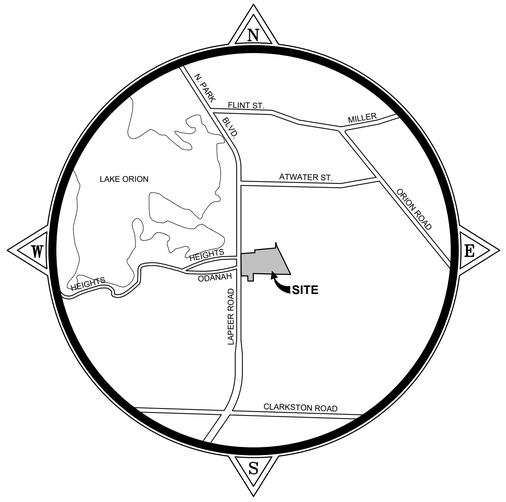
LEGAL DESCRIPTION

PARCELS 09-11-278-034, 09-11-427-016, 09-11-427-017, 09-11-427-004, 09-11-427-006 AND 09-11-151-045

PART OF THE SOUTHEAST QUARTER OF SECTION 11 AND THE SOUTHWEST QUARTER OF SECTION 12, PART OF LOT 1 AND ALL OF LOT 2 OF SUPERVISOR'S PLAT NO 1 AS RECORDED IN LIBER 52 OF PLATS, PAGE 18, OAKLAND COUNTY RECORDS, LOTS 57 AND 58 OF ASSESSOR'S REPLAT OF DECKER ADDITION TO THE VILLAGE OF LAKE ORION, AS RECORDED IN LIBER 52 OF PLATS, PAGE 17, OAKLAND COUNTY RECORDS, ALSO, PART OF LOTS 1, THE EAST 60 FEET OF LOTS 2 AND 3 AND ALL OF LOT 116 OF JOHN WINTER LAND AND HOME SUBDIVISION, AS RECORDED IN LIBER 29 OF PLATS, PAGE 3, OAKLAND COUNTY RECORDS, ALL BEING A PART OF TOWN 04 NORTH, RANGE 10 EAST, VILLAGE OF LAKE ORION AND LAKE ORION TOWNSHIP, OAKLAND COUNTY, MICHIGAN, BEING DESCRIBED AS:

COMMENCING AT THE EAST QUARTER CORNER OF SECTION 11; THENCE NORTH 02 DEGREES 03 MINUTES 40 SECONDS WEST 134.39 FEET ALONG THE EAST LINE SECTION 11 TO THE POINT OF BEGINNING; THENCE CONTINUING NORTH 02 DEGREES 03 MINUTES 40 SECONDS WEST 117.60 FEET ALONG THE EAST LINE OF SECTION 11 (RECORD NORTH 01 DEGREES 11 MINUTES WEST 119.06 FEET) AND THE EAST LINE OF VILLAGE HOME SITE CONDOMINIUMS, OAKLAND COUNTY CONDOMINIUM SUBDIVISION PLAN NUMBER 1408 AS RECORDED IN LIBER 24547 OF DEEDS, PAGE 810; THENCE SOUTH 17 DEGREES 09 MINUTES 07 SECONDS EAST 43.96 FEET ALONG THE WEST RIGHT OF WAY LINE OF THE M.C.R.R.; THENCE SOUTH 27 DEGREES 19 MINUTES 08 SECONDS EAST 77.40 FEET ALONG THE WEST RIGHT OF WAY LINE OF THE M.C.R.R.; THENCE SOUTH 30 DEGREES 08 MINUTES 23 SECONDS EAST 173.85 FEET ALONG THE WEST RIGHT OF WAY LINE OF THE M.C.R.R. TO THE EAST AND WEST QUARTER LINE OF SECTION 12; THENCE CONTINUING SOUTH 30 DEGREES 08 MINUTES 23 SECONDS EAST 464.79 FEET ALONG THE WEST RIGHT OF WAY LINE OF THE M.C.R.R. TO THE NORTH LINE OF LINE OF JOHN WINTER LAND AND HOME SUBDIVISION, AS RECORDED IN LIBER 29 OF PLATS, PAGE 3, OAKLAND COUNTY RECORDS; THENCE SOUTH 87 DEGREES 25 MINUTES 24 SECONDS WEST (RECORDED AS NORTH 87 DEGREES 12 MINUTES WEST) 345.66 FEET ALONG THE NORTH LINE OF JOHN WINTER LAND AND HOME SUBDIVISION TO THE EAST LINE OF SECTION 11; THENCE CONTINUING SOUTH 87 DEGREES 25 MINUTES 24 SECONDS WEST 460.78 FEET ALONG THE NORTH LINE OF JOHN WINTER LAND AND HOME SUBDIVISION (RECORD NORTH 87 DEGREES 12 MINUTES WEST) TO THE NORTHEAST CORNER LOT 116 OF JOHN WINTER LAND AND HOME SUBDIVISION; THENCE SOUTH 04 DEGREES 42 MINUTES 58 SECONDS EAST 159.69 FEET (RECORD 160.65) ALONG THE EAST LINE OF LOT 116 OF JOHN WINTER LAND AND HOME SUBDIVISION TO THE NORTH RIGHT OF WAY LINE OF GLANWORTH AVENUE (60.00 FEET WIDE) (PLATTED AS GRAND VIEW AVENUE); THENCE SOUTH 85 DEGREES 47 MINUTES 57 SECONDS WEST 117.50 FEET ALONG THE NORTH RIGHT OF WAY LINE OF GLANWORTH AVENUE; THENCE NORTH 04 DEGREES 42 MINUTES 00 SECONDS WEST 110.00 FEET TO THE SOUTH LINE OF LOT 1 OF JOHN WINTER LAND AND HOME SUBDIVISION; THENCE SOUTH 85 DEGREES 47 MINUTES 57 SECONDS WEST 140.00 FEET ALONG SOUTH LINE LOT 1 OF JOHN WINTER LAND AND HOME SUBDIVISION; THENCE NORTH 04 DEGREES 48 MINUTES 44 SECONDS WEST 57.40 FEET ALONG WEST LINE OF LOT 1 OF JOHN WINTER LAND AND HOME SUBDIVISION; THENCE SOUTH 87 DEGREES 30 MINUTES 47 SECONDS WEST 5.00 FEET TO THE EAST RIGHT OF WAY LINE OF M-24 (HALF WIDTH 29 FEET); THENCE NORTH 04 DEGREES 09 MINUTES 25 SECONDS WEST 333.26 FEET ALONG THE EAST RIGHT OF WAY OF M-24 (HALF WIDTH 29 FEET) TO THE EAST AND WEST QUARTER LINE OF SECTION 11; THENCE CONTINUING NORTH 04 DEGREES 09 MINUTES 25 SECONDS WEST 89.48 FEET (RECORD NORTH 03 DEGREES 18 MINUTES EAST 89.32 FEET) TO THE SOUTHWEST CORNER OF LOT 59 OF ASSESSOR'S REPLAT OF DECKER'S ADDITION TO THE VILLAGE OF ORION AND PART OF CANANDAIGUA CITY RECORDED IN LIBER 52 PAGE 17; THENCE NORTH 82 DEGREES 06 MINUTES 07 SECONDS EAST 296.88 FEET (RECORDED AS 295.59 FEET) ALONG THE SOUTH LINE OF LOT 59 OF ASSESSOR'S REPLAT OF DECKER'S ADDITION TO THE VILLAGE OF ORION AND PART OF CANANDAIGUA CITY; THENCE NORTH 02 DEGREES 52 MINUTES 01 SECONDS WEST 58.02 FEET (RECORDED AS 58.62 FEET) ALONG THE EAST LINES OF LOTS 59 AND 60 OF ASSESSOR'S REPLAT OF DECKER'S ADDITION TO THE VILLAGE OF ORION AND PART OF CANANDAIGUA CITY TO THE SOUTH LINE OF VILLAGE HOME SITE CONDOMINIUMS OAKLAND COUNTY CONDOMINIUM SUBDIVISION PLAN NUMBER 1408, AS RECORDED IN LIBER 24547 OF DEEDS, PAGE 810, OAKLAND COUNTY RECORDS; THENCE NORTH 80 DEGREES 39 MINUTES 22 SECONDS EAST 448.64 FEET (RECORD NORTH 88 DEGREES 35 MINUTES 23 SECONDS EAST 448.40 FEET) ALONG THE SOUTH LINE OF VILLAGE HOME SITE CONDOMINIUMS TO THE POINT OF BEGINNING. CONTAINING 11.54 ACRES, MORE OR LESS.

SUBJECT TO ANY AND ALL EASEMENTS AND RIGHTS OF WAY OF RECORD OR OTHERWISE.



INDEX TO SHEETS

COVER SHEET 1
PRELIMINARY SITE PLAN 2
PRELIMINARY UTILITY PLAN 3
PRELIMINARY GRADING PLAN 4
PROPOSED WETLAND FILL 5
TOPOGRAPHIC SURVEY 6
LANDSCAPE PLANS L1-L3
PHOTOMETRIC LAYOUT ..... 3 Sheet
FLOOR PLANS ..... 3 Sheet
TREE SURVEY 7-9

PROPRIETOR

MOCERI COMPANIES
3005 UNIVERSITY DRIVE
AUBURN HILLS, MI 48326

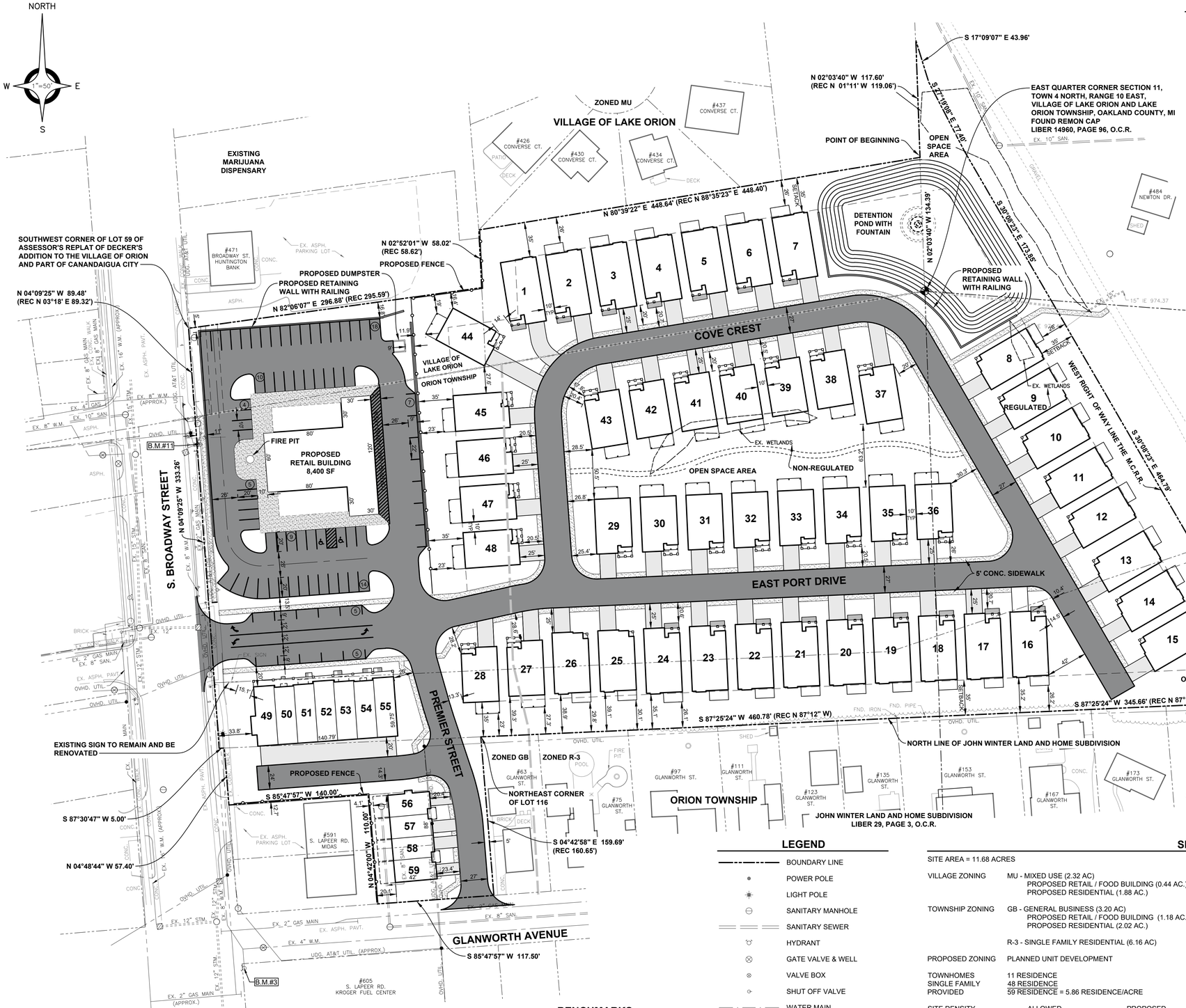
ENGINEER

ANDERSON, ECKSTEIN AND WESTRICK, INC.
51301 SCHOENHERR ROAD
SHELBY TOWNSHIP, MI 48315



STEPHEN V. PANGORI, P.E.
MICHIGAN REGISTRATION # 6201037769

COPYRIGHT, 2019, ANDERSON, ECKSTEIN AND WESTRICK, INC.
M:\0361\0361-0078\DWG\Civil\01_SITE PLAN.DWG Layout: 01_Title 5/15/2020 8:31:47 AM



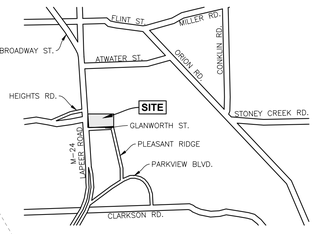
DESCRIPTION

PARCELS 09-11-278-034, 09-11-427-016, 09-11-427-017, 09-11-427-004, 09-11-427-006 AND 09-11-151-045

PART OF THE SOUTHEAST QUARTER OF SECTION 11 AND THE SOUTHWEST QUARTER OF SECTION 12, PART OF LOT 1 AND ALL OF LOT 2 OF SUPERVISOR'S PLAT NO 1 AS RECORDED IN LIBER 52 OF PLATS, PAGE 18, OAKLAND COUNTY RECORDS, LOTS 57 AND 58 OF ASSESSOR'S REPLAT OF DECKER ADDITION TO THE VILLAGE OF LAKE ORION, AS RECORDED IN LIBER 52 OF PLATS, PAGE 17, OAKLAND COUNTY RECORDS, ALSO, PART OF LOTS 1, THE EAST 60 FEET OF LOTS 2 AND 3 AND ALL OF LOT 116 OF JOHN WINTER LAND AND HOME SUBDIVISION, AS RECORDED IN LIBER 29 OF PLATS, PAGE 3, OAKLAND COUNTY RECORDS, ALL BEING A PART OF TOWN 04 NORTH, RANGE 10 EAST, VILLAGE OF LAKE ORION AND LAKE ORION TOWNSHIP, OAKLAND COUNTY, MICHIGAN, BEING DESCRIBED AS:

COMMENCING AT THE EAST QUARTER CORNER OF SECTION 11; THENCE NORTH 02 DEGREES 03 MINUTES 40 SECONDS WEST 134.39 FEET ALONG THE EAST LINE SECTION 11 TO THE POINT OF BEGINNING; THENCE CONTINUING NORTH 02 DEGREES 03 MINUTES 40 SECONDS WEST 117.60 FEET ALONG THE EAST LINE OF SECTION 11 (RECORD NORTH 01 DEGREES 11 MINUTES WEST 119.06 FEET) AND THE EAST LINE OF VILLAGE HOME SITE CONDOMINIUMS, OAKLAND COUNTY CONDOMINIUM SUBDIVISION PLAN NUMBER 1408 AS RECORDED IN LIBER 24547 OF DEEDS, PAGE 810; THENCE SOUTH 17 DEGREES 09 MINUTES 07 SECONDS EAST 43.96 FEET ALONG THE WEST RIGHT OF WAY LINE OF THE M.C.R.R.; THENCE SOUTH 27 DEGREES 19 MINUTES 08 SECONDS EAST 77.40 FEET ALONG THE WEST RIGHT OF WAY LINE OF THE M.C.R.R.; THENCE SOUTH 30 DEGREES 08 MINUTES 23 SECONDS EAST 173.85 FEET ALONG THE WEST RIGHT OF WAY LINE OF THE M.C.R.R. TO THE EAST AND WEST QUARTER LINE OF SECTION 12; THENCE CONTINUING SOUTH 30 DEGREES 08 MINUTES 23 SECONDS EAST 464.79 FEET ALONG THE WEST RIGHT OF WAY LINE OF THE M.C.R.R. TO THE NORTH LINE OF LINE OF JOHN WINTER LAND AND HOME SUBDIVISION, AS RECORDED IN LIBER 29 OF PLATS, PAGE 3, OAKLAND COUNTY RECORDS; THENCE SOUTH 87 DEGREES 25 MINUTES 24 SECONDS WEST (RECORDED AS NORTH 87 DEGREES 12 MINUTES WEST) 345.66 FEET ALONG THE NORTH LINE OF JOHN WINTER LAND AND HOME SUBDIVISION TO THE EAST LINE OF SECTION 11; THENCE CONTINUING SOUTH 87 DEGREES 25 MINUTES 24 SECONDS WEST 460.78 FEET ALONG THE NORTH LINE OF JOHN WINTER LAND AND HOME SUBDIVISION (RECORD NORTH 87 DEGREES 12 MINUTES WEST) TO THE NORTHEAST CORNER LOT 116 OF JOHN WINTER LAND AND HOME SUBDIVISION; THENCE SOUTH 04 DEGREES 42 MINUTES 58 SECONDS EAST 159.69 FEET (RECORD 160.65) ALONG THE EAST LINE OF LOT 116 OF JOHN WINTER LAND AND HOME SUBDIVISION TO THE NORTH RIGHT OF WAY LINE OF GLANWORTH AVENUE (60.00 FEET WIDE) (PLATTED AS GRAND VIEW AVENUE); THENCE SOUTH 85 DEGREES 47 MINUTES 57 SECONDS WEST 117.50 FEET ALONG THE NORTH RIGHT OF WAY LINE OF GLANWORTH AVENUE; THENCE NORTH 04 DEGREES 42 MINUTES 00 SECONDS WEST 110.00 FEET TO THE SOUTH LINE OF LOT 1 OF JOHN WINTER LAND AND HOME SUBDIVISION; THENCE SOUTH 85 DEGREES 47 MINUTES 57 SECONDS WEST 140.00 FEET ALONG SOUTH LINE LOT 1 OF JOHN WINTER LAND AND HOME SUBDIVISION; THENCE NORTH 04 DEGREES 48 MINUTES 44 SECONDS WEST 57.40 FEET ALONG WEST LINE OF LOT 1 OF JOHN WINTER LAND AND HOME SUBDIVISION; THENCE SOUTH 87 DEGREES 30 MINUTES 47 SECONDS WEST 5.00 FEET TO THE EAST RIGHT OF WAY LINE OF M-24 (HALF WIDTH 29 FEET); THENCE NORTH 04 DEGREES 09 MINUTES 25 SECONDS WEST 333.26 FEET ALONG THE EAST RIGHT OF WAY OF M-24 (HALF WIDTH 29 FEET) TO THE EAST AND WEST QUARTER LINE OF SECTION 11; THENCE CONTINUING NORTH 04 DEGREES 09 MINUTES 25 SECONDS WEST 89.48 FEET (RECORD NORTH 03 DEGREES 18 MINUTES EAST 89.32 FEET) TO THE SOUTHWEST CORNER OF LOT 59 OF ASSESSOR'S REPLAT OF DECKER'S ADDITION TO THE VILLAGE OF ORION AND PART OF CANANDAIGUA CITY RECORDED IN LIBER 52 PAGE 17; THENCE NORTH 82 DEGREES 06 MINUTES 07 SECONDS EAST 296.88 FEET (RECORDED AS 295.59 FEET) ALONG THE SOUTH LINE OF LOT 59 OF ASSESSOR'S REPLAT OF DECKER'S ADDITION TO THE VILLAGE OF ORION AND PART OF CANANDAIGUA CITY; THENCE NORTH 02 DEGREES 52 MINUTES 01 SECONDS WEST 58.02 FEET (RECORDED AS 58.62 FEET) ALONG THE EAST LINES OF LOTS 59 AND 60 OF ASSESSOR'S REPLAT OF DECKER'S ADDITION TO THE VILLAGE OF ORION AND PART OF CANANDAIGUA CITY TO THE SOUTH LINE OF VILLAGE HOME SITE CONDOMINIUMS OAKLAND COUNTY CONDOMINIUM SUBDIVISION PLAN NUMBER 1408, AS RECORDED IN LIBER 24547 OF DEEDS, PAGE 810, OAKLAND COUNTY RECORDS; THENCE NORTH 80 DEGREES 39 MINUTES 22 SECONDS EAST 448.64 FEET (RECORD NORTH 88 DEGREES 35 MINUTES 23 SECONDS EAST 448.40 FEET) ALONG THE SOUTH LINE OF VILLAGE HOME SITE CONDOMINIUMS TO THE POINT OF BEGINNING. CONTAINING 11.54 ACRES, MORE OR LESS.

SUBJECT TO ANY AND ALL EASEMENTS AND RIGHTS OF WAY OF RECORD OR OTHERWISE.



LOCATION MAP
NOT TO SCALE

LEGEND

- BOUNDARY LINE
- POWER POLE
- LIGHT POLE
- SANITARY MANHOLE
- SANITARY SEWER
- HYDRANT
- GATE VALVE & WELL
- VALVE BOX
- SHUT OFF VALVE
- WATER MAIN
- STORM CATCH BASIN (PAVT.)
- STORM CATCH BASIN (FIELD)
- STORM MANHOLE
- STORM SEWER
- GAS MAIN
- OVHD. UTIL.

BENCHMARKS (NAVD88 DATUM)

BENCHMARK NO. 3
TOP OF HYDRANT AT SOUTHEAST CORNER OF M-24 AND GLANWORTH ST.
ELEVATION: 1002.39

BENCHMARK NO. 11
TOP OF HYDRANT ON EAST SIDE M-24, ±150' SOUTH OF HUNTINGTON BANK AT #471.
ELEVATION: 997.08

SITE DATA

SITE AREA = 11.68 ACRES

VILLAGE ZONING — MU - MIXED USE (2.32 AC)
PROPOSED RETAIL / FOOD BUILDING (0.44 AC.)
PROPOSED RESIDENTIAL (1.88 AC.)

TOWNSHIP ZONING — GB - GENERAL BUSINESS (3.20 AC)
PROPOSED RETAIL / FOOD BUILDING (1.18 AC.)
PROPOSED RESIDENTIAL (2.02 AC.)

R-3 - SINGLE FAMILY RESIDENTIAL (6.16 AC)

PROPOSED ZONING — PLANNED UNIT DEVELOPMENT

TOWNHOMES	11 RESIDENCE
SINGLE FAMILY	48 RESIDENCE
PROVIDED	59 RESIDENCE = 5.86 RESIDENCE/ACRE

SITE DENSITY	ALLOWED	PROPOSED
VILLAGE ZONED (MU)	10 RES./AC 10 x 1.88 AC = 18 RES.	8 RES = 4.25 RES./ACRE
TOWNSHIP ZONED (GB)	10 RES/AC 10 x 2.02 AC. = 20 RES.	16 RES. = 7.92 RES./ACRE
TOWNSHIP ZONED (R-3)	5 RES./AC 5 x 6.16 AC. = 30 RES.	35 RES = 5.68 RES./ACRE
TOTAL RESIDENCES	68 RESIDENCES	59 RESIDENCES

TOWNHOMES BUILDING
UNIT SIZE 20' x 60' AND 22' x 42'

SINGLE FAMILY
36'x55 BUILDING — 22 RESIDENCES
36'x62' BUILDING — 10 RESIDENCES
36'x66' BUILDING — 16 RESIDENCES

SINGLE FAMILY BUILDING SETBACKS
FRONT TO CURB — 35 FEET
SIDE TO SIDE — 10 FEET
REAR TO REAR — 50 FEET
REAR TO PROPERTY LINE — 35 FEET

PAVEMENT SHOWN IS 27 FEET WIDE FROM BACK OF CURB

PARKING REQUIREMENT
RETAIL
PARKING REQUIRED: 1 SPACE FOR EVERY 200 SF = 42 SPACES
PARKING PROVIDED: 67 SPACES

RESIDENTIAL
PARKING REQUIRED 2 SPACES PER UNIT
PROVIDED WITHIN GARAGE

OPEN SPACE REQUIRES 15% = 76,317 SF
OPEN SPACE PROVIDED
MIDDLE AREA OF THE SITE — 17,197 SF (DEVIATION REQUIRED)
AROUND POND — 13,077 SF
WITHIN POND — 21,373 SF (DEVIATION REQUIRED)
SOUTHEAST CORNER — 6,939 SF
TOTAL — 58,586 SF OR 11.5% (DEVIATION REQUIRED)

ANDERSON, ECKSTEIN AND WESTRICK, INC.
CIVIL ENGINEERS SURVEYORS ARCHITECTS
51301 Schoenherr Road
Shelby Township
Michigan 48315
Phone 586 726 1234
Fax 586 726 8780
www.aewinc.com
ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS
05/13/2025	Developer Updates
04/28/2025	SITE PLAN/CONCEPTUAL PUD PLAN SUBMITTAL

PROJECT NAME:

EASTPORT VILLAGE

SHEET TITLE:

PRELIMINARY SITE PLAN

CLIENT:
MOCERI COMPANIES

PRELIMINARY ☐ CONSTRUCTION ☐ RECORD

DRAWN BY:	CHECKED BY:	DATE:
JLA	SVP	SEPT 2022

SCALE:
1" = 50' HORIZ.
0 25 50 100

Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

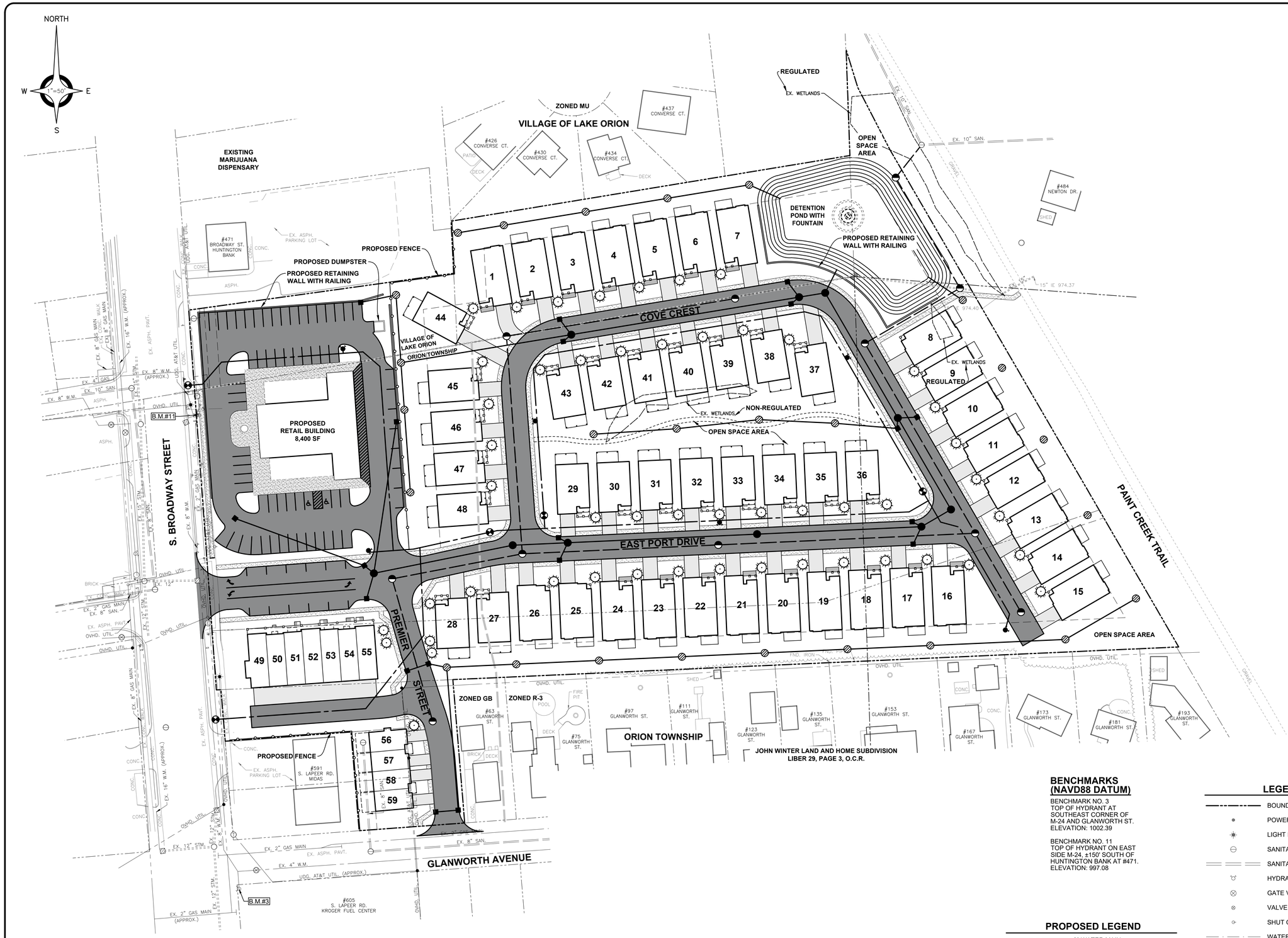
DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO.
0361-0078

M:\0361\0361-0078\DWG\CIVIL\01_SITE PLAN.DWG
02 Site Plan--5/15/2025 1:16:39 PM

SHEET NO.
2

COPYRIGHT, 2025, ANDERSON, ECKSTEIN AND WESTRICK, INC.



BENCHMARKS (NAVD88 DATUM)

BENCHMARK NO. 3
TOP OF HYDRANT AT SOUTHEAST CORNER OF M-24 AND GLANWORTH ST.
ELEVATION: 1002.39

BENCHMARK NO. 11
TOP OF HYDRANT ON EAST SIDE M-24, ±150' SOUTH OF HUNTINGTON BANK AT #471.
ELEVATION: 997.08

PROPOSED LEGEND

- 8" WATER MAIN
- HYDRANT
- GATE VALVE
- 8" SANITARY SEWER
- SANITARY MANHOLE
- STORM SEWER
- STORM MANHOLE
- STORM CATCH BASINS

LEGEND

- BOUNDARY LINE
- POWER POLE
- LIGHT POLE
- SANITARY MANHOLE
- SANITARY SEWER
- HYDRANT
- GATE VALVE & WELL
- VALVE BOX
- SHUT OFF VALVE
- WATER MAIN
- STORM CATCH BASIN (PAVT.)
- STORM CATCH BASIN (FIELD)
- STORM MANHOLE
- STORM SEWER
- GAS MAIN
- OVHD. UTIL.

ANDERSON, ECKSTEIN AND WESTRICK, INC.
CIVIL ENGINEERS SURVEYORS ARCHITECTS
51301 Schoenherr Road
Shelby Township
Michigan 48315
Phone 586 726 1234
Fax 586 726 8780
www.aewinc.com
ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS
05/13/2025	Developer Updates
04/28/2025	SITE PLAN/CONCEPTUAL PUD PLAN SUBMITTAL

PROJECT NAME:

EASTPORT VILLAGE

SHEET TITLE:

PRELIMINARY UTILITY PLAN

CLIENT:
MOCERI COMPANIES

PRELIMINARY ☐ CONSTRUCTION ☐ RECORD

DRAWN BY:	CHECKED BY:	DATE:
JLA	SVP	SEPT 2022

SCALE:
1" = 50' HORIZ.
0 25 50 100

Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO.
0361-0078

M:\0361\0361-0078\DWG\CIVIL\01_SITE PLAN.DWG
03_Pre Eng--5/15/2025 8:40:29 AM

SHEET NO.
3

COPYRIGHT, 2025, ANDERSON, ECKSTEIN AND WESTRICK, INC.

NORTH
W 1"=50' E
S

ZONED MU
VILLAGE OF LAKE ORION
REGULATED
EX. WETLANDS
OPEN SPACE AREA
EXISTING MARIJUANA DISPENSARY
#471 BROADWAY ST. HUNTINGTON BANK
#426 CONVERSE CT.
#430 CONVERSE CT.
#434 CONVERSE CT.
#437 CONVERSE CT.
#484 NEWTON DR.
DETENTION POND WITH FOUNTAIN
COVE CREST
EAST PORT DRIVE
NON-REGULATED
EX. WETLANDS
REGULATED
EX. WETLANDS
OPEN SPACE AREA
PAINT CREEK TRAIL
S. BROADWAY STREET
PREMIER STREET
GLANWORTH AVENUE
ZONED GB
ZONED R-3
ORION TOWNSHIP
JOHN WINTER LAND AND HOME SUBDIVISION
LIBER 29, PAGE 3, O.C.R.
#591 S. LAPEER RD. MIDAS
#605 S. LAPEER RD. KROGER FUEL CENTER
#63 GLANWORTH ST.
#75 GLANWORTH ST.
#97 GLANWORTH ST.
#111 GLANWORTH ST.
#123 GLANWORTH ST.
#135 GLANWORTH ST.
#153 GLANWORTH ST.
#167 GLANWORTH ST.
#173 GLANWORTH ST.
#181 GLANWORTH ST.
#193 GLANWORTH ST.
B.M.#11
B.M.#3

BENCHMARKS (NAVD88 DATUM)

BENCHMARK NO. 3
TOP OF HYDRANT AT SOUTHEAST CORNER OF M-24 AND GLANWORTH ST.
ELEVATION: 1002.39

BENCHMARK NO. 11
TOP OF HYDRANT ON EAST SIDE M-24, ±150' SOUTH OF HUNTINGTON BANK AT #471.
ELEVATION: 997.08

ANDERSON, ECKSTEIN AND WESTRICK, INC.
CIVIL ENGINEERS SURVEYORS ARCHITECTS
51301 Schoenherr Road
Shelby Township
Michigan 48315
Phone 586 726 1234
Fax 586 726 8780
www.aewinc.com
ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS
05/13/2025	Developer Updates
04/28/2025	SITE PLAN/CONCEPTUAL PUD PLAN SUBMITTAL

PROJECT NAME:

EASTPORT VILLAGE

SHEET TITLE:

PRELIMINARY GRADING PLAN

CLIENT:

MOCERI COMPANIES

■ PRELIMINARY ☐ CONSTRUCTION ☐ RECORD

DRAWN BY:	CHECKED BY:	DATE:
JLA	SVP	SEPT 2022

SCALE:
1" = 50' HORIZ.
0 25 50 100

Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO.

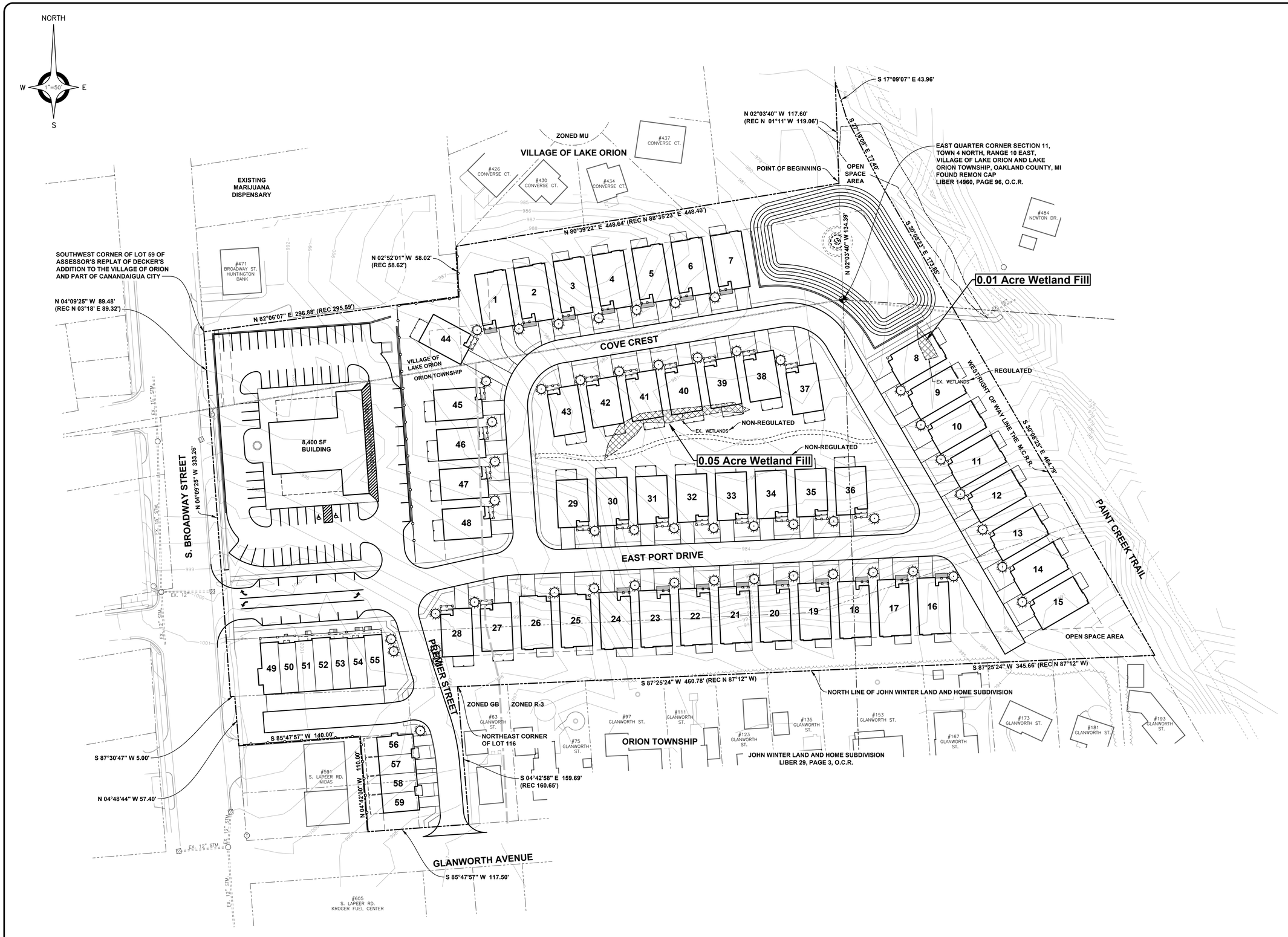
0361-0078

M:\0361\0361-0078\DWG\CIVIL\01_SITE PLAN.DWG
04_Pre Grading--5/15/2025 9:08:04 AM

SHEET NO.

4

COPYRIGHT, 2025, ANDERSON, ECKSTEIN AND WESTRICK, INC.



ANDERSON, ECKSTEIN AND WESTRICK, INC.
CIVIL ENGINEERS SURVEYORS ARCHITECTS
51301 Schoenherr Road
Shelby Township
Michigan 48315
Phone 586 726 1234
Fax 586 726 8780
www.aewinc.com
ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS
05/13/2025	Developer Updates
04/28/2025	SITE PLAN/CONCEPTUAL PUD PLAN SUBMITTAL

PROJECT NAME:

EASTPORT VILLAGE

SHEET TITLE:

PROPOSED WETLAND FILL

CLIENT:

MOCERI COMPANIES

■ PRELIMINARY ☐ CONSTRUCTION ☐ RECORD

DRAWN BY:	CHECKED BY:	DATE:
JLA	SVP	SEPT 2022

SCALE:

1" = 50' HORIZ.

0 25 50 100

Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO.

0361-0078

M:\03610\361-0078\DWG\CIVIL\01_SITE PLAN.DWG
05_Wetland Fill--5/15/2025 9:13:20 AM

SHEET NO.

5

COPYRIGHT, 2025, ANDERSON, ECKSTEIN AND WESTRICK, INC.

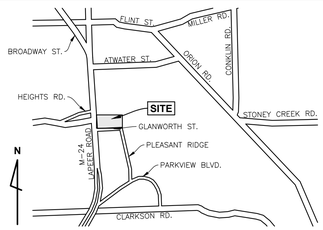
NORTH

W 1"=50' E

S

LEGEND

- BOUNDARY LINE
- SPOT ELEVATION ("+" INDICATES ELEVATION LOCATION UNLESS OTHERWISE INDICATED) (+000.0)
- STEEL POST
- SIGN
- DOUBLE SIGN
- ELECTRIC MANHOLE
- POWER POLE
- LIGHT POLE
- PHONE MANHOLE
- SANITARY MANHOLE
- SANITARY SEWER
- HYDRANT
- GATE VALVE & WELL
- VALVE BOX
- SHUT OFF VALVE
- WATER MAIN
- STORM CATCH BASIN (PAVT.)
- STORM MANHOLE
- STORM SEWER
- GAS MAIN
- OVHD. UTIL.
- UTILITY MARKER



LOCATION MAP

NOT TO SCALE

NORTHEAST CORNER SECTION 11, TOWN 4 NORTH, RANGE 10 EAST, VILLAGE OF LAKE ORION AND LAKE ORION TOWNSHIP, OAKLAND COUNTY, MI FOUND REMON CAP, LIBER 14960, PAGE 96 O.C.R.

N 02°03'40" W 1759.62'

S 17°09'07" E 43.96'

N 02°03'40" W 117.60'
(REC N 01°11' W 119.06')

S 27°19'08" E 77.40'

POINT OF BEGINNING
FOUND IRON
0.04 NORTH
0.33 EAST

S 30°08'23" E 173.95'

N 02°03'40" W 134.39'

S 85°48'22" E 2646.52'
(REC S 85°48'19" E 2646.54)

2519.46'

CENTER POST SECTION 12, TOWN 4 NORTH, RANGE 10 EAST, ORION TOWNSHIP, OAKLAND COUNTY, MI FOUND REMON CAP LIBER 36875, PAGE 231 O.C.R.

EAST QUARTER CORNER SECTION 11, TOWN 4 NORTH, RANGE 10 EAST, VILLAGE OF LAKE ORION AND LAKE ORION TOWNSHIP, OAKLAND COUNTY, MI FOUND REMON CAP LIBER 14960, PAGE 96, O.C.R.

PARCELS# 09-11-278-034, 09-11-427-016, 09-11-427-017, 09-11-427-004, 09-11-427-006 AND 09-11-151-045 JACOBSEN'S SITE 11.53 AC.

VILLAGE HOME SITE CONDOMINIUMS OAKLAND COUNTY SUBDIVISION PLAN NO.1408

SOUTHWEST CORNER OF LOT 59 OF ASSESSOR'S REPLAT OF DECKER'S ADDITION TO THE VILLAGE OF ORION AND PART OF CANANDAIGUA CITY.

M-24 (S. LAPEER ROAD) (WIDTH VARIES)

N 04°09'25" W 89.48'
(REC N 03°18' E 89.32')

N 80°39'22" E 448.64' (REC N 88°35'23" E 448.40')

N 02°52'01" W 58.02' (REC 58.62')

N 82°06'07" E 296.88' (REC 295.59')

S 87°30'47" W 5.00'

S 85°47'57" W 140.00'

N 04°42'09" W 110.00'

S 04°42'58" E 159.69' (REC 160.65')

S 85°47'57" W 117.50'

N 04°48'44" W 57.40'

N 04°09'25" W 333.26'

S 87°25'24" W 460.78' (REC N 87°12" W)

S 87°25'24" W 345.66' (REC N 87°12" W)

N 02°03'40" W 1317.00'
(REC S 01°57'13" E 3317.00')
426.92'
S 01°59'25" E

S 30°08'23" E 464.79'

CENTER POST SECTION 11, TOWN 4 NORTH, RANGE 10 EAST, VILLAGE OF LAKE ORION AND LAKE ORION TOWNSHIP, OAKLAND COUNTY, MI FOUND REMON CAP LIBER 37084, PAGE 814, O.C.R.

SOUTHEAST CORNER SECTION 11, TOWN 4 NORTH, RANGE 10 EAST, VILLAGE OF LAKE ORION AND LAKE ORION TOWNSHIP, OAKLAND COUNTY, MI FOUND REMON CAP LIBER 14960, PAGE 97, O.C.R.

NORTH LINE OF JOHN WINTER LAND AND HOME SUBDIVISION LIBER 29, PAGE 3, O.C.R.

WEST RIGHT OF WAY LINE THE M.C.R.R.

PAINT CREEK TRAIL

HEIGHTS ROAD

ODANAH AVENUE

GLANWORTH AVENUE (50' WIDTH)

PLEASANT RIDGE (50'WIDTH)

B.M.#1

B.M.#3

BENCHMARKS (NAVD88 DATUM)

BENCHMARK NO. 3
TOP OF HYDRANT AT SOUTHEAST CORNER OF M-24 AND GLANWORTH ST.
ELEVATION: 1002.39

BENCHMARK NO. 11
TOP OF HYDRANT ON EAST SIDE M-24, ±150' SOUTH OF HUNTINGTON BANK AT #471.
ELEVATION: 997.08

DESCRIPTION AS SURVEYED

PARCELS 09-11-278-034, 09-11-427-016, 09-11-427-017, 09-11-427-004, 09-11-427-006 AND 09-11-151-045

PART OF THE SOUTHEAST QUARTER OF SECTION 11 AND THE SOUTHWEST QUARTER OF SECTION 12, PART OF LOT 1 AND ALL OF LOT 2 OF SUPERVISOR'S PLAT NO 1 AS RECORDED IN LIBER 52 OF PLATS, PAGE 18, OAKLAND COUNTY RECORDS, LOTS 57 AND 58 OF ASSESSOR'S REPLAT OF DECKER ADDITION TO THE VILLAGE OF LAKE ORION, AS RECORDED IN LIBER 52 OF PLATS, PAGE 17, OAKLAND COUNTY RECORDS, ALSO, PART OF LOTS 1, THE EAST 60 FEET OF LOTS 2 AND 3 AND ALL OF LOT 116 OF JOHN WINTER LAND AND HOME SUBDIVISION, AS RECORDED IN LIBER 29 OF PLATS, PAGE 3, OAKLAND COUNTY RECORDS, ALL BEING A PART OF TOWN 04 NORTH, RANGE 10 EAST, VILLAGE OF LAKE ORION AND LAKE ORION TOWNSHIP, OAKLAND COUNTY, MICHIGAN, BEING DESCRIBED AS:

COMMENCING AT THE EAST QUARTER CORNER OF SECTION 11; THENCE NORTH 02 DEGREES 03 MINUTES 40 SECONDS WEST 134.39 FEET ALONG THE EAST LINE SECTION 11 TO THE POINT OF BEGINNING; THENCE CONTINUING NORTH 02 DEGREES 03 MINUTES 40 SECONDS WEST 117.60 FEET ALONG THE EAST LINE OF SECTION 11 (RECORD NORTH 01 DEGREES 11 MINUTES WEST 119.06 FEET) AND THE EAST LINE OF VILLAGE HOME SITE CONDOMINIUMS, OAKLAND COUNTY CONDOMINIUM SUBDIVISION PLAN NUMBER 1408 AS RECORDED IN LIBER 24547 OF DEEDS, PAGE 810; THENCE SOUTH 17 DEGREES 09 MINUTES 07 SECONDS EAST 43.96 FEET ALONG THE WEST RIGHT OF WAY LINE OF THE M.C.R.R.; THENCE SOUTH 27 DEGREES 19 MINUTES 08 SECONDS EAST 77.40 FEET ALONG THE WEST RIGHT OF WAY LINE OF THE M.C.R.R.; THENCE SOUTH 30 DEGREES 08 MINUTES 23 SECONDS EAST 173.85 FEET ALONG THE WEST RIGHT OF WAY LINE OF THE M.C.R.R. TO THE EAST AND WEST QUARTER LINE OF SECTION 12; THENCE CONTINUING SOUTH 30 DEGREES 08 MINUTES 23 SECONDS EAST 464.79 FEET ALONG THE WEST RIGHT OF WAY LINE OF THE M.C.R.R. TO THE NORTH LINE OF LINE OF JOHN WINTER LAND AND HOME SUBDIVISION, AS RECORDED IN LIBER 29 OF PLATS, PAGE 3, OAKLAND COUNTY RECORDS; THENCE SOUTH 87 DEGREES 25 MINUTES 24 SECONDS WEST (RECORDED AS NORTH 87 DEGREES 12 MINUTES WEST) 345.66 FEET ALONG THE NORTH LINE OF JOHN WINTER LAND AND HOME SUBDIVISION TO THE EAST LINE OF SECTION 11; THENCE CONTINUING SOUTH 87 DEGREES 25 MINUTES 24 SECONDS WEST 460.78 FEET ALONG THE NORTH LINE OF JOHN WINTER LAND AND HOME SUBDIVISION (RECORD NORTH 87 DEGREES 12 MINUTES WEST) TO THE NORTHEAST CORNER LOT 116 OF JOHN WINTER LAND AND HOME SUBDIVISION; THENCE SOUTH 04 DEGREES 42 MINUTES 58 SECONDS EAST 159.69 FEET (RECORD 160.65) ALONG THE EAST LINE OF LOT 116 OF JOHN WINTER LAND AND HOME SUBDIVISION TO THE NORTH RIGHT OF WAY LINE OF GLANWORTH AVENUE (60.00 FEET WIDE) (PLATTED AS GRAND VIEW AVENUE); THENCE SOUTH 85 DEGREES 47 MINUTES 57 SECONDS WEST 117.50 FEET ALONG THE NORTH RIGHT OF WAY LINE OF GLANWORTH AVENUE; THENCE NORTH 04 DEGREES 42 MINUTES 00 SECONDS WEST 110.00 FEET TO THE SOUTH LINE OF LOT 1 OF JOHN WINTER LAND AND HOME SUBDIVISION; THENCE SOUTH 85 DEGREES 47 MINUTES 57 SECONDS WEST 140.00 FEET ALONG SOUTH LINE LOT 1 OF JOHN WINTER LAND AND HOME SUBDIVISION; THENCE NORTH 04 DEGREES 48 MINUTES 44 SECONDS WEST 57.40 FEET ALONG WEST LINE OF LOT 1 OF JOHN WINTER LAND AND HOME SUBDIVISION; THENCE SOUTH 87 DEGREES 30 MINUTES 47 SECONDS WEST 5.00 FEET TO THE EAST RIGHT OF WAY LINE OF M-24 (HALF WIDTH 29 FEET); THENCE NORTH 04 DEGREES 09 MINUTES 25 SECONDS WEST 333.26 FEET ALONG THE EAST RIGHT OF WAY OF M-24 (HALF WIDTH 29 FEET) TO THE EAST AND WEST QUARTER LINE OF SECTION 11; THENCE CONTINUING NORTH 04 DEGREES 09 MINUTES 25 SECONDS WEST 89.48 FEET (RECORD NORTH 03 DEGREES 18 MINUTES EAST 89.32 FEET) TO THE SOUTHWEST CORNER OF LOT 59 OF ASSESSOR'S REPLAT OF DECKER'S ADDITION TO THE VILLAGE OF ORION AND PART OF CANANDAIGUA CITY RECORDED IN LIBER 52 PAGE 17; THENCE NORTH 82 DEGREES 06 MINUTES 07 SECONDS EAST 296.88 FEET (RECORDED AS 295.59 FEET) ALONG THE SOUTH LINE OF LOT 59 OF ASSESSOR'S REPLAT OF DECKER'S ADDITION TO THE VILLAGE OF ORION AND PART OF CANANDAIGUA CITY; THENCE NORTH 02 DEGREES 52 MINUTES 01 SECONDS WEST 58.02 FEET (RECORDED AS 58.62 FEET) ALONG THE EAST LINES OF LOTS 59 AND 60 OF ASSESSOR'S REPLAT OF DECKER'S ADDITION TO THE VILLAGE OF ORION AND PART OF CANANDAIGUA CITY TO THE SOUTH LINE OF VILLAGE HOME SITE CONDOMINIUMS OAKLAND COUNTY CONDOMINIUM SUBDIVISION PLAN NUMBER 1408, AS RECORDED IN LIBER 24547 OF DEEDS, PAGE 810, OAKLAND COUNTY RECORDS; THENCE NORTH 80 DEGREES 39 MINUTES 22 SECONDS EAST 448.64 FEET (RECORD NORTH 88 DEGREES 35 MINUTES 23 SECONDS EAST 448.40 FEET) ALONG THE SOUTH LINE OF VILLAGE HOME SITE CONDOMINIUMS TO THE POINT OF BEGINNING. CONTAINING 11.54 ACRES, MORE OR LESS.

SUBJECT TO ANY AND ALL EASEMENTS AND RIGHTS OF WAY OF RECORD OR OTHERWISE.

ANDERSON, ECKSTEIN AND WESTRICK, INC.

CIVIL ENGINEERS SURVEYORS ARCHITECTS

51301 Schoenherr Road
Shelby Township
Michigan 48315

Phone 586 726 1234
Fax 586 726 8780

www.aewinc.com

ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS
04/28/2025	SITE PLAN/CONCEPTUAL PUD PLAN SUBMITTAL

PROJECT NAME:

EASTPORT VILLAGE

SHEET TITLE:

TOPOGRAPHICAL SURVEY

CLIENT:

MOCERI COMPANIES

■ PRELIMINARY ☐ CONSTRUCTION ☐ RECORD

DRAWN BY:	CHECKED BY:	DATE:
RO	SVP	MARCH 2025

SCALE: 1" = 50'

0 25 50 100

Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO.

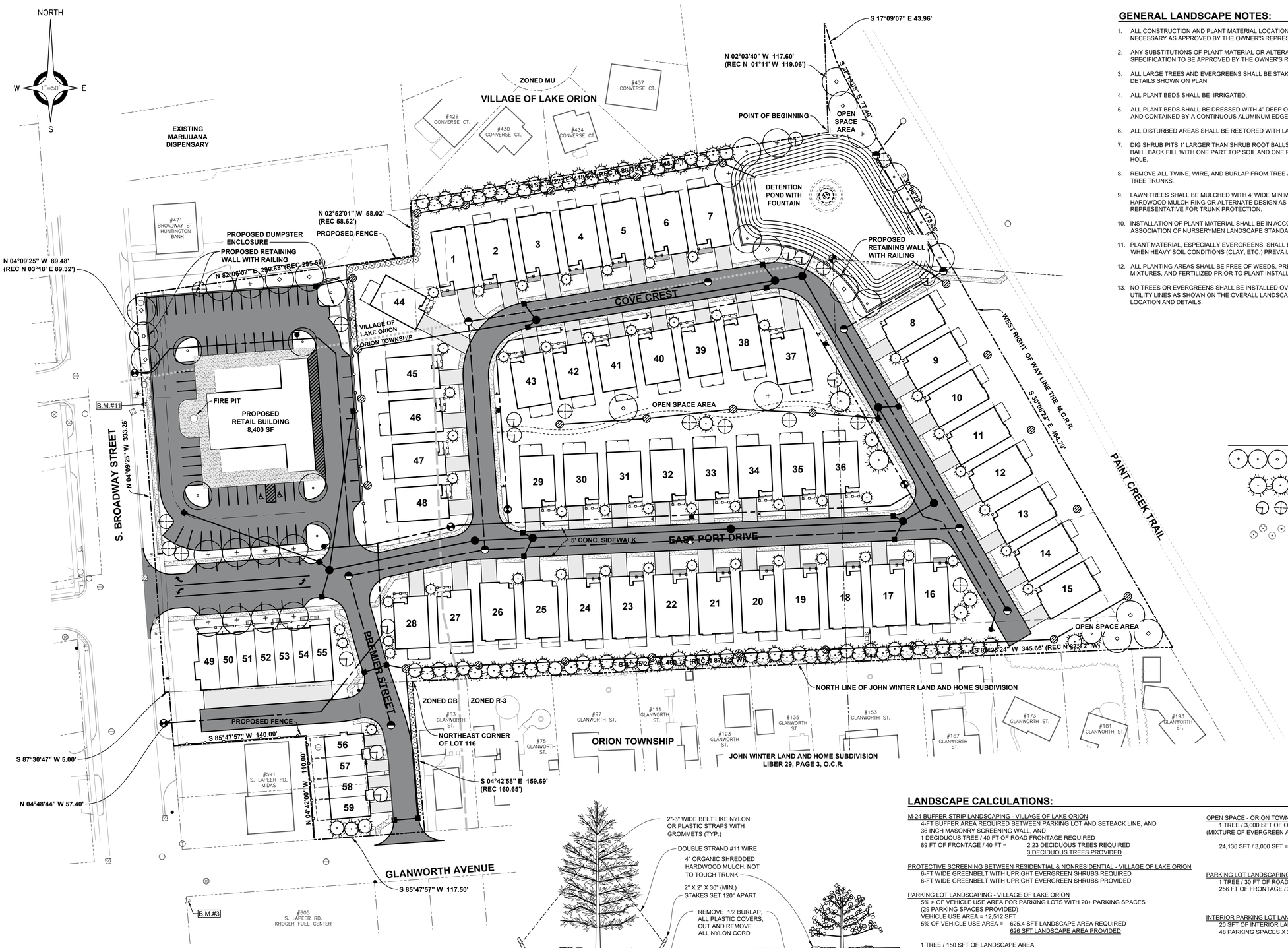
0361-0078

M:\0361\0361-0078\DWG\CIVIL\00_BASETOPO.DWG
06_Topo for Site plan--4/25/2025 1:11:27 PM

SHEET NO.

6

COPYRIGHT, 2025, ANDERSON, ECKSTEIN AND WESTRICK, INC.

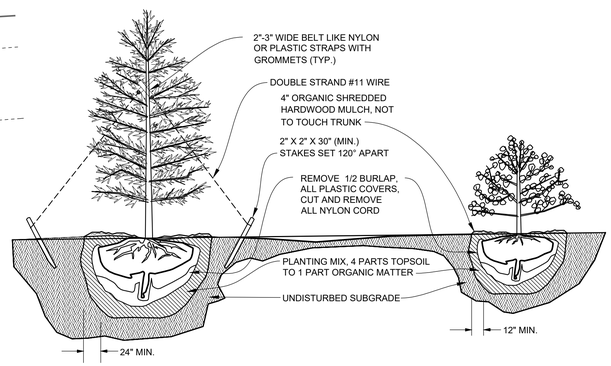


GENERAL LANDSCAPE NOTES:

1. ALL CONSTRUCTION AND PLANT MATERIAL LOCATION SHALL BE ADJUSTED ON SITE IF NECESSARY AS APPROVED BY THE OWNER'S REPRESENTATIVE.
2. ANY SUBSTITUTIONS OF PLANT MATERIAL OR ALTERATION IN PLANT SIZES OR SPECIFICATION TO BE APPROVED BY THE OWNER'S REPRESENTATIVE.
3. ALL LARGE TREES AND EVERGREENS SHALL BE STAKED, GUYED, AND WRAPPED PER DETAILS SHOWN ON PLAN.
4. ALL PLANT BEDS SHALL BE IRRIGATED.
5. ALL PLANT BEDS SHALL BE DRESSED WITH 4" DEEP ORGANIC SHREDDED HARDWOOD MULCH AND CONTAINED BY A CONTINUOUS ALUMINUM EDGE.
6. ALL DISTURBED AREAS SHALL BE RESTORED WITH LAWN SEED UNLESS OTHERWISE NOTED.
7. DIG SHRUB PITS 1' LARGER THAN SHRUB ROOT BALLS AND TREE PITS 2' LARGER THAN ROOT BALL. BACK FILL WITH ONE PART TOP SOIL AND ONE PART SOIL FROM EXCAVATED PLANTING HOLE.
8. REMOVE ALL TWINE, WIRE, AND BURLAP FROM TREE AND SHRUB EARTH BALLS, AND FROM TREE TRUNKS.
9. LAWN TREES SHALL BE MULCHED WITH 4' WIDE MINIMUM OF 4" DEEP ORGANIC SHREDDED HARDWOOD MULCH RING OR ALTERNATE DESIGN AS APPROVED BY OWNER'S REPRESENTATIVE FOR TRUNK PROTECTION.
10. INSTALLATION OF PLANT MATERIAL SHALL BE IN ACCORDANCE WITH THE AMERICAN ASSOCIATION OF NURSERYMEN LANDSCAPE STANDARDS.
11. PLANT MATERIAL, ESPECIALLY EVERGREENS, SHALL BE PLANTED HIGHER THAN NORMAL WHEN HEAVY SOIL CONDITIONS (CLAY, ETC.) PREVAIL.
12. ALL PLANTING AREAS SHALL BE FREE OF WEEDS, PREPARED WITH APPROPRIATE SOIL MIXTURES, AND FERTILIZED PRIOR TO PLANT INSTALLATION.
13. NO TREES OR EVERGREENS SHALL BE INSTALLED OVER ANY PROPOSED OR EXISTING UTILITY LINES AS SHOWN ON THE OVERALL LANDSCAPE PLAN. SEE UTILITY PLAN FOR EXACT LOCATION AND DETAILS.

LEGEND

- PROPOSED DECIDUOUS TREES
- PROPOSED EVERGREEN TREES
- PROPOSED ORNAMENTAL TREES
- PROPOSED SHRUBS



TREE PLANTING DETAIL
NO SCALE

SHRUB PLANTING DETAIL
NO SCALE

LANDSCAPE CALCULATIONS:

M-24 BUFFER STRIP LANDSCAPING - VILLAGE OF LAKE ORION
4-FT BUFFER AREA REQUIRED BETWEEN PARKING LOT AND SETBACK LINE, AND
36 INCH MASONRY SCREENING WALL, AND
1 DECIDUOUS TREE / 40 FT OF ROAD FRONTAGE REQUIRED
89 FT OF FRONTAGE / 40 FT = 2.23 DECIDUOUS TREES REQUIRED
3 DECIDUOUS TREES PROVIDED

PROTECTIVE SCREENING BETWEEN RESIDENTIAL & NONRESIDENTIAL - VILLAGE OF LAKE ORION
6-FT WIDE GREENBELT WITH UPRIGHT EVERGREEN SHRUBS REQUIRED
6-FT WIDE GREENBELT WITH UPRIGHT EVERGREEN SHRUBS PROVIDED

PARKING LOT LANDSCAPING - VILLAGE OF LAKE ORION
5% > OF VEHICLE USE AREA FOR PARKING LOTS WITH 20+ PARKING SPACES
(29 PARKING SPACES PROVIDED)
VEHICLE USE AREA = 12,512 SFT
5% OF VEHICLE USE AREA = 625.4 SFT LANDSCAPE AREA REQUIRED
626 SFT LANDSCAPE AREA PROVIDED

1 TREE / 150 SFT OF LANDSCAPE AREA
626 SFT LANDSCAPE AREA / 150 SFT = 4.1 TREES REQUIRED
5 TREES PROVIDED

PERIMETER PARKING LOT LANDSCAPING
1 DECIDUOUS SHADE TREE / 30 FT

DETENTION POND - VILLAGE OF LAKE ORION
1 TREE / 50 FT OF POND PERIMETER, AND
1 ORNAMENTAL TREE / 75 FT OF POND PERIMETER
583 FT OF POND PERIMETER / 50 FT = 11.6 TREES REQUIRED
583 FT OF POND PERIMETER / 75 FT = 7.7 ORNAMENTAL TREES REQUIRED
12 TREES PROVIDED
8 ORNAMENTAL TREES PROVIDED

OPEN SPACE - ORION TOWNSHIP
1 TREE / 3,000 SFT OF OPEN-SPACE AREA
(MIXTURE OF EVERGREEN AND DECIDUOUS)

24,136 SFT / 3,000 SFT = 8 TREES REQUIRED
8 TREES PROVIDED

PARKING LOT LANDSCAPING ADJACENT TO ROADS - ORION TOWNSHIP
1 TREE / 30 FT OF ROAD FRONTAGE
256 FT OF FRONTAGE / 30 FT = 8.53 TREES REQUIRED

9 TREES PROVIDED

INTERIOR PARKING LOT LANDSCAPING - ORION TOWNSHIP
20 SFT OF INTERIOR LANDSCAPING / 1 PARKING SPACE REQUIRED
48 PARKING SPACES X 20 SFT = 960 SFT REQUIRED
960 SFT PROVIDED

1 TREE / 200 SFT OF INTERIOR LANDSCAPING REQUIRED
960 SFT / 200 SFT = 4.8 TREES REQUIRED
5 TREES PROVIDED

ANDERSON, ECKSTEIN AND WESTRICK, INC.
CIVIL ENGINEERS SURVEYORS ARCHITECTS
51301 Schoenherr Road
Shelby Township
Michigan 48315
Phone 586 726 1234
Fax 586 726 8780
www.aewinc.com
ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS
05/13/2015	Add Street Trees
04/2025	SITE PLAN/CONCEPTUAL PUD PLAN SUBMITTAL

PROJECT NAME:

EASTPORT VILLAGE

SHEET TITLE:

LANDSCAPING PLAN OVERALL

CLIENT:
MOCERI COMPANIES

PRELIMINARY ☐ CONSTRUCTION ☐ RECORD

DRAWN BY:	CHECKED BY:	DATE:
RAH	CKS	MAY 2025

SCALE:
1" = 50' HORIZ.
0 25 50 100

Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO.
0361-0078

M:\0361\0361-0078\DWG\CIVIL\01_SITE PLAN.DWG
L1 Landscaping- 5/15/2025 9:24:36 AM

SHEET NO.
L1

COPYRIGHT, 2025, ANDERSON, ECKSTEIN AND WESTRICK, INC.

NORTH

W 1"=30' E

S



PLANT MATERIAL SCHEDULE:

Qty.	Key	Scientific Name	Common Name	Size	Spacing	Comments
		DECIDUOUS SHADE TREES				
3	AF	*Acer freemanii*	Freeman's Maple	2.5" cal.	Match	
3	AR	*Acer rubrum*	Red Maple	2.5" cal.	Match	
2	CO	*Celtis occidentalis*	Hackberry	2.5" cal.	Match	
6	GB	*Ginkgo biloba*	Ginkgo	1.5" cal.	Match	
1	GD	*Gymnocladus dioicus*	Kentucky Coffeetree	2.5" cal.	Match	
-	NS	*Nyssa sylvatica*	Black Gum	2.5" cal.	Match	
2	QM	*Quercus macrocarpa*	Bur Oak	2.5" cal.	Match	
		EVERGREEN TREES				
-	CL	*Cupressus leylandii*	Leyland Cypress	6-ft B&B	Match	
2	PA	*Picea abies*	Norway Spruce	6-ft B&B	Match	
3	PM	*Pseudotsuga menziesii*	Douglas Fir	6-ft B&B	Match	
-	PS	*Pinus strobus*	White Pine	6-ft B&B	Match	
-	TC	*Tsuga canadenis*	Eastern Hemlock	6-ft B&B	Match	
		ORNAMENTAL TREES				
-	AA	*Amelanchier arborea*	Juneberry	6-ft B&B	Match	Multi-Stem
-	AL	*Amelanchier laevis*	Smooth Shadbush	1.5" cal.	Match	
4	CF	*Cornus florida*	Flowering Dogwood	1.5" cal.	Match	
3	CR	*Cornus 'Rutgan'*	Stellar Pink Dogwood	1.5" cal.	Match	Multi-Stem
1	MM	*Malus*	Crab Apple	1.5" cal.	Match	
		SHRUBS, PERENNIALS & GRASSES				
24	TO	*Thuja occidentalis*	Arborvitae	6-ft B&B	36" O.C.	

LEGEND

- PROPOSED DECIDUOUS TREES
- PROPOSED EVERGREEN TREES
- PROPOSED ORNAMENTAL TREES
- PROPOSED SHRUBS

ANDERSON, ECKSTEIN AND WESTRICK, INC.
CIVIL ENGINEERS SURVEYORS ARCHITECTS
51301 Schoenherr Road
Shelby Township
Michigan 48315
Phone 586 726 1234
Fax 586 726 8780
www.aewinc.com
ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS
05/13/2025	Add Street Trees
04/2025	SITE PLAN/CONCEPTUAL PUD PLAN SUBMITTAL

PROJECT NAME:

EASTPORT VILLAGE

SHEET TITLE:

LANDSCAPING PLAN WEST SIDE

CLIENT:

MOCERI COMPANIES

■ PRELIMINARY ☐ CONSTRUCTION ☐ RECORD

DRAWN BY:	CHECKED BY:	DATE:
RAH	CKS	MAY 2025

SCALE:

1" = 30' HORIZ.

0 15 30 60

811 Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO.

0361-0078

M:\0361\0361-0078\DWG\CIVIL\01_SITE PLAN.DWG
L2_Landscape West--5/15/2025 9:32:22 AM

SHEET NO.

L2

COPYRIGHT, 2025, ANDERSON, ECKSTEIN AND WESTRICK, INC.



PLANT MATERIAL SCHEDULE:

Qty.	Key	Scientific Name	Common Name	Size	Spacing	Comments
DECIDUOUS SHADE TREES						
-	AF	*Acer freemanii*	Freeman's Maple	2.5" cal.	Match	
4	AR	*Acer rubrum*	Red Maple	2.5" cal.	Match	
2	CO	*Celtis occidentalis*	Hackberry	2.5" cal.	Match	
-	GB	*Princeton sentry'*	Prince Sentry Ginkgo	2.5" cal.	Match	
4	GD	*Gymnocladus dioicus*	Kentucky Coffeetree	2.5" cal.	Match	
7	NS	*Nyssa sylvatica*	Black Gum	2.5" cal.	Match	
2	QM	*Quercus macrocarpa*	Bur Oak	2.5" cal.	Match	
EVERGREEN TREES						
21	CL	*Cupressus leylandii*	Leyland Cypress	6-ft B&B	Match	
25	PA	*Picea abies*	Norway Spruce	6-ft B&B	Match	
15	PM	*Pseudotsuga menziesii*	Douglas Fir	6-ft B&B	Match	
27	PS	*Pinus strobus*	White Pine	6-ft B&B	Match	
13	TC	*Tsuga canadenis*	Eastern Hemlock	6-ft B&B	Match	
22	TD	*Taxodium distichum*	Green Whisper Baldcypress	6-ft B&B	Match	
ORNAMENTAL TREES						
4	AA	*Amelanchier arborea*	Juneberry	6-ft B&B	Match	Multi-Stem
4	AL	*Amelanchier laevis*	Smooth Shadbush	1.5" cal.	Match	
3	CF	*Comus florida*	Flowering Dogwood	1.5" cal.	Match	Multi-Stem
2	CR	*Comus 'Rutgan'*	Stellar Pink Dogwood	1.5" cal.	Match	
3	MM	*Malus*	Crab Apple	1.5" cal.	Match	
SHRUBS, PERENNIALS & GRASSES						
33	TO	*Thuja occidentalis*	Arborvitae	6-ft B&B	36" O.C.	

LEGEND

PROPOSED DECIDUOUS TREES

PROPOSED EVERGREEN TREES

PROPOSED ORNAMENTAL TREES

PROPOSED SHRUBS

TYPICAL UNIT PLANTING DETAIL

NOT TO SCALE

ANDERSON, ECKSTEIN AND WESTRICK, INC.

CIVIL ENGINEERS SURVEYORS ARCHITECTS

51301 Schoenherr Road
Shelby Township
Michigan 48315

Phone 586 726 1234
Fax 586 726 8780

www.aewinc.com

ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS
05/13/2025	Add Street Trees
04/2025	SITE PLAN/CONCEPTUAL PUD PLAN SUBMITTAL

PROJECT NAME:

EASTPORT VILLAGE

SHEET TITLE:

LANDSCAPING PLAN EAST SIDE

CLIENT:

MOCERI COMPANIES

PRELIMINARY ☐ CONSTRUCTION ☐ RECORD

DRAWN BY:	CHECKED BY:	DATE:
RAH	CKS	MAY 2025

SCALE:

1" = 30' HORIZ.

0 15 30 60

811 Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO.

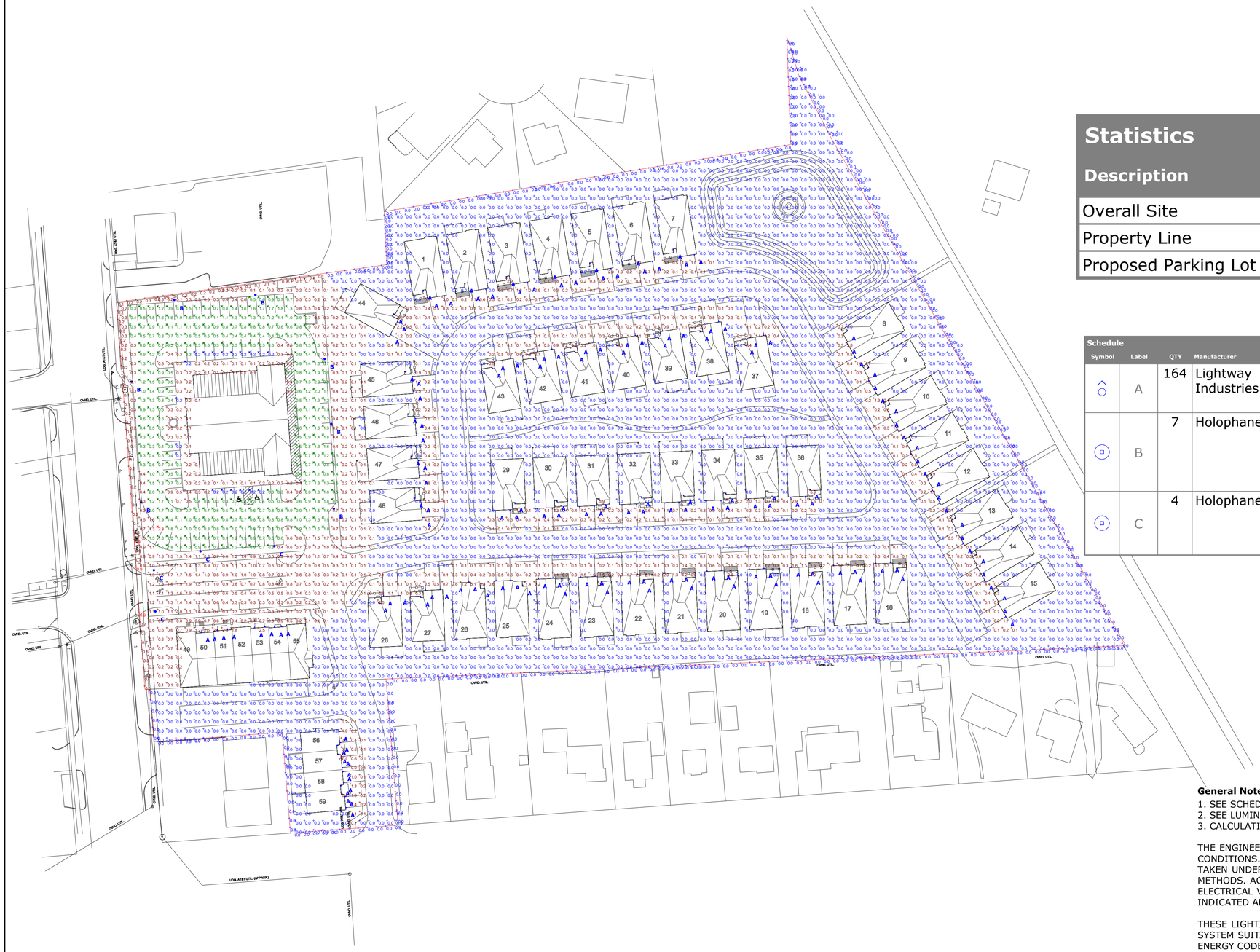
0361-0078

M:\0361\0361-0078\DWG\CIVIL\01_SITE PLAN.DWG
L3_Landscape East--5/15/2025 9:34:18 AM

SHEET NO.

L3

COPYRIGHT, 2025, ANDERSON, ECKSTEIN AND WESTRICK, INC.



Plan View
Scale - 1" = 60ft

Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Overall Site	+	0.2 fc	7.9 fc	0.0 fc	N/A	N/A
Property Line	+	0.0 fc	0.9 fc	0.0 fc	N/A	N/A
Proposed Parking Lot	*	0.9 fc	2.3 fc	0.2 fc	11.5:1	4.5:1

Schedule

Symbol	Label	QTY	Manufacturer	Catalog	Description	Lamp Output	LLF	Input Power	Mounting Height
	A	164	Lightway Industries	GHSW	Formed black plastic housing, frosted plastic lens, clear plastic lens enclosure	574	0.9	12.9833	6'6"
	B	7	Holophane	GVD3 P40 40K XXXX GL3 GVDHSS18	GranVille Gen3, P40 Performance Package, 4000K CCT, 70CRI, Type 3 distribution, no trim with 180deg House Side Shield	8024	0.9	80	15'
	C	4	Holophane	GVD3 P40 40K XXXX GL5	GranVille Gen3, P40 Performance Package, 4000K CCT, 70CRI, Type 5 distribution, no trim	10935	0.9	80	15'

General Note

1. SEE SCHEDULE FOR LUMINAIRE MOUNTING HEIGHT.
2. SEE LUMINAIRE SCHEDULE FOR LIGHT LOSS FACTOR.
3. CALCULATIONS ARE SHOWN IN FOOTCANDLES AT: 0' - 0"

THE ENGINEER AND/OR ARCHITECT MUST DETERMINE APPLICABILITY OF THE LAYOUT TO EXISTING / FUTURE FIELD CONDITIONS. THIS LIGHTING LAYOUT REPRESENTS ILLUMINATION LEVELS CALCULATED FROM LABORATORY DATA TAKEN UNDER CONTROLLED CONDITIONS IN ACCORDANCE WITH ILLUMINATING ENGINEERING SOCIETY APPROVED METHODS. ACTUAL PERFORMANCE OF ANY MANUFACTURER'S LUMINAIRE MAY VARY DUE TO VARIATION IN ELECTRICAL VOLTAGE, TOLERANCE IN LAMPS, AND OTHER VARIABLE FIELD CONDITIONS. MOUNTING HEIGHTS INDICATED ARE FROM GRADE AND/OR FLOOR UP.

THESE LIGHTING CALCULATIONS ARE NOT A SUBSTITUTE FOR INDEPENDENT ENGINEERING ANALYSIS OF LIGHTING SYSTEM SUITABILITY AND SAFETY. THE ENGINEER AND/OR ARCHITECT IS RESPONSIBLE TO REVIEW FOR MICHIGAN ENERGY CODE AND LIGHTING QUALITY COMPLIANCE.

UNLESS EXEMPT, PROJECT MUST COMPLY WITH LIGHTING CONTROLS REQUIRMENTS DEFINED IN ASHRAE 90.1 2013. FOR SPECIFIC INFORMATION CONTACT GBA CONTROLS GROUP AT CONTROLS@GASSERBUSH.COM OR 734-266-6705.

Alternates Note

THE USE OF FIXTURE ALTERNATES MUST BE RESUBMITTED TO THE CITY FOR APPROVAL.

Ordering Note

FOR INQUIRIES CONTACT GASSER BUSH AT QUOTES@GASSERBUSH.COM OR 734-266-6705.

Drawing Note

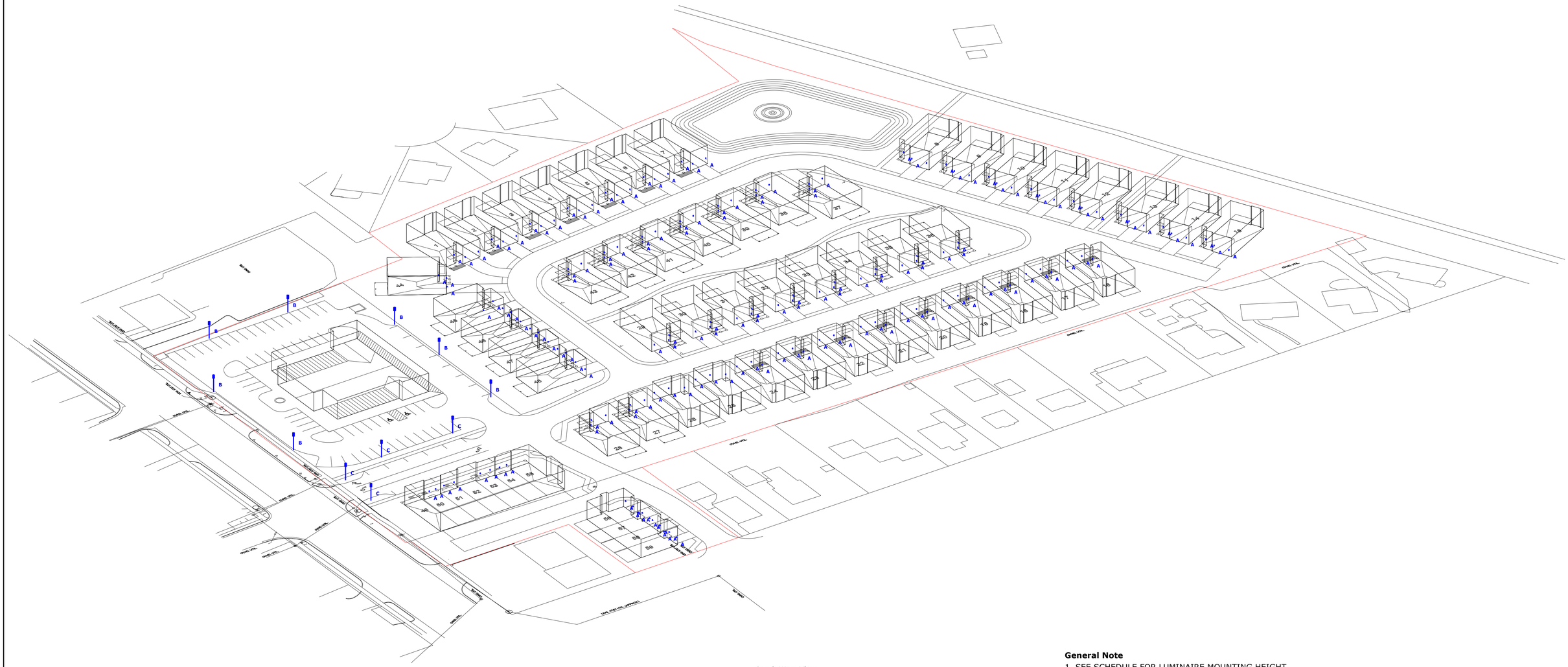
THIS DRAWING WAS GENERATED FROM AN ELECTRONIC IMAGE FOR ESTIMATION PURPOSE ONLY. LAYOUT TO BE VERIFIED IN FIELD BY OTHERS.

Mounting Height Note

MOUNTING HEIGHT IS MEASURED FROM GRADE TO FACE OF FIXTURE. POLE HEIGHT SHOULD BE CALCULATED AS THE MOUNTING HEIGHT LESS BASE HEIGHT.

EASTPORT VILLAGE
PHOTOMETRIC LAYOUT
GASSER BUSH ASSOCIATES
WWW.GASSERBUSH.COM

Designer
KS
Date
04/08/2025
Scale
Not to Scale
Drawing No.
#25-41770_V1


OVERHEAD UTIL.
OVERHEAD UTIL.
OVERHEAD UTIL.

GHSW-LED

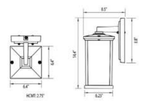
Construction:
- Fade and Rust Resistant Polycarbonate Construction
- Glare Free Frosted Acrylic Lens

Light Source:
- LED
- Incandescent Medium Base / Lamp by others

Notes:
- Mounts to standard junction box
- Mounting hardware included
- Optional Photocell
- UL and CUL listed **WET** location
- LED Components
  - Replaceable Module
  - CRI > 80
  - 120 volt standard
  - 5-Year Warranty on LED Components

Type:	
Job Name:	





ORDERING INFORMATION

Example: GHSW-14-LED-A-13W-4-Z99-FSA

Model	Cage	Voltage	Lamping	Kelvin	Finish	Diffuser	Options
GHSW-14-LED		**A** 120 Volt	**13w** LED / 1140lm **E26** Medium Base (NL)	**2** 3000K **4** 4000K	**B99** Black **W99** White **Z99** Bronze	**FSA** Frosted Smooth Acrylic	**21-01** Photocell - 120 Volt

28435 Industry Drive., Valencia, California 91355
West Coast Sales: 800-325-4448 /661-257-0286• fax 800-323-2346 /661-257-0201
East Coast Sales: 866-350-0991 • fax 866-490-5754
www.lightwayind.com • sales@lightwayind.com

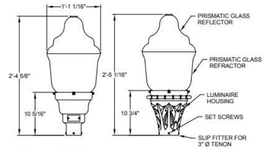
Lightway

Revision: 07/10/2019

HOLOPHANE
LEADER IN LIGHTING SOLUTIONS

Catalog Number	
Notes:	Type





Maximum weight - 47 lbs
Maximum effective projected area - 1.38 sq. ft.

GVD3

Granville Classic Standard LED3

SPECIFICATIONS

General Description
The GrantVille Classic Standard LED3 is designed for use with traditional applications fitting 3" post top tenons. The traditional acorn-shaped luminaire, while reminiscent of the 1920's, contains a powerful, stable-mounted Chip-On-Board LED platform with a precision optical system that maximizes post spacings while maintaining uniform illumination.

Mechanical Specifications
The luminaire housing shall:
- Be heavy-grade A360 cast aluminum (aluminum with <1% copper)
- IP55 rated housing, provides enclosure for the electrical module
- Mount to slip-fitter that will accept 3" high by 2-7/8" to 3-1/8" O.D. pole tenon
- Provide four uniquely designed stainless steel spring clips, enclosed in a clear polyvinyl chloride sleeve and adjusted by 1/4-20 hex-head bolts that securely cradle the prismatic acrylic refractor. The same ¼-20 bolts also support the decorative rib and banding assembly.

The finish shall:
- Utilize a polyester power coat paint to ensure maximum durability
- Rigorous multi-stage pre-treating and painting process yields a finish that achieves a scribe creepage rating of 8 (per ASTM D1654) after over 5000 hours exposure to salt fog chamber (operated per ASTM B117) on standard and RAL finish options.
- RAL (RALxxxxSDCR) paint colors are Super Durable Corrosion Resistant, 80% gloss.

Electrical Specifications
The driver shall meet the following requirements:
- Certified by UL or CSA for wet locations
- A factory programmable electronic driver with 0-10V dimming control leads
- LEDs shall have a minimum of 70 CRI and available in 2700K, 3000K, 4000K, and 5000K CCT
- The electrical system shall be designed to meet ANSI/IEEE C62.41.2 and shall offer a 10kV/5kA surge protection, fail off; as standard with an upgradable 20kV/10kA surge protection, fail off with indicator light, option
- Lumen output can be customized prior to manufacturing by way of FPDex Options
- The electrical components are mounted on an aluminum plate that is removeable with minimum use of tools.

Optical Specifications
The optical system is IP66 rated and consists of a precisely molded thermal-resistant borosilicate glass refractor and top reflector mounted within the decorative glass optic. The top reflector redirects over 50% of the upward light into the controlling refractor while allowing a soft up-light component to define the traditional acorn shape of the luminaire. The lower refractor uses precisely molded prisms to maximize the pole spacings while maintaining uniform illuminance. Two refractors are available, designed for IES type III and V distributions. Lunar Optics shielding is available for asymmetric and symmetric distributions.

Control Options
The control options shall include, but not limited to, the following:
- Three (3) choices of button-style photocontrol kits specified to match voltage requirements: 120V, 208-277V, or 347V, and colored to match housing finish (480V kit not available).

Certification and Standards
- Luminaire shall be UL or CSA listed.
- Suitable for operation in an ambient temperature up to 40°C / 105°F per UL or CSA certification
- LM79 compliant
- DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check with the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

Government Procurement
BAA – Buy American Act: Product qualifies as a domestic end product under the Buy American Act as implemented in the FAR and DFARS. Product also qualifies as manufactured in the United States under DOT Buy America regulations.
BABA – Build America Buy America: Product qualifies as produced in the United States under the definitions of the Build America, Buy America Act.
Please refer to www.acuitybrands.com/resources/buy-american for additional information.

Warranty – 5 Years Limited
This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application.
All values are design or typical values, measured under laboratory conditions at 25 °C.

General Note
1. SEE SCHEDULE FOR LUMINAIRE MOUNTING HEIGHT.
2. SEE LUMINAIRE SCHEDULE FOR LIGHT LOSS FACTOR.
3. CALCULATIONS ARE SHOWN IN FOOTCANDLES AT: 0' - 0"

THE ENGINEER AND/OR ARCHITECT MUST DETERMINE APPLICABILITY OF THE LAYOUT TO EXISTING / FUTURE FIELD CONDITIONS. THIS LIGHTING LAYOUT REPRESENTS ILLUMINATION LEVELS CALCULATED FROM LABORATORY DATA TAKEN UNDER CONTROLLED CONDITIONS IN ACCORDANCE WITH ILLUMINATING ENGINEERING SOCIETY APPROVED METHODS. ACTUAL PERFORMANCE OF ANY MANUFACTURER'S LUMINAIRE MAY VARY DUE TO VARIATION IN ELECTRICAL VOLTAGE, TOLERANCE IN LAMPS, AND OTHER VARIABLE FIELD CONDITIONS. MOUNTING HEIGHTS INDICATED ARE FROM GRADE AND/OR FLOOR UP.

THESE LIGHTING CALCULATIONS ARE NOT A SUBSTITUTE FOR INDEPENDENT ENGINEERING ANALYSIS OF LIGHTING SYSTEM SUITABILITY AND SAFETY. THE ENGINEER AND/OR ARCHITECT IS RESPONSIBLE TO REVIEW FOR MICHIGAN ENERGY CODE AND LIGHTING QUALITY COMPLIANCE.

UNLESS EXEMPT, PROJECT MUST COMPLY WITH LIGHTING CONTROLS REQUIRMENTS DEFINED IN ASHRAE 90.1 2013. FOR SPECIFIC INFORMATION CONTACT GBA CONTROLS GROUP AT CONTROLS@GASSERBUSH.COM OR 734-266-6705.

Alternates Note
THE USE OF FIXTURE ALTERNATES MUST BE RESUBMITTED TO THE CITY FOR APPROVAL.

Ordering Note
FOR INQUIRIES CONTACT GASSER BUSH AT QUOTES@GASSERBUSH.COM OR 734-266-6705.

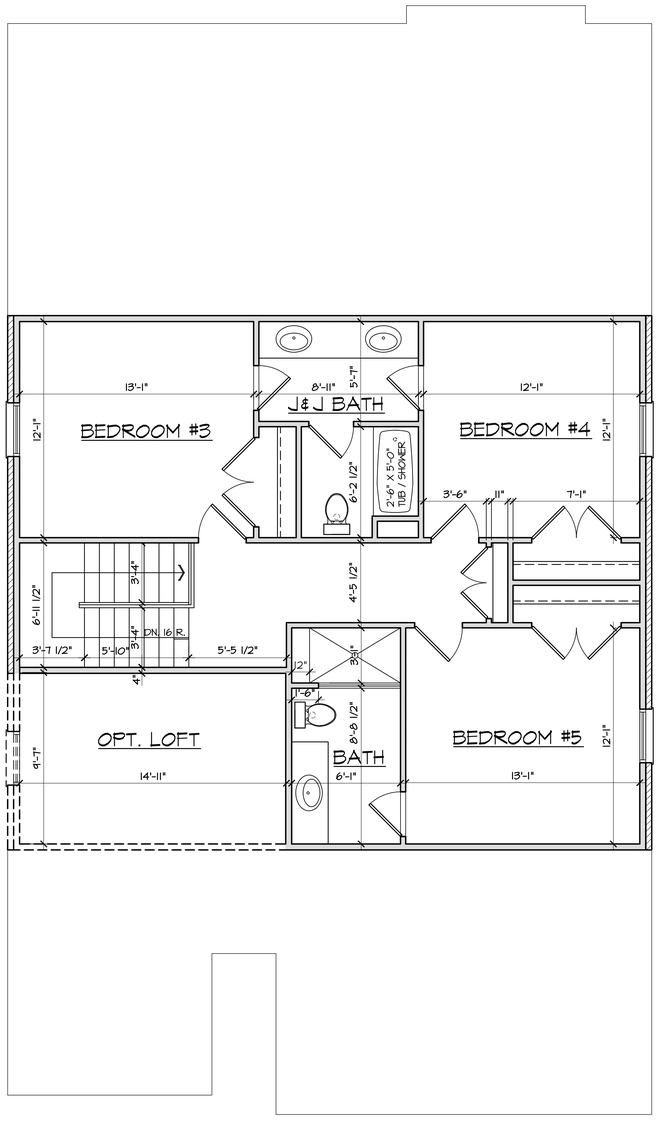
Drawing Note
THIS DRAWING WAS GENERATED FROM AN ELECTRONIC IMAGE FOR ESTIMATION PURPOSE ONLY. LAYOUT TO BE VERIFIED IN FIELD BY OTHERS.

Mounting Height Note
MOUNTING HEIGHT IS MEASURED FROM GRADE TO FACE OF FIXTURE. POLE HEIGHT SHOULD BE CALCULATED AS THE MOUNTING HEIGHT LESS BASE HEIGHT.

EASTPORT VILLAGE
PHOTOMETRIC LAYOUT
GASSER BUSH ASSOCIATES
WWW.GASSERBUSH.COM

Designer
KS
Date
04/08/2025
Scale
Not to Scale
Drawing No.
#25-41770_V1

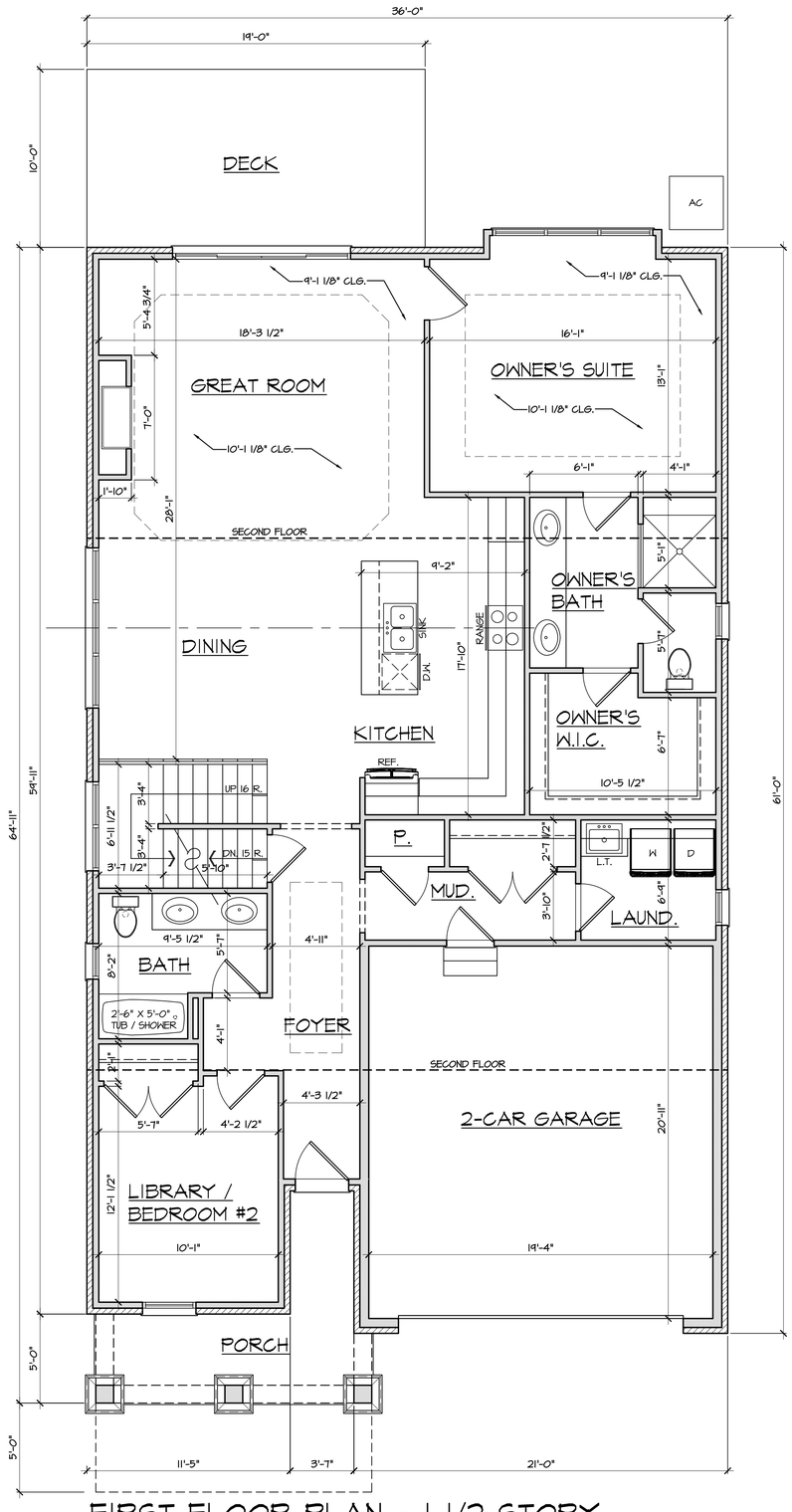
© Copyright 2024 Dominick Tringali Architects, P.C. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



SECOND FLOOR PLAN OPTION - 1 1/2 STORY

SCALE: 1/4" = 1'-0"

NOTE:
ALL SECOND FLOOR CEILING HEIGHTS TO BE 8'-1 1/8" HIGH UNLESS NOTED OTHERWISE.



FIRST FLOOR PLAN - 1 1/2 STORY

SCALE: 1/4" = 1'-0"

ALL WINDOW NUMBERS REFER TO GENERIC SIZES (NO SPECIFIC MANUFACTURER)
EXAMPLE:
2040-2 = 2'-0" X 4'-0", 2-WIDE WINDOW UNIT

ALL DOOR NUMBERS REFER TO GENERIC SIZES (NO SPECIFIC MANUFACTURER)
EXAMPLE:
3080 = 3'-0" X 8'-0"

NOTE:
ALL FIRST FLOOR CEILING HEIGHTS TO BE 9'-1 1/8" HIGH UNLESS NOTED OTHERWISE.

SQUARE FOOTAGE
1ST FLOOR = 1120 SQUARE FEET
2ND FLOOR = 848 SQUARE FEET
TOTAL = 2565 SQUARE FEET
OPTIONAL LOFT = 153 SQUARE FEET

FOR REVIEW
04/18/25

MOCERI
STRUCTURE · INTEGRITY · TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI
EASTPORT VILLAGE
1 1/2 STORY

Review Set: 04/18/25
Permit:
Final Set:
Revisions:

Drwn: B.H.
Chkd:

Job No.
25xxx

Sheet No.
1 OF 2

LIFESTYLE BY DESIGN

© Copyright 2024 Dominick Tringali Architects, P.C. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



FRONT ELEVATION - 1 1/2 STORY

SCALE: 1/4" = 1'-0"

FOR REVIEW
04/18/25

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI
EASTPORT VILLAGE
1 1/2 STORY

Review Set: 04/18/25
Permit:
Final Set:
Revisions:

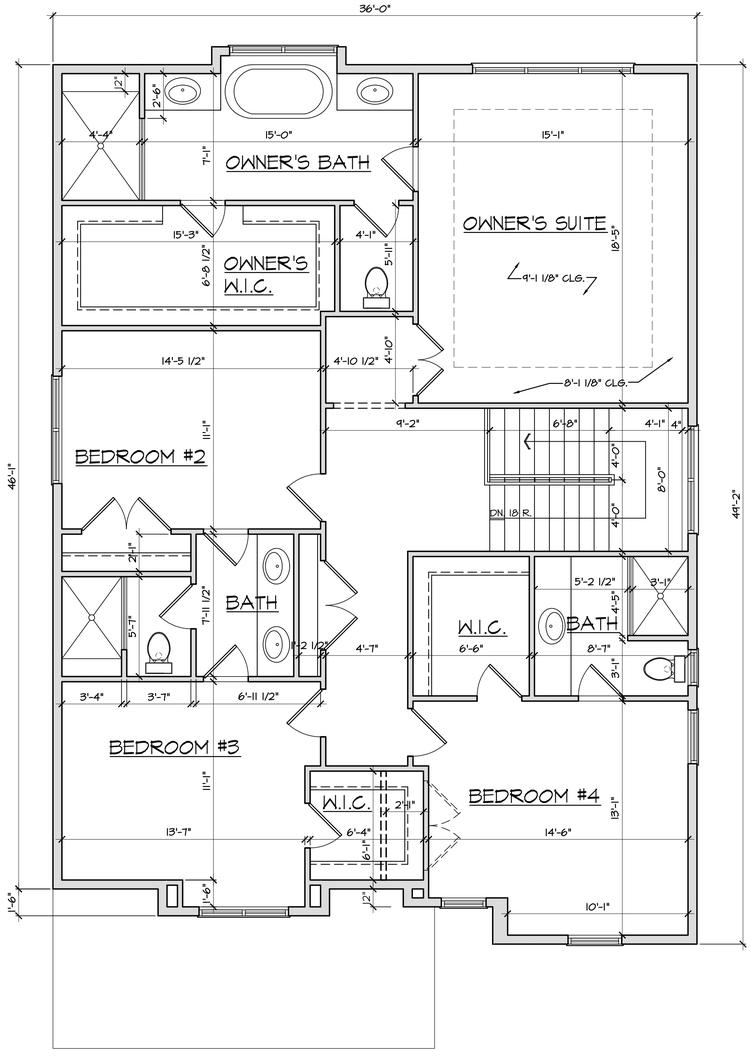
Drwn: B.H.
Chkd:

Job No.
25xxx

Sheet No.
2 OF 2

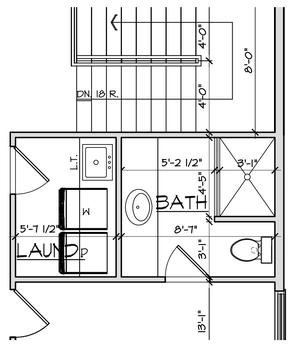
LIFESTYLE BY DESIGN

© Copyright 2024 Dominick Tringali Architects, P.C. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



SECOND FLOOR PLAN - 3 BATH

SCALE: 1/4" = 1'-0"

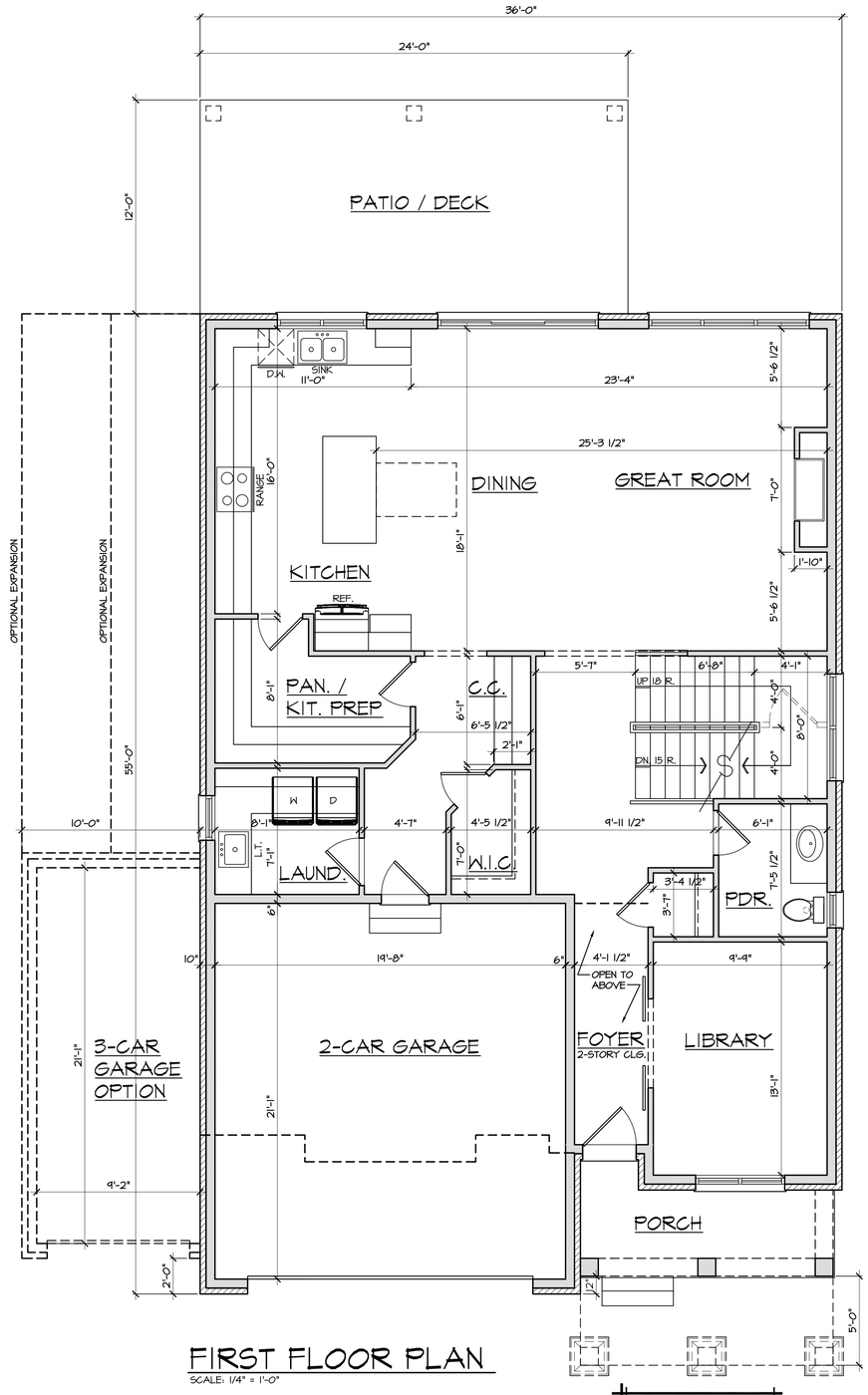


OPT. LAUNDRY

SCALE: 1/4" = 1'-0"

NOTE:

ALL SECOND FLOOR CEILING HEIGHTS TO BE 8'-1 1/8" HIGH UNLESS NOTED OTHERWISE.

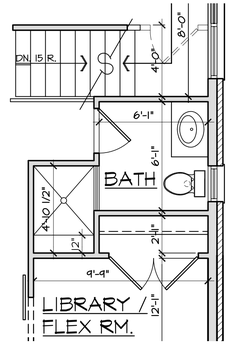


FIRST FLOOR PLAN

SCALE: 1/4" = 1'-0"

NOTE:

ALL FIRST FLOOR CEILING HEIGHTS TO BE 10'-1 1/8" HIGH UNLESS NOTED OTHERWISE.



OPT. BATH

SCALE: 1/4" = 1'-0"

ALL DOOR NUMBERS REFER TO GENERIC SIZES (NO SPECIFIC MANUFACTURER)
EXAMPLE:
3080 = 3'-0" X 8'-0"

ALL WINDOW NUMBERS REFER TO GENERIC SIZES (NO SPECIFIC MANUFACTURER)
EXAMPLE:
2040-2 = 2'-0" X 4'-0", 2-WIDE WINDOW UNIT

SQUARE FOOTAGE

1ST FLOOR = 1433 SQUARE FEET
2ND FLOOR = 1628 SQUARE FEET
TOTAL = 3061 SQUARE FEET

FOR REVIEW
04/18/25

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI
EASTPORT VILLAGE
2-STORY PLAN

Review Set: 04/18/25
Permit:
Final Set:
Revisions:

Drwn: B.H.
Chkd:

Job No.
25xxx

Sheet No.
1 OF 2

LIFESTYLE BY DESIGN

© Copyright 2024 Dominick Tringali Architects, P.C. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



FRONT ELEVATION
SCALE: 1/4" = 1'-0"

FOR REVIEW
04/18/25

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI
EASTPORT VILLAGE
2-STORY PLAN

Review Set: 04/18/25
Permit:
Final Set:
Revisions:

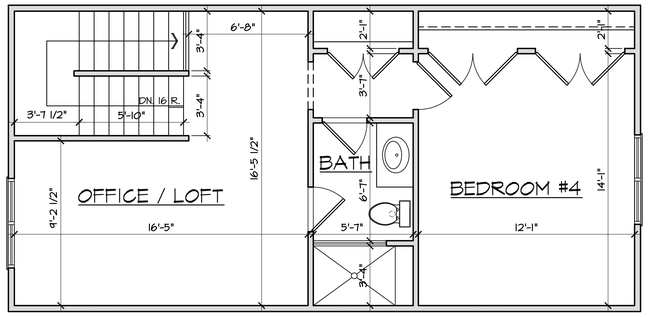
Drwn: B.H.
Chkd:

Job No.
25xxx

Sheet No.
2 OF 2

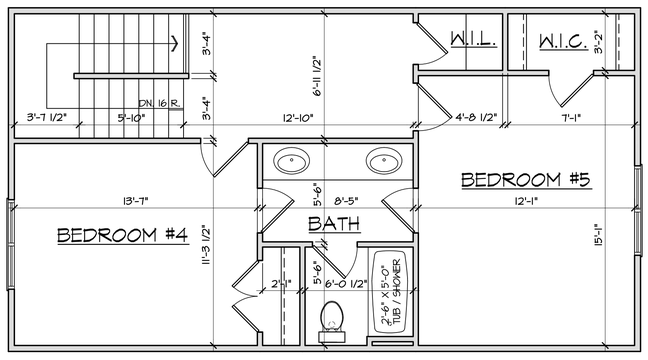
LIFESTYLE BY DESIGN

© Copyright 2024 Dominick Tringali Architects, AIA expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



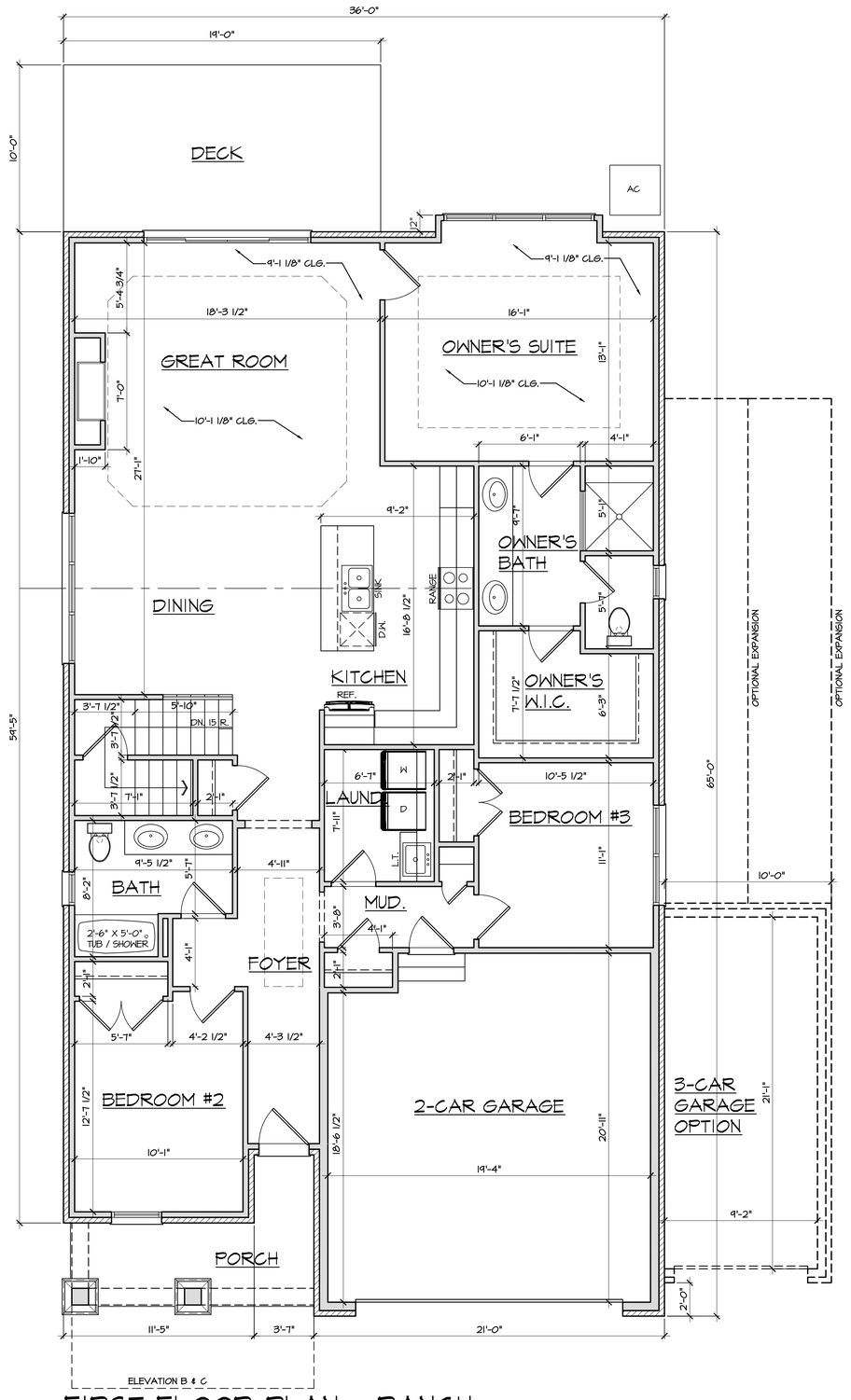
1 BED OPT. SECOND FLOOR PLAN - RANCH

SCALE: 1/4" = 1'-0"



2 BED OPT. SECOND FLOOR PLAN - RANCH

SCALE: 1/4" = 1'-0"



FIRST FLOOR PLAN - RANCH

SCALE: 1/4" = 1'-0"

FOR REVIEW
04/18/25

ALL WINDOW NUMBERS REFER TO GENERIC SIZES (NO SPECIFIC MANUFACTURER)
EXAMPLE:
2040-2 = 2'-0" X 4'-0", 2-WIDE WINDOW UNIT

ALL DOOR NUMBERS REFER TO GENERIC SIZES (NO SPECIFIC MANUFACTURER)
EXAMPLE:
3080 = 3'-0" X 8'-0"

NOTE:
ALL FIRST FLOOR CEILING HEIGHTS TO BE 9'-1 1/8" HIGH UNLESS NOTED OTHERWISE.

SQUARE FOOTAGE

1ST FLOOR = 1805 SQUARE FEET
2ND FLOOR 1 BED OPT. = 534 SQUARE FEET
2ND FLOOR 2 BED OPT. = 607 SQUARE FEET

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI
EASTPORT VILLAGE
RANCH

Review Set: 04/18/25
Permit:
Final Set:
Revisions:

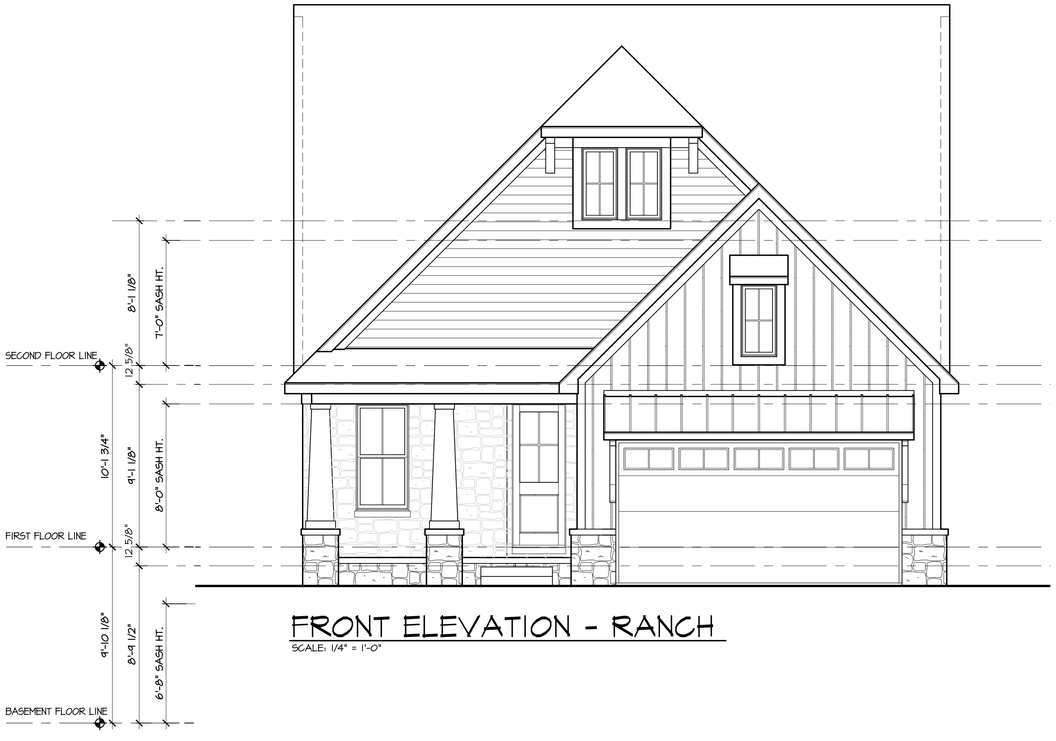
Drwn: B.H.
Chkd:

Job No. 25XXX

Sheet No. 1 OF 2

LIFESTYLE BY DESIGN

© Copyright 2024 Dominick Tringali Architects, P.C. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



FRONT ELEVATION - RANCH

SCALE: 1/4" = 1'-0"

FOR REVIEW
04/18/25

MOCERI
STRUCTURE · INTEGRITY · TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI
EASTPORT VILLAGE
RANCH

Review Set: 04/18/25
Permit:
Final Set:
Revisions:

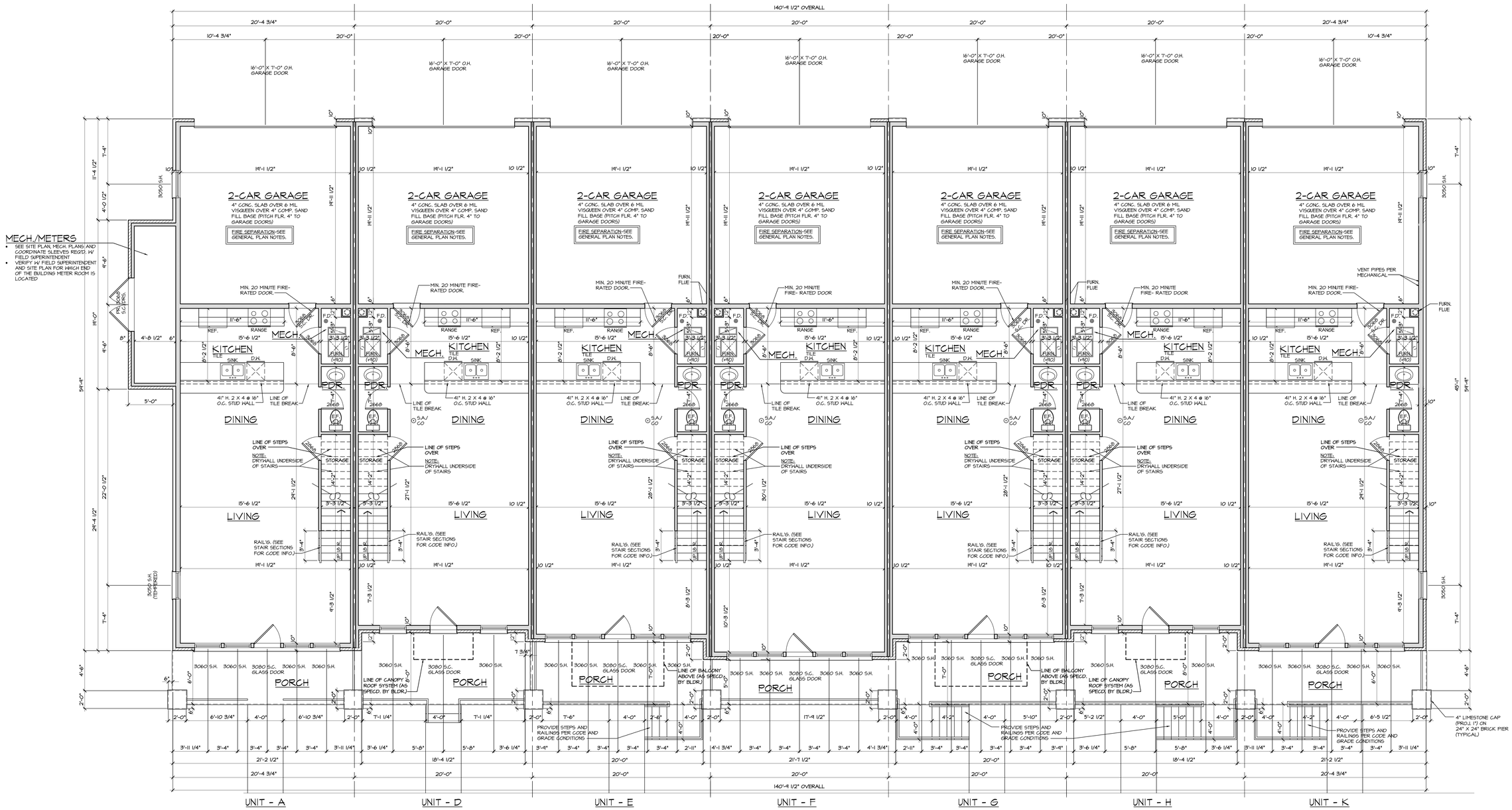
Drwn: B.H.
Chkd:

Job No.
25XXX

Sheet No.
6 OF 2

LIFESTYLE BY DESIGN

© Copyright 2024 Dominick Tringali Architects, P.C. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



FIRST FLOOR PLAN - 7 PLEX

SCALE: 3/16" = 1'-0"

SQUARE FOOTAGE
1ST FLOOR = 744 SQUARE FEET
2ND FLOOR = #### SQUARE FEET
TOTAL = XXXX SQUARE FEET

SQUARE FOOTAGE
1ST FLOOR = 738 SQUARE FEET
2ND FLOOR = #### SQUARE FEET
TOTAL = XXXX SQUARE FEET

SQUARE FOOTAGE
1ST FLOOR = 758 SQUARE FEET
2ND FLOOR = #### SQUARE FEET
TOTAL = XXXX SQUARE FEET

SQUARE FOOTAGE
1ST FLOOR = 748 SQUARE FEET
2ND FLOOR = #### SQUARE FEET
TOTAL = XXXX SQUARE FEET

SQUARE FOOTAGE
1ST FLOOR = 758 SQUARE FEET
2ND FLOOR = #### SQUARE FEET
TOTAL = XXXX SQUARE FEET

SQUARE FOOTAGE
1ST FLOOR = 738 SQUARE FEET
2ND FLOOR = #### SQUARE FEET
TOTAL = XXXX SQUARE FEET

SQUARE FOOTAGE
1ST FLOOR = 744 SQUARE FEET
2ND FLOOR = #### SQUARE FEET
TOTAL = XXXX SQUARE FEET

FOR REVIEW
04/18/25

ALL WINDOW NUMBERS REFER TO GENERIC SIZES (NO SPECIFIC MANUFACTURER)
EXAMPLE:
2040-2 = 2'-0" X 4'-0", 2-HIDE WINDOW UNIT

ALL DOOR NUMBERS REFER TO GENERIC SIZES (NO SPECIFIC MANUFACTURER)
EXAMPLE:
3080 = 3'-0" X 8'-0"

MOCERI
STRUCTURE · INTEGRITY · TRADITION®
DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTarchitects.com

MOCERI
EASTPORT VILLAGE
2-STORY T-PLEX

Review Set: 04/18/25
Permit:
Final Set:
Revisions:

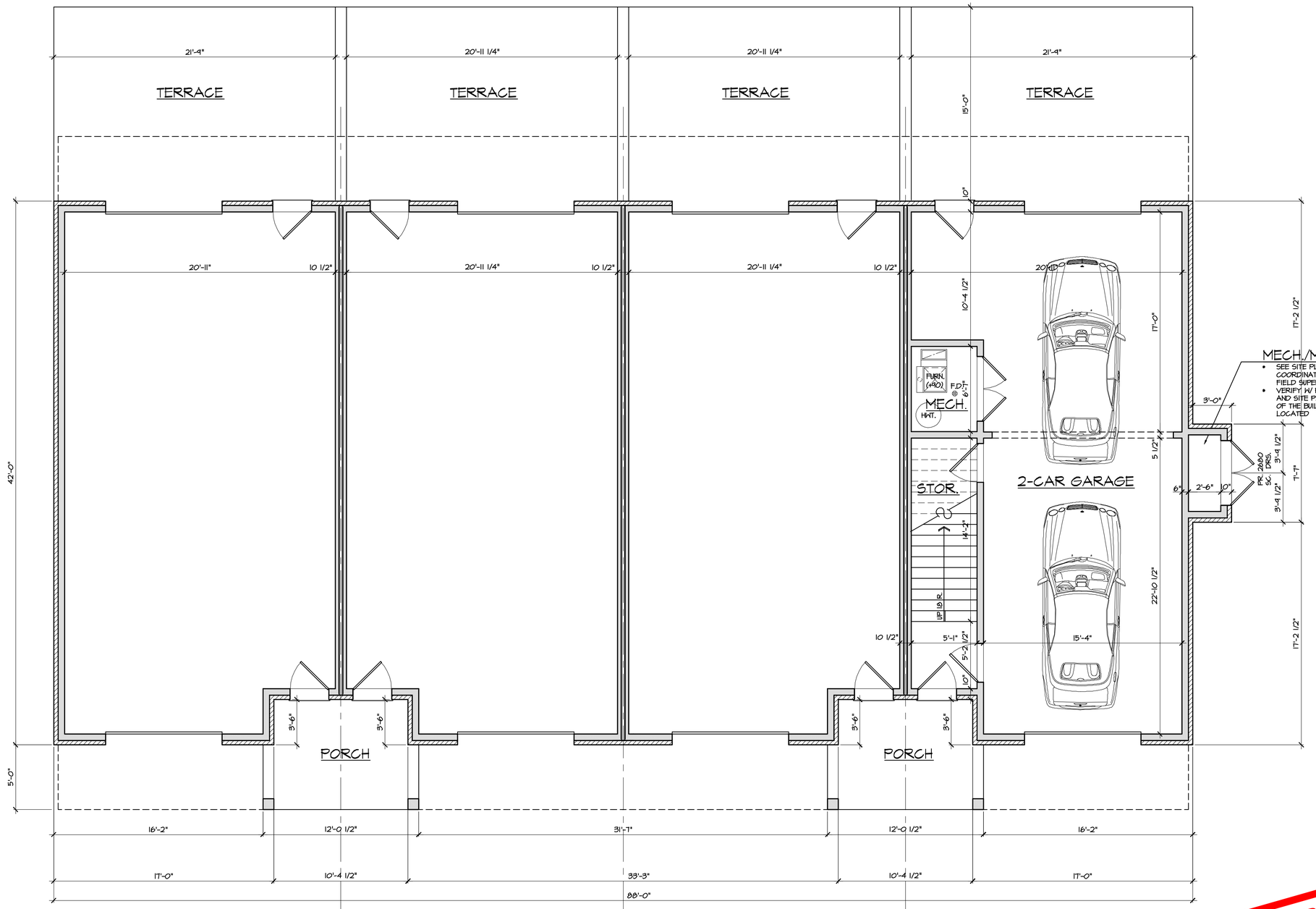
Drwn: B.H.
Chkd:

Job No. 25007

Sheet No. 2 OF 10

LIFESTYLE BY DESIGN

© Copyright 2024 Dominick Tringali Architects, P.C. expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



FIRST FLOOR PLAN

SCALE: 1/4" = 1'-0"

NOTE:
ALL FIRST FLOOR CEILING HEIGHTS TO BE 10'-1 1/8" HIGH UNLESS NOTED OTHERWISE.

FOR REVIEW
03/28/25

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI
EASTPORT VILLAGE
4-PLEX

Review Set: 03/28/25
Permit:
Final Set:
Revisions:

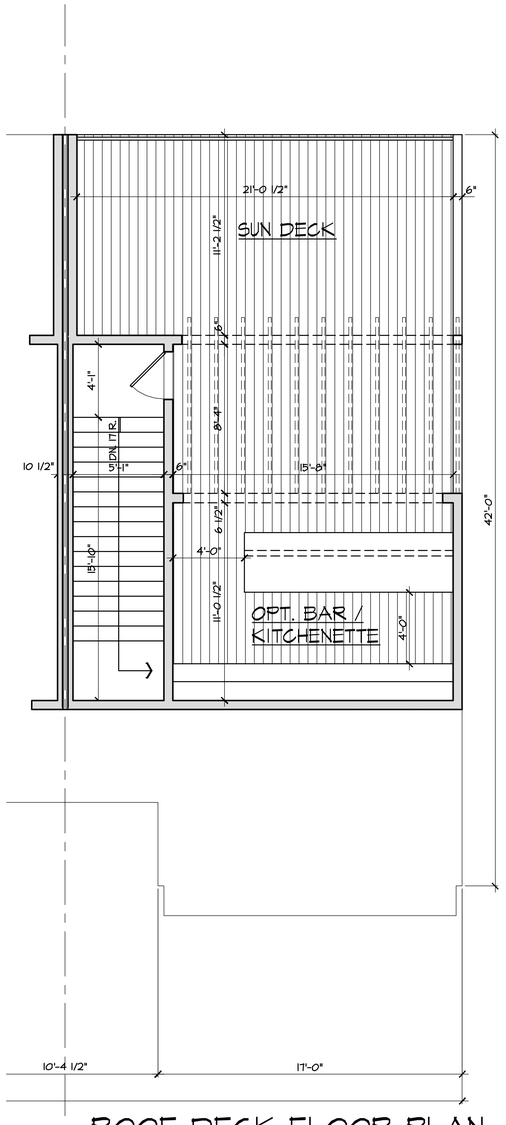
Drwn: B.H.
Chkd:

Job No. 25008

Sheet No. 1 OF 2

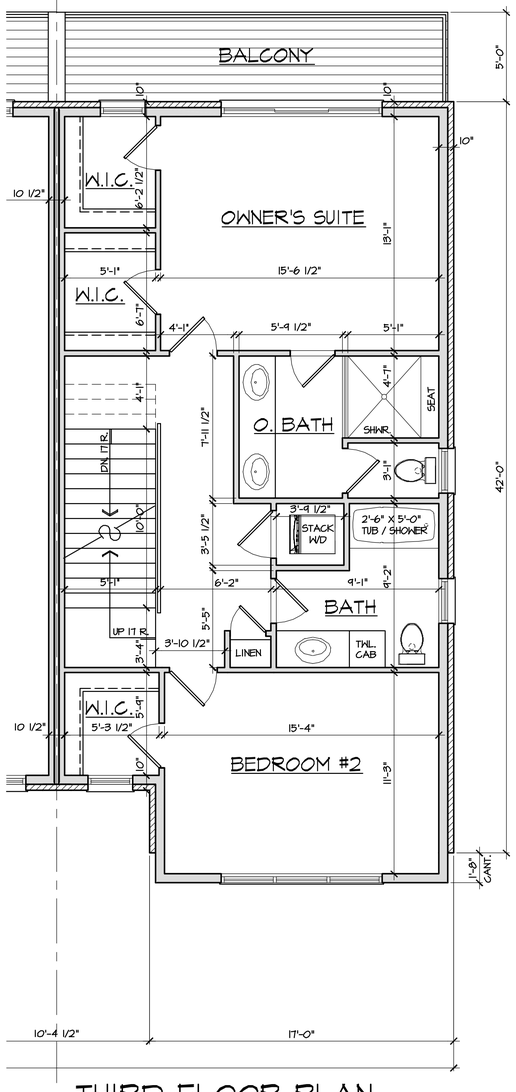
LIFESTYLE BY DESIGN

© Copyright 2024 Dominick Tringali expressly reserves its common law copyright and other property rights in these plans. These plans are not to be reproduced, changed or copied in any form or manner whatsoever. Nor are they to be assigned to any third party without first obtaining the express written permission and consent of Dominick Tringali Architects.



ROOF DECK FLOOR PLAN

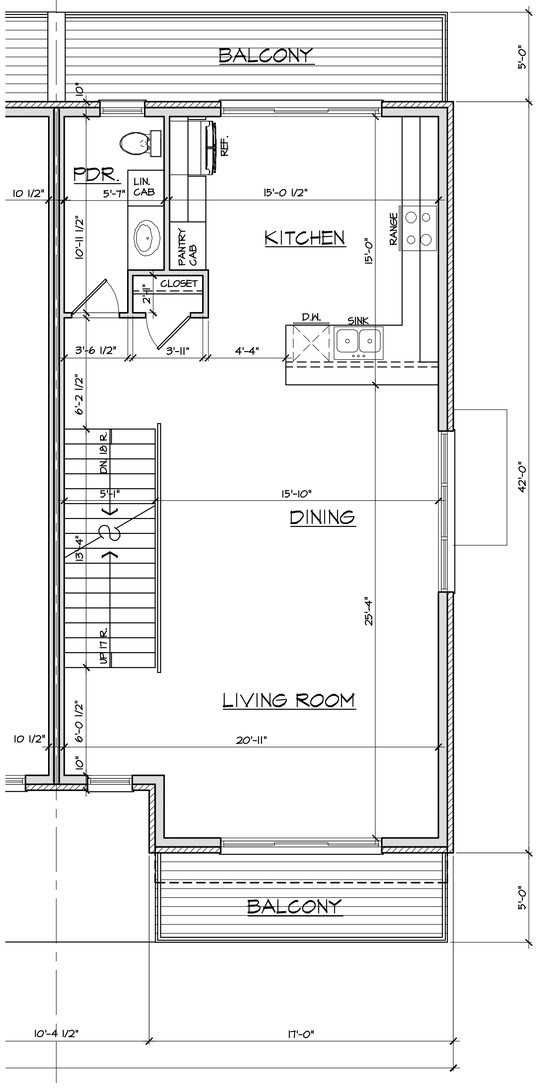
SCALE: 1/4" = 1'-0"



THIRD FLOOR PLAN

SCALE: 1/4" = 1'-0"

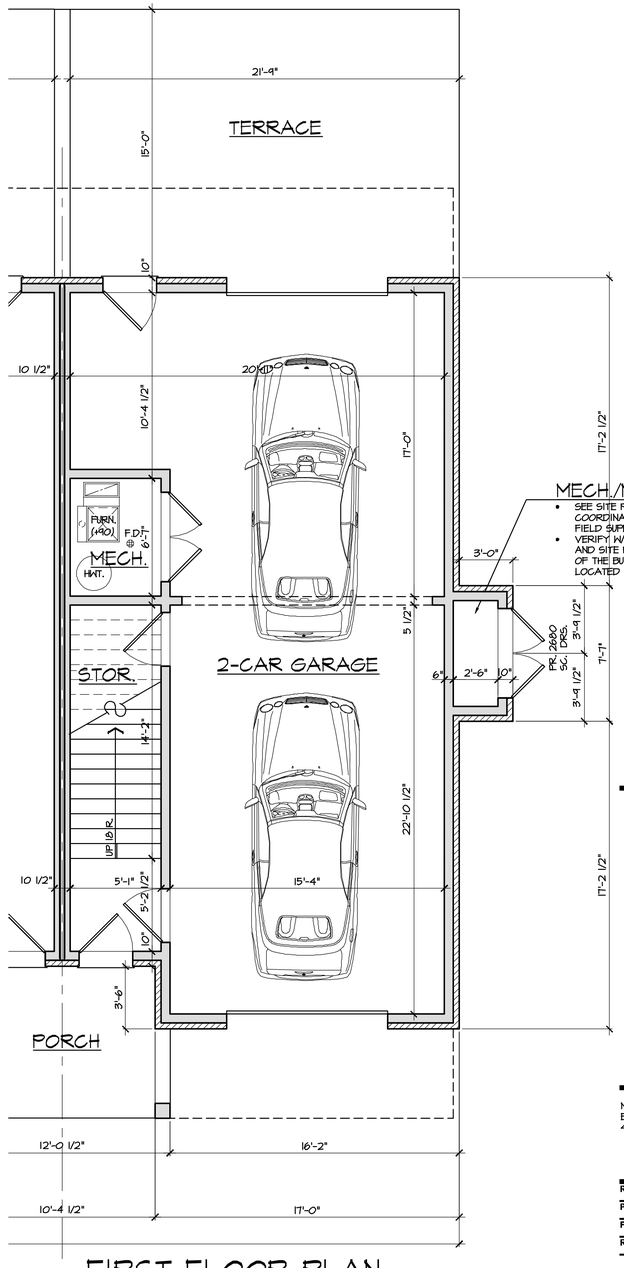
NOTE:
ALL THIRD FLOOR CEILING HEIGHTS TO BE 9'-1 1/8" HIGH UNLESS NOTED OTHERWISE.



SECOND FLOOR PLAN

SCALE: 1/4" = 1'-0"

NOTE:
ALL SECOND FLOOR CEILING HEIGHTS TO BE 9'-1 1/8" HIGH UNLESS NOTED OTHERWISE.



FIRST FLOOR PLAN

SCALE: 1/4" = 1'-0"

NOTE:
ALL FIRST FLOOR CEILING HEIGHTS TO BE 10'-1 1/8" HIGH UNLESS NOTED OTHERWISE.

MECH./METERS

- SEE SITE PLAN, MECH. PLANS AND COORDINATE SLEEVES REQ'D. W/ FIELD SUPERINTENDENT
- VERIFY W/ FIELD SUPERINTENDENT AND SITE PLAN FOR WHICH END OF THE BUILDING METER ROOM IS LOCATED

FOR REVIEW
03/28/25

SQUARE FOOTAGE

1ST FLOOR = NO LIVING SQUARE FEET
2ND FLOOR = 914 SQUARE FEET
3RD FLOOR = 941 SQUARE FEET
TOTAL = 1855 SQUARE FEET
ROOF DECK = 587 SQUARE FEET

MOCERI
STRUCTURE·INTEGRITY·TRADITION®

DOMINICK TRINGALI ARCHITECTS
3005 University Suite 100
Auburn Hills MI 48326
Tel 248 340 9400
www.DTArchitects.com

MOCERI
EASTPORT VILLAGE
4-PLEX

Review Set: 03/28/25
Permit:
Final Set:
Revisions:

Drwn: B.H.
Chkd:

Job No. 25008

Sheet No. 2 OF 2

LIFESTYLE BY DESIGN



ANDERSON, ECKSTEIN AND WESTRICK, INC.
CIVIL ENGINEERS SURVEYORS ARCHITECTS
51301 Schoenherr Road
Shelby Township
Michigan 48315
Phone 586 726 1234
Fax 586 726 8780
www.aewinc.com
ENGINEERING STRONG COMMUNITIES

DATE	SUBMITTALS/REVISIONS

PROJECT NAME:

EASTPORT VILLAGE

SHEET TITLE:

TREE SURVEY

CLIENT:

MOCERI COMPANIES

■ PRELIMINARY ☐ CONSTRUCTION ☐ RECORD

DRAWN BY:	CHECKED BY:	DATE:
RO	SVP	MARCH 2025

SCALE:

1" = 40'

0 20 40 80

Know what's below. Call 72 hours before you dig.

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES (IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS) SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

PROJECT NO.

0361-0078

M:\0361\0361-0078\DWG\CIVIL\00_TREE_SURVEY.DWG
01_Tree_Survey--3/7/2025 12:12:09 PM

SHEET NO.

1

COPYRIGHT, 2022, ANDERSON, ECKSTEIN AND WESTRICK, INC.

Tag	Scientific Name	Common Name	Diameter at Breast Height			Landmark	Condition	Status	Regulated Replacements	Landmark DBH Replacement	Offsite
			Trunk 1	Trunk 2	Trunk 3						
1	Gleditsia triacanthos	Honey locust	21.8	16.1	6.3		Poor	Building			
2	Fraxinus pennsylvanica	Green ash	14.3				Poor	Building			
3	Taxodium distichum	Bald cypress	22.0				Fair	Sidewalk			
4	Acer negundo	Box elder	4.9				Poor	Sidewalk			
5	Juglans nigra	Black walnut	5.0				Fair	Pavement			
6	Juglans nigra	Black walnut	4.7				Fair	Pavement			
7	Juglans nigra	Black walnut	5.4				Poor	Utility			
8	Acer negundo	Box elder	8.1				Poor				
9	Acer negundo	Box elder	9.5	8.9			Fair				
10	Juglans nigra	Black walnut	7.3				Fair				
11	Acer negundo	Box elder	5.5				Fair				
12	Acer negundo	Box elder	8.2				Fair				
13	Acer negundo	Box elder	12.3				Fair				
14	Acer negundo	Box elder	12.4				Fair				
15	Acer negundo	Box elder	7.5				Fair				
16	Juglans nigra	Black walnut	7.6				Fair				
17	Acer negundo	Box elder	9.3	8.5	8.0		Fair				
18	Acer negundo	Box elder	9.2				Fair				
19	Acer negundo	Box elder	4.8				Poor				
20	Picea abies	Norway spruce	4.5				Fair				
21	Fraxinus americana	White Ash	14.2	10.4			Fair				
22	Picea abies	Norway spruce	10.4				Fair				
23	Picea abies	Norway spruce	4.9				Poor				
24	Tsuga mertensiana	Mountain hemlock	8.3				Fair				
25	Tsuga mertensiana	Mountain hemlock	4.6				Fair				
26	Pseudotsuga menzesii	Douglas fir	10.7				Fair				
27	Acer negundo	Box elder	6.0				Fair				
28	Pseudotsuga menzesii	Common Douglas-fir	7.2				Fair				
29	Acer negundo	Box elder	8.6				Poor				
30	Pseudotsuga menzesii	Douglas fir	9.4				Fair				
31	Pseudotsuga menzesii	Douglas fir	6.4				Very Poor				
32	Pseudotsuga menzesii	Douglas fir	5.3				Very Poor				
33	Pseudotsuga menzesii	Douglas fir	7.6				Fair				
34	Pseudotsuga menzesii	Douglas fir	5.9				Fair				
35	Pseudotsuga menzesii	Douglas fir	9.4				Poor				
36	Acer negundo	Box elder	5.8				Fair				
37	Acer negundo	Box elder	7.2				Fair				
38	Acer negundo	Box elder	6.4				Fair				
39	Acer negundo	Box elder	4.2				Fair				
40	Acer negundo	Box elder	6.8				Poor				
41	Acer negundo	Box elder	8.5	7.6	6.0		Fair				
42	Acer negundo	Box elder	6.7				Fair				
43	Acer negundo	Box elder	10.2				Fair				
44	Pseudotsuga menzesii	Douglas fir	13.7				Fair				
45	Pseudotsuga menzesii	Douglas fir	10.7				Poor				
46	Pseudotsuga menzesii	Douglas fir	10.4				Fair				
47	Pseudotsuga menzesii	Douglas fir	9.1				Very Poor				
48	Pseudotsuga menzesii	Douglas fir	10.8				Fair				
49	Acer negundo	Box elder	5.1				Poor				
50	Acer negundo	Box elder	5.2				Poor				
51	Acer negundo	Box elder	5.2				Fair				
52	Acer negundo	Box elder	4.2				Fair				
53	Acer platanoides	Norway maple	5.9				Fair				
54	Salix nigra	Black willow	22.1				Very Poor				
55	Ulmus americana	American elm	9.8				Poor				
56	Acer negundo	Box elder	5.6				Fair				
57	Acer negundo	Box elder	5.4				Poor				
58	Acer negundo	Box elder	9.5				Poor				
59	Acer negundo	Box elder	5.9				Fair				
60	Acer negundo	Box elder	4.7				Very Poor				
61	Juglans nigra	Black walnut	13.4				Fair				
62	Acer negundo	Box elder	8.1				Poor				
63	Acer negundo	Box elder	5.1				Fair				
64	Acer negundo	Box elder	7.1				Very Poor				
65	Acer platanoides	Norway maple	6.8				Fair				
66	Acer negundo	Box elder	5.4				Poor				
67	Acer negundo	Box elder	12.3				Very Poor				
68	Acer negundo	Box elder	11.4				Fair				
69	Acer negundo	Box elder	11.8				Very Poor				
70	Prunus serotina	Black cherry	6.6				Poor				
71	Populus deltoides	Eastern cottonwood	28.3				Fair				
72	Acer negundo	Box elder	9.7				Fair				
73	Acer platanoides	Norway maple	6.0				Fair				
74	Acer negundo	Box elder	13.4				Poor				
75	Acer negundo	Box elder	6.0				Poor				
76	Acer negundo	Box elder	11.1				Fair				
77	Acer negundo	Box elder	8.3				Fair				
78	Acer negundo	Box elder	5.1				Poor				
79	Ailanthus altissima	Tree of Heaven	5.4				Fair				
80	Ailanthus altissima	Tree of Heaven	7.5				Fair				
81	Ailanthus altissima	Tree of Heaven	5.6				Fair				
82	Ailanthus altissima	Tree of Heaven	4.4				Fair				
83	Ailanthus altissima	Tree of Heaven	7.8				Poor				
84	Acer negundo	Box elder	12.2				Fair				
85	Ailanthus altissima	Tree of Heaven	5.2				Fair				
86	Ailanthus altissima	Tree of Heaven	6.7	5.1			Fair				
87	Ailanthus altissima	Tree of Heaven	7.2				Fair				
88	Ailanthus altissima	Tree of Heaven	5.2	5.1			Fair				
89	Ailanthus altissima	Tree of Heaven	4.6				Fair				
90	Ailanthus altissima	Tree of Heaven	5.4				Fair				
91	Ailanthus altissima	Tree of Heaven	10.3				Fair				
92	Ailanthus altissima	Tree of Heaven	5.9				Fair				
93	Ailanthus altissima	Tree of Heaven	7.3				Fair				
94	Ailanthus altissima	Tree of Heaven	11.9				Fair				
95	Ailanthus altissima	Tree of Heaven	7.7				Fair				
96	Robinia pseudoacacia	Black locust	6.1				Fair				
97	Robinia pseudoacacia	Black locust	8.3				Fair				
98	Robinia pseudoacacia	Black locust	5.1				Very Poor				
99	Juglans nigra	Black walnut	4.2				Fair				
100	Acer negundo	Box elder	5.6				Fair				
101	Acer negundo	Box elder	10.0				Fair				
102	Acer negundo	Box elder	6.3				Poor				
103	Acer negundo	Box elder	8.1				Poor				
104	Acer negundo	Box elder	4.9				Fair				
105	Acer negundo	Box elder	5.6				Fair				
106	Acer negundo	Box elder	5.0				Poor				
107	Acer negundo	Box elder	5.1				Fair				
108	Acer negundo	Box elder	5.9				Fair				
109	Acer negundo	Box elder	4.0				Very Poor				
110	Acer negundo	Box elder	8.0				Fair				
111	Acer negundo	Box elder	14.3	10.1			Fair				
112	Acer negundo	Box elder	4.1				Very Poor				
113	Acer negundo	Box elder	13.3				Fair				
114	Acer negundo	Box elder	17.7				Very Poor				
115	Juglans nigra	Black walnut	10.6				Fair				
116	Juglans nigra	Black walnut	7.5				Fair				
117	Acer negundo	Box elder	17.4				Poor				
118	Prunus serotina	Black cherry	5.5				Very Poor				
119	Quercus velutina	Black oak	6.8				Poor				
120	Prunus serotina	Black cherry	7.9				Very Poor				
121	Juglans nigra	Black walnut	20.8				Fair				
122	Quercus velutina	Black oak	6.0				Poor				
123	Quercus velutina	Black oak	17.4				Fair				
124	Juglans nigra	Black walnut	18.2				Fair				
125	Cercis canadensis	Eastern redbud	4.0				Fair				
126	Acer negundo	Box elder	6.6				Very Poor				
127	Acer negundo	Box elder	5.8				Very Poor				
128	Acer negundo	Box elder	4.0				Poor				
129	Acer negundo	Box elder	4.2				Poor				
130	Acer negundo	Box elder	6.8				Poor				
131	Juglans nigra	Black walnut	12.8				Poor				
132	Ulmus americana	American elm	14.6				Fair				
133	Acer negundo	Box elder	12.1				Poor				
134	Acer negundo	Box elder	10.8	5.1			Fair				
135	Juglans nigra	Black walnut	12.2				Fair				
136	Acer negundo	Box elder	6.4				Very Poor				
137	Acer negundo	Box elder	13.3				Fair				
138	Acer negundo	Box elder	9.4				Fair				
139	Acer negundo	Box elder	5.5				Poor				
140	Acer platanoides	Norway maple	7.0	4.3			Fair				

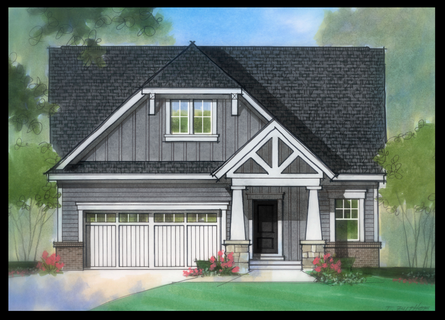
Tag	Scientific Name	Common Name	Diameter at Breast Height			Landmark	Condition	Status	Regulated Replacements	Landmark DBH Replacement	Offsite
			Trunk 1	Trunk 2	Trunk 3						
141	Acer negundo	Box elder	14.4				Fair				
142	Acer negundo	Box elder	4.6				Fair				
143	Acer negundo	Box elder	5.5				Fair				
144	Acer negundo	Box elder	8.6				Fair				
145	Acer negundo	Box elder	8.6				Poor				
146	Acer negundo	Box elder	9.2				Fair				
147	Acer negundo	Box elder	13.8				Poor				
148	Acer negundo	Box elder	10.9	7.6			Poor				
149	Juglans nigra	Black walnut	4.7				Fair				
150	Acer negundo	Box elder	8.0	5.9			Very Poor				
151	Juglans nigra	Black walnut	12.1				Fair				
152	Acer negundo	Box elder	11.6	9.5	9.2		Fair				
153	Acer negundo	Box elder	6.3				Poor				
154	Acer negundo	Box elder	5.9	4.2			Poor				
155	Acer negundo	Box elder	6.8				Fair				
156	Acer negundo	Box elder	6.0				Very Poor				
157	Acer negundo	Box elder	12.2				Poor				
158	Acer negundo	Box elder	8.4				Poor				
159	Acer negundo	Box elder	7.3				Poor				
160	Acer negundo	Box elder	13.3	8.4			Fair				
161	Acer negundo	Box elder	18.3	10.6			Fair				
162	Acer negundo	Box elder	6.5	5.9			Poor				
163	Acer negundo	Box elder	9.5	5.1			Fair				
164	Acer negundo	Box elder	4.5				Fair				
165	Acer negundo	Box elder	5.1				Fair				
166	Acer platanoides	Norway maple	7.0				Fair				
167	Acer platanoides	Norway maple	6.2				Fair				
168	Acer platanoides	Norway maple	5.2				Fair				
169	Acer negundo	Box elder	8.5				Very Poor				
170	Acer platanoides	Norway maple	10.1				Fair				
171	Acer negundo	Box elder	19.5	10.8			Fair				
172	Acer negundo	Box elder	7.8	7.6			Poor				
173	Acer negundo	Box elder	8.1				Fair				
174	Acer negundo	Box elder	7.2	5.5			Very Poor				
175	Acer negundo	Box elder	9.8				Very Poor				
176	Acer negundo	Box elder	5.7				Fair				
177	Acer negundo	Box elder	5.4				Poor				
178	Acer negundo	Box elder	7.5				Fair				
179	Acer negundo	Box elder	7.2	4.0			Poor				
180	Acer negundo	Box elder	12.1				Fair				
181	Acer negundo	Box elder	11.8				Fair				
182	Acer platanoides	Norway maple	12.8				Fair				
183	Acer negundo	Box elder	13.2				Fair				
184	Acer negundo	Box elder	7.0	7.0	6.8		Fair				
185	Acer negundo	Box elder	5.6				Poor				
186	Acer negundo	Box elder	9.5				Poor				
187	Juglans nigra	Black walnut	4.0				Fair				
188	Juglans nigra	Black walnut	5.0				Fair				
189	Quercus velutina	Black oak	6.8				Fair				
190	Ulmus americana	American elm	10.0				Fair				
191	Prunus serotina	Black cherry	11.1				Fair				
192	Quercus velutina	Black oak	15.9	11.2	9.0		Fair				
193	Quercus velutina	Black oak	11.5				Fair				
194	Quercus velutina	Black oak	27.6			X	Very Poor				
195	Quercus velutina	Black oak	7.3				Fair				
196	Juglans nigra	Black walnut	5.8				Fair				
197	Quercus velutina	Black oak	16.8	16.5	15.1		Fair				
198	Acer negundo	Box elder	5.2	4.2			Poor				
199	Quercus velutina	Black oak	11.2	10.3			Fair				
200	Juglans nigra	Black walnut	4.9				Fair				
201	Acer negundo	Box elder	6.5				Fair				
202	Pinus sylvestris	Scotts Pine	11.0				Very Poor				
203	Pinus sylvestris	Scotts Pine	15.3				Fair				
204	Pinus resinosa	Red pine	13.7				Fair				
205	Pinus resinosa	Red pine	14.7				Fair				
206	Acer negundo	Box elder	5.9				Fair				
207	Pinus sylvestris	Scotts Pine	11.7				Poor				
208	Pinus resinosa	Red pine	15.5				Fair				
209	Pinus resinosa	Red pine	14.2				Fair				
210	Pinus resinosa	Red pine	14.1				Fair				
211	Ulmus americana	American elm	5.1				Fair				
212	Pinus resinosa	Red pine	12.5				Fair				
213	Pinus sylvestris	Scotts Pine	9.3				Fair				
214	Acer negundo	Box elder	5.5				Fair				
215	Pinus sylvestris	Scotts Pine	9.9				Fair				
216	Pinus resinosa	Red pine	6.6				Very Poor				
217	Pinus resinosa	Red pine	13.0				Poor				
218	Pinus resinosa	Red pine	12.1				Poor				
219	Acer negundo	Box elder	27.7				Very Poor				
220	Pinus resinosa	Red pine	13.9				Fair				
221	Pinus resinosa	Red pine	16.1				Fair				
222	Acer negundo	Box elder	4.3				Poor				
223	Quercus alba	White oak	8.1				Fair				
224	Pinus resinosa	Red pine	9.1				Fair				
225	Pinus resinosa	Red pine	17.5				Fair				
226	Acer negundo	Box elder	4.0				Fair				
227	Acer negundo	Box elder	4.2				Fair				
228	Populus deltoides	Eastern cottonwood	6.2				Fair				
229	Acer negundo	Box elder	7.7				Fair				
230	Acer negundo	Box elder	8.0				Fair				
231	Picea abies	Norway spruce	4.9				Fair				
232	Quercus velutina	Black oak	15.2	10.4			Fair				
233	Populus deltoides	Eastern cottonwood	4.5				Fair				
234	Populus deltoides	Eastern cottonwood	4.0				Fair				
235	Populus deltoides	Eastern cottonwood	4.5				Fair				
236	Populus deltoides	Eastern cottonwood	5.0				Fair				
237	Ulmus americana	American elm	7.0				Fair				
238	Malus pumila	Cultivated apple	4.1				Poor				
239	Malus pumila	Cultivated apple	5.4				Poor				
240	Populus deltoides	Eastern cottonwood	5.6				Fair				
241	Populus deltoides	Eastern cottonwood	7.7				Fair				
242	Acer negundo	Box elder	4.8				Fair				
243	Pinus resinosa	Red pine	11.7				Fair				
244	Pinus resinosa	Red pine	15.0				Fair				
245	Acer rubrum	Red maple	5.9				Fair				
246	Acer negundo	Box elder	11.5	9.5			Fair				
247	Pinus resinosa	Red pine	8.6				Poor				
248	Pinus resinosa	Red pine	16.2				Fair				
249	Pinus resinosa	Red pine	14.3				Fair				
250	Acer negundo	Box elder	8.5				Poor				
251	Acer negundo	Box elder	8.1				Fair				
252	Acer negundo	Box elder	13.3				Fair				
253	Acer platanoides	Norway maple	13.6				Fair				
254	Acer platanoides	Norway maple	12.9				Fair				
255	Acer negundo	Box elder	8.7				Fair				
256	Acer negundo	Box elder	13.7				Poor				
257	Acer negundo	Box elder	13.5				Fair				
258	Acer negundo	Box elder	9.5				Fair				
259	Ulmus americana	American elm	5.5	4.1			Fair				
260	Acer negundo	Box elder	9.1	9.0	7.7		Fair				
261	Acer negundo	Box elder	6.9	5.7			Fair				
262	Acer negundo	Box elder	8.4				Fair				
263	Acer negundo	Box elder	21.1				Poor				
264	Acer negundo	Box elder	9.1				Fair				
265	Acer negundo	Box elder	5.1				Fair				
266	Acer negundo	Box elder	8.3				Fair				
267	Acer negundo	Box elder	6.8				Fair				
268	Acer platanoides	Norway maple	4.6	4.1			Fair				
269	Acer negundo	Box elder	5.8				Fair				
270	Acer negundo	Box elder	9.0				Fair				
271	Acer negundo	Box elder	6.7				Poor				
272	Acer negundo	Box elder	4.2				Fair				
273	Acer negundo	Box elder	5.6				Poor				
274	Ulmus americana	American elm	16.7				Very Poor				
275	Acer negundo	Box elder	7.4				Fair				
276	Acer negundo	Box elder	12.1	6.4			Fair				
277	Acer negundo	Box elder	8.1				Poor				
278	Acer negundo	Box elder	5.7				Very Poor				
279	Acer negundo	Box elder	6.8				Poor				
280	Robinia pseudoacacia	Black locust	36.0			X	Fair				

Tag	Scientific Name	Common Name	Diameter at Breast Height			Landmark	Condition	Status	Regulated Replacements	Landmark DBH Replacement	Offsite
			Trunk 1	Trunk 2	Trunk 3						
281	Acer negundo	Box elder	4.1				Poor				
282	Acer negundo	Box elder	5.7				Poor				
283	Acer negundo	Box elder	5.0				Poor				
284	Acer platanoides	Norway maple	4.0				Fair				
285	Acer negundo	Box elder	6.0				Fair				
286	Acer negundo	Box elder	8.0				Poor				
287	Acer platanoides	Norway maple	5.3				Poor				
288	Ulmus pumila	Siberian elm	19.9				Fair				
289	Acer negundo	Box elder	11.5				Fair				
290	Acer negundo	Box elder	5.3				Fair				
291	Acer negundo	Box elder	4.5				Very Poor				
292	Robinia pseudoacacia	Black locust	15.6				Fair				
293	Acer negundo	Box elder	4.3				Poor				
294	Acer negundo	Box elder	6.8				Poor				
295	Robinia pseudoacacia	Black locust	7.6				Poor				
296	Acer negundo	Box elder	5.9				Fair				
297	Acer negundo	Box elder	4.0				Fair				
298	Acer negundo	Box elder	6.0				Fair				
299	Acer negundo	Box elder	5.3				Fair				
300	Acer negundo	Box elder	10.4				Fair				
301	Robinia pseudoacacia	Black locust	5.7				Poor				
302	Robinia pseudoacacia	Black locust	17.0	12.8			Fair				
303	Robinia pseudoacacia	Black locust	27.8				Poor				
304	Robinia pseudoacacia	Black locust	14.0				Fair				
305	Acer negundo	Box elder	11.6				Poor				
306	Robinia pseudoacacia	Black locust	9.3				Fair				
307	Robinia pseudoacacia	Black locust	8.5				Very Poor				
308	Robinia pseudoacacia	Black locust	6.4				Poor				
309	Robinia pseudoacacia	Black locust	11.3	8.9			Fair				
310	Robinia pseudoacacia	Black locust	16.8				Very Poor				
311	Robinia pseudoacacia	Black locust	13.3				Fair				
312	Robinia pseudoacacia	Black locust	17.8				Fair				
313	Robinia pseudoacacia	Black locust	13.8				Poor				
314	Acer negundo	Box elder	5.6				Fair				
315	Acer negundo	Box elder	4.5				Fair				
316	Acer negundo	Box elder	6.2				Fair				
317	Acer negundo	Box elder	6.0				Excellent				
318	Acer negundo	Box elder	9.8	5.0			Fair				
319	Acer negundo	Box elder	8.6				Poor				
320	Ulmus pumila	Siberian elm	32.3				Poor				
321	Acer negundo	Box elder	5.1				Fair				
322	Acer negundo	Box elder	5.9				Fair				
323	Acer negundo	Box elder	5.3				Poor				
324	Acer negundo	Box elder	5.8				Fair				
325	Acer negundo	Box elder	7.2				Fair				
326	Acer negundo	Box elder	4.9	4.3			Poor				
327	Robinia pseudoacacia	Black locust	11.8				Very Poor				
328	Acer negundo	Box elder	4.8				Poor				
329	Robinia pseudoacacia	Black locust	29.4				Poor				
330	Acer negundo	Box elder	4.6				Poor				
331	Pseudotsuga menzesii	Douglas fir	28.4				Poor				
332	Ulmus pumila	Siberian elm	17.7	13.1			Poor				
333	Acer negundo	Box elder	7.5				Poor				
334	Acer rubrum	Red maple	14.2				Fair				
335	Ulmus pumila	Siberian elm	15.3				Poor				
336	Malus pumila	Cultivated apple	6.1				Poor				
337	Taxus cuspidata	Japanese yew	4.0				Fair				
338	Ulmus pumila	Siberian elm	18.5				Very Poor				
339	Acer negundo	Box elder	7.5				Very Poor				
340	Robinia pseudoacacia	Black locust	13.1				Poor				
341	Robinia pseudoacacia	Black locust	14.0				Fair				
342	Acer negundo	Box elder	6.8				Poor				
343	Robinia pseudoacacia	Black locust	7.0				Very Poor				
344	Acer negundo	Box elder	7.4				Fair				
345	Robinia pseudoacacia	Black locust	17.1				Fair				
346	Robinia pseudoacacia	Black locust	20.8				Fair				
347	Robinia pseudoacacia	Black locust	23.1				Fair				
348	Robinia pseudoacacia	Black locust	10.1				Fair				
349	Acer negundo	Box elder	6.0				Poor				
350	Robinia pseudoacacia	Black locust	6.4				Very Poor				
351	Acer negundo	Box elder	4.7				Fair				
352	Acer negundo	Box elder	5.0				Very Poor				
353	Acer negundo	Box elder	8.1				Poor				
354	Ulmus pumila	Siberian elm	17.5	15.4			Fair				
355	Ulmus pumila	Siberian elm	15.1				Fair				
356	Acer saccharinum	Silver maple	19.6	18.5	15.1		Fair				
357	Robinia pseudoacacia	Black locust	25.8				Poor				
358	Acer negundo	Box elder	4.0				Poor				
359	Acer negundo	Box elder	7.0				Very Poor				
360	Taxus cuspidata	Japanese yew	6.2				Fair				
361	Robinia pseudoacacia	Black locust	20.8	18.4	12.0		Fair				
362	Acer negundo	Box elder	6.0				Very Poor				
363	Ulmus pumila	Siberian elm	17.8				Fair				
364	Thuja occidentalis	Northern white cedar	8.0	7.4			Fair				
365	Acer negundo	Box elder	4.2				Poor				
366	Acer negundo	Box elder	5.1				Poor				
367	Acer negundo	Box elder	20.5				Very Poor				
368	Acer negundo	Box elder	8.3				Fair				
369	Acer negundo	Box elder	8.5				Very Poor				
370	Acer negundo	Box elder	21.5				Fair				
371	Acer negundo	Box elder	16.9				Fair				
372	Acer negundo	Box elder	5.5	4.5			Poor				
373	Acer negundo	Box elder	7.0				Poor				
374	Acer negundo	Box elder	7.2				Poor				
375	Acer negundo	Box elder	39.5			X	Fair				
376	Acer negundo	Box elder	7.3				Very Poor				
377	Acer negundo	Box elder	17.3				Fair				
378	Acer negundo	Box elder	15.3	6.0			Fair				
379	Acer negundo	Box elder	14.5				Fair				
380	Acer negundo	Box elder	11.2				Fair				
381	Acer negundo	Box elder	11.4	9.5			Poor				
382	Acer negundo	Box elder	14.8				Fair				
383	Quercus bicolor	Swamp white oak	17.1				Poor				
384	Acer negundo	Box elder	5.4				Poor				
385	Acer negundo	Box elder	4.7				Poor				
386	Acer negundo	Box elder	13.6	7.8			Poor				
387	Acer saccharinum	Silver maple	22.0				Fair				
388	Acer saccharinum	Silver maple	7.3				Fair				
389	Acer negundo	Box elder	6.6				Very Poor				
390	Acer negundo	Box elder	13.2				Poor				
391	Salix nigra	Black willow	17.6	16.9			Fair				
392	Ulmus americana	American elm	7.5				Fair				
393	Acer negundo	Box elder	6.7				Poor				
394	Acer negundo	Box elder	8.8				Poor				
395	Acer negundo	Box elder	6.5				Poor				
396	Acer negundo	Box elder	7.7				Fair				
397	Acer negundo	Box elder	15.4				Poor				
398	Acer negundo	Box elder	8.5				Poor				
399	Acer negundo	Box elder	6.0				Very Poor				
400	Ulmus americana	American elm	20.8				Fair				
401	Acer negundo	Box elder	5.5				Fair				
402	Pinus sylvestris	Scotts Pine	12.6				Fair				
403	Pinus sylvestris	Scotts Pine	9.2				Very Poor				
404	Pinus resinosa	Red pine	11.0				Fair				
405	Pinus resinosa	Red pine	16.8				Fair				
406	Pinus resinosa	Red pine	9.9				Fair				
407	Pinus resinosa	Red pine	16.5				Fair				
408	Pinus resinosa	Red pine	10.6				Poor				
409	Pinus resinosa	Red pine	17.2				Fair				
410	Ulmus americana	American elm	7.5				Fair				
411	Ulmus americana	American elm	4.5				Poor				
412	Quercus velutina	Black oak	33.9			X	Fair				
413	Quercus velutina	Black oak	23.6			

Tag	Scientific Name	Common Name	Diameter at Breast Height			Landmark	Condition	Status	Regulated Replacements	Landmark DBH Replacement	Offsite
			Trunk 1	Trunk 2	Trunk 3						
561	Pinus resinosa	Red pine	14.0				Poor				
562	Acer negundo	Box elder	6.5				Poor				
563	Acer negundo	Box elder	4.5				Very Poor				
564	Quercus velutina	Black oak	17.4				Poor				
565	Acer negundo	Box elder	8.7				Poor				
566	Ulmus americana	American elm	9.3				Very Poor				
567	Quercus macrocarpa	Bur oak	7.7				Fair				
568	Pinus sylvestris	Scotts Pine	18.3				Poor				
569	Pinus resinosa	Red pine	15.1				Fair				
570	Quercus velutina	Black oak	30			X	Fair				
571	Ulmus americana	American elm	4.8				Poor				
572	Acer negundo	Box elder	5.3				Very Poor				
573	Acer negundo	Box elder	7.0				Poor				
574	Populus deltoides	Eastern cottonwood	61.5	21.4	10.4	X	Fair				
575	Acer negundo	Box elder	11.4	9.1	5.5		Very Poor				
576	Acer negundo	Box elder	18.5	18.0	--		Poor				
577	Acer negundo	Box elder	6.4				Poor				
578	Acer negundo	Box elder	8.7				Very Poor				
579	Acer negundo	Box elder	7.0	4.5			Very Poor				
580	Acer negundo	Box elder	5.0				Poor				
581	Quercus bicolor	Swamp white oak	12.5				Poor				
582	Acer negundo	Box elder	5.2				Very Poor				
583	Acer negundo	Box elder	6.5	6.2			Very Poor				
584	Acer negundo	Box elder	8.5	5.8			Poor				
585	Robinia pseudoacacia	Black locust	21.9				Fair				
586	Robinia pseudoacacia	Black locust	14.5				Fair				
587	Acer negundo	Box elder	4.8				Poor				
588	Acer negundo	Box elder	9.0				Fair				
589	Robinia pseudoacacia	Black locust	12.5				Fair				
590	Robinia pseudoacacia	Black locust	14.0				Poor				
591	Acer negundo	Box elder	11.0				Very Poor				
592	Acer negundo	Box elder	8.5				Very Poor				
593	Robinia pseudoacacia	Black locust	24.7				Poor				
594	Robinia pseudoacacia	Black locust	11.0				Poor				
595	Robinia pseudoacacia	Black locust	20.5				Fair				
596	Acer negundo	Box elder	7.8				Poor				
597	Prunus serotina	Black cherry	6.2				Poor				
598	Acer saccharinum	Silver maple	20.1				Fair				
599	Acer platanoides	Norway maple	14.7				Fair				
600	Prunus serotina	Black cherry	4.8				Very Poor				
601	Robinia pseudoacacia	Black locust	26.0				Fair				
602	Robinia pseudoacacia	Black locust	16.1				Poor				
603	Robinia pseudoacacia	Black locust	21.6				Fair				
604	Acer negundo	Box elder	6.1				Poor				
605	Acer negundo	Box elder	4.5				Poor				
606	Populus deltoides	Eastern cottonwood	33.8				Fair				
607	Acer negundo	Box elder	8.5				Poor				
608	Acer negundo	Box elder	5.3				Poor				
609	Robinia pseudoacacia	Black locust	15.1				Fair				
610	Acer negundo	Box elder	6.3				Poor				
611	Robinia pseudoacacia	Black locust	12.0				Fair				
612	Prunus serotina	Black cherry	4.5				Very Poor				
613	Acer saccharinum	Silver maple	8.9				Poor				
614	Robinia pseudoacacia	Black locust	19.0				Poor				
615	Acer negundo	Box elder	6.7				Poor				
616	Acer negundo	Box elder	4.9				Poor				
617	Robinia pseudoacacia	Black locust	21.9				Poor				
618	Robinia pseudoacacia	Black locust	17.0				Poor				
619	Robinia pseudoacacia	Black locust	15.6				Poor				
620	Acer negundo	Box elder	4.9	4.4			Very Poor				
621	Robinia pseudoacacia	Black locust	18.7				Poor				
622	Robinia pseudoacacia	Black locust	21.3				Poor				
623	Robinia pseudoacacia	Black locust	20.3				Fair				
624	Acer negundo	Box elder	10.1				Poor				
625	Robinia pseudoacacia	Black locust	15.8				Poor				
626	Acer negundo	Box elder	6.1				Poor				
627	Robinia pseudoacacia	Black locust	15.6				Poor				
628	Acer negundo	Box elder	6.8				Poor				
629	Acer platanoides	Norway maple	7.1				Fair				
630	Acer saccharinum	Silver maple	8.2				Fair				
631	Robinia pseudoacacia	Black locust	29.5				Poor				
632	Acer negundo	Box elder	6.4	4.2			Poor				
633	Acer negundo	Box elder	9.7				Poor				
634	Acer negundo	Box elder	12.5	7.3			Fair				
635	Acer platanoides	Norway maple	8.5				Fair				
636	Acer platanoides	Norway maple	4.9				Fair				
637	Acer negundo	Box elder	8.1	7.4			Poor				
638	Acer negundo	Box elder	8.2	8.1	6.8		Poor				
639	Acer negundo	Box elder	7.4				Poor				
640	Acer negundo	Box elder	8.1				Poor				
641	Acer negundo	Box elder	6.7				Poor				
642	Malus pumila	Cultivated apple	4.9				Very Poor				
643	Picea glauca	White spruce	11.7				Poor				
644	Acer negundo	Box elder	4.9				Poor				
645	Acer negundo	Box elder	8.4				Poor				
646	Acer negundo	Box elder	6.1				Poor				
647	Acer negundo	Box elder	6.0				Poor				
648	Acer negundo	Box elder	7.8				Very Poor				
649	Acer negundo	Box elder	4.7				Fair				
650	Acer negundo	Box elder	7.7	6.8			Poor				
651	Acer negundo	Box elder	7.2	6.4	5.1		Poor				
652	Quercus velutina	Black oak	18.2				Poor				
653	Acer saccharinum	Silver maple	42.3			X	Fair				
654	Prunus serotina	Black cherry	11.4				Poor				
655	Acer negundo	Box elder	5.0				Very Poor				
656	Acer negundo	Box elder	6.2				Poor				
657	Ulmus americana	American elm	5.2				Fair				
658	Acer negundo	Box elder	8.3				Fair				
659	Acer negundo	Box elder	8.5	5.6			Poor				
660	Acer negundo	Box elder	11.0				Poor				
661	Juniperus virginiana	Eastern redcedar	5.2				Fair				
662	Pinus sylvestris	Scotts Pine	14.4				Fair				
663	Acer negundo	Box elder	4.4				Fair				
664	Acer negundo	Box elder	10.4				Fair				
665	Acer negundo	Box elder	7.2				Very Poor				
666	Acer negundo	Box elder	18.4				Fair				
667	Malus pumila	Cultivated apple	8.1				Fair				
668	Acer platanoides	Norway maple	9.4	8.6			Fair				
669	Juniperus virginiana	Eastern redcedar	6.9				Fair				
670	Acer negundo	Box elder	10.5	8.3			Fair				
671	Acer negundo	Box elder	7.9	6.5			Fair				
672	Acer negundo	Box elder	11.7				Fair				
673	Ulmus pumila	Siberian elm	8.9				Fair				
674	Ulmus pumila	Siberian elm	17.8				Fair				
675	Ulmus pumila	Siberian elm	31.1	10.4			Poor				
676	Juniperus virginiana	Eastern redcedar	5.4				Fair				
677	Ulmus pumila	Siberian elm	13.3	12.0	5.1		Poor				X
678	Acer negundo	Box elder	6.0	4.6			Fair				
679	Acer negundo	Box elder	4.6				Fair				
680	Acer platanoides	Norway maple	8.8				Fair				
681	Pinus sylvestris	Scotts Pine	14.7				Fair				
682	Gleditsia triacanthos	Honey locust	32.0				Very Poor				
683	Acer platanoides	Norway maple	7.7				Fair				
684	Acer negundo	Box elder	4.2	4.2			Poor				
685	Abies concolor	White fir	8.5				Fair				
686	Acer negundo	Box elder	8.7				Very Poor				
687	Juglans nigra	Black walnut	17.2				Fair				
688	Acer negundo	Box elder	20.4				Very Poor				
689	Acer negundo	Box elder	9.3	8.4			Poor				
690	Juglans nigra	Black walnut	19.0	17.0			Poor				
691	Acer negundo	Box elder	5.4	5.0			Poor				
692	Juglans nigra	Black walnut	5.1				Poor				
693	Juglans nigra	Black walnut	10.5				Fair				
694	Ulmus americana	American elm	7.4				Fair				
695	Picea glauca	White spruce	5.0				Poor				
696	Acer negundo	Box elder	8.9				Fair				
697	Acer negundo	Box elder	4.6				Poor				
698	Juglans nigra	Black walnut	17.8				Fair				
699	Quercus velutina	Black oak	32.5			X	Fair				
700	Populus deltoides	Eastern cottonwood	8.0				Poor				

Tag	Scientific Name	Common Name	Diameter at Breast Height			Landmark	Condition	Status	Regulated Replacements	Landmark DBH Replacement	Offsite
			Trunk 1	Trunk 2	Trunk 3						
701	Juglans nigra	Black walnut	14.1				Fair				
702	Juglans nigra	Black walnut	10.6				Poor				
703	Juglans nigra	Black walnut	22.8				Fair				
704	Acer negundo	Box elder	7.2	4.1			Fair				
705	Juglans nigra	Black walnut	7.5				Poor				
706	Juglans nigra	Black walnut	20.5				Fair				
707	Acer negundo	Box elder	4.0				Fair				
708	Cercis canadensis	Eastern redbud	4.5				Fair				
709	Juglans nigra	Black walnut	4.4				Fair				X
710	Acer saccharum	Sugar maple	20.1				Fair				
711	Cercis canadensis	Eastern redbud	4.4				Fair				X
712	Cercis canadensis	Eastern redbud	5.7				Fair				
713	Juglans nigra	Black walnut	6.5				Fair				
714	Quercus velutina	Black oak	19.7				Fair				
715	Acer negundo	Box elder	4.2				Fair				
716	Quercus bicolor	Swamp white oak	4.0				Fair				
717	Prunus serotina	Black cherry	4.0				Poor				X
718	Quercus velutina	Black oak	13.8				Fair				
719	Prunus serotina	Black cherry	4.6				Poor				
720	Quercus velutina	Black oak	4.8				Fair				
721	Acer rubrum	Red maple	5.2				Fair				
722	Quercus ellipsoidalis	Northern pin oak	18.1				Fair				
723	Quercus ellipsoidalis	Northern pin oak	5.5				Fair				
724	Quercus ellipsoidalis	Northern pin oak	5.6				Very Poor				
725	Acer negundo	Box elder	7.5				Poor				
726	Quercus velutina	Black oak	5.0				Fair				X
727	Prunus serotina	Black cherry	6.4				Fair				X
728	Quercus velutina	Black oak	23.6				Poor				
729	Quercus velutina	Black oak	4.3				Fair				
730	Quercus velutina	Black oak	17.6	16.8	14.3		Fair				
731	Ulmus americana	American elm	4.7				Poor				
732	Quercus velutina	Black oak	4.6				Fair				X
733	Quercus velutina	Black oak	6.8				Poor				X
734	Quercus velutina	Black oak	10.2				Poor				X
735	Quercus velutina	Black oak	16.8				Fair				X
736	Quercus ellipsoidalis	Northern pin oak	8.7				Fair				
737	Quercus ellipsoidalis	Northern pin oak	26.1				Fair	X	Poor		
738	Quercus velutina	Black oak	25.9				Fair	X	Poor		
739	Picea glauca	White spruce	5.0				Poor				
740	Quercus bicolor	Swamp white oak	7.1				Poor				
741	Populus alba	White poplar	5.0				Fair				
742	Quercus bicolor	Swamp white oak	12.0				Fair				X
743	Ulmus americana	American elm	8.5				Fair				X
744	Quercus ellipsoidalis	Northern pin oak	26.0				Fair	X	Poor		
745	Carya ovata	Shagbark hickory	7.1				Fair				
746	Carya ovata	Shagbark hickory	6.9				Poor				
747	Quercus velutina	Black oak	11.8				Fair				
748	Quercus velutina	Black oak	14.0				Poor				
749	Quercus bicolor	Swamp white oak	5.3				Fair				
750	Carya ovata	Shagbark hickory	6.5				Poor				
751	Quercus velutina	Black oak	11.5				Fair				
752	Carya ovata	Shagbark hickory	5.2				Poor				
753	Carya ovata	Shagbark hickory	6.1				Fair				X
754	Quercus bicolor	Swamp white oak	16.1				Poor				X
755	Carya ovata	Shagbark hickory	4.5				Fair				X
756	Carya ovata	Shagbark hickory	4.5				Fair				X
757	Quercus ellipsoidalis	Northern pin oak	19.4				Poor				X
758	Carya ovata	Shagbark hickory	5.8				Fair				X
759	Quercus velutina	Black oak	19.2				Fair				
760	Quercus ellipsoidalis	Northern pin oak	11.8				Fair				
761	Quercus velutina	Black oak	19.9				Poor				
762	Carya ovata	Shagbark hickory	5.7				Fair				X
763	Carya ovata	Shagbark hickory	7.0				Fair				X
764	Sassafras albidum	Sassafras	5.6				Poor				X
765	Sassafras albidum	Sassafras	5.9				Fair				X
766	Carya ovata	Shagbark hickory	7.5				Fair				X
767	Prunus serotina	Black cherry	5.0				Poor				X
768	Sassafras albidum	Sassafras	11.4				Poor				
769	Prunus serotina	Black cherry	4.8				Poor				
770	Dropped		--				--				
771	Carya ovata	Shagbark hickory	29.8				Fair				
772	Tilia americana	American basswood	4.7				Fair				
773	Tilia americana	American basswood	4.5	4.5			Fair				
774	Tilia americana	American basswood	10.7				Poor				
775	Picea glauca	White spruce	8.0				Poor				X
776	Picea glauca	White spruce	8.1				Fair				X
777	Picea glauca	White spruce	7.6				Poor				X
778	Picea glauca	White spruce	6.5	5.1			Fair				X
779	Picea glauca	White spruce	7.6				Poor				X
780	Picea glauca	White spruce	7.8				Poor				X
781	Ulmus americana	American elm	7.8				Poor				X
782	Ulmus americana	American elm	7.5				Very Poor				X
783	Acer negundo	Box elder	4.5				Fair				X
784	Malus pumila	Cultivated apple	5.1				Fair				X
785	Ulmus americana	American elm	5.8				Fair				X
786	Populus deltoides	Eastern cottonwood	12.6				Poor				X
787	Salix nigra	Black willow	13.2				Fair				X
788	Salix nigra	Black willow	5.1	4.9			Fair				X
789	Salix nigra	Black willow	20.2				Fair				
790	Salix nigra	Black willow	6.1				Poor				
791	Acer negundo	Box elder	6.2				Fair				
792	Quercus velutina	Black oak	24.0				Poor	X			
793	Quercus velutina	Black oak	8.5				Poor				
794	Carya ovata	Shagbark hickory	4.6				Fair				
795	Quercus velutina	Black oak	10.2				Poor				
796	Carya ovata	Shagbark hickory	5.5				Poor				
797	Quercus ellipsoidalis	Northern pin oak	15.0				Fair				
798	Quercus velutina	Black oak	13.6				Fair				
799	Carya ovata	Shagbark hickory	5.9				Fair				
800	Carya ovata	Shagbark hickory	12.4	11.4			Fair				
801	Prunus serotina	Black cherry	12.9				Fair				
802	Quercus velutina	Black oak	18.2				Fair				
803	Acer platanoides	Norway maple	26.5				Fair	X			X
804	Carya ovata	Shagbark hickory	5.0				Fair				
805	Carya ovata	Shagbark hickory	6.5				Fair				
806	Carya ovata	Shagbark hickory	4.1				Fair				
807	Carya ovata	Shagbark hickory	12.4				Fair				
808	Quercus velutina	Black oak	18.3				Fair				
809	Quercus ellipsoidalis	Northern pin oak	20.2				Fair				
810	Quercus ellipsoidalis	Northern pin oak	23.7				Fair				
811	Ulmus americana	American elm	8.0				Fair				
812	Ulmus americana	American elm	4.0				Fair				
813	Quercus velutina	Black oak	21.3				Fair				
814	Acer platanoides	Norway maple	5.4				Poor				
815	Fraxinus pennsylvanica	Green ash	7.4				Very Poor				X
816	Carya ovata	Shagbark hickory	11.8				Fair				X
817	Carya ovata	Shagbark hickory	14.2				Fair				X
818	Prunus serotina	Black cherry	8.2				Poor				X
819	Acer platanoides	Norway maple	4.5				Fair				X
820	Acer platanoides	Norway maple	8.1				Very Poor				X
821	Acer platanoides	Norway maple	6.9				Poor				X
822	Prunus serotina	Black cherry	8.9				Fair				X
823	Acer platanoides	Norway maple	4.9				Fair				X
824	Fraxinus americana	White ash	5.2				Very Poor				X
825	Quercus bicolor	Swamp white oak	25.5				Fair	X			X
826	Quercus velutina	Black oak	31.0				Poor	X			
827	Quercus velutina	Black oak	23.2				Very Poor				
828	Quercus ellipsoidalis	Northern pin oak	20.1				Fair				
829	Ulmus americana	American elm	7.3				Fair				
830	Ulmus americana	American elm	5.0				Fair				
831	Quercus ellipsoidalis	Northern pin oak	18.1				Fair				
832	Quercus ellipsoidalis	Northern pin oak	21.0				Fair				
833	Quercus velutina	Black oak	18.0				Fair				
834	Crataegus crus-galli	Cockspur hawthorn	5.2	4.7			Fair				
835	Populus deltoides	Eastern cottonwood	37.5				Fair	X			
836	Acer saccharinum	Silver maple	38.4				Poor	X			
837	Fraxinus pennsylvanica	Green ash	4.0				Very Poor				X
838	Fraxinus pennsylvanica	Green ash	5.9				Very Poor				X
839	Fraxinus pennsylvanica	Green ash	4.6				Fair				X
840	Fraxinus pennsylvanica	Green ash	5.3				Very Poor				X

Tag	Scientific Name	Common Name	Diameter at Breast Height			Landmark	Condition	Status	Regulated Replacements	Landmark DBH Replacement	Offsite
			Trunk 1	Trunk 2	Trunk 3						
841	Acer negundo	Box elder	5.8				Poor				X
842	Acer platanoides	Norway maple	4.8				Poor				X
843	Juglans nigra	Black walnut	5.2				Fair				X
844	Acer negundo	Box elder	6.2				Poor				X
845	Acer platanoides	Norway maple	5.3				Fair				X
846	Acer platanoides	Norway maple	5.5				Fair				X
847	Acer platanoides	Norway maple	4.7				Fair				X
848	Acer negundo	Box elder	7.5	6.3			Poor				X
849	Acer platanoides	Norway maple	4.6				Fair				X
850	Acer negundo	Box elder	6.5				Very Poor				
851	Ulmus pumila	Siberian elm	19.2				Very Poor				
852	Acer platanoides	Norway maple	7.2				Fair				
853	Acer saccharinum	Silver maple	14.0				Poor				
854	Acer negundo	Box elder	7.7				Poor				
855	Rhamnus cathartica	European buckthorn	5.4				Poor				
856	Acer saccharinum	Silver maple	7.3				Fair				
857	Populus deltoides	Eastern cottonwood	36.1			X	Fair				
858	Acer negundo	Box elder	8.7				Very Poor				
859	Populus deltoides	Eastern cottonwood	24.8	16.9			Fair				
860	Acer negundo	Box elder	7.0	4.6			Fair				
861	Acer negundo	Box elder	4.3				Poor				X
862	Acer negundo	Box elder	4.8				Poor				X
863	Acer negundo	Box elder	5.8				Poor				X
864	Acer negundo	Box elder	10.8				Poor				X
865	Rhamnus cathartica	European buckthorn	6.4				Poor				X
866	Acer negundo	Box elder	7.9	5.9			Poor				X
867	Ulmus pumila	Siberian elm	11.5				Poor				X
868	Fraxinus pennsylvanica	Green ash	4.3				Very Poor				X
869	Acer negundo	Box elder	7.7				Poor				X
870	Acer negundo	Box elder	9.8				Poor				X
871	Acer negundo	Box elder	8.4				Very Poor				
872	Prunus serotina	Black cherry	7.8				Fair				X
873	Dropped		--				--				
874	Acer negundo	Box elder	5.8				Poor				X
875	Acer negundo	Box elder	16.3				Poor				
876	Acer negundo	Box elder	10.1				Very Poor				
877	Populus deltoides	Eastern cottonwood	39.8			X	Fair				
878	Quercus bicolor	Swamp white oak	10.4				Fair				X
879	Acer negundo	Box elder	11.3	7.4	7.2		Fair				
880	Acer negundo	Box elder	4.6				Very Poor				
881	Quercus macrocarpa	Bur oak	15.9				Fair				
882	Acer negundo	Box elder	6.0				Fair				
883	Acer negundo	Box elder	5.1				Fair				
884	Acer negundo	Box elder	7.0				Fair				
885	Prunus serotina	Black cherry	13.1				Poor				
886	Picea glauca	White spruce	13.0				Poor				
887	Ulmus pumila	Siberian elm	9.1				Fair				
888	Picea glauca	White spruce	9.6				Fair				
889	Prunus serotina	Black cherry	8.4				Poor				
890	Picea glauca	White spruce	12.3				Poor				
891	Prunus serotina	Black cherry	26.1			X	Poor				
892	Picea glauca	White spruce	13.1				Very Poor				
893	Quercus palustris	Pin Oak	20.8				Fair				
894	Acer saccharum	Sugar maple	11.0				Fair				
895	Prunus serotina	Black cherry	9.5				Fair				
896	Prunus serotina	Black cherry	10.9				Poor				
897	Picea glauca	White spruce	9.0				Poor				
898	Prunus serotina	Black cherry	9.5				Fair				
899	Acer saccharinum	Silver maple	5.8				Fair				
900	Picea glauca	White spruce	12.8				Very Poor				
901	Picea glauca	White spruce	13.8				Poor				
902	Picea glauca	White spruce	13.4				Poor				
903	Prunus serotina	Black cherry	8.6				Poor				
904	Prunus serotina	Black cherry	5.2				Poor				
905	Prunus serotina	Black cherry	8.8				Very Poor				
906	Prunus serotina	Black cherry	4.6				Very Poor				
907	Picea glauca	White spruce	8.5				Poor				
908	Pinus sylvestris	Scotts pine	11.3				Poor				
909	Prunus serotina	Black cherry	9.8				Poor				
910	Picea glauca	White spruce	14.5				Fair				
911	Juniperus virginiana	Eastern redcedar	6.5				Fair				
912	Acer negundo	Box elder	5.5				Fair				
913	Acer negundo	Box elder	9.0				Fair				
914	Acer negundo	Box elder	7.5				Fair				
915	Populus deltoides	Eastern cottonwood	18.0				Fair				
916	Acer negundo	Box elder	8.6				Poor				
917	Robinia pseudoacacia	Black locust	22.8				Poor				
918	Robinia pseudoacacia	Black locust	16.4				Fair				
919	Robinia pseudoacacia	Black locust	12.2				Fair				
920	Robinia pseudoacacia	Black locust	11.7				Fair				
921	Acer negundo	Box elder	5.2				Poor				
922	Acer negundo	Box elder	6.8				Fair				
923	Robinia pseudoacacia	Black locust	14.8				Poor				
924	Acer negundo	Box elder	10.4				Fair				
925	Robinia pseudoacacia	Black locust	13.9				Poor				
926	Acer negundo	Box elder	4.7				Poor				
927	Acer negundo	Box elder	5.5				Poor				
928	Robinia pseudoacacia	Black locust	23.5				Fair				
929	Robinia pseudoacacia	Black locust	19.6				Fair				
930	Robinia pseudoacacia	Black locust	27.7				Fair				
931	Salix nigra	Black willow	35.7				Fair				
932	Robinia pseudoacacia	Black locust	5.0				Fair				
933	Acer negundo	Box elder	38.2			X	Fair				
934	Robinia pseudoacacia	Black locust	19.0				Poor				
935	Acer negundo	Box elder	4.3				Poor				
936	Acer negundo	Box elder	13.2	11.3			Fair				
937	Acer negundo	Box elder	4.7				Fair				
938	Robinia pseudoacacia	Black locust	14.9				Fair				
939	Robinia pseudoacacia	Black locust	12.7				Poor				
940	Robinia pseudoacacia	Black locust	13.5				Fair				
941	Robinia pseudoacacia	Black locust	13.6				Poor				
942	Robinia pseudoacacia	Black locust	13.8	13.1			Fair				
943	Robinia pseudoacacia	Black locust	5.8				Fair				
944	Acer negundo	Box elder	10.3	8.8			Poor				
945	Populus deltoides	Eastern cottonwood	6.0				Fair				
946	Robinia pseudoacacia	Black locust	5.8				Fair				
947	Robinia pseudoacacia	Black locust	7.6				Fair				
948	Robinia pseudoacacia	Black locust	12.4				Poor				
949	Robinia pseudoacacia	Black locust	17.1				Fair				
950	Acer platanoides	Norway maple	18.8				Fair				
951	Acer negundo	Box elder	8.1				Poor				
952	Acer negundo	Box elder	8.9				Fair				
953	Acer negundo	Box elder	9.5	8.5	4.5		Fair				
954	Juniperus virginiana	Eastern redcedar	5.4				Poor				
955	Malus pumila	Cultivated apple	7.0				Fair				
956	Acer negundo	Box elder	11.3				Fair				
957	Acer negundo	Box elder	5.9	4.9			Fair				
958	Acer negundo	Box elder	8.1				Very Poor				
959	Acer negundo	Box elder	5.8				Fair				
960	Acer negundo	Box elder	5.8				Fair				
961	Prunus serotina	Black cherry	14.8				Poor				
962	Malus pumila	Cultivated apple	4.0				Poor				
963	Quercus ellipsoidalis	Northern pin oak	5.8				Fair				
964	Acer negundo	Box elder	5.6				Poor				
965	Acer negundo	Box elder	6.3				Fair				
966	Acer negundo	Box elder	8.2				Poor				
967	Acer negundo	Box elder	10.1	4.2		











MOCERI®

Michigan's Legendary Dream Builder

SITE AREA = 11.68 ACRES

VILLAGE ZONING — MU - MIXED USE (2.32 AC)
PROPOSED RETAIL / FOOD BUILDING (0.44 AC.)
PROPOSED RESIDENTIAL (1.88 AC.)

TOWNSHIP ZONING — GB - GENERAL BUSINESS (3.20 AC)
PROPOSED RETAIL / FOOD BUILDING (1.18 AC.)
PROPOSED RESIDENTIAL (2.02 AC.)

R-3 - SINGLE FAMILY RESIDENTIAL (6.16 AC)

PROPOSED ZONING — PLANNED UNIT DEVELOPMENT

TOWNHOMES	11 RESIDENCE
SINGLE FAMILY	48 RESIDENCE
PROVIDED	59 RESIDENCE = 5.86 RESIDENCE/ACRE

SITE DENSITY	ALLOWED	PROPOSED
VILLAGE ZONED (MU)	10 RES./AC 10 x 1.88 AC = 18 RES.	8 RES = 4.25 RES./ACRE
TOWNSHIP ZONED (GB)	10 RES/AC 10 x 2.02 AC. = 20 RES.	16 RES. = 7.92 RES./ACRE
TOWNSHIP ZONED (R-3)	5 RES./AC 5 x 6.16 AC. = 30 RES.	35 RES = 5.68 RES./ACRE
TOTAL RESIDENCES	68 RESIDENCES	59 RESIDENCES

TOWNHOMES BUILDING
UNIT SIZE 20' x 60' AND 22' x 42'

SINGLE FAMILY
36'x55 BUILDING — 22 RESIDENCES
36'x62' BUILDING — 10 RESIDENCES
36'x66' BUILDING — 16 RESIDENCES

SINGLE FAMILY BUILDING SETBACKS
FRONT TO CURB — 35 FEET
SIDE TO SIDE — 10 FEET
REAR TO REAR — 50 FEET
REAR TO PROPERTY LINE — 35 FEET

PAVEMENT SHOWN IS 27 FEET WIDE FROM BACK OF CURB

PARKING REQUIREMENT
RETAIL
PARKING REQUIRED: 1 SPACE FOR EVERY 200 SF = 42 SPACES
PARKING PROVIDED: 67 SPACES

RESIDENTIAL
PARKING REQUIRED 2 SPACES PER UNIT
PROVIDED WITHIN GARAGE

OPEN SPACE REQUIRES 15% = 76,317 SF
OPEN SPACE PROVIDED

MIDDLE AREA OF THE SITE	17,197 SF (DEVIATION REQUIRED)
AROUND POND	13,077 SF
WITHIN POND	21,373 SF (DEVIATION REQUIRED)
SOUTHEAST CORNER	6,939 SF
TOTAL	58,586 SF OR 11.5% (DEVIATION REQUIRED)









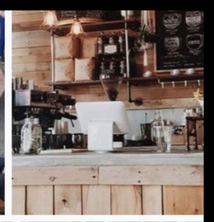




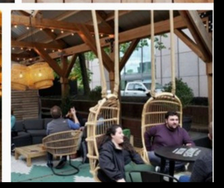
























ANDERSON, ECKSTEIN & WESTRICK, INC
CIVIL ENGINEERS - SURVEYORS - ARCHITECTS
Shelby Township - Roseville - Livonia
586.726.1234 | www.aewinc.com

TRAFFIC IMPACT STUDY

TO: Dominic F. Moceri
Moceri Companies
3005 University Drive
Auburn Hills, MI 48326

FROM: Mohammad Lutfi, P.E., PTOE



DATE: April 2025

SUBJECT: **Eastport Village Development**
Orion Township, Oakland County
Traffic Impact Study (TIS)
AEW Project No. 0361-0091

This memorandum presents the result of the Traffic Impact Study (TIS) for the proposed development in Orion Township, Michigan. The project includes a mix of single-family detached homes, townhomes, and retail space. The site is located on the east side of S. Broadway Street (M-24), between Glanworth Street and Heights Road. The study area and analyzed intersections are illustrated in **Figure 1** and **Figure 2**, respectively, below.

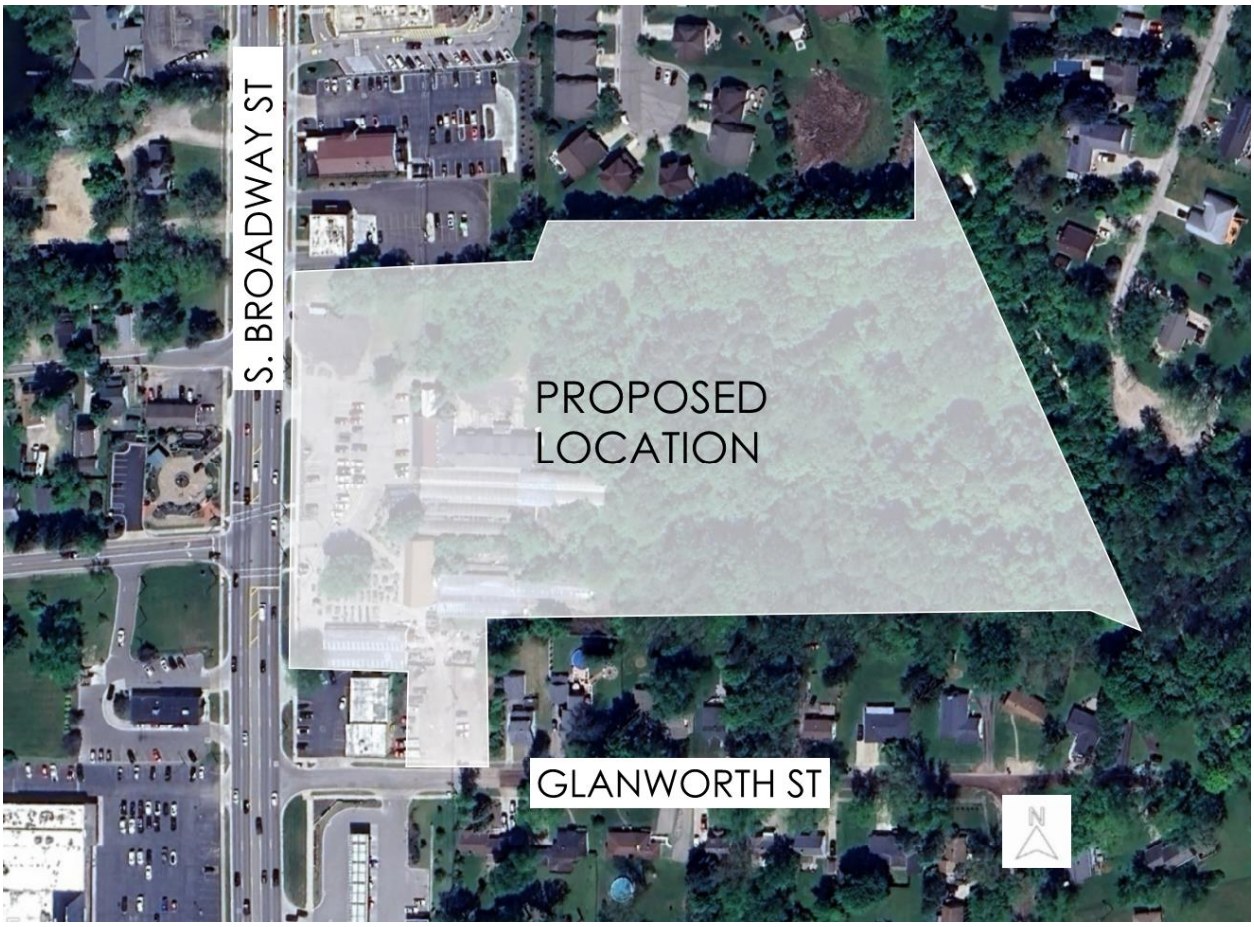


Figure 1 – Study Site

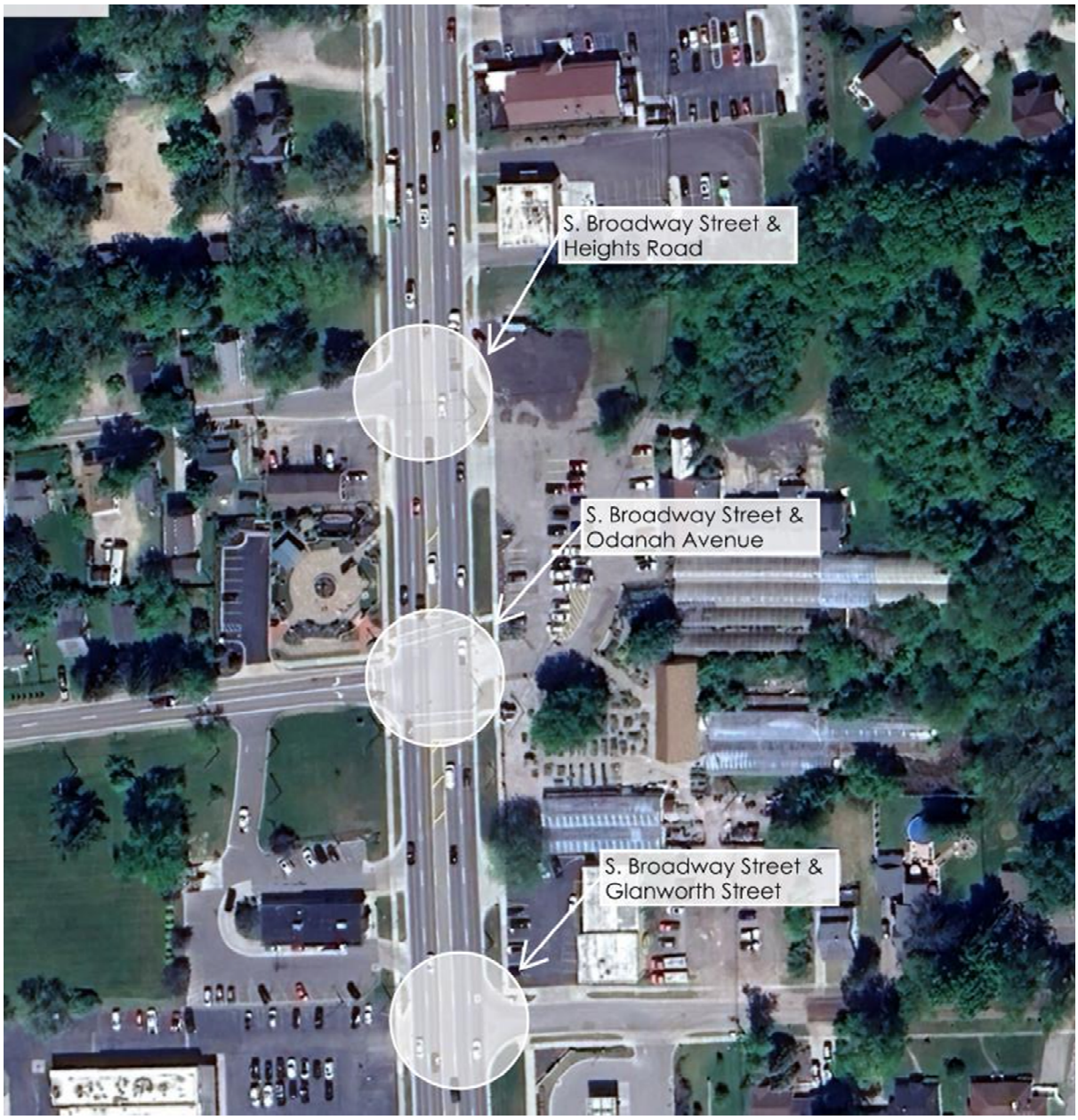


Figure 2 – Study Intersections

AEW understands that the purpose of this study is to provide a Traffic Impact Study (TIS) as requested by MDOT to determine the impact of the trips generated by the development on the adjacent roadway. The Eastport Village Development is a mixed-use project that encompasses an 8,400 square-foot strip retail plaza, alongside 48 single-family detached homes and 11 townhomes. The development is designed to offer both

commercial and residential spaces, with the retail plaza serving as a hub for various businesses, such as shops or dining establishments. The residential component includes single-family homes for those seeking more traditional, standalone properties, while the townhomes provide an option for those desiring a more compact, attached living arrangement.

To facilitate access to the development, the proposed plan includes two full-access driveways, one along S. Broadway Street (M-24), a major thoroughfare, and another along Glanworth Street, offering a quieter, alternative entry point. This thoughtful layout aims to enhance convenience and mobility for both residents and visitors. The preliminary site plan is show in **Figure 3**.

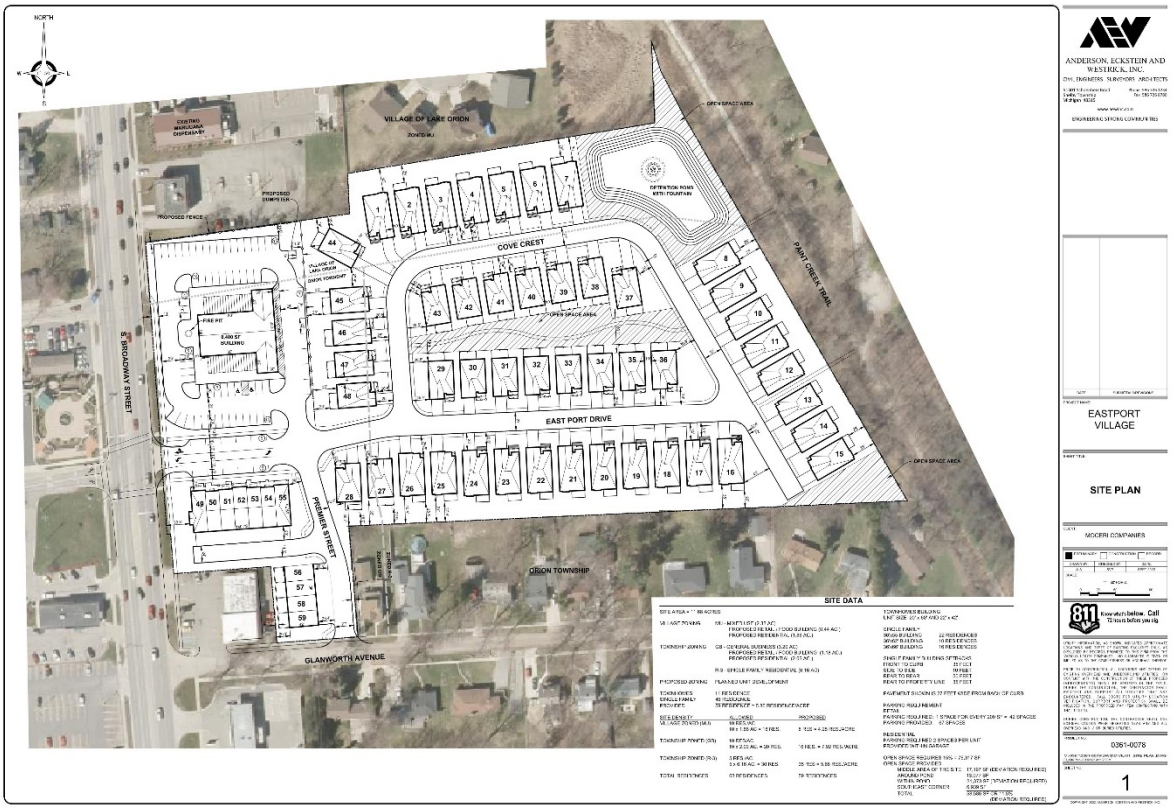


Figure 3 – Preliminary Site Plan

The scope of the study was developed based on Anderson, Eckstein & Westrick, Inc.'s (AEW) knowledge of the study area, accepted traffic engineering practice, and methodologies published by the Institute of Transportation Engineers (ITE). Additionally,

AEW followed the Michigan Department of Transportation (MDOT) Geometric Design Guide for conducting a Traffic Impact Study.

The purpose of this study is to identify the potential traffic related impacts, if any, of the proposed development on the adjacent road network, including evaluating traffic operations at the proposed site driveways. Also, the study includes quantifying the existing traffic flow and identifying potential improvements to mitigate future traffic impacts, if any, due to the traffic generated by the new development.

Roadway Characteristics

Table 1- Roadway Characteristics present the functional classification, controlling jurisdiction, average daily traffic (ADT), posted speed and lane description for each of the study area roadways.

Table 1 – Roadway Characteristics

Road	Functional Classification	Controlling Jurisdiction	ADT	Posted Speed	Lane Description
S. Broadway Steet (M-24)	Other Principal Arterial	MDOT	41,992	35 MPH	4-lane roadway w/TWCL
Odanah Avenue	Major Collector	RCOC	3,839	35 MPH	1-way roadway
Heights Road	Major Collector	RCOC	3,202	35 MPH	1-way roadway

(Traffic Sources: 2023 MDOT Traffic Volumes Map and SEMCOG National Functional Classification Map)

Non-roadway Characteristics

There are currently existing sidewalks on S. Broadway (M-24). There are currently no public transit services within the study area along S. Broadway (M-24). The intersection of S. Broadway (M-24) and Odanah Avenue include pedestrian signals with push buttons and crosswalk.

Existing Traffic Conditions

Traffic counts were collected on Thursday, January 30th, 2025, for Odanah Avenue & S. Broadway Street and for Glanworth Street & S Broadway Street. Traffic count data was used from a prior count for the intersection of S Broadway & Heights Road. The data collected was utilized to conduct the traffic impact study analysis. The collected data can be found in **Appendix A**. 2025 Existing AM & PM Peak Hour Traffic Volumes are presented in **Figure 4** and Roadway Network Lane Configuration and Traffic Control is provided in **Figure 5**.

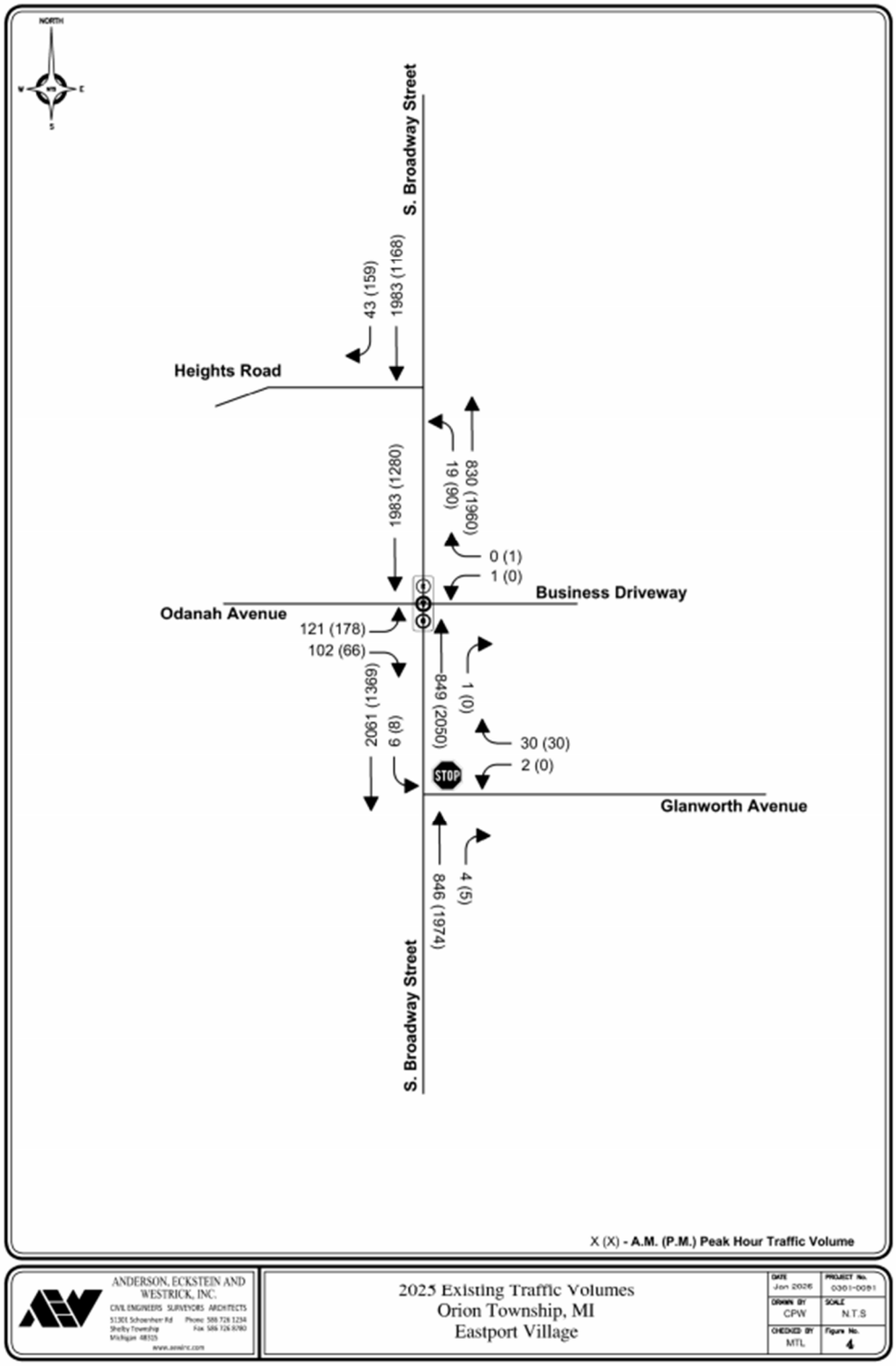


Figure 4 – 2025 Existing Peak Hour Volumes

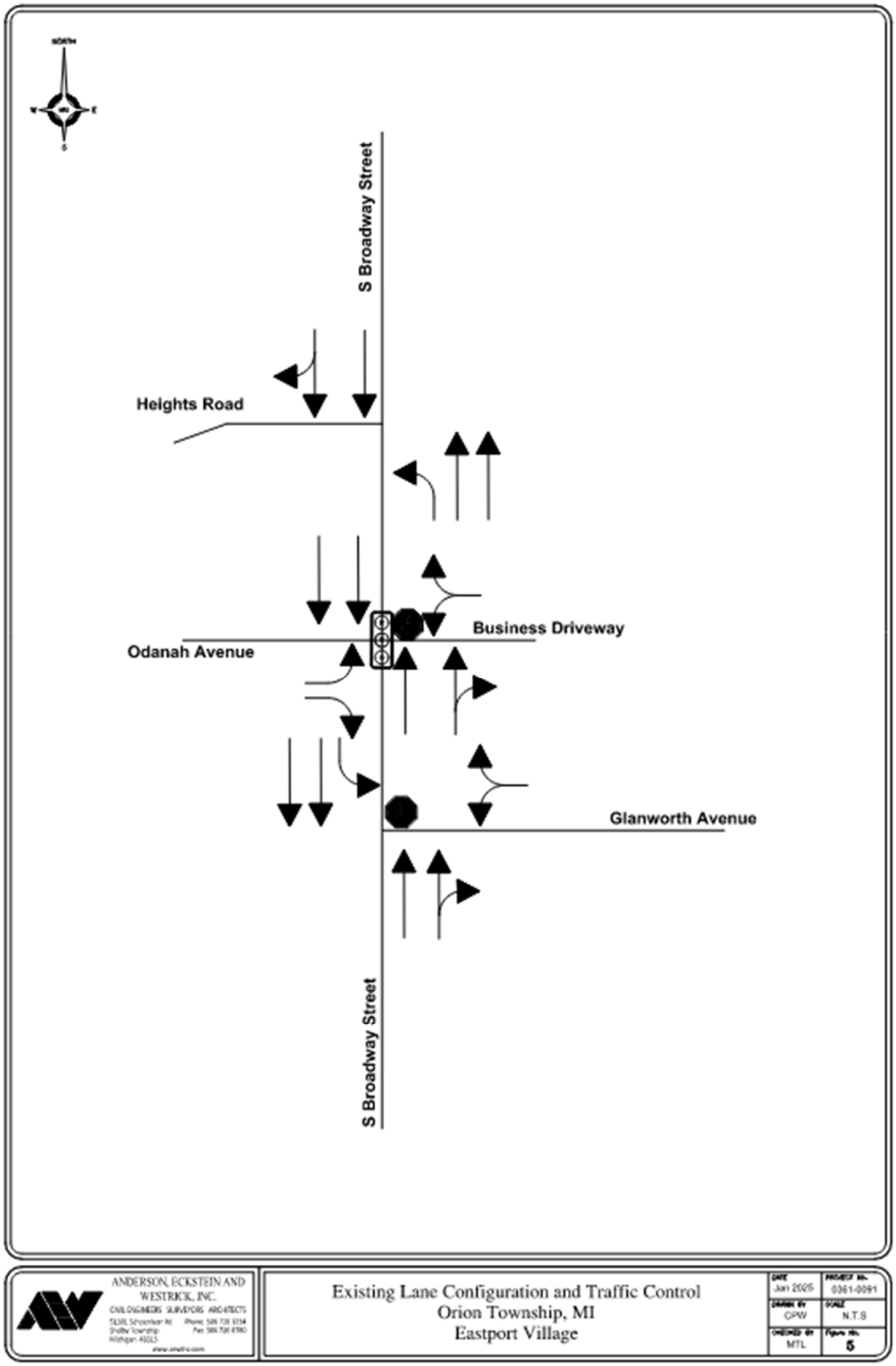


Figure 5 – Existing Lane Configuration & Traffic Control

Traffic Operations Analysis Methodology

Trafficware's Synchro 12 was used to perform intersection capacity analysis and assign Levels of Service (LOS) for the study intersections and lane group movements based on the Highway Capacity Manual, 7th Edition (HCM6) methodologies. LOS is a letter grade that describes traffic operations based on the amount of delay experienced by vehicles at an intersection, along an intersection approach (e.g., eastbound, westbound), or in a specific lane group (e.g., eastbound right turn, eastbound through-left). LOS can range from A-F with A representing the conditions in which vehicles experience the least amount of delay, and F representing the conditions in which vehicles experience the most delay. The LOS D is typically used as a threshold for "acceptable" operations and is sometimes described as being "near capacity". The LOS E is often described as operations "at capacity", while LOS F describes conditions "over capacity". Additionally, LOS for the stop-controlled intersections was reported by approach. **Table 2** provides information regarding the delay thresholds for LOS.

Table 2 – Level of Service Definitions and Criteria

Level-of-Service (LOS)	Signalized Intersections Delay (seconds)	Un-Signalized Intersections Delay (seconds)
A	< 10.0	< 10.0
B	10.1 – 20.0	10.1 – 15.0
C	20.1 – 35.0	15.1 – 25.0
D	35.1 – 55.0	25.1 – 35.0
E	55.1 – 80.0	35.1 – 50.0
F	> 80.0	> 50.0

Existing Level of Service

The collected peak hour intersection volumes, approach peak hour factors (PHF), truck percentages, and lane utilization factors were used for the Existing Condition analysis. The LOS analysis by intersection for the existing conditions is shown in **Table 3**. The existing conditions summary reports are provided in **Appendix B**.

Table 3 – 2025 Existing Condition LOS Intersection Analysis

Intersection & Control	Approach	Lane Group	2025 Existing (LOS)	
			AM-Peak LOS/Delay (s)	PM Peak LOS/Delay (s)
S. Broadway St & Odanah Ave Signalized	Northbound	2-Thru/Right	A/6.2	B/12.9
	Southbound	Thru	B/12.4	A/7.9
	Eastbound	Left	D/46.8	D/54.1
		Right	D/45.4	D/44.8
	Westbound	Left	D/40.6	D/40.6
		Right	A/0.0	A/0.0
	Intersection Overall		**B/13.2**	**B/13.9**
S. Broadway St & Heights Rd Unsignalized	Northbound	Left	A/0.0	A/0.0
		Thru	Free flow	Free flow
	Southbound	2-Thru/Right	Free flow	Free flow
	Intersection Overall		**Free flow**	**Free flow**
S. Broadway St & Glanworth St Unsignalized	Northbound	2-Thru/Right	Free flow	Free flow
	Southbound	Left	A/9.9	C/18.4
		Thru	Free flow	Free flow
	Westbound	Left/Right	B/13.0	C/23.6
	Intersection Overall		**B/11.5**	**C/21.0**

The results of the existing condition analysis indicate that the study intersections overall and intersection movement levels of service currently operate at a LOS D or better.

Background Level of Service

To accurately evaluate the impact of the proposed development on the existing transportation network, current traffic volumes were projected to the anticipated opening year of 2030. This projection ensures that the traffic analysis reflects conditions at the time the development becomes operational.

The Southeast Michigan Council of Governments (SEMCOG) growth projections for the study area were utilized to determine an appropriate annual growth rate. Based on these projections, a compounded annual growth rate of 2.3% (growth factor of 1.023) was applied to the existing traffic volumes to estimate future baseline conditions.

In addition to natural growth, it is essential to consider background traffic generated by other planned or approved developments in the vicinity that are expected to be completed by 2030 or earlier. These developments contribute to the overall traffic network demand and must be included to ensure an accurate and comprehensive analysis.

Table 5 summarizes the expected trip generation from these background developments based on their respective traffic impact studies. These trips were incorporated into the projected traffic volumes and used to define the No-Build scenario. This scenario reflects future traffic conditions without-the 2030 Background Peak Hour Volumes including SEMCOG's growth rate and the trips from other developments are provided in **Figure 6**.

Table 5 – Trips from Other Developments

Development Name	Land Use Code	Independent Variable	AM Peak Hour			PM Peak Hour		
			Enter	Exit	Total	Enter	Exit	Total
Mystic Cove	Multifamily Housing (Low Rise) - 220	44 Units	4	14	18	14	8	22
Broadway Center Provision	Marijuana Dispensary - 822	4,435 SF	24	23	47	42	42	84
Constellation Orion	Multifamily Housing (Low Rise) - 220	101 Units	5	16	21	17	10	27
		Total Generated Trips	**33**	**53**	**86**	**73**	**60**	**133**

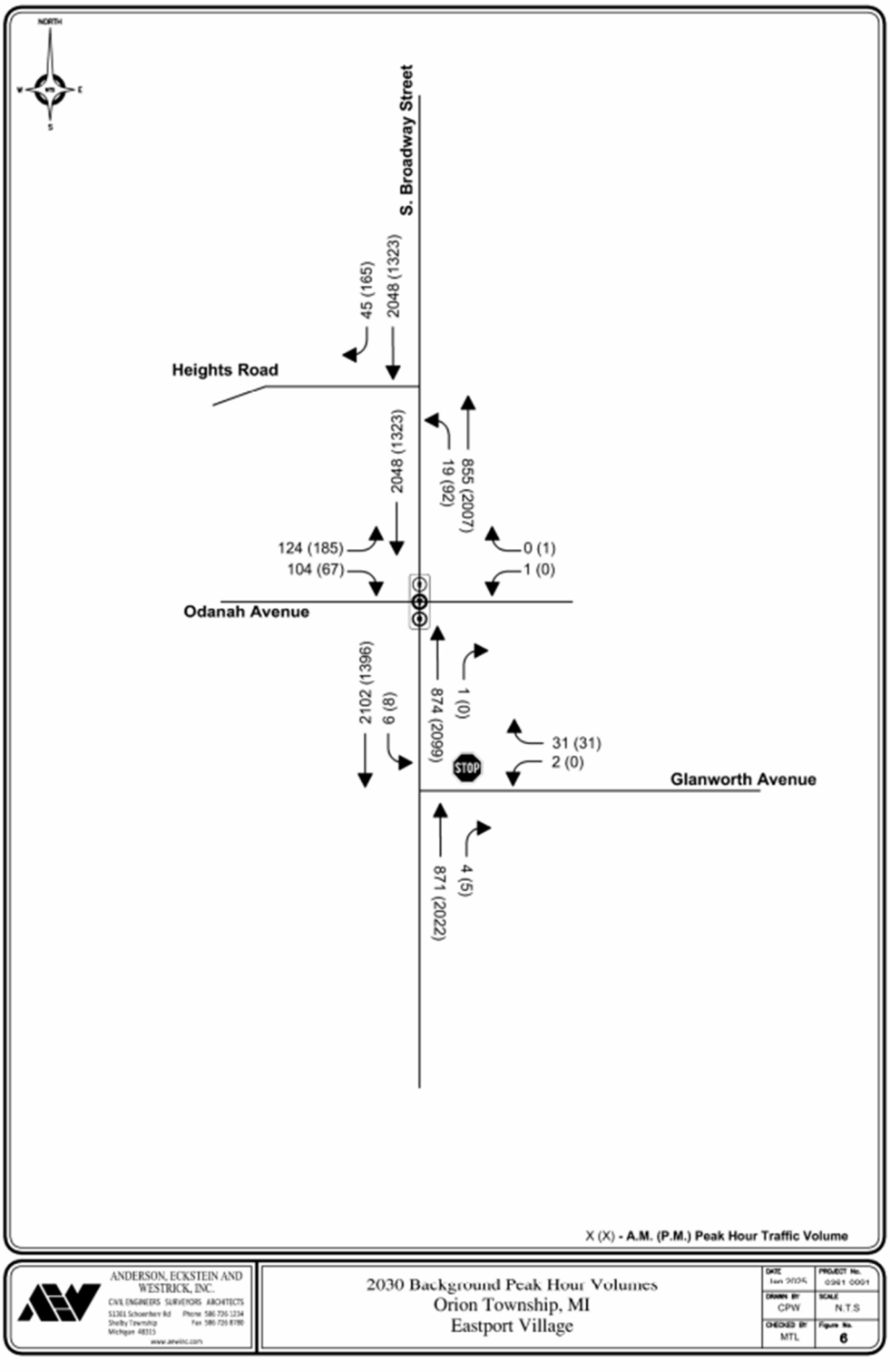


Figure 6 – 2030 Background Peak Hour Volume

Background Level of Service

The Existing LOS and Background Condition LOS is shown in **Table 4** below. The Background conditions summary reports are provided in **Appendix C** which shows the detailed Background conditions calculated in Synchro12 and SimTraffic12 using the 2030 background conditions traffic volumes.

Table 4 – 2030 Background LOS Peak Hour Analysis

Intersection & Control	Approach	Lane Group	2025 Existing (LOS)		2030 Background (LOS)	
			AM-Peak LOS/Delay (s)	PM Peak LOS/Delay (s)	AM-Peak LOS/Delay(s)	PM Peak LOS/Delay(s)
S. Broadway St & Odanah Ave Signalized	Northbound	2-Thru/Right	A/6.2	B/12.9	A/6.6	B/11.8
	Southbound	Thru	B/12.4	A/7.9	A/14.6	A/7.2
	Eastbound	Left	D/46.8	D/54.1	D/46.6	E/60.2
		Right	D/45.4	D/44.8	D/47.2	D/46.1
	Westbound	Left	D/40.6	D/40.6	D/40.4	D/43.2
		Right	A/0.0	A/0.0	A/0.0	A/0.0
	Intersection Overall		**B/13.2**	**B/13.9**	**B/14.7**	**B/13.3**
S. Broadway St & Heights Rd Unsignalized	Northbound	Left	A/0.0	A/0.0	A/0.0	A/0.0
		2-Thru/Right	Free flow	Free flow	Free flow	Free flow
	Southbound	2-Thru/Right	Free flow	Free flow	Free flow	Free flow
	Intersection Overall		**Free flow**	**Free flow**	**Free flow**	**Free flow**
S. Broadway St & Glanworth St Unsignalized	Northbound	2-Thru/Right	Free flow	Free flow	Free flow	Free flow
	Southbound	Left	A/9.9	C/18.4	A/10.0	C/19.1
		Thru	Free flow	Free flow	Free flow	Free flow
	Westbound	Left/Right	B/13.0	C/23.6	B/13.2	C/24.6
	Intersection Overall		**B/11.5**	**C/21.0**	**B/11.6**	**C/21.9**

The results of the background condition analysis indicate that the level of service for the study intersection overall and individual intersection movements are anticipated to operate at a LOS D or better except for the following intersections/movements:

- Eastbound Odanah Ave – Left Turns (PM)

Build Trip Generation

The AM and PM peak hour vehicle trips that would be generated by the proposed development were forecasted based on the ITE Trip Generation Manual 11th Edition and engineering judgement. Land use codes 210 (Single-Family Detach Housing), 220 (Multifamily Housing Low-Rise), and 822 (Strip Retail Plaza <40) were selected. The development is estimated to generate 58 new trips in the AM Peak and 106 new trips in the PM peak. The detailed trip generated is shown in **Table 6**, below.

Table 6 – Proposed build Trip Generation

Land Use	Independent Variable	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
Single-Family Detached Housing (210)	48 Units	8	26	34	28	17	45
Multifamily Housing (Low-Rise) (220)	11 Units	1	3	4	4	2	6
Strip Retail Plaza (822)	8,400 SF	12	8	20	28	27	55
Total Generated Trips		**21**	**37**	**58**	**60**	**46**	**106**

The trip distribution was calculated based on the existing traffic patterns for the build condition. The trip distribution percentage can be found in **Figure 7**. The generated traffic was distributed throughout the roadway network in accordance with the calculated trip distribution. The resulting build conditions peak hour traffic volumes can be found in **Figure 8**.

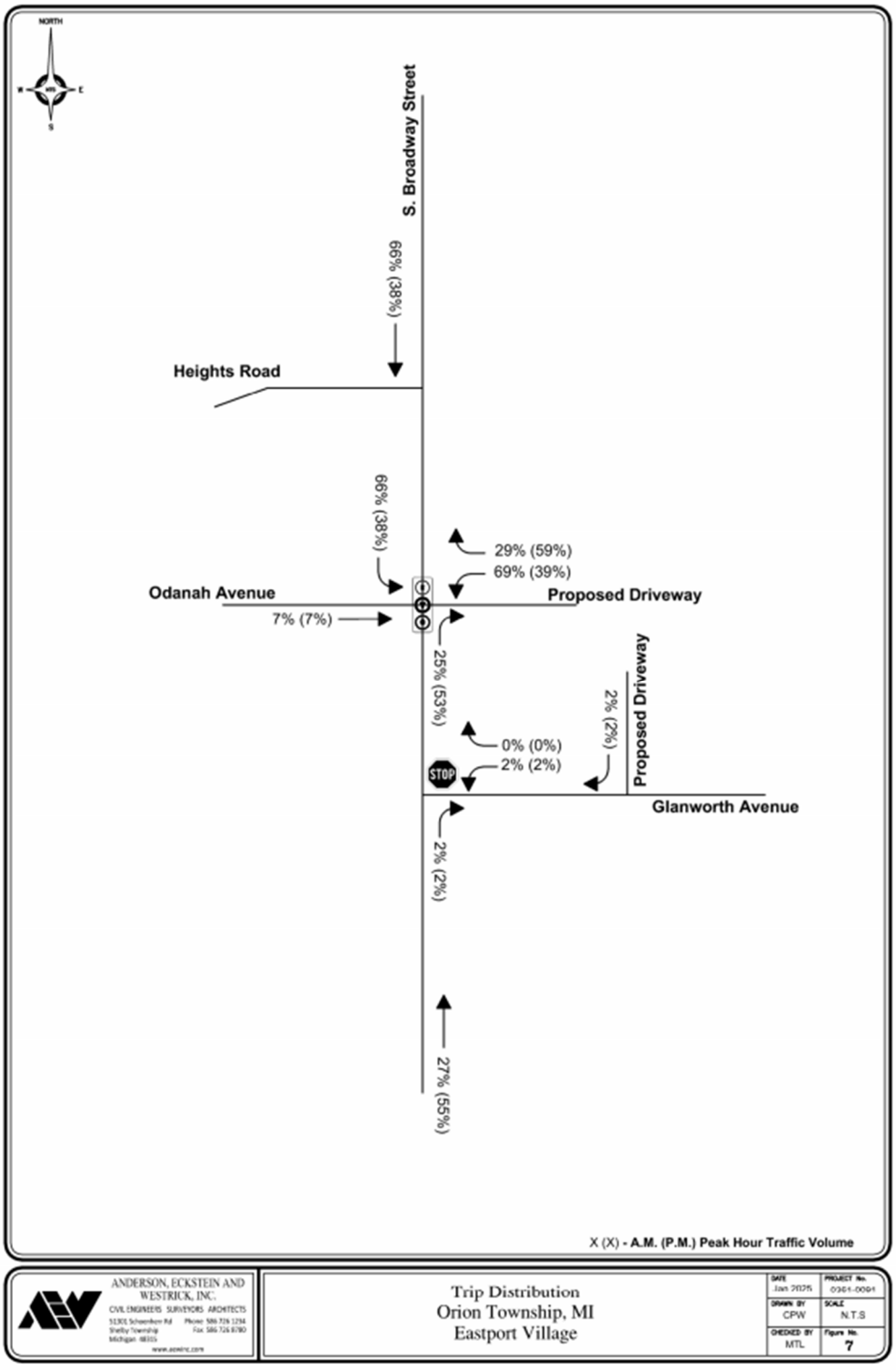


Figure 7 – Trip Distribution

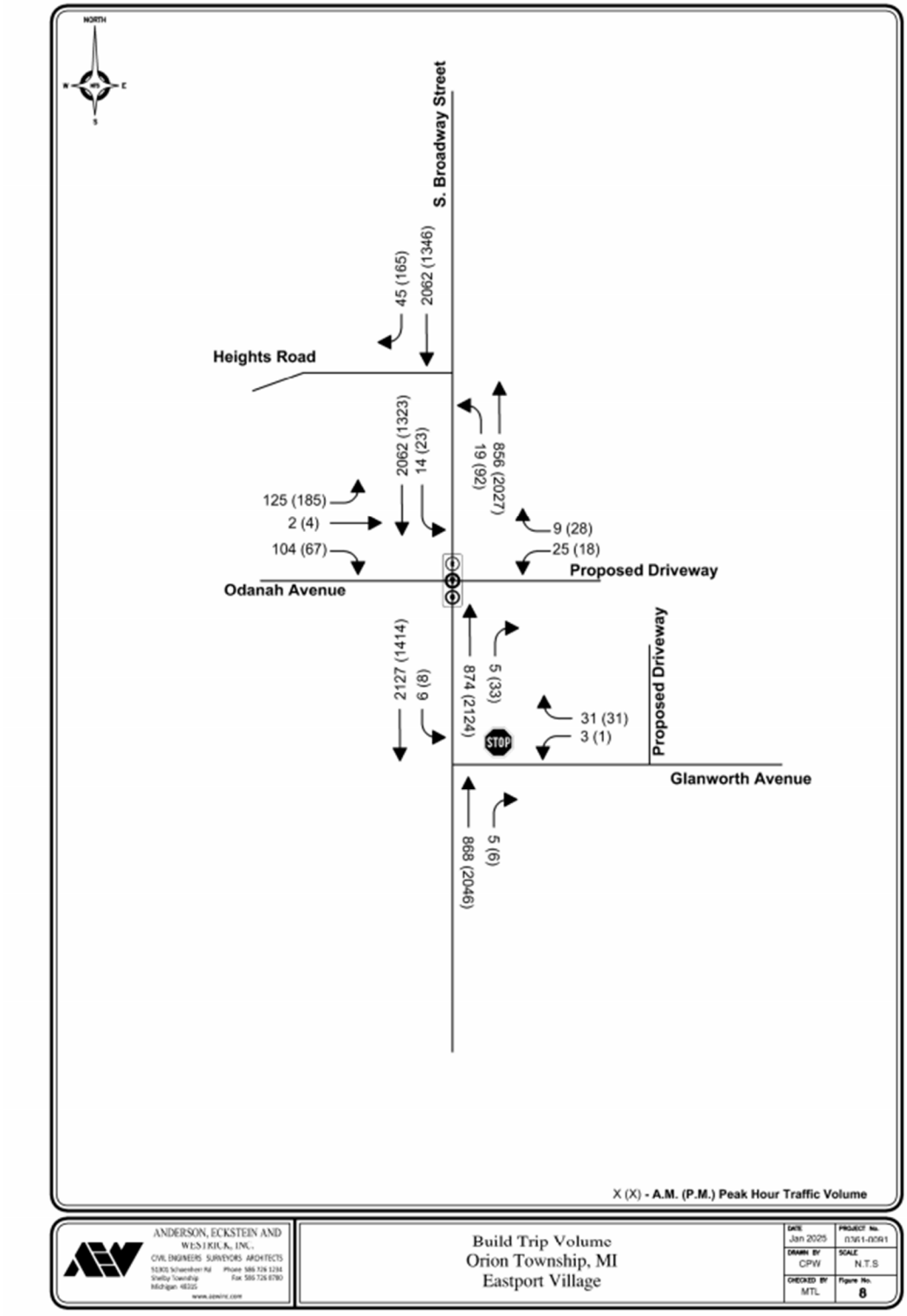


Figure 8 – Build Conditions Traffic Volumes

Traffic Signal Warrant Analysis and Westbound Approach Improvements

The intersection of S. Broadway (M-24) and Odanah Avenue is currently controlled by a traffic signal, with the westbound approach on Odanah Avenue regulated by a stop sign and a flashing red beacon. To accommodate the planned modernization of the traffic control signal system and meet operational standards, the westbound approach requires geometric improvements, specifically lane widening.

In accordance with the Michigan Manual on Uniform Traffic Control Devices (MMUTCD), traffic control signals shall only be installed or retained when one or more signal warrants are met, as determined through engineering studies. These warrants are based on factors including vehicular volumes, pedestrian activity, and crash history. If signal warrants are not satisfied, installation or continued use of a traffic signal is not justified.

Based on projected traffic volumes and estimated trip generation associated with future development in the vicinity, the intersection satisfies three MMUTCD signal warrants as detailed in **Table 8**. The satisfaction of multiple warrants indicates a continued operational need for signalized control at this location.

As such, the existing traffic signal system is warranted, and any modernization efforts must include the installation and maintenance of all associated signal heads, vehicle detection systems, signage, and pavement markings in compliance with MMUTCD requirements.

The proposed widening of the westbound approach is necessary to support the improved signal infrastructure, enhance capacity, and ensure compliance with current geometric design criteria. This modification will facilitate more efficient traffic flow and accommodate anticipated increases in traffic volume.

Table 8 – S. Broadway & Odanah Ave

Warrant		Warrant Met
Warrant 1: Eight-Hour Vehicular Volume	Condition A	No
	Condition B	Yes
	Combination of A & B	No
Warrant 2: Four-Hour Vehicular Volume		Yes
Warrant 3: Peak Hour		Yes
Warrant 4: Pedestrian Volume		No
Warrant 5: School Crossing		No
Warrant 6: Coordinated Signal System		No
Warrant 7: Crash Experience		No
Warrant 8: Roadway Network		No
Warrant 9: Intersection Near a Grade Crossing		No

Build Level of Service

The build conditions were implemented in Synchro12 and simulated using SimTraffic12. The LOS was calculated and presented below in Table 7. Table 7 also presents the Background Condition LOS for comparison. The full reports on the build conditions can be found in Appendix D.

Table 7 – Build Level of Service Peak Hour

Intersection & Control	Approach	Lane Group	2030 Background (LOS)		2030 Build (LOS)	
			AM-Peak LOS/Delay (s)	PM Peak LOS/Delay (s)	AM-Peak LOS/Delay(s)	PM Peak LOS/Delay(s)
S. Broadway St & Odanah Ave Signalized	Northbound	2-Thru/Right	A/6.6	B/11.8	A/6.5	B/12.5
	Southbound	Left	N/A	N/A	A/4.9	C/23.0
		2-Thru	B/14.6	A/7.2	B/14.4	A/7.2
	Eastbound	Left	D/46.6	E/60.2	D/44.3	E/59.8
		Thru/Right	D/47.2	D/46.1	D/44.5	D/46.3
	Westbound	Left	D/40.4	D/43.2	D/44.4	D/44.4
		Right	A/0.0	A/0.0	D/41.0	D/47.7
	Intersection Overall		**B/14.7**	**B/13.3**	**B/14.6**	**B/14.3**
S. Broadway St & Heights Rd Unsignalized	Northbound	Left	A/0.0	A/0.0	A/0.0	A/0.0
		2-Thru/Right	Free flow	Free flow	Free flow	Free flow
	Southbound	2-Thru/Right	Free flow	Free flow	Free flow	Free flow
	Intersection Overall		**Free flow**	**Free flow**	**Free flow**	**Free flow**
S. Broadway St & Glanworth St Unsignalized	Northbound	2-Thru/Right	Free flow	Free flow	Free flow	Free flow
	Southbound	Left	A/10.0	C/19.1	A/10.0	C/19.4
		Thru	Free flow	Free flow	Free flow	Free flow
	Westbound	Left/Right	B/13.2	C/24.6	B/13.1	D/26.3
	Intersection Overall		**B/11.5**	**C/21.0**	**B/11.6**	**D/22.9**

The results of the Build Condition analysis indicate that the study intersections overall and intersection movement levels of service will operate at a LOS D or better except for the following intersections/movements:

- Eastbound Odanah Ave – Left Turns (PM)

Crash Analysis

A crash analysis was conducted at the study intersections and the existing driveways. Five years of crash data were collected and reviewed. Traffic crash reports and summaries were obtained from the Transportation Improvement Association's Traffic Crash Analysis Tool (TCAT) website. A summary of crashes by type is provided in **Table 9**. Copies of crash report summaries can be found in **Appendix E**.



Table 9 - Crash Data

Intersection	Crash Type	No. of Crashes	% of Crashes	K Crashes	A Crashes	B Crashes	% KAB
S Broadway Street & Heights Road	Single	2	8.0%	0	0	0	0%
	Head-On	1	4.0%	0	0	0	0%
	Head-On (LT)	0	0.0%	0	0	1	33.3%
	Angle	2	8.0%	0	0	0	0%
	Rear-End	14	56.0%	0	0	1	33.3%
	Read-End (LT)	1	4.0%	0	0	0	0%
	Rear-End (RT)	1	4.0%	0	0	0	0%
	Sideswipe (Same)	3	12.0%	0	0	1	33.3%
	Sideswipe (Opposite)	0	0.0%	0	0	0	0%
	Other	1	4.0%	0	0	0	0%
	Unknown	0	0.0%	0	0	0	0%
	Total:	**25**	**100%**	**0**	**0**	**3**	**100%**
S Broadway Street & Glanworth Street	Single	1	10.0%	0	0	1	100%
	Head-On	0	0.0%	0	0	0	0%
	Head-On (LT)	0	0.0%	0	0	0	0%
	Angle	3	30.0%	0	0	0	0%
	Rear-End	6	60.0%	0	0	0	0%
	Read-End (LT)	0	0.0%	0	0	0	0%
	Rear-End (RT)	0	0.0%	0	0	0	0%
	Sideswipe (Same)	0	0.0%	0	0	0	0%
	Sideswipe (Opposite)	0	0.0%	0	0	0	0%
	Other	0	0.0%	0	0	0	0%
	Unknown	0	0.0%	0	0	0	0%
	Total:	**10**	**100%**	**0**	**0**	**3**	**100%**
S Broadway Street & Odanah Avenue	Single	1	3.6%	0	0	1	25.0%
	Head-On	0	0.0%	0	0	0	0%
	Head-On (LT)	2	7.1%	0	0	0	0%
	Angle	2	7.1%	0	0	0	0%
	Rear-End	19	67.9%	0	0	3	75.0%
	Sideswipe (Same)	3	10.7%	0	0	0	0%
	Sideswipe (Opposite)	1	3.6%	0	0	0	0%
	Other	0	0.0%	0	0	0	0%
	Unknown	0	0.0%	0	0	0	0%
	Total:	**28**	**100%**	**0**	**0**	**4**	**100%**

Note: KAB Crashes are fatal and severe crashes as noted by the KABCO scale: K= fatal crashes, A=incapacitating injury, B=non-incapacitating injury, C=possible injury, and O= no injury.

Queue Analysis

Table 10 and **Table 10.1** below highlights the queue analysis performed on all approaching directions to the intersection utilizing Synchro 12 and SimTraffic 12.

Table 10 – Queue Analysis

Intersection & Control	Approach	Lane Group	2025 Existing Conditions		2030 Background Conditions		2030 Build Conditions	
			AM Peak Queue Length (ft)	PM Peak Queue Length (ft)	AM Peak Queue Length (ft)	PM Peak Queue Length (ft)	AM Peak Queue Length (ft)	PM Peak Queue Length (ft)
S. Broadway St & Odanah Ave Signalized	Northbound	Thru	179	246	188	262	196	280
		Thru/Right	158	255	167	271	167	286
	Southbound	Left	N/A	N/A	N/A	N/A	37	57
		Thru	213	221	206	216	209	206
		Thru	224	196	223	201	223	198
	Eastbound	Left	151	224	155	213	169	259
		Thru/Right	140	98	142	93	126	74
	Westbound	Left	N/A	5	7	5	55	47
		Right	N/A	N/A	N/A	N/A	33	114
	Intersection Overall		**178**	**178**	**155**	**180**	**135**	**169**
S. Broadway St & Heights Rd Unsignalized	Northbound	Left	41	52	40	53	43	52
		Thru	179	156	30	152	47	149
		Thru	N/A	153	24	143	11	138
	Southbound	Thru	482	93	344	100	466	210
		Thru/Right	482	40	314	45	414	158
	Intersection Overall		**296**	**99**	**150**	**99**	**196**	**141**
S. Broadway St & Glanworth St Unsignalized	Northbound	Thru	12	267	24	270	21	401
		Thru/Right	N/A	217	N/A	213	16	342
	Southbound	Left	22	27	20	27	19	30
		Thru	N/A	19	50	19	41	40
		Thru	N/A	17	38	6	55	28
	Westbound	Left/Right	55	107	127	93	75	108
	Intersection Overall		**30**	**109**	**52**	**105**	**38**	**158**

Table 10.1 – Mitigation Queue Analysis

Intersection & Control	Approach	Lane Group	2030 Build Conditions		2030 Mitigation Conditions	
			AM Peak Queue Length (ft)	PM Peak Queue Length (ft)	AM Peak Queue Length (ft)	PM Peak Queue Length (ft)
S. Broadway St & Odanah Ave Signalized	Northbound	Thru	196	280	244	265
		Thru/Right	167	286	211	268
	Southbound	Left	37	57	38	69
		Thru	209	206	204	198
		Thru	223	198	207	202
	Eastbound	Left	169	259	153	251
		Thru/Right	126	74	119	77
	Westbound	Left	55	47	56	57
		Right	33	114	30	139
	Intersection Overall		**135**	**169**	**140**	**170**
S. Broadway St & Heights Rd Unsignalized	Northbound	Left	43	52	40	59
		Thru	47	149	35	188
		Thru	11	138	14	219
	Southbound	Thru	466	210	555	341
		Thru/Right	414	158	564	350
	Intersection Overall		**196**	**141**	**242**	**231**
S. Broadway St & Glanworth St Unsignalized	Northbound	Thru	21	401	42	644
		Thru/Right	16	342	N/A	648
	Southbound	Left	19	30	21	32
		Thru	41	40	29	10
		Thru	55	28	40	10
	Westbound	Left/Right	75	108	57	562
	Intersection Overall		**38**	**158**	**38**	**318**

Conclusion

- Traffic counts were taken on January 30, 2025, to obtain the existing conditions of the study site.
- The existing conditions were simulated in Synchro 12 and the level of service was calculated. The results of the existing condition analysis indicate that the study intersections overall and intersection movement levels of service currently operate at a LOS D or better.
- The background data was calculated by applying a growth rate of 1.023 to project the traffic volumes to the build-out year of 2030. The results of the background condition analysis indicate that the level of service for the study intersection overall and individual intersection movements are anticipated to operate at a LOS D or better except for the following intersections/movements:
    - Eastbound Odanah Ave – Left Turns (PM)

- The build data was simulated in Synchro12 and SimTraffic12 with the trip distribution for entering and exiting the network based off the existing traffic patterns. The results of the build condition analysis indicate that the study intersection overall and intersection movement levels of service currently operate at a LOS D or better except for the following intersections/movements:
    - Eastbound Odanah Ave – Left Turns (PM))
- The proposed mitigation measures to be implemented as part of the development include the following:

1. **Left-Turn Access:**
   Southbound traffic on S. Broadway Street at Odanah Avenue will be permitted to make left turns into the proposed development, enhancing site accessibility.
2. **Traffic Signal Modernization:**
   The proposed widening of the westbound approach is necessary to support the improved signal infrastructure, enhance capacity, and ensure compliance with

current geometric design criteria. This modification will facilitate more efficient traffic flow and accommodate anticipated increases in traffic volume.

3. **Eastbound Odanah Avenue Lane Modification:**
   The eastbound right-turn lane on Odanah Avenue will be reconfigured to allow both right-turn and through movements into the development, thereby improving traffic flow and access.
4. The results of the build mitigation condition analysis indicate that the study intersection overall and intersection movement levels of service currently operate at a LOS D or better

Table-11, Figure-9 and Figure-10 are below details. Copies of the summaries can be found in Appendix F.

Table 11 – LOS Mitigation

Intersection & Control	Approach	Lane Group	2030 Build (LOS)		2030 Mitigation (LOS)	
			AM-Peak LOS/Delay (s)	PM Peak LOS/Delay (s)	AM-Peak LOS/Delay(s)	PM Peak LOS/Delay(s)
S. Broadway St & Odanah Ave Signalized	Northbound	2-Thru/Right	A/6.5	B/12.5	A/5.5	C/20.9
	Southbound	Left	A/4.9	C/23.0	A/4.0	D/38.2
		2-Thru	B/14.4	A/7.2	B/11.5	B/12.2
	Eastbound	Left	D/44.3	E/59.8	D/51.4	D/54.7
		Thru/Right	D/44.5	D/46.3	D/52.3	D/47.7
	Westbound	Left	D/44.4	D/44.4	D/44.9	D/44.9
		Right	D/41.0	D/47.7	D/43.5	D/45.1
	Intersection Overall		**B/14.6**	**B/14.3**	**B/13.2**	**C/20.3**
S. Broadway St & Heights Rd Unsignalized	Northbound	Left	A/0.0	A/0.0	A/0.0	A/0.0
		2-Thru/Right	Free flow	Free flow	Free flow	Free flow
	Southbound	2-Thru/Right	Free flow	Free flow	Free flow	Free flow
	Intersection Overall		**Free flow**	**Free flow**	**Free flow**	**Free flow**
S. Broadway St & Glanworth St Unsignalized	Northbound	2-Thru/Right	Free flow	Free flow	Free flow	Free flow
	Southbound	Left	A/10.0	C/19.4	A/10.0	C/19.4
		Thru	Free flow	Free flow	Free flow	Free flow
	Westbound	Left/Right	B/13.1	D/26.3	B/13.0	D/26.3
	Intersection Overall		**B/11.6**	**C/22.9**	**B/11.5**	**C/22.9**

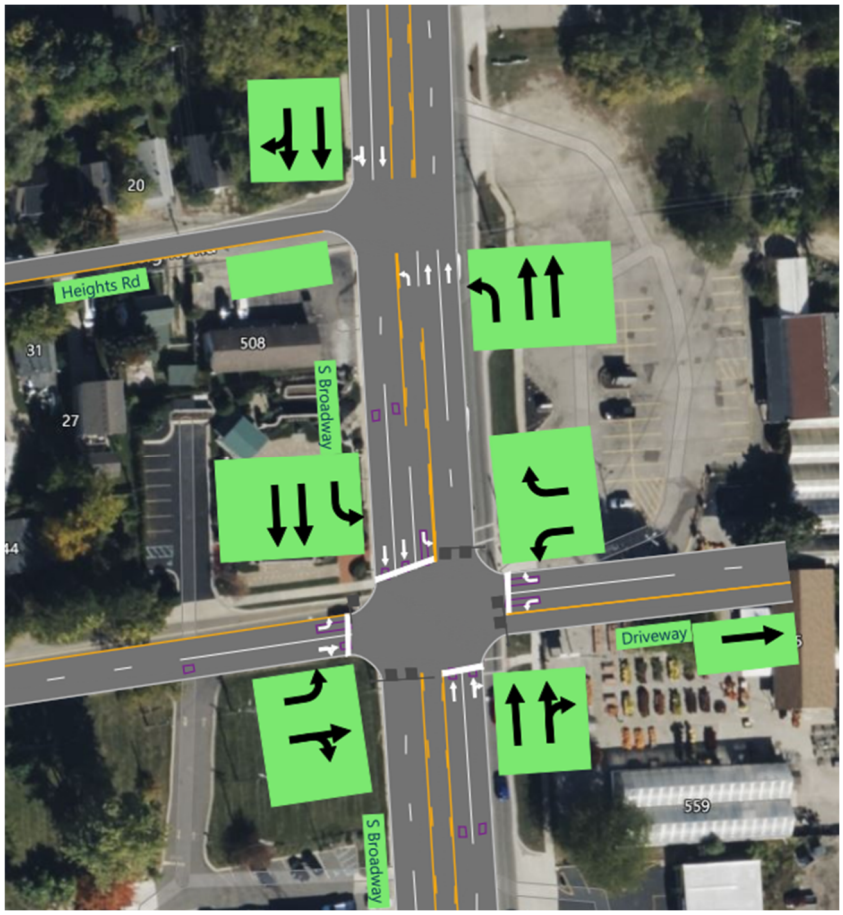


Figure 9 - Proposed Lane Configuration Mitigation

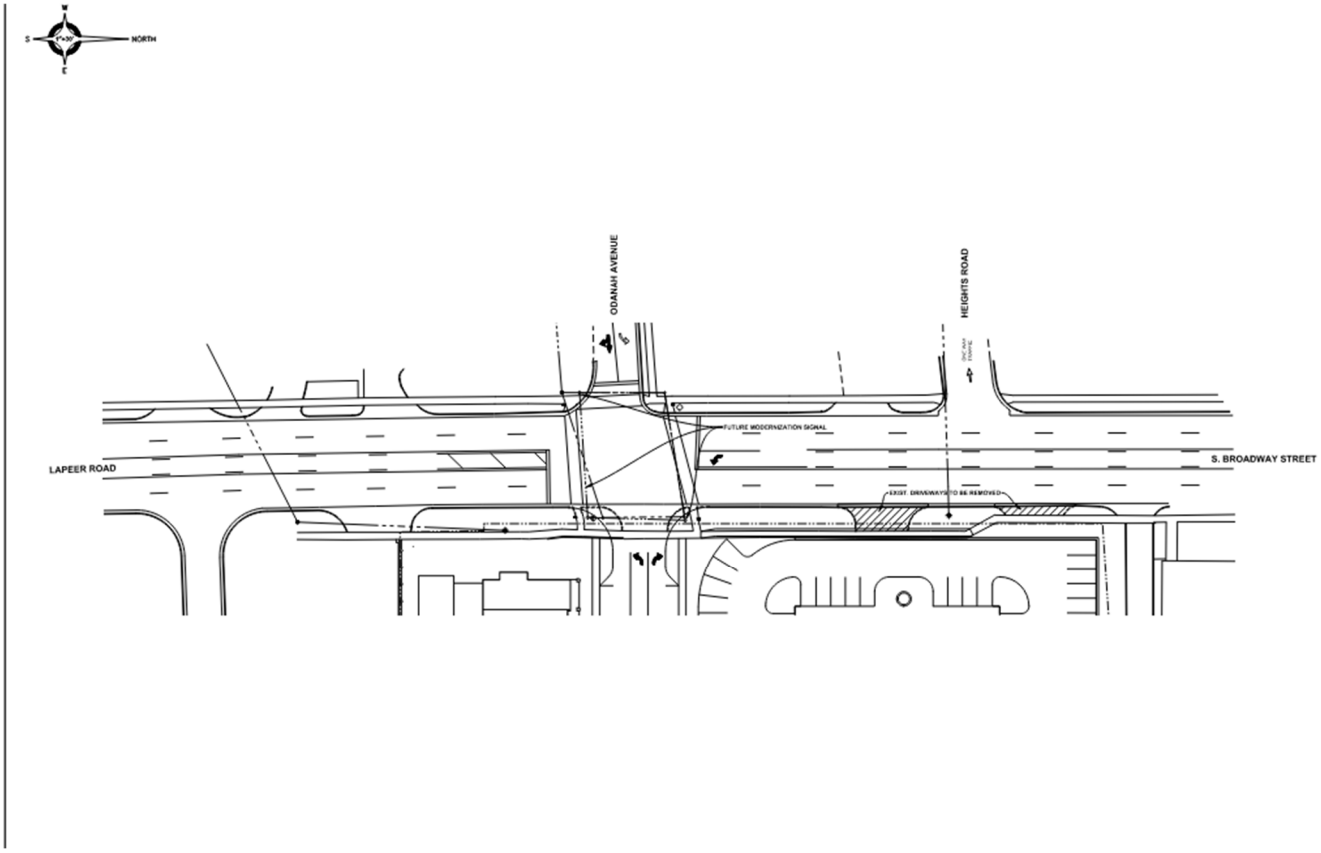


Figure 10 - Proposed Signal Modernization

APPENDIX A: EXISTING TRAFFIC DATA

Lapeer Rd and Odanah Ave
Lake Orion Michigan
Thursday, January 30, 2025

	Southbound Lapeer Rd						Westbound Driveway						Northbound Lapeer Rd						Eastbound Odanah Ave						
Time	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	VEHICLE TOTAL
12:00 AM	0	0	12	0	0	*12*	0	0	0	0	0	*0*	0	0	36	0	0	*36*	0	3	0	0	0	*3*	**51**
12:15 AM	0	0	6	0	0	*6*	0	0	0	0	0	*0*	0	0	32	0	0	*32*	0	2	0	1	0	*3*	**41**
12:30 AM	0	0	19	0	0	*19*	0	0	0	0	0	*0*	0	0	26	0	0	*26*	0	3	0	1	0	*4*	**49**
12:45 AM	0	0	6	0	0	*6*	0	0	0	0	0	*0*	0	0	14	0	0	*14*	0	1	0	0	0	*1*	**21**
Hourly Total	0	0	43	0	0	*43*	0	0	0	0	0	*0*	0	0	108	0	0	*108*	0	9	0	2	0	*11*	**162**
1:00 AM	0	0	17	0	0	*17*	0	0	0	0	0	*0*	0	0	30	0	0	*30*	0	0	0	0	0	*0*	**47**
1:15 AM	0	0	7	0	0	*7*	0	0	0	0	0	*0*	0	0	14	0	0	*14*	0	0	0	0	0	*0*	**21**
1:30 AM	0	0	17	0	0	*17*	0	0	0	0	0	*0*	0	0	18	0	0	*18*	0	0	0	0	0	*0*	**35**
1:45 AM	0	0	5	0	0	*5*	0	0	0	0	0	*0*	0	0	11	0	0	*11*	0	0	0	2	0	*2*	**18**
Hourly Total	0	0	46	0	0	*46*	0	0	0	0	0	*0*	0	0	73	0	0	*73*	0	0	0	2	0	*2*	**121**
2:00 AM	0	0	8	0	0	*8*	0	0	0	0	0	*0*	0	0	11	0	0	*11*	0	1	0	1	0	*2*	**21**
2:15 AM	0	0	11	0	0	*11*	0	0	0	0	0	*0*	0	0	10	0	0	*10*	0	0	0	1	1	*1*	**22**
2:30 AM	0	0	7	0	0	*7*	0	0	0	0	0	*0*	0	0	13	0	0	*13*	0	0	0	1	0	*1*	**21**
2:45 AM	0	0	10	0	0	*10*	0	0	0	0	0	*0*	0	0	13	0	0	*13*	0	0	0	1	0	*1*	**24**
Hourly Total	0	0	36	0	0	*36*	0	0	0	0	0	*0*	0	0	47	0	0	*47*	0	1	0	4	1	*5*	**88**
3:00 AM	0	0	16	0	0	*16*	0	0	0	0	0	*0*	0	0	7	0	0	*7*	0	0	0	0	1	*0*	**23**
3:15 AM	0	0	14	0	0	*14*	0	0	0	0	0	*0*	0	0	11	0	0	*11*	0	2	0	0	0	*2*	**27**
3:30 AM	0	0	23	0	0	*23*	0	0	0	1	0	*1*	0	0	11	0	0	*11*	0	0	0	0	0	*0*	**35**
3:45 AM	0	0	33	0	0	*33*	0	0	0	0	0	*0*	0	0	6	0	0	*6*	0	2	0	0	0	*2*	**41**
Hourly Total	0	0	86	0	0	*86*	0	0	0	1	0	*1*	0	0	35	0	0	*35*	0	4	0	0	1	*4*	**126**
4:00 AM	1	0	56	0	0	*57*	0	0	0	0	0	*0*	0	0	8	0	0	*8*	0	0	0	1	0	*1*	**66**
4:15 AM	0	0	75	0	0	*75*	0	0	0	0	0	*0*	0	0	6	0	0	*6*	0	0	0	1	0	*1*	**82**
4:30 AM	0	0	115	0	0	*115*	0	0	0	0	0	*0*	0	0	11	0	0	*11*	0	2	0	5	0	*7*	**133**
4:45 AM	0	0	162	0	0	*162*	0	0	0	1	0	*1*	0	0	17	0	0	*17*	0	3	0	1	0	*4*	**184**
Hourly Total	1	0	408	0	0	*409*	0	0	0	1	0	*1*	0	0	42	0	0	*42*	0	5	0	8	0	*13*	**465**
5:00 AM	0	0	157	0	0	*157*	0	0	0	0	0	*0*	0	0	19	0	0	*19*	0	4	0	4	0	*8*	**184**
5:15 AM	0	0	263	0	0	*263*	0	0	0	0	0	*0*	0	0	36	0	0	*36*	0	2	0	6	0	*8*	**307**
5:30 AM	0	0	335	0	0	*335*	0	0	0	0	0	*0*	0	0	42	0	0	*42*	0	6	0	10	0	*16*	**393**
5:45 AM	0	0	315	0	0	*315*	0	0	0	0	0	*0*	0	0	41	0	0	*41*	0	3	0	12	0	*15*	**371**
Hourly Total	0	0	1070	0	0	*1070*	0	0	0	0	0	*0*	0	0	138	0	0	*138*	0	15	0	32	0	*47*	**1255**
6:00 AM	0	0	362	0	0	*362*	0	0	0	0	0	*0*	0	0	47	0	0	*47*	0	7	0	10	0	*17*	**426**
6:15 AM	0	0	417	0	0	*417*	0	0	0	0	1	*0*	0	0	79	0	1	*79*	0	13	0	16	0	*29*	**525**
6:30 AM	0	0	484	0	0	*484*	0	0	0	0	0	*0*	0	0	81	0	1	*81*	0	12	0	9	0	*21*	**586**
6:45 AM	0	0	568	0	0	*568*	0	0	0	0	0	*0*	0	0	103	0	0	*103*	0	27	0	22	0	*49*	**720**
Hourly Total	0	0	1831	0	0	*1831*	0	0	0	0	1	*0*	0	0	310	0	2	*310*	0	59	0	57	0	*116*	**2257**
7:00 AM	0	0	522	0	0	*522*	0	0	0	0	0	*0*	0	0	121	0	0	*121*	0	27	0	21	0	*48*	**691**
7:15 AM	0	0	386	0	0	*386*	0	0	0	0	0	*0*	0	0	146	0	0	*146*	0	36	0	25	0	*61*	**593**
7:30 AM	0	0	448	0	0	*448*	0	0	0	0	0	*0*	0	0	189	0	0	*189*	0	21	0	12	1	*33*	**670**
7:45 AM	0	0	511	0	0	*511*	0	0	0	0	0	*0*	0	0	220	0	0	*220*	0	32	0	27	0	*59*	**790**
Hourly Total	0	0	1867	0	0	*1867*	0	0	0	0	0	*0*	0	0	676	0	0	*676*	0	116	0	85	1	*201*	**2744**

Lake Orion Michigan
Thursday, January 30, 2025

Time	Southbound Lapeer Rd						Westbound Driveway						Northbound Lapeer Rd						Eastbound Odanah Ave						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
8:00 AM	0	0	446	0	0	*446*	0	0	0	0	0	*0*	0	0	205	0	0	*205*	0	33	0	24	0	*57*	**708**
8:15 AM	0	0	516	0	0	*516*	0	0	0	0	1	*0*	0	0	197	0	1	*197*	0	29	0	24	0	*53*	**766**
8:30 AM	0	0	510	0	0	*510*	0	1	0	0	0	*1*	0	0	227	1	1	*228*	0	27	0	27	0	*54*	**793**
8:45 AM	0	0	502	0	0	*502*	0	0	0	0	0	*0*	0	0	217	0	0	*217*	0	34	0	17	0	*51*	**770**
Hourly Total	0	0	1974	0	0	*1974*	0	1	0	0	1	*1*	0	0	846	1	2	*847*	0	123	0	92	0	*215*	**3037**
9:00 AM	0	0	340	0	0	*340*	0	0	0	0	0	*0*	0	0	203	0	0	*203*	0	30	1	17	0	*48*	**591**
9:15 AM	0	0	338	0	0	*338*	0	0	0	0	0	*0*	0	0	206	0	0	*206*	0	20	0	13	0	*33*	**577**
9:30 AM	0	0	380	0	0	*380*	0	0	0	0	0	*0*	0	0	205	0	0	*205*	0	32	0	16	1	*48*	**633**
9:45 AM	0	0	310	0	0	*310*	0	0	0	0	0	*0*	0	0	234	0	0	*234*	0	19	0	10	0	*29*	**573**
Hourly Total	0	0	1368	0	0	*1368*	0	0	0	0	0	*0*	0	0	848	0	0	*848*	0	101	1	56	1	*158*	**2374**
10:00 AM	0	0	304	0	0	*304*	0	0	0	0	0	*0*	0	0	205	0	0	*205*	0	22	0	13	0	*35*	**544**
10:15 AM	0	0	333	0	0	*333*	0	0	0	0	0	*0*	0	0	241	0	0	*241*	0	24	0	19	0	*43*	**617**
10:30 AM	0	0	316	0	0	*316*	0	0	0	0	0	*0*	0	0	275	0	0	*275*	0	35	0	13	0	*48*	**639**
10:45 AM	0	0	330	0	0	*330*	0	0	0	0	0	*0*	0	0	303	0	0	*303*	0	24	0	13	0	*37*	**670**
Hourly Total	0	0	1283	0	0	*1283*	0	0	0	0	0	*0*	0	0	1024	0	0	*1024*	0	105	0	58	0	*163*	**2470**
11:00 AM	0	0	304	0	0	*304*	0	1	0	0	0	*1*	0	0	321	1	0	*322*	0	24	0	20	0	*44*	**671**
11:15 AM	0	0	321	0	0	*321*	0	0	0	0	0	*0*	0	0	369	0	1	*369*	0	24	1	14	0	*39*	**729**
11:30 AM	0	0	294	0	0	*294*	0	0	0	0	0	*0*	0	0	315	0	0	*315*	0	25	0	17	1	*42*	**651**
11:45 AM	0	0	324	0	0	*324*	0	0	0	0	1	*0*	0	0	341	0	0	*341*	0	31	0	26	0	*57*	**722**
Hourly Total	0	0	1243	0	0	*1243*	0	1	0	0	1	*1*	0	0	1346	1	1	*1347*	0	104	1	77	1	*182*	**2773**
12:00 PM	0	0	241	0	0	*241*	0	1	0	0	1	*1*	0	0	341	1	0	*342*	0	33	0	16	0	*49*	**633**
12:15 PM	0	0	320	0	0	*320*	0	0	0	0	0	*0*	0	0	326	0	0	*326*	0	24	0	17	0	*41*	**687**
12:30 PM	0	0	342	0	0	*342*	0	0	0	1	0	*1*	0	0	292	0	0	*292*	0	39	0	12	0	*51*	**686**
12:45 PM	0	0	332	0	0	*332*	0	0	0	0	0	*0*	0	0	314	0	0	*314*	0	15	0	17	0	*32*	**678**
Hourly Total	0	0	1235	0	0	*1235*	0	1	0	1	1	*2*	0	0	1273	1	0	*1274*	0	111	0	62	0	*173*	**2684**
1:00 PM	0	0	290	0	0	*290*	0	0	0	0	0	*0*	0	0	293	1	0	*294*	0	21	0	18	0	*39*	**623**
1:15 PM	0	0	324	0	0	*324*	0	0	0	0	0	*0*	0	0	309	0	0	*309*	0	21	0	14	0	*35*	**668**
1:30 PM	0	0	265	0	0	*265*	0	0	0	0	0	*0*	0	0	292	0	0	*292*	0	28	0	21	0	*49*	**606**
1:45 PM	0	0	285	0	0	*285*	0	0	0	0	2	*0*	0	0	345	1	1	*346*	0	20	0	9	0	*29*	**660**
Hourly Total	0	0	1164	0	0	*1164*	0	0	0	0	2	*0*	0	0	1239	2	1	*1241*	0	90	0	62	0	*152*	**2557**
2:00 PM	0	0	282	0	0	*282*	0	0	0	0	0	*0*	0	0	365	0	0	*365*	0	27	0	12	0	*39*	**686**
2:15 PM	0	0	288	0	0	*288*	0	0	0	0	1	*0*	0	0	341	0	2	*341*	0	41	0	15	0	*56*	**685**
2:30 PM	0	0	294	0	0	*294*	0	0	0	0	0	*0*	0	0	453	0	0	*453*	0	27	1	13	0	*41*	**788**
2:45 PM	0	0	295	0	0	*295*	0	0	0	0	1	*0*	0	0	462	0	0	*462*	0	32	0	10	0	*42*	**799**
Hourly Total	0	0	1159	0	0	*1159*	0	0	0	0	2	*0*	0	0	1621	0	2	*1621*	0	127	1	50	0	*178*	**2958**
3:00 PM	0	0	309	0	0	*309*	0	0	0	0	1	*0*	0	0	425	0	0	*425*	0	36	0	22	0	*58*	**792**
3:15 PM	0	0	274	0	0	*274*	0	0	0	0	0	*0*	0	0	510	0	0	*510*	0	37	0	13	0	*50*	**834**
3:30 PM	0	1	318	0	0	*319*	0	0	0	0	0	*0*	0	0	474	0	0	*474*	0	31	0	16	0	*47*	**840**
3:45 PM	0	0	277	0	0	*277*	0	0	0	0	0	*0*	0	0	551	0	0	*551*	0	53	0	14	0	*67*	**895**
Hourly Total	0	1	1178	0	0	*1179*	0	0	0	0	1	*0*	0	0	1960	0	0	*1960*	0	157	0	65	0	*222*	**3361**

Lapeer Rd and Odanah Ave
Lake Orion Michigan

Thursday, January 30, 2025

Time	Southbound Lapeer Rd						Westbound Driveway						Northbound Lapeer Rd						Eastbound Odanah Ave						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
4:00 PM	0	0	323	0	0	*323*	0	0	0	0	0	*0*	0	0	505	0	0	*505*	0	45	0	16	0	*61*	**889**
4:15 PM	0	0	375	0	0	*375*	0	0	0	0	0	*0*	0	0	499	0	0	*499*	0	42	0	16	0	*58*	**932**
4:30 PM	0	0	305	0	0	*305*	0	0	0	0	0	*0*	0	0	495	0	0	*495*	0	38	0	20	0	*58*	**858**
4:45 PM	0	0	318	0	0	*318*	0	0	0	0	0	*0*	0	0	510	0	0	*510*	0	46	0	14	0	*60*	**888**
Hourly Total	0	0	1321	0	0	*1321*	0	0	0	0	0	*0*	0	0	2009	0	0	*2009*	0	171	0	66	0	*237*	**3567**
5:00 PM	0	0	326	0	0	*326*	0	0	0	0	1	*0*	0	0	483	0	0	*483*	0	38	0	19	0	*57*	**866**
5:15 PM	0	0	354	0	0	*354*	0	0	0	0	1	*0*	0	0	496	0	0	*496*	0	36	0	14	2	*50*	**900**
5:30 PM	0	0	306	0	1	*306*	0	0	0	0	2	*0*	0	0	468	0	1	*468*	0	39	0	16	0	*55*	**829**
5:45 PM	0	0	275	0	0	*275*	0	0	0	0	2	*0*	0	0	446	0	0	*446*	0	39	0	16	0	*55*	**776**
Hourly Total	0	0	1261	0	1	*1261*	0	0	0	0	6	*0*	0	0	1893	0	1	*1893*	0	152	0	65	2	*217*	**3371**
6:00 PM	0	0	292	0	0	*292*	0	0	0	0	0	*0*	0	0	464	0	3	*464*	0	32	0	7	0	*39*	**795**
6:15 PM	0	1	260	0	0	*261*	0	0	0	0	0	*0*	0	0	525	0	0	*525*	0	25	0	21	0	*46*	**832**
6:30 PM	0	0	222	0	0	*222*	0	0	0	0	0	*0*	0	0	409	0	1	*409*	0	25	0	19	0	*44*	**675**
6:45 PM	0	0	224	0	0	*224*	0	0	0	0	0	*0*	0	0	328	0	0	*328*	0	20	0	11	0	*31*	**583**
Hourly Total	0	1	998	0	0	*999*	0	0	0	0	0	*0*	0	0	1726	0	4	*1726*	0	102	0	58	0	*160*	**2885**
7:00 PM	0	0	239	0	0	*239*	0	0	0	0	0	*0*	0	0	287	0	0	*287*	0	29	0	10	0	*39*	**565**
7:15 PM	0	0	218	0	0	*218*	0	0	0	0	0	*0*	0	0	283	0	2	*283*	0	30	0	16	0	*46*	**547**
7:30 PM	0	0	199	0	0	*199*	0	0	0	0	0	*0*	0	0	246	0	0	*246*	0	23	0	8	0	*31*	**476**
7:45 PM	0	0	171	0	0	*171*	0	0	0	0	0	*0*	0	0	226	0	0	*226*	0	12	0	9	0	*21*	**418**
Hourly Total	0	0	827	0	0	*827*	0	0	0	0	0	*0*	0	0	1042	0	2	*1042*	0	94	0	43	0	*137*	**2006**
8:00 PM	0	0	142	0	0	*142*	0	0	0	0	0	*0*	0	0	227	0	0	*227*	0	18	0	6	1	*24*	**393**
8:15 PM	0	0	149	0	0	*149*	0	0	0	0	0	*0*	0	0	254	0	0	*254*	0	12	0	2	0	*14*	**417**
8:30 PM	0	0	161	0	0	*161*	0	0	0	0	0	*0*	0	0	212	0	0	*212*	0	7	0	6	0	*13*	**386**
8:45 PM	0	0	157	0	0	*157*	0	0	0	0	0	*0*	0	0	172	0	0	*172*	0	7	0	3	0	*10*	**339**
Hourly Total	0	0	609	0	0	*609*	0	0	0	0	0	*0*	0	0	865	0	0	*865*	0	44	0	17	1	*61*	**1535**
9:00 PM	0	0	121	0	0	*121*	0	0	0	0	0	*0*	0	0	194	0	0	*194*	0	8	0	2	0	*10*	**325**
9:15 PM	0	0	120	0	0	*120*	0	0	0	0	0	*0*	0	0	155	0	0	*155*	0	6	0	3	0	*9*	**284**
9:30 PM	0	0	116	0	0	*116*	0	0	0	0	0	*0*	0	0	131	0	1	*131*	0	6	0	1	1	*7*	**254**
9:45 PM	0	0	75	0	0	*75*	0	0	0	0	0	*0*	0	0	100	0	1	*100*	0	6	0	4	0	*10*	**185**
Hourly Total	0	0	432	0	0	*432*	0	0	0	0	0	*0*	0	0	580	0	2	*580*	0	26	0	10	1	*36*	**1048**
10:00 PM	0	0	63	0	0	*63*	0	0	0	0	0	*0*	0	0	119	0	0	*119*	0	4	0	4	1	*8*	**190**
10:15 PM	0	0	63	0	0	*63*	0	0	0	0	0	*0*	0	0	97	0	0	*97*	0	3	0	2	0	*5*	**165**
10:30 PM	0	0	59	0	0	*59*	0	0	0	0	0	*0*	0	0	75	0	0	*75*	0	5	0	5	0	*10*	**144**
10:45 PM	0	0	37	0	0	*37*	0	0	0	0	0	*0*	0	0	82	0	0	*82*	0	3	0	3	0	*6*	**125**
Hourly Total	0	0	222	0	0	*222*	0	0	0	0	0	*0*	0	0	373	0	0	*373*	0	15	0	14	1	*29*	**624**
11:00 PM	0	0	34	0	0	*34*	0	0	0	0	0	*0*	0	0	62	0	0	*62*	0	5	0	4	0	*9*	**105**
11:15 PM	0	0	32	0	0	*32*	0	0	0	0	0	*0*	0	0	54	0	0	*54*	0	2	0	0	0	*2*	**88**
11:30 PM	0	0	42	0	0	*42*	0	0	0	0	0	*0*	0	0	51	0	0	*51*	0	0	0	3	0	*3*	**96**
11:45 PM	0	0	37	0	0	*37*	0	0	0	0	0	*0*	0	0	45	0	0	*45*	0	0	0	0	0	*0*	**82**
Hourly Total	0	0	145	0	0	*145*	0	0	0	0	0	*0*	0	0	212	0	0	*212*	0	7	0	7	0	*14*	**371**
TOTAL	**1**	**2**	**21806**	**0**	**1**	***21809***	**0**	**3**	**0**	**3**	**15**	***6***	**0**	**0**	**20286**	**5**	**17**	***20291***	**0**	**1738**	**3**	**992**	**10**	***2733***	**44839**
Cars	1	2	21010	0	1	*21013*	0	3	0	2	15	*5*	0	0	19911	5	17	*19916*	0	1725	3	965	10	*2693*	**43627**
Heavy Vehicles	0	0	796	0	0	*796*	0	0	0	1	0	*1*	0	0	375	0	0	*375*	0	13	0	27	0	*40*	**1212**
Heavy Vehicle %	0.00%	0.00%	3.65%	0.00%	0.00%	*3.65%*	0.00%	0.00%	0.00%	33.33%	0.00%	*16.67%*	0.00%	0.00%	1.85%	0.00%	0.00%	*1.85%*	0.00%	0.75%	0.00%	2.72%	0.00%	*1.46%*	**2.70%**

Lapeer Rd and Odanah Ave

Lake Orion Michigan
Thursday, January 30, 2025
AM Peak Hour

Time	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
7:45 AM	0	0	511	0	0	*511*	0	0	0	0	0	*0*	0	0	220	0	0	*220*	0	32	0	27	0	*59*	**790**
8:00 AM	0	0	446	0	0	*446*	0	0	0	0	0	*0*	0	0	205	0	0	*205*	0	33	0	24	0	*57*	**708**
8:15 AM	0	0	516	0	0	*516*	0	0	0	0	1	*0*	0	0	197	0	1	*197*	0	29	0	24	0	*53*	**766**
8:30 AM	0	0	510	0	0	*510*	0	1	0	0	0	*1*	0	0	227	1	1	*228*	0	27	0	27	0	*54*	**793**
Peak Hour Total	0	0	1983	0	0	*1983*	0	1	0	0	1	*1*	0	0	849	1	2	*850*	0	121	0	102	0	*223*	**3057**
PHF	0.000	0.000	0.961	0.000	0.000	*0.961*	0.000	0.250	0.000	0.000	0.250	*0.250*	0.000	0.000	0.935	0.250	0.500	*0.932*	0.000	0.917	0.000	0.944	0.000	*0.945*	**0.964**
Heavy Vehicle %	0.00%	0.00%	4.79%	0.00%		4.79%	0.00%	0.00%	0.00%	0.00%		0.00%	0.00%	0.00%	4.83%	0.00%		4.82%	0.00%	0.00%	0.00%	5.88%		2.69%	**4.65%**

PM Peak Hour

Time	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL
	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach Total*	
3:45 PM	0	0	277	0	0	*277*	0	0	0	0	0	*0*	0	0	551	0	0	*551*	0	53	0	14	0	*67*	**895**
4:00 PM	0	0	323	0	0	*323*	0	0	0	0	0	*0*	0	0	505	0	0	*505*	0	45	0	16	0	*61*	**889**
4:15 PM	0	0	375	0	0	*375*	0	0	0	0	0	*0*	0	0	499	0	0	*499*	0	42	0	16	0	*58*	**932**
4:30 PM	0	0	305	0	0	*305*	0	0	0	0	0	*0*	0	0	495	0	0	*495*	0	38	0	20	0	*58*	**858**
Peak Hour Total	0	0	1280	0	0	*1280*	0	0	0	0	0	*0*	0	0	2050	0	0	*2050*	0	178	0	66	0	*244*	**3574**
PHF	0.000	0.000	0.853	0.000	0.000	*0.853*	0.000	0.000	0.000	0.000	0.000	*0.000*	0.000	0.000	0.930	0.000	0.000	*0.930*	0.000	0.840	0.000	0.825	0.000	*0.910*	**0.959**
Heavy Vehicle %	0.00%	0.00%	2.27%	0.00%		2.27%	0.00%	0.00%	0.00%	0.00%		0.00%	0.00%	0.00%	0.98%	0.00%		0.98%	0.00%	0.00%	0.00%	1.52%		0.41%	**1.40%**

Lapeer Rd

Total Vehicles On Leg			43837		
Vehicles Entering Intersection	21809		Vehicles Exiting Intersection	22028	
Southbound					
Cars	0	21010	2	1	1
Heavy	0	796	0	0	0
Total	**0**	**21806**	**2**	**1**	**1**
	R	T	L	U-TURN	PED

Odanah Ave

Total Vehicles on Leg 2733

Vehicles Entering Intersection 2733

Vehicles Exiting Intersection 0

Eastbound

Cars	Heavy	Total	
10	0	**10**	PED
0	0	**0**	U-TURN
1725	13	**1738**	L
3	0	**3**	T
965	27	**992**	R

Total Volumes

Westbound

	Cars	Heavy	Total
R	2	1	**3**
T	0	0	**0**
L	3	0	**3**
U-TURN	0	0	**0**
PED	15	0	**15**

Vehicles Entering Intersection 6

Vehicles Exiting Intersection 10

Total Vehicles on Leg 16

Driveway

	PED	U-TURN	L	T	R
Cars	17	0	0	19911	5
Heavy	0	0	0	375	0
Total	**17**	**0**	**0**	**20286**	**5**
Northbound					
Vehicles Entering Intersection	20291		Vehicles Exiting Intersection	22801	
Total Vehicles On Leg			43092		

Lapeer Rd and Glanworth St
Lake Orion Michigan
Thursday, January 30, 2025

	Southbound Lapeer Rd						Westbound Glanworth St						Northbound Lapeer Rd						Eastbound Starbucks Exit						VEHICLE TOTAL
Time	U Turns	Left Turns	Straight	Right	Crosswalk	*Vehicle*	U Turns	Left Turns	Straight	Right	Crosswalk	*Vehicle*	U Turns	Left Turns	Straight	Right	Crosswalk	*Vehicle*	U Turns	Left Turns	Straight	Right	Crosswalk	*Vehicle*	
7:00 AM	0	1	545	3	0	*549*	0	0	0	2	1	*2*	0	0	142	0	0	*142*	0	0	0	0	0	*0*	**693**
7:15 AM	0	2	411	2	0	*415*	0	0	0	0	0	*0*	0	0	157	0	0	*157*	0	0	0	0	0	*0*	**572**
7:30 AM	0	0	468	3	0	*471*	0	2	0	8	0	*10*	0	0	189	1	0	*190*	0	0	0	0	1	*0*	**671**
7:45 AM	0	3	530	3	0	*536*	0	1	0	6	0	*7*	0	2	227	2	0	*231*	0	0	0	0	0	*0*	**774**
Hourly Total	0	6	1954	11	0	*1971*	0	3	0	16	1	*19*	0	2	715	3	0	*720*	0	0	0	0	1	*0*	**2710**

Lapeer Rd and Glanworth St
Lake Orion Michigan
Thursday, January 30, 2025

	Southbound Lapeer Rd						Westbound Glanworth St						Northbound Lapeer Rd						Eastbound Starbucks Exit						VEHICLE TOTAL
Time	U Turns	Left Turns	Straight	Right	Crosswalk	*Vehicle*	U Turns	Left Turns	Straight	Right	Crosswalk	*Vehicle*	U Turns	Left Turns	Straight	Right	Crosswalk	*Vehicle*	U Turns	Left Turns	Straight	Right	Crosswalk	*Vehicle*	
8:00 AM	0	2	476	5	0	*483*	0	0	0	11	0	*11*	0	2	201	1	0	*204*	0	0	0	1	0	*1*	**699**
8:15 AM	0	0	530	6	0	*536*	0	1	0	8	0	*9*	0	0	192	1	0	*193*	0	0	0	3	0	*3*	**741**
8:30 AM	0	1	525	5	0	*531*	0	0	0	5	0	*5*	0	1	226	0	0	*227*	0	1	0	0	0	*1*	**764**
8:45 AM	0	1	517	5	0	*523*	0	1	0	5	0	*6*	0	3	212	2	0	*217*	0	0	0	0	1	*0*	**746**
Hourly Total	0	4	2048	21	0	*2073*	0	2	0	29	0	*31*	0	6	831	4	0	*841*	0	1	0	4	1	*5*	**2950**
TOTAL	**0**	**10**	**4002**	**32**	**0**	***4044***	**0**	**5**	**0**	**45**	**1**	***50***	**0**	**8**	**1546**	**7**	**0**	***1561***	**0**	**1**	**0**	**4**	**2**	***5***	**5660**
Cars	0	9	3870	32	0	*3911*	0	5	0	44	1	*49*	0	8	1484	7	0	*1499*	0	1	0	4	2	*5*	**5464**
Heavy Vehicles	0	1	132	0	0	*133*	0	0	0	1	0	*1*	0	0	62	0	0	*62*	0	0	0	0	0	*0*	**196**
Heavy Vehicle %	0.00%	10.00%	3.30%	0.00%	0.00%	*3.29%*	0.00%	0.00%	0.00%	2.22%	0.00%	*2.00%*	0.00%	0.00%	4.01%	0.00%	0.00%	*3.97%*	0.00%	0.00%	0.00%	0.00%	0.00%	*0.00%*	**3.46%**

Lapeer Rd and Glanworth St
Lake Orion Michigan
Thursday, January 30, 2025
AM Peak Hour

	Southbound						Westbound						Northbound						Eastbound						VEHICLE
Time	U Turns	Left Turns	Straight	Right	Crosswalk	*Vehicle*	U Turns	Left Turns	Straight	Right	Crosswalk	*Vehicle*	U Turns	Left Turns	Straight	Right	Crosswalk	*Vehicle*	U Turns	Left Turns	Straight	Right	Crosswalk	*Vehicle*	TOTAL
7:45 AM	0	3	530	3	0	*536*	0	1	0	6	0	*7*	0	2	227	2	0	*231*	0	0	0	0	0	*0*	**774**
8:00 AM	0	2	476	5	0	*483*	0	0	0	11	0	*11*	0	2	201	1	0	*204*	0	0	0	1	0	*1*	**699**
8:15 AM	0	0	530	6	0	*536*	0	1	0	8	0	*9*	0	0	192	1	0	*193*	0	0	0	3	0	*3*	**741**
8:30 AM	0	1	525	5	0	*531*	0	0	0	5	0	*5*	0	1	226	0	0	*227*	0	1	0	0	0	*1*	**764**
Peak Hour Total	0	6	2061	19	0	*2086*	0	2	0	30	0	*32*	0	5	846	4	0	*855*	0	1	0	4	0	*5*	**2978**
PHF	0.000	0.500	0.972	0.792	0.000	*0.973*	0.000	0.500	0.000	0.682	0.000	*0.727*	0.000	0.625	0.932	0.500	0.000	*0.925*	0.000	0.250	0.000	0.333	0.000	*0.417*	**0.962**
Heavy Vehicle %	0.00%	0.00%	4.27%	0.00%		4.22%	0.00%	0.00%	0.00%	0.00%		0.00%	0.00%	0.00%	4.73%	0.00%		4.68%	0.00%	0.00%	0.00%	0.00%		0.00%	**4.30%**

Lapeer Rd					
Total Vehicles On Leg		5636			
Vehicles Entering Intersection 4044		Vehicles Exiting Intersection 1592			
Southbound					
Cars	32	3870	9	0	0
Heavy	0	132	1	0	0
Total	**32**	**4002**	**10**	**0**	**0**
	R	T	L	U-TURN	PED

Starbucks Exit	Total Vehicles on Leg 45	Vehicles Entering Intersection 5 / Vehicles Exiting Intersection 40	**Eastbound**	Cars	Heavy	**Total**	
				2	0	**2**	PED
				0	0	**0**	U-TURN
				1	0	**1**	L
				0	0	**0**	T
				4	0	**4**	R

Total Volumes

	Cars	Heavy	**Total**	**Westbound**	Vehicles Entering Intersection 50 / Vehicles Exiting Intersection 17	Total Vehicles on Leg 67	**Glanworth St**
R	44	1	**45**				
T	0	0	**0**				
L	5	0	**5**				
U-TURN	0	0	**0**				
PED	1	0	**1**				

	PED	U-TURN	L	T	R
Cars	0	0	8	1484	7
Heavy	0	0	0	62	0
Total	**0**	**0**	**8**	**1546**	**7**
Northbound					
Vehicles Entering Intersection 1561			Vehicles Exiting Intersection 4011		
Total Vehicles On Leg			5572		

Lapeer Rd and Glanworth St
Lake Orion Michigan
Thursday, January 30, 2025

	Southbound Lapeer Rd						Westbound Glanworth St						Northbound Lapeer Rd						Eastbound Starbucks Exit						VEHICLE TOTAL
Time	U Turns	Left Turns	Straight	Right	Crosswalk	*Vehicle*	U Turns	Left Turns	Straight	Right	Crosswalk	*Vehicle*	U Turns	Left Turns	Straight	Right	Crosswalk	*Vehicle*	U Turns	Left Turns	Straight	Right	Crosswalk	*Vehicle*	
4:00 PM	3	1	329	4	0	*337*	0	0	0	7	0	*7*	0	1	501	1	0	*503*	0	0	0	1	0	*1*	**848**
4:15 PM	1	2	391	2	0	*396*	0	0	0	11	0	*11*	0	2	477	2	0	*481*	0	0	0	0	0	*0*	**888**
4:30 PM	1	2	321	4	0	*328*	0	0	0	3	1	*3*	0	0	489	1	0	*490*	0	0	0	0	0	*0*	**821**
4:45 PM	1	3	328	6	0	*338*	0	0	0	9	0	*9*	0	1	507	1	0	*509*	0	0	0	1	0	*1*	**857**
Hourly Total	6	8	1369	16	0	*1399*	0	0	0	30	1	*30*	0	4	1974	5	0	*1983*	0	0	0	2	0	*2*	**3414**
5:00 PM	1	3	343	3	0	*350*	0	1	0	7	1	*8*	0	0	486	2	0	*488*	0	0	0	1	0	*1*	**847**
5:15 PM	1	2	368	7	0	*378*	0	2	0	6	1	*8*	0	1	489	0	0	*490*	0	0	0	0	3	*0*	**876**
5:30 PM	1	1	319	5	0	*326*	0	0	0	5	2	*5*	0	1	463	0	0	*464*	0	0	0	1	0	*1*	**796**
5:45 PM	1	2	283	5	0	*291*	0	0	0	5	2	*5*	0	0	443	1	0	*444*	0	0	0	0	2	*0*	**740**
Hourly Total	4	8	1313	20	0	*1345*	0	3	0	23	6	*26*	0	2	1881	3	0	*1886*	0	0	0	2	5	*2*	**3259**
TOTAL	**10**	**16**	**2682**	**36**	**0**	***2744***	**0**	**3**	**0**	**53**	**7**	***56***	**0**	**6**	**3855**	**8**	**0**	***3869***	**0**	**0**	**0**	**4**	**5**	***4***	**6673**
Cars	10	16	2647	36	0	*2709*	0	3	0	53	7	*56*	0	6	3824	8	0	*3838*	0	0	0	4	5	*4*	**6607**
Heavy Vehicles	0	0	35	0	0	*35*	0	0	0	0	0	*0*	0	0	31	0	0	*31*	0	0	0	0	0	*0*	**66**
Heavy Vehicle %	0.00%	0.00%	1.30%	0.00%	0.00%	*1.28%*	0.00%	0.00%	0.00%	0.00%	0.00%	*0.00%*	0.00%	0.00%	0.80%	0.00%	0.00%	*0.80%*	0.00%	0.00%	0.00%	0.00%	0.00%	*0.00%*	**0.99%**

Lapeer Rd and Glanworth St
Lake Orion Michigan
Thursday, January 30, 2025

AM Peak Hour

	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL
Time	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach*	U Turns	Left Turns	Straight Through	Right Turns	Crosswalk Crossings	*Vehicle Approach*	
12:00 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
12:15 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
12:30 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
12:45 AM	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
Peak Hour Total	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	0	0	0	0	0	*0*	**0**
PHF	0.000	0.000	0.000	0.000	0.000	*0.000*	0.000	0.000	0.000	0.000	0.000	*0.000*	0.000	0.000	0.000	0.000	0.000	*0.000*	0.000	0.000	0.000	0.000	0.000	*0.000*	**0.000**

PM Peak Hour

	Southbound						Westbound						Northbound						Eastbound						VEHICLE TOTAL
Time	U Turns	Left Turns	Straight	Right	Crosswalk	*Vehicle*	U Turns	Left Turns	Straight	Right	Crosswalk	*Vehicle*	U Turns	Left Turns	Straight	Right	Crosswalk	*Vehicle*	U Turns	Left Turns	Straight	Right	Crosswalk	*Vehicle*	
4:00 PM	3	1	329	4	0	*337*	0	0	0	7	0	*7*	0	1	501	1	0	*503*	0	0	0	1	0	*1*	**848**
4:15 PM	1	2	391	2	0	*396*	0	0	0	11	0	*11*	0	2	477	2	0	*481*	0	0	0	0	0	*0*	**888**
4:30 PM	1	2	321	4	0	*328*	0	0	0	3	1	*3*	0	0	489	1	0	*490*	0	0	0	0	0	*0*	**821**
4:45 PM	1	3	328	6	0	*338*	0	0	0	9	0	*9*	0	1	507	1	0	*509*	0	0	0	1	0	*1*	**857**
Peak Hour Total	6	8	1369	16	0	*1399*	0	0	0	30	1	*30*	0	4	1974	5	0	*1983*	0	0	0	2	0	*2*	**3414**
PHF	0.500	0.667	0.875	0.667	0.000	*0.883*	0.000	0.000	0.000	0.682	0.250	*0.682*	0.000	0.500	0.973	0.625	0.000	*0.974*	0.000	0.000	0.000	0.500	0.000	*0.500*	**0.961**
Heavy Vehicle %	0.00%	0.00%	1.61%	0.00%		1.57%	0.00%	0.00%	0.00%	0.00%		0.00%	0.00%	0.00%	1.06%	0.00%		1.06%	0.00%	0.00%	0.00%	0.00%		0.00%	**1.26%**

Lapeer Rd					
Total Vehicles On Leg		6662			
Vehicles Entering Intersection	2744	Vehicles Exiting Intersection	3918		
Southbound					
Cars	36	2647	16	10	0
Heavy	0	35	0	0	0
Total	**36**	**2682**	**16**	**10**	**0**
	R	T	L	U-TURN	PED

Starbucks Exit	Total Vehicles on Leg 46	Vehicles Entering Intersection 4	Vehicles Exiting Intersection 42	Eastbound	Cars	Heavy	Total	
					5	0	**5**	PED
					0	0	**0**	U-TURN
					0	0	**0**	L
					0	0	**0**	T
					4	0	**4**	R

Total Volumes

	Cars	Heavy	Total	Westbound	Vehicles Entering Intersection 56	Total Vehicles on Leg 80	Vehicles Exiting Intersection 24	Glanworth St
R	53	0	**53**					
T	0	0	**0**					
L	3	0	**3**					
U-TURN	0	0	**0**					
PED	7	0	**7**					

	PED	U-TURN	L	T	R
Cars	0	0	6	3824	8
Heavy	0	0	0	31	0
Total	**0**	**0**	**6**	**3855**	**8**
Northbound					
Vehicles Entering Intersection	3869		Vehicles Exiting Intersection	2689	
Total Vehicles On Leg			6558		

APPENDIX B: EXISTING CONDITIONS

HCM Signalized Intersection Capacity Analysis
4: S Broadway & Odanah Ave/Driveway

04/27/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	121	0	102	1	0	0	0	849	1	0	1983	0
Future Volume (vph)	121	0	102	1	0	0	0	849	1	0	1983	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	5.6		5.6	5.6				6.1			6.1	
Lane Util. Factor	1.00		1.00	1.00				0.95			0.95	
Frt	1.00		0.85	1.00				1.00			1.00	
Flt Protected	0.95		1.00	0.95				1.00			1.00	
Satd. Flow (prot)	1900		1604	1900				3617			3619	
Flt Permitted	0.95		1.00	0.95				1.00			1.00	
Satd. Flow (perm)	1900		1604	1900				3617			3619	
Peak-hour factor, PHF	0.92	0.92	0.94	0.25	0.92	0.92	0.92	0.94	0.25	0.92	0.96	0.92
Adj. Flow (vph)	132	0	109	4	0	0	0	903	4	0	2066	0
RTOR Reduction (vph)	0	0	23	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	132	0	86	4	0	0	0	907	0	0	2066	0
Heavy Vehicles (%)	0%	2%	6%	0%	2%	2%	2%	5%	2%	2%	5%	2%
Turn Type	Perm		Prot	D.Pm		custom		NA			NA	
Protected Phases			2					1			1	
Permitted Phases	2			2								
Actuated Green, G (s)	21.5		21.5	21.5				86.8			86.8	
Effective Green, g (s)	21.5		21.5	21.5				86.8			86.8	
Actuated g/C Ratio	0.18		0.18	0.18				0.72			0.72	
Clearance Time (s)	5.6		5.6	5.6				6.1			6.1	
Vehicle Extension (s)	3.0		3.0	3.0				3.0			3.0	
Lane Grp Cap (vph)	340		287	340				2616			2617	
v/s Ratio Prot			0.05					0.25			c0.57	
v/s Ratio Perm	c0.07			0.00								
v/c Ratio	0.39		0.30	0.01				0.35			0.79	
Uniform Delay, d1	43.4		42.7	40.5				6.1			10.7	
Progression Factor	1.00		1.00	1.00				1.00			1.00	
Incremental Delay, d2	3.3		2.7	0.1				0.1			1.7	
Delay (s)	46.8		45.4	40.6				6.2			12.4	
Level of Service	D		D	D				A			B	
Approach Delay (s/veh)		46.1			40.6			6.2			12.4	
Approach LOS		D			D			A			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	13.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	74.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	30	846	4	6	2061
Future Volume (Veh/h)	2	30	846	4	6	2061
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.50	0.68	0.93	0.50	0.50	0.70
Hourly flow rate (vph)	4	44	910	8	12	2944
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						277
pX, platoon unblocked	0.29					
vC, conflicting volume	2410	459			918	
vC1, stage 1 conf vol	914					
vC2, stage 2 conf vol	1496					
vCu, unblocked vol	968	459			918	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	92			98	
cM capacity (veh/h)	232	554			752	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	48	607	311	12	1472	1472
Volume Left	4	0	0	12	0	0
Volume Right	44	0	8	0	0	0
cSH	497	1700	1700	752	1700	1700
Volume to Capacity	0.10	0.36	0.18	0.02	0.87	0.87
Queue Length 95th (ft)	8	0	0	1	0	0
Control Delay (s/veh)	13.0	0.0	0.0	9.9	0.0	0.0
Lane LOS	B			A		
Approach Delay (s/veh)	13.0	0.0		0.0		
Approach LOS	B					

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	64.1%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
4: Odanah Ave/Driveway 04/27/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	178	0	66	1	0	0	0	2050	0	0	1280	0
Future Volume (vph)	178	0	66	1	0	0	0	2050	0	0	1280	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	5.6		5.6	5.6				6.1			6.1	
Lane Util. Factor	1.00		1.00	1.00				0.95			0.95	
Frt	1.00		0.85	1.00				1.00			1.00	
Flt Protected	0.95		1.00	0.95				1.00			1.00	
Satd. Flow (prot)	1900		1667	1900				3762			3725	
Flt Permitted	0.95		1.00	0.95				1.00			1.00	
Satd. Flow (perm)	1900		1667	1900				3762			3725	
Peak-hour factor, PHF	0.84	0.92	0.83	0.65	0.92	0.25	0.92	0.93	0.92	0.92	0.85	0.92
Adj. Flow (vph)	212	0	80	2	0	0	0	2204	0	0	1506	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	212	0	80	2	0	0	0	2204	0	0	1506	0
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	0%	1%	2%	0%	2%	0%
Turn Type	D.Pm		Prot	D.Pm		Prot		NA			NA	
Protected Phases			2			2		1			1	
Permitted Phases	2			2								
Actuated Green, G (s)	21.4		21.4	21.4				86.9			86.9	
Effective Green, g (s)	21.4		21.4	21.4				86.9			86.9	
Actuated g/C Ratio	0.18		0.18	0.18				0.72			0.72	
Clearance Time (s)	5.6		5.6	5.6				6.1			6.1	
Vehicle Extension (s)	3.0		3.0	3.0				3.0			3.0	
Lane Grp Cap (vph)	338		297	338				2724			2697	
v/s Ratio Prot			0.05					c0.59			0.40	
v/s Ratio Perm	c0.11			0.00								
v/c Ratio	0.63		0.27	0.01				0.81			0.56	
Uniform Delay, d1	45.6		42.6	40.6				11.0			7.7	
Progression Factor	1.00		1.00	1.00				1.00			1.00	
Incremental Delay, d2	8.5		2.2	0.0				1.9			0.3	
Delay (s)	54.1		44.8	40.6				12.9			7.9	
Level of Service	D		D	D				B			A	
Approach Delay (s/veh)		51.6			40.6			12.9			7.9	
Approach LOS		D			D			B			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	13.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	73.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	30	1974	5	8	1369
Future Volume (Veh/h)	0	30	1974	5	8	1369
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.68	0.97	0.63	0.67	0.88
Hourly flow rate (vph)	0	44	2035	8	12	1556
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						275
pX, platoon unblocked	0.80					
vC, conflicting volume	2841	1022			2043	
vC1, stage 1 conf vol	2039					
vC2, stage 2 conf vol	802					
vCu, unblocked vol	2802	1022			2043	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	81			96	
cM capacity (veh/h)	85	237			280	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	44	1357	686	12	778	778
Volume Left	0	0	0	12	0	0
Volume Right	44	0	8	0	0	0
cSH	237	1700	1700	280	1700	1700
Volume to Capacity	0.19	0.80	0.40	0.04	0.46	0.46
Queue Length 95th (ft)	17	0	0	3	0	0
Control Delay (s/veh)	23.6	0.0	0.0	18.4	0.0	0.0
Lane LOS	C			C		
Approach Delay (s/veh)	23.6	0.0		0.1		
Approach LOS	C					

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	62.0%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	30	1974	5	8	1369
Future Volume (Veh/h)	0	30	1974	5	8	1369
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.68	0.97	0.63	0.67	0.88
Hourly flow rate (vph)	0	44	2035	8	12	1556
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						275
pX, platoon unblocked	0.80					
vC, conflicting volume	2841	1022			2043	
vC1, stage 1 conf vol	2039					
vC2, stage 2 conf vol	802					
vCu, unblocked vol	2802	1022			2043	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	81			96	
cM capacity (veh/h)	85	237			280	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	44	1357	686	12	778	778
Volume Left	0	0	0	12	0	0
Volume Right	44	0	8	0	0	0
cSH	237	1700	1700	280	1700	1700
Volume to Capacity	0.19	0.80	0.40	0.04	0.46	0.46
Queue Length 95th (ft)	17	0	0	3	0	0
Control Delay (s/veh)	23.6	0.0	0.0	18.4	0.0	0.0
Lane LOS	C			C		
Approach Delay (s/veh)	23.6	0.0		0.1		
Approach LOS	C					

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	62.0%	ICU Level of Service	B
Analysis Period (min)	15		

Intersection: 4: S Broadway & Odanah Ave/Driveway

Movement	EB	EB	NB	NB	SB	SB
Directions Served	L	R	T	TR	T	T
Maximum Queue (ft)	168	179	197	187	200	206
Average Queue (ft)	85	76	107	75	185	167
95th Queue (ft)	151	140	179	158	213	224
Link Distance (ft)	255	255	217	217	179	179
Upstream Blk Time (%)		0	0	0	10	6
Queuing Penalty (veh)		0	0	0	104	59
Storage Bay Dist (ft)						
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 6: S Broadway & Heights Rd

Movement	NB	NB	SB	SB
Directions Served	L	T	T	TR
Maximum Queue (ft)	41	69	392	346
Average Queue (ft)	15	5	120	69
95th Queue (ft)	41	34	278	223
Link Distance (ft)		179	482	482
Upstream Blk Time (%)			0	0
Queuing Penalty (veh)			0	0
Storage Bay Dist (ft)	20			
Storage Blk Time (%)	12			
Queuing Penalty (veh)	51			

Intersection: 7: Glanworth St & S Broadway

Movement	WB	NB	SB
Directions Served	LR	T	L
Maximum Queue (ft)	65	22	31
Average Queue (ft)	24	1	5
95th Queue (ft)	55	12	22
Link Distance (ft)	571	600	
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			20
Storage Blk Time (%)			1
Queuing Penalty (veh)			11

Network Summary

Network wide Queuing Penalty: 225

Intersection: 4: Odanah Ave/Driveway

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	L	R	L	T	TR	T	T
Maximum Queue (ft)	258	112	10	226	243	197	195
Average Queue (ft)	128	50	0	212	201	148	112
95th Queue (ft)	224	98	5	246	255	221	196
Link Distance (ft)	255	255	77	215	215	181	181
Upstream Blk Time (%)	1			8	5	3	1
Queuing Penalty (veh)	0			85	54	18	3
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 6: Heights Rd

Movement	NB	NB	NB	SB	SB
Directions Served	L	T	T	T	TR
Maximum Queue (ft)	60	202	230	121	91
Average Queue (ft)	35	52	37	27	7
95th Queue (ft)	52	156	153	93	40
Link Distance (ft)		181	181	482	482
Upstream Blk Time (%)		1	1		
Queuing Penalty (veh)		11	8		
Storage Bay Dist (ft)	20				
Storage Blk Time (%)	25	0			
Queuing Penalty (veh)	250	0			

Intersection: 7: S Broadway & Glanworth St

Movement	WB	NB	NB	SB	SB	SB
Directions Served	LR	T	TR	L	T	T
Maximum Queue (ft)	132	325	307	35	44	23
Average Queue (ft)	37	119	70	7	2	1
95th Queue (ft)	107	267	217	27	19	17
Link Distance (ft)	571	600	600		215	215
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)				20		
Storage Blk Time (%)				5		
Queuing Penalty (veh)				37		

Network Summary

Network wide Queuing Penalty: 467

APPENDIX C: BACKGROUND CONDITIONS

HCM Signalized Intersection Capacity Analysis
4: S Broadway & Odanah Ave/Driveway 04/27/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	122	0	102	1	0	0	0	857	1	0	2008	0
Future Volume (vph)	122	0	102	1	0	0	0	857	1	0	2008	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	5.4		5.4	5.4				6.3			6.3	
Lane Util. Factor	1.00		1.00	1.00				0.95			0.95	
Frt	1.00		0.85	1.00				1.00			1.00	
Flt Protected	0.95		1.00	0.95				1.00			1.00	
Satd. Flow (prot)	1900		1604	1900				3619			3619	
Flt Permitted	0.95		1.00	0.95				1.00			1.00	
Satd. Flow (perm)	1900		1604	1900				3619			3619	
Peak-hour factor, PHF	0.94	0.94	0.94	0.65	0.92	0.92	0.94	0.94	0.94	0.95	0.95	0.95
Growth Factor (vph)	102%	102%	102%	102%	102%	102%	102%	102%	102%	102%	102%	102%
Adj. Flow (vph)	132	0	111	2	0	0	0	930	1	0	2156	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	132	0	111	2	0	0	0	931	0	0	2156	0
Heavy Vehicles (%)	0%	2%	6%	0%	2%	2%	2%	5%	2%	2%	5%	2%
Turn Type	Perm		Prot	Perm		Perm		NA			NA	
Protected Phases			4					2			6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	21.6		21.6	21.6				86.7			86.7	
Effective Green, g (s)	21.6		21.6	21.6				86.7			86.7	
Actuated g/C Ratio	0.18		0.18	0.18				0.72			0.72	
Clearance Time (s)	5.4		5.4	5.4				6.3			6.3	
Vehicle Extension (s)	3.0		3.0	3.0				3.0			3.0	
Lane Grp Cap (vph)	342		288	342				2614			2614	
v/s Ratio Prot			0.07					0.26			c0.60	
v/s Ratio Perm	c0.07			0.00								
v/c Ratio	0.39		0.39	0.01				0.36			0.82	
Uniform Delay, d1	43.4		43.4	40.4				6.2			11.4	
Progression Factor	1.00		1.00	1.00				1.00			1.00	
Incremental Delay, d2	3.3		3.9	0.0				0.4			3.1	
Delay (s)	46.6		47.2	40.4				6.6			14.6	
Level of Service	D		D	D				A			B	
Approach Delay (s/veh)		46.9			40.4			6.6			14.6	
Approach LOS		D			D			A			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	14.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	76.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	30	854	4	6	2061
Future Volume (Veh/h)	2	30	854	4	6	2061
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.50	0.68	0.93	0.50	0.50	0.70
Hourly flow rate (vph)	4	45	937	8	12	3003
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						275
pX, platoon unblocked	0.29					
vC, conflicting volume	2467	473			945	
vC1, stage 1 conf vol	941					
vC2, stage 2 conf vol	1526					
vCu, unblocked vol	1153	473			945	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	92			98	
cM capacity (veh/h)	223	543			734	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	49	625	320	12	1502	1502
Volume Left	4	0	0	12	0	0
Volume Right	45	0	8	0	0	0
cSH	486	1700	1700	734	1700	1700
Volume to Capacity	0.10	0.37	0.19	0.02	0.88	0.88
Queue Length 95th (ft)	8	0	0	1	0	0
Control Delay (s/veh)	13.2	0.0	0.0	10.0	0.0	0.0
Lane LOS	B			A		
Approach Delay (s/veh)	13.2	0.0		0.0		
Approach LOS	B					

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	30	854	4	6	2061
Future Volume (Veh/h)	2	30	854	4	6	2061
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.50	0.68	0.93	0.50	0.50	0.70
Hourly flow rate (vph)	4	45	937	8	12	3003
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						275
pX, platoon unblocked	0.29					
vC, conflicting volume	2467	473			945	
vC1, stage 1 conf vol	941					
vC2, stage 2 conf vol	1526					
vCu, unblocked vol	1153	473			945	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	92			98	
cM capacity (veh/h)	223	543			734	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	49	625	320	12	1502	1502
Volume Left	4	0	0	12	0	0
Volume Right	45	0	8	0	0	0
cSH	486	1700	1700	734	1700	1700
Volume to Capacity	0.10	0.37	0.19	0.02	0.88	0.88
Queue Length 95th (ft)	8	0	0	1	0	0
Control Delay (s/veh)	13.2	0.0	0.0	10.0	0.0	0.0
Lane LOS	B			A		
Approach Delay (s/veh)	13.2	0.0		0.0		
Approach LOS	B					

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
4: Odanah Ave/Driveway 04/27/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	181	0	66	1	0	0	0	2058	0	0	1297	0
Future Volume (vph)	181	0	66	1	0	0	0	2058	0	0	1297	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	5.6		5.6	5.6				6.1			6.1	
Lane Util. Factor	1.00		1.00	1.00				0.95			0.95	
Frt	1.00		0.85	1.00				1.00			1.00	
Flt Protected	0.95		1.00	0.95				1.00			1.00	
Satd. Flow (prot)	1900		1667	1900				3762			3725	
Flt Permitted	0.95		1.00	0.95				1.00			1.00	
Satd. Flow (perm)	1900		1667	1900				3762			3725	
Peak-hour factor, PHF	0.84	0.92	0.84	0.65	0.92	0.65	0.92	0.93	0.92	0.92	0.85	0.92
Growth Factor (vph)	102%	102%	102%	102%	102%	102%	102%	102%	102%	102%	102%	102%
Adj. Flow (vph)	220	0	80	2	0	0	0	2257	0	0	1556	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	220	0	80	2	0	0	0	2257	0	0	1556	0
Heavy Vehicles (%)	0%	0%	2%	0%	0%	0%	0%	1%	2%	0%	2%	0%
Turn Type	Perm		Perm	Perm		Perm		NA			NA	
Protected Phases								2			6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)	18.2		18.2	18.2				90.1			90.1	
Effective Green, g (s)	18.2		18.2	18.2				90.1			90.1	
Actuated g/C Ratio	0.15		0.15	0.15				0.75			0.75	
Clearance Time (s)	5.6		5.6	5.6				6.1			6.1	
Vehicle Extension (s)	3.0		3.0	3.0				3.0			3.0	
Lane Grp Cap (vph)	288		252	288				2824			2796	
v/s Ratio Prot								c0.60			0.42	
v/s Ratio Perm	c0.12		0.05	0.00								
v/c Ratio	0.76		0.32	0.01				0.80			0.56	
Uniform Delay, d1	48.8		45.4	43.2				9.3			6.4	
Progression Factor	1.00		1.00	1.00				1.00			1.00	
Incremental Delay, d2	11.4		0.7	0.0				2.5			0.8	
Delay (s)	60.2		46.1	43.2				11.8			7.2	
Level of Service	E		D	D				B			A	
Approach Delay (s/veh)		56.5			43.2			11.8			7.2	
Approach LOS		E			D			B			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	74.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	30	1982	5	8	1369
Future Volume (Veh/h)	0	30	1982	5	8	1369
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.68	0.97	0.63	0.67	0.88
Hourly flow rate (vph)	0	45	2084	8	12	1587
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						285
pX, platoon unblocked	0.79					
vC, conflicting volume	2906	1046			2092	
vC1, stage 1 conf vol	2088					
vC2, stage 2 conf vol	818					
vCu, unblocked vol	2880	1046			2092	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	80			96	
cM capacity (veh/h)	80	228			268	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	45	1389	703	12	794	794
Volume Left	0	0	0	12	0	0
Volume Right	45	0	8	0	0	0
cSH	228	1700	1700	268	1700	1700
Volume to Capacity	0.20	0.82	0.41	0.04	0.47	0.47
Queue Length 95th (ft)	18	0	0	4	0	0
Control Delay (s/veh)	24.6	0.0	0.0	19.1	0.0	0.0
Lane LOS	C			C		
Approach Delay (s/veh)	24.6	0.0		0.1		
Approach LOS	C					

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	63.2%	ICU Level of Service		B
Analysis Period (min)	15			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	30	1982	5	8	1369
Future Volume (Veh/h)	0	30	1982	5	8	1369
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.68	0.97	0.63	0.67	0.88
Hourly flow rate (vph)	0	45	2084	8	12	1587
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						285
pX, platoon unblocked	0.79					
vC, conflicting volume	2906	1046			2092	
vC1, stage 1 conf vol	2088					
vC2, stage 2 conf vol	818					
vCu, unblocked vol	2880	1046			2092	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	80			96	
cM capacity (veh/h)	80	228			268	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	45	1389	703	12	794	794
Volume Left	0	0	0	12	0	0
Volume Right	45	0	8	0	0	0
cSH	228	1700	1700	268	1700	1700
Volume to Capacity	0.20	0.82	0.41	0.04	0.47	0.47
Queue Length 95th (ft)	18	0	0	4	0	0
Control Delay (s/veh)	24.6	0.0	0.0	19.1	0.0	0.0
Lane LOS	C			C		
Approach Delay (s/veh)	24.6	0.0		0.1		
Approach LOS	C					

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	63.2%	ICU Level of Service		B
Analysis Period (min)	15			

Intersection: 4: S Broadway & Odanah Ave/Driveway

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	L	R	L	T	TR	T	T
Maximum Queue (ft)	169	158	15	214	196	205	219
Average Queue (ft)	90	79	1	112	79	188	172
95th Queue (ft)	155	142	7	188	167	206	223
Link Distance (ft)	255	255	77	216	216	181	181
Upstream Blk Time (%)				0	0	11	7
Queuing Penalty (veh)				1	0	118	76
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 6: S Broadway & Heights Rd

Movement	NB	NB	NB	SB	SB
Directions Served	L	T	T	T	TR
Maximum Queue (ft)	41	66	46	389	366
Average Queue (ft)	16	3	2	151	106
95th Queue (ft)	40	30	24	344	314
Link Distance (ft)		181	181	482	482
Upstream Blk Time (%)				1	0
Queuing Penalty (veh)				0	0
Storage Bay Dist (ft)	20				
Storage Blk Time (%)	16				
Queuing Penalty (veh)	72				

Intersection: 7: Glanworth St & S Broadway

Movement	WB	NB	SB	SB	SB
Directions Served	LR	T	L	T	T
Maximum Queue (ft)	113	46	27	96	74
Average Queue (ft)	33	3	4	4	3
95th Queue (ft)	127	24	20	50	38
Link Distance (ft)	559	599		216	216
Upstream Blk Time (%)				0	0
Queuing Penalty (veh)				0	0
Storage Bay Dist (ft)			20		
Storage Blk Time (%)			1		
Queuing Penalty (veh)			7		

Network Summary

Network wide Queuing Penalty: 275

Intersection: 4: Odanah Ave/Driveway

Movement	EB	EB	WB	NB	NB	SB	SB
Directions Served	L	R	L	T	TR	T	T
Maximum Queue (ft)	256	117	6	254	259	197	197
Average Queue (ft)	127	49	0	226	216	157	119
95th Queue (ft)	213	93	5	262	271	216	201
Link Distance (ft)	447	447	117	227	227	178	178
Upstream Blk Time (%)				8	5	3	1
Queuing Penalty (veh)				85	56	21	5
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 6: Heights Rd

Movement	NB	NB	NB	SB	SB
Directions Served	L	T	T	T	TR
Maximum Queue (ft)	51	194	195	162	100
Average Queue (ft)	34	53	37	31	8
95th Queue (ft)	53	152	143	100	45
Link Distance (ft)		178	178	482	482
Upstream Blk Time (%)		1	0		
Queuing Penalty (veh)		6	2		
Storage Bay Dist (ft)	20				
Storage Blk Time (%)	27	0			
Queuing Penalty (veh)	277	0			

Intersection: 7: S Broadway & Glanworth St

Movement	WB	NB	NB	SB	SB	SB
Directions Served	LR	T	TR	L	T	T
Maximum Queue (ft)	121	343	272	34	33	8
Average Queue (ft)	34	122	72	7	2	0
95th Queue (ft)	93	270	213	27	19	6
Link Distance (ft)	373	599	599		227	227
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)				20		
Storage Blk Time (%)				6		
Queuing Penalty (veh)				41		

Network Summary

Network wide Queuing Penalty: 493

APPENDIX D: BUILD CONDITIONS

HCM Signalized Intersection Capacity Analysis
4: S Broadway & Odanah Ave/Driveway 04/27/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	2	104	25	0	9	0	874	5	14	2048	0
Future Volume (vph)	125	2	104	25	0	9	0	874	5	14	2048	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	5.6	5.6		5.6		5.6		6.1		6.1	6.1	
Lane Util. Factor	1.00	1.00		1.00		1.00		0.95		1.00	0.95	
Frt	1.00	0.85		1.00		0.85		1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	1900	1609		1863		1667		3617		1863	3619	
Flt Permitted	0.95	1.00		0.65		1.00		1.00		0.28	1.00	
Satd. Flow (perm)	1900	1609		1279		1667		3617		556	3619	
Peak-hour factor, PHF	0.94	0.94	0.94	0.92	0.92	0.92	0.92	0.94	0.94	0.95	0.95	0.92
Adj. Flow (vph)	133	2	111	27	0	10	0	930	5	15	2156	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	133	113	0	27	0	10	0	935	0	15	2156	0
Heavy Vehicles (%)	0%	6%	6%	2%	2%	2%	2%	5%	2%	2%	5%	2%
Turn Type	Perm	NA		Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4			8		8				6		
Actuated Green, G (s)	21.4	21.4		21.4		21.4		86.9		86.9	86.9	
Effective Green, g (s)	21.4	21.4		21.4		21.4		86.9		86.9	86.9	
Actuated g/C Ratio	0.18	0.18		0.18		0.18		0.72		0.72	0.72	
Clearance Time (s)	5.6	5.6		5.6		5.6		6.1		6.1	6.1	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	338	286		228		297		2619		402	2620	
v/s Ratio Prot		c0.07						0.26			c0.60	
v/s Ratio Perm	0.07			0.02		0.01				0.03		
v/c Ratio	0.39	0.40		0.12		0.03		0.36		0.04	0.82	
Uniform Delay, d1	43.6	43.6		41.4		40.8		6.2		4.7	11.3	
Progression Factor	1.00	1.00		1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2	0.8	0.9		1.1		0.2		0.4		0.2	3.1	
Delay (s)	44.3	44.5		42.4		41.0		6.5		4.9	14.4	
Level of Service	D	D		D		D		A		A	B	
Approach Delay (s/veh)		44.4			42.0			6.5			14.3	
Approach LOS		D			D			A			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	76.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	31	868	5	6	2127
Future Volume (Veh/h)	2	31	868	5	6	2127
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.50	0.68	0.93	0.50	0.50	0.70
Hourly flow rate (vph)	4	46	933	10	12	3039
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						289
pX, platoon unblocked	0.36					
vC, conflicting volume	2482	472			943	
vC1, stage 1 conf vol	938					
vC2, stage 2 conf vol	1544					
vCu, unblocked vol	1567	472			943	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	92			98	
cM capacity (veh/h)	243	544			736	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	50	622	321	12	1520	1520
Volume Left	4	0	0	12	0	0
Volume Right	46	0	10	0	0	0
cSH	495	1700	1700	736	1700	1700
Volume to Capacity	0.10	0.37	0.19	0.02	0.89	0.89
Queue Length 95th (ft)	8	0	0	1	0	0
Control Delay (s/veh)	13.1	0.0	0.0	10.0	0.0	0.0
Lane LOS	B			A		
Approach Delay (s/veh)	13.1	0.0		0.0		
Approach LOS	B					

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		

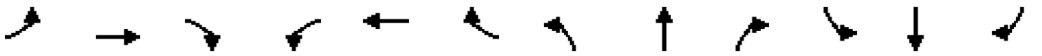


Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	31	868	5	6	2127
Future Volume (Veh/h)	2	31	868	5	6	2127
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.50	0.68	0.93	0.50	0.50	0.70
Hourly flow rate (vph)	4	46	933	10	12	3039
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						289
pX, platoon unblocked	0.36					
vC, conflicting volume	2482	472			943	
vC1, stage 1 conf vol	938					
vC2, stage 2 conf vol	1544					
vCu, unblocked vol	1567	472			943	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	92			98	
cM capacity (veh/h)	243	544			736	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	50	622	321	12	1520	1520
Volume Left	4	0	0	12	0	0
Volume Right	46	0	10	0	0	0
cSH	495	1700	1700	736	1700	1700
Volume to Capacity	0.10	0.37	0.19	0.02	0.89	0.89
Queue Length 95th (ft)	8	0	0	1	0	0
Control Delay (s/veh)	13.1	0.0	0.0	10.0	0.0	0.0
Lane LOS	B			A		
Approach Delay (s/veh)	13.1	0.0		0.0		
Approach LOS	B					

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
4: Odanah Ave/Driveway 04/27/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	182	4	67	18	0	28	0	2124	33	23	1323	0
Future Volume (vph)	182	4	67	18	0	28	0	2124	33	23	1323	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	5.6	5.6		5.6		5.6		6.1		6.1	6.1	
Lane Util. Factor	1.00	1.00		1.00		1.00		0.95		1.00	0.95	
Frt	1.00	0.86		1.00		0.85		1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	1900	1684		1900		1700		3753		1900	3725	
Flt Permitted	0.95	1.00		0.70		1.00		1.00		0.04	1.00	
Satd. Flow (perm)	1900	1684		1404		1700		3753		89	3725	
Peak-hour factor, PHF	0.84	0.83	0.84	0.65	0.92	0.65	0.92	0.93	0.92	0.85	0.85	0.92
Adj. Flow (vph)	217	5	80	28	0	43	0	2284	36	27	1556	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	217	85	0	28	0	43	0	2320	0	27	1556	0
Heavy Vehicles (%)	0%	2%	2%	0%	0%	0%	0%	1%	2%	0%	2%	0%
Turn Type	Perm	NA		Perm		Perm		NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4			8		8				6		
Actuated Green, G (s)	18.1	18.1		18.1		18.1		90.2		90.2	90.2	
Effective Green, g (s)	18.1	18.1		18.1		18.1		90.2		90.2	90.2	
Actuated g/C Ratio	0.15	0.15		0.15		0.15		0.75		0.75	0.75	
Clearance Time (s)	5.6	5.6		5.6		5.6		6.1		6.1	6.1	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	286	254		211		256		2821		66	2799	
v/s Ratio Prot		0.05						c0.62			0.42	
v/s Ratio Perm	c0.11			0.02		0.03				0.30		
v/c Ratio	0.76	0.33		0.13		0.17		0.82		0.41	0.56	
Uniform Delay, d1	48.9	45.6		44.1		44.4		9.7		5.3	6.4	
Progression Factor	1.00	1.00		1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2	11.0	0.8		0.3		0.3		2.9		17.7	0.8	
Delay (s)	59.8	46.3		44.4		44.7		12.5		23.0	7.2	
Level of Service	E	D		D		D		B		C	A	
Approach Delay (s/veh)		56.0			44.6			12.5			7.4	
Approach LOS		E			D			B			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	14.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	84.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	1	31	2046	6	8	1414
Future Volume (Veh/h)	1	31	2046	6	8	1414
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.68	0.97	0.63	0.67	0.88
Hourly flow rate (vph)	1	46	2109	10	12	1607
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						294
pX, platoon unblocked	0.76					
vC, conflicting volume	2942	1060			2119	
vC1, stage 1 conf vol	2114					
vC2, stage 2 conf vol	828					
vCu, unblocked vol	2923	1060			2119	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	79			95	
cM capacity (veh/h)	78	224			261	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	47	1406	713	12	804	804
Volume Left	1	0	0	12	0	0
Volume Right	46	0	10	0	0	0
cSH	215	1700	1700	261	1700	1700
Volume to Capacity	0.22	0.83	0.42	0.05	0.47	0.47
Queue Length 95th (ft)	20	0	0	4	0	0
Control Delay (s/veh)	26.3	0.0	0.0	19.4	0.0	0.0
Lane LOS	D			C		
Approach Delay (s/veh)	26.3	0.0		0.1		
Approach LOS	D					

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	63.9%	ICU Level of Service	B
Analysis Period (min)	15		

Intersection: 4: S Broadway & Odanah Ave/Driveway

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	R	T	TR	L	T	T
Maximum Queue (ft)	173	146	66	44	224	212	53	209	212
Average Queue (ft)	100	69	21	9	115	78	9	184	172
95th Queue (ft)	169	126	55	33	196	167	37	209	223
Link Distance (ft)	496	496	167	167	228	228		176	176
Upstream Blk Time (%)					0	0		13	10
Queuing Penalty (veh)					1	0		140	103
Storage Bay Dist (ft)							50		
Storage Blk Time (%)							0	25	
Queuing Penalty (veh)							0	4	

Intersection: 6: S Broadway & Heights Rd

Movement	NB	NB	NB	SB	SB
Directions Served	L	T	T	T	TR
Maximum Queue (ft)	40	89	16	454	434
Average Queue (ft)	17	8	1	210	155
95th Queue (ft)	43	47	11	466	414
Link Distance (ft)		176	176	482	482
Upstream Blk Time (%)				3	2
Queuing Penalty (veh)				0	0
Storage Bay Dist (ft)	20				
Storage Blk Time (%)	18				
Queuing Penalty (veh)	78				

Intersection: 7: Glanworth St & S Broadway

Movement	WB	NB	NB	SB	SB	SB
Directions Served	LR	T	TR	L	T	T
Maximum Queue (ft)	86	34	22	25	44	134
Average Queue (ft)	25	2	1	3	3	6
95th Queue (ft)	75	21	16	19	41	55
Link Distance (ft)	601	599	599		228	228
Upstream Blk Time (%)					0	
Queuing Penalty (veh)					0	
Storage Bay Dist (ft)				20		
Storage Blk Time (%)				0		
Queuing Penalty (veh)				4		

Network Summary

Network wide Queuing Penalty: 330

Intersection: 4: Odanah Ave/Driveway

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	R	T	TR	L	T	T
Maximum Queue (ft)	258	86	64	154	260	264	74	185	196
Average Queue (ft)	153	37	16	29	231	220	21	147	123
95th Queue (ft)	259	74	47	114	280	286	57	206	198
Link Distance (ft)	248	248	170	170	235	235		171	171
Upstream Blk Time (%)	3			0	10	7		5	2
Queuing Penalty (veh)	0			0	103	78		31	14
Storage Bay Dist (ft)							50		
Storage Blk Time (%)							6	18	
Queuing Penalty (veh)							45	4	

Intersection: 6: Heights Rd

Movement	NB	NB	NB	SB	SB
Directions Served	L	T	T	T	TR
Maximum Queue (ft)	52	186	212	402	352
Average Queue (ft)	35	51	33	58	28
95th Queue (ft)	52	149	138	210	158
Link Distance (ft)		171	171	477	477
Upstream Blk Time (%)		1	1	0	0
Queuing Penalty (veh)		7	6	0	0
Storage Bay Dist (ft)	20				
Storage Blk Time (%)	27	0			
Queuing Penalty (veh)	280	0			

Intersection: 7: S Broadway & Glanworth St

Movement	WB	NB	NB	SB	SB	SB
Directions Served	LR	T	TR	L	T	T
Maximum Queue (ft)	150	520	476	38	89	47
Average Queue (ft)	39	156	118	8	4	2
95th Queue (ft)	108	401	342	30	40	28
Link Distance (ft)	563	598	598		235	235
Upstream Blk Time (%)		1	0		0	
Queuing Penalty (veh)		0	0		0	
Storage Bay Dist (ft)				20		
Storage Blk Time (%)				7		
Queuing Penalty (veh)				49		

Network Summary

Network wide Queuing Penalty: 617

APPENDIX E: TRAFFIC CRASH DATA

Crash Detail for 1/1/2020 - 12/31/2024

Criteria: WHERE A.AGENCY_ID = 14 AND A.GeoCoords.STIntersects (GEOMETRY::STGeomFromWKB(GEOGRAPHY::STPointFromText('POINT(-83.2390854974089

#1 **Location:** S LAPEER (6.73) 16 feet Nof GLANWORTH **Crash ID:** 2200217

Date: 01/18/2021 **Day:** Mon **Hour:** 4pm **Weather:** rain **Roadway:** wet **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** angle

CVT: Orion Twp **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 210011086

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	NW	right turn	veh in transpt	none	none	none	failed to yield	car	lftfront
2	NE	change lanes	veh in transpt	none	none	none	none	car	ctrfront

UD10: 2200217

#2 **Location:** GLANWORTH (0.004) 22 feet Eof W LAPEER RD **Crash ID:** 2420806

Date: 10/18/2021 **Day:** Mon **Hour:** 10a **Weather:** clear **Roadway:** dry **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 210216827

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	W	backing	veh in transpt	none	none	none	imprp backing	car	ctrrear
2	W	stop on road	veh in transpt	none	none	none	none	car	ctrfront

UD10: 2420806

#3 **Location:** NB LAPEER (6.732) 26 feet Nof GLANWORTH **Crash ID:** 2524812

Date: 01/30/2022 **Day:** Sun **Hour:** 1pm **Weather:** cloudy **Roadway:** dry **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 220020832

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	change lanes	veh in transpt	none	none	none	unable to stop	car	rtfront
2	N	slow/stop on rd	veh in transpt	none	none	none	none	car	lftrear

UD10: 2524812

#4 **Location:** S LAPEER (6.734) 37 feet Sof ODANAH RD **Crash ID:** 2574622

Date: 04/19/2022 **Day:** Tue **Hour:** 6pm **Weather:** clear **Roadway:** dry **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 220082076

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	N	slow/stop on rd	veh in transpt	none	none	none	none	car	ctrrear

UD10: 2574622

#5 **Location:** S LAPEER (6.718) 48 feet Sof GLANWORTH ST **Crash ID:** 2625846

Date: 06/21/2022 **Day:** Tue **Hour:** 2pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 1 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 220135056

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	cross ctrline	none	none	none	failed to yield	car	lftfront
2	S	stop on road	veh in transpt	none	none	none	none	car	rtside

UD10: 2625846

#6 **Location:** S LAPEER (6.734) 37 feet Nof GLANWORTH **Crash ID:** 2794676

Date: 01/02/2023 **Day:** Mon **Hour:** 1pm **Weather:** cloudy **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 230001060

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	slow/stop on rd	veh in transpt	none	none	none	unable to stop	car	lftfront
2	N	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: 2794676

#7 **Location:** GLANWORTH (0.005) 26 feet Eof LAPEER **Crash ID:** 2943565

Date: 07/07/2023 **Day:** Fri **Hour:** 11p **Weather:** clear **Roadway:** dry **Llght:** dark/unltd

Injy K: 0 **Injy A:** 0 **Injy B:** 1 **Injy C:** 0 **Injy 0:** 0 **How:** single

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 230167511

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	go straight	pedestrian	none	none	none	unknown	uncoded	none
2	E	playing in rdwy	veh in transpt	none	none	none	none	uncoded	none

UD10: 2943565

#8 **Location:** S LAPEER (6.73) 16 feet Sof HEIGHTS RD **Crash ID:** 2972540

Date: 08/16/2023 **Day:** Wed **Hour:** 4pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** driveway **HBD:** N **Drugs:** N **Complaint #:** 230204034

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	right turn	veh in transpt	none	none	none	carels driving	car	lftfront
2	SW	go straight	veh in transpt	none	none	none	none	car	rtrear

UD10: 2972540

#9 **Location:** S LAPEER (6.726) 5 feet Sof GLANWORTH ST **Crash ID:** 3024052

Date: 10/14/2023 **Day:** Sat **Hour:** 5pm **Weather:** cloudy **Roadway:** wet **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 4 **How:** angle

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 230258668

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	W	left turn	veh in transpt	none	none	none	failed to yield	car	rtfront
2	N	go straight	veh in transpt	none	none	none	none	car	rtside

UD10: 3024052

#10 **Location:** S LAPEER (6.725) 10 feet Sof GLANWORTH **Crash ID:** 3080103

Date: 12/06/2023 **Day:** Wed **Hour:** 9am **Weather:** cloudy **Roadway:** dry **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** angle

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 230306393

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	right turn	veh in transpt	none	none	none	failed to yield	car	lftrear
2	S	go straight	veh in transpt	none	none	none	none	truck/bus	rtfront

UD10: 3080103

Crash Type

Count	Type
0	uncoded
1	single
0	head-on
0	head-on/lt
3	angle
6	rr-end
0	rr-end/lt
0	rr-end/rt
0	ss-same
0	ss-opp
0	back
0	other
0	unknown
Totals	10

Lighting Conditions

Count	Type
0	uncoded
9	day
0	dawn
0	dusk
0	dark/ltd
1	dark/unltd
0	other
0	unknown
Totals	10

Weather Conditions

Count	Type
0	uncoded
5	clear
4	cloudy
0	fog
1	rain
0	snow
0	wind
0	sleet/hail
0	blowing snow
0	blowing sand
0	smoke
0	unknown
Totals	10

Road Condition

Count	Type
0	uncoded
8	dry
2	wet
0	ice
0	snow
0	mud
0	slush
0	debris
0	water
0	sand
0	oily
0	other
0	unknown
Totals	10

Crashes by Month

Count	Type
3	January
0	February
0	March
1	April
0	May
1	June
1	July
1	August
0	September
2	October
0	November
1	December
Totals	10

Hazardous Action

Count	Type
10	none
0	speeding
0	spd too slow
4	failed to yield
0	disrgd traffic cntrl
0	wrong way
0	left of center
0	imprp passing
0	imprp lane use
0	imprp turn
0	imprp/no signal
1	imprp backing
3	unable to stop
0	other
1	unknown
0	reckls driving
1	carels driving
Totals	20

Unit Type

Count	Type
0	Bicyclist
0	Engineer
19	Vehicle
1	Pedestrian
Totals	20

Crashes by Year

Count	Type
2	2021
3	2022
5	2023
Totals	10

Crash Severity

	Fatal	A	B	C	No Injy	Total
Persons	0	0	1	1	0	2
Crashes	0	0	1	1	8	10

Alcohol in Crashes

	Fatal	A	B	C	PDO	Total
Drinking	0	0	0	0	0	0
Not Drinking	0	0	1	1	8	10
Totals	0	0	1	1	8	10

Crashes per Hour by Day

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total
12a-1a	0	0	0	0	0	0	0	0
1a-2a	0	0	0	0	0	0	0	0
2a-3a	0	0	0	0	0	0	0	0
3a-4a	0	0	0	0	0	0	0	0
4a-5a	0	0	0	0	0	0	0	0
5a-6a	0	0	0	0	0	0	0	0
6a-7a	0	0	0	0	0	0	0	0
7a-8a	0	0	0	0	0	0	0	0
8a-9a	0	0	0	0	0	0	0	0
9a-10a	0	0	0	1	0	0	0	1
10a-11a	0	1	0	0	0	0	0	1
11a-12p	0	0	0	0	0	0	0	0
12p-1p	0	0	0	0	0	0	0	0
1p-2p	1	1	0	0	0	0	0	2
2p-3p	0	0	1	0	0	0	0	1
3p-4p	0	0	0	0	0	0	0	0
4p-5p	0	1	0	1	0	0	0	2
5p-6p	0	0	0	0	0	0	1	1
6p-7p	0	0	1	0	0	0	0	1
7p-8p	0	0	0	0	0	0	0	0
8p-9p	0	0	0	0	0	0	0	0
9p-10p	0	0	0	0	0	0	0	0
10p-11p	0	0	0	0	0	0	0	0
11p-12a	0	0	0	0	0	1	0	1
Totals	1	3	2	2	0	1	1	10

Crash Detail for 1/1/2020 - 12/31/2024

Criteria: WHERE A.AGENCY_ID = 14 AND A.GeoCoords.STIntersects (GEOMETRY::STGeomFromWKB(GEOGRAPHY::STPointFromText('POINT(83.2391956278812 4

#1 **Location:** S BROADWAY 9M-240 (6.839) 74 feet Sof HEIGHTS RD **Crash ID:** 2009736

Date: 02/09/2020 **Day:** Sun **Hour:** 12p **Weather:** cloudy **Roadway:** dry **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 8 **How:** ss-same

CVT: Lake Orion **Area:** driveway **HBD:** N **Drugs:** N **Complaint #:** 200000523

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	change lanes	veh in transpt	none	none	none	unknown	car	rtrear
2	S	change lanes	veh in transpt	none	none	none	unknown	car	lftfront

UD10: 2009736

#2 **Location:** S LAPEER (6.821) 21 feet Sof HEIGHTS RD **Crash ID:** 1972621

Date: 02/14/2020 **Day:** Fri **Hour:** 5pm **Weather:** cloudy **Roadway:** dry **LIght:** dusk

Injy K: 0 **Injy A:** 0 **Injy B:** 1 **Injy C:** 0 **Injy 0:** 2 **How:** head-on

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 200032598

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	other	car	ctrfront
2	S	stop on road	veh in transpt	none	none	none	none	pickup	ctrfront

UD10: 1972621

#3 **Location:** S BROADWAY (6.833) 42 feet Nof HEIGHTS RD **Crash ID:** 1982838

Date: 03/04/2020 **Day:** Wed **Hour:** 4pm **Weather:** clear **Roadway:** dry **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 2 **Injy 0:** 2 **How:** rr-end

CVT: Lake Orion **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 200046066

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	N	slow/stop on rd	veh in transpt	none	none	none	none	car	ctrrear

UD10: 1982838

#4 **Location:** S LAPEER (6.826) 5 feet Nof HEIGHTS RD **Crash ID:** 2021409

Date: 05/29/2020 **Day:** Fri **Hour:** 7pm **Weather:** clear **Roadway:** dry **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 1 **Injy C:** 0 **Injy 0:** 1 **How:** ss-same

CVT: Lake Orion **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 200108587

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	passing	veh in transpt	none	none	none	imprp passing	motorcycle	lftside
2	S	right turn	veh in transpt	none	none	none	none	car	rtside

UD10: 2021409

#5 **Location:** LAPEER (6.819) 32 feet Sof HEIGHTS RD **Crash ID:** 2069517

Date: 08/04/2020 **Day:** Tue **Hour:** 2pm **Weather:** rain **Roadway:** wet **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 200156063

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	slow/stop on rd	veh in transpt	none	none	none	unable to stop	pickup	ctrfront
2	N	slow/stop on rd	veh in transpt	none	none	none	none	pickup	ctrrear

UD10: 2069517

#6 **Location:** S LAPEER (6.816) 50 feet Sof HEIGHTS RD **Crash ID:** 2164741

Date: 12/03/2020 **Day:** Thu **Hour:** 4pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 1 **Injy 0:** 1 **How:** rr-end

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 200240626

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	N	slow/stop on rd	veh in transpt	none	none	none	none	car	ctrrear

UD10: 2164741

#7 **Location:** S LAPEER (6.829) 21 feet Nof HEIGHTS RD **Crash ID:** 2273253

Date: 05/03/2021 **Day:** Mon **Hour:** 3pm **Weather:** cloudy **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 1 **How:** rr-end

CVT: Orion Twp **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 210086820

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	stop on road	veh in transpt	none	none	none	none	car	rtrear
2	S	go straight	veh in transpt	none	none	none	unknown	car	none

UD10: 2273253

#8 **Location:** S BROADWAY (6.84) 79 feet Nof HEIGHTS RD **Crash ID:** 2334616

Date: 07/21/2021 **Day:** Wed **Hour:** 5pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 210003220

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	slow/stop on rd	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	S	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: 2334616

#9 **Location:** S LAPEER (6.827) 10 feet Nof HEIGHTS RD **Crash ID:** 2408171

Date: 10/10/2021 **Day:** Sun **Hour:** 4pm **Weather:** cloudy **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 210210923

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	S	slow/stop on rd	veh in transpt	none	none	none	none	car	ctrrear

UD10: 2408171

#10 **Location:** S LAPEER (6.827) 10 feet Nof HEIGHTS RD **Crash ID:** 2429956

Date: 10/26/2021 **Day:** Tue **Hour:** 5pm **Weather:** cloudy **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end/rt

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 210223488

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	SW	right turn	veh in transpt	none	none	none	none	car	rtrear

UD10: 2429956

#11 **Location:** S BROADWAY (6.844) 100 feet Nof HEIGHTS RD **Crash ID:** 2420838

Date: 10/27/2021 **Day:** Wed **Hour:** 1am **Weather:** clear **Roadway:** dry **Llght:** dark/ltd

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** single

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 210004855

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	animal	none	none	none	none	car	lftfront

UD10: 2420838

#12 **Location:** S BROADWAY (6.844) 100 feet Nof HEIGHTS RD **Crash ID:** 2571651

Date: 04/13/2022 **Day:** Wed **Hour:** 3pm **Weather:** rain **Roadway:** wet **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 4 **How:** rr-end

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 220001510

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	N	slow/stop on rd	veh in transpt	none	none	none	none	car	ctrrear
3	N	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: 2571651

#13 **Location:** SB S BROADWAY (6.829) 21 feet Nof HEIGHTS RD **Crash ID:** 2641952

Date: 07/15/2022 **Day:** Fri **Hour:** 5pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Lake Orion **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 220002883

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	veh in transpt	none	none	none	unable to stop	pickup	ctrfront
2	S	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: 2641952

#14 **Location:** SB LAPEER (6.81) 79 feet Sof N HEIGHTS RD **Crash ID:** 2659694

Date: 08/09/2022 **Day:** Tue **Hour:** 11a **Weather:** cloudy **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** ss-same

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 220003249

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	veh in transpt	none	none	none	unknown	pickup	lftfront
2	S	go straight	veh in transpt	none	none	none	unknown	car	rtrear

UD10: 2659694

#15 **Location:** LAPEER (6.827) 10 feet Eof E HEIGHTS RD RD **Crash ID:** 2702360

Date: 09/26/2022 **Day:** Mon **Hour:** 8am **Weather:** rain **Roadway:** wet **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 220216086

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	N	go straight	veh in transpt	none	none	none	none	car	ctrrear

UD10: 2702360

#16 **Location:** LAPEER (6.811) 75 feet Sof HEIGHTS RD **Crash ID:** 2704994

Date: 10/02/2022 **Day:** Sun **Hour:** 2pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** other

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 220221027

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	cargo fall	none	none	none	none	car	ctrfront
2	S	go straight	equip fail	none	none	none	other	car	none

UD10: 2704994

#17 **Location:** SB S BROADWAY (6.844) 100 feet Nof W HEIGHTS RD **Crash ID:** 2860007

Date: 03/23/2023 **Day:** Thu **Hour:** 8am **Weather:** rain **Roadway:** wet **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 230001137

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	veh in transpt	none	none	none	unable to stop	pickup	ctrfront
2	S	slow/stop on rd	veh in transpt	none	none	none	none	car	ctrrear

UD10: 2860007

#18 **Location:** S BROADWAY (6.839) 74 feet Sof CONVERSE CT **Crash ID:** 2885522

Date: 05/01/2023 **Day:** Mon **Hour:** 4pm **Weather:** cloudy **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** angle

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 230001694

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	veh in transpt	none	none	none	imprp lane use	pickup	lftfront
2	W	go straight	veh in transpt	none	none	none	none	car	rtside

UD10: 2885522

#19 **Location:** BROADWAY (6.842) 90 feet Nof HEIGHTS RD **Crash ID:** 2972567

Date: 08/19/2023 **Day:** Sat **Hour:** 9am **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 4 **How:** single

CVT: Orion Twp **Area:** inter driveway **HBD:** N **Drugs:** N **Complaint #:** 230206648

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	avoid veh-ft/bk	curb	none	none	none	none	car	rtfront

UD10: 2972567

#20 **Location:** S LAPEER (6.844) 100 feet Nof HEIGHTS ROAD **Crash ID:** 3105982

Date: 01/10/2024 **Day:** Wed **Hour:** 4pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 1 **Injy C:** 0 **Injy 0:** 1 **How:** rr-end

CVT: Lake Orion **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 240008668

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	N	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: 3105982

#21 **Location:** HEIGHTS (2.057) 45 feet Wof S LAPEER RD **Crash ID:** 3107485

Date: 01/12/2024 **Day:** Fri **Hour:** 4pm **Weather:** blowing snow **Roadway:** slush **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end/lt

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 240010656

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	go straight	loss of control	none	none	none	unable to stop	truck/bus	rtfront
2	E	stop on road	veh in transpt	none	none	none	none	truck/bus	ctrrear

UD10: 3107485

#22 **Location:** S LAPEER (6.822) 15 feet Sof HEIGHTS RD **Crash ID:** 3124310

Date: 02/02/2024 **Day:** Fri **Hour:** 3pm **Weather:** cloudy **Roadway:** dry **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 4 **How:** rr-end

CVT: Orion Twp **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 240029679

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	N	slow/stop on rd	veh in transpt	none	none	none	none	car	multiple
3	N	slow/stop on rd	veh in transpt	none	none	none	none	car	ctrrear

UD10: 3124310

#23 **Location:** LAPEER (6.825) 0 feet Xof HEIGHTS RD **Crash ID:** 3152972

Date: 03/12/2024 **Day:** Tue **Hour:** 4pm **Weather:** clear **Roadway:** dry **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Lake Orion **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 240065456

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	N	go straight	veh in transpt	none	none	none	none	pickup	ctrrear

UD10: 3152972

#24 **Location:** S BROADWAY (6.829) 20 feet Nof HEIGHTS RD **Crash ID:** 3288982

Date: 09/03/2024 **Day:** Tue **Hour:** 4pm **Weather:** clear **Roadway:** dry **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 4 **How:** rr-end

CVT: Lake Orion **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 240002070

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	slow/stop on rd	veh in transpt	none	none	none	unable to stop	car	none
2	N	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: 3288982

#25 **Location:** LAPEER (6.816) 50 feet Sof HEIGHTS RD **Crash ID:** 3390438

Date: 12/08/2024 **Day:** Sun **Hour:** 12p **Weather:** clear **Roadway:** dry **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** angle

CVT: Orion Twp **Area:** inter driveway **HBD:** N **Drugs:** N **Complaint #:** 240302324

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	right turn	veh in transpt	none	none	none	failed to yield	car	ctrfront
2	S	go straight	veh in transpt	none	none	none	none	car	rtside

UD10: 3390438

Crash Type

Count	Type
0	uncoded
2	single
1	head-on
0	head-on/lt
2	angle
14	rr-end
1	rr-end/lt
1	rr-end/rt
3	ss-same
0	ss-opp
0	back
1	other
0	unknown
Totals	25

Lighting Conditions

Count	Type
0	uncoded
23	day
0	dawn
1	dusk
1	dark/ltd
0	dark/unltd
0	other
0	unknown
Totals	25

Weather Conditions

Count	Type
0	uncoded
12	clear
8	cloudy
0	fog
4	rain
0	snow
0	wind
0	sleet/hail
1	blowing snow
0	blowing sand
0	smoke
0	unknown
Totals	25

Road Condition

Count	Type
0	uncoded
20	dry
4	wet
0	ice
0	snow
0	mud
1	slush
0	debris
0	water
0	sand
0	oily
0	other
0	unknown
Totals	25

Crashes by Month

Count	Type
2	January
3	February
3	March
1	April
3	May
0	June
2	July
3	August
2	September
4	October
0	November
2	December
Totals	25

Hazardous Action

Count	Type
25	none
0	speeding
0	spd too slow
1	failed to yield
0	disrgd traffic cntrl
0	wrong way
0	left of center
1	imprp passing
1	imprp lane use
0	imprp turn
0	imprp/no signal
0	imprp backing
15	unable to stop
2	other
5	unknown
0	reckls driving
0	carels driving
Totals	50

Unit Type

Count	Type
0	Bicyclist
0	Engineer
50	Vehicle
0	Pedestrian
Totals	50

Crashes by Year

Count	Type
6	2020
5	2021
5	2022
3	2023
6	2024
Totals	25

Crash Severity

	Fatal	A	B	C	No Injy	Total
Persons	0	0	3	3	0	6
Crashes	0	0	3	2	20	25

Alcohol in Crashes

	Fatal	A	B	C	PDO	Total
Drinking	0	0	0	0	0	0
Not Drinking	0	0	3	2	20	25
Totals	0	0	3	2	20	25

Crashes per Hour by Day

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total
12a-1a	0	0	0	0	0	0	0	0
1a-2a	0	0	0	1	0	0	0	1
2a-3a	0	0	0	0	0	0	0	0
3a-4a	0	0	0	0	0	0	0	0
4a-5a	0	0	0	0	0	0	0	0
5a-6a	0	0	0	0	0	0	0	0
6a-7a	0	0	0	0	0	0	0	0
7a-8a	0	0	0	0	0	0	0	0
8a-9a	0	1	0	0	1	0	0	2
9a-10a	0	0	0	0	0	0	1	1
10a-11a	0	0	0	0	0	0	0	0
11a-12p	0	0	1	0	0	0	0	1
12p-1p	2	0	0	0	0	0	0	2
1p-2p	0	0	0	0	0	0	0	0
2p-3p	1	0	1	0	0	0	0	2
3p-4p	0	1	0	1	0	1	0	3
4p-5p	1	1	2	2	1	1	0	8
5p-6p	0	0	1	1	0	2	0	4
6p-7p	0	0	0	0	0	0	0	0
7p-8p	0	0	0	0	0	1	0	1
8p-9p	0	0	0	0	0	0	0	0
9p-10p	0	0	0	0	0	0	0	0
10p-11p	0	0	0	0	0	0	0	0
11p-12a	0	0	0	0	0	0	0	0
Totals	4	3	5	5	2	5	1	25

Crash Detail for 1/1/2020 - 12/31/2024

Criteria: WHERE A.AGENCY_ID = 14 AND A.GeoCoords.STIntersects (GEOMETRY::STGeomFromWKB(GEOGRAPHY::STPointFromText('POINT(-83.2391427543014

#1 **Location:** S LAPEER (6.775) 32 feet Sof ODANAH **Crash ID:** 1932845

Date: 01/07/2020 **Day:** Tue **Hour:** 5pm **Weather:** clear **Roadway:** dry **LIght:** dark/ltd

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 200004501

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	N	slow/stop on rd	veh in transpt	none	none	none	none	car	ctrrear

UD10: 1932845

#2 **Location:** S LAPEER (6.772) 48 feet Sof ODANAH **Crash ID:** 2008664

Date: 05/09/2020 **Day:** Sat **Hour:** 3pm **Weather:** clear **Roadway:** dry **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 1 **Injy 0:** 3 **How:** rr-end

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 200094013

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	S	go straight	veh in transpt	none	none	none	none	car	ctrrear
3	S	slow/stop on rd	veh in transpt	none	none	none	none	car	ctrrear

UD10: 2008664

#3 **Location:** LAPEER (6.775) 32 feet Sof ODANAH ST **Crash ID:** 2022619

Date: 06/02/2020 **Day:** Tue **Hour:** 12p **Weather:** clear **Roadway:** dry **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 2 **Injy 0:** 1 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 200111158

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	N	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: 2022619

#4 **Location:** ODANAH (0.219) 0 feet Nof S LAPEER RD **Crash ID:** 2079569

Date: 08/19/2020 **Day:** Wed **Hour:** 3pm **Weather:** clear **Roadway:** dry **LIght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 2 **Injy C:** 0 **Injy 0:** 0 **How:** rr-end

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 200167197

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	N	slow/stop on rd	veh in transpt	none	none	none	none	car	ctrrear

UD10: 2079569

#5 **Location:** LAPEER (6.783) 10 feet Nof ODANAH ST **Crash ID:** 2102649

Date: 09/16/2020 **Day:** Wed **Hour:** 7am **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 200186557

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	slow/stop on rd	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	S	slow/stop on rd	veh in transpt	none	none	none	none	car	ctrrear

UD10: 2102649

#6 **Location:** LAPEER (6.787) 32 feet Nof ODANAH ST **Crash ID:** 2205811

Date: 01/26/2021 **Day:** Tue **Hour:** 8am **Weather:** snow **Roadway:** snow **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 210016414

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	slow/stop on rd	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	S	stop on road	veh in transpt	none	none	none	none	pickup	ctrrear

UD10: 2205811

#7 **Location:** S LAPEER (6.785) 21 feet Nof ODANAH **Crash ID:** 2239377

Date: 03/12/2021 **Day:** Fri **Hour:** 8pm **Weather:** clear **Roadway:** dry **Llght:** dark/unltd

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 3 **How:** rr-end

CVT: Orion Twp **Area:** straight **HBD:** Y **Drugs:** N **Complaint #:** 210049412

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	veh in transpt	none	none	none	unable to stop	pickup	ctrfront
2	S	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: 2239377

#8 **Location:** ODANAH (0.211) 42 feet Wof S LAPEER RD **Crash ID:** 2316659

Date: 06/22/2021 **Day:** Tue **Hour:** 8pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** Y **Drugs:** N **Complaint #:** 210125921

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	E	slow/stop on rd	veh in transpt	none	none	none	none	car	ctrrear

UD10: 2316659

#9 **Location:** S LAPEER (6.785) 21 feet Nof ODANAH AVE **Crash ID:** 2378761

Date: 09/08/2021 **Day:** Wed **Hour:** 8am **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 210186140

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	S	slow/stop on rd	veh in transpt	none	none	none	none	car	ctrrear

UD10: 2378761

#10 **Location:** S LAPEER (6.787) 30 feet Nof ODANAH **Crash ID:** 2414456

Date: 10/13/2021 **Day:** Wed **Hour:** 12p **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 1 **How:** ss-same

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 210213135

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	veh in transpt	none	none	none	carels driving	car	none
2	S	stop on road	veh in transpt	none	none	none	none	pickup	rtside

UD10: 2414456

#11 **Location:** S BROADWAY (6.785) 20 feet Nof ODANAH **Crash ID:** 2427232

Date: 10/22/2021 **Day:** Fri **Hour:** 4pm **Weather:** cloudy **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 210220474

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	N	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: 2427232

#12 **Location:** SB LAPEER (6.777) 20 feet Sof NE ODANAH **Crash ID:** 2487062

Date: 12/14/2021 **Day:** Tue **Hour:** 9am **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** head-on/lt

CVT: Orion Twp **Area:** inter driveway **HBD:** N **Drugs:** N **Complaint #:** 210260689

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	NW	left turn	veh in transpt	none	none	none	failed to yield	car	lftfront
2	S	go straight	veh in transpt	none	none	none	none	pickup	lftrear

UD10: 2487062

#13 **Location:** ODANAH (0.218) 5 feet Wof S LAPEER RD **Crash ID:** 2570113

Date: 04/16/2022 **Day:** Sat **Hour:** 4pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 3 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 220079707

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	start on rdwy	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	E	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: 2570113

#14 **Location:** S LAPEER (6.777) 20 feet Sof ODANAH ST **Crash ID:** 2709443

Date: 10/07/2022 **Day:** Fri **Hour:** 5pm **Weather:** cloudy **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 220225466

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	stop on road	veh in transpt	none	none	none	none	car	lftrear
2	N	slow/stop on rd	veh in transpt	none	none	none	unable to stop	pickup	rtfront

UD10: 2709443

#15 **Location:** LAPEER (6.783) 11 feet Nof ODANAH AVE **Crash ID:** 2928409

Date: 06/23/2023 **Day:** Fri **Hour:** 9am **Weather:** rain **Roadway:** wet **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 2 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 230154556

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	slow/stop on rd	veh in transpt	none	none	none	unable to stop	car	lftfront
2	S	stop on road	veh in transpt	none	none	none	none	car	lftrear

UD10: 2928409

#16 **Location:** S LAPEER (6.781) 0 feet Xof ODANAH **Crash ID:** 2943002

Date: 07/13/2023 **Day:** Thu **Hour:** 5am **Weather:** rain **Roadway:** wet **Llght:** dawn

Injy K: 0 **Injy A:** 0 **Injy B:** 1 **Injy C:** 0 **Injy 0:** 1 **How:** rr-end

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 230172196

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	S	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: 2943002

#17 **Location:** S LAPEER (6.785) 21 feet Nof ODANAH **Crash ID:** 2956406

Date: 07/29/2023 **Day:** Sat **Hour:** 2pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 2 **Injy C:** 0 **Injy 0:** 0 **How:** rr-end

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 230187390

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	go straight	veh parked	none	none	none	unable to stop	car	ctrfront
2	S	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: 2956406

#18 **Location:** S LAPEER (6.769) 63 feet Sof ODANAH AVE **Crash ID:** 2957272

Date: 07/31/2023 **Day:** Mon **Hour:** 12p **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** angle

CVT: Orion Twp **Area:** inter driveway **HBD:** N **Drugs:** N **Complaint #:** 230188958

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	enter rdwy	veh in transpt	none	none	none	failed to yield	car	lftfront
2	S	go straight	veh in transpt	none	none	none	none	car	rtside

UD10: 2957272

#19 **Location:** LAPEER (6.787) 200 feet Sof HEIGHTS **Crash ID:** 3011289

Date: 09/28/2023 **Day:** Thu **Hour:** 12p **Weather:** cloudy **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** head-on/lt

CVT: Orion Twp **Area:** driveway **HBD:** N **Drugs:** N **Complaint #:** 230244030

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	W	left turn	veh in transpt	none	none	none	failed to yield	car	rtrear
2	SE	go straight	veh in transpt	none	none	none	none	car	ctrfront

UD10: 3011289

#20 **Location:** ODANAH (0.205) 75 feet Wof LAPEER RD **Crash ID:** 3166894

Date: 04/01/2024 **Day:** Mon **Hour:** 8am **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** ss-same

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 240083055

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	change lanes	veh in transpt	none	none	none	failed to yield	car	rtfront
2	E	go straight	veh in transpt	none	none	none	none	car	lftside

UD10: 3166894

#21 **Location:** ODANAH (0.219) 10 feet Wof S BROADWAY ST **Crash ID:** 3198222

Date: 05/13/2024 **Day:** Mon **Hour:** 3pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 240121866

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	go straight	veh in transpt	none	none	none	unable to stop	pickup	ctrfront
2	E	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: 3198222

#22 **Location:** ODANAH (0.217) 10 feet Wof S LAPEER RD **Crash ID:** 3199044

Date: 05/14/2024 **Day:** Tue **Hour:** 8pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** Y **Drugs:** N **Complaint #:** 240123038

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	E	stop on road	veh in transpt	none	none	none	none	car	ctrrear

UD10: 3199044

#23 **Location:** ODANAH (0.215) 20 feet Wof S LAPEER RD **Crash ID:** 3210854

Date: 05/27/2024 **Day:** Mon **Hour:** 12p **Weather:** cloudy **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 1 **Injy C:** 0 **Injy 0:** 0 **How:** single

CVT: Orion Twp **Area:** w/i intersection **HBD:** N **Drugs:** N **Complaint #:** 240134690

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	E	right turn	pedestrian	none	none	none	failed to yield	pickup	rtfront
2		crossing at inter	veh in transpt	none	none	none	none	uncoded	none

UD10: 3210854

#24 **Location:** NB LAPEER (6.783) 10 feet Wof ODANAH AVE **Crash ID:** 3220073

Date: 06/09/2024 **Day:** Sun **Hour:** 8am **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 1 **Injy 0:** 1 **How:** angle

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 240146586

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	disrgd traffic cntrl	car	ctrfront
2	E	go straight	veh in transpt	none	none	none	none	car	rtside

UD10: 3220073

#25 **Location:** LAPEER (6.77) 60 feet Sof ODANHA ST **Crash ID:** 3238304

Date: 07/02/2024 **Day:** Tue **Hour:** 1pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** ss-same

CVT: Orion Twp **Area:** driveway **HBD:** N **Drugs:** N **Complaint #:** 240166469

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	S	change lanes	veh in transpt	none	none	none	other	car	rtside
2	S	start on rdwy	veh in transpt	none	none	none	none	car	lftfront

UD10: 3238304

#26 **Location:** LAPEER (6.777) 20 feet Sof ODANAHA ST **Crash ID:** 3242477

Date: 07/08/2024 **Day:** Mon **Hour:** 1pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** inter other **HBD:** N **Drugs:** N **Complaint #:** 240171165

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	start on rdwy	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	N	start on rdwy	veh in transpt	none	none	none	none	car	ctrrear

UD10: 3242477

#27 **Location:** ODANAH (0.204) 80 feet Wof S LAPEER RD **Crash ID:** 3379416

Date: 11/25/2024 **Day:** Mon **Hour:** 11a **Weather:** cloudy **Roadway:** wet **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** ss-opp

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 240291657

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	W	go straight	veh in transpt	none	none	none	wrong way	car	lftfront
2	E	stop on road	veh in transpt	none	none	none	none	car	lftfront

UD10: 3379416

#28 **Location:** LAPEER (6.779) 10 feet Sof ODANAH AVE **Crash ID:** 3390464

Date: 12/13/2024 **Day:** Fri **Hour:** 1pm **Weather:** clear **Roadway:** dry **Llght:** day

Injy K: 0 **Injy A:** 0 **Injy B:** 0 **Injy C:** 0 **Injy 0:** 2 **How:** rr-end

CVT: Orion Twp **Area:** straight **HBD:** N **Drugs:** N **Complaint #:** 240306644

Unit#	Veh Dir	Action Prior	Event 1	Event 2	Event 3	Event 4	Haz Action	Veh Type	Damage
1	N	go straight	veh in transpt	none	none	none	unable to stop	car	ctrfront
2	N	slow/stop on rd	veh in transpt	none	none	none	none	car	ctrrear

UD10: 3390464

Crash Type

Count	Type
0	uncoded
1	single
0	head-on
2	head-on/lt
2	angle
19	rr-end
0	rr-end/lt
0	rr-end/rt
3	ss-same
1	ss-opp
0	back
0	other
0	unknown
Totals	28

Lighting Conditions

Count	Type
0	uncoded
25	day
1	dawn
0	dusk
1	dark/ltd
1	dark/unltd
0	other
0	unknown
Totals	28

Weather Conditions

Count	Type
0	uncoded
20	clear
5	cloudy
0	fog
2	rain
1	snow
0	wind
0	sleet/hail
0	blowing snow
0	blowing sand
0	smoke
0	unknown
Totals	28

Road Condition

Count	Type
0	uncoded
24	dry
3	wet
0	ice
1	snow
0	mud
0	slush
0	debris
0	water
0	sand
0	oily
0	other
0	unknown
Totals	28

Crashes by Month

Count	Type
2	January
0	February
1	March
2	April
4	May
4	June
5	July
1	August
3	September
3	October
1	November
2	December
Totals	28

Hazardous Action

Count	Type
29	none
0	speeding
0	spd too slow
5	failed to yield
1	disrgd traffic cntrl
1	wrong way
0	left of center
0	imprp passing
0	imprp lane use
0	imprp turn
0	imprp/no signal
0	imprp backing
19	unable to stop
1	other
0	unknown
0	reckls driving
1	carels driving
Totals	57

Unit Type

Count	Type
0	Bicyclist
0	Engineer
56	Vehicle
1	Pedestrian
Totals	57

Crashes by Year

Count	Type
5	2020
7	2021
2	2022
5	2023
9	2024
Totals	28

Crash Severity

	Fatal	A	B	C	No Injy	Total
Persons	0	0	6	6	0	12
Crashes	0	0	4	4	20	28

Alcohol in Crashes

	Fatal	A	B	C	PDO	Total
Drinking	0	0	0	0	3	3
Not Drinking	0	0	4	4	17	25
Totals	0	0	4	4	20	28

Crashes per Hour by Day

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total
12a-1a	0	0	0	0	0	0	0	0
1a-2a	0	0	0	0	0	0	0	0
2a-3a	0	0	0	0	0	0	0	0
3a-4a	0	0	0	0	0	0	0	0
4a-5a	0	0	0	0	0	0	0	0
5a-6a	0	0	0	0	1	0	0	1
6a-7a	0	0	0	0	0	0	0	0
7a-8a	0	0	0	1	0	0	0	1
8a-9a	1	1	1	1	0	0	0	4
9a-10a	0	0	1	0	0	1	0	2
10a-11a	0	0	0	0	0	0	0	0
11a-12p	0	1	0	0	0	0	0	1
12p-1p	0	2	1	1	1	0	0	5
1p-2p	0	1	1	0	0	1	0	3
2p-3p	0	0	0	0	0	0	1	1
3p-4p	0	1	0	1	0	0	1	3
4p-5p	0	0	0	0	0	1	1	2
5p-6p	0	0	1	0	0	1	0	2
6p-7p	0	0	0	0	0	0	0	0
7p-8p	0	0	0	0	0	0	0	0
8p-9p	0	0	2	0	0	1	0	3
9p-10p	0	0	0	0	0	0	0	0
10p-11p	0	0	0	0	0	0	0	0
11p-12a	0	0	0	0	0	0	0	0
Totals	1	6	7	4	2	5	3	28

APPENDIX F: MITIGATION CONDITIONS

HCM Signalized Intersection Capacity Analysis
4: S Broadway & Odanah Ave/Driveway

04/27/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	2	104	25	0	9	0	874	5	14	2048	0
Future Volume (vph)	125	2	104	25	0	9	0	874	5	14	2048	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	5.6	5.6		5.6		5.6		6.1		6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00		1.00		0.95		1.00	0.95	
Frt	1.00	0.85		1.00		0.85		1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	1900	1609		1863		1667		3610		1863	3619	
Flt Permitted	0.95	1.00		0.64		1.00		1.00		0.28	1.00	
Satd. Flow (perm)	1900	1609		1254		1667		3610		555	3619	
Peak-hour factor, PHF	0.94	0.94	0.94	0.65	0.92	0.65	0.92	0.94	0.25	0.96	0.96	0.92
Adj. Flow (vph)	133	2	111	38	0	14	0	930	20	15	2133	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	133	113	0	38	0	14	0	950	0	15	2133	0
Heavy Vehicles (%)	0%	6%	6%	2%	2%	2%	2%	5%	2%	2%	5%	2%
Turn Type	Perm	NA		Perm		Prot		NA		Perm	NA	
Protected Phases		4				8		2			6	
Permitted Phases	4			8		8				6		
Actuated Green, G (s)	18.4	18.4		18.4		18.4		89.9		90.0	90.0	
Effective Green, g (s)	18.4	18.4		18.4		18.4		89.9		90.0	90.0	
Actuated g/C Ratio	0.15	0.15		0.15		0.15		0.75		0.75	0.75	
Clearance Time (s)	5.6	5.6		5.6		5.6		6.1		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	291	246		192		255		2704		416	2714	
v/s Ratio Prot		c0.07				0.01		0.26			c0.59	
v/s Ratio Perm	0.07			0.03						0.03		
v/c Ratio	0.46	0.46		0.20		0.05		0.35		0.04	0.79	
Uniform Delay, d1	46.3	46.3		44.4		43.4		5.1		3.9	9.1	
Progression Factor	1.00	1.00		1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2	5.1	6.1		0.5		0.1		0.4		0.2	2.4	
Delay (s)	51.4	52.3		44.9		43.5		5.5		4.0	11.5	
Level of Service	D	D		D		D		A		A	B	
Approach Delay (s/veh)		51.8			44.5			5.5			11.5	
Approach LOS		D			D			A			B	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	13.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	76.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	2	31	868	5	6	2127
Future Volume (Veh/h)	2	31	868	5	6	2127
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.50	0.68	0.93	0.50	0.50	0.70
Hourly flow rate (vph)	4	46	933	10	12	3039
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						289
pX, platoon unblocked	0.41					
vC, conflicting volume	2482	472			943	
vC1, stage 1 conf vol	938					
vC2, stage 2 conf vol	1544					
vCu, unblocked vol	1749	472			943	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	92			98	
cM capacity (veh/h)	256	544			736	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	50	622	321	12	1520	1520
Volume Left	4	0	0	12	0	0
Volume Right	46	0	10	0	0	0
cSH	499	1700	1700	736	1700	1700
Volume to Capacity	0.10	0.37	0.19	0.02	0.89	0.89
Queue Length 95th (ft)	8	0	0	1	0	0
Control Delay (s/veh)	13.0	0.0	0.0	10.0	0.0	0.0
Lane LOS	B			A		
Approach Delay (s/veh)	13.0	0.0		0.0		
Approach LOS	B					

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
4: Odanah Ave/Driveway

04/25/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	185	4	67	18	0	28	0	2124	33	23	1323	0
Future Volume (vph)	185	4	67	18	0	28	0	2124	33	23	1323	0
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)	5.6	5.6		5.6		5.6		6.1		6.1	6.1	
Lane Util. Factor	1.00	1.00		1.00		1.00		0.95		1.00	0.95	
Frt	1.00	0.86		1.00		0.85		1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	1900	1684		1900		1700		3753		1900	3725	
Flt Permitted	0.95	1.00		0.95		1.00		1.00		0.05	1.00	
Satd. Flow (perm)	1900	1684		1900		1700		3753		93	3725	
Peak-hour factor, PHF	0.84	0.83	0.83	0.65	0.65	0.65	0.92	0.93	0.92	0.92	0.85	0.92
Adj. Flow (vph)	220	5	81	28	0	43	0	2284	36	25	1556	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	220	86	0	28	0	43	0	2320	0	25	1556	0
Heavy Vehicles (%)	0%	2%	2%	0%	0%	0%	0%	1%	2%	0%	2%	0%
Turn Type	Perm	NA		Prot		Prot		NA		Perm	NA	
Protected Phases		4!		8!		8		2			6	
Permitted Phases	4			8		8				6		
Actuated Green, G (s)	22.4	22.4		22.4		22.4		85.9		85.9	85.9	
Effective Green, g (s)	22.4	22.4		22.4		22.4		85.9		85.9	85.9	
Actuated g/C Ratio	0.19	0.19		0.19		0.19		0.72		0.72	0.72	
Clearance Time (s)	5.6	5.6		5.6		5.6		6.1		6.1	6.1	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	354	314		354		317		2686		66	2666	
v/s Ratio Prot		0.05		0.01		0.03		c0.62			0.42	
v/s Ratio Perm	c0.12									0.27		
v/c Ratio	0.62	0.27		0.08		0.14		0.86		0.38	0.58	
Uniform Delay, d1	44.9	41.8		40.3		40.7		12.7		6.6	8.3	
Progression Factor	1.00	1.00		1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2	8.0	2.1		0.1		0.2		4.0		15.7	0.9	
Delay (s)	52.9	44.0		40.4		40.9		16.7		22.4	9.3	
Level of Service	D	D		D		D		B		C	A	
Approach Delay (s/veh)		50.4			40.7			16.7			9.5	
Approach LOS		D			D			B			A	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.7
Intersection Capacity Utilization	89.3%	ICU Level of Service	E
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	1	31	2046	6	8	1414
Future Volume (Veh/h)	1	31	2046	6	8	1414
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.68	0.97	0.63	0.67	0.88
Hourly flow rate (vph)	1	46	2109	10	12	1607
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)						294
pX, platoon unblocked	0.66					
vC, conflicting volume	2942	1060			2119	
vC1, stage 1 conf vol	2114					
vC2, stage 2 conf vol	828					
vCu, unblocked vol	2911	1060			2119	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)	5.8					
tF (s)	3.5	3.3			2.2	
p0 queue free %	99	79			95	
cM capacity (veh/h)	78	224			261	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	47	1406	713	12	804	804
Volume Left	1	0	0	12	0	0
Volume Right	46	0	10	0	0	0
cSH	215	1700	1700	261	1700	1700
Volume to Capacity	0.22	0.83	0.42	0.05	0.47	0.47
Queue Length 95th (ft)	20	0	0	4	0	0
Control Delay (s/veh)	26.3	0.0	0.0	19.4	0.0	0.0
Lane LOS	D			C		
Approach Delay (s/veh)	26.3	0.0		0.1		
Approach LOS	D					

Intersection Summary				
Average Delay	0.4			
Intersection Capacity Utilization	63.9%	ICU Level of Service		B
Analysis Period (min)	15			

Intersection: 4: S Broadway & Odanah Ave/Driveway

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	R	T	TR	L	T	T
Maximum Queue (ft)	176	143	68	39	241	223	64	214	218
Average Queue (ft)	88	66	22	8	162	126	11	188	192
95th Queue (ft)	153	119	56	30	244	211	38	204	207
Link Distance (ft)	496	496	167	167	228	228		176	176
Upstream Blk Time (%)					1	0		33	34
Queuing Penalty (veh)					5	0		346	349
Storage Bay Dist (ft)							50		
Storage Blk Time (%)							1	40	
Queuing Penalty (veh)							7	6	

Intersection: 6: S Broadway & Heights Rd

Movement	NB	NB	NB	SB	SB
Directions Served	L	T	T	T	TR
Maximum Queue (ft)	40	69	20	538	536
Average Queue (ft)	14	6	1	493	487
95th Queue (ft)	40	35	14	555	564
Link Distance (ft)		176	176	482	482
Upstream Blk Time (%)				42	38
Queuing Penalty (veh)				0	0
Storage Bay Dist (ft)	20				
Storage Blk Time (%)	17				
Queuing Penalty (veh)	72				

Intersection: 7: Glanworth St & S Broadway

Movement	WB	NB	SB	SB	SB
Directions Served	LR	T	L	T	T
Maximum Queue (ft)	74	79	31	41	77
Average Queue (ft)	22	6	4	1	3
95th Queue (ft)	57	42	21	29	40
Link Distance (ft)	601	599		228	228
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)			20		
Storage Blk Time (%)			1		
Queuing Penalty (veh)			8		

Network Summary

Network wide Queuing Penalty: 793

Intersection: 4: Odanah Ave/Driveway

Movement	EB	EB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	R	T	TR	L	T	T
Maximum Queue (ft)	251	77	57	139	265	268	69	198	202
Average Queue (ft)	145	33	17	22	246	246	26	175	170
95th Queue (ft)	227	66	46	88	254	257	69	189	212
Link Distance (ft)	248	248	170	170	235	235		171	171
Upstream Blk Time (%)	1			0	40	40		20	12
Queuing Penalty (veh)	0			0	412	411		135	83
Storage Bay Dist (ft)							50		
Storage Blk Time (%)							17	37	
Queuing Penalty (veh)							109	8	

Intersection: 6: Heights Rd

Movement	NB	NB	NB	SB	SB
Directions Served	L	T	T	T	TR
Maximum Queue (ft)	59	188	219	341	350
Average Queue (ft)	36	67	57	181	119
95th Queue (ft)	54	184	186	347	313
Link Distance (ft)		171	171	477	477
Upstream Blk Time (%)		1	1	2	1
Queuing Penalty (veh)		16	8	0	0
Storage Bay Dist (ft)	20				
Storage Blk Time (%)	31	0			
Queuing Penalty (veh)	312	0			

Intersection: 7: S Broadway & Glanworth St

Movement	WB	NB	NB	SB	SB	SB
Directions Served	LR	T	TR	L	T	T
Maximum Queue (ft)	562	644	648	32	10	10
Average Queue (ft)	389	616	616	7	0	0
95th Queue (ft)	647	631	630	27	8	7
Link Distance (ft)	563	598	598		235	235
Upstream Blk Time (%)	29	59	56			
Queuing Penalty (veh)	0	0	0			
Storage Bay Dist (ft)				20		
Storage Blk Time (%)				6		
Queuing Penalty (veh)				40		

Network Summary

Network wide Queuing Penalty: 1534