500 West Big Beaver
Troy, MI 48084
troymi.gov

248.524.3364
planning@troymi.gov

PLANNING COMMISSION
MEETING AGENDA
REGULAR MEETING

Marianna Perakis, Chair, Lakshmi Malalahalli, Vice Chair
Toby Buechner, Carlton Faison, Tyler Fox, Michael W. Hutson, Tom Krent,
Dave Lambert and John J. Tagle

June 10, 2025 **7:00 P.M.** **Council Chambers**

1. ROLL CALL

2. APPROVAL OF AGENDA

3. APPROVAL OF MINUTES – May 27, 2025

4. PUBLIC COMMENT – For Items Not on the Agenda

PRELIMINARY SITE PLAN APPROVAL

5. PRELIMINARY SITE PLAN REVIEW (SP JPLN2024-0011) – Proposed Big Beaver Mixed Use Development, South side of Big Beaver, East of I-75 (363 W Big Beaver), Section 28, Currently zoned BB (Big Beaver) Zoning District.

6. PRELIMINARY SITE PLAN REVIEW (SP JPLN2025-0008) – Proposed Maple Lane Apartment Development, South of Maple, West of Coolidge (1485 Maple Way), Section 31, Currently zoned IB (Integrated Industrial & Business) Zoning District.

OTHER ITEMS

7. PUBLIC COMMENT – For Items on the Agenda

8. PLANNING COMMISSION COMMENT

9. ADJOURN

NOTICE:*People with disabilities needing accommodations for effective participation in this meeting should contact the City Clerk by e-mail at clerk@troymi.gov or by calling (248) 524-3317 at least two working days in advance of the meeting. An attempt will be made to make reasonable accommodations*

Televised Live, Government Channel WTRY (10 WideOpenWest and 17 Comcast) Replayed Wednesdays 3:00 pm, 6:00 pm and 11:00 pm

Chair Perakis called the Regular meeting of the Troy City Planning Commission to order at 7:05 p.m. on May 27, 2025, in the Council Chamber of the Troy City Hall. Chair Perakis presented opening remarks relative to the role of the Planning Commission and procedure for tonight's meeting.

1. ROLL CALL

Present:
Carlton M. Faison
Michael W. Hutson
Tom Krent
David Lambert
Marianna Perakis
John J. Tagle

Absent:
Toby Buechner
Tyler Fox
Lakshmi Malalahalli

Also Present:
R. Brent Savidant, Community Development Director
Salim Huerta Jr., Commercial Project Collaborator
Julie Quinlan Dufrane, Assistant City Attorney
Kathy L. Czarnecki, Recording Secretary

2. APPROVAL OF AGENDA

Resolution # PC-2025-031
Moved by: Faison
Support by: Lambert

RESOLVED, To approve the agenda as prepared.

Yes: All present (6)
Absent: Buecher, Fox, Malalahalli

MOTION CARRIED

3. APPROVAL OF MINUTES – May 13, 2025

Resolution # PC-2025-05-032
Moved by: Krent
Support by: Faison

RESOLVED, To approve the minutes of May 13, 2025 Regular meeting as submitted.

Yes: All present (6)
Absent: Buecher, Fox, Malalahalli

MOTION CARRIED

4. PUBLIC COMMENT – For Items Not on the Agenda

Mary Ellen Barden, 2105 Babcock; addressed privacy concerns for neighboring properties to the north relating to the proposed Somerset West Concept Development Plan application.

PRELIMINARY SITE PLAN APPROVAL

5. PRELIMINARY SITE PLAN APPROVAL - (SP JPLN2025-0001) – Proposed GFA Forsyth Site Condominium, 9 single family detached units, North of Wattles, West of Dequindre (4189 and 4197 Forsyth; PIN 88-20-13-401-028, -037 and -038), Section 13, Presently Zoned R-1C (One Family Residential) Zoning District

Mr. Hutson asked to recuse himself from consideration of this item and any future applications submitted by the applicant.

Mr. Hutson exited the meeting at 7:12 p.m.

Chair Perakis informed the applicant that a vote of all five members present is required to grant approval of the application. She asked if the applicant would like to postpone the item to a future meeting where a full board might be present.

Mr. Abitheira requested to proceed.

Mr. Savidant gave a brief explanation of a Site Condominium development.

Mr. Savidant reviewed the GFA Forsyth Site Condominium application. He reported the application is fully compliant. In summary, Mr. Savidant asked that the Board consider in its deliberations whether the proposed project meets the Site Plan Review Design Standards, Section 8.06 of the Zoning Ordinance.

Gary Abitheira was present.

Some comments during discussion related to the following:

- Extension of Rockingham and Stonington Drives; potential to make connection with abutting subdivisions, i.e., path, landscaping, benches.
- Site circulation, as relates to T-turnarounds.
- Non-regulated wetlands on site; final determination by EGLE during final site plan approval.
- Single family homes surround the project.
- Elevations; housing styles.
- Building materials; applicant confirmed brick and LP wood siding.
- Additional landscaping to enhance detention pond.
- Stormwater management.
- Starting price point of homes; $925,000.

Chair Perakis acknowledged there was no one in the audience for public comment.

Resolution # PC-2025-05-

Moved by: Krent
Support by: Tagle

WHEREAS, That Preliminary Site Condominium Approval, pursuant to Article 8 and Section 10.02 of the Zoning Ordinance, as requested for the proposed GFA Forsyth Site Condominium, 9 units/lots, North of Wattles, West of Dequindre, (4189 and 4197 Forsyth; PIN 88-20-13-401-028, -037 and -038), Section 13, approximately 12.62 acres in size, currently Zoned R-1C (One Family Residential) District, be **granted.**

Discussion on the motion on the floor.

There was discussion on providing additional landscaping around the detention pond and clarification on building materials.

Resolution # PC-2025-05-033

Moved by: Krent
Support by: Tagle

WHEREAS, That Preliminary Site Condominium Approval, pursuant to Article 8 and Section 10.02 of the Zoning Ordinance, as requested for the proposed GFA Forsyth Site Condominium, 9 units/lots, North of Wattles, West of Dequindre, (4189 and 4197 Forsyth; PIN 88-20-13-401-028, -037 and -038), Section 13, approximately 12.62 acres in size, currently Zoned R-1C (One Family Residential) District, be **granted,** subject to:

1. Enhancing the area around the detention pond with landscaping 15% above existing proposed landscaping.
2. Building materials will consist of no vinyl siding; applicant offered LP siding as one of the building materials.

Vote on the motion on the floor, as revised.

Yes: Faison, Krent, Lambert, Perakis, Tagle
Absent: Buechner, Fox, Malalahalli
Recused: Hutson

MOTION CARRIED

OTHER ITEMS

Mr. Hutson returned to the meeting at 7:50 p.m.

6. PUBLIC COMMENT – For Items on the Agenda

There was no one present who wished to speak.

7. PLANNING COMMISSION COMMENT

There were general comments on the proposed Somerset West Concept Development Plan application as relates to the neighboring properties to the north of Cunningham.

8. ADJOURN

The Regular meeting of the Planning Commission adjourned at 7:56 p.m.

Respectfully submitted,

Marianna J. Perakis, Chair

Kathy L. Czarnecki, Recording Secretary

https://d.docs.live.net/2f7ed4fe5f664ea8/Documents/Kathy/COT Planning Commission Minutes/2025/2025 05 27 Draft.docx

ITEM #5

DATE: June 2, 2025

TO: Planning Commission

FROM: R. Brent Savidant, Community Development Director

SUBJECT: PRELIMINARY SITE PLAN REVIEW (SP JPLN2024-0011) – Proposed Big Beaver Mixed Use Development, South side of Big Beaver, East of I-75 (363 W Big Beaver), Section 28, Currently zoned BB (Big Beaver) Zoning District.

The petitioner Marusich Architecture submitted the above referenced Preliminary Site Plan application for Big Beaver Mixed Use Development. The applicant proposes to retain the existing 4-story office building at the north end of the site and construct a new residential apartment tower to the south of the office, connected by a roof deck. The new building will contain 110 units, comprised of 20 efficiency units, 70 one-bedroom units and 20 two-bedroom units. The building includes a 2-story parking deck, with two 5-story residential towers above, totaling 7 stories.

The Planning Commission considered the item on January 28, 2025 and provided feedback but did not take action. The project received a rear yard setback variance from the Zoning Board of Appeals on May 20, 2025 (minutes attached). The Planning Commission is authorized to grant Preliminary Site Plan Approval for this item.

The attached report prepared by Carlisle/Wortman Associates, Inc. (CWA), the City's Planning Consultant, summarizes the project. CWA prepared the report with input from various City departments including Planning, Engineering, Public Works and Fire. City Management supports the findings of fact contained in the report and the recommendations included therein.

Attachments:

1. Maps
2. Report prepared by Carlisle/Wortman Associates, Inc.
3. Minutes from January 28, 2025 Regular Planning Commission meeting (excerpt)
4. Minutes from May 20, 2025 Zoning Board of Appeals meeting (excerpt).
5. Preliminary Site Plan.
6. Shared Parking & Site Plan Review Report prepared by OHM Advisors, dated January 17, 2025.

PROPOSED RESOLUTION

PRELIMINARY SITE PLAN REVIEW (SP JPLN2024-0011) – Proposed Big Beaver Mixed Use Development, South side of Big Beaver, East of I-75 (363 W Big Beaver), Section 28, Currently zoned BB (Big Beaver) Zoning District.

Resolution # PC-2025-01-
Moved by:
Support by:

RESOLVED, That Preliminary Site Plan Approval, pursuant to Article 8 of the Zoning Ordinance, as requested for the proposed Big Beaver Mixed Use Development, South side of Big Beaver, East of I-75 (363 W Big Beaver), Section 28, approximately 2.04 acres in size, Currently Zoned BB, be (granted, subject to the following conditions):

1. Provide a pedestrian accessible route to enter the parking deck from the shared parking area.

_____) or

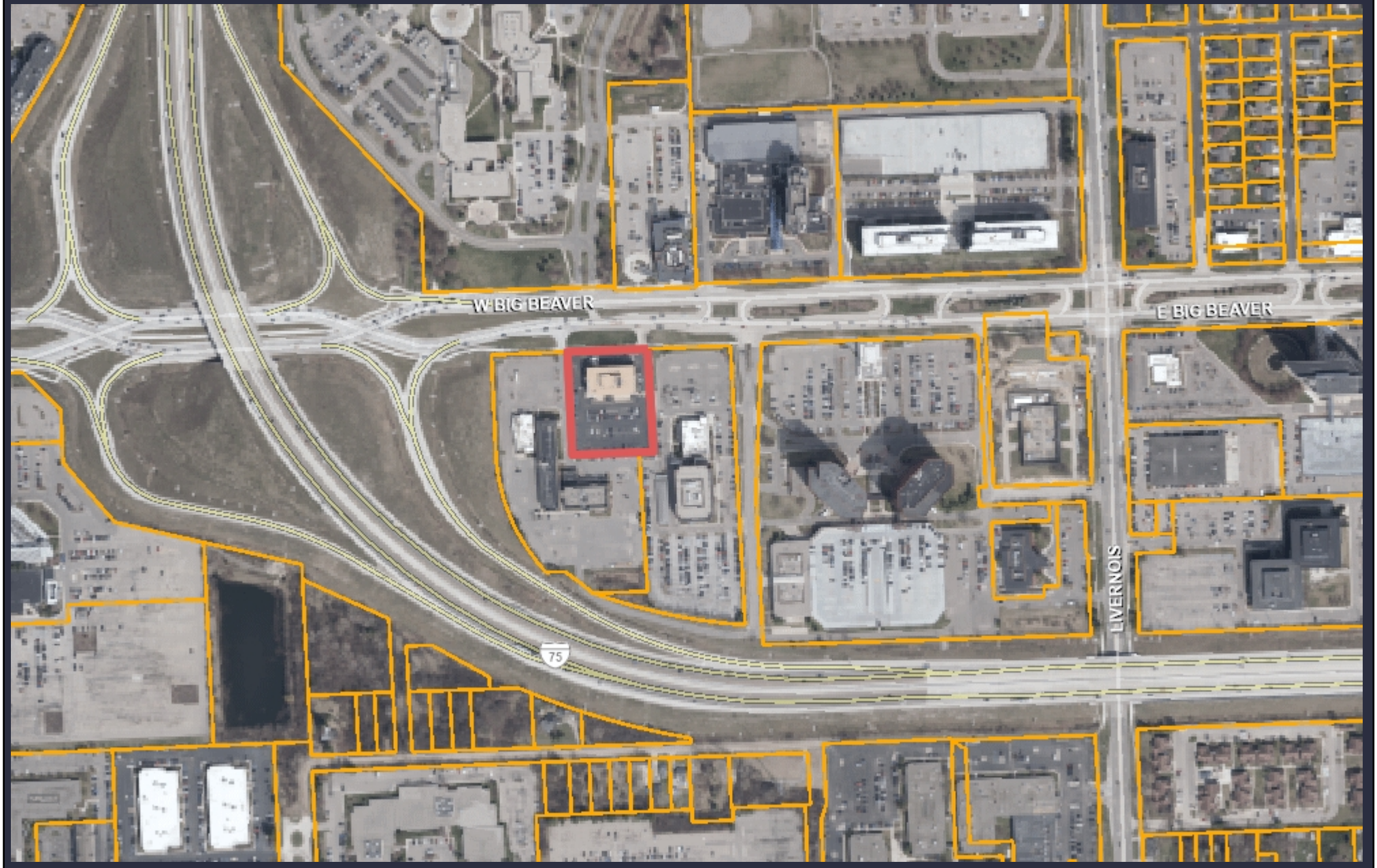
(denied, for the following reasons: _____) or

(postponed, for the following reasons:_____)

Yes:
No:
Absent:

MOTION CARRIED

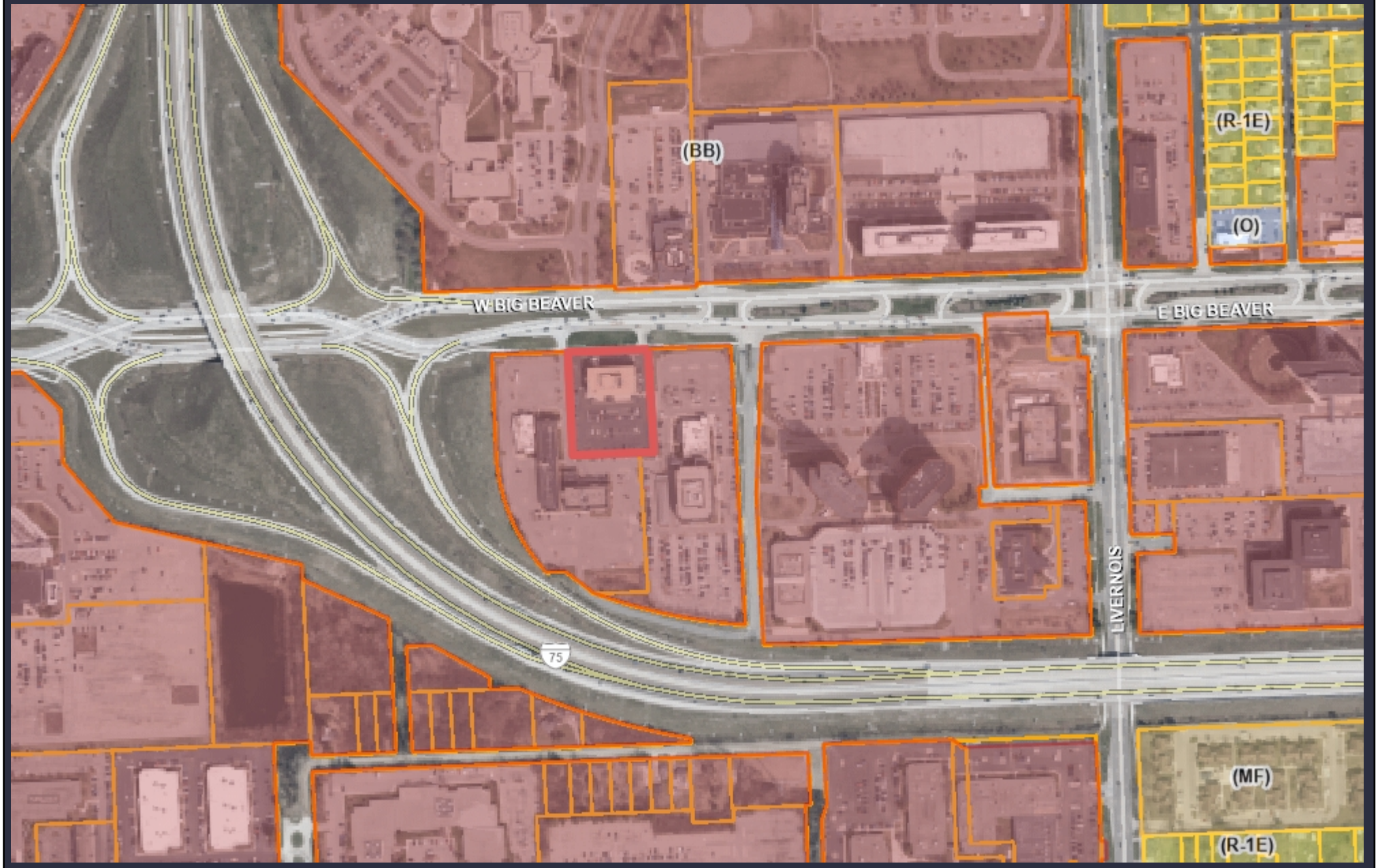
GIS Online



1,153 0 577 1,153 Feet

Note: The information provided by this application has been compiled from recorded deeds, plats, tax maps, surveys, and other public records and data. It is not a legally recorded map survey. Users of this data are hereby notified that the source information represented should be consulted for verification.

GIS Online



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Carlisle | Wortman
ASSOCIATES, INC.
117 NORTH FIRST STREET SUITE 70 ANN ARBOR, MI 48104 734.662.2200 734.662.1935 FAX

Date: May 20, 2024
July 23, 2024
November 26, 2024
January 10, 2025
January 22, 2025
June 3, 2025

Preliminary Site Plan

For

City of Troy, Michigan

Applicant: Marusich Architecture

Project Name: 363 Big Beaver MXD

Location: 363 W Big Beaver Rd

Plan Date: May 28, 2025

Zoning: BB, Big Beaver

Action Requested: Preliminary Site Plan Approval

PROJECT AND SITE DESCRIPTION

An application has been submitted for a mixed-use development on the south side of Big Beaver, situated north and east of I-75. The proposed mix of uses at this site include office space, multiple family residential, and outdoor gathering space. The applicant proposes to retain an existing 4-story office building at the north end of the site and construct a new residential building. The residential apartment tower contains 110 units, including 20 efficiency units, 70 one-bedroom units and 20 two-bedroom units. The building includes a 2-story parking deck, with two 5-story residential towers above, totaling 7 stories. The two 5-story residential towers are connected by a roof deck above the two-story parking deck.

The existing office building is 52,095 square feet with a building footprint of 12,133 square feet. The proposed apartment tower 146,217 gross square feet. The entire site is 2.08 acres and is

zoned BB, Big Beaver Form Based District. Office uses are permitted in this district and residential uses are permitted on upper stories of buildings fronting a public right of way.

Site Location:

Size of Subject Site:
2.08 acres.

Proposed Uses of Subject Site:
7-story apartment tower with five (5) levels of residential apartments over top of two (2) levels of parking below.

Current Zoning:
The property is currently zoned BB, Big Beaver Form Based District.

Surrounding Property Details:

Direction	Zoning	Use
North	BB, Big Beaver	None directly north City of Troy (NW) Children's Hospital of Troy (NE)
South	BB, Big Beaver	Drury Inn & Suites
East	BB, Big Beaver	Fogo de Chao Brazilian Steakhouse
West	BB, Big Beaver	Drury Inn & Suites

NATURAL FEATURES

A tree inventory provided on Sheet A-8 shows that there are twenty-one (21) existing red maple trees on site. Of those, just one (1) tree qualifies as a Landmark tree. The tree plan states that seven (7) trees shall be removed, fourteen (14) shall remain, and eight (8) new red maples and six (6) new serviceberries will be planted.

Replacement Details		
Protected Tree	**Inches Removed**	**Replacement Required**
Landmark	0 inches	0 inches
Woodland	0 inches	0 inches
Preservation/Mitigation	**Inches Preserved**	**Credit**
Landmark	20 inches	20 inches
Woodland	0 inches	0 inches
Total	**0 inches required for replacement.**	

Items to be Addressed: *None.*

PREVIOUS PLANNING COMMISSION REVIEW

The item was last reviewed by the Planning Commission at their January 28, 2025 meeting. At that meeting the item was postponed to allow the applicant to address:

- **Provide three dimensional (3D) rendering to show context of elevation from surrounding buildings.**

  CWA Comment: The applicant has provided an extensive number of 3D renderings.

- **Design changes to east elevation.**

  CWA Comment: The applicant has provided greater openings in the ground floor (parking structure) of the east elevation to reduce the wall massing.

- **Improve pedestrian/vehicular movement and address pedestrian safety; i.e., crosswalk, signage, lighting.**

  CWA Comment: The applicant should ensure a pedestrian accessible route to enter the parking deck from the shared parking areas.

- **Address comments identified in OHM memorandum.**

  CWA Comment: OHM reviewed parking on January 17, 2025 and raised the following items:

  1. How are the parking requirements going to be met during construction? Ample parking must be supplied at all times including during construction. This includes parking dedicated for construction workers, equipment, etc. The parking study and calculations need to evaluate the interim period.

  2. Since this development proposes to use a portion of the parking lot on the adjacent lot, the 575 Big Beaver site should also be evaluated to ensure there is adequate parking provided there as well.

  3. There needs to be some policy and/or wayfinding that tells people from the 363 Big Beaver site where they are allowed to park on the 575 Big Beaver site.

  Those items appear to not have been addressed since the January Planning Commission meeting.

- **Consider softer design approach of parking deck; color scheme.**

  CWA Comment: As noted, the applicant has provided greater openings in the ground floor of east elevation to reduce the wall massing. In addition, the applicant has lightened up the color of the concrete block of parking deck.

- **Obtain Variance from ZBA or resubmit.**

  CWA Comment: The applicant obtained a variance from the Zoning Board of Appeals for a rear yard setback encroachment. The rear building is 0-feet from the required 40-foot rear yard setback. The setback is located adjacent to the parking lot of the adjacent parcel and the includes a shared parking easement.

AREA, WIDTH, HEIGHT, SETBACKS

The site is regulated by dimensional standards of Building Form F:

	Required / Maximum	Provided	Compliance
Front (Big Beaver)	10-foot build-to-line	Greater than 10 feet	Existing non-conformity
Side (east, west)	N/A, building may be placed up to property line	East: 0 feet West: 0 feet	Complies
Rear (south)	40 feet minimum	0 feet	Obtained Variance from ZBA
Building Height	5 stories, 55 feet Minimum	7 stories, 83 feet 8 inches	Complies
Open Space	15%	20.9%	Complies
Parking Location	Surface parking shall be located in a rear yard or side yard; parking for residential tenants may be provided in integrated garages or below-grade parking.	Surface parking in front yard and integrated garage	Existing non-conformity

Front Setback:
We note that this existing front setback does not conform with the 10-foot build to line requirement. This is an existing legal non-conformity.

Rear Setback:
The proposed rear setback of zero (0) feet does not comply with the minimum rear setback requirement of forty (40) feet. The applicant has obtained a variance from the Zoning Board of Appeals.

Parking Location:
Standards for Building Form F state that surface parking shall be located in a rear or side yard. The applicant's proposal is to retain the existing front yard surface parking. However, similar to building placement, this is an existing legal non-conformity.

Items to be Addressed: *None*

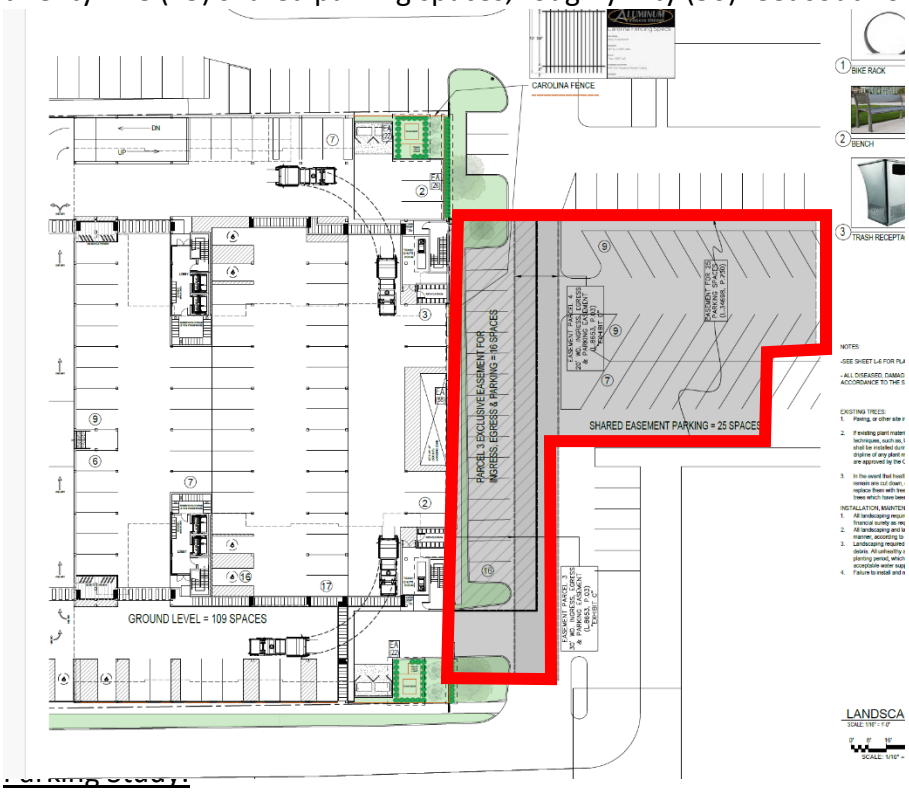
PARKING

	Required	Provided	Compliance
MIXED USE Bank: 1 space per 250 SF General Office: 1 space per 300 SF	Bank: 14 spaces General Office: 102 spaces	233 Spaces (192 on site and 41 shared offsite)	Seeking shared parking relief through the Planning Commission.

<u>Medical:</u> 1 space per 200 SF <u>Multi-family Residential:</u> 1 space per efficiency unit 2 spaces per dwelling unit	<u>Medical:</u> 43 spaces <u>Residential:</u> 20 efficiency*1= 20 + 90 dwelling units*2= 180 **359 Total Spaces Required**	*(126 spaces deficient)*	See Discussion Below
Barrier Free	8 spaces	14	Complies
Bicycle	2 spaces	Bike Racks	Complies

<u>Parking and Access Easement:</u>

As part of the site plan, the applicant notes two (2) separate parking and access easements on the adjacent parcel to the south. Legal descriptions indicate that the shared easements shall be used for ingress, egress, and parking only. The "parcel 3" easement contains sixteen (16) shared parking spaces directly abutting the south end of the building. The "parcel 4" easement contains twenty-five (25) shared parking spaces, roughly fifty (50) feet south of the building.



Area of Shared Parking Easement

<u>Parking Study:</u>

A parking study was performed by Fleis and Vandenbrink on April 15, 2024. The Fleis and Vandenbrink parking study stated that "the proposed parking supply on site will accommodate

the projected parking demand for the existing and proposed uses." In a memo dated May 14, 2024, OHM accepted the conclusions of the parking study.

Since those initial reviews, the applicant has added ten (10) units on site and lost eight (8) additional parking spaces. In light of these changes, OHM reviewed parking on January 17, 2025 and raised the following items:

1. How are the parking requirements going to be met during construction? Ample parking must be supplied at all times including during construction. This includes parking dedicated for construction workers, equipment, etc. The parking study and calculations need to evaluate the interim period.

2. Since this development proposes to use a portion of the parking lot on the adjacent lot, the 575 Big Beaver site should also be evaluated to ensure there is adequate parking provided there as well.

3. There needs to be some policy and/or wayfinding that tells people from the 363 Big Beaver site where they are allowed to park on the 575 Big Beaver site.

Loading Space:
A loading space is provided near the southern end of the ground level.

Items to be Addressed: *Applicant to address parking concerns raised by OHM.*

ACCESS AND CIRCULATION

Vehicular Access:
The subject site has one (1) direct access point off Big Beaver and a couple of indirect access points. The direct access point off Big Beaver is located in the northeast corner of the site. The subject site is also indirectly accessible from the site directly to the west (Drury Inn & Suites), as one can enter the Drury Inn parking lot via Big Beaver and immediately turn left (east) onto the subject site.

Lastly, roughly 300 feet east of the subject site, Spencer Street runs south from Big Beaver and then curves west until it enters the Drury Inn & Suites parking lot from the rear. Technically someone could take this route via Spencer Street and then enter the subject site from the south or west sides.

Pedestrian Access:
Existing sidewalk runs along Big Beaver to the north and along the far west end of the subject site. The applicant proposes two (2) new pathways which will connect directly to the existing sidewalk along Big Beaver. These new sidewalks are proposed on the east and west sides of the

office building, and crosswalks shall connect these sidewalks to Big Beaver in the north and to the residential building in the south.

***Items to be Addressed**: None.*

LANDSCAPING

A landscaping plan has been provided on Sheets ST-2A and ST-2B. The following table discusses the development's compliance with the landscape requirements set forth in Section 13.02.

	Required	Provided	Compliance
Greenbelt			
Big Beaver: 1 tree per every 30 lineal feet	270 LF/30= 9 trees	9 trees	Complies
Parking Lot Trees			
1 tree per every 8 parking spaces	N/A	6 trees on top of parking deck	Complies
Tree Replacement			
Woodland: for trees with DBH 6 inches or larger, 50% of the original DBH removed Landmark: 100% of original DBH removed	83 inches removed	105 inches credit	Complies
Overall Site Landscaping			
A minimum of 15% of the site area shall be comprised of landscape material.	15%	32.1%	Complies

Trash Enclosure:
Trash compactor rooms are internal to the residential building. Six (6) standard size trash receptacles are provided throughout the Level 3 open space area.

Mechanical Equipment:
Two (2) transformers are shown near the southeast and southwest corners of the building. The applicant proposes to screen the transformers with ten (10) arborvitaes each. Other mechanical equipment is shown interior to the residential building.

***Items to be Addressed**: None.*

PHOTOMETRICS

Photometric plans provided by the applicant show lighting levels at-grade, within the ground level parking deck, and on top of the parking deck where there is outdoor gathering space. All lighting levels are compliant with ordinance standards. Four (4) types of light fixtures are proposed throughout the site and three (3) are fully compliant with fixture design standards.

Items to be Addressed: *None*

FLOOR PLAN AND ELEVATIONS

Residential Overview:
The residential component of this development is a new 7-story building with two (2) towers at either end. Levels 1 and 2 are parking decks which extend across the entire building. Level 3 (the roof of the parking deck) is where the two (2) residential towers begin. The first tower is on the eastern end of the building and the second tower is on the western end. A large, outdoor gathering space is proposed on Level 3 between the two (2) towers on top of the parking deck roof.

There are a total of 110 residential units (20 efficiency units, 70 one-bedroom units, and 20 two-bedroom units). Units are available in the following sizes:

- Efficiency: 602 square feet
- One-bedroom: 677 or 698 square feet
- Two-bedroom: 1,058, 1,141 or 1,185 square feet

Floor Plans:

Level 1- Parking Deck and Lobby

- First level of the parking deck
- Both vehicle and bicycle parking spaces are provided
- Contains one (1) lobby, four (4) elevators, two (2) recycle rooms, two (2) trash chutes, two (2) trash compacter rooms, two (2) mechanical rooms, two (2) sets of stacked mailboxes, and several staircases
- Elevators and other amenities are duplicated to provide such amenities near each tower for convenience

Level 2- Parking Deck

- Level 2 is the second floor of the parking deck
- Contains vehicle parking, two (2) lobbies, four (4) elevators, two (2) trash chutes, three (3) mechanical rooms, and several staircases

Level 3- Residential & Outdoor space

- East tower: 11 units
- West tower: 11 units
    - Each unit is accessed via an internal common area
    - Units on this level include a private patio

- Outdoor open space with chairs, tables, and creative landscaping elements
- Community room (amenities not provided)
- "Green roof"

Levels 4, 5, 6, & 7- Residential

- East tower: 11 units
- West tower: 11 units
    - Each unit is accessed via an internal common area
    - Units on Levels 4, 5, 6, & 7 have a private balcony
- Level 4 features a rooftop patio on the community room

Elevations:
Overall building height is 83 feet 8 inches (7 stories). The top of the parking deck is 26 feet in height.

Building Materials:
Concrete is the main material used for the parking deck levels. External building materials for the residential towers include Nichiha brand cement board panels, Pella brand fixed frame windows, Pella operable lower transom windows, parapet coping, and metal entry overhang. Materials for the private balconies include Nichiha TuffBlock cement boards, Pella sliding glass doors, black powder coated railings, and glass panels.

Colored renderings show that the building exterior will be a mixture of light gray, dark gray, brown, light brown and black.

Screening of Parking Deck:
The parking deck will be screened with a combination of Carolina fence and arborvitae screening. While screening is desirable, it is unclear where there will be openings for pedestrian access from the shared parking areas. We ask the applicant to ensure a pedestrian accessible route to enter the parking deck from the shared parking areas.

Items to be Addressed: *Ensure a pedestrian accessible route to enter the parking deck from the shared parking areas.*

DESIGN STANDARDS AND SITE PLAN REVIEW STANDARDS

The Big Beaver Node design standards as well as Site Plan review standards provide the Planning Commission with direction when reviewing the proposed site plan and design features of this development.
Section 5.04.E. outlines Design Standards:

1. *Building Orientation and Entrance*
2. *Ground Story Activation*

3. *Transitional Features*
4. *Site Access, Parking, and Loading*

Please see Section 5.04.E for standard details.

Section 8.06 outlines Site Plan Review Design Standards.

1. *Development shall ensure compatibility to existing commercial districts and provide a transition between land uses.*
    a. *Building design shall enhance the character of the surrounding area in relation to building and parking placement, landscape and streetscape features, and architectural design.*
    b. *Street fronts shall provide a variety of architectural expression that is appropriate in its context and prevents monotony.*
    c. *Building design shall achieve a compatible transition between areas with different height, massing, scale, and architectural style.*

2. *Development shall incorporate the recognized best architectural building design practices.*
    a. *Foster a lasting impact on the community through the provision of high quality design, construction, and detailing.*
    b. *Provide high quality, durable materials, such as but not limited to stone, brick, glass, and metal. E.I.F.S. or material equivalent shall only be used as an accent material.*
    c. *Develop buildings with creativity that includes balanced compositions and forms.*
    d. *Design roofs that are appropriate to the architectural style of the building and create an appropriate visual exterior mass of the building given the context of the site.*
    e. *For commercial buildings, incorporate clearly defined, highly visible customer entrances using features such as canopies, porticos, arcades, arches, wing walls, ground plane elements, and/or landscape planters.*
    f. *Include community amenities that add value to the development such as patio/ seating areas, water features, art work or sculpture, clock towers, pedestrian plazas with park benches or other features located in areas accessible to the public.*

3. *Enhance the character, environment and safety for pedestrians and motorists.*
    a. *Provide elements that define the street and the pedestrian realm.*
    b. *Create a connection between the public right of way and ground floor activities.*
    c. *Create a safe environment by employing design features to reduce vehicular and pedestrian conflict, while not sacrificing design excellence.*
    d. *Enhance the pedestrian realm by framing the sidewalk area with trees, awnings, and other features.*
    e. *Improve safety for pedestrians through site design measures.*

SUMMARY

Overall, we strongly support the project as an adaptive reuse of an existing oversized parking lot. However, the following items should be discussed by the applicant and Planning Commission:

1. *Applicant to address parking concerns raised by OHM.*
2. *Planning Commission to consider changes to parking deck elevations*
3. *Ensure a pedestrian accessible route to enter the parking deck from the shared parking areas.*

Sincerely,

CARLISLE/WORTMAN ASSOC., INC.
Benjamin R. Carlisle, AICP, LEED AP
President

CARLISLE/WORTMAN ASSOC., INC.
Shana Kot
Community Planner

PRELIMINARY SITE PLAN APPROVALS

5. PRELIMINARY SITE PLAN REVIEW (SP JPLN2024-0011) – Proposed Big Beaver Mixed Use Development, South side of Big Beaver, East of I-75 (363 W Big Beaver), Section 28, Currently Zoned BB (Big Beaver) Zoning District

Mr. Carlisle reviewed the Preliminary Site Plan application for a mixed use development that retains an existing 4-story office building and proposes the construction of two towers for residential apartment units. He said the applicant is looking for feedback only this evening. Mr. Carlisle addressed the site layout, building design, parking deck, bridge connection between existing office and new apartments, access and circulation, parking, unique landscaping, and elevations.

Mr. Carlisle stated the applicant is seeking a variance from the Zoning Board of Appeals (ZBA) for the 40-foot required rear yard setback. He said the application would come back before the Planning Commission for consideration should the variance be granted by the ZBA.

Mr. Carlisle shared support of the proposed project because the applicant is reusing an existing office building and an oversized parking lot. He asked the Planning Commission to discuss with the applicant the proposed shared parking, parking concerns raised by OHM (City Traffic Consultant), pedestrian accessibility from the parking deck to residential units and use of decorative light fixtures throughout the parking deck.

Board members and the administration discussed:
- Legal nonconformity of the building.
- Pedestrian connection to/from parking deck and residential units.
- Shared parking and number of parking spaces deficient.
- Relationship of project with neighboring properties on site.

Project Architect John Marusich clarified ownership of the subject property. He said the owner intends to keep the bank and existing drive-through, has moved his personal office on site, and has a good relationship with neighboring properties.

Mr. Marusich narrated a question and answer session during a video presentation of the proposed project.

Some comments during discussion related to the following:

- Decorative lighting fixtures.
- Generous green space, unique landscaping, third level terrace amenities.
- Building identity, primary entrance, and apartment towers in relation to street presence.
- Rental units.
- Pedestrian circulation to/from parking to residential units; safety, convenience, signage.
- Design approach of parking deck.
- Concerns identified in OHM memorandum.
- Urban style of living.
- ZBA variance request.

In summary, the applicant was asked to consider:

- Provide three dimensional (3D) rendering to show context of elevation from surrounding buildings.
- Design changes to east elevation.
- Improve pedestrian/vehicular movement and address pedestrian safety; i.e., crosswalk, signage, lighting.
- Address comments identified in OHM memorandum.
- Consider softer design approach of parking deck; color scheme.

A. 363 W. Big Beaver, John Marusich, Marusich Architecture for Frank Simon, 363 Big Beaver LLC – A variance request to allow a residential apartment tower addition be set back zero feet from the rear property line, where the Zoning Ordinance requires a 40 foot set back.

Moved by Eisenbacher
Second by Fox

RESOLVED, to grant the request.

Yes: Eisenbacher, Chambers, Fox, McCauley, Forster, Kenkre
No: Bossenbroek

MOTION PASSED

Marusich Architecture: Responses to comments from PRE-ZBA site plan review

05/28/2025

In summary, the applicant was asked to consider:

1. Provide three dimensional (3D) rendering to show context of elevation from surrounding buildings.

   Response: The rendering package has been revised with multiple shots showing views from the surrounding context.

2. Design changes to east elevation.

   Response: The east elevation that had concerns of the solid wall on the parking deck levels has been adjusted to be open air, matching the west side of the parking deck wall.

3. Improve pedestrian/vehicular movement and address pedestrian safety; i.e., crosswalk, signage, lighting.

   Response: The crosswalks at the north side of the property in front of the bank drive-thru have been revised to include 'Slow - pedestrian crossing' signs to provide further safety measures for the crossing of pedestrians.

4. Address comments identified in OHM memorandum.
   Response: The OHM comments have been addressed before the previous site plan review. The items included from that write-up, which have been included, are the ADA tactile warning surfaces, crosswalks to be straight across, proximity of accessible parking spaces to lobby / elevators, etc.

5. Consider softer design approach of parking deck; color scheme.
   Response: The materiality of parking deck has been revised to accommodate the softer design approach.

363 BIG BEAVER MXD

363 W BIG BEAVER RD
TROY, MI. 48084

DRAWING INDEX	
DRAWING #	DRAWING TITLE
	COVER SHEET
	APPLICATION
	TOPOGRAPHY / SURVEY
ST-1	SITE PLAN
ST-1.1	BLOWUP OF REAR SETBACK 1 (ZBA)
ST-1.2	BLOWUP OF REAR SETBACK 2 (ZBA)
L-1	LANDSCAPE PLAN (GROUND LEVEL - FRONT)
L-2	LANDSCAPE PLAN (GROUND LEVEL - REAR)
L-3	LANDSCAPE PLAN (TOP OF DECK)
L-4	LANDSCAPE AREA DIAGRAM
L-5	TREE INVENTORY PLAN
L-6	PLANT LIST & DETAILS
A-1	LEVEL 1 - GROUND LEVEL PLAN (PARKING / LOBBY)
A-2	LEVEL 2 - PARKING DECK PLAN
A-3	LEVEL 3 - RESIDENTIAL FLOOR PLAN
A-4	LEVEL 4 - RESIDENTIAL FLOOR PLAN (TYP. FLOORS 4 & 6)
A-5A	LEVEL 5 - RESIDENTIAL FLOOR PLAN (TYP. FLOORS 5 & 7)
A-5B	RESIDENTIAL UNIT FLOOR PLANS
A-6A	BUILDING ELEVATIONS (1 OF 2)
A-6B	BUILDING ELEVATIONS (2 OF 2)
A-7	PRELIMINARY GRADING PLAN (DEFERRED SUBMITTAL)
A-8	TREE INVENTORY PLAN (NOT USED: SEE SHEET L-5)
A-9A	LIGHTING PLAN (GROUND LEVEL)
A-9B	LIGHTING PLAN (TOP OF DECK)
A-10	ROOF PLAN - CONDENSER UNIT LAYOUT
A-11	BUILDING SECTIONS
A-12A	PARKING ANALYSIS (1 OF 6)
A-12B	PARKING ANALYSIS (2 OF 6)
A-12C	PARKING ANALYSIS (3 OF 6)
A-12D	PARKING ANALYSIS (4 OF 6)
A-12E	PARKING ANALYSIS (5 OF 6)
A-12F	PARKING ANALYSIS (6 OF 6)
A-13	GREEN WALL DETAIL

BUILDING FORM F REQUIRED SETBACKS	
PROPERTY EDGE	DISTANCE
FRONT SETBACK	10' MIN
REAR SETBACK	40' MIN
SIDE SETBACK	0' MIN

NOTES:
Per section 903.2.8 2015 Michigan Building Code, an automatic sprinkler system is required for occupancies with a group R fire area.
CIVIL ENGINEERING PLANS: DEFERRED SUBMITTAL

SITE PLAN APPLICATION PACKAGE
(DC: 11/12/2024)
POST ZBA REVIEW: 05/28/2025

PROJECT DESCRIPTION

A 100 UNIT DEVELOPMENT OF A 5 STORY RESIDENTIAL APARTMENT TOWER OVER TOP OF 2 LEVELS OF PARKING BELOW (7 STORIES TOTAL).

BUILDING CODE REVIEW

CLASSIFICATION OF WORK : NEW CONSTRUCTION

BUILDING	2015 MICHIGAN BUILDING CODE (R2 STRUCTURE)
ENERGY	2015 MICHIGAN ENERGY CODE- ASHRAE 90.1.2007
FIRE	2015 INTERNATIONAL FIRE CODE
PLUMBING	2018 MICHIGAN PLUMBING CODE
MECHANICAL	2015 MICHIGAN MECHANICAL CODE
ELECTRICAL	2017 NATIONAL ELECTRIC CODE

BUILDING INFORMATION

USE CLASSIFICATION	R2
CONSTRUCTION CLASSIFICATION	TYPE : VA (APT.) & TYPE 1(PARKING STRUCTURE)
GROSS BUILDING AREA	152,231 S.F.
REQUIRED EXITS PER SEC. 1006	2015 MICHIGAN BUILDING CODE
SPRINKLER SYSTEM REQUIRED	2015 MICHIGAN BUILDING CODE

LANDSCAPE AREA BREAKDOWN

ROOF GREEN SPACE AREA: 14,484 S.F.

TOP OF COMMUNITY ROOM
GREEN SPACE AREA: 1,948 S.F.

TOP OF DECK
GREEN SPACE AREA: 7,253 S.F.

GROUND LEVEL
GREEN SPACE AREA: 5,459 S.F.

TOTAL
GREEN SPACE AREA: 29,144 S.F.

15% MIN. GREEN AREA REQUIRED
29,144 / 90,711 = 32.1% GREEN AREA PROVIDED

SITE INFORMATION

ZONED BBA (BIG BEAVER DISTRICT TYPE A)
SITE AREA = 90,711 S.F = 2.082 ACRES
EXISTING OFFICE BUILDING AREA = 52,095 S.F (12,133 S.F. GROUND)
EXISTING OFFICE BUILDING COVERAGE = 13.3%

ZONED BBA (BIG BEAVER DISTRICT TYPE A)
SITE AREA = 90,711 S.F = 2.082 ACRES
NEW BUILDING AREA (PARKING DECK AREA) = 46,161 S.F
NEW BUILDING COVERAGE (PARKING DECK) = 50.8%

LEGAL DESCRIPTION

REAL PROPERTY IN THE CITY OF TROY, COUNTY OF OAKLAND, STATE OF MICHIGAN, DESCRIBED AS FOLLOWS:

PARCEL 1:
LOTS 101 AND 102, EXCEPT THE NORTH 66 FEET DEEDED TO CITY OF TROY IN LIBER 8015, PAGE 44, BEAVER PARK SUBDIVISION, ACCORDING TO THE PLAT THEREOF, AS RECORDED IN LIBER 28, PAGE 29 OF PLATS, OAKLAND COUNTY RECORDS.

EASEMENT PARCEL 2:
TOGETHER WITH A NON-EXCLUSIVE EASEMENT FOR INGRESS AND EGRESS AS RECORDED IN LIBER 8853, PAGE 3, OAKLAND COUNTY RECORDS AND DESCRIBED AS: PART OF VACATED MINER STREET (50 FEET WIDE) OF BEAVER PARK SUBDIVISION OF WEST 1/2 NORTH, RANGE 11 EAST, CITY OF TROY, OAKLAND COUNTY, MICHIGAN, ACCORDING TO THE PLAT THEREOF AS RECORDED IN LIBER 28, PAGE 29 OF PLATS, OAKLAND COUNTY RECORDS. ALSO DESCRIBED AS: BEGINNING AT A POINT WHICH IS NORTH 87 DEGREES 50 MINUTES 28 SECONDS EAST, 870.00 FEET AND SOUTH 02 DEGREES 53 MINUTES 44 SECONDS EAST, 102.00 FEET FROM THE NORTH 1/4 CORNER OF SAID SECTION 28; THENCE ALONG THE SOUTH LINE OF BIG BEAVER ROAD (204 FEET WIDE) NORTH 87 DEGREES 50 MINUTES 28 SECONDS EAST, 53.00 FEET; THENCE SOUTH 02 DEGREES 53 MINUTES 44 SECONDS EAST, 80.00 FEET ALONG THE EAST LINE OF SAID VACATED MINER STREET; THENCE SOUTH 87 DEGREES 50 MINUTES 28 SECONDS WEST, 33.00 FEET; THENCE NORTH 02 DEGREES 53 MINUTES 44 SECONDS WEST, 80.00 FEET TO THE POINT OF BEGINNING.

EASEMENT PARCEL 3:
ALSO, TOGETHER WITH AN EXCLUSIVE EASEMENT FOR INGRESS, EGRESS AND PARKING AS RECORDED IN LIBER 8853, PAGE 3, OAKLAND COUNTY RECORDS AND DESCRIBED AS: PART OF LOT 100, BEAVER PARK SUBDIVISION OF WEST PART OF THE NORTHEAST 1/4 OF SECTION 28, TOWN 2 NORTH, RANGE 11 EAST, CITY OF TROY, OAKLAND COUNTY, MICHIGAN, ACCORDING TO THE PLAT THEREOF, AS RECORDED IN LIBER 28, PAGE 29 OF PLATS, OAKLAND COUNTY RECORDS. ALSO DESCRIBED AS: BEGINNING AT A POINT WHICH IS NORTH 87 DEGREES 50 MINUTES 28 SECONDS EAST 903.00 FEET AND SOUTH 02 DEGREES 53 MINUTES 44 SECONDS EAST, 468.00 FEET AND NORTH 87 DEGREES 50 MINUTES 28 SECONDS EAST, 10.00 FEET FROM THE NORTH 1/4 CORNER OF SAID SECTION 28; THENCE NORTH 02 DEGREES 53 MINUTES 44 SECONDS WEST, 30.00 FEET; THENCE NORTH 87 DEGREES 50 MINUTES 28 SECONDS EAST, 210.00 FEET, THENCE SOUTH 02 DEGREES 53 MINUTES 44 SECONDS EAST, 30.00 FEET; THENCE SOUTH 87 DEGREES 50 MINUTES 28 SECONDS WEST, 210.00 FEET TO THE POINT OF BEGINNING.

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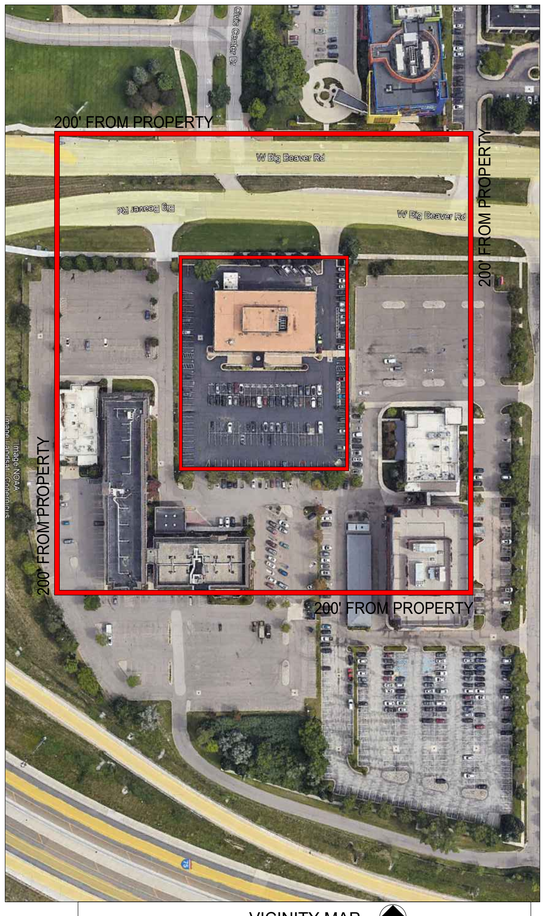
PIN: 20-28-203-030

PROPERTY ID # 88-20-28-203-030

MARUSICH
ARCHITECTURE

36880 WOODWARD AVENUE , BLOOMFIELD HILLS, MI. 48304
CELL: 313-482-0645
EMAIL: JOHNM.MARUSICHARCHITECTURE@GMAIL.COM



VICINITY MAP

STATE OF MICHIGAN
JOHN E. MARUSICH
License No. 1301035747
REGISTERED ARCHITECT

05/28/2025

CITY OF TROY
PRELIMINARY SITE PLAN APPLICATION

CITY OF TROY PLANNING DEPARTMENT
500 W. BIG BEAVER
TROY, MICHIGAN 48084
248- 524-3364
FAX: 248-524-3382
E-MAIL: planning @ troymi.gov

PRELIMINARY SITE PLAN REVIEW FEE
$1,000.00
ESCROW FEE
$1,500.00
ADMINISTRATIVE SITE PLAN REVIEW FEE
$300.00
SITE PLAN RENEWAL (BEFORE EXPIRATION)
$500.00
FINAL SITE PLAN REVIEW
$100.00

REGULAR MEETINGS OF THE CITY PLANNING COMMISSION ARE HELD ON THE SECOND AND FOURTH TUESDAYS OF EACH MONTH AT 7:00 P.M. AT CITY HALL.

PLEASE FILE A COMPLETE PRELIMINARY SITE PLAN APPLICATION, TOGETHER WITH THE APPROPRIATE FEE, NOT LESS THAN THIRTY (30) DAYS PRIOR TO THE DATE OF THAT MEETING.

---

1. NAME OF THE PROPOSED DEVELOPMENT: BIG BEAVER MIXED USE DEVELOPMENT
2. ADDRESS OF THE SUBJECT PROPERTY: 363 W Big Beaver Rd Troy, MI 48084
3. ZONING CLASSIFICATION OF THE SUBJECT PROPERTY: (BB) BIG BEAVER ROAD (FORM BASED)
4. TAX IDENTIFICATION NUMBER(S) OF SUBJECT PROPERTY: 88-20-28-203-030
5. DESCRIPTION OF PROPOSED USE: 100 residential unit development to be attached to an existing office building (proposed mixed-use development).

6. APPLICANT:
   NAME John Marusich
   COMPANY Marusich Architecture
   ADDRESS 36880 Woodward Ave Suite 100
   CITY Bloomfield Hills STATE Mi ZIP 48304
   TELEPHONE cell:1-313-482-0645 / office:1-248-792-2949
   E-MAIL johnm.marusicharchitecture@gmail.com

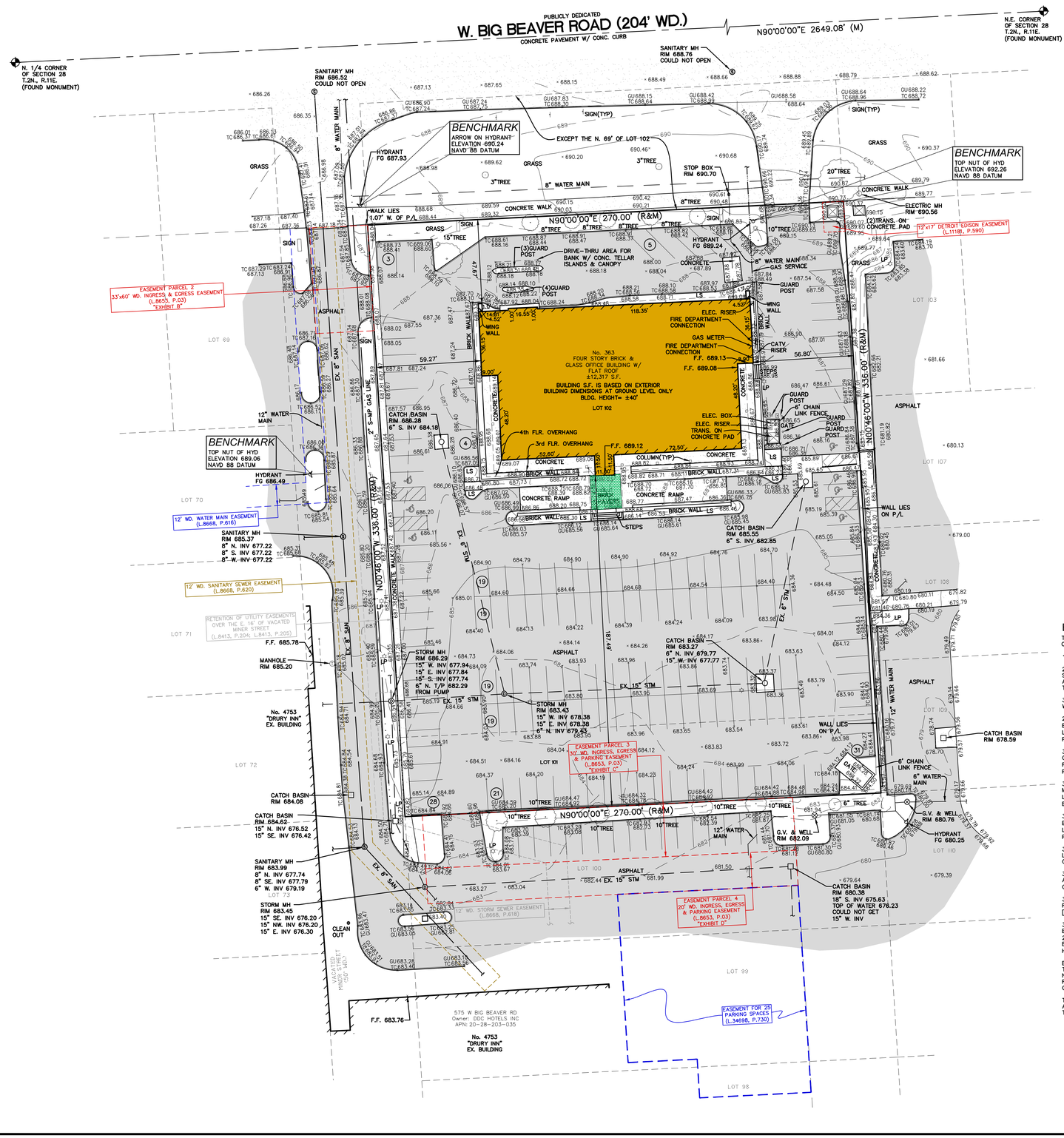
   PROPERTY OWNER:
   NAME Frank R. Simon
   COMPANY 363 W. Big Beaver, LLC
   ADDRESS 363 W. Big Beaver Rd. #410
   CITY Troy STATE MI ZIP 48084
   TELEPHONE 248-790-9500
   E-MAIL fsimon@simonpm.com

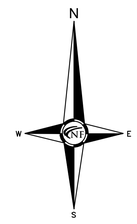
7. THE APPLICANT BEARS THE FOLLOWING RELATIONSHIP TO THE OWNER OF THE SUBJECT PROPERTY:
   Architect

8. **SIGNATURE OF APPLICANT** _____ DATE 4.15.24

9. **SIGNATURE OF PROPERTY OWNER** _____ DATE 4-3-24

BY THIS SIGNATURE, THE PROPERTY OWNER AUTHORIZES PLACEMENT OF A SIGN ON THE PROPERTY TO INFORM THE PUBLIC AS TO THIS REQUEST FOR PRELIMINIARY SITE PLAN.





LOCATION MAP

LEGAL DESCRIPTION

REAL PROPERTY IN THE CITY OF TROY, COUNTY OF OAKLAND, STATE OF MICHIGAN, DESCRIBED AS FOLLOWS:

PARCEL 1:
LOTS 101 AND 102, EXCEPT THE NORTH 69 FEET DEEDED TO CITY OF TROY IN LIBER 6016, PAGE 44, BEAVER PARK SUBDIVISION, ACCORDING TO THE PLAT THEREOF, AS RECORDED IN LIBER 28, PAGE 29 OF PLATS, OAKLAND COUNTY RECORDS.

EASEMENT PARCEL 2:
TOGETHER WITH A NON-EXCLUSIVE EASEMENT FOR INGRESS AND EGRESS AS RECORDED IN LIBER 8653, PAGE 3, OAKLAND COUNTY RECORDS AND DESCRIBED AS: PART OF VACATED MINER STREET (50 FEET WIDE) OF BEAVER PARK SUBDIVISION OF WEST 2 NORTH, RANGE 11 EAST, CITY OF TROY, OAKLAND COUNTY, MICHIGAN, ACCORDING TO THE PLAT THEREON AS RECORDED IN LIBER 28, PAGE 29 OF PLATS, OAKLAND COUNTY RECORDS. ALSO DESCRIBED AS: BEGINNING AT A POINT WHICH IS NORTH 87 DEGREES 50 MINUTES 28 SECONDS EAST, 870.00 FEET AND SOUTH 02 DEGREES 53 MINUTES 44 SECONDS EAST, 102.00 FEET FROM THE NORTH 1/4 CORNER OF SAID SECTION 28; THENCE ALONG THE SOUTH LINE OF BIG BEAVER ROAD (204 FEET WIDE) NORTH 87 DEGREES 50 MINUTES 28 SECONDS EAST, 33.00 FEET; THENCE SOUTH 02 DEGREES 53 MINUTES 44 SECONDS EAST, 60.00 FEET ALONG THE EAST LINE OF SAID VACATED MINER STREET; THENCE SOUTH 87 DEGREES 50 MINUTES 28 SECONDS WEST, 33.00 FEET; THENCE NORTH 02 DEGREES 53 MINUTES 44 SECONDS WEST, 60.00 FEET TO THE POINT OF BEGINNING.

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PIN: 20-28-203-030

NOTE: THE LEGAL DESCRIPTION(S) SHOWN ON THIS SURVEY ARE THE SAME DESCRIPTIONS AS SHOWN ON THE TITLE COMMITMENT REFERENCED HEREON.

GROSS LAND AREA: 90,711 SQUARE FEET OR 2.082 ACRES.

BASIS OF BEARING NOTE

THE BASIS OF BEARING FOR THIS SURVEY WAS ESTABLISHED BY AN ORIGINAL SURVEY OF THIS AREA BY NOWAK & FRAUS.

TITLE NOTES

2. ANY FACTS, RIGHTS, INTEREST OR CLAIMS WHICH ARE NOT SHOWN BY THE PUBLIC RECORD BUT WHICH COULD BE ASCERTAINED BY MAKING INQUIRY OF PERSONS IN POSSESSION THEREOF.

3. EASEMENTS, LIENS OR ENCUMBRANCES OR CLAIMS THEREOF, WHICH ARE NOT SHOWN BY THE

29. THE TERMS AND PROVISIONS CONTAINED IN THE DOCUMENT ENTITLED "EASEMENT AGREEMENT" RECORDED APRIL 27, 1984 AS LIBER 8653, PAGE 3 OF OFFICIAL RECORDS. [SAID EASEMENT IS PLOTTED HEREON].

30. EASEMENT GRANTED TO CITY OF TROY, A MICHIGAN MUNICIPAL CORPORATION DISCLOSED BY INSTRUMENT RECORDED IN LIBER 8668, PAGE 620, OAKLAND COUNTY RECORDS. [SAID EASEMENT IS PLOTTED HEREON].

31. EASEMENT GRANTED TO THE DETROIT EDISON COMPANY, A MICHIGAN CORPORATION DISCLOSED BY INSTRUMENT RECORDED IN LIBER 11181, PAGE 590, OAKLAND COUNTY RECORDS. [SAID EASEMENT IS PLOTTED HEREON].

32. THE TERMS AND PROVISIONS CONTAINED IN THE DOCUMENT ENTITLED "EASEMENT AGREEMENT" RECORDED JANUARY 3, 2005 AS LIBER 34698, PAGE 726 OF OFFICIAL RECORDS. [SAID EASEMENT IS PLOTTED HEREON].

35. RIGHTS OF TENANTS UNDER WRITTEN UNRECORDED UNEXPIRED LEASES, AS TENANTS ONLY WITH NO RIGHT OF FIRST REFUSAL OR OTHER OPTION TO PURCHASE.

36. EASEMENT GRANTED TO THE CITY OF TROY FOR STORM DRAIN AND SEWER RECORDED IN LIBER 8668, PAGE 618, OAKLAND COUNTY RECORDS. [SAID EASEMENT IS PLOTTED HEREON].

37. EASEMENT GRANTED TO THE CITY OF TROY FOR WATER MAIN RECORDED IN LIBER 8668, PAGE 616, OAKLAND COUNTY RECORDS. [SAID EASEMENT IS PLOTTED HEREON].

38. RESERVATION OF EASEMENTS IN VACATED MINER STREET AS EVDIENCED BY THE INSTRUMENT RECORDED IN LIBER 8413, PAGE 204 AND LIBER 8413, PAGE 205, OAKLAND COUNTY RECORDS. [16' EASEMENT RETAINED OVER VACATED MINER STREET IS SHOWN HEREON].

EXCEPT AS NOTED BELOW, ALL EXCEPTIONS SHOWN OR NOTED ON THIS SURVEY WERE OBTAINED FROM TITLE COMMITMENT NO. NCS-698887Z-MICH, WITH AN EFFECTIVE DATE OF 11-17-2014, REVISION NO. 2, ISSUED BY FIRST AMERICAN TITLE INSURANCE COMPANY.

THIS SURVEY MAY NOT SHOW ALL EASEMENTS OF RECORD UNLESS AN UPDATED TITLE POLICY IS FURNISHED TO THE SURVEYOR BY THE OWNER.

CERTIFICATE OF SURVEY

WE HEREBY CERTIFY THAT WE HAVE SURVEYED THE PROPERTY HEREIN DESCRIBED AND THAT WE HAVE PLACED MARKER IRONS AT THE CORNERS OF THE PARCEL OR AS INDICATED IN THE ABOVE SKETCH.

KEVIN NAVAROLI, PLS — DATE: 01-12-2018
NO.: 53503

MISS DIG / UTILITY DISCLAIMER NOTE

A MISS DIG TICKET NUMBER B073351111 PURSUANT TO MICHIGAN PUBLIC ACT 174 WAS ENTERED FOR THE SURVEYED PROPERTY. DUE TO THE EXTENDED REPORTING PERIOD FOR UNDERGROUND FACILITY OWNERS TO PROVIDE THEIR RECORDS, THE SURVEY MAY NOT REFLECT ALL THE UTILITIES AT THE TIME THE SURVEY WAS ISSUED ON 01-12-2018. THE SURVEY ONLY REFLECTS THOSE UTILITIES WHICH COULD BE OBSERVED BY THE SURVEYOR IN THE FIELD OR AS DEPICTED BY THE UTILITY COMPANY RECORDS FURNISH PRIOR TO THE DATE THIS SURVEY WAS ISSUED. **THE CLIENT AND/OR THEIR AUTHORIZED AGENT SHALL VERIFY WITH THE FACILITY OWNERS AND/OR THEIR AUTHORIZED AGENTS, THE COMPLETENESS AND EXACTNESS OF THE UTILITIES LOCATION.**

TOPOGRAPHIC SURVEY NOTES

ALL ELEVATIONS ARE EXISTING ELEVATIONS, UNLESS OTHERWISE NOTED.

UTILITY LOCATIONS WERE OBTAINED FROM MUNICIPAL OFFICIALS AND RECORDS OF UTILITY COMPANIES, AND NO GUARANTEE CAN BE MADE TO THE COMPLETENESS, OR EXACTNESS OF LOCATION.

LEGEND

- EXISTING SANITARY SEWER
- EXISTING SAN. CLEAN OUT
- EXISTING WATER MAIN
- EXISTING STORM SEWER
- EX. R.Y. CATCH BASIN
- EXISTING BURIED CABLES
- OVERHEAD LINES
- LIGHT POLE
- SIGN
- EXISTING GAS MAIN

NF ENGINEERS
CIVIL ENGINEERS
LAND SURVEYORS
LAND PLANNERS

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

SEAL

STATE OF MICHIGAN — KEVIN NAVAROLI — PROFESSIONAL SURVEYOR NO. 53503 — LICENSED PROFESSIONAL SURVEYOR

PROJECT
Office Building

CLIENT
363 W. Big Beaver LLC
c/o Simon PLC, Attorney & Counselors
P.O. Box 689
Bloomfield Hills, MI 48303
Contact: Janet Boice
Ph-248-680-1401

PROJECT LOCATION
No. 363
W. Big Beaver Road
Part of the N.E. 1/4 of Section 28, T.2N., R.11E., City of Troy, Oakland County, MI

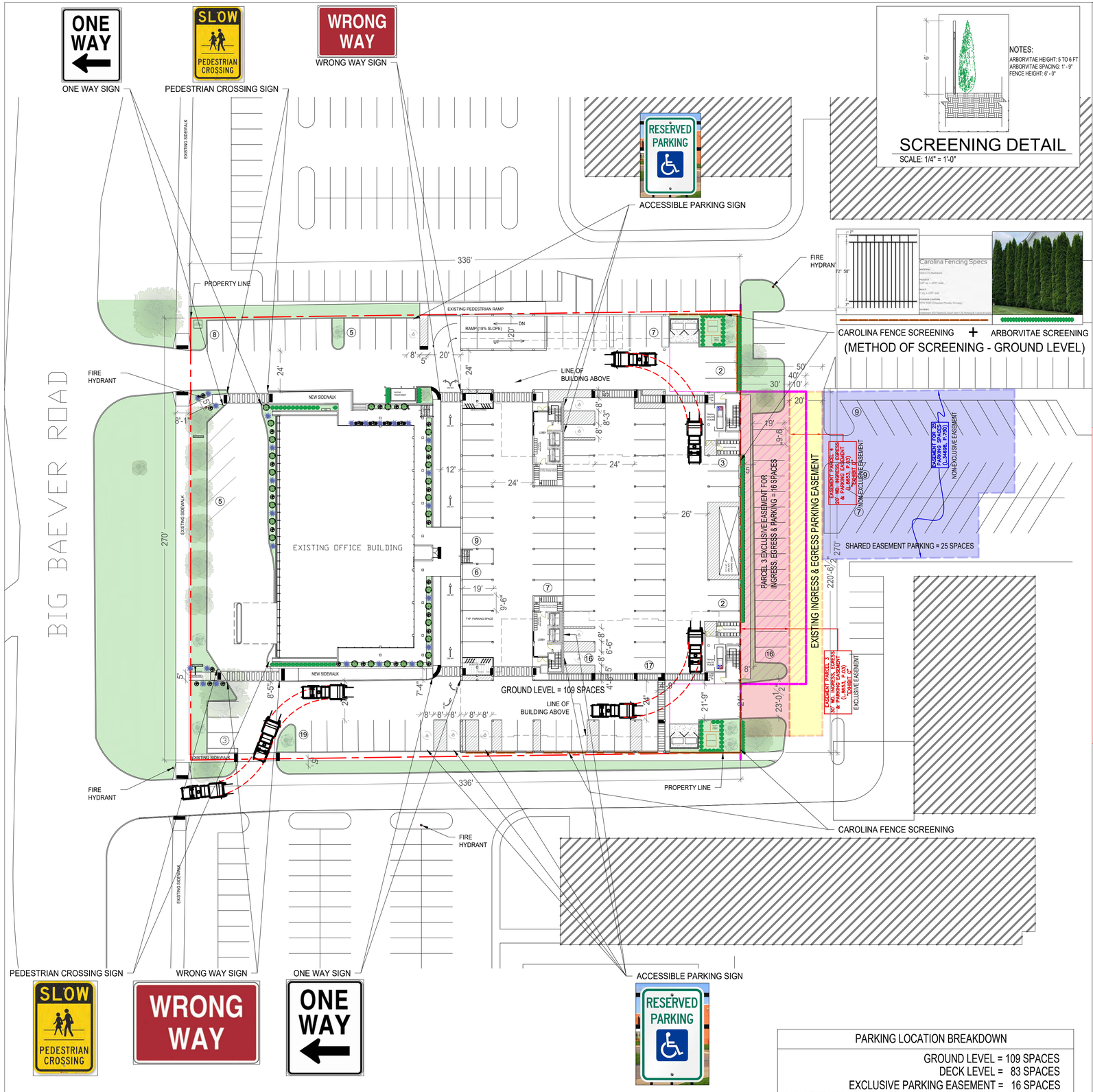
SHEET
Boundary / Topographic / Survey

811 Know what's below Call before you dig.

REVISIONS
00-00-00

DRAWN BY: D. McConkey
DESIGNED BY: -
APPROVED BY: K. Navaroli
DATE: 01-12-2018
SCALE: 1" = 30'
30 15 0 15 30 45

NFE JOB NO. 3474-05
SHEET NO. 1 of 1



SITE PLAN
SCALE: 1" = 30' - 0"
NORTH

PARKING LOCATION BREAKDOWN
GROUND LEVEL = 109 SPACES
DECK LEVEL = 83 SPACES
EXCLUSIVE PARKING EASEMENT = 16 SPACES
NON-EXCLUSIVE SHARED PARKING EASEMENT = 25 SPACES
TOTAL = 233 SPACES

SITE INFORMATION

SITE ADDRESS:	363 BIG BEAVER RD, TROY MI, 48084
PROPERTY ID #	88-20-28-203-030
CURRENT ZONING / USE	BIG BEAVER DISTRICT
PROPOSED ZONING	BIG BEAVER DISTRICT
ADJACENT ZONING	BIG BEAVER DISTRICT
SITE TYPE	BB:B (MEDIUM SITE)
STREET TYPE	BB:A PRIMARY CORRIDOR
SETBACKS (FORM F)	FRONT / 10' - SIDE / 0' - REAR / 40'

BUILDING HEIGHT (BUILDING FORM F)

ITEM	BUILDING FORM F MINIMUM HT.	MAXIMUM HT. (N/A)	PROVIDED
GROUND LEVEL	14' - 0"		16' - 0"
TOP OF DECK			26' - 0"
ROOF	55' - 0" (5 STORIES)		81' - 0" (7 STORIES)
PARAPET			83' - 8"

BUILDING USE INFORMATION

LEVEL	USE	USE GROUP
Ground Level	LOBBY & BUILDING SERVICES & PARKING	S-2
Level 2	PARKING	R-2
Level 3	RESIDENTIAL APARTMENTS & AMENITIES	S-2
Level 4	RESIDENTIAL APARTMENTS	R-2
Level 5	RESIDENTIAL APARTMENTS	R-2
Level 6	RESIDENTIAL APARTMENTS	R-2
Level 7	RESIDENTIAL APARTMENTS	R-2

PARKING INFORMATION

EXISTING OFFICE		REQUIRED	PROVIDED
OFFICE (BANK - 0 interior ATM's)	3,437 S.F. (BANK) OFFICE (1 SPACE PER 200 S.F.)	18 SPACES	
OFFICE (GENERAL)	30,648 S.F. GENERAL OFFICE (1 SPACE PER 300 S.F.)	103 SPACES	
OFFICE (MEDICAL)	8,563 S.F. (MEDICAL) OFFICE (1 SPACE PER 200 S.F.)	43 SPACES	
	OFFICE SUBTOTAL: 164 SPACES		
RESIDENTIAL (110 UNITS)			
APARTMENTS	20 APARTMENTS X 1 SPACE (EFFICIENCY APARTMENTS)	20 SPACES	
	70 APARTMENTS X 2 SPACES (1 BEDROOM APARTMENTS)	140 SPACES	
	20 APARTMENTS X 2 SPACES (2 BEDROOM APARTMENTS)	40 SPACES	
	APARTMENTS SUBTOTAL: 200 SPACES		
TOTAL		364 SPACES	233 SPACES

(SEE ATTACHED SHARED PARKING AGREEMENT FROM FLEIS & VANDENBRINK)

BARRIER FREE PARKING SPACES REQUIRED: (238 / 25) = 9.5 = 10 SPACES
BARRIER FREE PARKING SPACES PROVIDED:
- GROUND LEVEL: 08 SPACES
- PARKING DECK: 04 SPACES
TOTAL BARRIER FREE SPACES PROVIDED = 12 SPACES

SQUARE FOOT AREA INFORMATION

	GROSS SF	NET SF
7TH LEVEL - APARTMENTS	20,184 GSF	16,534 NSF
6TH LEVEL - APARTMENTS	20,184 GSF	16,534 NSF
5TH LEVEL - APARTMENTS	20,184 GSF	16,534 NSF
4TH LEVEL - APARTMENTS / TOP OF COM. BLDG	20,350 GSF	16,534 NSF
3RD LEVEL - APARTMENTS / TOP OF DECK + COM. BLDG	22,474 GSF	16,534 NSF
2ND LEVEL - PARKING DECK	45,765 GSF	
1ST LEVEL - PARKING / LOBBY	3,090 GSF	
TOTAL AREA	**152,231 GSF**	**82,670 NSF**

MARUSICH ARCHITECTURE
36880 WOODWARD AVENUE
BLOOMFIELD HILLS, MI 48304
SUITE 100
OFFICE: (248) 792-2949
CELL: (313) 482-0645
www.marusicharchitecture.com
johnm.marusicharchitecture@gmail.com

OWNER

FRANK SIMON

PROJECT NAME

363 BIG BEAVER TOWER

ADDRESS
363 Big Beaver Rd
Troy, Mi 48084

PROJECT #	23 - 82
ISSUE DATE #	11/29/2023

REVISION HISTORY

OWNER REVIEW	02/19/2024
OWNER REVIEW	03/04/2024
PARKING REQ. ANALYSIS	03/13/2024
PARKING ANALYSIS REV.	03/18/2024
S.P.A. DRAFT PACKAGE	03/22/2024
S.P.A. DRAFT PACKAGE	04/10/2024
S.P.A. PLAN PACKAGE	04/16/2024
REVISED PLANS	05/31/2024
REVISED PLANS(MEETING)	06/04/2024
S.P.A. PLAN PACKAGE 2	06/20/2024
S.P.A. PLAN PACKAGE 2.1	08/30/2024
S.P.A. PLAN PACKAGE 2.2	11/12/2024
POST ZBA S.P.A. PLAN PKG.	05/28/2025

DRAWN BY:	DC
CHECKED BY:	JM

SHEET CONTENTS

SITE PLAN

SEAL

STATE OF MICHIGAN — JOHN E. MARUSICH — License No. 1301026870 — REGISTERED ARCHITECT

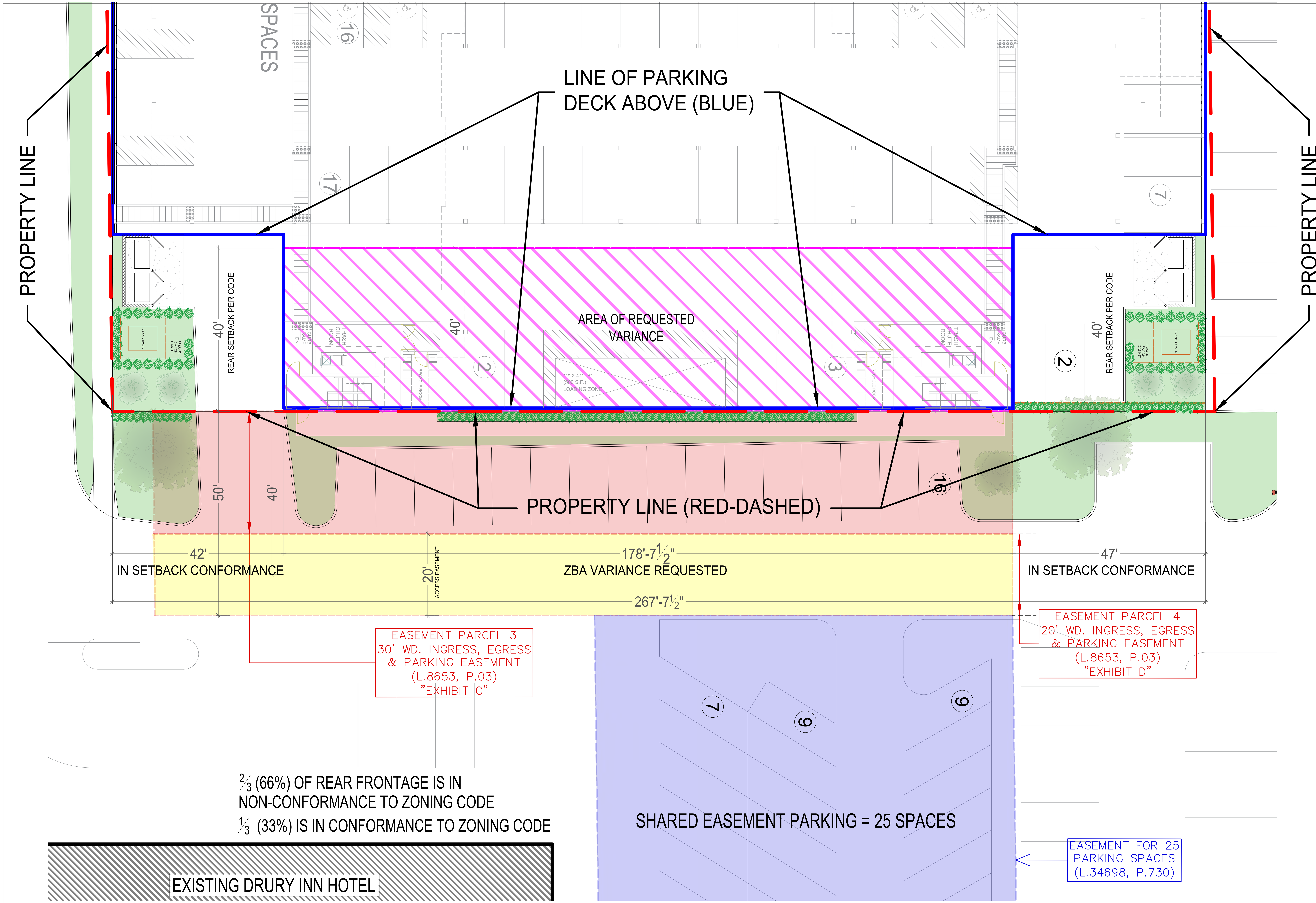
05/28/2025

OWNER / OWNER'S AGENT APPROVED & ACCEPTED

_____ DATE:___/___/2024

SHEET #

ST-1



BLOWUP OF REAR SETBACK (ZBA)

SCALE: 1" = 10' - 0"

NORTH

Legend	
AREA OF EXISTING DRIVE AISLE EASEMENT	(yellow)
AREA OF EXISTING EXCLUSIVE EASEMENT	(red)
AREA OF REQUESTED VARIANCE	(hatched)

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PROJECT # 23 - 82

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POST ZBA S.P.A. PLAN PKG	05/28/2025

DRAWN BY: DC

CHECKED BY: JM

SHEET CONTENTS

BLOWUP OF REAR SETBACK (ZBA)

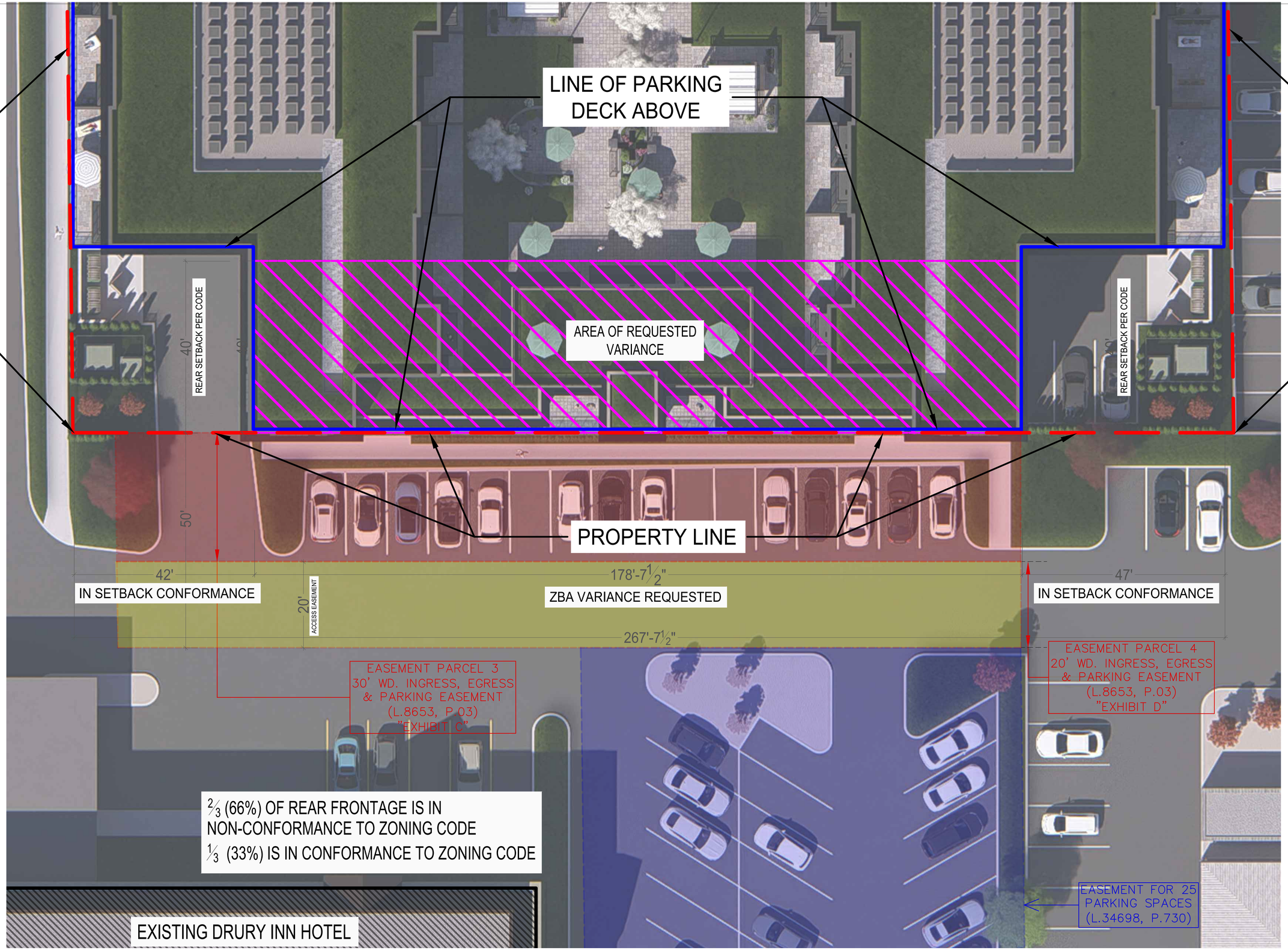
SEAL

05/28/2025

OWNER / OWNER'S AGENT APPROVED & ACCEPTED

DATE:___/___/2024

SHEET # ST-1.1



BLOWUP OF REAR SETBACK 2 (ZBA)
SCALE: 1" = 10' - 0"

NORTH

AREA OF EXISTING DRIVE AISLE EASEMENT	
AREA OF EXISTING EXCLUSIVE EASEMENT	
AREA OF REQUESTED VARIANCE	

OWNER / OWNER'S AGENT APPROVED & ACCEPTED

_____ DATE:___/___/2024

MARUSICH ARCHITECTURE

36880 WOODWARD AVENUE
BLOOMFIELD HILLS, MI 48304
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POST ZBA S.P.A. PLAN PKG	05/28/2025

DRAWN BY:	DC
CHECKED BY:	JM

SHEET CONTENTS

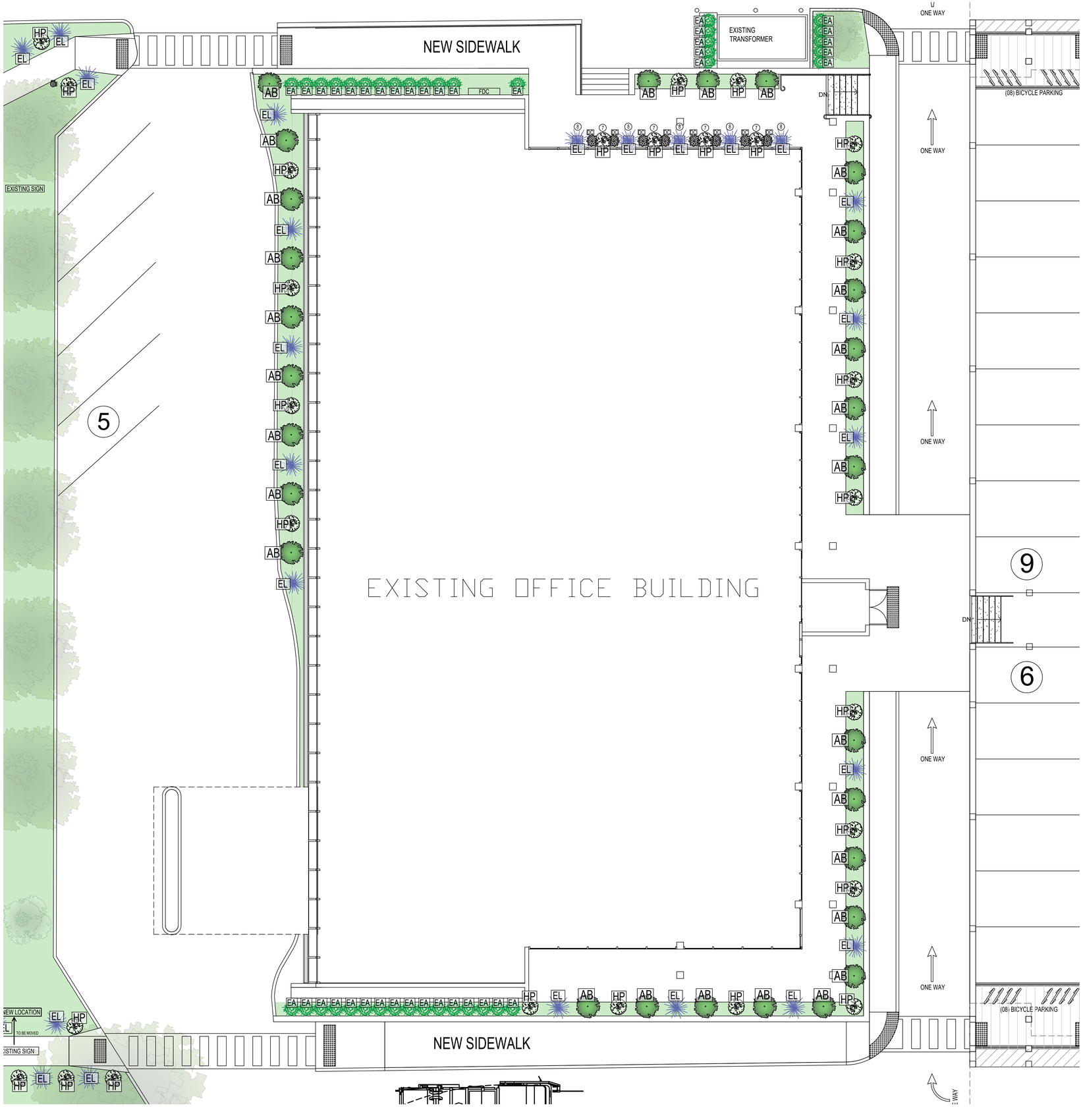
BLOWUP OF REAR SETBACK 2 (ZBA)

SEAL

05/28/2025

SHEET #

ST-1.2



1 BIKE RACK — QUANTITY (16)

LOOP BIKE RACK
SURFACE MOUNT
POWDER COAT: SILVER
MANUFACTURER: LANDSCAPE FORMS
PHONE: (800) 430-6209 / (269) 381-0396

2 BENCH — QUANTITY (14)

35 SIT BACKED BENCH (72")
SURFACE MOUNT (35 COLLECTION)
POWDER COAT: SILVER
MANUFACTURER: LANDSCAPE FORMS
PHONE: (800) 430-6209 / (269) 381-0396

3 TRASH RECEPTACLE — QUANTITY (06)

35 PITCH LITTER RECEPTACLE
SURFACE MOUNT / SIDE OPENING (35 COLLECTION)
POWDER COAT: SILVER
MANUFACTURER: LANDSCAPE FORMS
PHONE: (800) 430-6209 / (269) 381-0396

7 PLANTER 1 — QUANTITY (14)

ASP-60 PLANTER
SURFACE PLACEMENT
COLOR: ASH WHITE
APPROX. WEIGHT: 800 LBS
MANUFACTURER: LANDSCAPE FORMS / KORNEYGAY DESIGN
PHONE: (800) 430-6209 / FAX: (269) 381-0396

8 PLANTER 2 — QUANTITY (25)

ASP-20 PLANTER
SURFACE PLACEMENT
COLOR: ASH WHITE
APPROX. WEIGHT: 530 LBS
MANUFACTURER: LANDSCAPE FORMS / KORNEYGAY DESIGN
PHONE: (800) 430-6209 / FAX: (269) 381-0396

10 DECORATIVE BOLLARD COVER — QUANTITY (25)

8" DECORATIVE SLANT TOP BOLLARD COVER
SURFACE MOUNT
COLOR: GRAY
MANUFACTURER: BOLLARD COVER USA
PHONE: (800) 352-6609

NOTES:

-SEE SHEET L-6 FOR PLANT MATERIAL LIST AND DETAILS

- ALL DISEASED, DAMAGED, OR DEAD MATERIALS SHALL BE REPLACED IN ACCORDANCE TO THE STANDARDS WITHIN THE TROY ZONING ORDINANCE.

EXISTING TREES:

1. Paving, or other site improvements, shall not encroach upon the dripline of the existing tree(s) to be preserved.
2. If existing plant material is labeled “To Remain” on site plans by the applicant or required by the City, protective techniques, such as, but not limited to, fencing or barriers placed at the dripline around the perimeter of the plant material shall be installed during construction. No vehicle or other construction equipment shall be parked or stored within the dripline of any plant material intended to be saved. Other protective techniques may be used provided such techniques are approved by the City.
3. In the event that healthy trees which are used to meet the minimum requirements of this Ordinance or those labeled to remain are cut down, destroyed, damaged, or excavated at the dripline, as determined by the City, the applicant shall replace them with trees which are either equivalent in size or replace the total diameter at breast height (d.b.h.) of the trees which have been removed.

INSTALLATION, MAINTENANCE, & COMPLETION:

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4. Failure to install and maintain approved landscaping shall be considered a violation of this Ordinance.

LANDSCAPE PLAN (GROUND LEVEL - FRONT)

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

0' 4' 8' 16'

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

N

Patrick S. Conroy

STATE OF MICHIGAN
PATRICK S. CONROY
LANDSCAPE ARCHITECT
NO. 862
REGISTERED LANDSCAPE ARCHITECT

PATRICK S. Conroy AND ASSOCIATES
P.O. Box 542
Lake Orion, Michigan 48361-0542
P: 248.802.8082
Landscape Architecture & Gonstuction Construction Management
Site Planning Golf Course Architecture

SHEET TITLE: LANDSCAPE PLAN (GROUND LEVEL-FRONT)

ISSUED FOR	DATE
CLIENT REVIEW	12-03-2024
MUNICIPAL REVIEW	12-04-2024

PROJECT
363 BIG BEAVER TOWER
TROY, MI 48084

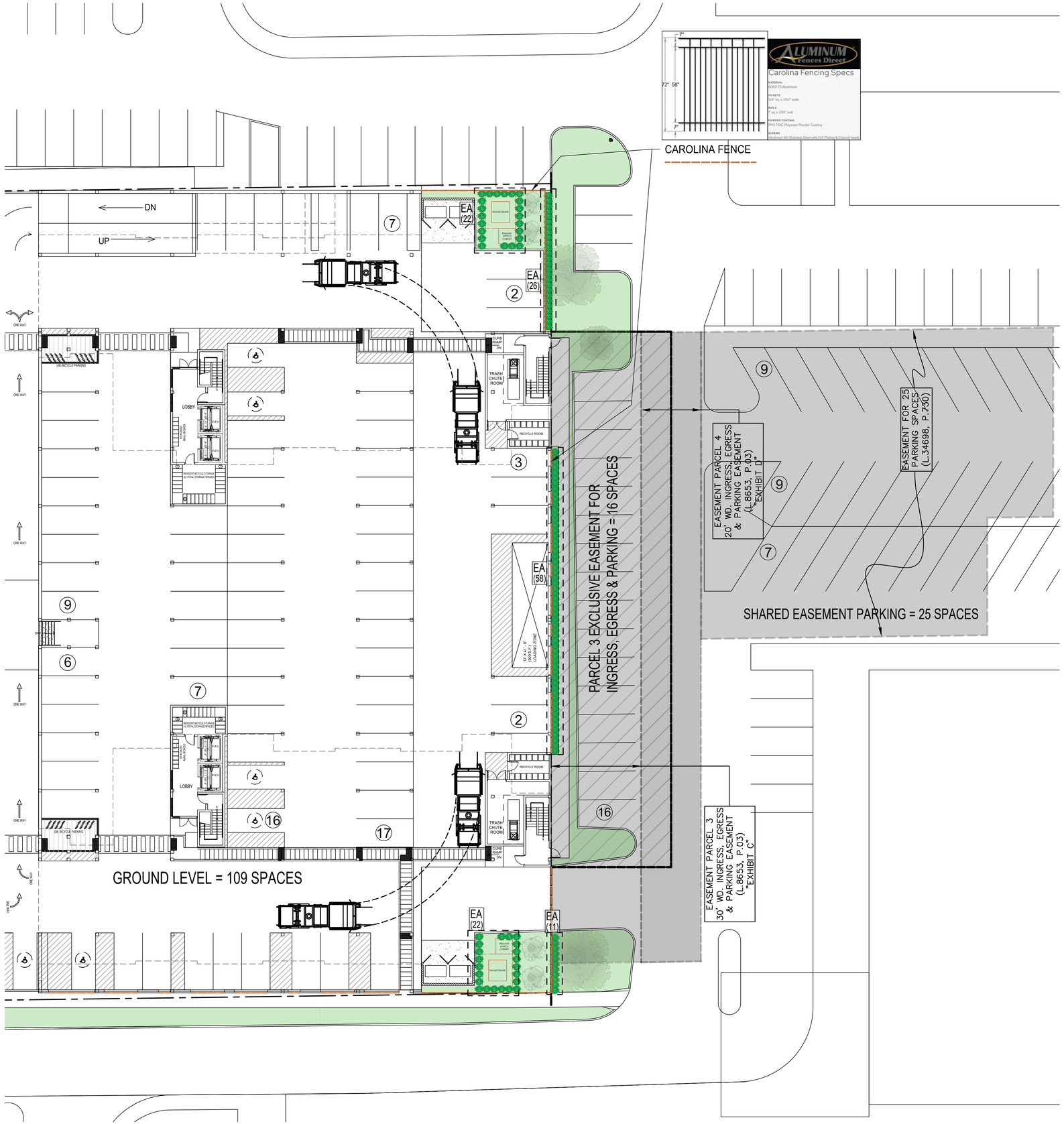
CLIENT
MARUSICH ARCHITECTURE
36880 WOODWARD AVE., STE. 100
BLOOMFIELD HILLS, MI 48304

DRAWN BY: LKM

DRAWING DATE: 11-22-2024

PROJECT No.: 24-117

SHEET No.: L – 1



1 BIKE RACK — QUANTITY (16)

LOOP BIKE RACK
SURFACE MOUNT
POWDER COAT: SILVER
MANUFACTURER: LANDSCAPE FORMS
PHONE: (800) 430-6209 / (269) 381-0396

2 BENCH — QUANTITY (14)

35 SIT BACKED BENCH (72")
SURFACE MOUNT (35 COLLECTION)
POWDER COAT: SILVER
MANUFACTURER: LANDSCAPE FORMS
PHONE: (800) 430-6209 / (269) 381-0396

3 TRASH RECEPTACLE — QUANTITY (06)

35 PITCH LITTER RECEPTACLE
SURFACE MOUNT / SIDE OPENING (35 COLLECTION)
POWDER COAT: SILVER
MANUFACTURER: LANDSCAPE FORMS
PHONE: (800) 430-6209 / (269) 381-0396

7 PLANTER 1 — QUANTITY (14)

15"
53.5"
ASP-60 PLANTER
SURFACE PLACEMENT
COLOR: ASH WHITE
APPROX. WEIGHT: 800 LBS
MANUFACTURER: LANDSCAPE FORMS / KORNEYGAY DESIGN
PHONE: (800) 430-6209 / FAX: (269) 381-0396

8 PLANTER 2 — QUANTITY (25)

30"
13"
20"
20"
ASP-20 PLANTER
SURFACE PLACEMENT
COLOR: ASH WHITE
APPROX. WEIGHT: 530 LBS
MANUFACTURER: LANDSCAPE FORMS / KORNEYGAY DESIGN
PHONE: (800) 430-6209 / FAX: (269) 381-0396

10 DECORATIVE BOLLARD COVER — QUANTITY (25)

8" DECORATIVE SLANT TOP BOLLARD COVER
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3. Landscaping required by this Ordinance shall be maintained in a reasonably healthy condition, free from refuse and debris. All unhealthy and dead material shall be replaced within one (1) year of damage or death or the next appropriate planting period, whichever comes first. All landscaped areas shall be provided with irrigation or a readily available and acceptable water supply.
4. Failure to install and maintain approved landscaping shall be considered a violation of this Ordinance.

LANDSCAPE PLAN (GROUND LEVEL - REAR)

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

0' 8' 16' 32'

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

N

STATE OF MICHIGAN
PATRICK S. CONROY
LANDSCAPE ARCHITECT NO. 862
REGISTERED LANDSCAPE ARCHITECT

Patrick S. Conroy

PATRICK S. Conroy AND ASSOCIATES
P.O. Box 542
Lake Orion, Michigan 48361-0542
P: 248.802.8082
Landscape Architecture & Gonstuction Construction Management
Site Planning Golf Course Architecture

SHEET TITLE	ISSUED FOR	DATE
LANDSCAPE PLAN (GROUND LEVEL-REAR)	CLIENT REVIEW	12-03-2024
	MUNICIPAL REVIEW	12-04-2024

PROJECT
363 BIG BEAVER TOWER
TROY, MI 48084

CLIENT
MARUSICH ARCHITECTURE
36880 WOODWARD AVE., STE. 100
BLOOMFIELD HILLS, MI 48304

DRAWN BY	DRAWING DATE
LKM	11-22-2024

PROJECT No.
24-117

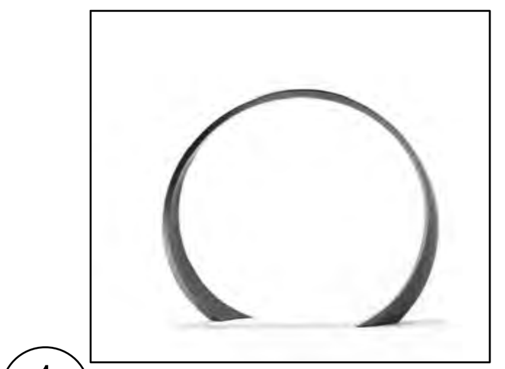
SHEET No.
L – 2

LANDSCAPE PLAN (TOP OF DECK)

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

0' 8' 16' 32'

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



1 BIKE RACK — QUANTITY (16)

LOOP BIKE RACK
SURFACE MOUNT
POWDER COAT: SILVER
MANUFACTURER: LANDSCAPE FORMS
PHONE: (800) 430-6209 / (269) 381-0396

2 BENCH — QUANTITY (14)

35 SIT BACKED BENCH (72")
SURFACE MOUNT (35 COLLECTION)
POWDER COAT: SILVER
MANUFACTURER: LANDSCAPE FORMS
PHONE: (800) 430-6209 / (269) 381-0396

3 TRASH RECEPTACLE — QUANTITY (06)

35 PITCH LITTER RECEPTACLE
SURFACE MOUNT / SIDE OPENING (35 COLLECTION)
POWDER COAT: SILVER
MANUFACTURER: LANDSCAPE FORMS
PHONE: (800) 430-6209 / (269) 381-0396

4 OUTDOOR TABLE — QUANTITY (10)

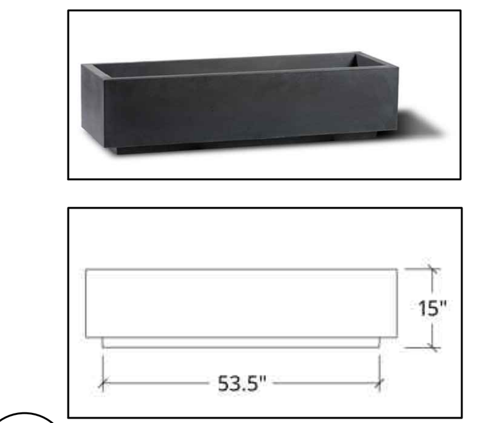
ROUND CATENA TABLE W / ROUND BASE
SURFACE MOUNT
POWDER COAT: SILVER
MANUFACTURER: LANDSCAPE FORMS
PHONE: (800) 430-6209 / (269) 381-0396

5 OUTDOOR CHAIR — QUANTITY (32)

CATENA OUTDOOR CHAIR
POWDER COAT: SILVER
MANUFACTURER: LANDSCAPE FORMS
PHONE: (800) 430-6209 / (269) 381-0396

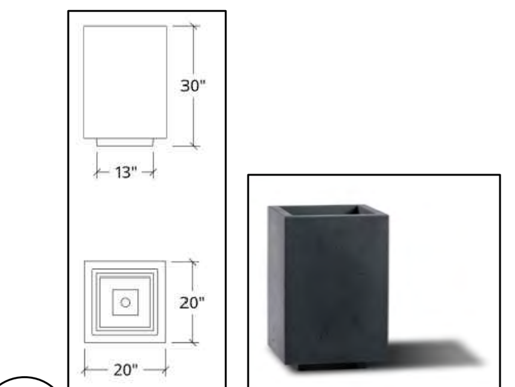
6 SUN SHADE — QUANTITY (10)

OCEAN MASTER CLASSIC - TABLE PARASOL SHADE
SURFACE MOUNT
MANUFACTURER: TUCCI / LANDSCAPE FORMS
PHONE: (800) 430-6209 / (269) 381-0396



7 PLANTER 1 — QUANTITY (14)

ASP-60 PLANTER
SURFACE PLACEMENT
COLOR: ASH WHITE
APPROX. WEIGHT: 800 LBS
MANUFACTURER: LANDSCAPE FORMS / KORNEYGAY DESIGN
PHONE: (800) 430-6209 / FAX: (269) 381-0396



8 PLANTER 2 — QUANTITY (25)

ASP-20 PLANTER
SURFACE PLACEMENT
COLOR: ASH WHITE
APPROX. WEIGHT: 530 LBS
MANUFACTURER: LANDSCAPE FORMS / KORNEYGAY DESIGN
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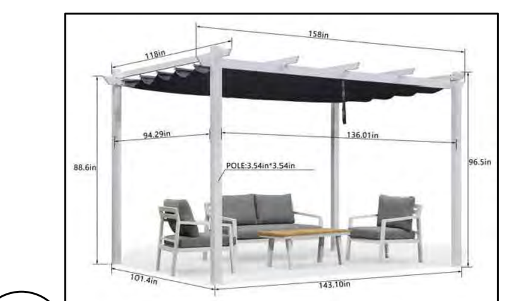
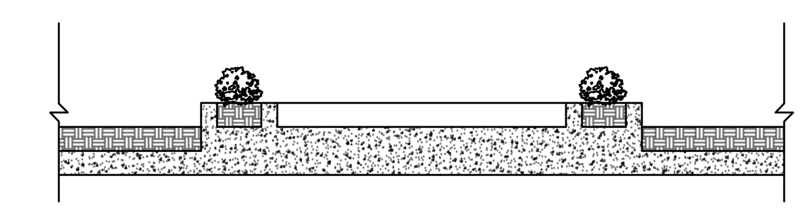


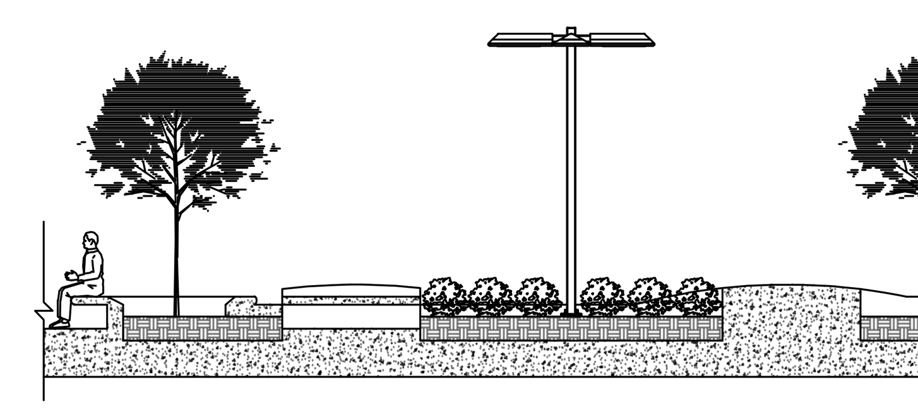
9 PERGOLA W / CANOPY — QUANTITY (04)

PERGOLA WITH CANOPY
SURFACE ANCHOR MOUNTED
FINISH: BRUSHED ALUMINUM
APPROX. WEIGHT: 95 LBS
MANUFACTURER: PURPLE LEAF GARDEN
EMAIL: purpleleafservice2@gmail.com



PLANTER SECTION A

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



PLANTER SECTION B

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

NOTES:

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STATE OF MICHIGAN — PATRICK S. CONROY — LANDSCAPE ARCHITECT — NO. 862 — REGISTERED LANDSCAPE ARCHITECT

Patrick S. Conroy

PATRICK S. CONROY AND ASSOCIATES
P.O. Box 542
Lake Orion, Michigan 48361-0542
P: 248.802.8082
Landscape Architecture & Gonstuction Construction Management
Site Planning Golf Course Architecture

SHEET TITLE: LANDSCAPE PLAN (TOP OF DECK)

ISSUED FOR	DATE	ISSUED FOR	DATE
CLIENT REVIEW	12-03-2024		
MUNICIPAL REVIEW	12-04-2024		

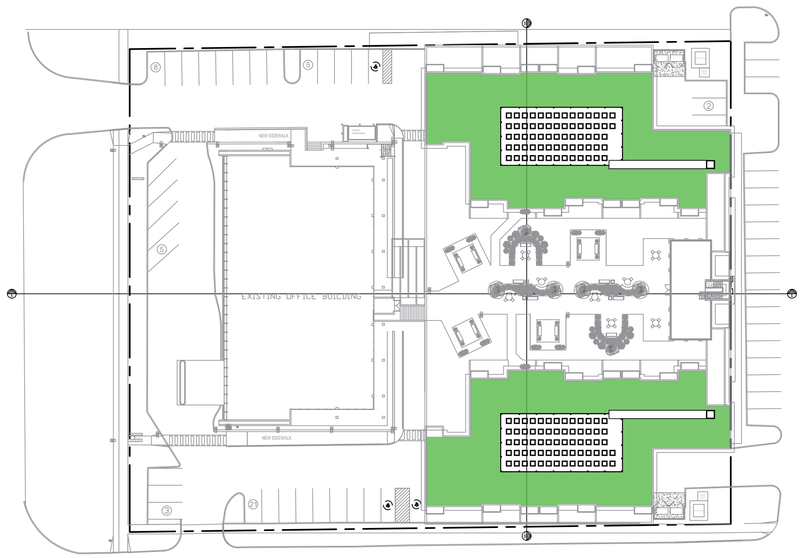
PROJECT: 363 BIG BEAVER TOWER
TROY, MI 48084

CLIENT: MARUSICH ARCHITECTURE
36880 WOODWARD AVE., STE. 100
BLOOMFIELD HILLS, MI 48304

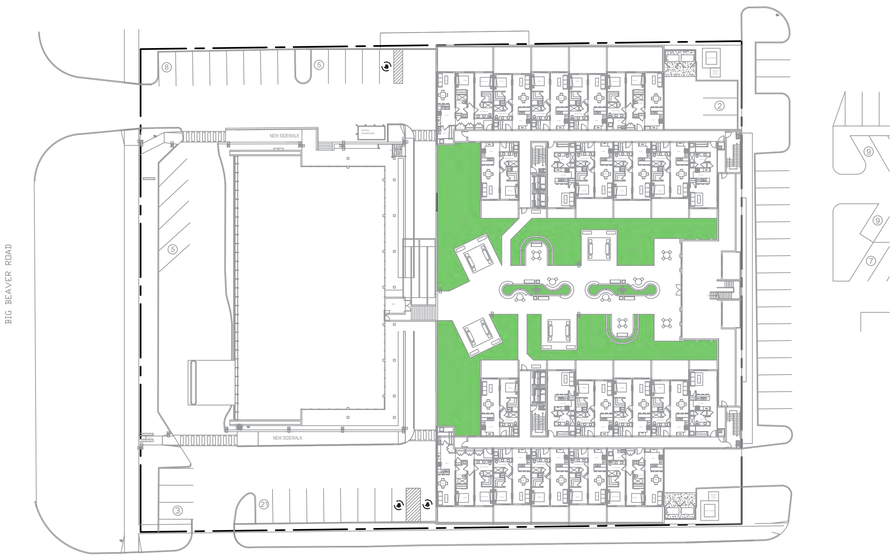
DRAWN BY	DRAWING DATE
LKM	11-22-2024

PROJECT No. 24-117

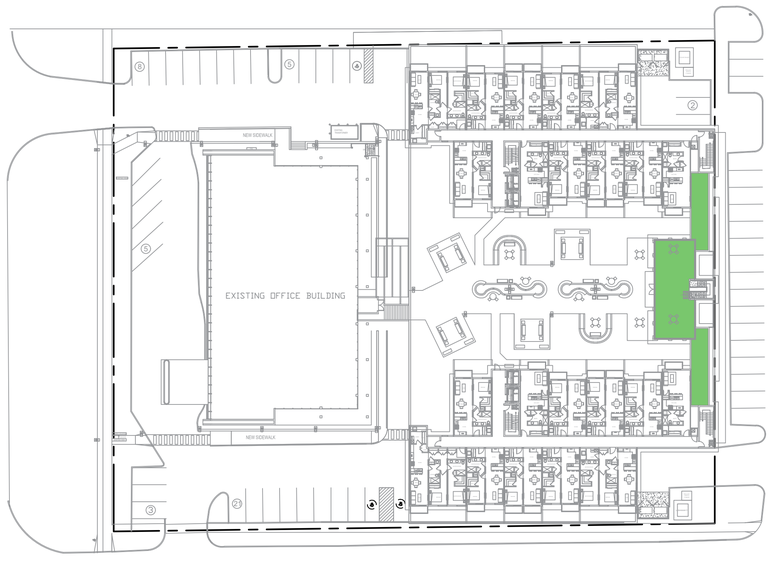
SHEET No. L — 3



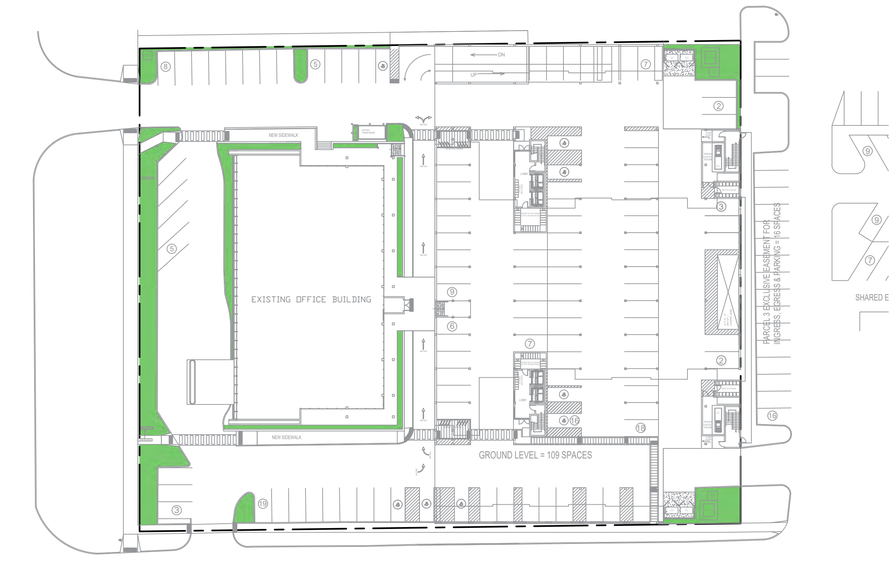
ROOF LANDSCAPE / GREEN AREA: 14,484 S.F.



LEVEL 3 (TOP OF DECK) LANDSCAPE / GREEN AREA: 7,253 S.F.



LEVEL 4 (TOP OF COMMUNITY ROOM) LANDSCAPE / GREEN AREA: 1,948 S.F.



GROUND LEVEL LANDSCAPE / GREEN AREA: 5,459 S.F.

LANDSCAPE AREA BREAKDOWN	
ROOF GREEN SPACE AREA:	14,484 S.F.
TOP OF COMMUNITY ROOM GREEN SPACE AREA:	1,948 S.F.
TOP OF DECK GREEN SPACE AREA:	7,253 S.F.
GROUND LEVEL GREEN SPACE AREA:	5,459 S.F.
TOTAL GREEN SPACE AREA:	29,144 S.F.
20% MIN. GREEN AREA REQUIRED	
29,144 / 90,711 = 32.1% GREEN AREA PROVIDED	

LANDSCAPE AREA DIAGRAM

SCALE: 1:40

0' 20' 40' 80'

SCALE: 1" = 40'

N

Patrick S. Conroy

STATE OF MICHIGAN
PATRICK S. CONROY
LANDSCAPE ARCHITECT NO. 862
REGISTERED LANDSCAPE ARCHITECT

PATRICK S. Conroy AND ASSOCIATES
Landscape Architecture & Gonstuction Construction Management
Site Planning Golf Course Architecture
P.O. Box 542
Lake Orion, Michigan 48361-0542
P: 248.802.8082

SHEET TITLE: LANDSCAPE AREA DIAGRAM

ISSUED FOR	DATE
CLIENT REVIEW	12-03-2024
MUNICIPAL REVIEW	12-04-2024

PROJECT
363 BIG BEAVER TOWER
TROY, MI 48084

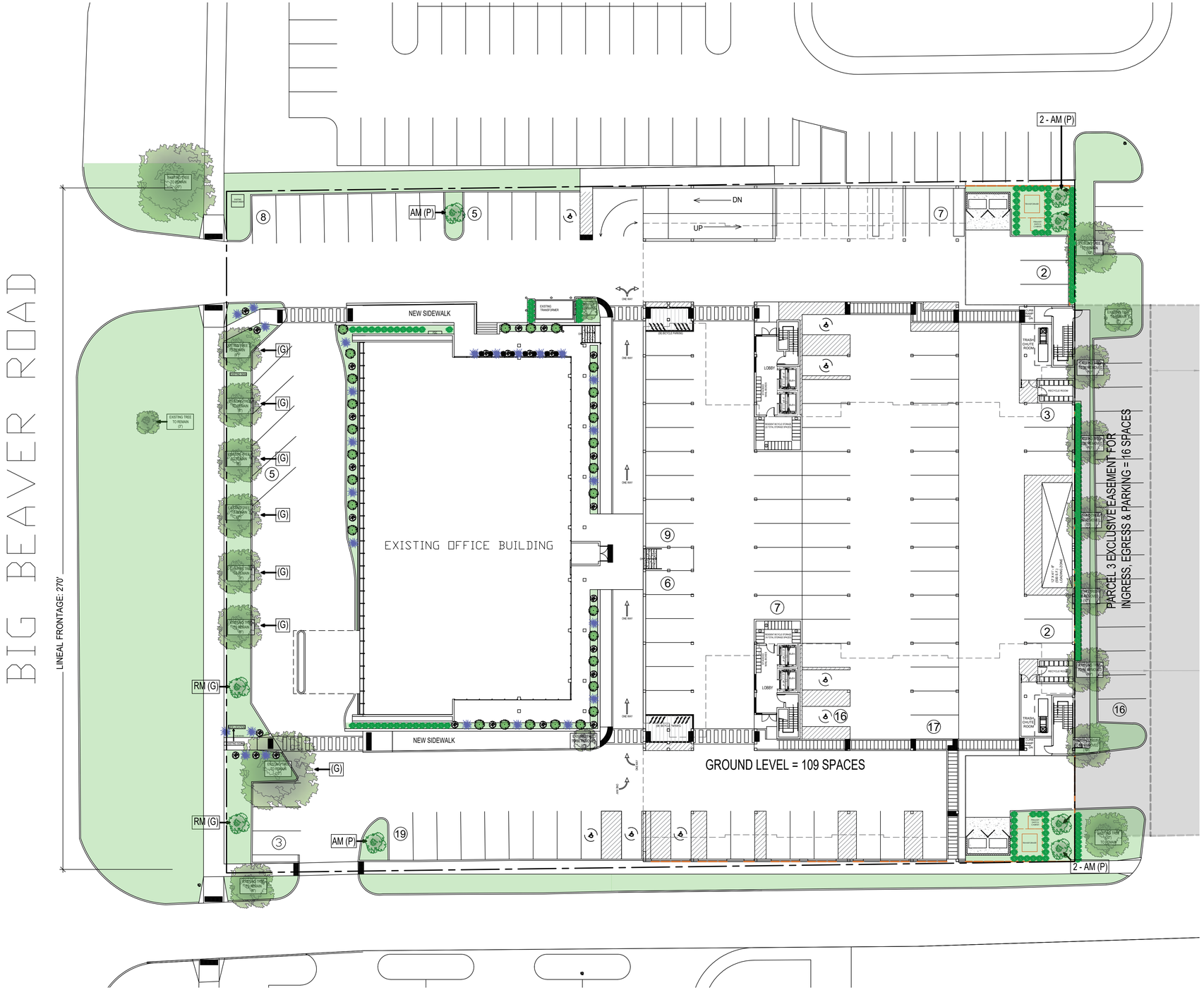
CLIENT
MARUSICH ARCHITECTURE
36880 WOODWARD AVE., STE. 100
BLOOMFIELD HILLS, MI 48304

DRAWN BY: LKM

DRAWING DATE: 11-22-2024

PROJECT No.: 24-117

SHEET No.: L – 4



EXISTING TREE INFORMATION

SIZE	QTY.	SPECIES	CONDITION	LOCATION	ACTION
3" TREE	01	RED MAPLE	HEALTHY	FRONT (NORTH)	TO REMAIN
3" TREE	01	DWARF RED MAPLE	HEALTHY	SIDE (EAST)	TO REMAIN
3" TREE	01	DWARF RED MAPLE	HEALTHY	SIDE (WEST)	TO BE REMOVED
8" TREE	08	RED MAPLE	HEALTHY	FRONT (NORTH)	TO REMAIN
8" TREE	01	RED MAPLE	HEALTHY	REAR (SOUTH-EAST)	TO REMAIN
10" TREE	06	RED MAPLE	HEALTHY	REAR (SOUTH)	TO BE REMOVED
10" TREE	01	RED MAPLE	HEALTHY	REAR (SOUTH-WEST)	TO REMAIN
15" TREE	01	RED MAPLE	HEALTHY	FRONT (NORTH)	TO REMAIN
20" TREE	01	RED MAPLE	HEALTHY	FRONT (NORTH)	TO REMAIN

NEW TREE INFORMATION

2.5" TREE	01	AM-(P) ARMSTRONG MAPLE	NEW / HEALTHY	SIDE (EAST)	TO BE PLANTED IN PARKING ISLAND
2.5" TREE	01	AM-(P) ARMSTRONG MAPLE	NEW / HEALTHY	SIDE (WEST)	TO BE PLANTED IN PARKING ISLAND
2.5" TREE	02	RM-(G) RED SUNSET MAPLE	NEW / HEALTHY	FRONT (NORTH)	TO BE PLANTED IN FRONT GREEN BELT
2.5" TREE	04	AM-(P) ARMSTRONG MAPLE	NEW / HEALTHY	REAR (SOUTH)	TO BE PLANTED IN REAR CORNERS
2.5" TREE	06	SB NEW SERVICEBERRY	NEW / HEALTHY	REAR (SOUTH)	TO BE PLANTED IN DECK PLANTERS

TO BE REMOVED (TOTAL):	07
TO REMAIN (TOTAL):	14
TREES ADDED TO TOP OF DECK:	06
TREES ADDED TO PARKING ISLANDS:	06
TREES ADDED TO BIG BEAVER GREENBELT:	02

TOTAL EXISTING TREES:	21
TOTAL PROPOSED TREES (INCLUDING THE EXISTING TREES TO REMAIN):	28

BIG BEAVER GREENBELT LANDSCAPING REQUIREMENTS (G)

BIG BEAVER LINEAL FRONTAGE: 270' - 0"

REQUIRED TREES: 1 TREE PER 30' LINEAL FEET

270' / 30' = 09 REQUIRED TREES

7 EXISTING TREES WITHIN GREENBELT
+2 NEW TREES

PROVIDED GREENBELT TREES: 09

TREE INVENTORY PLAN

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

0' 8' 16' 32'

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

N Conroy

PARKING LOT LANDSCAPING REQUIREMENTS (P)

PARKING SPACES OUTSIDE OF NEW BUILDING ENVELOPE= 31 PARKING SPACES

REQUIRED TREES: 1 TREE PER 8 PARKING SPACES
31 / 8 = 04 REQUIRED TREES

PROVIDED PARKING LOT TREES: 06

STATE OF MICHIGAN
PATRICK S. CONROY
LANDSCAPE ARCHITECT NO. 862
REGISTERED LANDSCAPE ARCHITECT

Patrick S. Conroy

PATRICK S. Conroy AND ASSOCIATES
P.O. Box 542
Lake Orion, Michigan 48361-0542
P: 248.802.8082
Landscape Architecture & Gonstuction Construction Management
Site Planning Golf Course Architecture

ISSUED FOR	DATE
CLIENT REVIEW	12-03-2024
MUNICIPAL REVIEW	12-04-2024

SHEET TITLE: TREE INVENTORY PLAN

PROJECT: 363 BIG BEAVER TOWER
TROY, MI 48084

CLIENT: MARUSICH ARCHITECTURE
36880 WOODWARD AVE., STE. 100
BLOOMFIELD HILLS, MI 48304

DRAWN BY	DRAWING DATE
LKM	11-22-2024

PROJECT No. 24-117

SHEET No. L – 5

GENERAL NOTES

1. ALL LANDSCAPE INSTALLATION SHALL CONFORM TO THE LANDSCAPE REQUIREMENTS AS OUTLINED IN THE ORDINANCES FOR TROY, MICHIGAN.
2. ALL PLANT MATERIAL TO BE INSTALLED PER PLANTING DETAILS & SPECIFICATIONS.
3. ALL LAWN AREA (AS INDICATED) ARE TO BE SODDED/SEEDED AS NOTED WITH A MINIMUM 4" OF TOPSOIL.
4. ALL LAWN AND LANDSCAPE AREAS (AS INDICATED) WILL BE IRRIGATED WITH AN AUTOMATIC UNDERGROUND IRRIGATION SYSTEM. IRRIGATION TO BE DESIGNED BY LANDSCAPE CONTRACTOR.
5. ALL EDGING (AS INDICATED) TO BE AS SPECIFIED ON DRAWINGS & DETAILS, INSTALL PER MANUFACTURERS SPECIFICATIONS.
6. SIZE AND QUALITY OF LANDSCAPE MATERIAL SHALL BE IN ACCORDANCE WITH THE STANDARDS SET FORTH BY 'THE AMERICAN ASSOCIATION OF NURSERYMEN'.
7. LANDSCAPE CONTRACTOR TO NOTIFY LANDSCAPE ARCHITECT IN WRITING OF ANY PROPOSED CHANGE IN PLANT MATERIAL AND OR LOCATION. LANDSCAPE ARCHITECT TO APPROVAL ALL SUBSTITUTIONS AND OR CHANGES IN WRITING, PRIOR TO INSTALLATION.
8. THE LANDSCAPE ARCHITECT RESERVES THE RIGHT TO REJECT ANY PLANT MATERIAL THE DOES NOT MEET THE OWNER, LANDSCAPE ARCHITECT, OR INDUSTRY STANDARDS.
9. LANDSCAPE ARCHITECT TO APPROVE ALL PLANT LOCATIONS PRIOR TO INSTALLATION, ALL CONSTRUCTION AND PLANT MATERIAL LOCATIONS MAY BE ADJUSTED ON SITE IF NECESSARY.
10. PLANT TREES AND SHRUBS GENERALLY NO CLOSER THEN THE FOLLOWING DISTANCES FROM SAFETY PATHS, SIDEWALKS, CURBS, PARKING STALLS & FIRE DEPARTMENT CONNECTIONS (HYDRANTS):

    DECIDUOUS TREES – 5 Lf.
    ORNAMENTAL & CONIFEROUS TREES – 10 Lf.
    SHRUBBERY LESS THAN 12" HT. x 12" WD. (AT MATURITY) – 2 Lf.

11. NO DECIDUOUS OR CONIFEROUS TREES ARE TO BE INSTALLED OVER ANY PROPOSED OR EXISTING UNDERGROUND UTILITY LINES AS SHOWN ON THE OVERALL SITE LANDSCAPE PLAN. REFER TO CIVIL ENGINEERING PLANS FOR EXACT LOCATIONS AND DETAILS.
12. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL PLANT MATERIAL FOR A PERIOD OF ONE (1) YEAR AFTER THE DATE THE WORK IS ACCEPTED IN WRITING BY CONROY & ASSOCIATES, INC. THE CONTRACTOR SHALL REPLACE, WITHOUT COST TO THE OWNER, ALL DEAD PLANTS, AND ALL PLANTS NOT IN VIGOROUS THRIVING CONDITIONS, AS DETERMINED BY CONROY & ASSOCIATES, INC., DURING AND AT THE END OF THE GUARANTEE PERIOD. REPLACEMENT MATERIAL SHALL CONFORM TO THE ORIGINAL SPECIFICATION.
13. REPLACEMENT SHALL BE WITHIN THIRTY (30) DAYS UNLESS AN EXTENDED TIME PERIOD IS NECESSARY DUE TO WEATHER IN WHICH CASE A WRITTEN REQUEST SHALL BE SUBMITTED AND REVIEWED BY THE VILLAGE MANAGER PRIOR TO ITS POTENTIAL AUTHORIZATION.

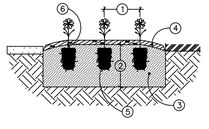
PLANTING TREES & SHRUBS

1. DIG PLANT POCKET MINIMUM 24" WIDER THAN BALL.
2. DIG PLANT POCKET FOR SHRUBS A MINIMUM OF 6" WIDER THAN BALL OR CONTAINER.
3. LOOSEN SOIL ON SIDES OF POCKET TO BREAK GLAZING CAUSED BY DIGGING. THOROUGHLY COMPACT SUBGRADE.
4. CONTRACTOR TO VERIFY PERCOLATION OF PLANTING BED OR POCKET PRIOR TO INSTALLATION.
5. COMPLETELY REMOVE ALL CONTAINERS AT THE TIME OF PLANTING.
6. ALL UNSUITABLE SOIL TO BE REMOVED FROM SITE.
7. ALL HEIGHTS SHOWN ON DETAILS ARE BEFORE PRUNING.
8. ALL DEPTHS SHOWN ON DETAILS ARE BEFORE SETTLING.
9. SET 7/8 OF BALL IN POCKET, EXPOSING 1/8 OF BALL AT GRADE MINIMUM.
10. BACKFILL PREPARED SOIL TO 1/3 THE DEPTH & COMPACT THOROUGHLY, BACKFILL SECOND 1/3 & COMPACT THOROUGHLY, FINISH BACKFILL & COMPACT THOROUGHLY.
11. LOOSEN & REMOVE ALL LACING FROM BALL.
12. BACKFILL WITH PREPARED SOIL.
13. COVER PLANT POCKET AREA & ALL PLANTING BEDS WITH A MINIMUM 3" DEPTH SHREDDED BARK MULCH. LEAVE 3" RING EXPOSED AT BASE OF ALL INDIVIDUAL TREES. MULCH TO BE NATURAL IN COLOR.
14. ALL PLANT PEDS SHALL BE EXCAVATED OF ALL BUILDING MATERIALS AND OTHER EXTRANEOUS OBJECTS AND POOR SOILS TO A MINIMUM DEPTH OF EIGHT TO TWELVE INCHES (8"–12") AND BACKFILLED TO GRADE WITH PLANTING MIX OF 50% TOPSOIL, 50% EXISTING SOIL. SOIL MIXED WELL.
15. ALL ANNUAL & PERENNIAL BEDS ARE TO BE EXCAVATED TO A DEPTH OF 6" & REPLACED WITH A PLANTING MIX CONSISTING OF 50% SANDY TOPSOIL & 50% LEAF COMPOST.
16. ALL PLANTS ARE TO BE PLUMB PRIOR TO STAKING. STAKING IS NOT TO BE USED TO STRAIGHTEN LEANING MATERIAL.
17. ALL STAKING & GUYING MATERIAL TO BE REMOVED BY LANDSCAPE CONTRACTOR ONE (1) YEAR AFTER INSTALLATION.

PLANT MATERIAL LIST

QTY.	KEY	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	COMMENTS
6	AM	ACER RUBRUM 'ARMSTRONG'	ARMSTRONG RED MAPLE	2.5" CAL.	B&B	MATCHED SPECIMENS
2	RM	ACER RUBRUM 'RED SUNSET'	RED SUNSET MAPLE	2.5" CAL.	B&B	MATCHED SPECIMENS
6	SB	AMELANCHIER LAEVIS 'CUMULUS'	CUMULUS SERVICEBERRY	2.5" CAL.	B&B	SINGLE STEM, MATCHED SPECIMENS
177	EA	THUJA OCCIDENTALIS 'SMARAGD"	EMERALD GREEN ARBORVITAE	5–6' HT.	B&B	MATCHED SPECIMENS
32	TM	TAXUS MEDIA 'DENSIFORMIS'	DENSE YEW	18–24"	CON'T	MATCHED SPECIMENS
8	GY	DIERVILLA X. KODIAK ORANGE	KODIAK ORANGE BUSH HONEYSUCKLE	2–3'	CON'T	MATCHED SPECIMENS
36	AB	ILEX VERTICILLATA 'WINTER RED'	WINTER RED HOLLY	2–3'	CON'T	MATCHED SPECIMENS
47	HP	HYDRANGEA QUERCIFOLIA 'RUBY SLIPPERS'	RUBY SLIPPERS OAKLEAF HYDRANGEA	2–3'	CON'T	MATCHED SPECIMENS
49	EL	PEROVSKIA A. 'BLUE JEAN BABY'	BLUE JEAN BABY RUSSIAN SAGE	2 GAL.	CON'T	
24	DC	ASCLEPIUS TUBEROSA	BUTTERFLY WEED	2 GAL.	CON'T	

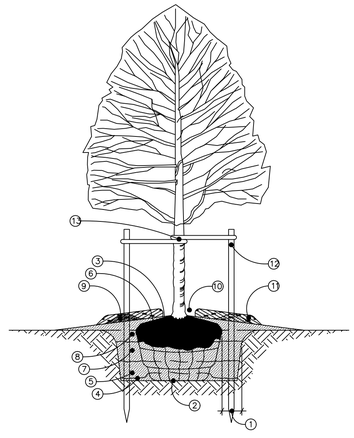
NOTE: 50% OF TOTAL PLANTINGS ARE TO CONSIST OF NATIVE SPECIES ACCORDING TO STANDARDS SET FORTH IN SECTION 13.02.A.7



INSTALLATION NOTES:

1. SEE DRAWING FOR PLANT SPACING.
2. EXCAVATE BED TO A MINIMUM 6" DEPTH. BACKFILL WITH PREPARED PLANTING MIX.
3. PLANTING MIX TO CONSIST OF 50% TOPSOIL & 50% LEAF COMPOST.
4. SHREDDED BARK MULCH, 1" DEPTH, MULCH TO BE NATURAL IN COLOR.
5. REMOVE ALL CONTAINERS. IF ROOTBOUND, DISRUPT ROOT PLUG TO LOOSEN ROOT MASS.
6. PLANT THE PERENNIAL OR GROUND COVER PLANT THROUGH THE MULCH INTO THE PLANTING MIX ASSURING THAT PLANTING MIX COVERS ENTIRE ROOT MASS OF PLANT.

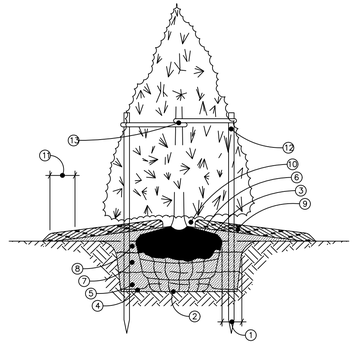
PERENNIAL & GROUND COVER PLANTING DETAIL
NOT TO SCALE



INSTALLATION NOTES:

1. DIG PLANT POCKET 12" WIDER THAN EDGE OF ROOTBALL.
2. THOROUGHLY COMPACT BOTTOM OF PLANT POCKET.
3. REMOVE ALL TWINE FROM TOP OF ROOTBALL. EXAMINE TRUNK COLLAR & REMOVE EXCESS SOIL FROM TOP OF ROOTBALL DOWN TO THE UPPER LEVEL OF THE ROOT SYSTEM. SET ROOTBALL WITH TOP 1/8 OF BALL ABOVE FINISH GRADE.
4. PLACE BACKFILL UNDER & ALONGSIDE BASE OF BALL TO STRAIGHTEN TREE. THOROUGHLY COMPACT TO FILL ALL VOIDS.
5. BACKFILL PLANT POCKET 1/3 WITH PLANTING MIX CONSISTING OF 50% TOPSOIL & 50% NATIVE SOIL & COMPACT THOROUGHLY, ASSURING TREE IS STILL STRAIGHT.
6. BEFORE CONTINUING WITH BACKFILL, REMOVE TOP WIRE LOOPS, OR BEND DOWN UNTIL THEY TOUCH SIDE OF BALL. REMOVE EXCESS BURLAP.
7. BACKFILL PLANT POCKET SECOND 1/3 WITH PLANTING MIX & COMPACT THOROUGHLY, ASSURING TREE IS STILL STRAIGHT.
8. BACKFILL PLANT POCKET LAST 1/3 WITH PLANTING MIX & COMPACT THOROUGHLY, ASSURING TREE IS STILL STRAIGHT. SLOPE GRADE AWAY FROM TREE.
9. IF PLANTED IN NON–IRRIGATED AREAS, FORM A SAUCER WITH SOIL AT OUTSIDE EDGE OF ROOTBALL.
10. SHREDDED BARK MULCH, 3" DEPTH. MULCH TO BE NATURAL IN COLOR. LEAVE 2–3" RING EXPOSED AT BASE OF TRUNK.
11. MULCH RINGS TO BE CONSISTENT WITH PLANT TYPE/SIZE THROUGHOUT PROJECT & SHOULD NOT EXTEND BEYOND PLANT POCKET.
12. MINIMUM 2"x2"x60" HARDWOOD STAKES TO EXTEND INTO UNDISTURBED SOIL UNDER PLANT POCKET. STAKE LOCATIONS PER TREE TO BE CONSISTENT THROUGHOUT PROJECT.
13. 1" WIDE BELT LIKE NYLON, PLASTIC, OR OTHER ACCEPTABLE MATERIAL, NO WIRE OR HOSE TO BE USE TO GUY TREES. TWO (2) GUYS PER TREE.

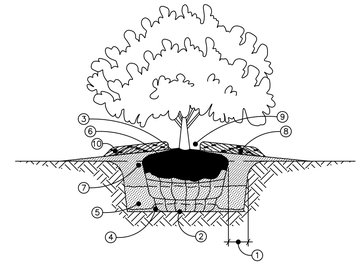
DECIDUOUS TREE PLANTING DETAIL
TREE 3" CAL. & UNDER
NOT TO SCALE



INSTALLATION NOTES:

1. DIG PLANT POCKET 12" WIDER THAN EDGE OF ROOTBALL.
2. THOROUGHLY COMPACT BOTTOM OF PLANT POCKET.
3. REMOVE ALL TWINE FROM TOP OF ROOTBALL. EXAMINE TRUNK COLLAR & REMOVE EXCESS SOIL FROM TOP OF ROOTBALL DOWN TO THE UPPER LEVEL OF THE ROOT SYSTEM. SET ROOTBALL WITH TOP 1/8 OF BALL ABOVE FINISH GRADE.
4. PLACE BACKFILL UNDER & ALONGSIDE BASE OF BALL TO STRAIGHTEN TREE. THOROUGHLY COMPACT TO FILL ALL VOIDS.
5. BACKFILL PLANT POCKET 1/3 WITH PLANTING MIX CONSISTING OF 50% TOPSOIL & 50% NATIVE SOIL & COMPACT THOROUGHLY, ASSURING TREE IS STILL STRAIGHT.
6. BEFORE CONTINUING WITH BACKFILL, REMOVE TOP WIRE LOOPS, OR BEND DOWN UNTIL THEY TOUCH SIDE OF BALL. REMOVE EXCESS BURLAP.
7. BACKFILL PLANT POCKET SECOND 1/3 WITH PLANTING MIX & COMPACT THOROUGHLY, ASSURING TREE IS STILL STRAIGHT.
8. BACKFILL PLANT POCKET LAST 1/3 WITH PLANTING MIX & COMPACT THOROUGHLY, ASSURING TREE IS STILL STRAIGHT. SLOPE GRADE AWAY FROM TREE.
9. IF PLANTED IN NON–IRRIGATED AREAS, FORM A SAUCER WITH SOIL AT OUTSIDE EDGE OF ROOTBALL.
10. SHREDDED BARK MULCH, 3" DEPTH. MULCH TO BE NATURAL IN COLOR. LEAVE 2–3" RING EXPOSED AT BASE OF TRUNK.
11. MULCH RINGS TO BE CONSISTENT WITH PLANT TYPE/SIZE THROUGHOUT PROJECT & SHOULD EXTEND 6" BEYOND LOWEST BRANCH OF EVERGREEN TREES.
12. MINIMUM 2"x2"x60" HARDWOOD STAKES TO EXTEND INTO UNDISTURBED SOIL UNDER PLANT POCKET. STAKE LOCATIONS PER TREE TO BE CONSISTENT THROUGHOUT PROJECT.
13. 1" WIDE BELT LIKE NYLON, PLASTIC, OR OTHER ACCEPTABLE MATERIAL, NO WIRE OR HOSE TO BE USE TO GUY TREES. TWO (2) GUYS PER TREE.

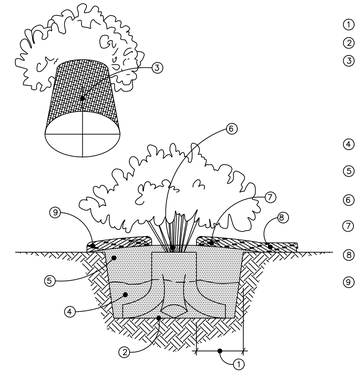
EVERGREEN TREE PLANTING DETAIL
TREE 8' HT. & UNDER
NOT TO SCALE



INSTALLATION NOTES:

1. DIG PLANT POCKET 6" WIDER THAN EDGE OF ROOTBALL.
2. THOROUGHLY COMPACT BOTTOM OF PLANT POCKET.
3. REMOVE ALL TWINE FROM TOP OF ROOTBALL. EXAMINE TRUNK COLLAR AND REMOVE EXCESS SOIL FROM TOP OF ROOTBALL DOWN TO THE UPPER LEVEL OF SYSTEM. SET ROOTBALL WITH TOP 1/8 OF BALL ABOVE FINISH GRADE.
4. PLACE BACKFILL UNDER & ALONGSIDE BASE OF BALL TO STRAIGHTEN SHRUB. THOROUGHLY COMPACT TO FILL ALL VOIDS.
5. BACKFILL PLANT POCKET 1/2 WITH PLANTING MIX CONSISTING OF 50% TOPSOIL & 50% NATIVE SOIL & COMPACT THOROUGHLY, ASSURING SHRUB IS STILL STRAIGHT.
6. BEFORE CONTINUING WITH BACKFILL, REMOVE EXCESS BURLAP. IF APPLICABLE, REMOVE TOP WIRE LOOPS, OR BEND LOOPS DOWN UNTIL THEY TOUCH SIDE OF BALL.
7. BACK FILL REMAINING 1/2 OF PLANT POCKET WITH PLANTING MIX & COMPACT THOROUGHLY, ASSURING SHRUB IS STILL STRAIGHT.
8. IF PLANTED IN NON–IRRIGATED AREAS, FORM A SAUCER WITH SOIL AT OUTSIDE EDGE OF ROOTBALL.
9. SHREDDED BARK MULCH, 3" DEPTH. MULCH TO BE NATURAL IN COLOR. LEAVE 1–2" RING EXPOSED AT BASE OF TRUNK.
10. IF NOT PLANTED WITHIN A LANDSCAPE BED, MULCH RINGS TO BE CONSISTENT IN SIZE WITH PLANT TYPE/SIZE THROUGHOUT PROJECT AND SHOULD NOT EXTEND BEYOND PLANT POCKET.

BALLED & BURLAPED SHRUB PLANTING DETAIL
NOT TO SCALE



INSTALLATION NOTES:

1. DIG PLANT POCKET 12" WIDER THAN EDGE OF ROOTBALL.
2. THOROUGHLY COMPACT BOTTOM OF PLANT POCKET.
3. REMOVE PLANT FROM CONTAINER AND EXAMINE ROOTMASS. IF ROOTMASS IS LOOSE, INTEGRATE PLANT ROOTS & POTTING MEDIA WITH PLANTING MIX. IF A ROOTBOUND CONDITIONS EXISTS, DISRUPT THE ROOTMASS BY CUTTING THROUGH BOTTOM HALF OF ROOTMASS. ROTATE ROOTMASS 90° AND CUT AGAIN, FORMING FOUR (4) LOBES. SPREAD THE FOUR LOBES DISRUPTING ROOTMASS AND INTEGRATE PLANT ROOTS & POTTING MEDIA WITH PLANTING MIX. PLACE PLANT IN POCKET SLIGHTLY ABOVE GRADE.
4. BACKFILL PLANT POCKET 1/2 WITH PLANTING MIX CONSISTING OF 50% TOPSOIL & 50% NATIVE SOIL, ASSURING SHRUB IS STRAIGHT.
5. BACK FILL REMAINING 1/2 OF PLANT POCKET WITH PLANTING MIX & COMPACT THOROUGHLY, ASSURING SHRUB IS STILL STRAIGHT.
6. SPREAD 1" OF PLANTING MIX OVER TOP OF CONTAINER ROOTBALL. SLOPE GRADE AWAY FROM SHRUB.
7. IF PLANTED IN NON–IRRIGATED AREAS, FORM A SAUCER WITH SOIL AT OUTSIDE EDGE OF ROOTBALL.
8. SHREDDED BARK MULCH, 3" DEPTH. MULCH TO BE NATURAL IN COLOR. LEAVE 1–2" RING EXPOSED AT BASE OF PLANT.
9. IF NOT PLANTED WITHIN A LANDSCAPE BED, MULCH RINGS TO BE CONSISTENT IN SIZE WITH PLANT TYPE/SIZE THROUGHOUT PROJECT AND SHOULD NOT EXTEND BEYOND PLANT POCKET.

CONTAINER SHRUB PLANTING DETAIL
POT BOUND SHRUBS
NOT TO SCALE

PATRICK S. Conroy AND ASSOCIATES
P.O. Box 542
Lake Orion, Michigan 48361-0542
P: 248.802.8082
Landscape Architecture & Gonstuction Construction Management
Site Planning Golf Course Architecture

SHEET TITLE: PLANT LIST AND DETAILS

ISSUED FOR	DATE
CLIENT REVIEW	12-03-2024
MUNICIPAL REVIEW	12-04-2024

PROJECT: 363 BIG BEAVER TOWER
TROY, MI 48084

CLIENT: MARUSICH ARCHITECTURE
36880 WOODWARD AVE., STE. 100
BLOOMFIELD HILLS, MI 48304

DRAWN BY: LKM
DRAWING DATE: 11-22-2024

PROJECT No. 24-117

SHEET No. L – 6

ONE WAY SIGN

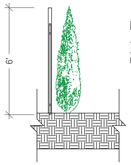
PEDESTRIAN CROSSING SIGN

WRONG WAY SIGN

ACCESSIBLE PARKING SIGN

CAROLINA FENCE SCREENING + ARBORVITAE SCREENING

(METHOD OF SCREENING - GROUND LEVEL)



NOTES:
ARBORVITAE HEIGHT: 5 TO 6 FT
ARBORVITAE SPACING: 1'- 9"
FENCE HEIGHT: 6' - 0"

SCREENING DETAIL

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

EXISTING OFFICE BUILDING

NEW SIDEWALK

RAMP (18% SLOPE) DN UP

LOBBY

TRASH CHUTE ROOM

RECYCLE ROOM

(8) BICYCLE PARKING

RESIDENT BICYCLE STORAGE (2) TOTAL STORAGE SPACES

TYP. PARKING SPACE

PARCEL 3 EXCLUSIVE EASEMENT FOR EXCLUSIVE EASEMENT INGRESS, EGRESS & PARKING = 16 SPACES

NON-EXCLUSIVE EASEMENT

EASEMENT PARCEL 4 20' WD. INGRESS, EGRESS & PARKING EASEMENT (L.38653, P.03) "EXHIBIT D"

NON-EXCLUSIVE EASEMENT

EASEMENT FOR 25 PARKING SPACES (L.34698, P.736)

NON-EXCLUSIVE EASEMENT

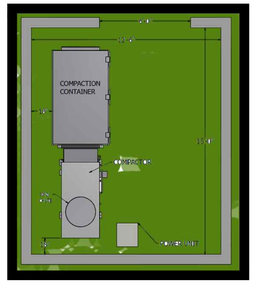
SHARED EASEMENT PARKING = 25 SPACES

EASEMENT PARCEL 3 30' WD. INGRESS, EGRESS & PARKING EASEMENT (L.38653, P.03) "EXHIBIT C"

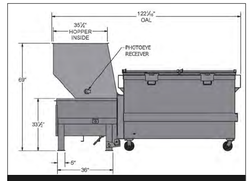
EXCLUSIVE EASEMENT

GROUND LEVEL = 109 SPACES

CAROLINA FENCE SCREENING



TRASH COMPACTOR



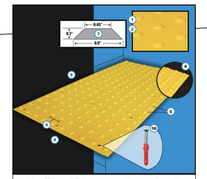
64 GAL. RECYCLE BIN

WRONG WAY SIGN

PEDESTRIAN CROSSING SIGN

ONE WAY SIGN

ACCESSIBLE PARKING SIGN



AlertTile - ADA crosswalk warning tile

PARKING LOCATION BREAKDOWN	
GROUND LEVEL =	109 SPACES
DECK LEVEL =	83 SPACES
EXCLUSIVE PARKING EASEMENT =	16 SPACES
NON-EXCLUSIVE SHARED PARKING EASEMENT =	25 SPACES
TOTAL =	233 SPACES

LEVEL 1 - GROUND LEVEL PLAN (PARKING / LOBBY)

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

NORTH

OWNER / OWNER'S AGENT APPROVED & ACCEPTED

_____ DATE:___/___/2024

MARUSICH ARCHITECTURE

36880 WOODWARD AVENUE
BLOOMFIELD HILLS, MI 48304
SUITE 100

OFFICE: (248) 792-2949
CELL: (313) 482-0645

www.marusicharchitecture.com
johnm.marusicharchitecture@gmail.com

OWNER

FRANK SIMON

PROJECT NAME

363 BIG BEAVER TOWER

ADDRESS
363 Big Beaver Rd
Troy, Mi 48084

PROJECT #	**23 - 82**
ISSUE DATE #	**11/29/2023**

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POST ZBA S.P.A. PLAN PKG	05/28/2025

DRAWN BY: DC

CHECKED BY: JM

SHEET CONTENTS

LEVEL 1 - GROUND LEVEL PLAN (PARKING / LOBBY)

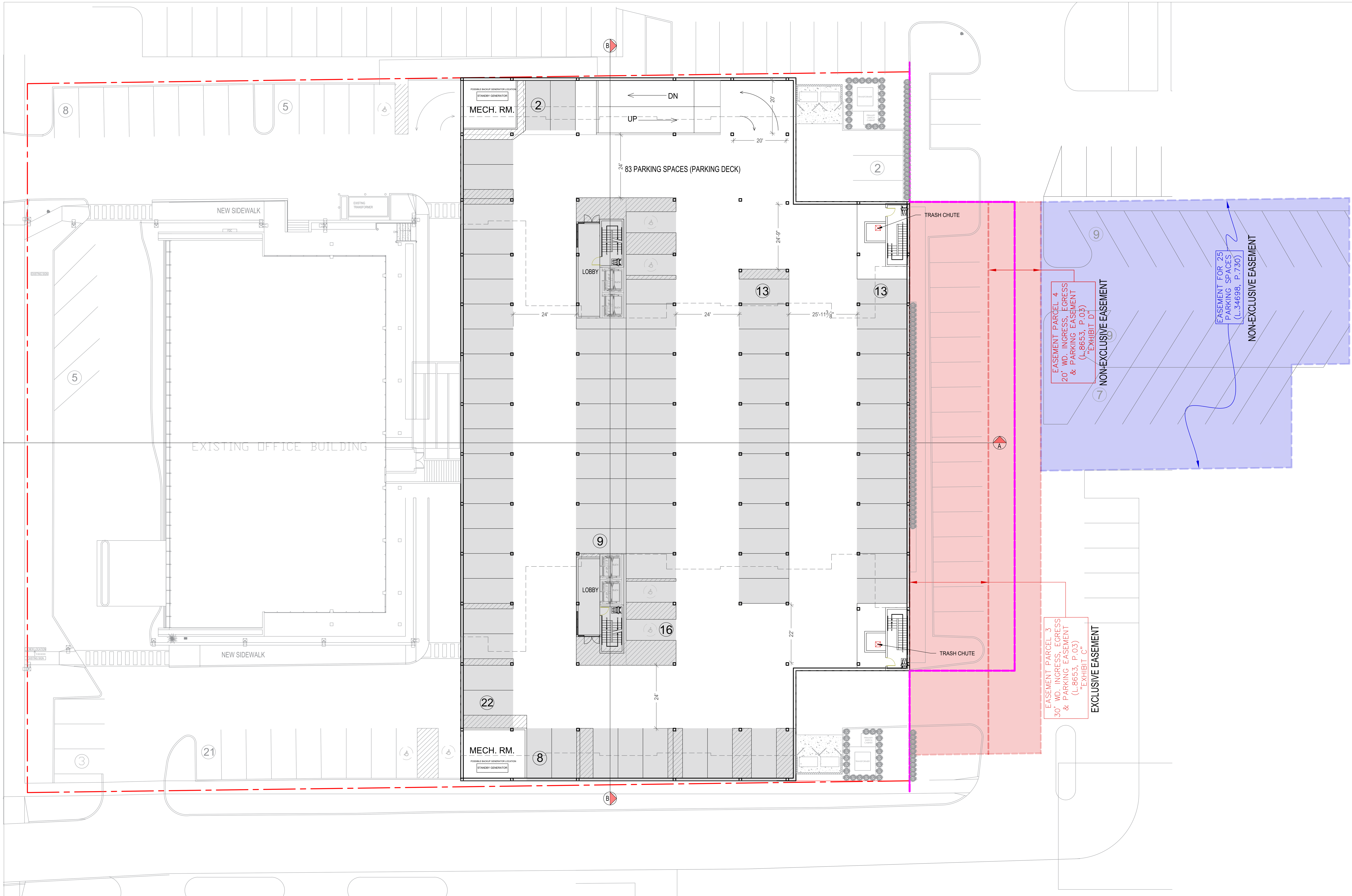
SEAL

STATE OF MICHIGAN — JOHN E. MARUSICH — License No. 1301026757 — REGISTERED ARCHITECT

05/28/2025

SHEET #

A-1



LEVEL 2 - PARKING DECK PLAN

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

NORTH

PARKING LOCATION BREAKDOWN	
GROUND LEVEL =	109 SPACES
DECK LEVEL =	83 SPACES
EXCLUSIVE PARKING EASEMENT =	16 SPACES
NON-EXCLUSIVE SHARED PARKING EASEMENT =	25 SPACES
TOTAL =	233 SPACES

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POST ZBA S.P.A. PLAN PKG	05/28/2025

DRAWN BY: DC

CHECKED BY: JM

SHEET CONTENTS

LEVEL 2 - PARKING DECK PLAN

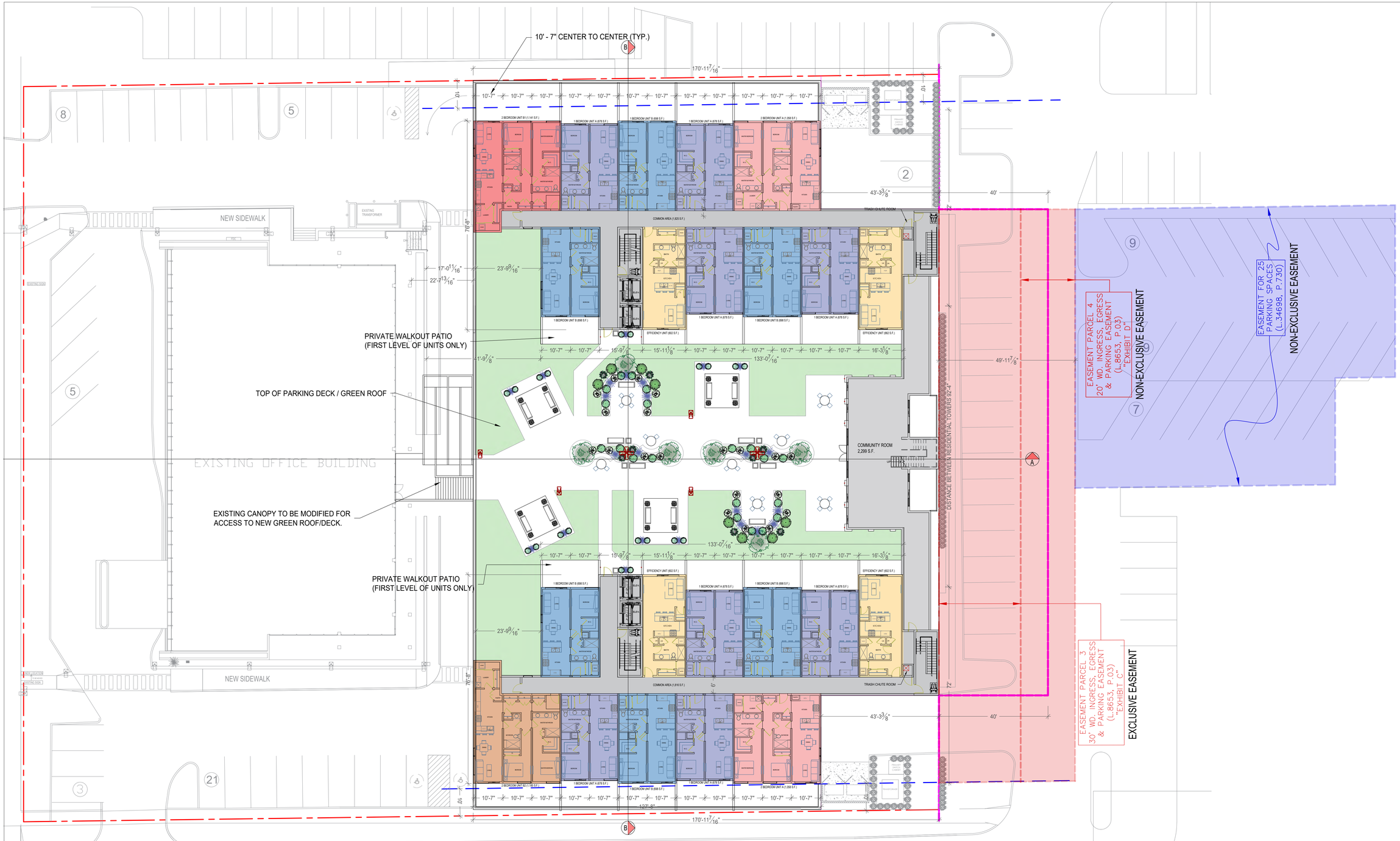
SEAL

05/28/2025

OWNER / OWNER'S AGENT APPROVED & ACCEPTED

DATE:___/___/2024

SHEET # A-2



LEGEND

COMMON AREA (1,825 S.F.)	EFFICIENCY UNIT (602 S.F.)	1 BEDROOM UNIT A (678 S.F.)	2 BEDROOM UNIT B1 (1,141 S.F.)
1 BEDROOM UNIT B (698 S.F.)		2 BEDROOM UNIT A (1,058 S.F.)	2 BEDROOM UNIT B2 (1,185 S.F.)

TOTAL UNIT S.F. PER FLOOR - BOTH BUILDINGS (16,534 S.F.)
TOTAL NET S.F. - BOTH BUILDINGS (82,670 S.F.)
TOTAL GROSS S.F. PER FLOOR - BOTH BUILDINGS (20,175 S.F.)
TOTAL RESIDENTIAL GROSS AREA - BOTH BUILDINGS (100,875 S.F.)

LEVEL 3 - RESIDENTIAL FLOOR PLAN

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

NORTH

OWNER / OWNER'S AGENT APPROVED & ACCEPTED

_____ DATE:___/___/2024

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DRAWN BY:	DC
CHECKED BY:	JM

SHEET CONTENTS

LEVEL 3 - RESIDENTIAL FLOOR PLAN

SEAL

STATE OF MICHIGAN
JOHN E. MARUSICH
License No. 1301026757
REGISTERED ARCHITECT

05/28/2025

SHEET #

A-3

LEGEND

COMMON AREA (1,825 S.F.)	EFFICIENCY UNIT (602 S.F.)	1 BEDROOM UNIT A (678 S.F.)	2 BEDROOM UNIT B1 (1,141 S.F.)
1 BEDROOM UNIT B (698 S.F.)	2 BEDROOM UNIT A (1,058 S.F.)	2 BEDROOM UNIT B2 (1,185 S.F.)	

TOTAL UNIT S.F. PER FLOOR - BOTH BUILDINGS (16,534 S.F.)
TOTAL NET S.F. - BOTH BUILDINGS (82,670 S.F.)
TOTAL GROSS S.F. PER FLOOR - BOTH BUILDINGS (20,175 S.F.)
TOTAL RESIDENTIAL GROSS AREA - BOTH BUILDINGS (100,875 S.F.)

LEVEL 4 - RESIDENTIAL FLOOR PLAN (TYP. FLOORS 4 & 6)

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

NORTH

MARUSICH ARCHITECTURE

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DRAWN BY:	DC
CHECKED BY:	JM

SHEET CONTENTS

LEVEL 4 - RESIDENTIAL FLOOR PLAN (TYP. FLOORS 4 & 6)

SEAL

STATE OF MICHIGAN
JOHN E. MARUSICH
License No. 1301026757
REGISTERED ARCHITECT

05/28/2025

OWNER / OWNER'S AGENT APPROVED & ACCEPTED

_____ DATE:___/___/2024

SHEET #

A-4

LEGEND

COMMON AREA (1,825 S.F.)	EFFICIENCY UNIT (602 S.F.)	1 BEDROOM UNIT A (678 S.F.)	2 BEDROOM UNIT B1 (1,141 S.F.)
1 BEDROOM UNIT B (698 S.F.)		2 BEDROOM UNIT A (1,058 S.F.)	2 BEDROOM UNIT B2 (1,185 S.F.)

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TOTAL NET S.F. - BOTH BUILDINGS (82,670 S.F.)

TOTAL GROSS S.F. PER FLOOR - BOTH BUILDINGS (20,175 S.F.)

TOTAL RESIDENTIAL GROSS AREA - BOTH BUILDINGS (100,875 S.F.)

LEVEL 5 - RESIDENTIAL FLOOR PLAN (TYP. FLOORS 5 & 7)

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

NORTH

MARUSICH ARCHITECTURE

36880 WOODWARD AVENUE
BLOOMFIELD HILLS, MI 48304
SUITE 100

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CHECKED BY:	JM

SHEET CONTENTS

LEVEL 5 - RESIDENTIAL FLOOR PLAN (TYP. FLOORS 5 & 7)

SEAL

STATE OF MICHIGAN — JOHN E. MARUSICH — License No. 1301026757 — REGISTERED ARCHITECT

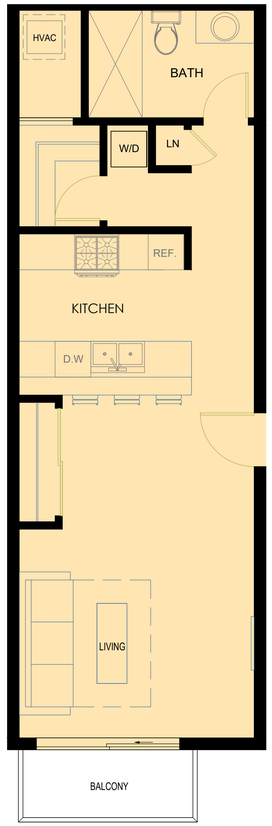
05/28/2025

OWNER / OWNER'S AGENT APPROVED & ACCEPTED

_____ DATE:___/___/2024

SHEET #

A-5A

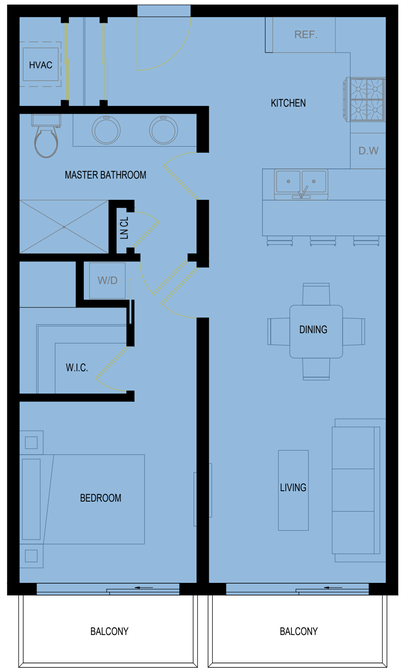


EFFICIENCY UNIT (602 S.F.)

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

1 BEDROOM UNIT A (677 S.F.)

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



1 BEDROOM UNIT B (698 S.F.)

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

2 BEDROOM UNIT B1 (1,141 S.F.)

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

LEGEND

- EFFICIENCY UNIT (602 S.F.)
- 1 BEDROOM UNIT B (698 S.F.)
- 1 BEDROOM UNIT A (677 S.F.)
- 2 BEDROOM UNIT A (1,058 S.F.)
- 2 BEDROOM UNIT B1 (1,141 S.F.)
- 2 BEDROOM UNIT B2 (1,185 S.F.)

2 BEDROOM UNIT A (1,058 S.F.)

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

2 BEDROOM UNIT B2 (1,185 S.F.)

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

MARUSICH ARCHITECTURE

36880 WOODWARD AVENUE
BLOOMFIELD HILLS, MI 48304
SUITE 100

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RESIDENTIAL UNIT FLOOR PLANS

SEAL

STATE OF MICHIGAN — JOHN E. MARUSICH — License No. 1301208701 — REGISTERED ARCHITECT

05/28/2025

OWNER / OWNER'S AGENT APPROVED & ACCEPTED

_____ DATE:____/____/2024

SHEET #

A-5B

NORTH ELEVATION

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

NICHIHA TUFFBLOCK STEEL

NICHIHA TUFFBLOCK PEWTER

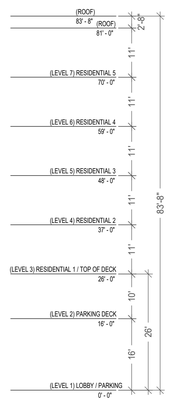
NICHIHA MIRAIA GLACIER

NICHIHA VINTAGEWOOD SPRUCE

ALPOLIC METAL COMPOSITE SLATE BLACK

SOUTH ELEVATION

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



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BUILDING ELEVATIONS (NORTH & SOUTH)

SEAL

05/28/2025

OWNER / OWNER'S AGENT APPROVED & ACCEPTED

_____ DATE:___/___/2024

SHEET #

A-6A

EAST ELEVATION

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

NICHIHA TUFFBLOCK STEEL

NICHIHA TUFFBLOCK PEWTER

NICHIHA MIRAIA GLACIER

NICHIHA VINTAGEWOOD SPRUCE

ALPOLIC METAL COMPOSITE SLATE BLACK

WEST ELEVATION

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

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CHECKED BY: JM

SHEET CONTENTS

BUILDING ELEVATIONS (EAST & WEST)

SEAL

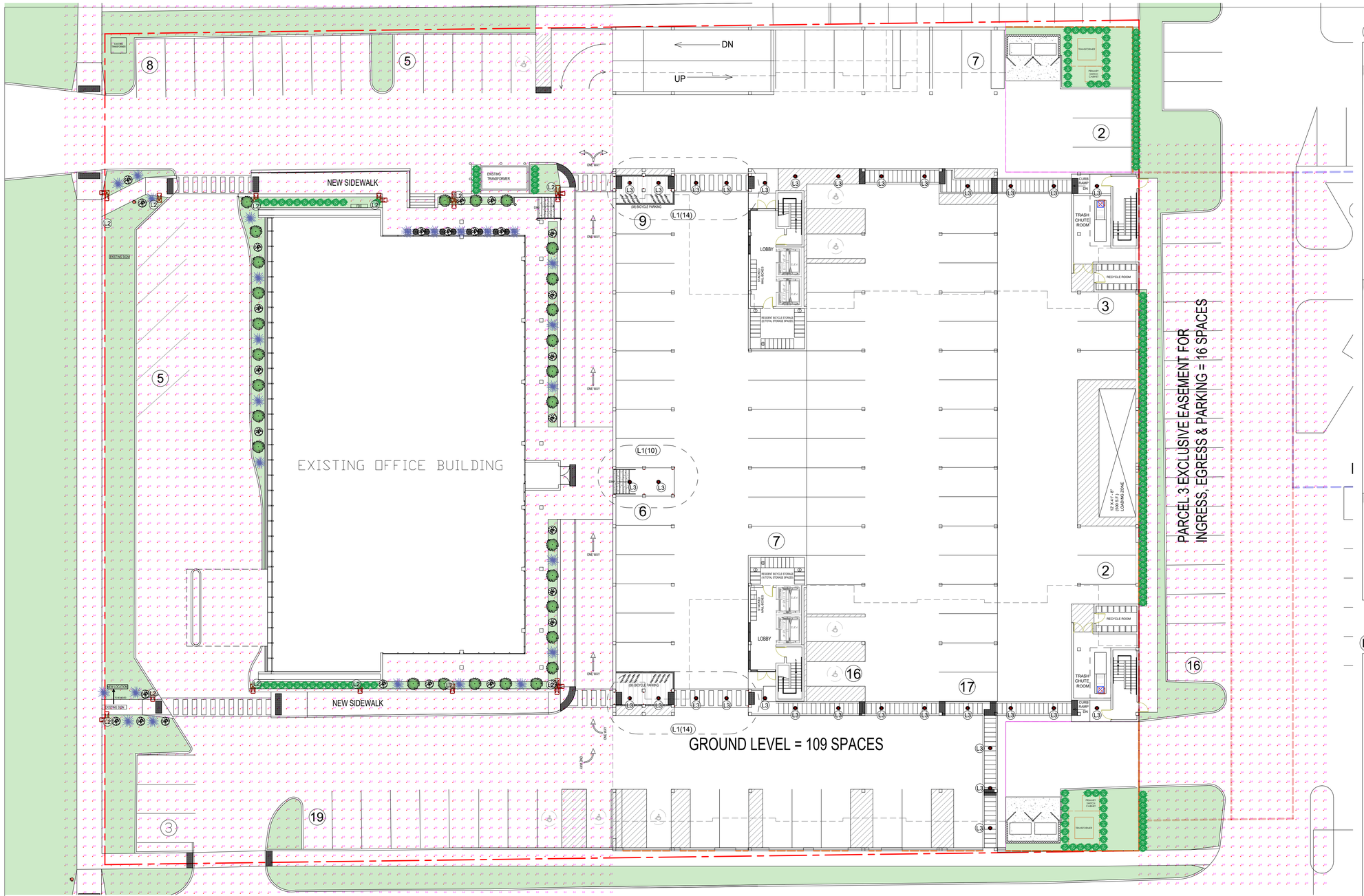
STATE OF MICHIGAN
JOHN E. MARUSICH
LICENSED ARCHITECT
05/28/2025

05/28/2025

OWNER / OWNER'S AGENT APPROVED & ACCEPTED

_____ DATE:___/___/2024

SHEET # A-6B



LIGHTING PLAN (GROUND LEVEL)

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

NORTH

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 MANUFACTURERS 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.

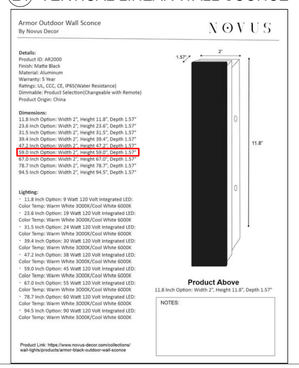
LIGHT FIXTURE SCHEDULE

LABEL	Symbol	QTY	Manufacturer	Description	Lamp	Wattage	Mounting Height
L1	▫	48	NOVUS DECOR	Vertical linear Outdoor wall sconce	LED	19W	7' - 0"
L2	✚	18	LITHONIA LIGHTING	Pole Lighting	LED	90W	12' - 0"
L3	●	31	PROGRESS LIGHTING	Recessed can-light	LED	10W	12' - 0"
L4	▱	133	LITHONIA LIGHTING	Shielded wall sconce	LED	10W	8' - 0"

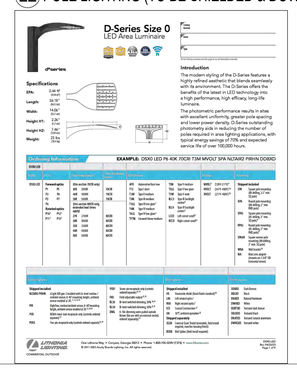
General Note

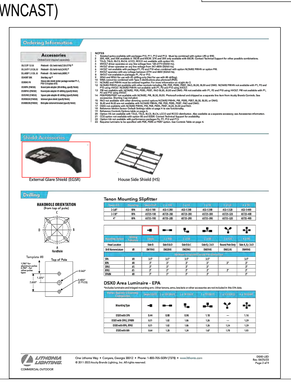
1. SEE SCHEDULE FOR LUMINAIRE MOUNTING HEIGHT.
2. CALCULATIONS ARE SHOWN IN FOOTCANDLES AT: 6' - 0"
3. THIS DRAWING WAS GENERATED FROM AN ELECTRONIC IMAGE FOR ESTIMATION PURPOSE ONLY. TO BE VERIFIED IN FIELD BY OTHERS.

L1 VERTICAL LINEAR WALL SCONCE

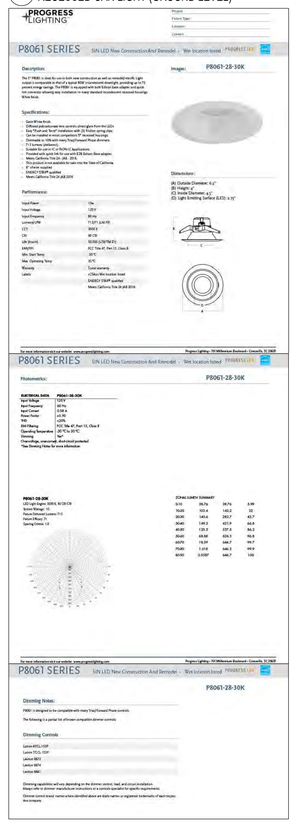


L2 POLE LIGHTING (TO BE SHIELDED & DOWNCAST)

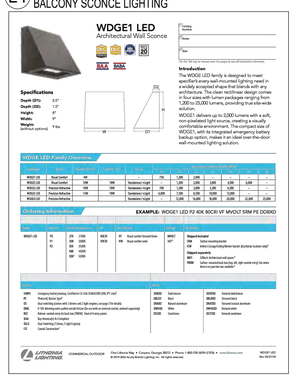




L3 RECESSED CAN LIGHT (GROUND LEVEL)



L4 SHIELDED PATIO (TOP OF DECK) & BALCONY SCONCE LIGHTING



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BLOOMFIELD HILLS, MI 48304
SUITE 100

OFFICE: (248) 792-2949
CELL: (313) 482-0645

www.marusicharchitecture.com
johnm.marusicharchitecture@gmail.com

OWNER

FRANK SIMON

PROJECT NAME

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ADDRESS
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Troy, Mi 48084

PROJECT #	23 - 82
ISSUE DATE #	11/29/2023

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DRAWN BY:	DC
CHECKED BY:	JM

SHEET CONTENTS

LIGHTING PLAN (GROUND LEVEL)

SEAL

05/28/2025

OWNER / OWNER'S AGENT APPROVED & ACCEPTED

_____ DATE:___/___/2024

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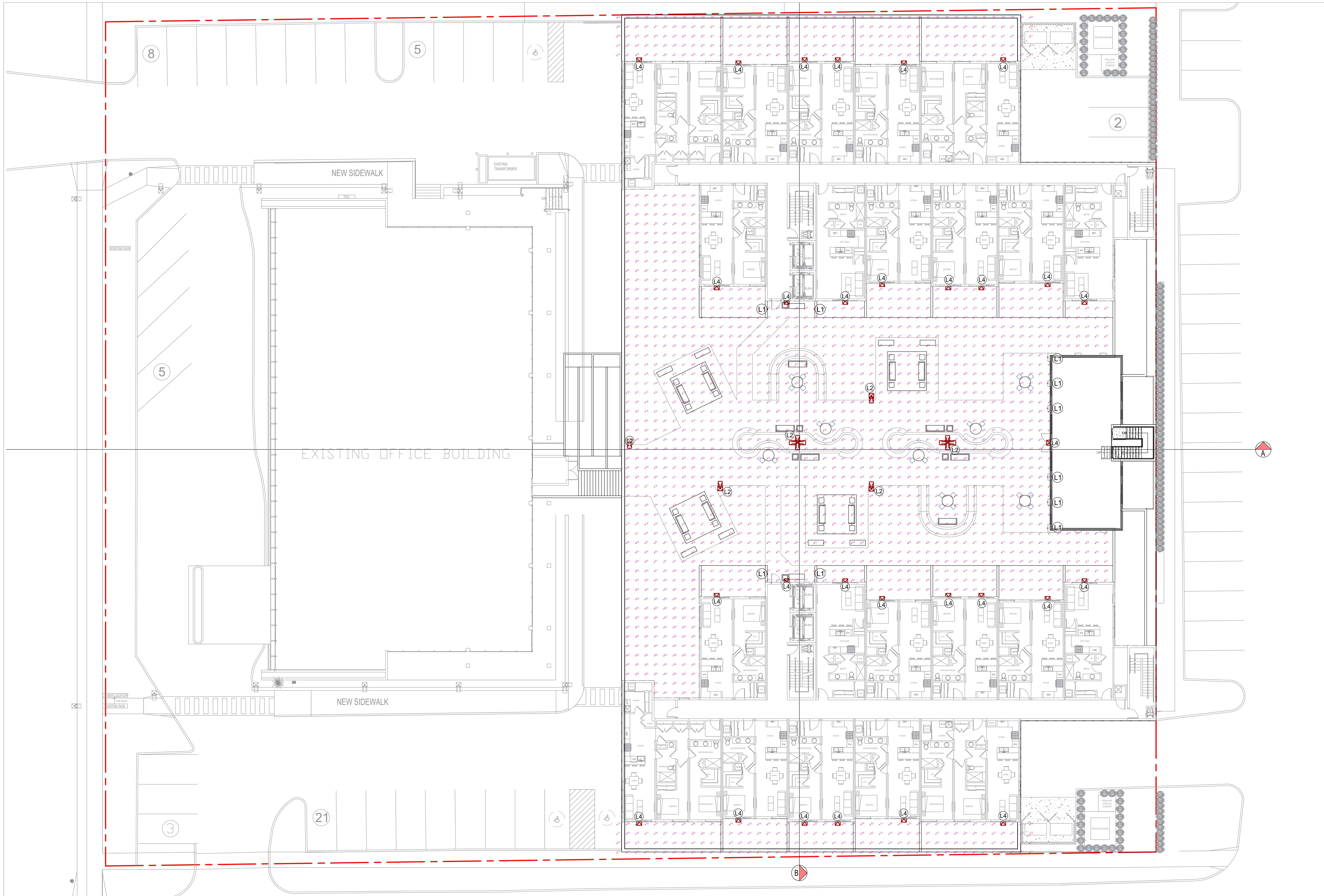
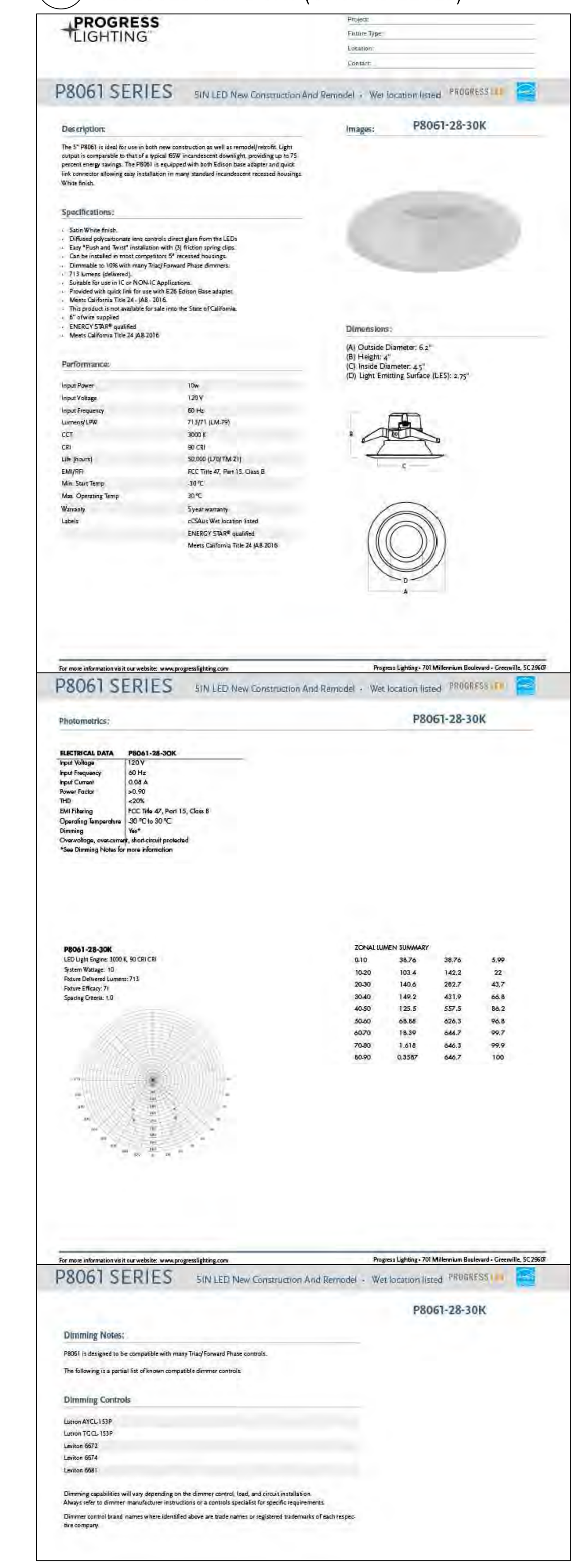
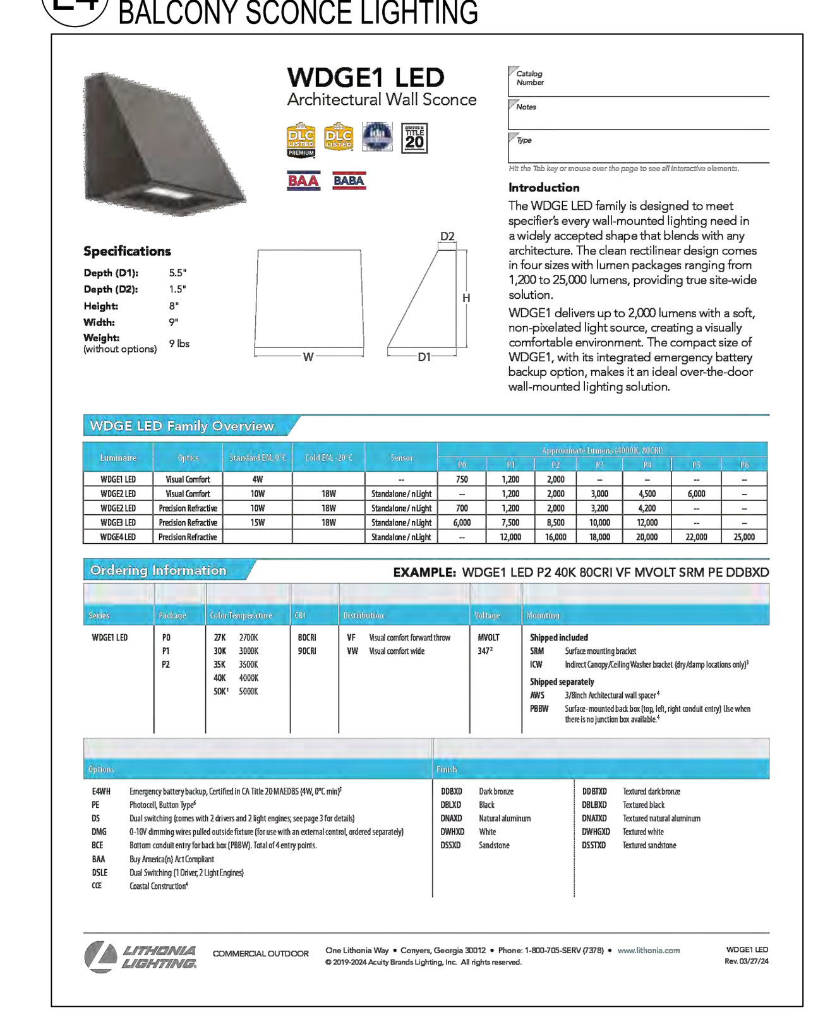


(L3) RECESSED CAN LIGHT (GROUND LEVEL)



(L4) SHIELDED PATIO (TOP OF DECK) & BALCONY SCONCE LIGHTING



LIGHTING PLAN (TOP OF DECK)

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

NORTH

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 MANUFACTURERS 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.

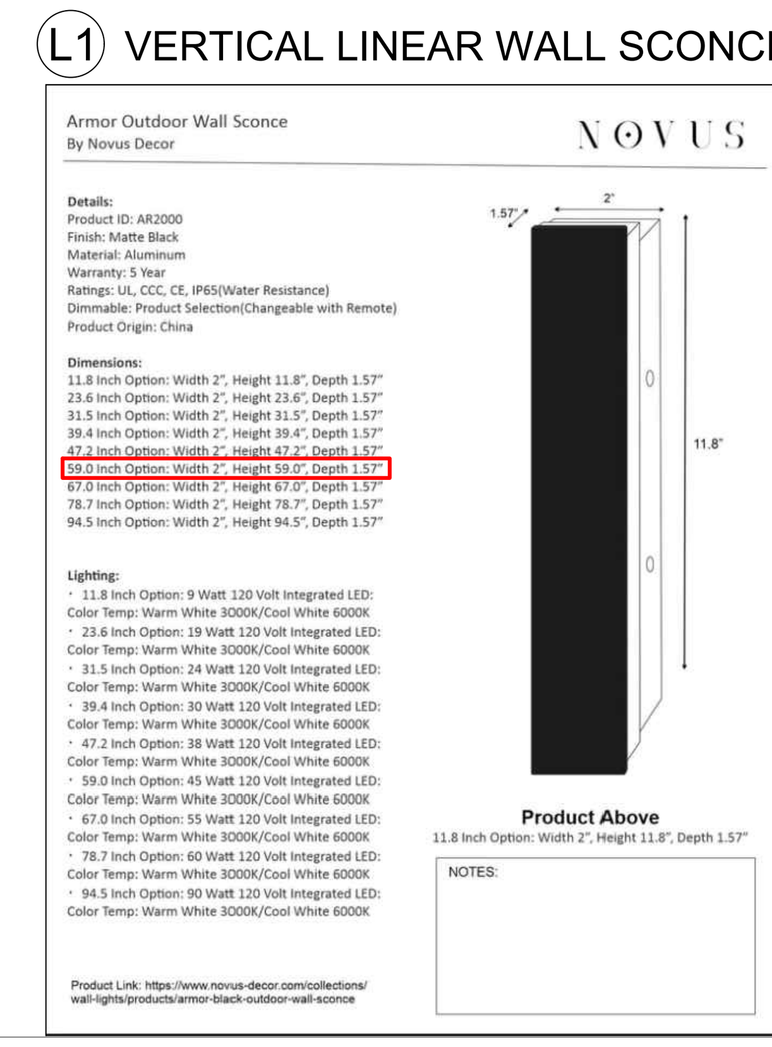
LIGHT FIXTURE SCHEDULE

LABEL	Symbol	QTY	Manufacturer	Description	Lamp	Wattage	Mounting Height
(L1)		48	NOVUS DECOR	Vertical linear Outdoor wall sconce	LED	19W	7' - 0"
(L2)		18	LITHONIA LIGHTING	Pole Lighting	LED	90W	12' - 0"
(L3)		31	PROGRESS LIGHTING	Recessed can-light	LED	10W	12' - 0"
(L4)		133	LITHONIA LIGHTING	Shielded wall sconce	LED	10W	8' - 0"

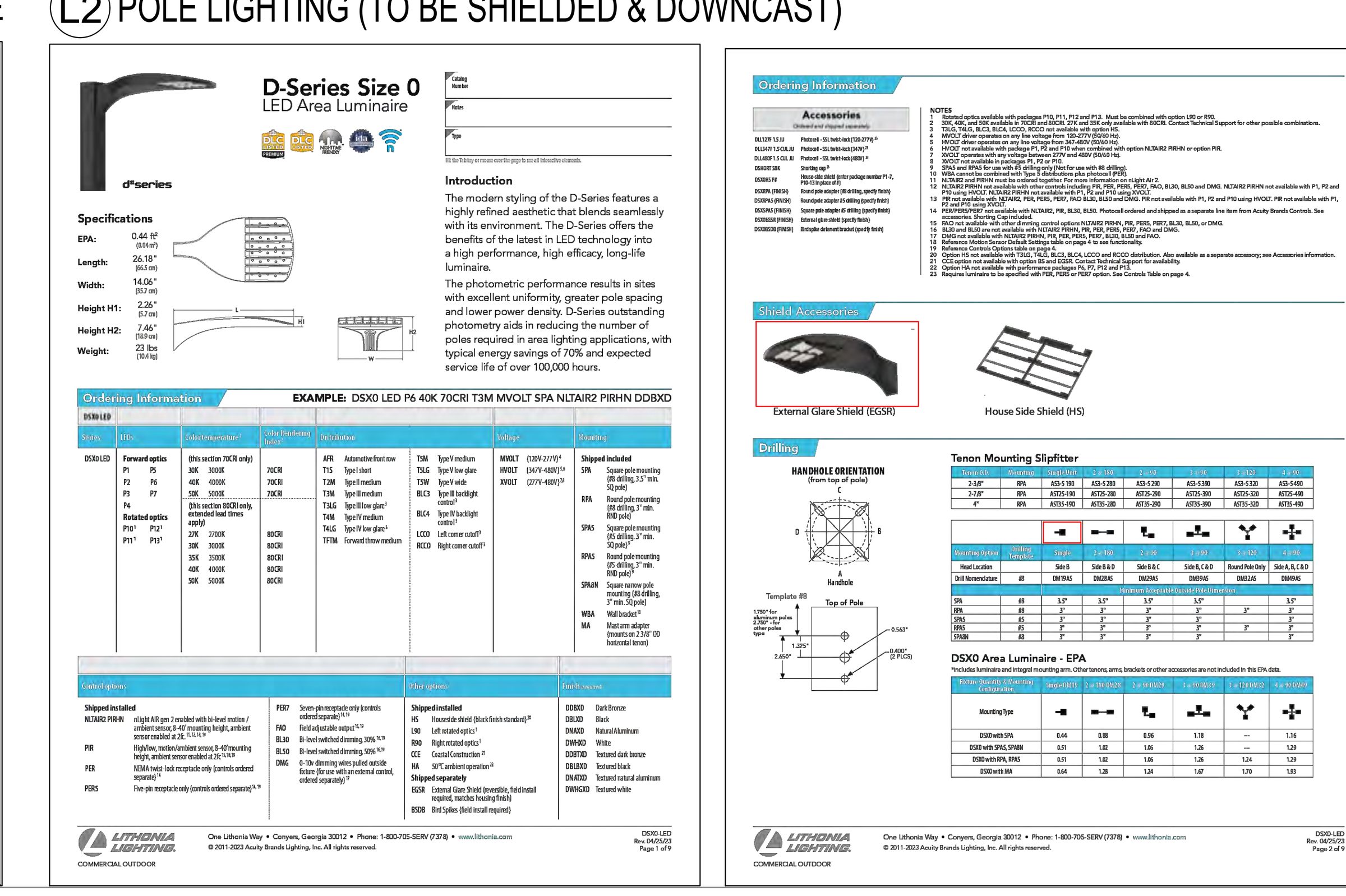
General Note

1. SEE SCHEDULE FOR LUMINAIRE MOUNTING HEIGHT.
2. CALCULATIONS ARE SHOWN IN FOOTCANDLES AT: 6' - 0"
3. THIS DRAWING WAS GENERATED FROM AN ELECTRONIC IMAGE FOR ESTIMATION PURPOSE ONLY. TO BE VERIFIED IN FIELD BY OTHERS.

(L1) VERTICAL LINEAR WALL SCONCE



(L2) POLE LIGHTING (TO BE SHIELDED & DOWNCAST)



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36880 WOODWARD AVENUE
BLOOMFIELD HILLS, MI 48304
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www.marusicharchitecture.com
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CHECKED BY: JM

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LIGHTING PLAN (TOP OF DECK)

SEAL

05/28/2025

OWNER / OWNER'S AGENT APPROVED & ACCEPTED

DATE:___/___/2024

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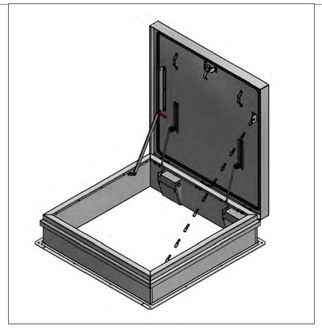
110 UNITS .....= 110 CONDENSERS
5 LEVELS OF COMMON AREA (x2) .....= 20 CONDENSERS
LOBBY AREA (x4).....= 04 CONDENSERS
TOTAL = 134 CONDENSERS

LAWRENCE FABRIC & METAL STRUCTURES)
MECHANICAL SCREEN WALL

ROOF PLAN
SCALE: 1/16" = 1'-0"
NORTH



4 X 4 ROOF HATCH
(ACCESS TO MECH. UNITS)

Specifications:

- *Material:*
  - M.14 gauge galvanized steel cover and Curb
  - RD .090 Aluminum Cover and Curb
- *Finish:*
  - Galvanized Steel: Cool White Water Based Enamel Paint
  - Aluminum: Mill Finish
- *Cover:* covers open easily to 90 degrees
  - M: 14 gauge galvanized steel exterior with 22 gauge galvanized steel liner with 2" Polyisocyanurate insulation
  - RD: Mill finish .090 aluminum exterior with .063 aluminum liner with 2" Polyisocyanurate insulation
- *Curb:*
  - M: 14 gauge galvanized steel exterior with 22 gauge galvanized steel liner, a 12" high curb, integral counterflashing, 3-1/2" wide mounting flanges with pre-drilled holes and 2" Polyisocyanurate insulation
  - RD: Mill finish .090 aluminum exterior with .063 aluminum liner, a 12" high curb, integral counterflashing, 3-1/2" wide mounting flanges with pre-drilled holes and 2" Polyisocyanurate insulation
- *Gasket:*
  - Extruded EPDM rubber gasket adhered to cover
- *Hinges:*
  - Steel Pintle Hinge
- *Lift Assist:*
  - Cover operation is assisted by enclosed heavy-duty Torsion Coil Spring
- *Latches:*
  - Slam latch with interior and exterior handles and inside padlock hasp.
- *Hardware:*
  - All hardware is zinc plated (stainless steel hardware optional)
- *Load Capacity:*
  - 70 psf

(02) PIONEER MINI-SPLIT AIR CONDITIONER UNITS IN COMMUNITY ROOM (TOP OF DECK / LEVEL 3)

Performance Data

- **Power Supply:** 208~230V, 60Hz, 1Ph
- **Cooling Rated Capacity:** 18,000 BTU/h
- **Cooling Capacity Range:** 3,900~20,000 BTU/h
- **Cooling SEER2:** 19 BTU/W.h
- **Cooling EER2:** 10.5 BTU /W.h
- **Heating Rated Capacity:** 18,800 BTU/h
- **Heating Capacity Range:** 6,300~19,400 BTU/h
- **Heating HSPF2 (Region IV/V):** 8.7 / 6.8 BTU/W.h
- **Heating C.O.P.2 (47°F/5°F):** 2.93 / 2.1 W/W
- **Refrigerant Type:** R410A/47.6 oz.
- **Suitable Area:** 400~650 Sq.F

Indoor Unit Data

- **Model Number:** WS018GMFI20HLD
- **Air Flow (Hi/Med/Lo):** 388 / 259 / 218 CFM
- **Sound Level (Hi/Med/Lo):** 43.5 / 34.5 / 30.0 dB(A)
- **Net Dimensions (WDH):** 38" x 8"-1/2 x 12"-1/2
- **Carton Dimensions (WDH):** 41"-1/8 x 12" x 16"-1/8
- **Net / Gross Weight:** 23.8 / 31.5 lbs

Outdoor Unit Data

- **Model Number:** YN018GMFI20RPD
- **Sound Level:** 57 dB(A)
- **Net Dimensions (WDH):** 31"-5/8 x 13" x 21"-7/8
- **Carton Dimensions (WDH):** 36" x 14"-5/8 x 24"-1/4
- **Net / Gross Weight:** 73.9 / 79.8 lbs
- **Breaker Needed:** 20A (double-pole)

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DRAWN BY: DC

CHECKED BY: JM

SHEET CONTENTS

ROOF PLAN

SEAL

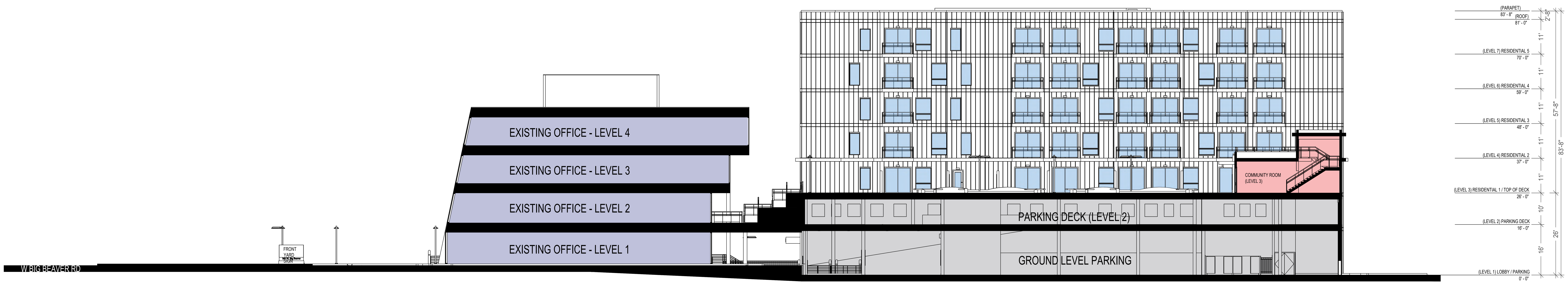
STATE OF MICHIGAN
JOHN E. MARUSICH
License No. 1301026757
REGISTERED ARCHITECT

05/28/2025

OWNER / OWNER'S AGENT APPROVED & ACCEPTED

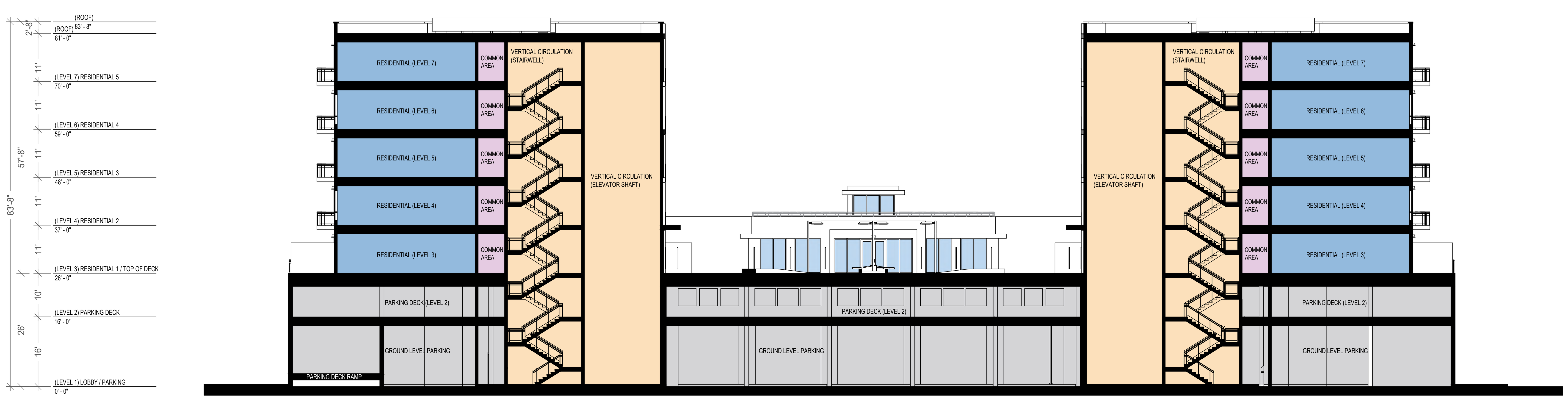
_____ DATE:___/___/2024

SHEET # A-10



BUILDING SECTION A

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



BUILDING SECTION B

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

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BUILDING SECTIONS

SEAL

05/28/2025

OWNER / OWNER'S AGENT APPROVED & ACCEPTED

________________ DATE:___/___/2024

SHEET # A-11

FLEIS&VANDENBRINK
DESIGN. BUILD. OPERATE.

MEMO

VIA EMAIL FSimon@firstclass-developers.com

To:	**First Class Developers, LLC**
From:	**Julie Kroll, PE, PTOE** **Fleis & VandenBrink**
Date:	**April 15, 2024** **Revised November 10, 2024**
Re:	**Proposed Residential Development** **363 Big Beaver Road, Troy, Michigan** **Shared Parking Study**

1 INTRODUCTION

This memorandum presents results of the Shared Parking Study for the proposed development at 363 Big Beaver Road in the City of Troy, Michigan. There is an existing office building on site and the proposed development plan includes the addition of a multi-family residential building on the property. The proposed multi-family residential building includes 5-stories of residential units stacked over a 2-level parking deck. The proposed parking deck and existing parking lot will be shared between the existing office building and the proposed residential development. There is no reserved parking proposed on this site. The purpose of this parking study is to determine if there will be adequate parking to accommodate all uses.

2 PARKING ANALYSIS

A parking analysis is a two-step process. The first step in determining the parking needs for a development is to calculate the projected parking *demand*. Parking demand calculations determine how much parking will be generated by the development. Step two in the parking analysis process is to determine if the parking supply is adequate to accommodate the projected parking demand; if the parking supply is not adequate, recommendations are to be provided to accommodate the projected parking demand.

The proposed development plan includes shared parking with the property at 363 Big Beaver Rd. and with the adjacent property at 575 Big Beaver Rd. There are both exclusive and shared parking easements with this adjacent property. The parking supply for this project site is summarized below and shown on the attached site plan.

Table 1: Parking Supply Summary

Address	Parking Type	Agreement	Spaces
363 Big Beaver	Parking Lot	Shared Use	109
363 Big Beaver	Parking Deck	Shared Use	83
575 Big Beaver	Parking Lot	Easement-Exclusive Use	16
575 Big Beaver	Parking Lot	Easement-Shared Use	25
Total			**233**

2.1 CITY OF TROY ORDINANCE EVALUATION

The proposed development plan was evaluated according to the City of Troy Zoning Parking Ordinance, as summarized in **Table 2**. Based upon the results of this evaluation, the proposed development does not meet the parking requirements per the City Parking Ordinance. However, City of Troy Ordinance allows for parking to be shared where peak usage for the site occurs at different periods of time. Therefore, a shared parking evaluation was performed for the existing and proposed uses.

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

Table 2: City of Troy Parking Ordinance Existing and Proposed Uses

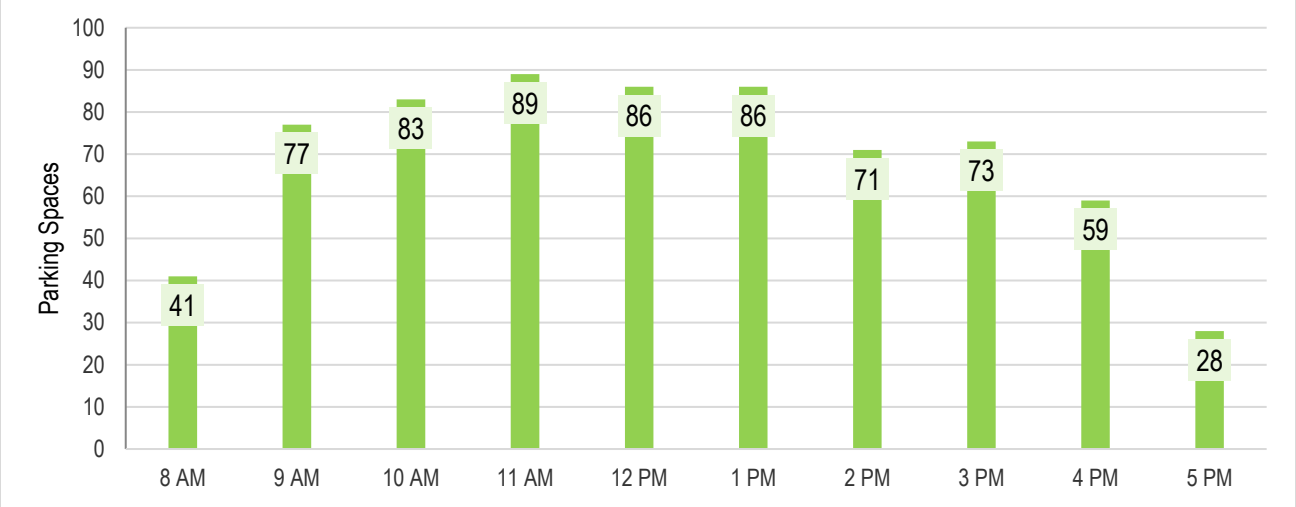
Land Uses	Size	City Ordinance Rates	Parking Requirements Per Ordinance (spaces)
Multi-Family Housing	20 Units	1 spaces/dwelling unit	20
Multi-Family Housing	90 Units	2 spaces/dwelling unit	180
Office (General)	30,648 SF GFA	1 space per 300 SF GFA	103
Office (Medical/Dental)	8,563 SF GFA	1 space per 200 SF GFA	43
Bank	3,437 SF GFA	1 space per 200 SF GFA	18
Total			**364**
Proposed Parking Supply			**233**
Difference			**-131**

2.2 Existing Office Building

The existing office building includes various land uses; including, general office, medical/dental office and a bank, and the building is currently fully leased. A parking occupancy study was performed in order to determine the parking demand for the existing building and uses. The existing parking occupancy data collection was performed on Tuesday, April 2, 2024, between 8:00 AM and 6:00 PM. The existing parking occupancy data is attached and shown on the exhibit below. The results of the analysis show:

- The peak parking demand for the existing building occurs between 11:00 AM and Noon.
- The peak peaking demand is 89 vehicles.

Exhibit 1: Existing 363 Big Beaver Parking Demand



2.3 Shared Parking Evaluation

The proposed development includes a multi-family residential development that will share parking with the adjacent building at 363 Big Beaver Road. The proposed development plan for 363 Big Beaver Road with the additional residential units was evaluated to determine the recommended number of parking spaces for the project in an effort to "right-size" the parking for this use.

The Urban Land Institute (ULI), Shared Parking, 3rd Edition was used to evaluate the shared parking for the proposed residential development plan. The seasonal, daily, and hourly parking demand variations for the proposed land use based on data published in the Urban Land Institute (ULI) in Shared Parking, 3rd Edition ULI were used to determine the projected peak hourly parking demand for the proposed development. The underlying parking demand used the City of Troy Ordinance Parking requirements.

The existing 363 Big Beaver Road building parking occupancy data was combined with the proposed land used to determine the overall site parking demand required for this site that is attributed to the synergy of the land uses. The results of the shared parking analysis are summarized in **Table 2**.

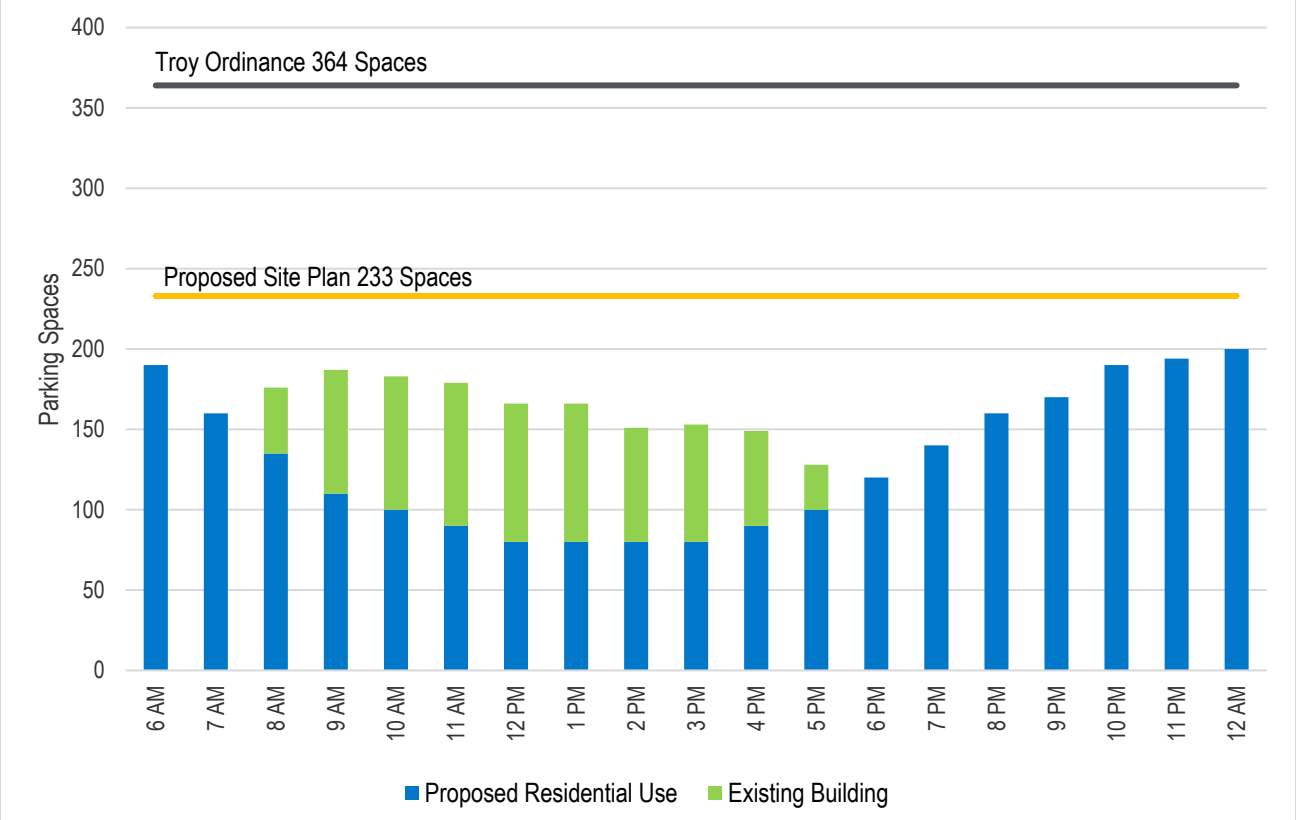
A parking lot is typically designed to accommodate 85-95% occupancy, depending on the proposed land use(s), layout, and parking management (self-parking, valet, etc.). As vehicles traverse through the parking lot search for the open spaces or wait for vehicles to exit, a buffer is provided between supply and demand that allows for easier turnover in the parking lot and less congestion. For parking lots with a higher turnover (such as grocery stores and restaurants), the parking occupancy percentage should be lower, and for parking lots with less turnover (office buildings and residential), the parking occupancy percentage can be higher.

The projected parking demand calculated was compared to the proposed parking supply for this site to determine if there is adequate parking to accommodate the proposed operations. The highest daily parking demands for this development are expected during the weekday when both the office building and the residential uses have the highest occupancy. The results of this analysis are summarized in **Table 3** and the hourly variations in the parking demand are shown on **Exhibit 2** and shows that the proposed parking supply on site will accommodate the projected parking demand for the existing and proposed uses.

Table 3: City of Troy Parking Ordinance with Shared Parking

Land Uses	Size	City Ordinance Rates	Ordinance Requirements	Peak Hour (9 AM) Shared Parking
Multi-Family Housing	20 Units	1 spaces/dwelling unit	20	110
Multi-Family Housing	90 Units	2 spaces/dwelling unit	180	
Office (General)	30,648 SF GFA	1 space per 300 SF GFA	103	77
Office (Medical/Dental)	8,563 SF GFA	1 space per 200 SF GFA	43	
Bank	3,437 SF GFA	1 space per 200 SF GFA	18	
Total			**364**	**187**
Proposed Parking Supply			**233**	**233**
Difference			**-131**	**46**
Parking Lot Percent Occupancy			**156%**	**80%**

Exhibit 2: Peak Month Daily Parking Demand by Hour (Weekday)



3 CONCLUSIONS

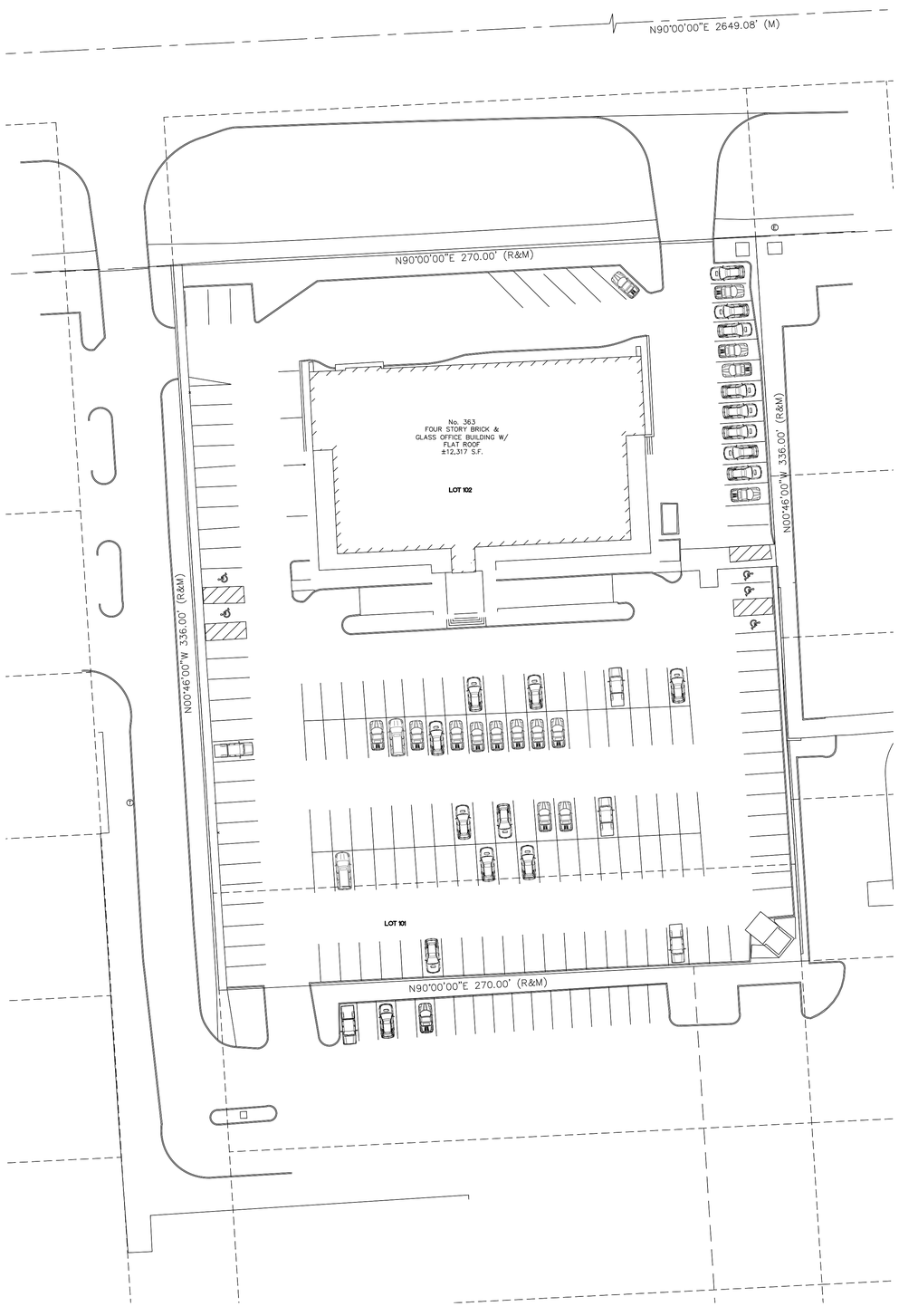
The conclusions of this study are as follows:

- The proposed development plan provides the necessary parking for the proposed development plan using shared parking to meet the ordinance requirements.

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

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

Attachments: Site Concept Plan
Parking Occupancy Data
Shared Parking Data Summaries



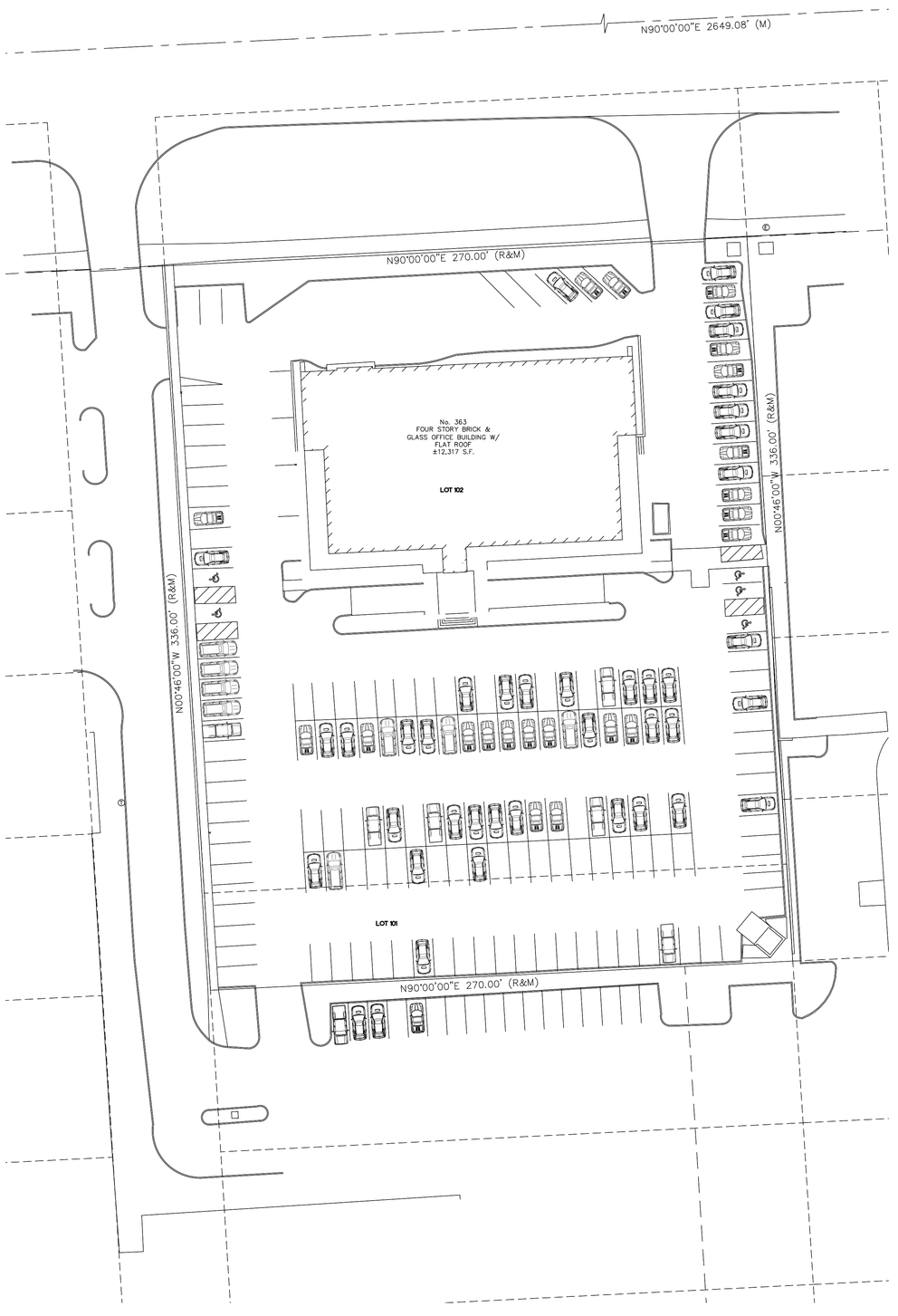
TOTAL SPACES EXCL. OVERFLOW: 164 OCCUPIED SPACES EXCL. OVERFLOW: 38 % OCCUPIED EXCL. OVERFLOW: 23
TOTAL SPACES INCL. OVERFLOW: 181 OCCUPIED SPACES INCL. OVERFLOW: 41 % OCCUPIED INCL. OVERFLOW: 23

ACTUAL PARKING CONDITIONS - 8:30 AM

SCALE: 1" = 30'-0"

ACTUAL OBSERVED DATE/TIME: TUES., 04.02.2024 8:33-8:39 AM

NORTH



TOTAL SPACES EXCL. OVERFLOW: 164 OCCUPIED SPACES EXCL. OVERFLOW: 73 % OCCUPIED EXCL. OVERFLOW: 45
TOTAL SPACES INCL. OVERFLOW: 181 OCCUPIED SPACES INCL. OVERFLOW: 77 % OCCUPIED INCL. OVERFLOW: 43

ACTUAL PARKING CONDITIONS - 9:30 AM

SCALE: 1" = 30'-0"

ACTUAL OBSERVED DATE/TIME: TUES., 04.02.2024 9:39-9:46 AM

NORTH

MARUSICH ARCHITECTURE

36880 WOODWARD AVENUE
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DRAWN BY: DL

CHECKED BY: JM

SHEET CONTENTS

PARKING ANALYSIS (1 OF 6)

SEAL

STATE OF MICHIGAN
JOHN MARUSICH
LICENSED
ARCHITECT
REGISTERED ARCHITECT

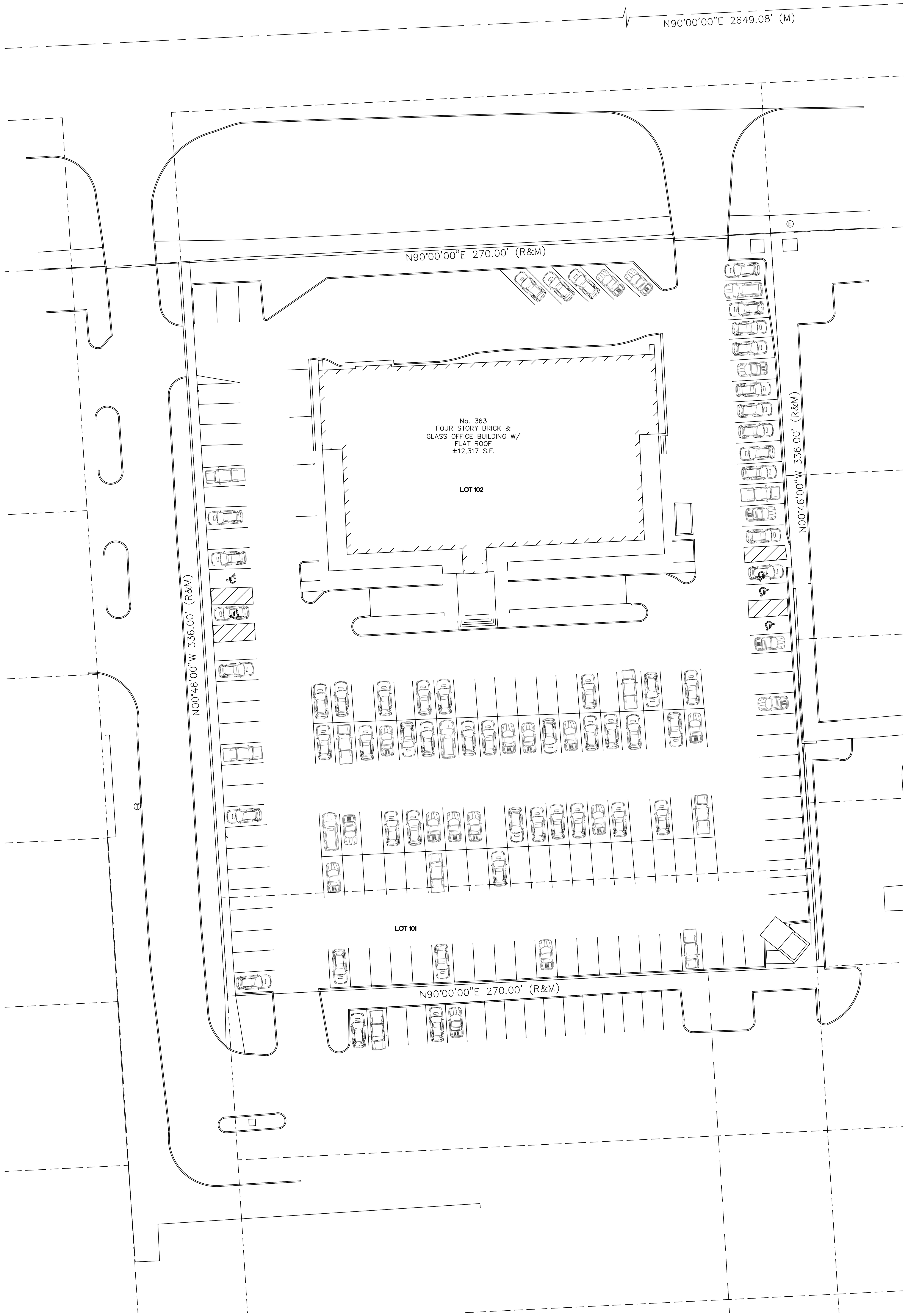
04/16/2024

OWNER / OWNER'S AGENT APPROVED & ACCEPTED

_____ DATE:___/___/2024

SHEET #

A-12A



TOTAL SPACES EXCL. OVERFLOW: 164
TOTAL SPACES INCL. OVERFLOW: 181

OCCUPIED SPACES EXCL. OVERFLOW: 79
OCCUPIED SPACES INCL. OVERFLOW: 83

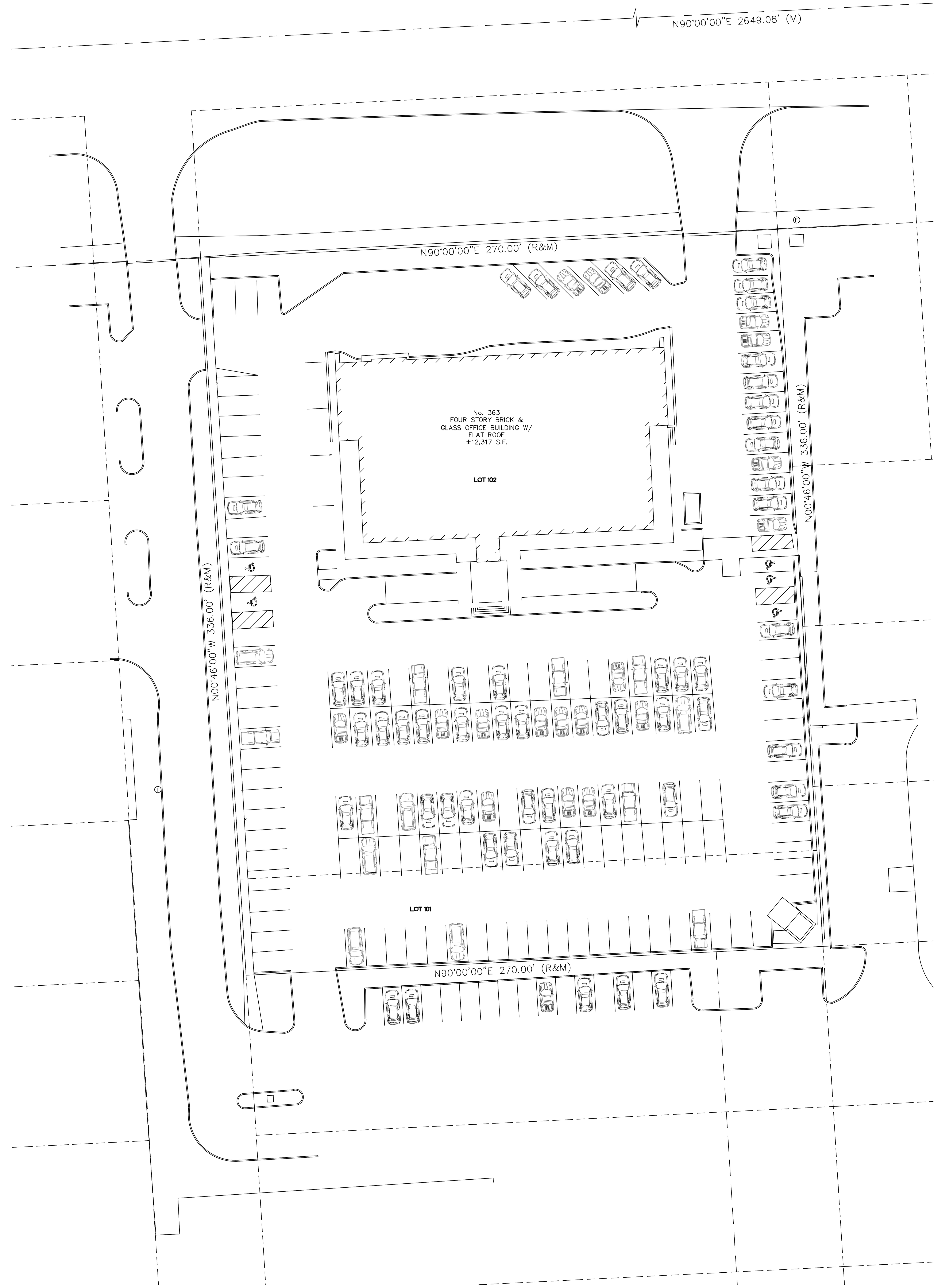
% OCCUPIED EXCL. OVERFLOW: 51
% OCCUPIED INCL. OVERFLOW: 49

NORTH

ACTUAL PARKING CONDITIONS - 10:30 AM

SCALE: 1" = 30'-0"

ACTUAL OBSERVED DATE/TIME: TUES., 04.09.2024 10:32-10:37 AM



TOTAL SPACES EXCL. OVERFLOW: 164
TOTAL SPACES INCL. OVERFLOW: 181

OCCUPIED SPACES EXCL. OVERFLOW: 83
OCCUPIED SPACES INCL. OVERFLOW: 89

% OCCUPIED EXCL. OVERFLOW: 51
% OCCUPIED INCL. OVERFLOW: 49

NORTH

ACTUAL PARKING CONDITIONS - 11:30 AM

SCALE: 1" = 30'-0"

ACTUAL OBSERVED DATE/TIME: THUR., 04.04.2024 11:10-11:14 AM

MARUSICH
ARCHITECTURE

36880 WOODWARD AVENUE
BLOOMFIELD HILLS, MI 48304
SUITE 100

OFFICE: (248) 792-2949
CELL: (313) 482-0645

www.marusicharchitecture.com
johnm.marusicharchitecture@gmail.com

OWNER

FRANK SIMON

PROJECT NAME

363 BIG BEAVER TOWER

ADDRESS
363 Big Beaver Rd
Troy, MI 48084

PROJECT # 23 - 82

ISSUE DATE # 11/29/2023

REVISION HISTORY

OWNER REVIEW	11/29/2023
OWNER REVIEW	01/26/2024
OWNER REVIEW	02/19/2024
OWNER REVIEW	03/04/2024
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PARKING ANALYSIS REV.	03/18/2024
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REVISED PLANS	05/31/2024
REVISED PLANS(MEETING)	06/04/2024
S.P.A. PLAN PACKAGE 2	06/20/2024

DRAWN BY: DL

CHECKED BY: JM

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PARKING ANALYSIS (2 OF 6)

SEAL

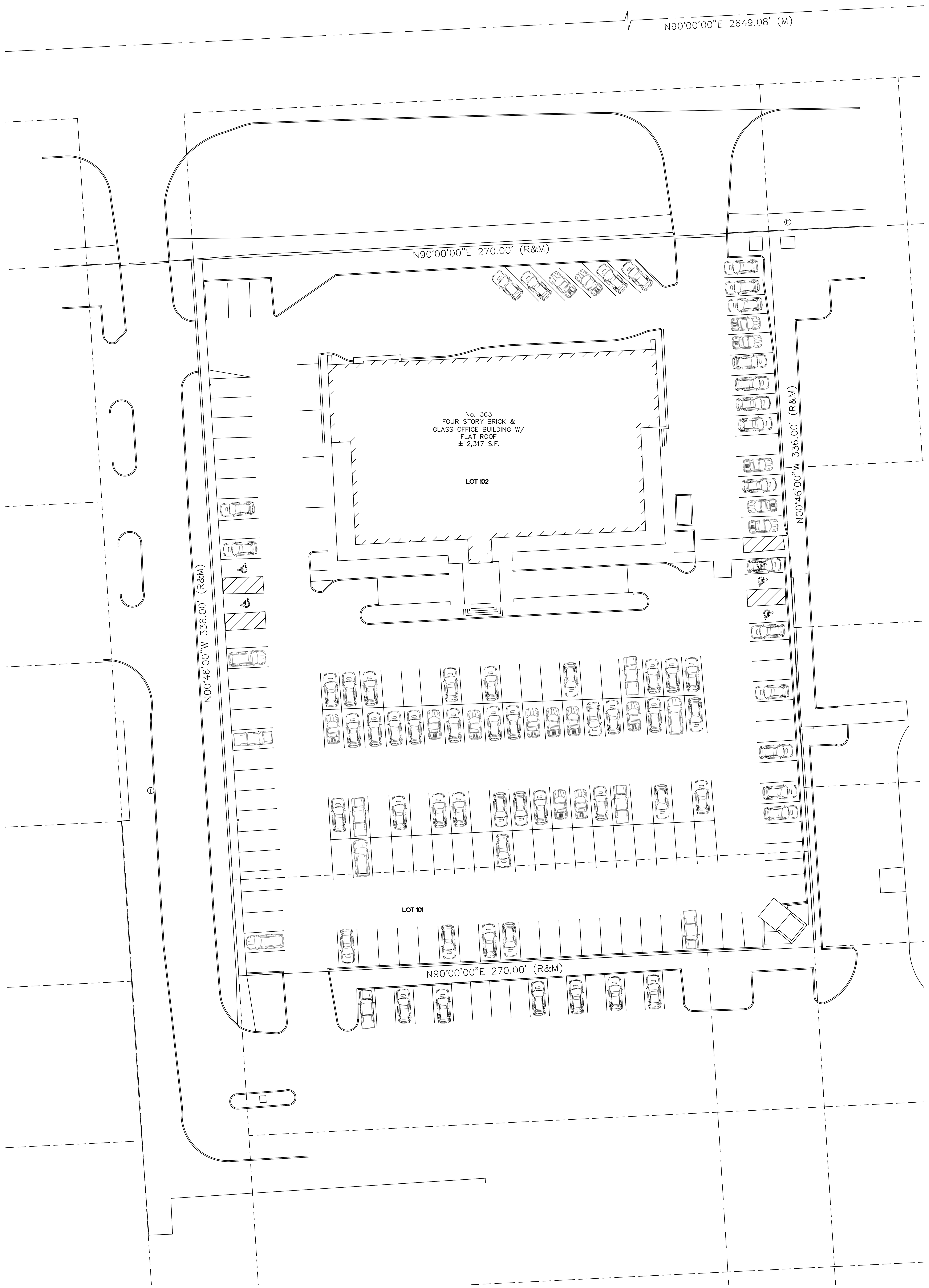
04/16/2024

OWNER / OWNER'S AGENT APPROVED & ACCEPTED

DATE:___/___/2024

SHEET #

A-12B



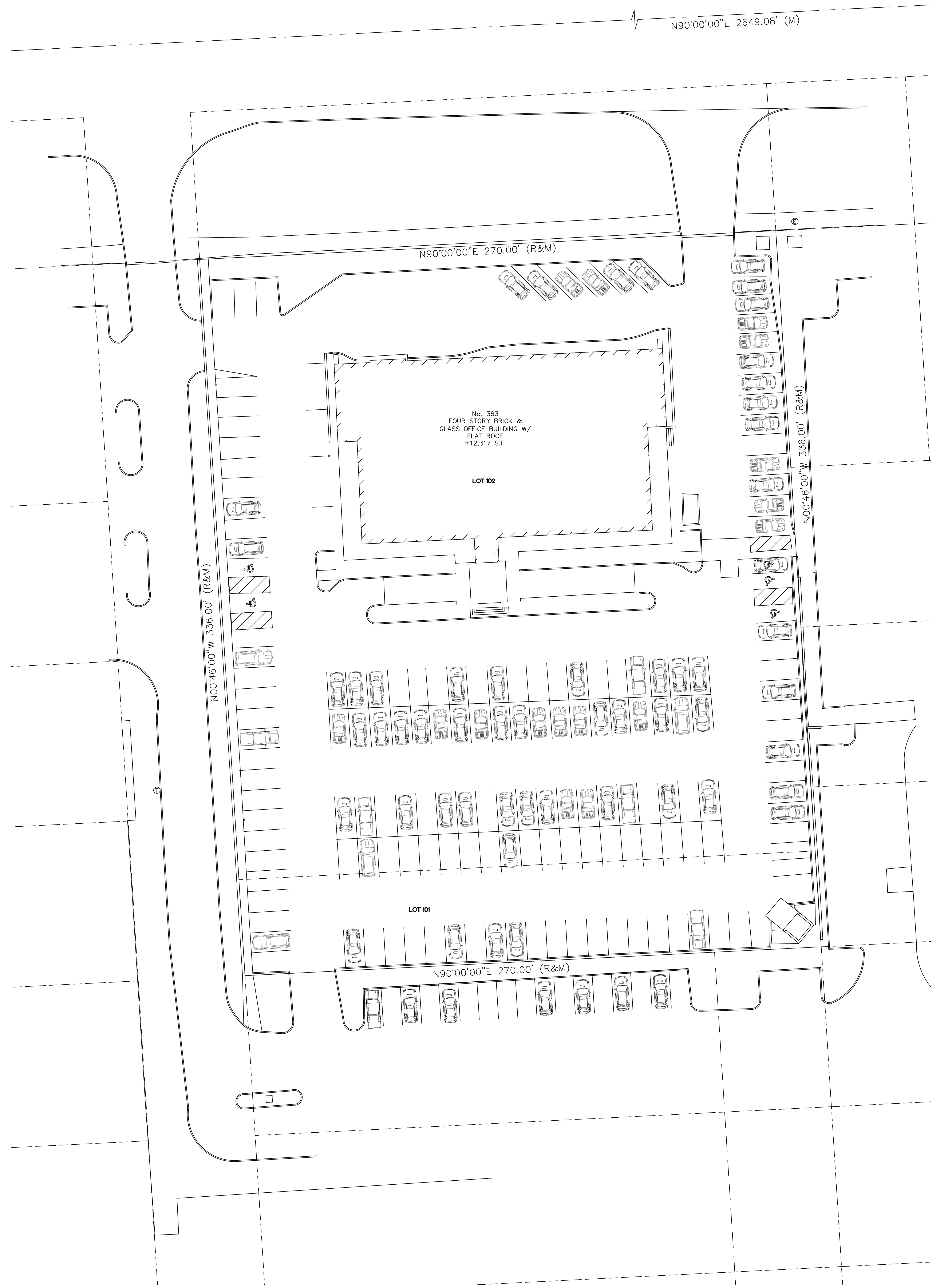
TOTAL SPACES EXCL. OVERFLOW: 164
TOTAL SPACES INCL. OVERFLOW: 181
OCCUPIED SPACES EXCL. OVERFLOW: 80
OCCUPIED SPACES INCL. OVERFLOW: 86
% OCCUPIED EXCL. OVERFLOW: 49
% OCCUPIED INCL. OVERFLOW: 48

ACTUAL PARKING CONDITIONS - 12:30 PM

SCALE: 1" = 30'-0"

NORTH

ACTUAL OBSERVED DATE/TIME: THUR., 04.04.2024 12:29-12:31 PM



TOTAL SPACES EXCL. OVERFLOW: 164
TOTAL SPACES INCL. OVERFLOW: 181
OCCUPIED SPACES EXCL. OVERFLOW: 79
OCCUPIED SPACES INCL. OVERFLOW: 86
% OCCUPIED EXCL. OVERFLOW: 48
% OCCUPIED INCL. OVERFLOW: 48

ACTUAL PARKING CONDITIONS - 1:30 PM

SCALE: 1" = 30'-0"

NORTH

ACTUAL OBSERVED DATE/TIME: THUR., 04.04.2024 1:26-1:31 PM

MARUSICH
ARCHITECTURE

36880 WOODWARD AVENUE
BLOOMFIELD HILLS, MI 48304
SUITE 100

OFFICE: (248) 792-2949
CELL: (313) 482-0645

www.marusicharchitecture.com
johnm.marusicharchitecture@gmail.com

OWNER

FRANK SIMON

PROJECT NAME

363 BIG BEAVER TOWER

ADDRESS
363 Big Beaver Rd
Troy, Mi 48084

PROJECT # 23 - 82

ISSUE DATE # 11/29/2023

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REVISED PLANS(MEETING)	06/04/2024
S.P.A. PLAN PACKAGE 2	06/20/2024

DRAWN BY: DL

CHECKED BY: JM

SHEET CONTENTS

PARKING ANALYSIS
(3 OF 6)

SEAL

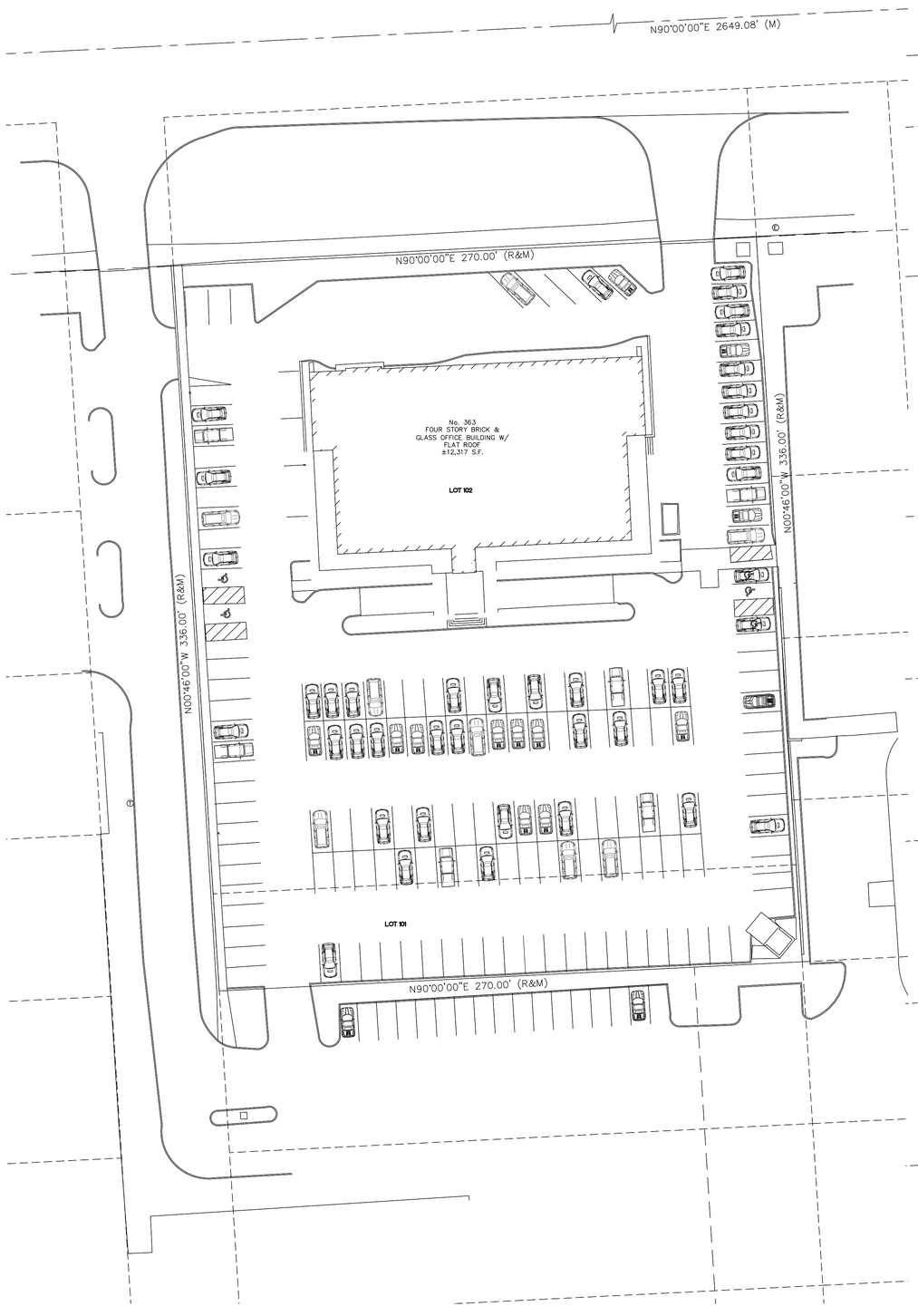
STATE OF MICHIGAN
JOHN E. MARUSICH
License No. 1301035747
LICENSED ARCHITECT

04/16/2024

OWNER / OWNER'S AGENT APPROVED & ACCEPTED

________________ DATE:___/___/2024

SHEET #
A-12C



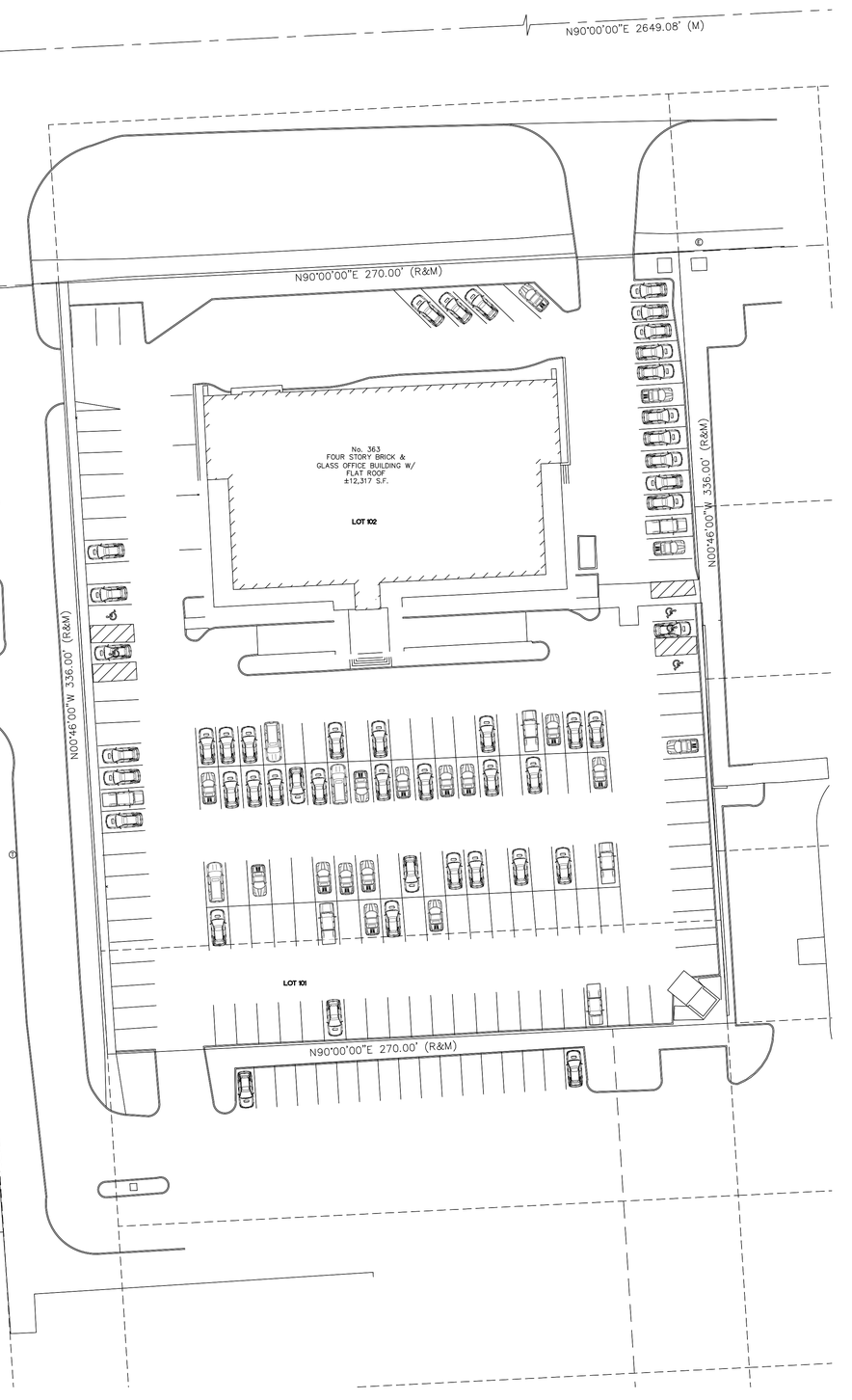
TOTAL SPACES EXCL. OVERFLOW: 164 OCCUPIED SPACES EXCL. OVERFLOW: 69 % OCCUPIED EXCL. OVERFLOW: 42
TOTAL SPACES INCL. OVERFLOW: 181 OCCUPIED SPACES INCL. OVERFLOW: 71 % OCCUPIED INCL. OVERFLOW: 39

ACTUAL PARKING CONDITIONS - 2:30 PM

SCALE: 1" = 30'-0"

ACTUAL OBSERVED DATE/TIME: WED., 04.10.2024 2:29-2:33 PM

NORTH



TOTAL SPACES EXCL. OVERFLOW: 164 OCCUPIED SPACES EXCL. OVERFLOW: 71 % OCCUPIED EXCL. OVERFLOW: 43
TOTAL SPACES INCL. OVERFLOW: 181 OCCUPIED SPACES INCL. OVERFLOW: 73 % OCCUPIED INCL. OVERFLOW: 40

ACTUAL PARKING CONDITIONS - 3:30 PM

SCALE: 1" = 30'-0"

ACTUAL OBSERVED DATE/TIME: TUES., 04.09.2024 3:30-3:33 PM

NORTH

MARUSICH ARCHITECTURE

36880 WOODWARD AVENUE
BLOOMFIELD HILLS, MI 48304
SUITE 100

OFFICE: (248) 792-2949
CELL: (313) 482-0645

www.marusicharchitecture.com
johnm.marusicharchitecture@gmail.com

OWNER

FRANK SIMON

PROJECT NAME

363 BIG BEAVER TOWER

ADDRESS
363 Big Beaver Rd
Troy, MI 48084

PROJECT # 23 - 82

ISSUE DATE # 11/29/2023

REVISION HISTORY

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S.P.A. PLAN PACKAGE	04/16/2024
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CHECKED BY: JM

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PARKING ANALYSIS (4 OF 6)

SEAL

STATE OF MICHIGAN
JOHN MARUSICH
LICENSED
ARCHITECT
REGISTERED ARCHITECT

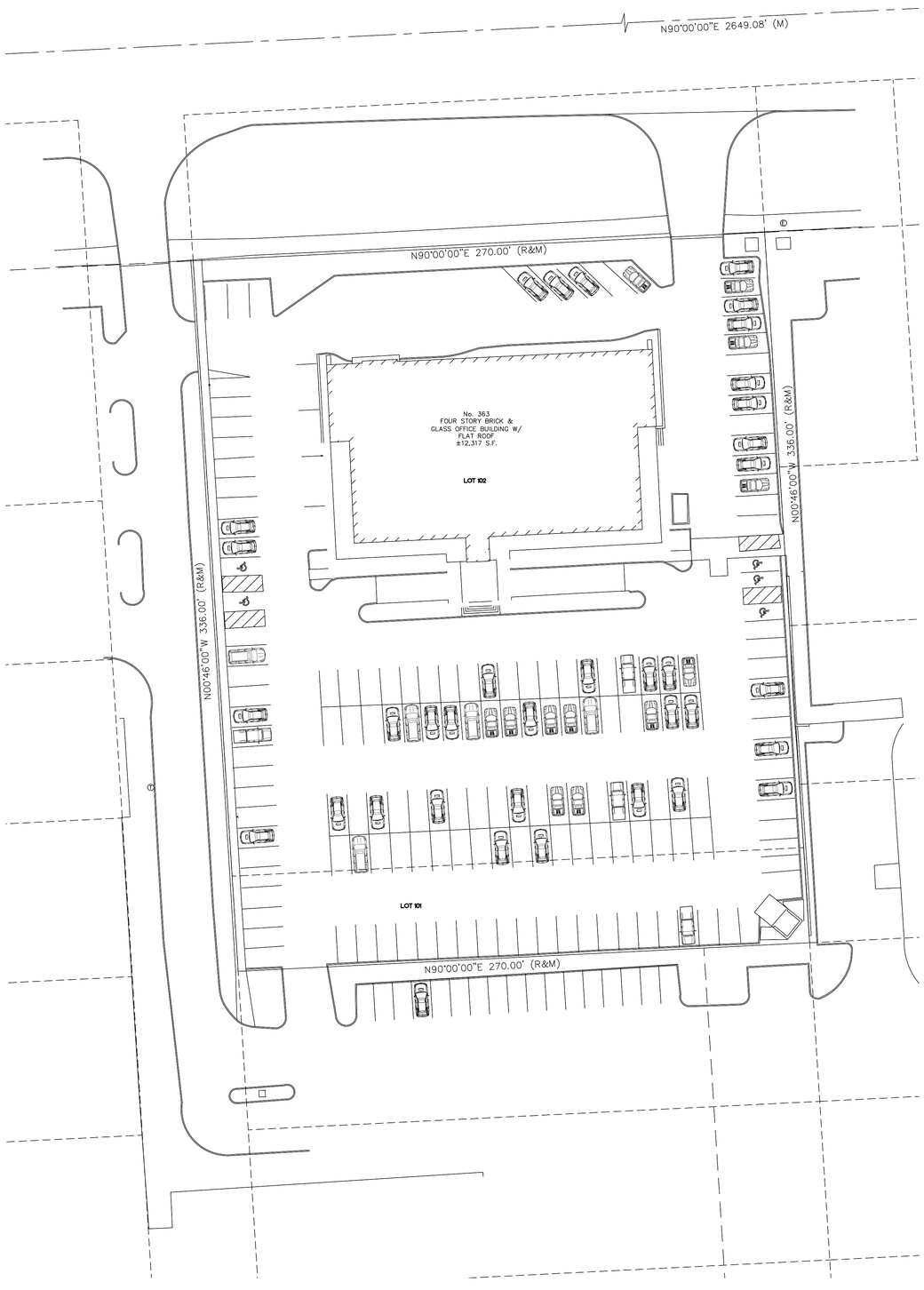
04/16/2024

OWNER / OWNER'S AGENT APPROVED & ACCEPTED

_____ DATE:___/___/2024

SHEET #

A-12D



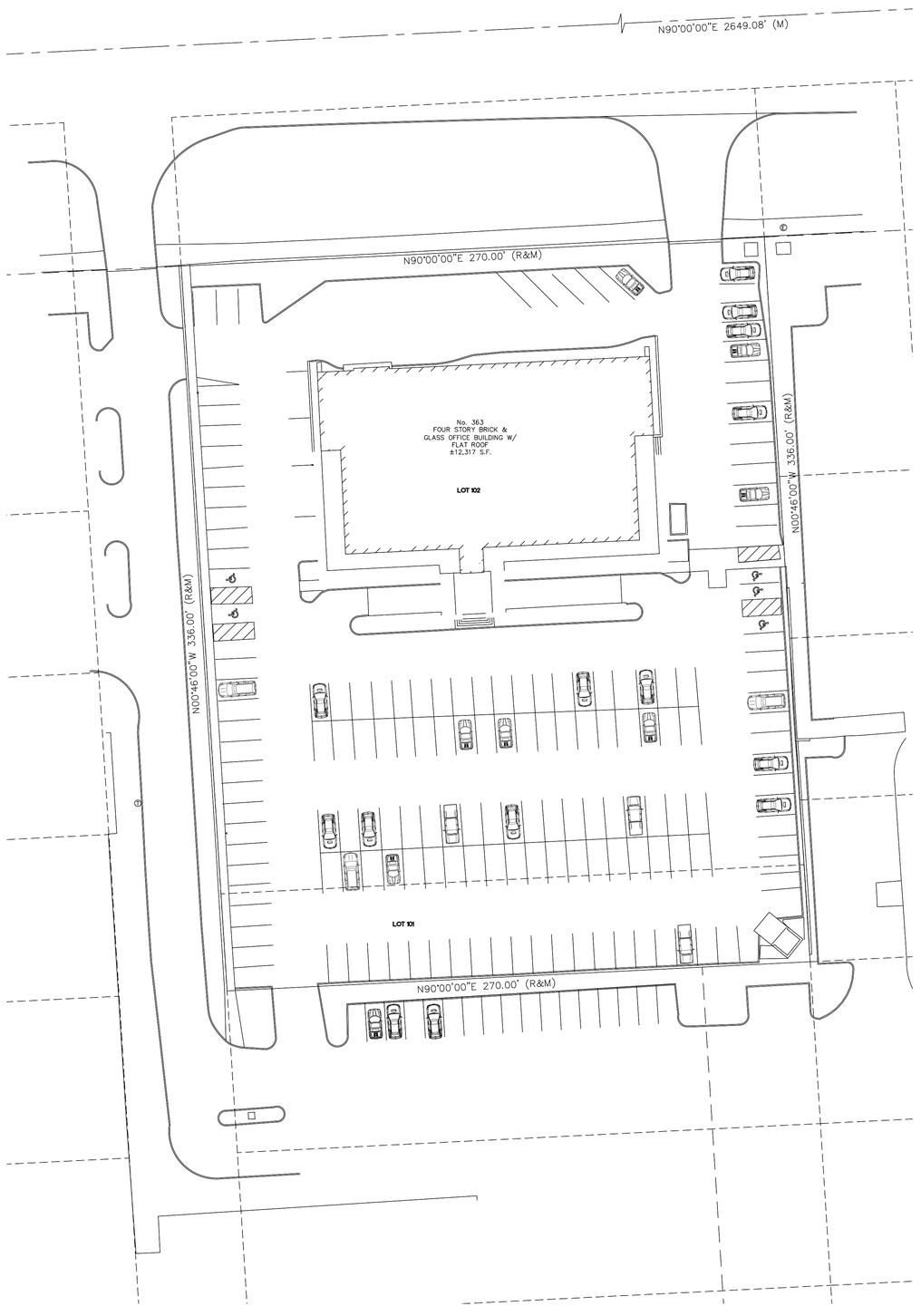
TOTAL SPACES EXCL. OVERFLOW: 164 OCCUPIED SPACES EXCL. OVERFLOW: 56 % OCCUPIED EXCL. OVERFLOW: 34
TOTAL SPACES INCL. OVERFLOW: 181 OCCUPIED SPACES INCL. OVERFLOW: 59 % OCCUPIED INCL. OVERFLOW: 33

ACTUAL PARKING CONDITIONS - 4:30 PM

SCALE: 1" = 30'-0"

ACTUAL OBSERVED DATE/TIME: TUES., 04.02.2024 4:20-4:23 PM

NORTH



TOTAL SPACES EXCL. OVERFLOW: 164 OCCUPIED SPACES EXCL. OVERFLOW: 25 % OCCUPIED EXCL. OVERFLOW: 15
TOTAL SPACES INCL. OVERFLOW: 181 OCCUPIED SPACES INCL. OVERFLOW: 28 % OCCUPIED INCL. OVERFLOW: 15

ACTUAL PARKING CONDITIONS - 5:30 PM

SCALE: 1" = 30'-0"

ACTUAL OBSERVED DATE/TIME: TUES., 04.02.2024 5:20-5:22 PM

NORTH

MARUSICH ARCHITECTURE

36880 WOODWARD AVENUE
BLOOMFIELD HILLS, MI 48304
SUITE 100

OFFICE: (248) 792-2949
CELL: (313) 482-0645

www.marusicharchitecture.com
johnm.marusicharchitecture@gmail.com

OWNER

FRANK SIMON

PROJECT NAME

363 BIG BEAVER TOWER

ADDRESS
363 Big Beaver Rd
Troy, MI 48084

PROJECT #	23 - 82
ISSUE DATE #	11/29/2023

REVISION HISTORY

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DRAWN BY: DL

CHECKED BY: JM

SHEET CONTENTS

PARKING ANALYSIS (5 OF 6)

SEAL

STATE OF MICHIGAN
JOHN MARUSICH
LICENSED
ARCHITECT
REGISTERED ARCHITECT

04/16/2024

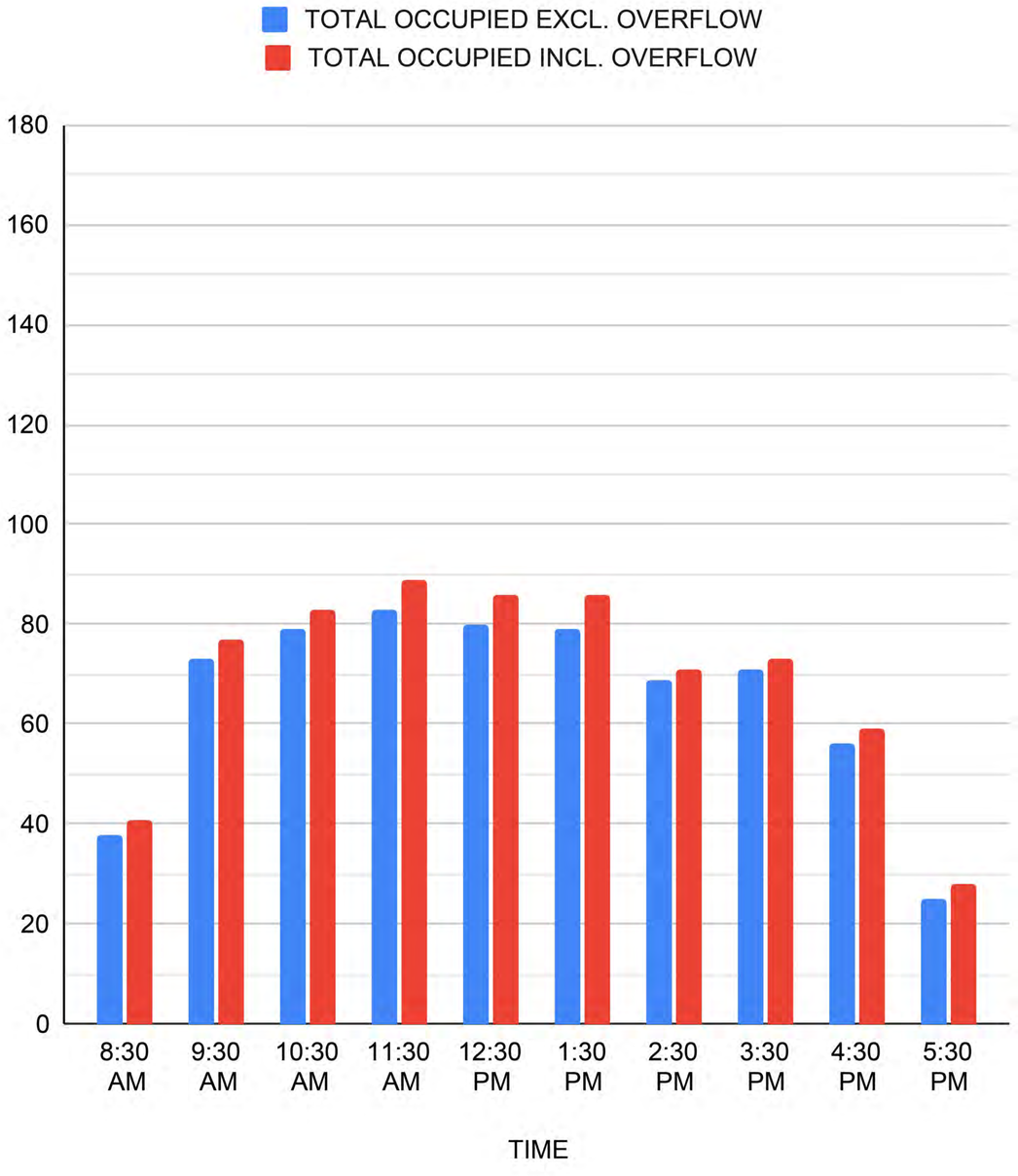
OWNER / OWNER'S AGENT APPROVED & ACCEPTED

_____ DATE:___/___/2024

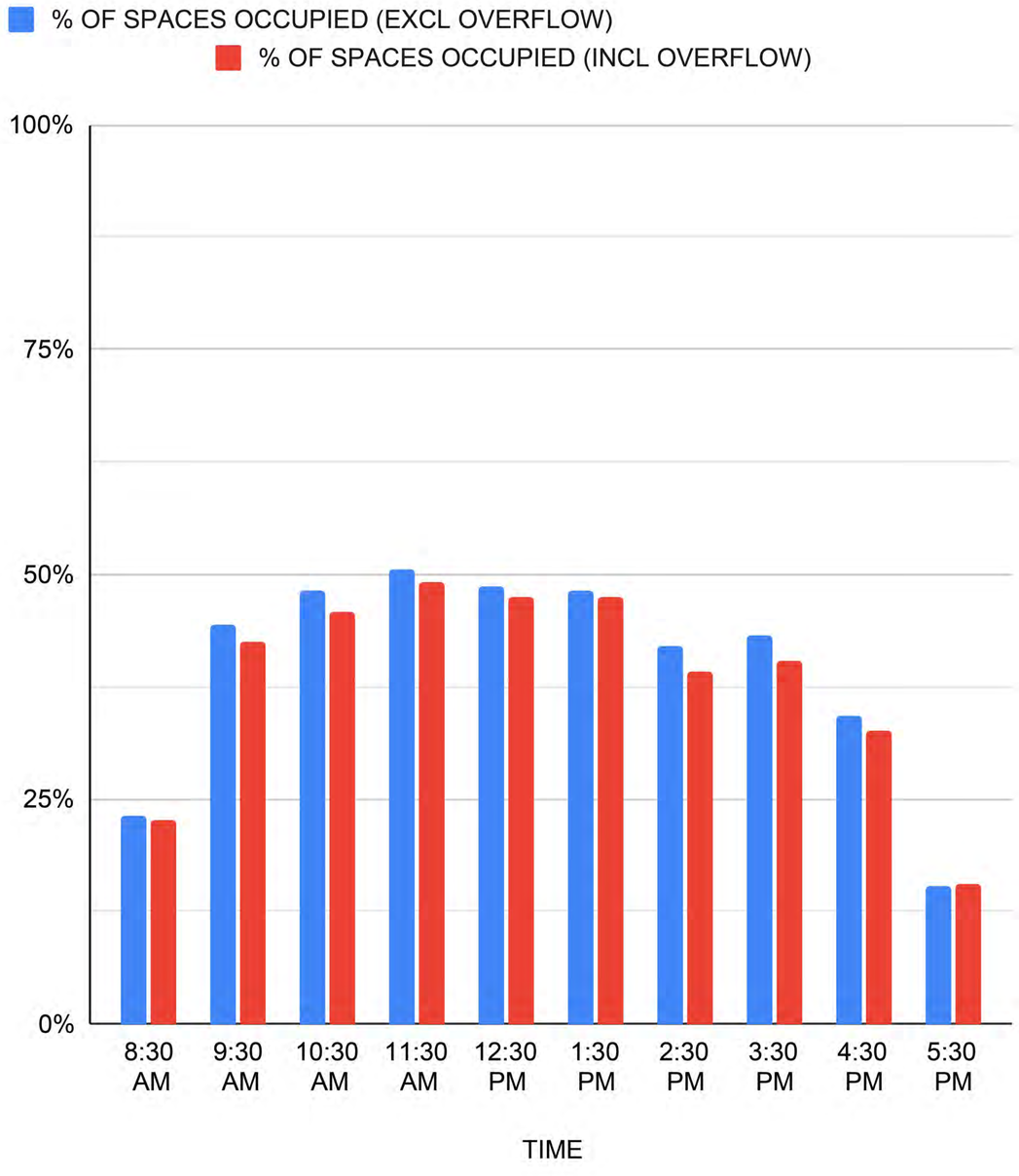
SHEET #

A-12E

TOTAL OCCUPIED EXCL. OVERFLOW and TOTAL OCCUPIED INCL. OVERFLOW



% OF SPACES OCCUPIED (EXCL OVERFLOW) and % OF SPACES OCCUPIED (INCL OVERFLOW)



TOTAL SPACES EXCL. OVERFLOW: 164
TOTAL SPACES INCL. OVERFLOW: 181

MARUSICH ARCHITECTURE

36880 WOODWARD AVENUE
BLOOMFIELD HILLS, MI 48304
SUITE 100

OFFICE: (248) 792-2949
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www.marusicharchitecture.com
johnm.marusicharchitecture@gmail.com

OWNER

FRANK SIMON

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363 BIG BEAVER TOWER

ADDRESS
363 Big Beaver Rd
Troy, MI 48084

PROJECT # 23 - 82

ISSUE DATE # 11/29/2023

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DRAWN BY: DL

CHECKED BY: JM

SHEET CONTENTS

PARKING ANALYSIS (6 OF 6)

SEAL

04/16/2024

OWNER / OWNER'S AGENT APPROVED & ACCEPTED

_____ DATE:___/___/2024

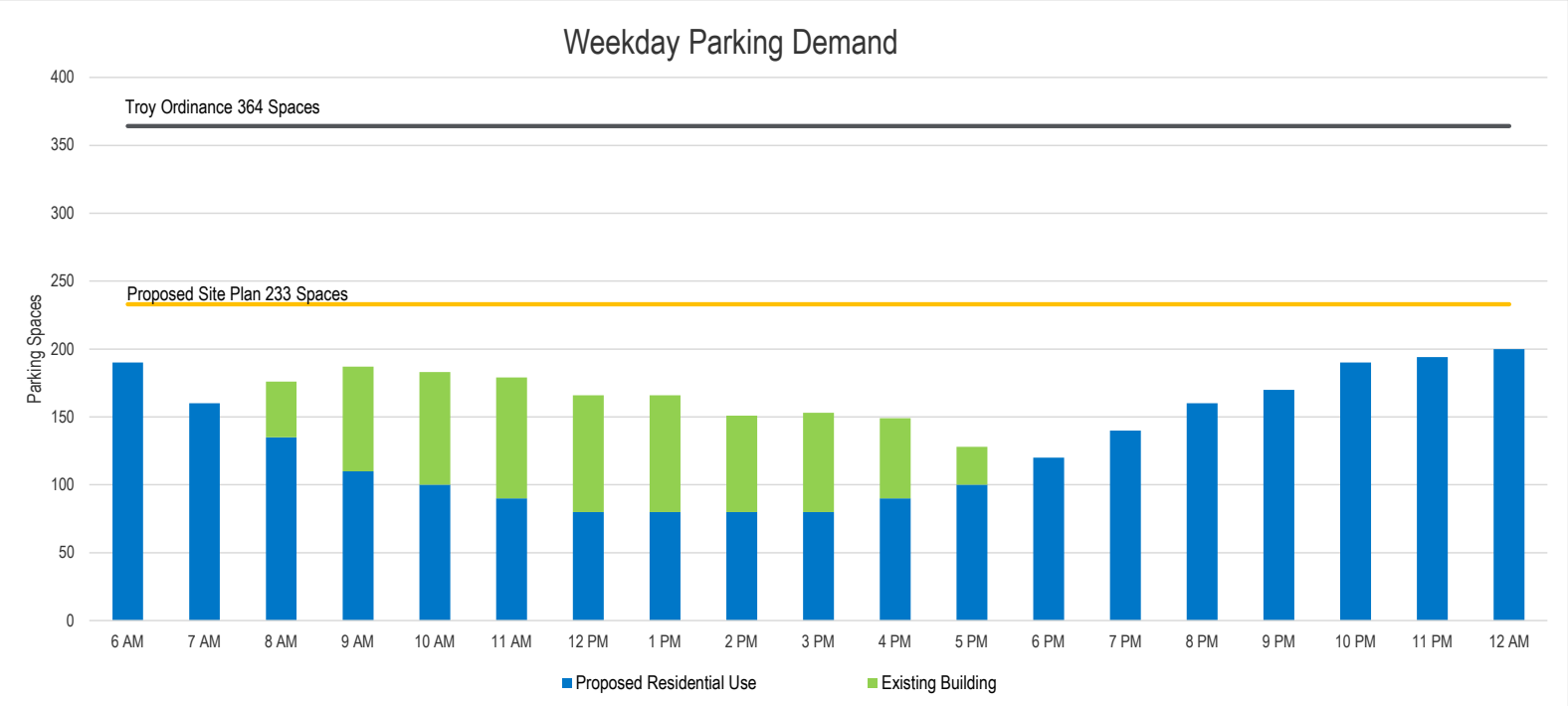
SHEET #

A-12F

Peak Month Data by Hour - Weekday																			
Land Use	6:00 AM	7:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM	5:00 PM	6:00 PM	7:00 PM	8:00 PM	9:00 PM	10:00 PM	11:00 PM	12:00 AM
Residential, Suburban	190	160	135	110	100	90	80	80	80	80	90	100	120	140	160	170	190	194	200
SUM	190	160	135	110	100	90	80	80	80	80	90	100	120	140	160	170	190	194	200

	Weekday	Weekend
January	200	200
February	200	200
March	200	200
April	200	200
May	200	200
June	200	200
July	190	190
August	190	190
September	200	200
October	200	200
November	200	200
December	200	200
Late December	200	200

Parking Demand	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	12 PM	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	11 PM	12 AM
Proposed Residential Use	190	160	135	110	100	90	80	80	80	80	90	100	120	140	160	170	190	194	200
Existing Building			41	77	83	89	86	86	71	73	59	28							
Total Parking Demand	*190*	*160*	*176*	*187*	*183*	*179*	*166*	*166*	*151*	*153*	*149*	*128*	*120*	*140*	*160*	*170*	*190*	*194*	*200*
Difference	43	73	57	46	50	54	67	67	82	80	84	105	113	93	73	63	43	39	33
Parking Lot Percent Occupancy	**82%**	**69%**	**76%**	**80%**	**79%**	**77%**	**71%**	**71%**	**65%**	**66%**	**64%**	**55%**	**52%**	**60%**	**69%**	**73%**	**82%**	**83%**	**86%**



GREEN WALL DETAIL

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

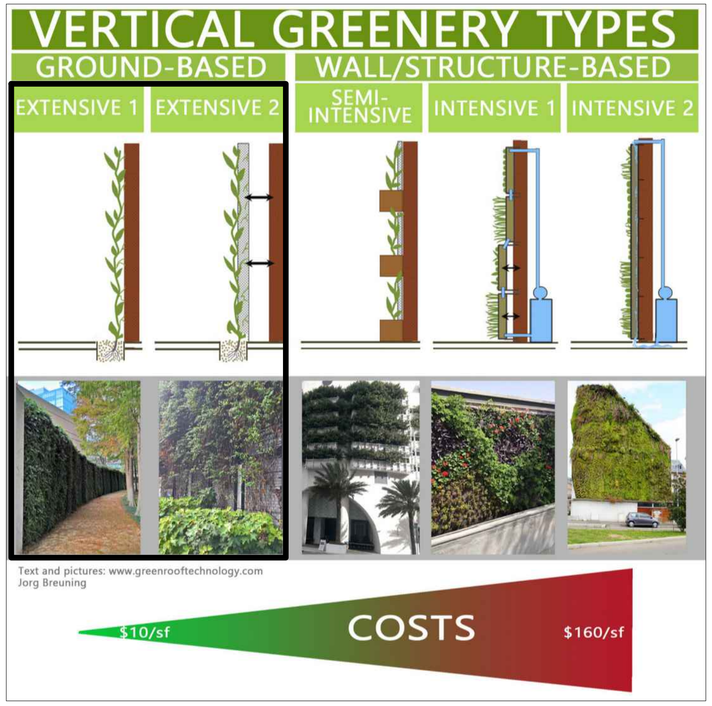
An Extensive Green Wall (Type 1)

Consists of a self-climber that goes up a structure on its own, as simple as that. This is possible for less than $100 and in around 2 years the plants cover 120-180sf of wall. Because there are choices, it can be a mix evergreen climbers or a summer green climber with flowers and fruits. Especially birds like to nest in these types of Green Walls. Surely, this increases diversity on all levels and over all levels of a structure. A preference for native-only plants in this type of Green Wall can be challenging. Because with urban heat island and climate extremes, a mix of plants can adjust accordingly. At a later time, self climbing Green Walls offer a structure for vines that needs to grab on something. A naturally trellis without ropes, wires.

Extensive Green Walls (Type 2)

Require a structure to grab onto. Of course, such a structure is also design element until it is covered by the vegetation. Thus, design options are unlimited from simple ropes, wires, meshes, and ornamental trellises. Overall an inexpensive solution where diversity and appearance literally grow overtime.

In contrast to other solutions **Extensive Green Walls (Type 1 and 2)** have the highest ecological and economical benefits. The key benefits of these types of Green Walls are the low installation and maintenance costs. The are affordable for all building owners and the longevity is as long as the structure will last.



MARUSICH ARCHITECTURE

36880 WOODWARD AVENUE
BLOOMFIELD HILLS, MI 48304
SUITE 100

OFFICE: (248) 792-2949
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johnm.marusicharchitecture@gmail.com

OWNER

FRANK SIMON

PROJECT NAME

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Troy, Mi 48084

PROJECT #	**23 - 82**
ISSUE DATE #	**11/29/2023**

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S.P.A. PLAN PACKAGE 2.1	08/30/2024
S.P.A. PLAN PACKAGE 2.2	11/12/2024
POST ZBA S.P.A. PLAN PKG	05/28/2025

DRAWN BY:	**DC**
CHECKED BY:	**JM**

SHEET CONTENTS

GREEN WALL DETAIL

SEAL

05/28/2025

OWNER / OWNER'S AGENT APPROVED & ACCEPTED

_____ DATE:___/___/2024

SHEET #

A-13


363 EAST
ONE WAY
MARUSICH
ARCHITECTURE


IPS
363 EAST
SLOW
MARUSICH
ARCHITECTURE

MARUSICH
ARCHITECTURE


SLOW
PEDESTRIAN CROSSING
SLOW
PEDESTRIAN CROSSING
SUPERIOR
NATIONAL BANK
Infusion
ASSOCIATES
MY FOREVER SMILE
BRACES SYSTEM
Nexus
Behavioral Health PLLC
363
MARUSICH
ARCHITECTURE

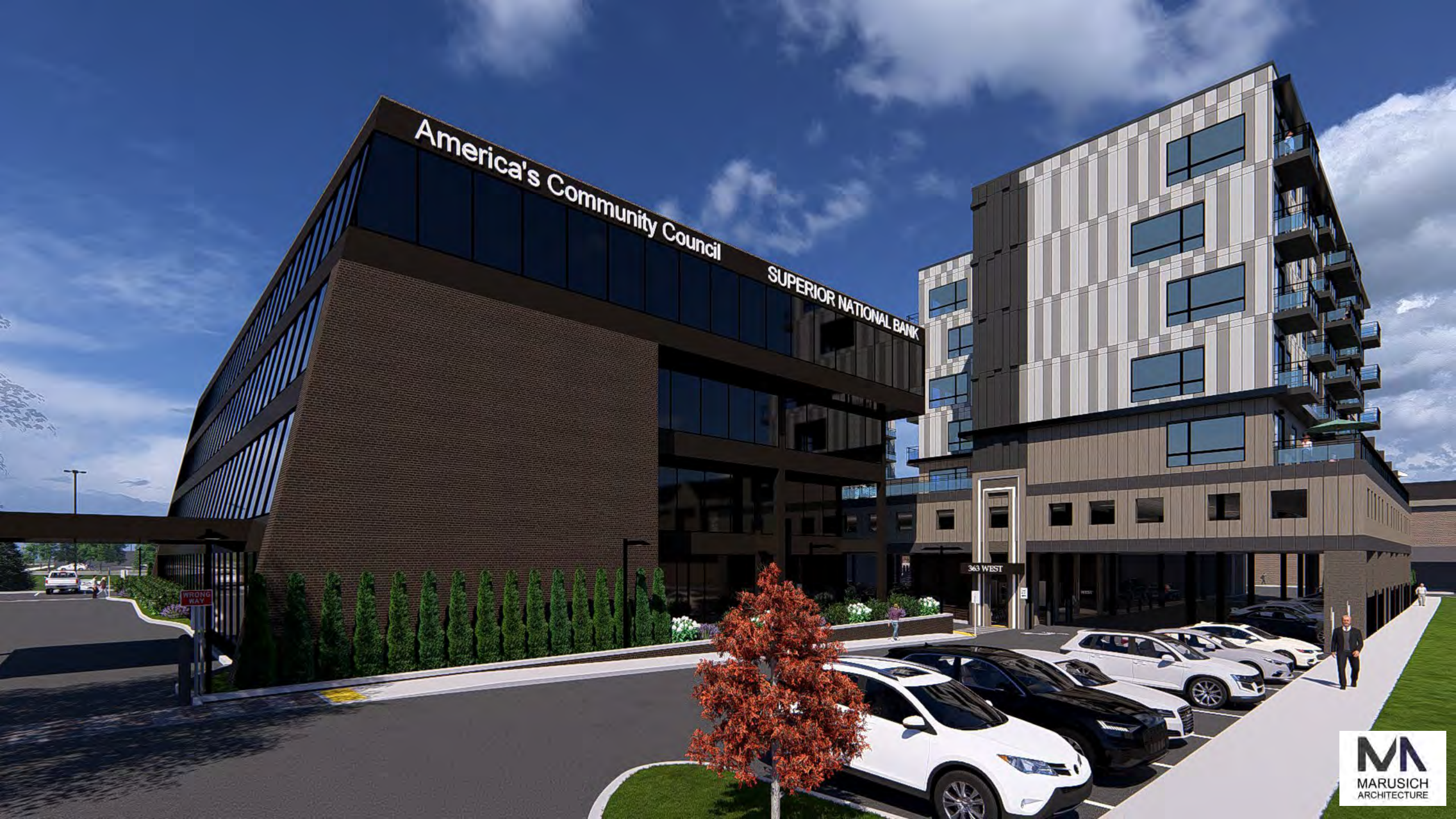

363 EAST
MARUSICH
ARCHITECTURE


363 EAST
WRONG WAY
WRONG WAY
ONE WAY
MARUSICH ARCHITECTURE

MARUSICH
ARCHITECTURE


363 EAST
MARUSICH
ARCHITECTURE


SUPERIOR
NATIONAL BANK
Infusion
ASSOCIATES
MY FOREVER SMILE
Nexus
363
353 WEST
MARUSICH
ARCHITECTURE


America's Community Council
SUPERIOR NATIONAL BANK
363 WEST
WRONG WAY
MARUSICH
ARCHITECTURE

MARUSICH
ARCHITECTURE

MARUSICH
ARCHITECTURE

MARUSICH
ARCHITECTURE


363 WEST


MARUSICH
ARCHITECTURE


MARUSICH
ARCHITECTURE

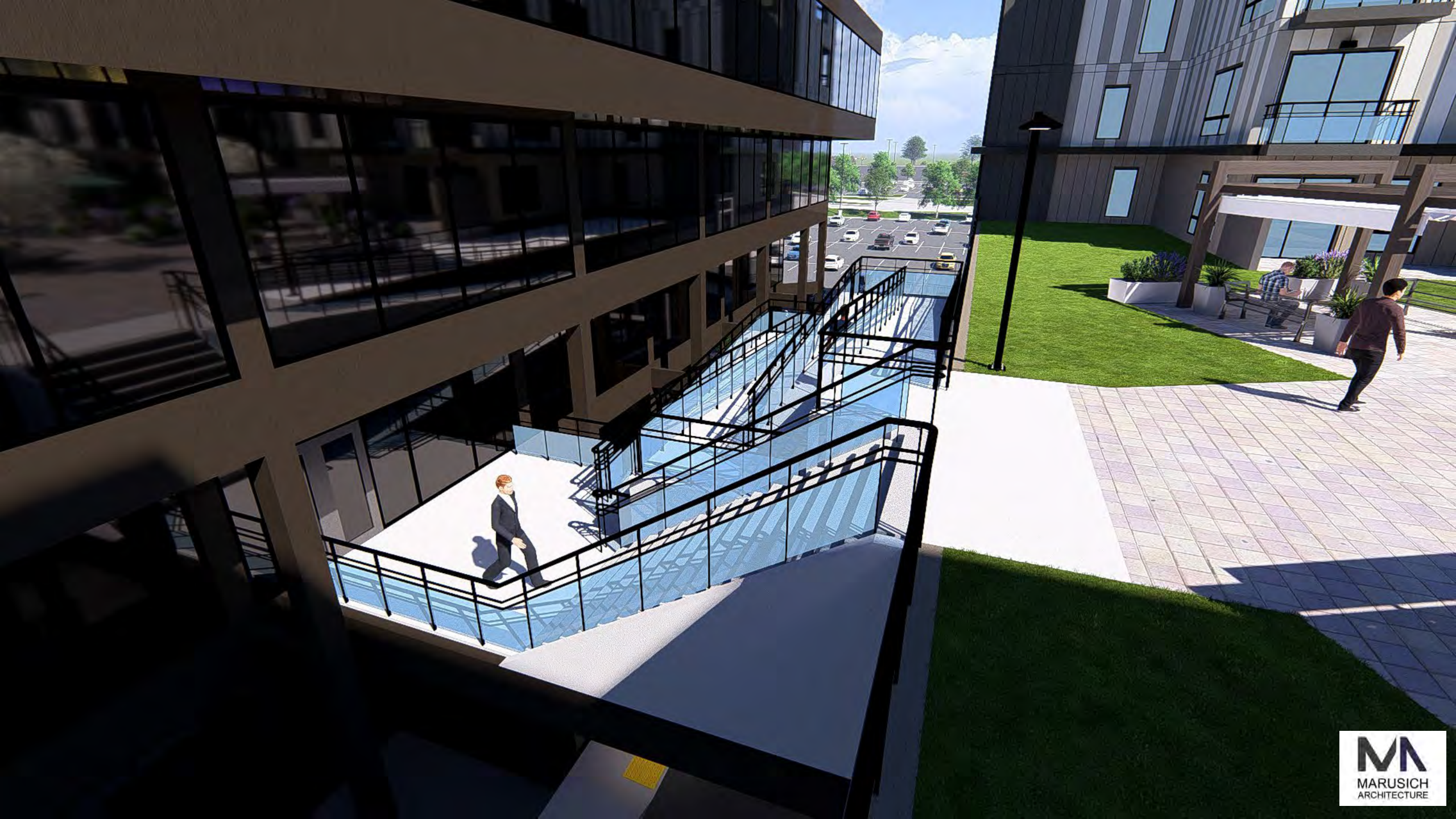

MARUSICH
ARCHITECTURE


MARUSICH
ARCHITECTURE


OR NATIONAL BANK
MARUSICH
ARCHITECTURE


MARUSICH
ARCHITECTURE


MARUSICH
ARCHITECTURE


MARUSICH
ARCHITECTURE


MARUSICH
ARCHITECTURE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ARCHITECTURE


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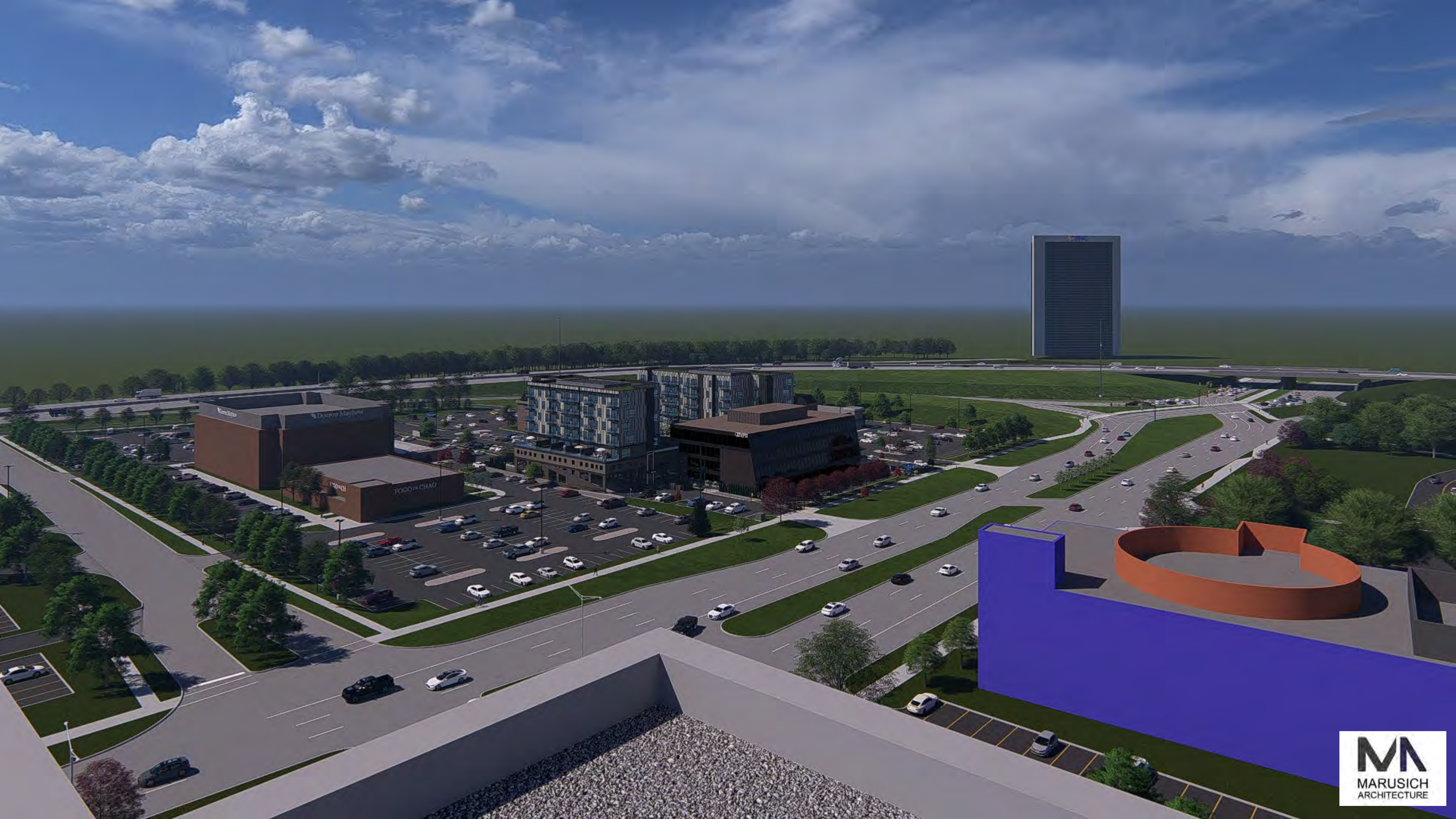
ARCHITECTURE


MARUSICH
ARCHITECTURE

MARUSICH
ARCHITECTURE


PNC
MARUSICH
ARCHITECTURE


FOGO DE CHAO
MARUSICH
ARCHITECTURE


IPS
MARUSICH
ARCHITECTURE


Doeren Mayhew
MARUSICH
ARCHITECTURE


MARUSICH
ARCHITECTURE


MARUSICH
ARCHITECTURE


Doeren Mayhew
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ARCHITECTURE


MARUSICH
ARCHITECTURE


MARUSICH
ARCHITECTURE


MARUSICH
ARCHITECTURE


MARUSICH
ARCHITECTURE

memorandum

Date: January 17, 2025

To: Scott Finlay, PE
CC: Sara Merrill, PE, PTOE
From: Stephen Dearing, PE, PTOE & Lauren Hull, EIT, RSP_1

Re: Proposed 363 Big Beaver Residential Development Shared Parking & Site Plan Review

We have reviewed the shared parking study and site plan for the proposed 363 Big Beaver residential development in Troy, Michigan. The study was prepared by Fleis & VandenBrink and is dated April 15th, 2024. The site plan was prepared by Marusich Architecture and is dated November 12th, 2024.

OHM recommends the site plan be revised and resubmitted. OHM generally accepts the conclusions of the parking study, subject to the corrections noted below. OHM's comments are as follows:

1. Parking Study:

    a. How are the parking requirements going to be met during construction? Ample parking must be supplied at all times including during construction. This includes parking dedicated for construction workers, equipment, etc. The parking study and calculations need to evaluate the interim period.

    b. Since this development proposes to use a portion of the parking lot on the adjacent lot, the 575 Big Beaver site should also be evaluated to ensure there is adequate parking provided there as well.

    c. There needs to be some policy and/or wayfinding that tells people from the 363 Big Beaver site where they are allowed to park on the 575 Big Beaver site.

2. Site Plan:

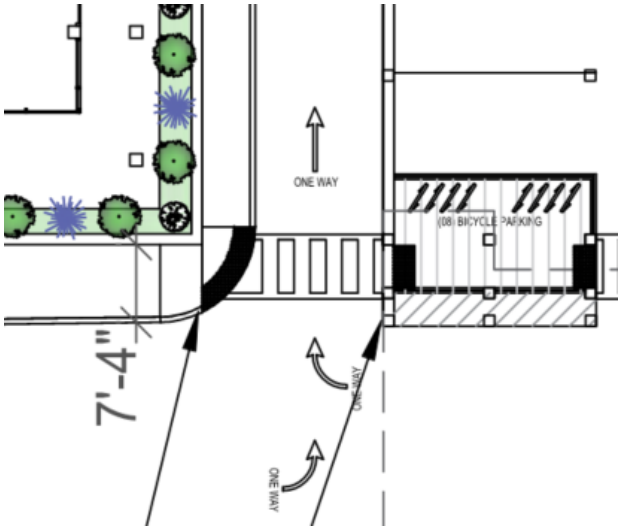
    a. The site plan shows a fence between this site and the designated exclusive and shared parking areas in easements on the adjacent site. Provide a pedestrian accessible route between the parking areas and site buildings.

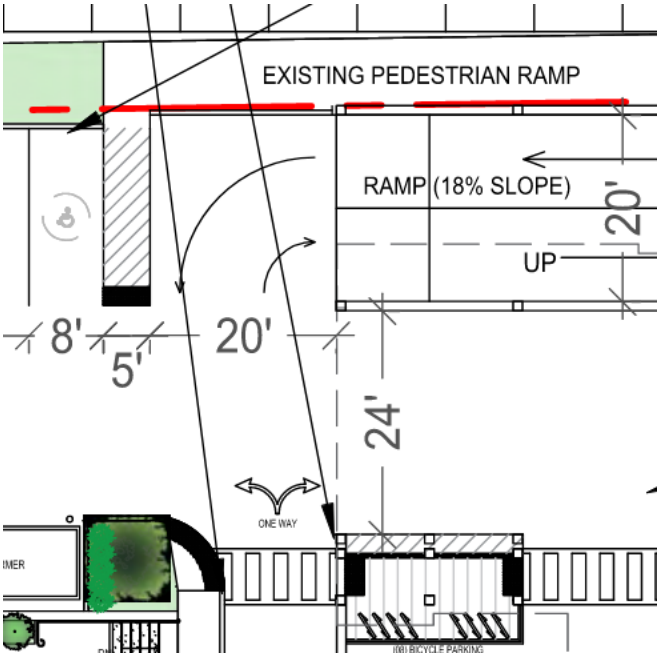
    b. There appears to be several sets of stairs to access the buildings. Ensure there are accessible routes to access all parking and the building itself, and that accessible parking spaces are located along so as not to require significant adverse travel.

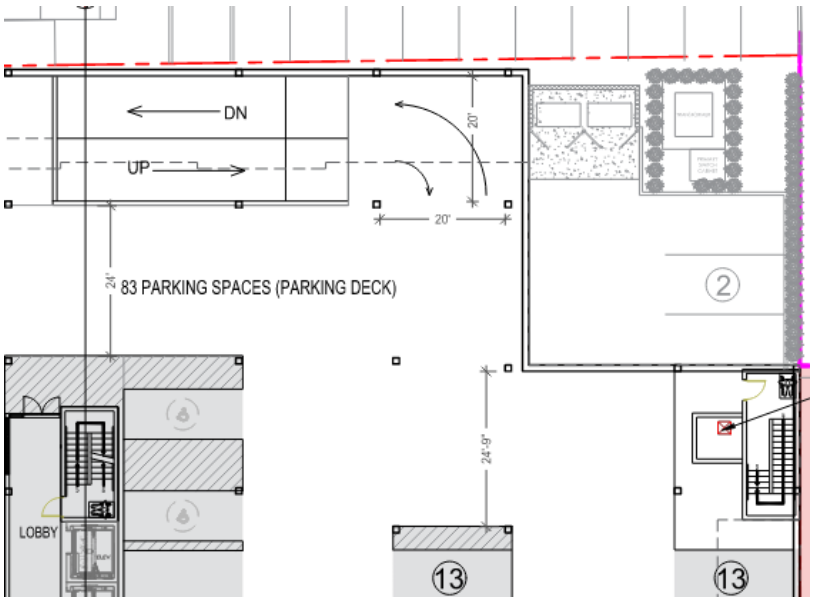
    c. Pedestrian sidewalks and walkways must be a minimum of 5' wide. The Level 1 plan shows some pedestrian routes dimensioned less than 5', with pillars that encroach further into the usable width.

    d. Sheet ST-1 appears to show truck turns along the perimeter of the site. However, the design vehicle type and dimensions are not clearly labeled, and it is unclear whether the City's fire apparatus can navigate as shown. We defer to the City Fire Department.

e. Provide vehicle turning template diagrams to verify the turning radius is large enough for vehicles to navigate turns within the site, including the parking ramps (see images below).






DN
UP
20'
20'
24'
83 PARKING SPACES (PARKING DECK)
2
24'-9"
LOBBY
13
13

ITEM #6

DATE: June 2, 2025

TO: Planning Commission

FROM: R. Brent Savidant, Community Development Director

SUBJECT: PRELIMINARY SITE PLAN REVIEW (SP JPLN2025-0008) – Proposed Maple Lane Apartment (AKA Troy Living) Development, South of Maple, West of Coolidge (1485 Maple Way), Section 31, Currently zoned IB (Integrated Industrial & Business) Zoning District.

The petitioner Secured Storage Acquisitions, LLC submitted the above referenced Preliminary Site Plan application for Troy Living. The applicant proposes a 4-story, 234-unit apartment building, with underground and surface parking. A storage facility presently sits on the property. Access to the facility is proposed to be via shared access with two existing commercial properties that front on Maple Road. Both properties are also owned by the applicant.

On April 24, 2025, the Sustainable Development Review Committee granted Prequalified Sustainable Development Project status to Troy Living (1485 Maple Way) to permit parking in the front yard in IB. The Planning Commission is authorized to grant Preliminary Site Plan Approval for this item.

The attached report prepared by Carlisle/Wortman Associates, Inc. (CWA), the City's Planning Consultant, summarizes the project. CWA prepared the report with input from various City departments including Planning, Engineering, Public Works and Fire. City Management supports the findings of fact contained in the report and the recommendations included therein.

Attachments:

1. Maps
2. Report prepared by Carlisle/Wortman Associates, Inc.
3. Minutes from April 24, 2025 Sustainable Development Review Committee meeting.
4. Preliminary Site Plan.
5. Traffic Impact Study, prepared by F & V, dated May 3, 2025.
6. Site Plan and Traffic Impact Study Review, prepared by OHM, dated May 1, 2025.

PROPOSED RESOLUTION

PRELIMINARY SITE PLAN REVIEW (SP JPLN2025-0008) – Proposed Maple Lane Apartment (AKA Troy Living) Development, South of Maple, West of Coolidge (1485 Maple Way), Section 31, Currently zoned IB (Integrated Industrial & Business) Zoning District.

Resolution # PC-2025-06-
Moved by:
Support by:

RESOLVED, That Preliminary Site Plan Approval, pursuant to Article 8 of the Zoning Ordinance, as requested for the proposed Maple Lane Apartment (AKA Troy Living) Development, South of Maple, West of Coolidge (1485 Maple Way), Section 31, approximately 6.02 acres in size, currently zoned IB, be (granted, subject to the following conditions):

1. Reduce lighting levels along all property lines to one (1) foot-candle or less.

_____) or

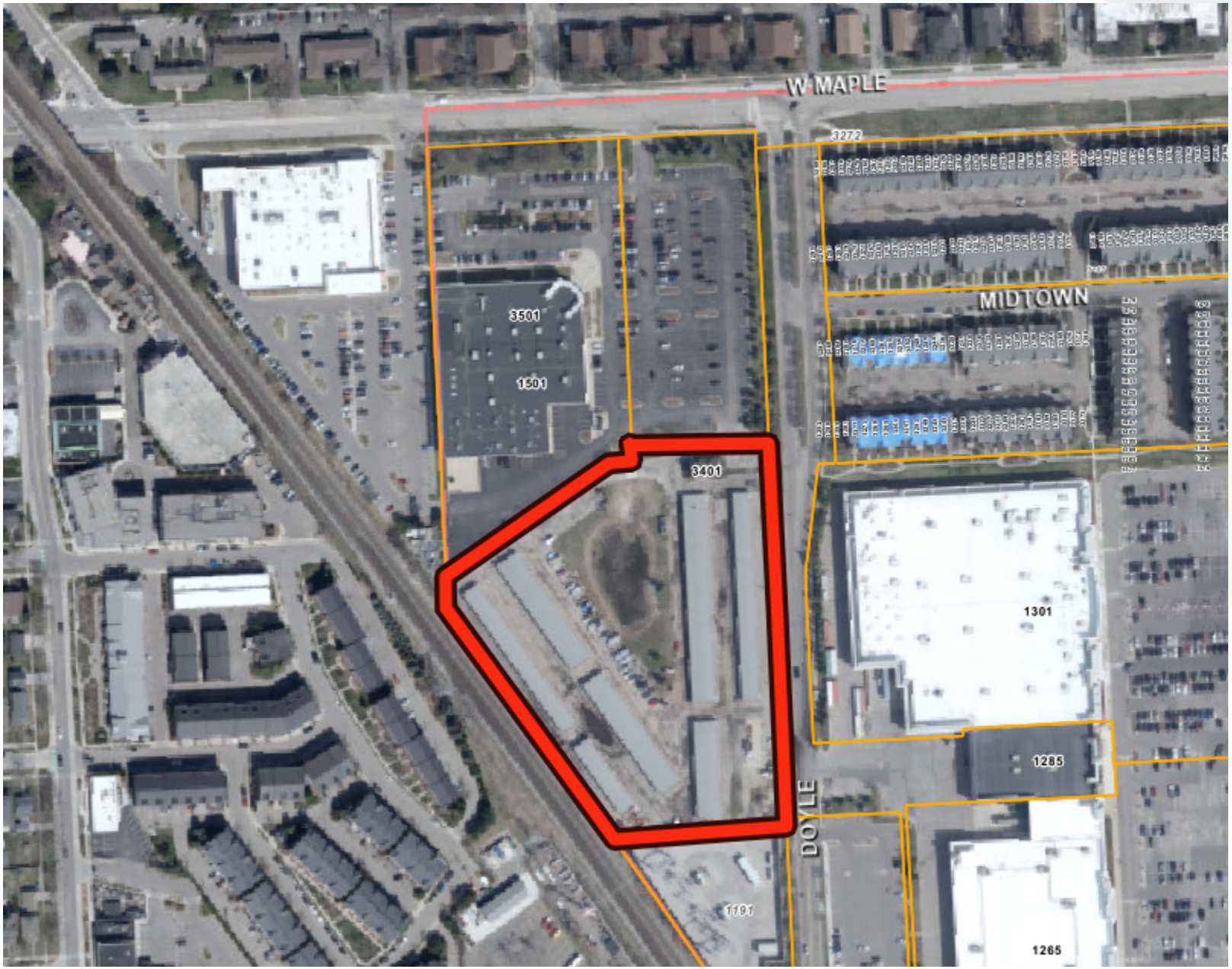
(denied, for the following reasons: _____) or

(postponed, for the following reasons:_____)

Yes:
No:
Absent:

MOTION CARRIED

GIS Online



Legend

Tax Parcels

Tax Parcel

0 350 700 ft

Print Date: 4/9/2025

Note: The information provided by this application has been compiled from recorded deeds, plats, tax maps, surveys, and other public records and data. It is not a legally recorded map survey. Users of this data are hereby notified that the source information represented should be consulted for verification.

GIS Online

Legend

Planning

Form Based Zoning

(IB) Integrated Industrial Business District

Tax Parcels

Tax Parcel

0 350 700 ft

Print Date: 4/9/2025

Note: The information provided by this application has been compiled from recorded deeds, plats, tax maps, surveys, and other public records and data. It is not a legally recorded map survey. Users of this data are hereby notified that the source information represented should be consulted for verification.

Carlisle | Wortman
ASSOCIATES, INC.
117 NORTH FIRST STREET SUITE 70 ANN ARBOR, MI 48104 734.662.2200 734.662.1935 FAX

Date: June 3, 2025

Preliminary Site Plan Review
For
City of Troy, Michigan

Project Name: Maple Lane Apartment Development

Plan Date: March 23, 2025

Location: 1485 Maple Lane Dr (south of Maple Rd, west of Doyle Dr)

Zoning: IB, Integrated Industrial and Business District

Action Requested: Preliminary Site Plan Approval

PROJECT AND SITE DESCRIPTION

An application has been submitted to construct a multiple-family residential development off Maple Lane Drive. The 6.0-acre site currently contains a storage facility (Secured Storage) with a large stormwater retention area in the center. The applicant proposes to redevelop the site with a 234-unit residential building with an underground parking garage. Site amenities include a dog park, pool/pool house, and additional outdoor amenity space (although details for the latter are unclear).

The subject site is zoned IB, Integrated Industrial and Business District, in which multiple-family residential is a permitted use.

Location of Subject Property:

Size of Subject Site:
6.02 acres

Proposed Use of Subject Parcel:
Multiple-family residential development (234 units)

Current Zoning:
IB, Integrated Industrial and Business District

Surrounding Property Details:

Direction	Zoning	Use
North	IB, Integrated Industrial and Business	Whole Foods
South	IB, Integrated Industrial and Business	Utility site
East	IB, Integrated Industrial and Business	Target & Dunham's Sports
West	City of Birmingham	Railroad tracks/City of Birmingham

NATURAL FEATURES

Topography: The site is largely paved with the exception of an existing stormwater retention area in the center.

Wetlands/Floodplain: The site is located in the 500-year floodplain. There are no wetlands.

Woodlands: A tree inventory and replacement plan are provided on Sheet T-1.0. Replacement details are outlined below.

Replacement Details		
Protected Tree	**Inches Removed**	**Replacement Required**
Landmark	0 inches	0 inches
Woodland	71 inches	36 inches
Preservation/Mitigation	**Inches Preserved**	**Credit**
Landmark	0 inches	0 inches
Woodland	0 inches	0 inches
Total	**Thirty-six (36) inches required for replacement.**	

Items to be Addressed: *None.*

SITE ARRANGEMENT

The new residential building (71,628 square feet) is located at the center of the site. Parking is located on all four (4) sides of the building, in addition to an underground parking garage. A ramp to reach the underground parking garage is located on the west side of the building. Amenities include a dog park in the northwest portion of the site, and an outdoor pool and pool house directly east of the dog park. A sidewalk system is provided around the residential building and the site amenities.

Items to be Addressed: *None.*

AREA, WIDTH, HEIGHT, SETBACKS

The dimensional requirements for the IB district are indicated below:

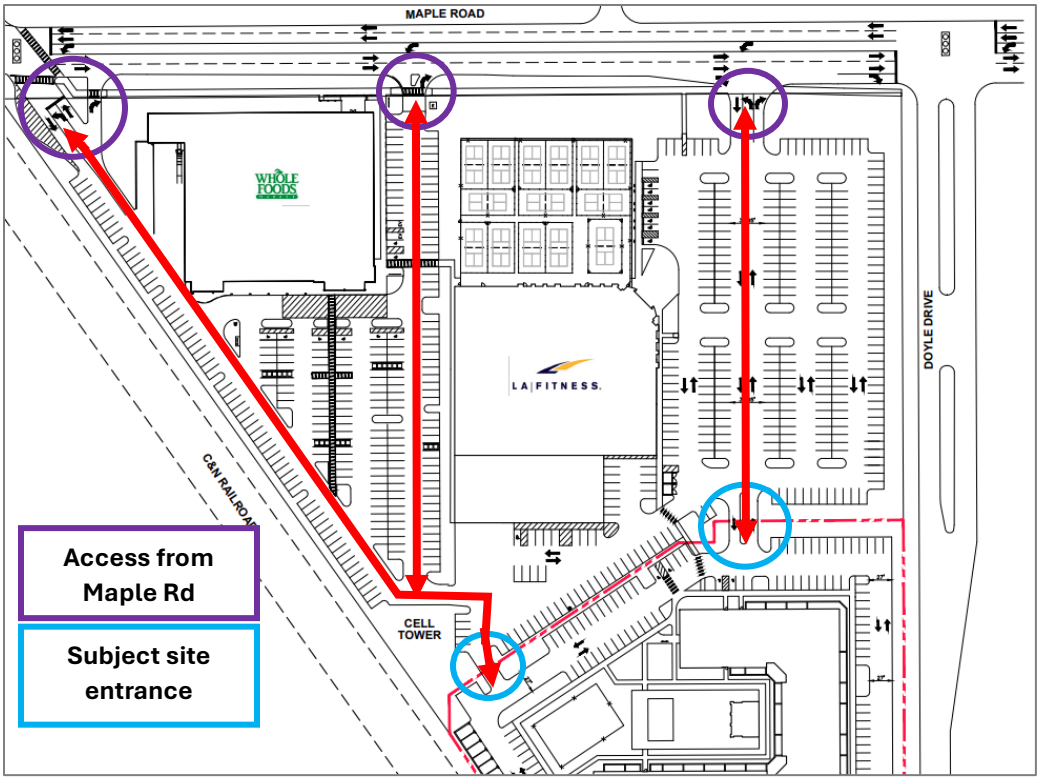
	Required	Provided	Compliance
Front Setback (north)	30 feet	66.61 feet	Complies
Side Setbacks (east, west)	10 feet	East: 76.49 feet West: 78.35 feet	Complies
Rear Setback (south)	20 feet	78.48 feet	Complies
Maximum Building Lot Coverage	40%	27.3%	Complies
Maximum Building Height	50 feet	50 feet	Complies

Items to be Addressed: *None.*

SITE ACCESS AND CIRCULATION

Vehicular Access:

In terms of access, it is important to note that the subject site does not have frontage on any public right-of-way. Nevertheless, there are three (3) vehicular access points onto the subject site. The first (and primary) access point is off Maple Road, through the LA Fitness Parking Lot. The second and third access points are technically off Maple Road, through the Whole Food Parking lot. Please note that though the site is adjacent to Doyle Drive, Doyle Drive is private and the applicant is not able to obtain access to it. See the diagram below illustrating site access and circulation.



Two-way circulation is utilized on site. Upon leaving the subject site, a driver would travel north through either the Whole Foods or LA Fitness parking lots, and then exit onto Maple Road. Going behind the Whole Foods would allow access to the light on Maple.

Traffic Impact:

Overall, we've expressed concerns with this arrangement that requires all site access to travel through existing parking lots. In a review dated February 14, 2025, we asked the applicant to implement traffic calming improvements within the Whole Foods and LA Fitness parking lots to alleviate traffic impact concerns. Since then, the applicant has added two (2) stop bars and stop signs within the LA Fitness parking lot. The Planning Commission should consider whether these measures are sufficient based on the recommendation of OHM, the City's traffic consultant.

We note that the applicant has provided a traffic impact study performed by Fleis and Vandenbrink. The Fleis and Vandenbrink study has been reviewed by the City's traffic consultant, OHM. Both traffic studies are provided under separate cover.

Lastly, Sheet C-3.0 shows the use of gate arms in three (3) different places within the drive aisle on site. We asked the applicant how these gate arms would operate. In a memo dated March 24, 2025, PEA Group states "Gates to remotely provide fob access for tenants. During emergencies the gates will automatically open fully to provide emergency access to the site."

Pedestrian Access:

A sidewalk system is provided around the perimeter of the residential building and then around the site amenities (dog park and pool). The width of the sidewalk varies between 5, 6, 7, and 10 feet. A crosswalk is provided to connect the internal sidewalk to the sidewalk on the LA Fitness site.

Items to be Addressed: *Planning Commission to consider traffic impact concerns.*

PARKING

Parking standards are found in Table 13.06-A of the Zoning Ordinance:

	Required	Provided	Compliance
Multiple-family Residential: 1 space per efficiency unit + 2 spaces per each dwelling unit	8 efficiency units*1= 8 spaces + 226 dwelling units*2= 452 spaces **460 spaces required**	420 spaces + 40 land banked spaces	See note below
Barrier Free	9 spaces	9 spaces (4 above ground, 5 in lower level garage)	Complies
Bicycle	2 spaces	Bike rack	Complies
Dimensions	19 feet length 9.5 feet width 24 feet aisle width	19 feet length 9.5 feet width 24 feet aisle width	Complies

Front Yard Parking:

As mentioned, parking is provided on all four (4) sides of the building. While front yard parking is not permitted in the IB District, this standard may be waived for projects that receive prequalified Sustainable Development Project (SDP) status. The applicant received SDP approval by the Sustainable Development Committee at an recent meeting.

Land Banked Parking Spaces:

Rather than provide the full 460 parking spaces required, the applicant proposes to provide 420 parking spaces and landbank the remaining forty (40) spaces. In a memo dated March 24, 2025, PEA Group states:

"The applicant proposes to construct only 420 parking spaces of the 460 parking spaces required by the zoning ordinance. The deficit 40 parking spaces are being proposed as "land banked" parking spaces which could be installed if the parking becomes an issue on this site. The 420 parking spaces provide a parking ratio of 1.79 spaces/unit which is currently a ratio that is common in multi-family developments across southeastern Michigan."

Items to be Addressed: *Planning Commission to consider land banked parking spaces.*

LANDSCAPING

Landscaping is regulated by Section 13.02:

	Required	Provided	Compliance
Greenbelt: The greenbelt shall be landscaped with a minimum of one (1) deciduous tree for every thirty (30) lineal feet, or fraction thereof, of frontage abutting a public road right-of-way.	Doyle Dr: (636 LF/30)= 21 trees	22 trees	Complies
General Site Landscaping: A minimum of 20% of the site area shall be comprised of landscape material. Up to 25% of the required landscape area may be brick, stone, pavers, or other public plaza elements, but shall not include any parking area or required sidewalks.	20% of site	21.4%	Complies
Parking Lot Trees: 1 tree per 8 spaces Landscaping shall be arranged in curbed islands within the parking lot which shall not be less than 200 SF	171 surface spaces/8= 21 trees	23 trees (9 on lot perimeter)	Complies with PC approval
Tree Replacement: Replace 50% of Woodland DBH Replace 100% of Landmark DBH	36 inches replacement	12, 8-foot tall evergreen trees	Complies

Parking Lot Trees:

Nine (9) parking lot trees are proposed along the lot perimeter as opposed to within the parking lot. We note that an equivalent amount of landscape may be approved at the perimeter of the lot when landscaping within a lot is impractical due to the size of the parking lot, detrimental to safe and efficient traffic flow, or would create an unreasonable burden for maintenance and snowplowing, provided all other landscaping requirements are met.

Tree Replacement:

Thirty-six (36) inches of woodland replacement is required for this project. A landscape plan on Sheet L-1.0 shows that twelve (12) evergreen trees are being provided to meet this requirement.

Trash Pickup:

Trash will be handled in a designated room on the first floor at the east end of the building.

Mechanical Equipment:

Sheet A.100 shows three (3) utility areas on the lower level floor plan.

Stormwater Management:

A drainage plan has been provided on Sheet C-8.0. We refer to the City Engineer for further review of stormwater management.

Items to be Addressed: *Planning Commission consideration of perimeter parking lot trees.*

LIGHTING

A full photometric plan has been provided. Cut sheets indicate that the proposed fixtures are compliant. In terms of lighting levels, there are areas along the lot perimeter where lighting must be reduced. Lighting levels shall not exceed one (1) foot-candle along any nonresidential property line. Lighting levels along the east, north, and south property lines exceed this number.

Items to be Addressed*: Lighting levels along all property lines shall be reduced to one (1) foot-candle or less.*

FLOOR PLANS AND ELEVATIONS

Floor Plans:
The residential building is 4-stories tall with a building footprint of 71,628 square feet. The building contains a lower level underground parking garage with four (4) levels of residential units above. Elevators and stairs are located at the north, south, east and west ends of the building.

The layout of the four (4) residential levels is largely similar with the exception of minor differences (i.e., lobby on the first floor). Each level has a combination of studio, one (1) bedroom, two (2) bedroom, and three (3) bedroom units. The table below illustrates the variety of units offered.

Unit Type	Quantity	Percentage
1 Bedroom	107	46%
1 Bedroom w/ Den	18	8%
2 Bedroom	69	29%
2 Bedroom w/ Den	24	10%
3 Bedroom	8	3%
Studio	8	3%
Total	**234**	

In terms of common areas, an outdoor amenity space is shown at ground level in the middle of the building. The proposed arrangement for this area is unclear.

Elevations:

Building height is proposed as 4-stories, fifty-three (53) feet. As mentioned, this exceeds the maximum permitted.

Building Materials:

Primary building materials include brick veneer, Hardie siding, metal panels, and asphalt shingles. Colored renderings indicate that the building exterior will be a mix of dark gray, light gray, and brown.

Items to be Addressed: *None.*

SITE PLAN REVIEW STANDARDS

The Site Plan review standards provide the Planning Commission with direction when reviewing the proposed site plan and design features of this development.

Section 8.06 outlines Site Plan Review Design Standards.

1. *Development shall ensure compatibility to existing commercial districts and provide a transition between land uses.*
    a. *Building design shall enhance the character of the surrounding area in relation to building and parking placement, landscape and streetscape features, and architectural design.*

b. *Street fronts shall provide a variety of architectural expression that is appropriate in its context and prevents monotony.*
c. *Building design shall achieve a compatible transition between areas with different height, massing, scale, and architectural style.*

2. *Development shall incorporate the recognized best architectural building design practices.*
    a. *Foster a lasting impact on the community through the provision of high quality design, construction, and detailing.*
    b. *Provide high quality, durable materials, such as but not limited to stone, brick, glass, and metal. E.I.F.S. or material equivalent shall only be used as an accent material.*
    c. *Develop buildings with creativity that includes balanced compositions and forms.*
    d. *Design roofs that are appropriate to the architectural style of the building and create an appropriate visual exterior mass of the building given the context of the site.*
    e. *For commercial buildings, incorporate clearly defined, highly visible customer entrances using features such as canopies, porticos, arcades, arches, wing walls, ground plane elements, and/or landscape planters.*
    f. *Include community amenities that add value to the development such as patio/ seating areas, water features, art work or sculpture, clock towers, pedestrian plazas with park benches or other features located in areas accessible to the public.*

3. *Enhance the character, environment and safety for pedestrians and motorists.*
    a. *Provide elements that define the street and the pedestrian realm.*
    b. *Create a connection between the public right of way and ground floor activities.*
    c. *Create a safe environment by employing design features to reduce vehicular and pedestrian conflict, while not sacrificing design excellence.*
    d. *Enhance the pedestrian realm by framing the sidewalk area with trees, awnings, and other features.*
    e. *Improve safety for pedestrians through site design measures.*

Items to be Addressed: *Planning Commission to consider if the site plan standards have been met.*

SUMMARY

Overall, we strongly support the redevelopment of the site from a low intense self-storage to a much needed additional housing option in the city. However, the following items should be discussed by the applicant and the Planning Commission:

1. *Planning Commission to consider traffic impact concerns.*
2. *Planning Commission to consider land banked parking spaces.*
3. *Planning Commission to consider perimeter parking lot trees.*

If Planning Commission approves the project, we recommend the following conditions:

1. *Reduce lighting levels along all property lines to one (1) foot-candle or less.*

Sincerely,

CARLISLE/WORTMAN ASSOC., INC.
Benjamin R. Carlisle, AICP, LEED AP
President

CARLISLE/WORTMAN ASSOC., INC.
Shana Kot
Community Planner

R. Brent Savidant called the meeting of the Sustainable Design Review Committee to order at 8:35 am on Wednesday, April 24, 2025 in the Community Development Conference Room.

1. ROLL CALL

Present:

SDRC Members:

Michael W. Hutson, Troy Planning Commission Representative
John Tagle, Troy Planning Commission Representative
R. Brent Savidant, Community Development Director (acting as the Zoning Administrator)
Dominic Abate, Building Department Residential Plans Reviewer (acting as Building Official)

Other Attendees:

Salim Huerta, City Building Official
Jim Butler, PEA Group
Ray, Krieger Klatt Architects

2. APPROVAL OF MINUTES

Resolution # SDRC-2025-04-001
Moved by: Finlay
Seconded by: Tagle

RESOLVED, To approve the minutes of the January 10, 2024 Sustainable Design Review Committee, as printed.

Yes: All present (5)

MOTION CARRIED

3. BUSINESS AGENDA

Prequalified SDP Status- Troy Living, located on South side of Maple, East of Adams (1485 Maple Way), Section 31-Zoned IB District.

- Seeking SDP status to expand parking lot within front set back

Brent Savidant summarized case.

Ray Phillips, of Krieger Klatt Architects, further summarized project. He added detail on the below grade parking area, outdoor amenity space, proposed dog park, EV parking.

Jim Butler, of PEA Group, added details on the proposed development.

John Tagle discussed the parking details with the applicant as it related to the case.

Salim Huerta asked applicant to note the barrier free requirements as necessary.

Dominic Abate asked applicant about the land banking options/locations.

Brent Savidant shared OHM will be studying the city of Troy to gather parking data.

Resolution # SDRC-2025-05-002

Moved by: Tagle
Seconded by: Hutson

RESOLVED, The SDRC hereby grants Prequalified Sustainable Development Project status to Troy Living (1485 Maple Way) to permit parking in the front yard in IB.

Yes: All present (5)

MOTION CARRIED

4. OTHER BUSINESS - None

ADJOURN

The meeting of the Sustainable Design Review Committee adjourned at 9:00AM.

Respectfully submitted,

R. Brent Savidant, Community Development Director

G:\SUSTAINABLE DEVELOPMENT OPTION\SDRC Meetings\Minutes\Draft\2025-04-24 SDRC Minutes DRAFT.docx

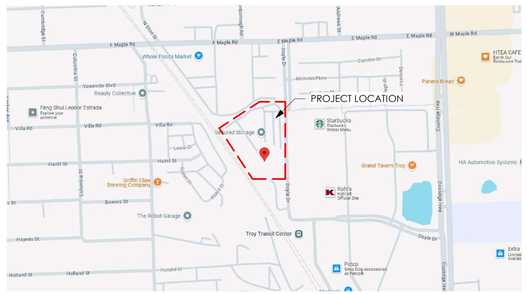
Maple Lane Apartment Development

1485 Maple Lane Dr.
Troy, MI 48084

Owner
Secured Storage Aquisitions, LLC
2966 Industrial Row
Troy, MI 48084

Architect
Krieger | Klatt Architects Inc.
400 East Lincoln Suite A
Royal Oak, MI 48067
P.248.414.9270
F.248.414.9275

Civil Engineer
PEA Group
1849 Pond Run
Auburn Hills, MI 48326
P.248.821.4841



North
Location Map
NTS

North
Aerial Map
NTS

Civil Sheet Index

Sheet No.	Title	01-24-2025 Prelim. Site Plan	03-21-2025 Site Plan Approval
0	Cover Sheet	•	•
C-1.0	Topographic Survey	•	•
C-2.0	Overall Site Plan	•	•
C-3.0	Preliminary Site Plan	•	•
C-3.1	Preliminary Truck Turning Plan	•	•
C-4.0	Preliminary Grading Plan	•	•
C-6.0	Preliminary Utility Plan	•	•
C-8.0	Preliminary Drainage Plan	•	•
C-9.0	Notes and Details	•	•
L-1.0	Landscape Plan	•	•
L-1.1	Landscape Details	•	•
T-1.0	Tree Preservation Plan	•	•
1	Site Photometric Plan	•	•
2	Pool Area Photometric Plan	•	•
3	Amenity Area Photometric Plan	•	•
4	Lighting Cut Sheets	•	•

Architectural Sheet Index

Sheet No	Title	01-24-2025 Prelim. Site Plan	03-21-2025 Site Plan Approval
G.001	Cover Sheet	•	•
G.002	Aerial Renderings	•	•
G.003	Perspective Renderings	•	•
A.100	Lower Level Floor Plan	•	•
A.101	First Floor Plan	•	•
A.102	Second Floor Plan	•	•
A.104	Fourth Floor Plan	•	•
A.200	Elevations	•	•
A.300	Private Garage Plans & Elevations	•	•
A.400	Building Sections	•	•

PRELIMINARY NOT FOR CONSTRUCTION

KRIEGER KLATT ARCHITECTS
400 E. Lincoln Ave. Ste. A | Royal Oak, MI 48067
P: 248.414.9270 **F:** 248.414.9275
www.kriegerklatt.com

Client:
Secured Storage Aquisitions, LLC
2966 Industrial Row
Troy, MI 48084

Project:
Maple Lane Apartment Dev.
1485 Maple Lane Dr.
Troy, MI 48084

Issued	Description	By
01-24-25	Preliminary Site Plan	

Seal:
STATE OF MICHIGAN
JASON P. KRIEGER
ARCHITECT
No. 53578
LICENSED ARCHITECT

Note:
Do not scale drawings. Use calculated dimensions only. Verify existing conditions in field.

North Arrow:

Sheet Title:
Cover Sheet

Project Number:
24-100

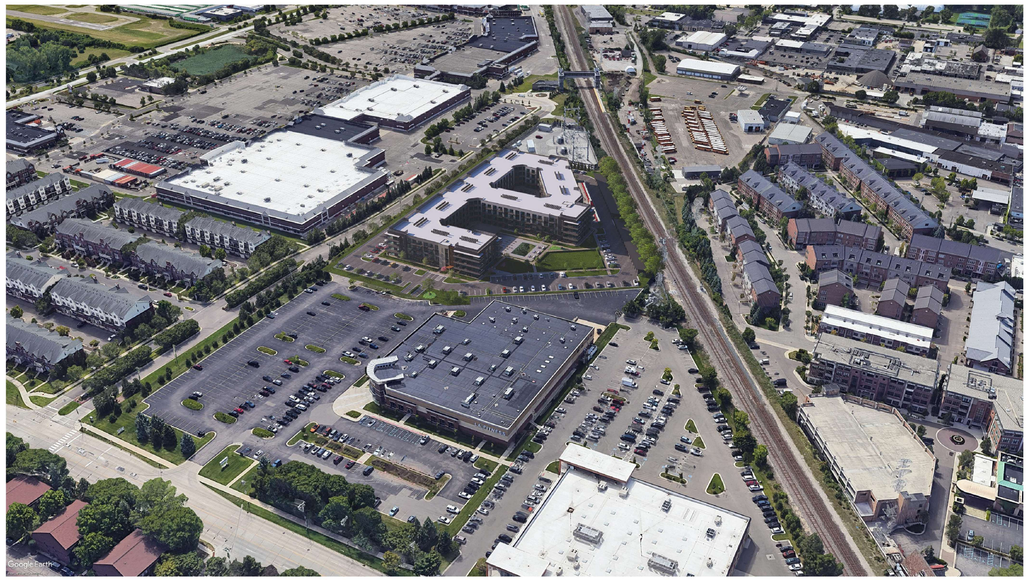
Scale:

Sheet Number:
G.001

Aerial Rendering Looking Northeast

Aerial Rendering Looking Northwest

Aerial Rendering Looking Southwest



Aerial Rendering Looking Southeast

KRIEGER KLATT ARCHITECTS
400 E. Lincoln Ave. Ste. A | Royal Oak, MI 48067
P: 248.414.9270 **F:** 248.414.9275
www.kriegerklatt.com

Client:
Secured Storage Aquisitions, LLC

Project:
Maple Lane Apartment Dev.
1485 Maple Lane Dr.
Troy, MI 48084

Issued	Description	By
01-24-25	Preliminary Site Plan	
03-21-2025	Site Plan Approval	

PRELIMINARY NOT FOR CONSTRUCTION

Seal:

Note:
Do not scale drawings. Use calculated dimensions only. Verify existing conditions in field.

North Arrow:

Sheet Title:
Aerial Renderings

Project Number:
24-100

Scale:

Sheet Number:
G.002

Perspective Renderings Looking Southwest

Perspective Rendering Looking Northwest

Perspective Rendering at Amenity Area

Perspective Rendering Looking East

KRIEGER KLATT ARCHITECTS

400 E. Lincoln Ave. Ste. A | Royal Oak, MI 48067
P: 248.414.9270 **F:** 248.414.9275
www.kriegerklatt.com

Client:

Secured Storage Aquisitions, LLC
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Project:

Maple Lane Apartment Dev.
1485 Maple Lane Dr.
Troy, MI 48084

Issued	Description	By
01-24-25	Preliminary Site Plan	
03-21-2025	Site Plan Approval	

PRELIMINARY NOT FOR CONSTRUCTION

Seal:

Note:

Do not scale drawings. Use calculated dimensions only. Verify existing conditions in field.

North Arrow:

Sheet Title:

Perspective Renderings

Project Number:

24-100

Scale:

Sheet Number:

G.003

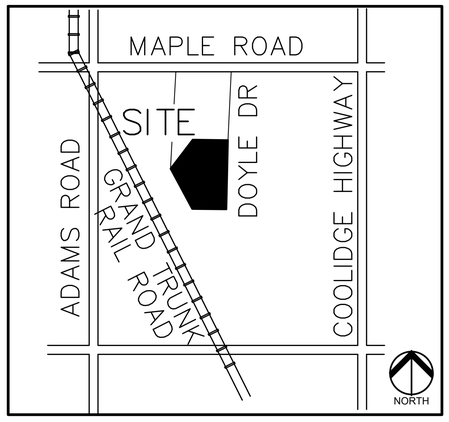
PRELIMINARY SITE PLANS

TROY LIVING

1485 MAPLE WAY DRIVE

TROY, OAKLAND COUNTY, MI

PERMIT / APPROVAL SUMMARY		
DATE SUBMITTED	DATE APPROVED	PERMIT / APPROVAL
1/24/2025		CITY OF TROY SITE PLAN APPROVAL



LOCATION MAP
NO SCALE

INDEX OF DRAWINGS	
NUMBER	TITLE
	COVER SHEET
C-1.0	TOPOGRAPHIC SURVEY
C-2.0	OVERALL SITE PLAN
C-3.0	PRELIMINARY SITE PLAN
C-3.1	PRELIMINARY TRUCK TURNING PLAN
C-4.0	PRELIMINARY GRADING PLAN
C-6.0	PRELIMINARY UTILITY PLAN
C-8.0	PRELIMINARY DRAINAGE PLAN
C-9.0	NOTES AND DETAILS
L-1.0	LANDSCAPE PLAN
L-1.1	LANDSCAPE DETAILS
T-1.0	TREE PRESERVATION PLAN

DESIGN TEAM

OWNER/APPLICANT/DEVELOPER

SECURED STORAGE ACQUISITIONS, LLC
2966 INDUSTRIAL ROW
TROY, MICHIGAN 48084
CONTACT: SANFORD NELSON
PHONE: 248.721.2001
EMAIL: SANFORD@NELSONVENTURES.COM

CIVIL ENGINEER

PEA GROUP
1849 POND RUN
AUBURN HILLS, MI 48326
CONTACT: JAMES P. BUTLER, PE
PHONE: 844.813.2949
EMAIL: JBUTLER@PEAGROUP.COM

ARCHITECT

KRIEGER KLATT ARCHITECTS, INC.
400 E LINCOLN ROAD
ROYAL OAK, MI 48067
CONTACT: RAYMOND PHILLIPS
PHONE: 248.414.9275
EMAIL: RAY@KRIEGERKLATT.COM

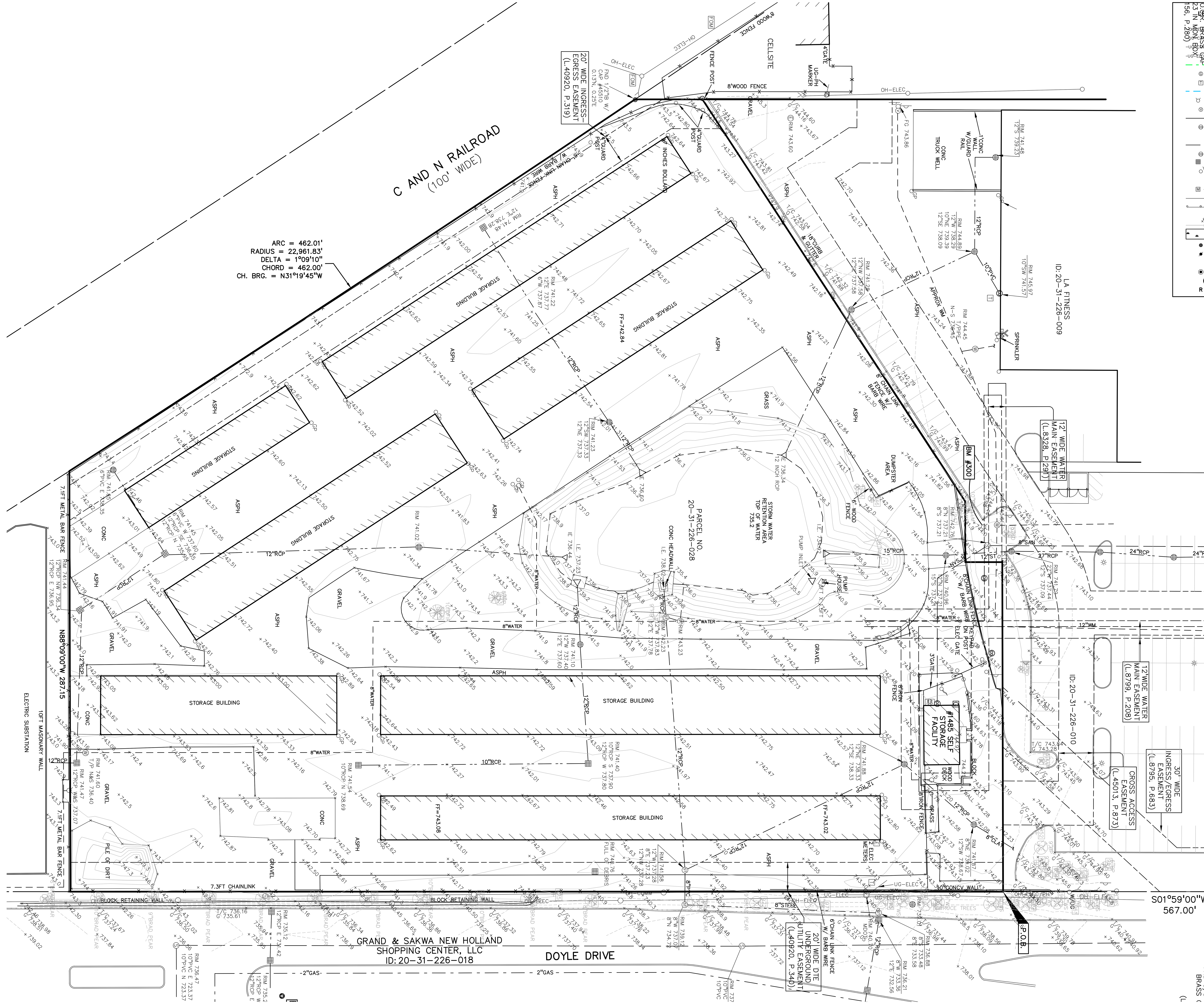
LANDSCAPE ARCHITECT

PEA GROUP
7927 NEMCO WAY, STE. 115
BRIGHTON, MI 48116
CONTACT: JANET EVANS, PLA
PHONE: 844.813.2949
EMAIL: JEVANS@PEAGROUP.COM

PEA GROUP

REVISIONS	
DESCRIPTION	DATE
ORIGINAL ISSUE DATE	1/24/2025
SPA REVISIONS	3/21/2025

NOT FOR CONSTRUCTION



LEGEND

- EX. OH. ELEC, POLE & GUY WIRE
- EX. U.G. CABLE TV & PEDESTAL
- EX. U.G. COMMUNICATION LINE, PEDESTAL & MANHOLE
- EX. U.G. ELEC,MANHOLE, METER & HANDHOLE
- EX. GAS LINE
- EX. GAS VALVE & GAS LINE MARKER
- EX. TRANSFORMER & IRRIGATION VALVE
- EX. WATER MAIN
- EX. HYDRANT, GATE VALVE & POST INDICATOR VALVE
- EX. WATER VALVE BOX & SHUTOFF
- EX. SANITARY SEWER
- EX. SANITARY CLEANOUT & MANHOLE
- EX. COMBINED SEWER MANHOLE
- EX. STORM SEWER
- EX. CLEANOUT & MANHOLE
- EX. SQUARE, ROUND, & BEEHIVE CATCH BASIN
- EX. YARD DRAIN & ROOF DRAIN
- EX. UNIDENTIFIED STRUCTURE
- EX. MAILBOX, SIGN & LIGHTPOLE
- EX. FENCE
- EX. GUARD RAIL
- EX. SPOT ELEVATION
- EX. CONTOUR
- EX. WETLAND
- IRON FOUND / SET
- NAIL FOUND / NAIL & CAP SET
- BRASS PLUG SET
- MONUMENT FOUND / SET
- SECTION CORNER FOUND
- R M C RECORDED / MEASURED / CALCULATED

BENCHMARKS:

(CITY OF TROY DATUM - NAVD88)

BM 2824 - (CITY OF TROY REF BM)
ARROW ON TOP OF HYDRANT#31-39 DOYLE STREET ISLAND WEST OF BLDG #1285 (DUNHAMS)
ELEV.-740.11

PEA BM 300
ARROW ON HYDRANT 45' EAST OF THE MOST EASTERLY LINE OF LA FITNESS AND 10' SOUTH OF THE MOST SOUTHERLY LINE OF SAID LA FITNESS
ELEV.-745.43

LEGAL DESCRIPTION:

(Per Professional Engineering Associates)

PARCEL 20-31-226-028

Part of the Northeast 1/4 of Section 31, Township 2 North, Range 11 East, Michigan, being more particularly described as: Commencing at the Northeast corner of said Section 31; thence along the north line of said Section 31, N88°09'00"W, 1412.60 feet; thence S01°59'00"W, 567.00 feet to the Point-of-Beginning: thence continuing S01°59'00"W, 636.31 feet; thence N88°09'00"W, 287.15 feet to a non-tangent curve and the northeasterly right-of-way line of the Grand Trunk Railroad; thence 462.01 feet along said curve to the left, radius 22961.83 feet, central angle 01°09'10", Chord Bearing N31°19'45"W, 462.00 feet; thence N01°59'00"E, 45.96 feet; thence N58°49'13"E, 327.80 feet; thence S88°09'00"E, 41.48 feet; thence N01°59'00"E, 25.00 feet; thence S88°09'00"E, 225.00 feet to the Point-of-Beginning. Containing 6.023 acres of land, more or less.

Together with 30 foot wide non-exclusive easement for ingress and egress over part of the Northeast 1/4 of Section 31, Town 2 North, Range 11 East, Michigan, being more particularly described as follows: Beginning at a point which is N88°09'00"W, 1412.60 feet along the North line of Section 31 from the Northeast corner of Section 31, Town 2 North, Range 11 East, Michigan; thence S01°59'00"W, 459.79 feet; thence S44°40'16"W, 146.16; thence N88°09'00"W, 40.90 feet; thence N44°40'16"E, 162.24 feet; thence N01°59'00"E, 448 feet; thence S88°09'00"E, 30.00 feet along the North line of Section 31 to the point of beginning, as created in Liber 8795, Page 683.

PEA GROUP

t: 844.813.2949
www.peagroup.com

NORTH

0 15 30 60
SCALE: 1" = 30'

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

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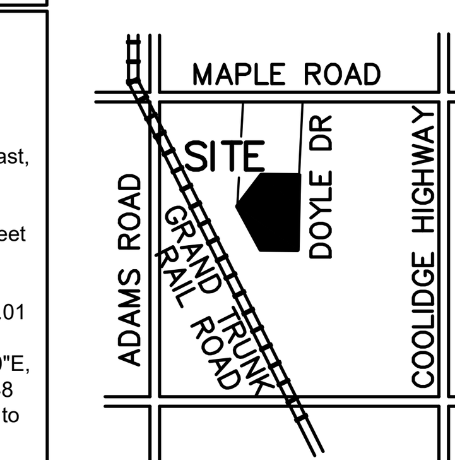


CLIENT

SECURED STORAGE ACQUISITIONS, LLC
2966 INDUSTRIAL ROW
TROY, MI 48084

PROJECT TITLE

TROY LIVING
1485 MAPLE WAY DR.
TROY, MI 48084

REVISIONS	
SPA	1/24/2025
SPA REVISIONS	3/21/2025

ORIGINAL ISSUE DATE:
JANUARY 10, 2025

DRAWING TITLE

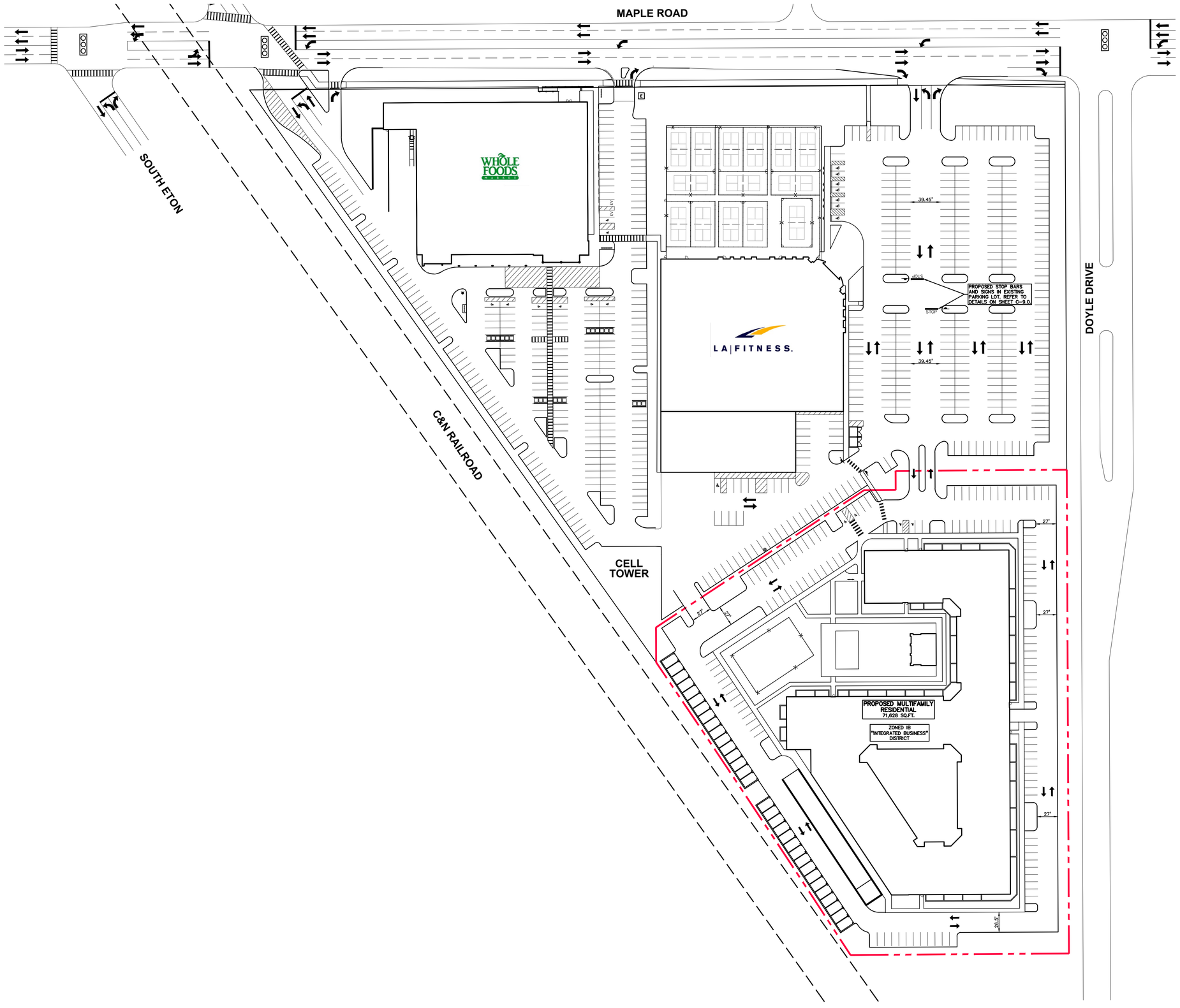
TOPOGRAPHIC SURVEY

PEA JOB NO.	24-2082
P.M.	JPB
DN.	RRM
DES.	LGD

DRAWING NUMBER:

C-1.0

NOT FOR CONSTRUCTION



PEA GROUP
t: 844.813.2949
www.peagroup.com

STATE OF MICHIGAN
JAMES P. BUTLER
ENGINEER
No. 6200105
PROFESSIONAL ENGINEER

NORTH

0 25 50 100
SCALE: 1" = 50'

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CLIENT
SECURED STORAGE ACQUISITIONS, LLC
2966 INDUSTRIAL ROW
TROY, MI 48084

PROJECT TITLE
TROY LIVING
1485 MAPLE WAY DR.
TROY, MI 48084

REVISIONS	
SPA	1/24/2025
SPA REVISIONS	3/21/2025

ORIGINAL ISSUE DATE:
JANUARY 10, 2025

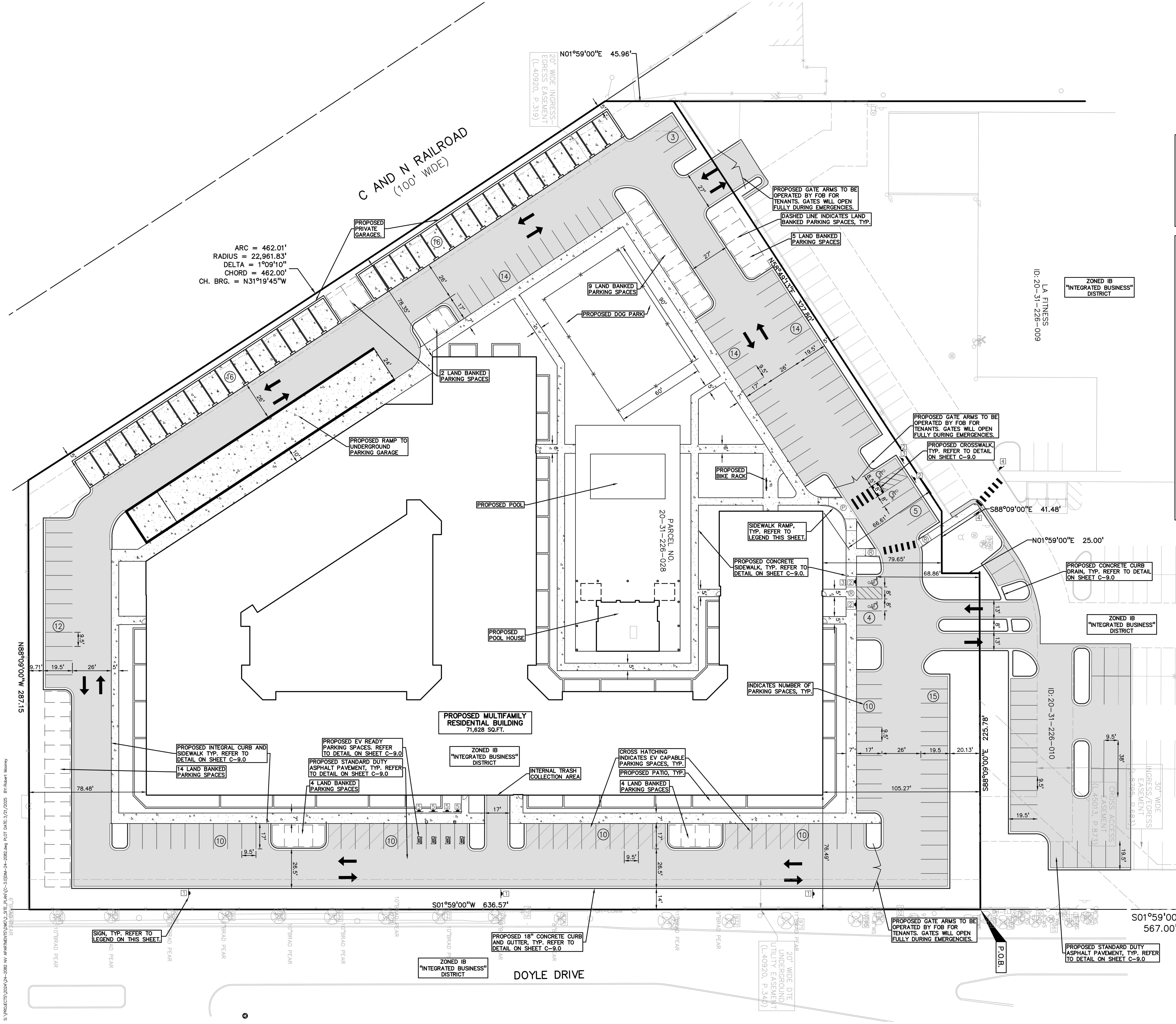
DRAWING TITLE
OVERALL SITE PLAN

PEA JOB NO.	24-2082
P.M.	JPB
DN.	RRM
DES.	LGD

DRAWING NUMBER:
C-2.0

NOT FOR CONSTRUCTION

S:\PROJECTS\2024\24-2082 NV #PARTMENTS\SHEVZ_SITE_PLAN\(C-2.0)OVERALL-24-2082.dwg PLOT DATE: 3/21/2025 BY: Robert Mooney



LEGEND:

STD DUTY	CONCRETE PAVEMENT
STD DUTY	ASPHALT PAVEMENT
	EV CAPABLE PARKING SPACE
	CONCRETE CURB AND GUTTER
	SETBACK LINE
	SIGN
	LIGHTPOLE
	FENCE

GENERAL NOTES:

THESE NOTES APPLY TO ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT.

1. ALL DIMENSIONS SHOWN ARE TO BACK OF CURB, FACE OF SIDEWALK, OUTSIDE FACE OF BUILDING, PROPERTY LINE, CENTER OF MANHOLE/CATCH BASIN OR CENTERLINE OF PIPE UNLESS OTHERWISE NOTED.
2. 'NO PARKING-FIRE LANE' SIGNS SHALL BE POSTED ALONG ALL FIRE LANES AT 100 FOOT INTERVALS OR AS DIRECTED BY THE FIRE OFFICIAL.
3. REFER TO NOTES & DETAILS SHEET FOR ON-SITE PAVING DETAILS.
4. REFER TO NOTES & DETAILS SHEET FOR ON-SITE SIDEWALK RAMP DETAILS

SITE DATA TABLE:

SITE AREA: 6.023 ACRES (262,362 SF.) NET AND GROSS

ZONING: IB (INTEGRATED INDUSTRIAL BUSINESS DISTRICT)

PROPOSED USE: MULTI-FAMILY DEVELOPMENT (71,628 SF)

BUILDING INFORMATION:
- MAXIMUM ALLOWABLE BUILDING HEIGHT = 50 FT
- PROPOSED BUILDING HEIGHT = 50 FT
- BUILDING FOOTPRINT AREA = 71,628 SF.
- BUILDING LOT COVERAGE = 27.3%

SETBACK REQUIREMENTS:	REQUIRED:	PROPOSED:
FRONT (NORTH)	30'	66.61'
SIDE (EAST)	10'	74.49'
SIDE (WEST)	10'	78.35'
REAR (SOUTH)	20'	78.48'

PARKING CALCULATIONS:

REQUIRED
- MULTI-FAMILY RESIDENTIAL = 1 SPACE PER EFFICIENCY UNIT + 2 SPACES PER EACH DWELLING UNIT
- TOTAL RESIDENTIAL PARKING REQUIRED =
  =8 EFFICIENCY UNITS X 1 = 8 SPACES +
  =226 DWELLING UNITS X 2 = 452 SPACES
- TOTAL REQUIRED PARKING = 460 SPACES

PROPOSED
- TOTAL PROPOSED PARKING SPACES = 131 SURFACE SPACES + 32 PRIVATE GARAGE SPACES + 257 LOWER LEVEL GARAGE SPACES.
  = 420 SPACES INC. 4 H/C SPACES + 40 LAND BANKED PARKING SPACES
  = 460 TOTAL SPACES PROVIDED

BICYCLE PARKING

REQUIRED
- BICYCLE PARKING REQUIRED = 1 BIKE RACK

PROPOSED
- BICYCLE PARKING PROVIDED = 1 BIKE RACK

SIGN LEGEND:

'NO PARKING FIRE LANE' SIGN	1
'BARRIER FREE PARKING' SIGN	2
'VAN ACCESSIBLE' SIGN	3
'CROSSWALK' SIGN	4
'EV PARKING' SIGN	5

REFER TO DETAIL SHEET FOR SIGN DETAILS

SIDEWALK RAMP LEGEND:

SIDEWALK RAMP 'TYPE R'	Ⓡ
SIDEWALK RAMP 'TYPE P'	Ⓟ

REFER TO LATEST MDOT R-28 STANDARD RAMP AND DETECTABLE WARNING DETAILS

PEA GROUP
t: 844.813.2949
www.peagroup.com

NORTH

SCALE: 1" = 30'

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

CAUTION!!
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MAPLE ROAD / SITE / DOYLE DR / ADAMS ROAD / GRAND TRUNK RAIL ROAD / COOLIDGE HIGHWAY

CLIENT
SECURED STORAGE ACQUISITIONS, LLC
2966 INDUSTRIAL ROW
TROY, MI 48084

PROJECT TITLE
TROY LIVING
1485 MAPLE WAY DR.
TROY, MI 48084

REVISIONS	
SPA	1/24/2025
SPA REVISIONS	3/21/2025

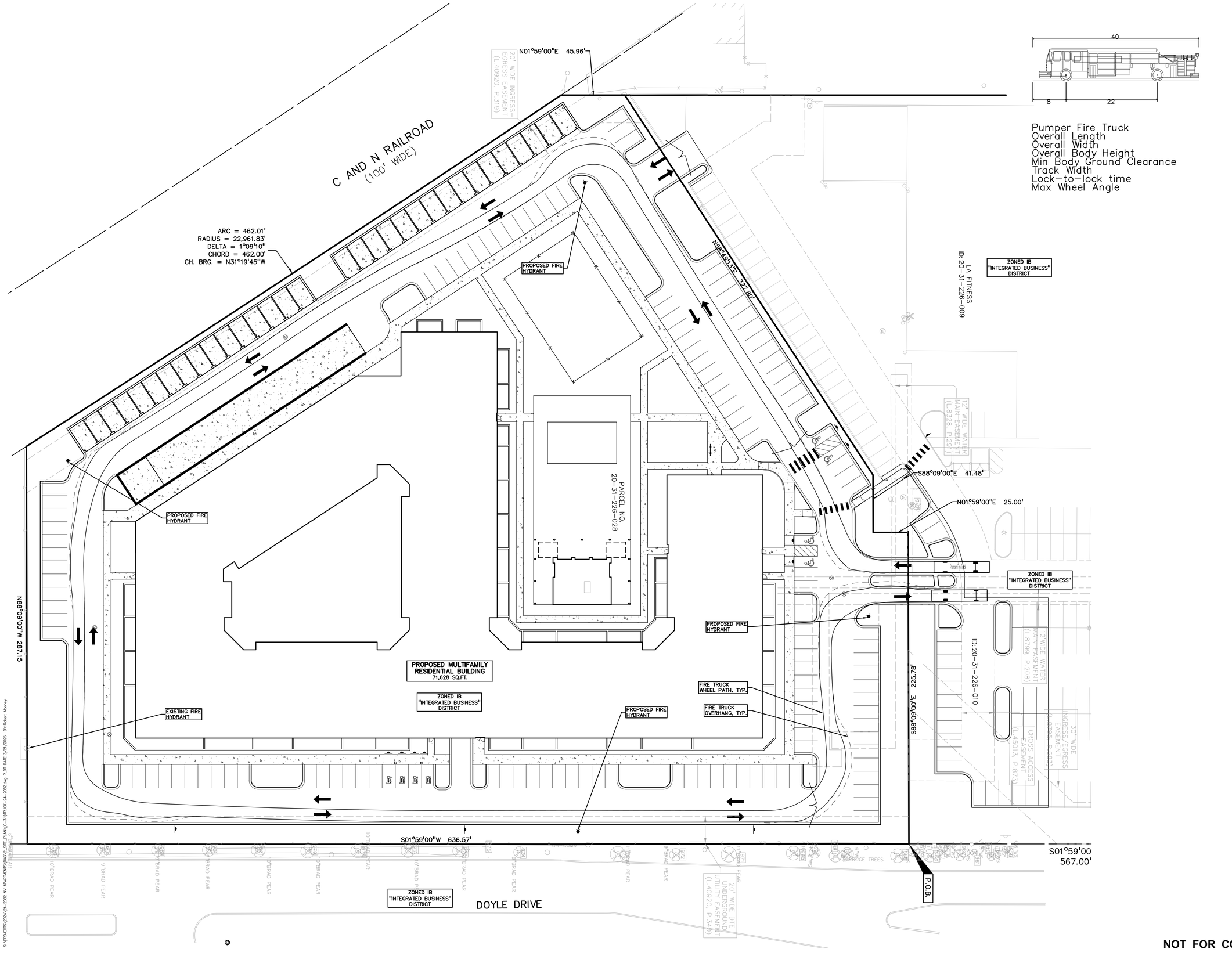
ORIGINAL ISSUE DATE:
JANUARY 10, 2025

DRAWING TITLE
PRELIMINARY SITE PLAN

PEA JOB NO.	24-2082
P.M.	JPB
DN.	RRM
DES.	LGD

DRAWING NUMBER:
C-3.0

NOT FOR CONSTRUCTION



S:\PROJECTS\2024\24-2082 INV APARTMENTS\DWG\3_SITE_PLAN\[C-3.0TRUCK-24-2082.dwg PLOT DATE: 3/21/2025 BY: Robert Mowrey

NOT FOR CONSTRUCTION

PEA GROUP
t: 844.813.2949
www.peagroup.com

NORTH

0 15 30 60
SCALE: 1" = 30'

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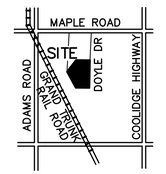


CLIENT
SECURED STORAGE ACQUISITIONS, LLC
2966 INDUSTRIAL ROW
TROY, MI 48084

PROJECT TITLE
TROY LIVING
1485 MAPLE WAY DR.
TROY, MI 48084

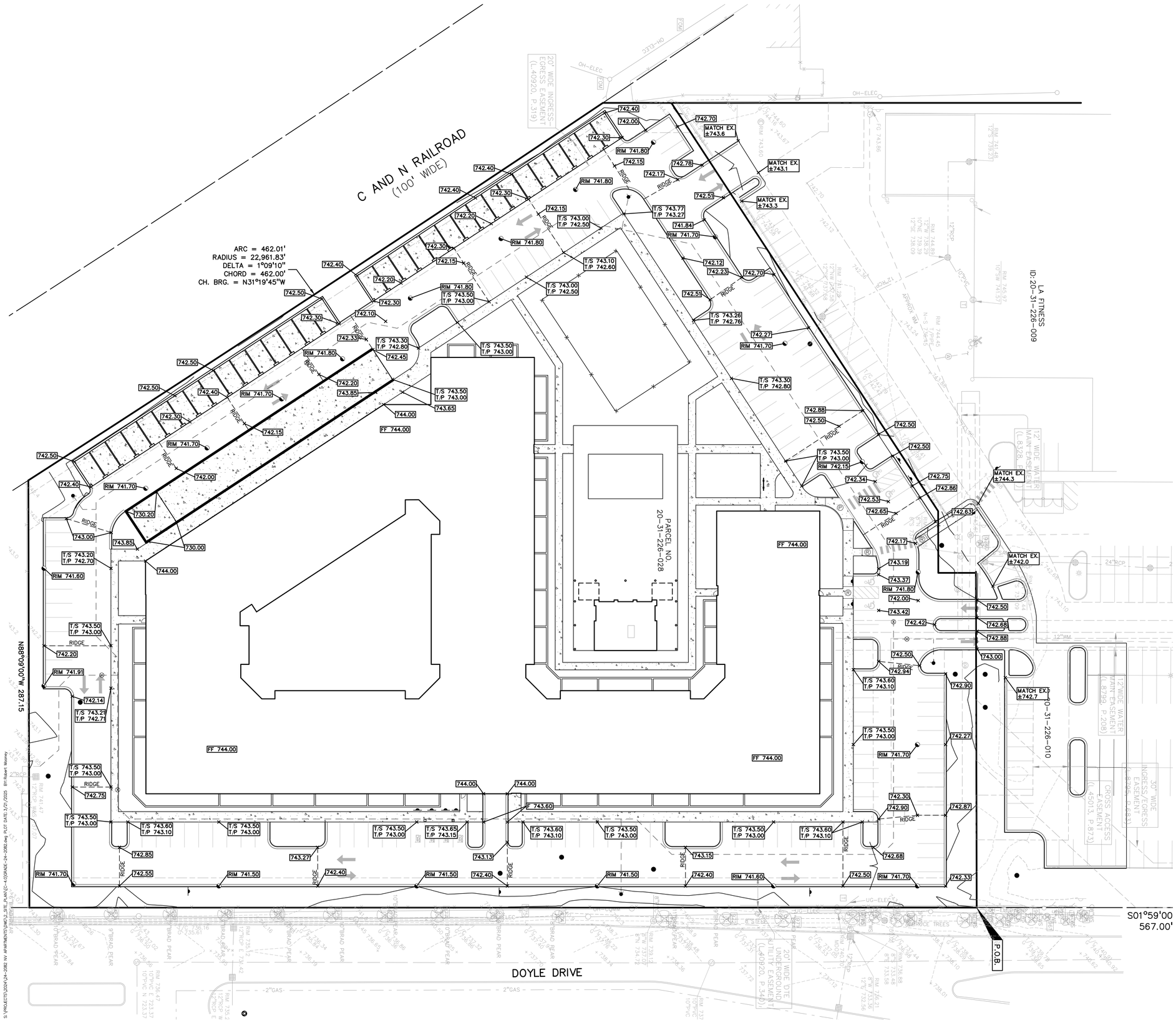
REVISIONS	
SPA	1/24/2025
SPA REVISIONS	3/21/2025

ORIGINAL ISSUE DATE:
JANUARY 10, 2025

DRAWING TITLE
PRELIMINARY TRUCK TURNING PLAN

PEA JOB NO.	24-2082
P.M.	JPB
DN.	RRM
DES.	LGD

DRAWING NUMBER:
C-3.0



GRADING LEGEND:

- EXISTING SPOT ELEVATION (+698.81)
- PROPOSED SPOT ELEVATION: TYPICALLY TOP OF PAVEMENT IN PAVED AREAS, GUTTER GRADE IN CURB LINES. (622.50)
- EXISTING CONTOUR (670)
- PROPOSED CONTOUR (922)
- PROPOSED REVERSE GUTTER PAN
- PROPOSED RIDGE LINE
- PROPOSED SWALE/DITCH

ABBREVIATIONS

T/C = TOP OF CURB	F = FLUSH WALK
T/P = TOP OF PAVEMENT	G = GUTTER GRADE
T/S = TOP OF SIDEWALK	FF = FINISH FLOOR
T/W = TOP OF WALL	FG = FINISH GRADE
B/W = BOTTOM OF WALL	RIM = RIM ELEVATION

EARTHWORK BALANCING NOTE:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPORTING OR EXPORTING ALL MATERIALS AS REQUIRED TO PROPERLY GRADE THIS PROJECT TO THE FINISHED ELEVATIONS SHOWN ON THE APPROVED PLANS. THE CONTRACTOR SHALL MAKE THEIR OWN DETERMINATION OF CUT AND FILL QUANTITIES AND ALLOW FOR REMOVAL OF EXCESS OR IMPORTATION OF ADDITIONAL MATERIAL AT NO ADDITIONAL COST TO THE OWNER.

BENCHMARKS:
(CITY OF TROY DATUM - NAVD88)

BM 2824 - (CITY OF TROY REF BM)
ARROW ON TOP OF HYDRANT#31-39 DOYLE STREET ISLAND WEST OF BLDG #1285 (DUNHAMS)
ELEV.-740.11

PEA BM 300
ARROW ON HYDRANT 45' EAST OF THE MOST EASTERLY LINE OF LA FITNESS AND 10' SOUTH OF THE MOST SOUTHERLY LINE OF SAID LA FITNESS
ELEV.-745.43

SIDEWALK RAMP LEGEND:

SIDEWALK RAMP 'TYPE R' (R)

SIDEWALK RAMP 'TYPE P' (P)

REFER TO LATEST MDOT R-28 STANDARD RAMP AND DETECTABLE WARNING DETAILS

PEA GROUP
t: 844.813.2949
www.peagroup.com

STATE OF MICHIGAN — JAMES P. BUTLER — ENGINEER — No. 6206005 — PROFESSIONAL ENGINEER

NORTH

0 15 30 60

SCALE: 1" = 30'

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CLIENT

SECURED STORAGE ACQUISITIONS, LLC
2966 INDUSTRIAL ROW
TROY, MI 48084

PROJECT TITLE

TROY LIVING
1485 MAPLE WAY DR.
TROY, MI 48084

REVISIONS	
SPA	1/24/2025
SPA REVISIONS	3/21/2025

ORIGINAL ISSUE DATE:
JANUARY 10, 2025

DRAWING TITLE

PRELIMINARY GRADING PLAN

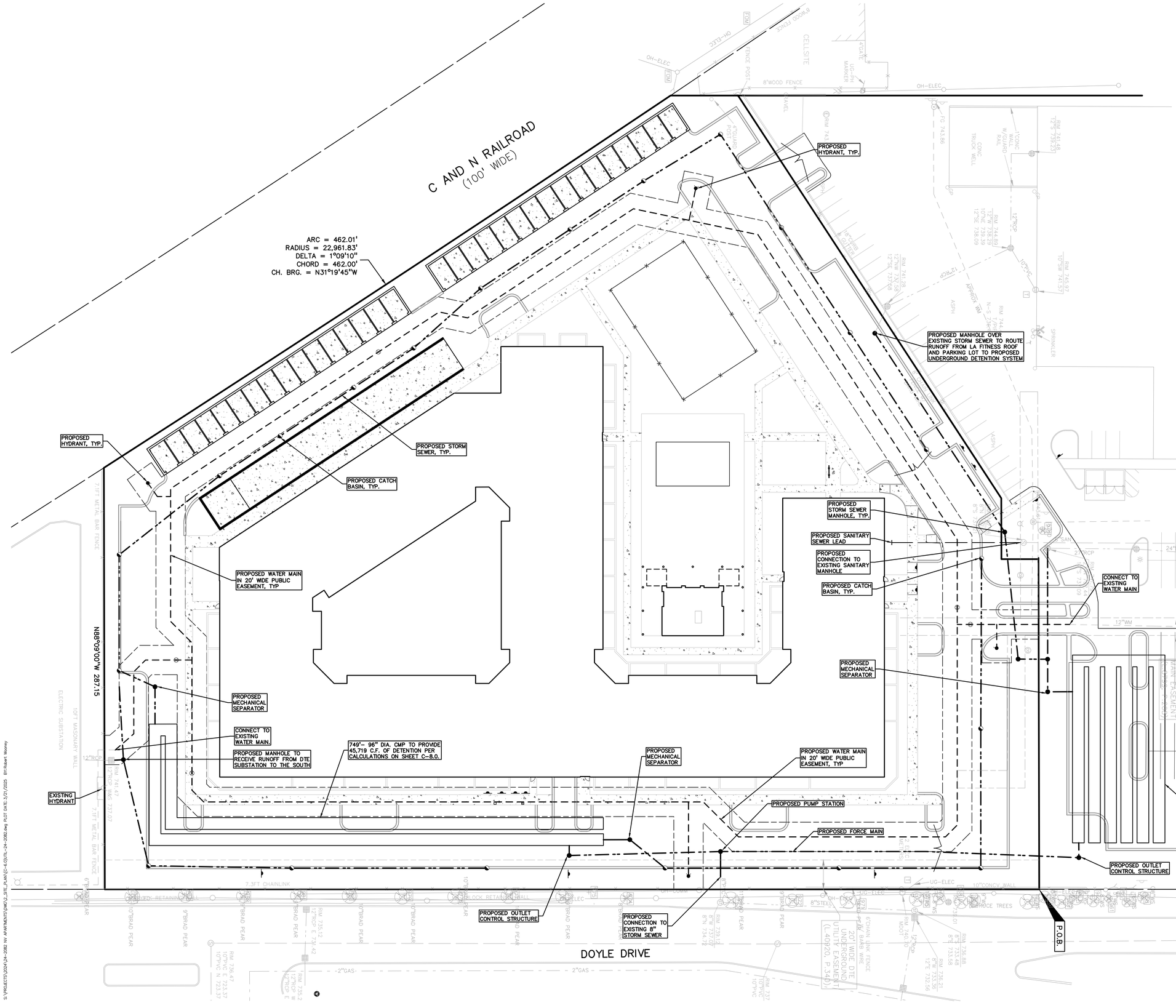
PEA JOB NO.	24-2082
P.M.	JPB
DN.	RRM
DES.	LGD

DRAWING NUMBER:

C-4.0

NOT FOR CONSTRUCTION

S:\PROJECTS\2024\24-2082 INV APARTMENTS\DWG\2_SITE_PLAN\(C-4.0)PAGE-24-2082.dwg PLOT DATE: 3/31/2025 BY: Robert Mooney



UTILITY LEGEND:

- EX. OH, ELEC, POLE & GUY WIRE
- EX. U.G. CABLE TV & PEDESTAL
- EX. U.G. COMMUNICATION LINE, PEDESTAL & MANHOLE
- EX. U.G. ELEC,MANHOLE, METER & HANDHOLE
- EX. GAS LINE
- EX. GAS VALVE & GAS LINE MARKER
- EX. TRANSFORMER & IRRIGATION VALVE
- EX. WATER MAIN
- EX. HYDRANT, GATE VALVE & POST INDICATOR VALVE
- EX. WATER VALVE BOX & SHUTOFF
- EX. SANITARY SEWER
- EX. SANITARY CLEANOUT & MANHOLE
- EX. COMBINED SEWER MANHOLE
- EX. STORM SEWER
- EX. CLEANOUT & MANHOLE
- EX. SQUARE, ROUND, & BEEHIVE CATCH BASIN
- EX. YARD DRAIN & ROOF DRAIN
- EX. UNIDENTIFIED STRUCTURE
- PROPOSED WATER MAIN
- PROPOSED HYDRANT AND GATE VALVE
- PROPOSED TAPPING SLEEVE, VALVE & WELL
- PROPOSED POST INDICATOR VALVE
- PROPOSED SANITARY SEWER
- PROPOSED SANITARY CLEANOUT & MANHOLE
- PROPOSED STORM SEWER
- PROPOSED STORM SEWER CLEANOUT & MANHOLE
- PROPOSED CATCH BASIN, INLET & YARD DRAIN

PEA GROUP
t: 844.813.2949
www.peagroup.com

STATE OF MICHIGAN
JAMES P. BUTLER
ENGINEER
No. 60005
PROFESSIONAL ENGINEER

NORTH

0 15 30 60
SCALE: 1" = 30'

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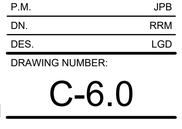


CLIENT
SECURED STORAGE ACQUISITIONS, LLC
2966 INDUSTRIAL ROW
TROY, MI 48084

PROJECT TITLE
TROY LIVING
1485 MAPLE WAY DR.
TROY, MI 48084

REVISIONS	
SPA	1/24/2025
SPA REVISIONS	3/21/2025

ORIGINAL ISSUE DATE:
JANUARY 10, 2025

DRAWING TITLE
PRELIMINARY UTILITY PLAN

PEA JOB NO.	24-2082
P.M.	JPB
DN.	RRM
DES.	LGD

DRAWING NUMBER:
C-6.0

NOT FOR CONSTRUCTION

S:\PROJECTS\2024\24-2082 NV APARTMENTS\DWG\2_SITE_PLAN\[C-6.0]TL-24-2082.dwg PLOT DATE: 3/21/2025 BY: Robert Mooney

AREA 1

Proposed				
Natural Greenspace area:		acre	C =	0.25
Select NCRS Soil type:	C			
Improved Greenspace area:	1.11	acre	C =	0.30
Select NCRS Soil type:	D			
Wooded Area:	0.00	acre	C =	0.25
Select NCRS Soil type:	C			
Impervious Area:	4.86	acre	C =	0.95
Greenbelt Area:	1.11	acre	C =	0.30
Total Area (A):	5.97	acre		
Weighted Coefficient of Runoff (C):			0.83	
Rainfall Intensity				
Flood Control Time of Concentration, Tc =		18.00	minutes	

Rainfall Intensity	1/9/2025 Detcalcs V2.02	
Time of Concentration (T_C)	18.00	min
Since 15<Tc<60, use intensity equation		
I1 = 30.2 /[(T + 9.17)^.81]	2.08	in/hr
I10 = 50.12 / [(T + 9.17)^.81]	3.45	in/hr
I100 = 83.3/[(T + 9.17)^.81]	5.74	in/hr
CPVC: Channel Protection Volume Control Volume		
Vcpvc = (4719)CA	23,383	cf
CPRC: Channel Protection Rate Control Volume: Extended Detention		
Ved= (6897)CA	34,175	cf
$Q_{VED} = V_{ED} / (48*60*60)$	0.20	cfs
100-Year Allowable Outlet Rate		
Since 2<A<100, Qvrr = 1.1055-0.206xln(A)		
Q_{VRR} =	0.74	cfs/ac
100-Year Peak Allowable Discharge		
Area, A =	5.97	ac
$Q_{100P} = Q_{VRR}(A)$	4.40	cfs
100-Year Runoff Volume		
V100R = (18,985)CA	94,073	cf
100-Year Peak Inflow		
$Q_{100IN} = C(I_{100})A$	28.44	cfs
Storage Curve Factor (Vs/Vr)		
R = 0.206-0.15 x ln(Q100P/Q100IN)	0.486	
100-Year Storage Volume		
Vs = R(V100R)	45,719	cf
No infiltration will be provided, so no CPVC deduction is taken.		
V100D = Vs	45,719	cf
V_{100D} must be larger or equal to V_{ED} :		
Is V_{100D}>= V_{ED} ?	**Yes**	
V_{100D} =	45,719	cf

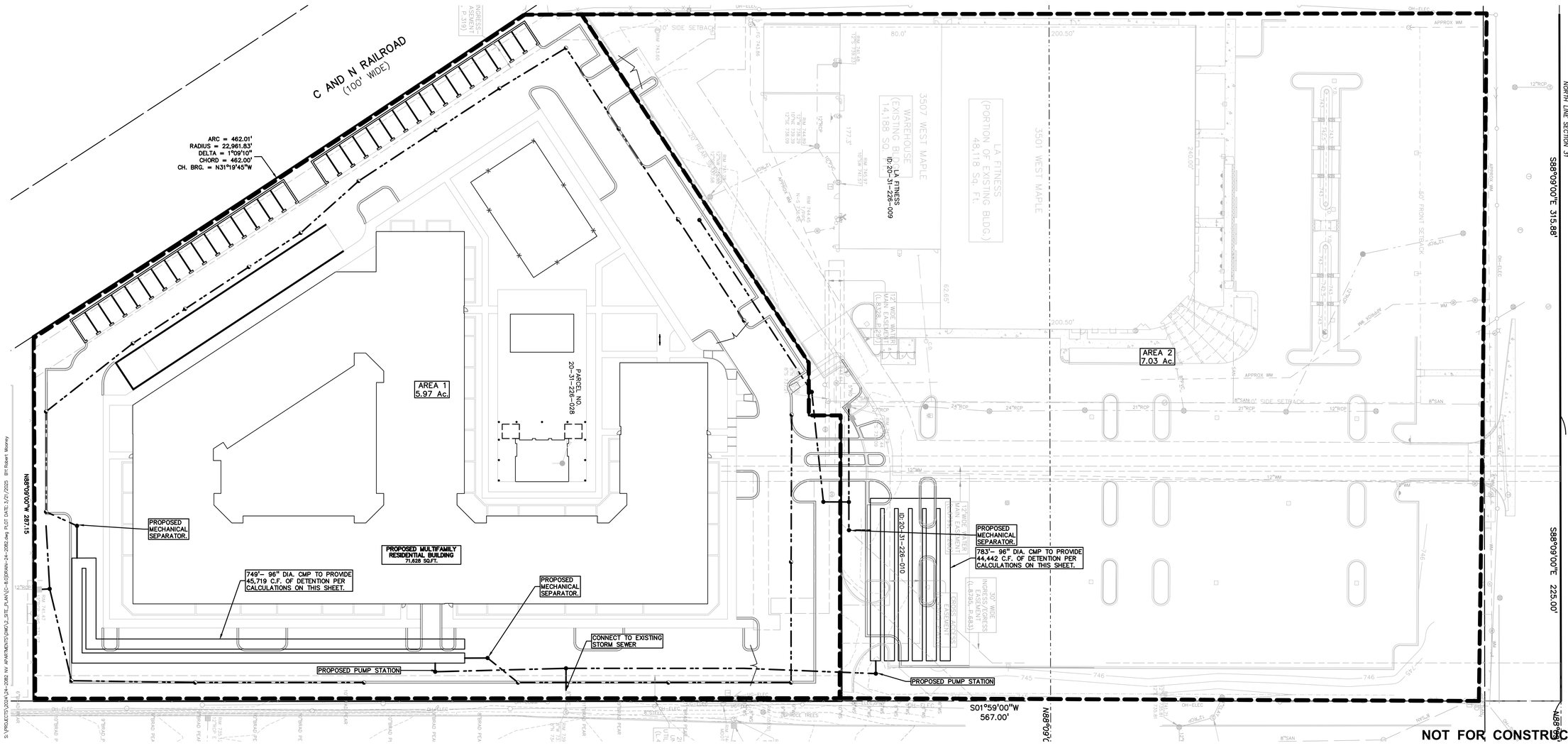
AREA 2

Proposed				
Natural Greenspace area:		acre	C =	0.25
Select NCRS Soil type:	C			
Improved Greenspace area:	2.37	acre	C =	0.25
Select NCRS Soil type:	C			
Wooded Area:	0.00	acre	C =	0.25
Select NCRS Soil type:	C			
Impervious Area:	4.66	acre	C =	0.95
Greenbelt Area:	2.37	acre	C =	0.25
Total Area (A):	7.03	acre		
Weighted Coefficient of Runoff (C):			0.71	
Rainfall Intensity				
Flood Control Time of Concentration, Tc =		18.00	minutes	

Rainfall Intensity	3/12/2025 Detcalcs V2.02	
Time of Concentration (T_C)	18.00	min
Since 15<Tc<60, use intensity equation		
I1 = 30.2 /[(T + 9.17)^.81]	2.08	in/hr
I10 = 50.12 / [(T + 9.17)^.81]	3.45	in/hr
I100 = 83.3/[(T + 9.17)^.81]	5.74	in/hr
CPVC: Channel Protection Volume Control Volume		
Vcpvc = (4719)CA	23,554	cf
CPRC: Channel Protection Rate Control Volume: Extended Detention		
Ved= (6897)CA	34,425	cf
$Q_{VED} = V_{ED} / (48*60*60)$	0.20	cfs
100-Year Allowable Outlet Rate		
Since 2<A<100, Qvrr = 1.1055-0.206xln(A)		
Q_{VRR} =	0.70	cfs/ac
100-Year Peak Allowable Discharge		
Area, A =	7.03	ac
$Q_{100P} = Q_{VRR}(A)$	4.95	cfs
100-Year Runoff Volume		
V100R = (18,985)CA	94,760	cf
100-Year Peak Inflow		
$Q_{100IN} = C(I_{100})A$	28.65	cfs
Storage Curve Factor (Vs/Vr)		
R = 0.206-0.15 x ln(Q100P/Q100IN)	0.469	
100-Year Storage Volume		
Vs = R(V100R)	44,442	cf
No infiltration will be provided, so no CPVC deduction is taken.		
V100D = Vs	44,442	cf
V_{100D} must be larger or equal to V_{ED} :		
Is V_{100D}>= V_{ED} ?	**Yes**	
V_{100D} =	44,442	cf

UTILITY LEGEND:

- EX. OH. ELEC, POLE & GUY WIRE
- EX. U.G. CABLE TV & PEDESTAL
- EX. U.G. COMMUNICATION LINE, PEDESTAL & MANHOLE
- EX. U.G. ELEC.MANHOLE, METER & HANDHOLE
- EX. GAS LINE
- EX. GAS VALVE & GAS LINE MARKER
- EX. TRANSFORMER & IRRIGATION VALVE
- EX. WATER MAIN
- EX. HYDRANT, GATE VALVE & POST INDICATOR VALVE
- EX. WATER VALVE BOX & SHUTOFF
- EX. SANITARY SEWER
- EX. SANITARY CLEANOUT & MANHOLE
- EX. COMBINED SEWER MANHOLE
- EX. STORM SEWER
- EX. CLEANOUT & MANHOLE
- EX. SQUARE, ROUND, & BEEHIVE CATCH BASIN
- EX. YARD DRAIN & ROOF DRAIN
- EX. UNIDENTIFIED STRUCTURE
- PROPOSED WATER MAIN
- PROPOSED HYDRANT AND GATE VALVE
- PROPOSED TAPPING SLEEVE, VALVE & WELL
- PROPOSED POST INDICATOR VALVE
- PROPOSED SANITARY SEWER
- PROPOSED SANITARY CLEANOUT & MANHOLE
- PROPOSED STORM SEWER
- PROPOSED STORM SEWER CLEANOUT & MANHOLE
- PROPOSED CATCH BASIN, INLET & YARD DRAIN



NORTH

0 20 40 80

SCALE: 1" = 40'

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

CAUTION!!
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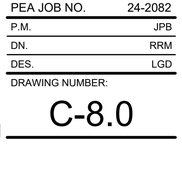


PEA GROUP
t: 844.813.2949
www.peagroup.com

STATE OF MICHIGAN — JAMES B. BUTLER — ENGINEER — No. 6201055 — PROFESSIONAL ENGINEER

CLIENT

SECURED STORAGE ACQUISITIONS, LLC
2966 INDUSTRIAL ROW
TROY, MI 48084

PROJECT TITLE

TROY LIVING
1485 MAPLE WAY DR.
TROY, MI 48084

REVISIONS	
SPA	1/24/2025
SPA REVISIONS	3/21/2025

ORIGINAL ISSUE DATE:
JANUARY 10, 2025

DRAWING TITLE

PRELIMINARY DRAINAGE PLAN

PEA JOB NO.	24-2082
P.M.	JPB
DN.	RRM
DES.	LGD

DRAWING NUMBER:

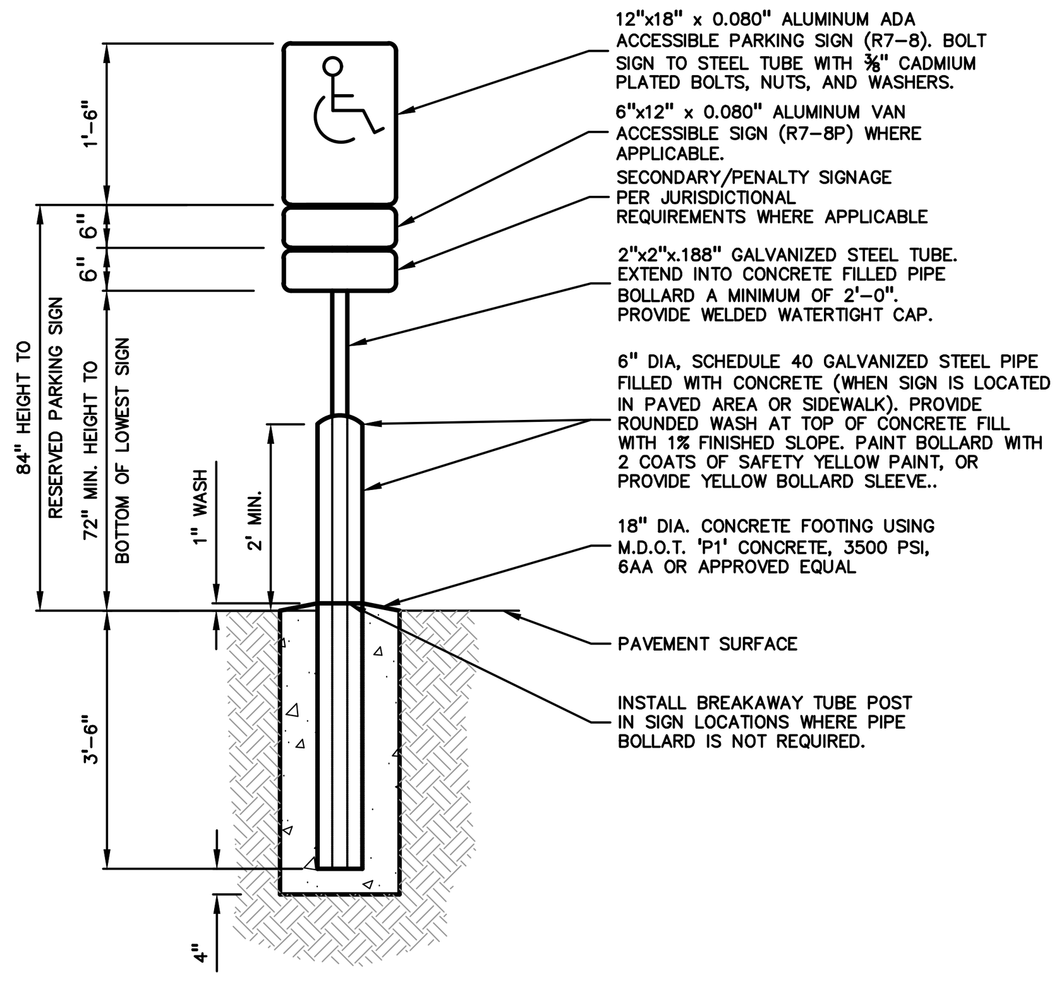
C-8.0

NOT FOR CONSTRUCTION

S:\PROJECTS\2024\24-2082 NV APARTMENTS\DWG\2_SITE_PLAN\C-8.0(DRAIN-24-2082.dwg PLOT DATE: 3/21/2025 BY: Robert Mooney

ADA ACCESSIBLE SIGN NOTES:

1. ONE SIGN IS REQUIRED AT EACH ADA ACCESSIBLE PARKING SPACE.
2. ALL SIGNS SHALL COMPLY WITH THE LATEST STANDARDS OF THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MMUTCD).
3. WHEN TWO ADA ACCESSIBLE PARKING SPACES ARE ADJACENT AND FACING EACH OTHER, TWO SIGNS ARE REQUIRED, BUT CAN BE MOUNTED ON THE SAME POST.
4. SIGN POSTS SHALL BE 2" NOM. SQUARE 14-GAUGE GALVANIZED STEEL TUBE WITH 7/16" HOLES AT 1" CENTERS. POSTS SHALL TELESCOPE INSIDE ANCHOR POSTS A MINIMUM OF 12".
5. ANCHOR POSTS SHALL BE 2.25" NOM. SQUARE 12-GAUGE GALVANIZED STEEL POST, A MINIMUM OF 3 FEET LONG.
6. IF THESE NOTES AND DETAILS CONFLICT WITH LOCAL CODES AND ORDINANCES, THE STRICTER REQUIREMENT SHOULD BE USED.
7. ALTERNATE MATERIALS MAY BE USED IF IN COMPLIANCE WITH ADA GUIDELINES AND LOCAL REQUIREMENTS.

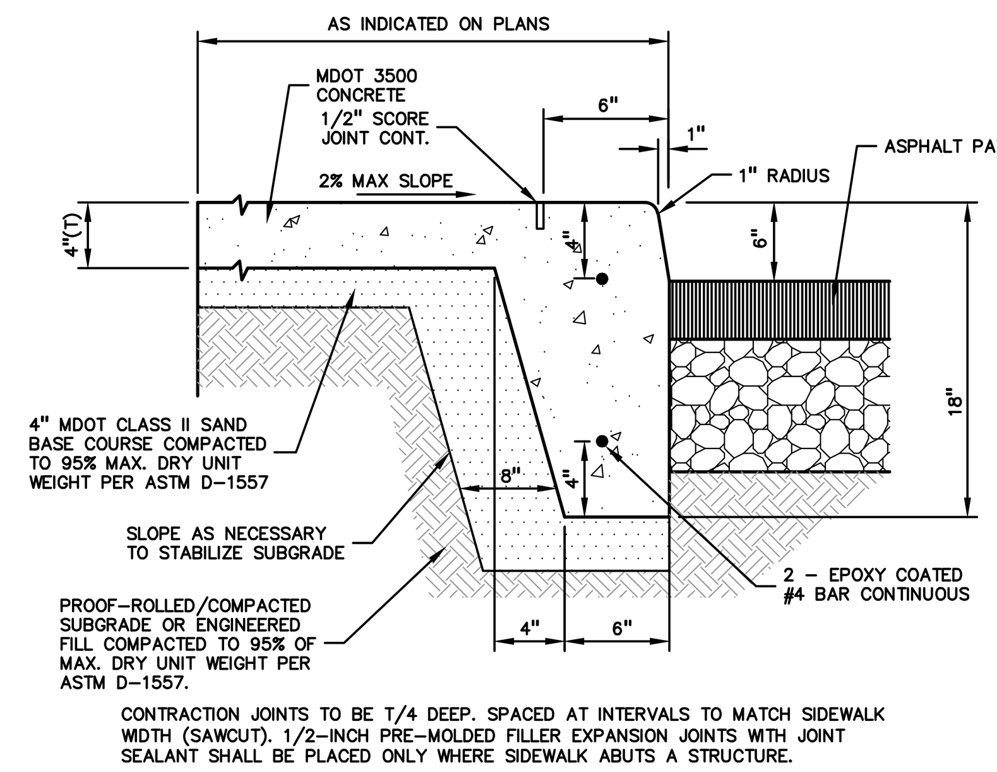


ADA ACCESSIBLE SIGN AND POST DETAIL
NOT TO SCALE

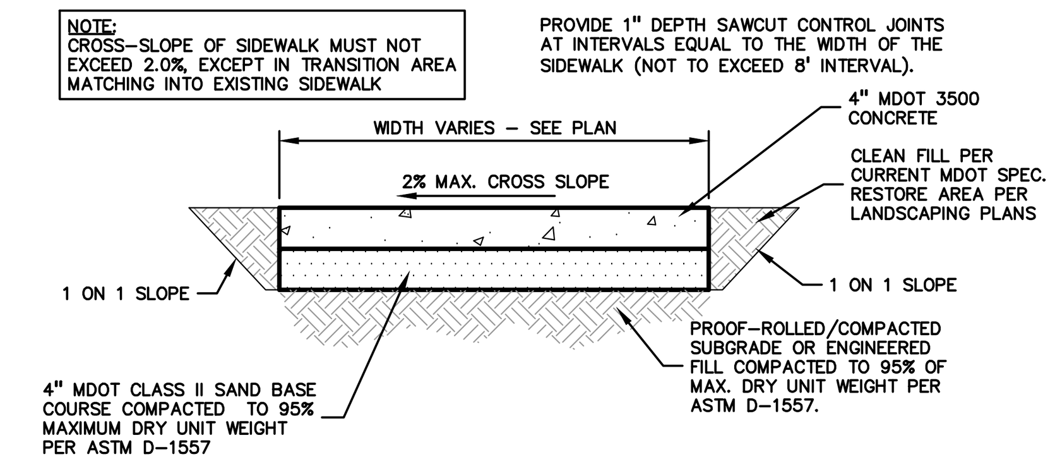
FIRE LANE SIGNS: APPROVED "NO PARKING FIRE LANE" SIGN MUST BE INSTALLED AND MAINTAINED IN COMPLIANCE WITH THE CRITERIA SET FORTH IN THE MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. SOME OF THE CRITERIA IS AS FOLLOWS: (TROY CITY CODE CHAPTER 106)

- SIGN SHALL BE RED LETTERING ON WHITE BACKGROUND AND SHALL READ, "FIRE LANE. NO PARKING. NO STOPPING. NO STANDING. TOW AWAY ZONE"
- SIGNS SHALL BE SPACED NO FURTHER THAN 100 FEET APART.
- SIGNS SHALL BE INSTALLED AT A RIGHT ANGLE 90° TO CURB
- SIGN SHALL BE SEVEN (7) FEET FROM THE BOTTOM OF SIGN TO GRADE
- SIGNS SHALL BE DOUBLE FACED WHERE THE POSSIBILITY EXIST FOR LEFT WHEEL TO CURB PARKING.
- SIGNS SHALL BE 12 INCES IN WIDTH AND 18 INCHES IN HEIGHT.

CITY OF TROY FIRE LANE SIGN DETAIL
NOT TO SCALE



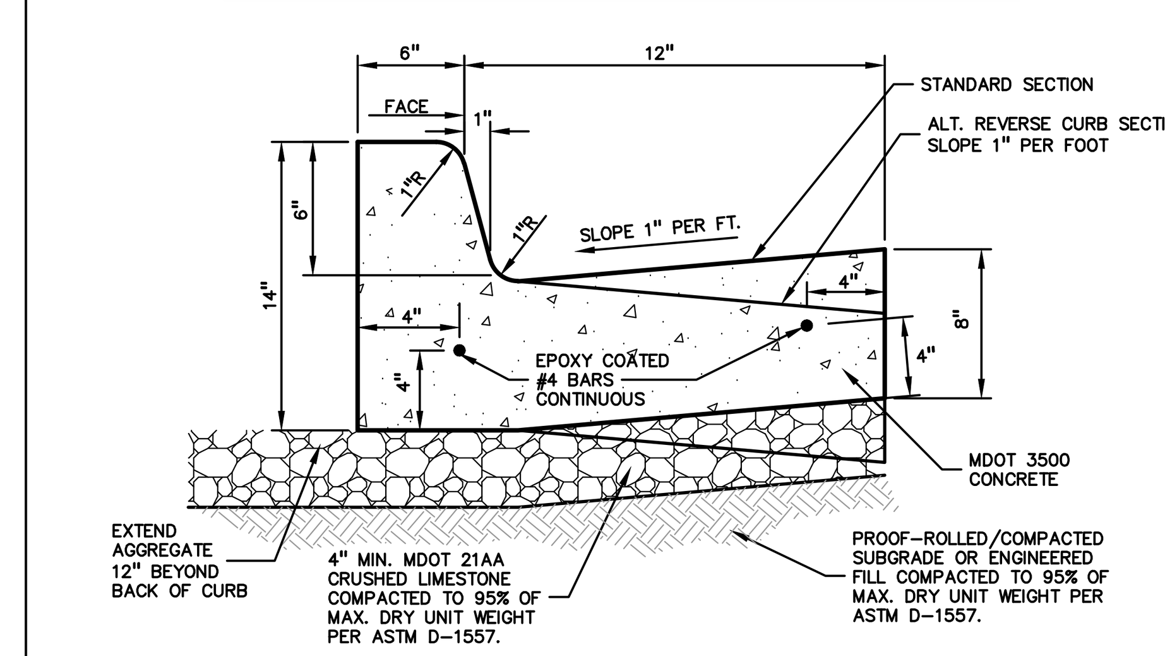
INTEGRAL CURB AND SIDEWALK
NOT TO SCALE



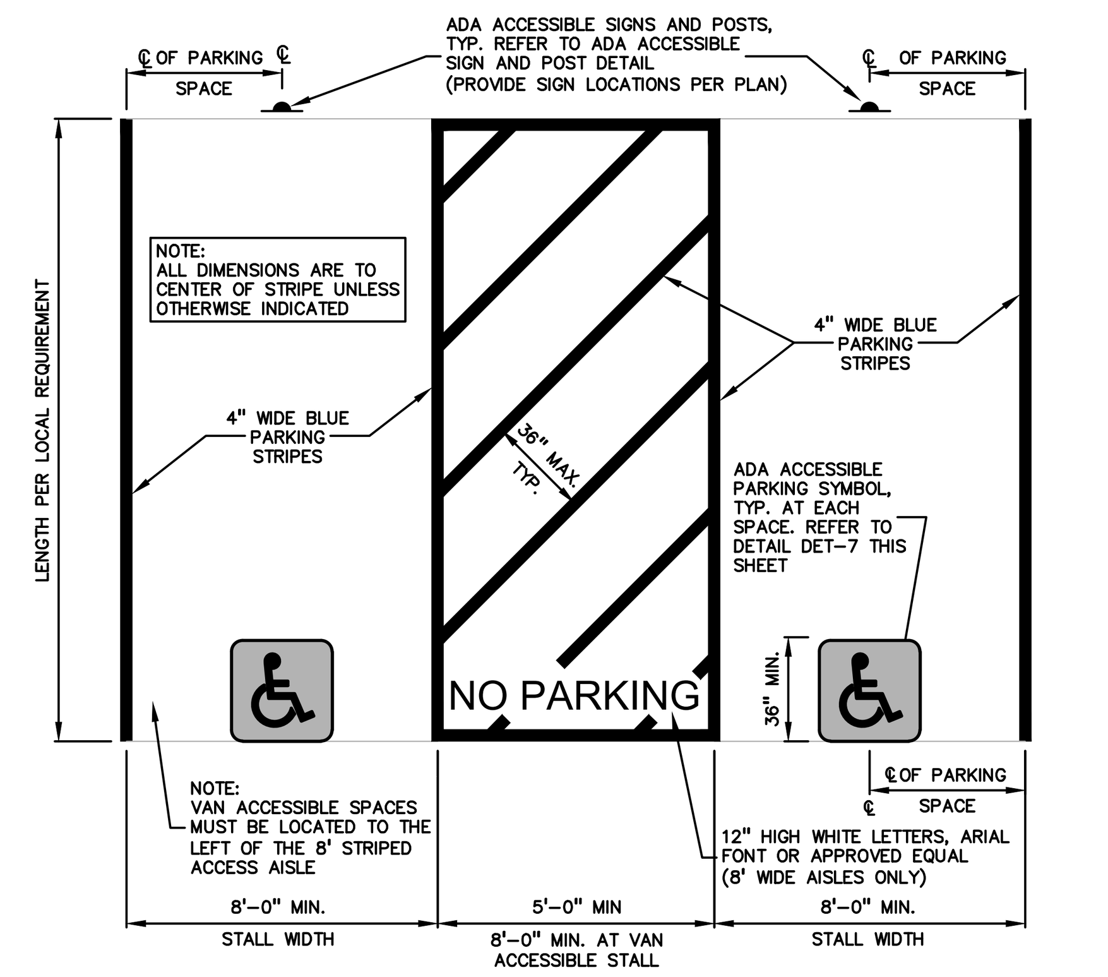
CONCRETE SIDEWALK
NOT TO SCALE

NOTE:
ALTERNATE REVERSE CURB SECTION TO BE USED ONLY WHEN DRAINING AWAY FROM CURB. SEE PLAN FOR LOCATION.

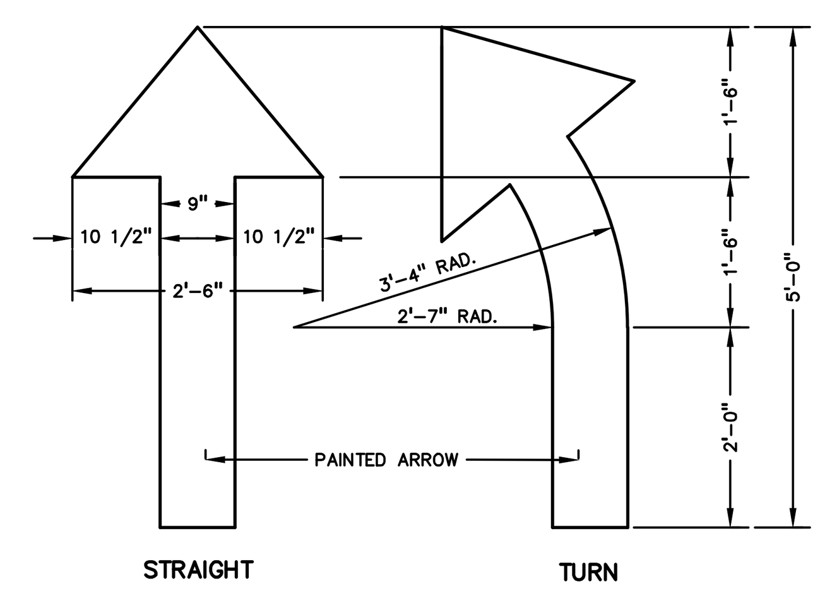
NOTE:
PROVIDE CONTROL JOINTS IN CURB AT 10' O.C. PROVIDE EXPANSION JOINT AND JOINT SEALANT AT END OF RADIUS RETURNS PER MDOT AND ACA STANDARDS. PROVIDE EXPANSION JOINTS AND JOINT SEALANT WHERE CURBS ABUT STRUCTURES.



18"x6" STANDARD CONCRETE CURB AND GUTTER
NOT TO SCALE



ALTERNATE ADA ACCESSIBLE PARKING STALL DETAIL
NOT TO SCALE



NOTE:
TRAFFIC MARKINGS SHOULD BE STRIPE USING WHITE TRAFFIC PAINT UNLESS OTHERWISE NOTED ON THE PLANS.

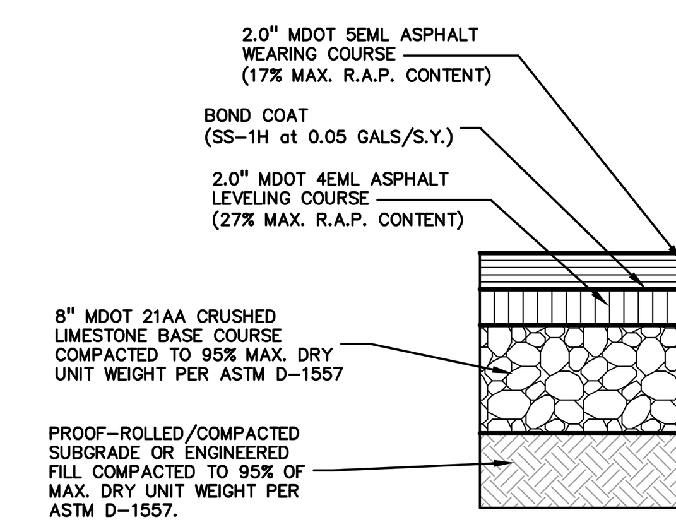
PAINTED DIRECTIONAL ARROWS
NOT TO SCALE

AGGREGATE BASE NOTE:
THIS PAVEMENT SECTION DESIGN ASSUMES THE USE OF MDOT 21AA CRUSHED LIMESTONE BASE MATERIAL THAT MEETS THE REQUIREMENTS OF MDOT STANDARD SPECIFICATION SECTION 902 FOR AGGREGATES. IF CRUSHED CONCRETE AGGREGATE BASE IS PROPOSED IN LIEU OF THE SPECIFIED CRUSHED LIMESTONE MATERIAL, PEA GROUP WILL REQUIRE A MINIMUM 25% INCREASE IN BASE THICKNESS. HOWEVER, IF TESTING DOCUMENTATION IS PROVIDED TO PEA GROUP THAT SHOWS THAT THE CRUSHED CONCRETE MATERIAL MEETS ALL REQUIREMENTS OF MDOT SPECIFICATION SECTION 902, THEN THE 25% INCREASE IN THICKNESS MAY BE REEVALUATED.

ASPHALT MATERIAL NOTES:
HOT-MIX ASPHALT MIXTURES UTILIZING RECYCLED ASPHALT PAVEMENT (RAP) MUST MEET MDOT SPECIAL PROVISION 12SP501(E). THE BINDER GRADE FOR THIS WORK IS PG64-28. IF ASPHALT MIXES CONTAINING RAP ARE TO BE SUPPLIED FOR THIS PROJECT, THE ASPHALT BINDER MUST BE REVISED PER MDOT 'TIER 1' OR 'TIER 2' REQUIREMENTS (RAP CONTENT UP TO 27% MAXIMUM). TIER 3 MIXES ARE NOT ACCEPTABLE ON THIS PROJECT. AN ASPHALT MIX DESIGN FOR ALL SPECIFIED MIXES SHOULD BE FORWARDED TO PEA GROUP FOR REVIEW PRIOR TO CONSTRUCTION

ASPHALT MIX DESIGN CHART

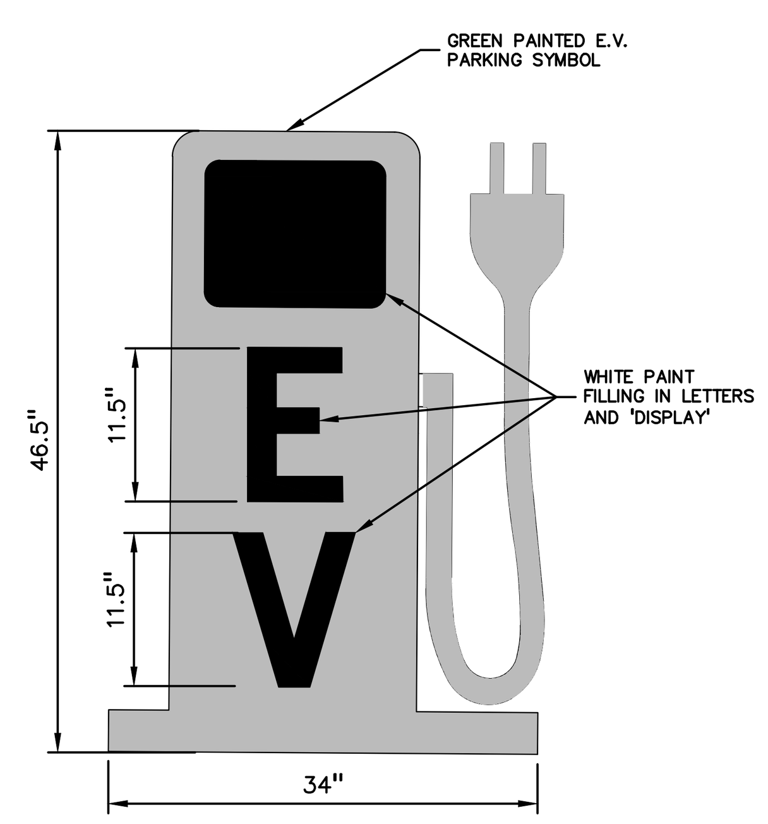
COMMERCIAL ADT 0-300	COMMERCIAL ADT 301-1000	COMMERCIAL ADT 1001-3400	COMMERCIAL ADT ≥3401	APPLICATION RATE (LB/YD²), MINIMUM - MAXIMUM	COURSE APPLICATION
2EL	2EML	2EMH	2EH	435-550	BASE
3EL	3EML	3EMH	3EH	330-410	BASE AND/OR LEVELING
4EL	4EML	4EMH	4EH	220-275	LEVELING AND/OR TOP
5EL	5EML	5EMH	5EH	165-220	TOP
PG 58-28	PG 64-28	PG 64-28	PG 70-28P		



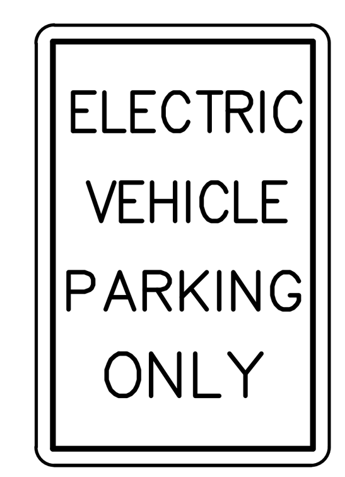
STANDARD DUTY ASPHALT DETAIL
(NOT FOR USE IN THE RIGHT-OF-WAY)
NOT TO SCALE

12" x 18" (R7-8)
GREEN BORDER AND LEGEND
WHITE SYMBOL, BLUE BACKGROUND.
REFLECTORIZED

ADA ACCESSIBLE PARKING SIGN DETAIL
NOT TO SCALE



EV PARKING SYMBOL
NOT TO SCALE



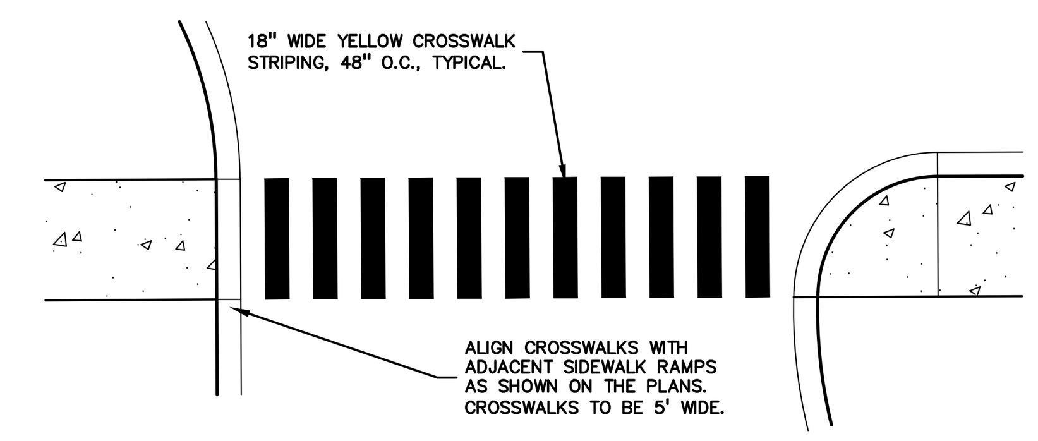
12" x 18"
BLACK ON WHITE REFLECTORIZED
7'-0" MOUNTING HEIGHT

ELECTRIC VEHICLE PARKING SIGN DETAIL
NOT TO SCALE

30" x 30"
BLACK ON YELLOW REFLECTORIZED
7'-0" MOUNTING HEIGHT
(W11-2)

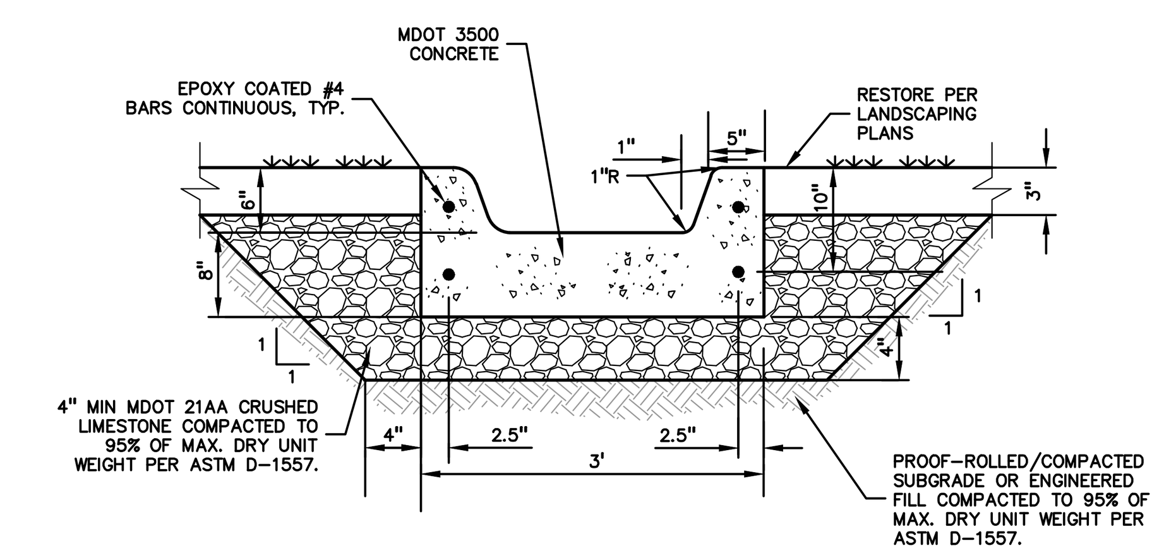
24" x 12"
BLACK ON YELLOW REFLECTORIZED
MOUNTING BELOW W11-2
(W16-7P)

CROSSWALK SIGN DETAIL
NOT TO SCALE



STRIPED CROSSWALK DETAIL
NOT TO SCALE

NOTE:
PROVIDE CONTROL JOINTS IN CURB AT 10' O.C.



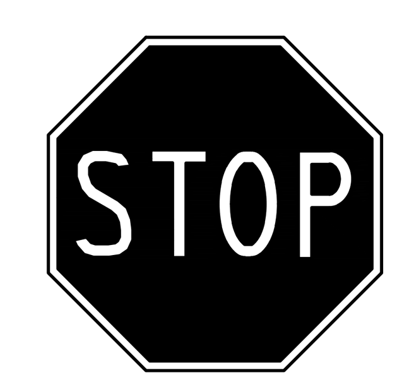
CONCRETE CURB DRAIN
NOT TO SCALE

12" x 18" (R7-8)
GREEN BORDER AND LEGEND
WHITE SYMBOL, BLUE BACKGROUND.
REFLECTORIZED

NOTE:
MAY ONLY BE USED AT 11' WIDE SPACES LOCATED ON THE LEFT SIDE OF A 5' WIDE AISLE, OR 8' WIDE SPACES LOCATED TO THE LEFT OF 8' WIDE AISLES

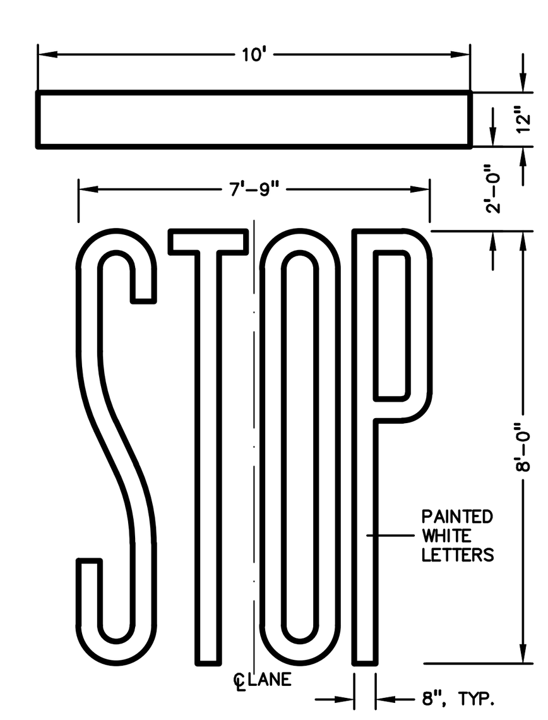
6" x 12" (R7-8P)
GREEN BORDER AND LEGEND
REFLECTORIZED

VAN ACCESSIBLE PARKING SIGN DETAIL
NOT TO SCALE



30" x 30"
WHITE ON RED REFLECTORIZED
7'-0" MOUNTING HEIGHT
(R1-1)

STOP SIGN DETAIL
NOT TO SCALE



STOP BAR DETAIL
NOT TO SCALE

PEA GROUP
t: 844.813.2949
www.peagroup.com

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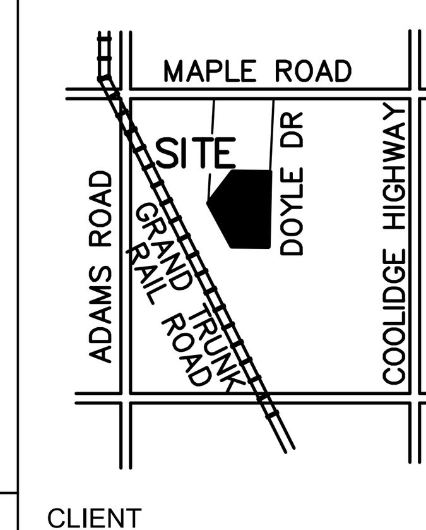

CLIENT
SECURED STORAGE ACQUISITIONS, LLC
2966 INDUSTRIAL ROW
TROY, MI 48084

PROJECT TITLE
TROY LIVING
1485 MAPLE WAY DR.
TROY, MI 48084

REVISIONS

SPA	1/24/2025
SPA REVISIONS	3/21/2025

ORIGINAL ISSUE DATE:
JANUARY 10, 2025

DRAWING TITLE
NOTES AND DETAILS

PEA JOB NO.	24-2082
P.M.	JPB
DN.	RRM
DES.	LGD

DRAWING NUMBER:
C-9.0

NOT FOR CONSTRUCTION

PLANT SCHEDULE

CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CONTAINER	SPACING	DESIGNATION
DECIDUOUS TREES							
ASL2.5	3	ACER SACCHARUM 'LEGACY'	LEGACY SUGAR MAPLE	2.5" CAL.	B&B	PER PLAN	NATIVE
CFA2.5	2	CORNUS FLORIDA 'APPALACHIAN SNOW'	APPALACHIAN SNOW DOGWOOD	2.5" CAL.	B&B	PER PLAN	NATIVE
GT2.5	3	GLEDITSIA TRIACANTHOS INERMIS 'SKYCOLE'	SKYLINE® HONEY LOCUST	2.5" CAL.	B&B	PER PLAN	NATIVE
LT2.5	3	LIRIODENDRON TULIPIFERA	TULIP POPLAR	2.5" CAL.	B&B	PER PLAN	NATIVE
NS2.5	6	NYSSA SYLVATICA	TUPELO	2.5" CAL.	B&B	PER PLAN	NATIVE
PO2.5	2	PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	2.5" CAL.	B&B	PER PLAN	NATIVE
QP2.5	3	QUERCUS ROBUR X BICOLOR 'LONG'	REGAL PRINCE® OAK	2.5" CAL.	B&B	PER PLAN	NATIVE
TA2.5	4	TILIA AMERICANA 'AMERICAN SENTRY'	AMERICAN SENTRY LINDEN	2.5" CAL.	B&B	PER PLAN	NATIVE
	26	SUBTOTAL:					
EVERGREEN TREES							
AC8	5	ABIES CONCOLOR	WHITE FIR	8' HT.	B&B	PER PLAN	NON-NATIVE
PG8	2	PICEA GLAUCA	WHITE SPRUCE	8' HT.	B&B	PER PLAN	NATIVE
PO8	5	PICEA OMORIKA	SERBIAN SPRUCE	8' HT.	B&B	PER PLAN	NON-NATIVE
	12	SUBTOTAL:					

TREE INVENTORY/PRESERVATION CALCULATIONS

WOODLAND TREES			
WOODLAND TREES REMOVED:	**9**	(REPLACE AT 50% OF REMOVED DBH)	
71" DBH x 0.5 =		**36"**	REPLACEMENT
WOODLAND TREES SAVED:	0	(CREDIT OF 2X DBH)	
" DBH x 2 =		**"**	CREDIT
35.5 -	0	=	35.5
36" **DBH REQUIRED FOR WOODLAND REPLACEMENT**			
LANDMARK TREES			
LANDMARK TREES REMOVED:	0	(REPLACE AT 100% OF REMOVED DBH)	
" DBH x 1 =		**"**	REPLACEMENT
LANDMARK TREES SAVED:	0	(CREDIT OF 2X DBH)	
" DBH x 2 =		**"**	CREDIT
0 -	0	=	0
" **DBH CREDIT FOR LANDMARK PRESERVATION**			
36" **TOTAL DBH REQUIRED FOR REPLACEMENT**			
EXEMPT TREES			
(NO REPLACEMENT REQUIRED FOR EXEMPT TREES)			
SAVED EXEMPT TREES:	0	**Trees**	
EXEMPT TREES ON SITE:	1	**Trees**	
TOTAL SAVED TREES 6" AND ABOVE ON SITE:	0	Trees	
TOTAL TREE CREDITS	0	----TREE CREDITS	

REPLACEMENT TREES = R

REQUIRED: 36" OF WOODLAND REPLACEMENT

PROVIDED: 12, 8' HT. EVG. TREES,
REPLACEMENT TREES MUST BE LOCATED WITHIN PROPERTY PER REVIEW COMMENTS
SEE T-1.0 FOR EXISTING TREE LIST

KEY

- = DECIDUOUS TREES
- = IRRIGATED SEED LAWN
- = RESTORE SEED LAWN
- 949 = EXISTING TREE TO REMAIN
- = TREE PROTECTION FENCING
- = LAND BANKED PARKING AREA
- = POTENTIAL SNOW STORAGE AREA

ALL LAWN AND LANDSCAPE AREAS TO BE IRRIGATED

LETTER DESIGNATION FOR LANDSCAPE ORDINANCE MATERIAL

G = GREENBELT TREES
P = PARKING TREES
R = REPLACEMENT TREES

LANDSCAPE CALCULATIONS:

PER CITY OF TROY ZONING ORDINANCE; IB-INTEGRATED INDUSTRIAL BUSINESS DISTRICT. PROPOSED USE, MULTI FAMILY DEVELOPMENT

GREENBELT = G
1 DEC TREE PER 30 LF OF FRONTAGE ABUTTING A PUBLIC ROW
REQUIRED: DOYLE RD. 636.57 LF / 30 = 21.21
PROVIDED: 19 EXISTING TREES TO REMAIN.
DUE TO EASEMENT, 3 ADDITIONAL TREES PROVIDED ADJACENT TO ROW.

PARKING LOT LANDSCAPING = P
REQUIRED: 1 TREE / 8 PARKING SPACES AND MINIMUM 200 SF PARKING ISLAND WITH TREES INSIDE ISLAND.
LANDSCAPING TO BE 5' FROM THE CURB WHERE THERE IS VEHICLE OVERHANG AND 3' WHERE THERE IS NOT.
131 SURFACE SPACES + 40 LANDBANK = 171 SPACES
171 SURFACE PARKING SPACES W/IN LIMITS OF CONST./ 8 = 22 TREES

PROVIDED: 23 PROPOSED TREES
NOTE 1 ADDITIONAL TREE IS PROVIDED ON NORTH PROPERTY

GENERAL SITE LANDSCAPE
REQUIRED: 20% OF SITE AREA SHALL BE LANDSCAPE MATERIAL.(SECTION 13.02 E)

SITE AREA: 6.023 ACRES (262,362 SF.) NET AND GROSS
20 % = 52,472 SF.

PROVIDED: 56,152 SF, 21.4 % LANDSCAPE AREA
LANDSCAPE AREA IS INDICATED BY IRRIGATED LAWN HATCH AREAS WITHIN PROPERTY LINE.
DOES NOT INCLUDE POOL AREA OR RESTORE LAWN AREAS

GENERAL PLANTING NOTES:

1. LANDSCAPE CONTRACTOR SHALL VISIT SITE, INSPECT EXISTING SITE CONDITIONS AND REVIEW PROPOSED PLANTING AND RELATED WORK. IN CASE OF DISCREPANCY BETWEEN PLAN AND PLANT LIST, PLAN SHALL GOVERN QUANTITIES. CONTACT LANDSCAPE ARCHITECT WITH ANY CONCERNS.
2. CONTRACTOR SHALL VERIFY LOCATIONS OF ALL ON SITE UTILITIES PRIOR TO BEGINNING CONSTRUCTION ON HIS/HER PHASE OF WORK. ELECTRIC, GAS, TELEPHONE, CABLE TELEVISION MAY BE LOCATED BY CALLING MISS DIG 1-800-482-7171. ANY DAMAGE OR INTERRUPTION OF SERVICES SHALL BE THE RESPONSIBILITY OF CONTRACTOR. CONTRACTOR SHALL COORDINATE ALL RELATED ACTIVITIES WITH OTHER TRADES ON THE JOB AND SHALL REPORT ANY UNACCEPTABLE JOB CONDITIONS TO OWNER'S REPRESENTATIVE PRIOR TO COMMENCING.
3. ALL PLANT MATERIAL TO BE PREMIUM GRADE NURSERY STOCK AND SHALL SATISFY AMERICAN ASSOCIATION OF NURSERYMEN STANDARD FOR NURSERY STOCK. ALL LANDSCAPE MATERIAL SHALL BE NORTHERN GROWN, NO. 1. GRADE.
4. CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL QUANTITIES SHOWN ON LANDSCAPE PLAN PRIOR TO PRICING THE WORK.
5. THE OWNER'S REPRESENTATIVE RESERVES THE RIGHT TO REJECT ANY PLANT MATERIAL NOT MEETING SPECIFICATIONS.
6. ALL SINGLE STEM SHADE TREES TO HAVE STRAIGHT TRUNKS AND SYMMETRICAL CROWNS.
7. ALL SINGLE TRUNK SHADE TREES TO HAVE A CENTRAL LEADER; TREES WITH FORKED OR IRREGULAR TRUNKS WILL NOT BE ACCEPTED.
8. ALL MULTI STEM TREES SHALL BE HEAVILY BRANCHED AND HAVE SYMMETRICAL CROWNS. ONE SIDED TREES OR THOSE WITH THIN OR OPEN CROWNS SHALL NOT BE ACCEPTED.
9. ALL EVERGREEN TREES SHALL BE HEAVILY BRANCHED AND FULL TO THE GROUND, SYMMETRICAL IN SHAPE AND NOT SHEARED FOR THE LAST FIVE GROWING SEASONS.
10. ALL TREES TO HAVE CLAY OR CLAY LOAM BALLS, TREES WITH SAND BALLS WILL BE REJECTED.
11. NO MACHINERY IS TO BE USED WITHIN THE DRIP LINE OF EXISTING TREES; HAND GRADE ALL LAWN AREAS WITHIN THE DRIP LINE OF EXISTING TREES.
12. ALL TREE LOCATIONS SHALL BE STAKED BY LANDSCAPE CONTRACTOR AND ARE SUBJECT TO THE APPROVAL OF THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION OF THE PLANT MATERIAL.
13. IT IS MANDATORY THAT POSITIVE DRAINAGE IS PROVIDED AWAY FROM ALL BUILDINGS.
14. ALL PLANTING BEDS SHALL RECEIVE 3" SHREDDED HARDWOOD BARK MULCH WITH PRE EMERGENT, SEE SPECIFICATIONS. SHREDDED PALETTE AND DYED MULCH WILL NOT BE ACCEPTED.
15. ALL LANDSCAPED AREAS SHALL RECEIVE 3" COMPACTED TOPSOIL.
16. SEE SPECIFICATIONS FOR ADDITIONAL COMMENTS, REQUIREMENTS, PLANTING PROCEDURES AND WARRANTY STANDARDS.
17. FOR NON-LAWN SEED MIX AREAS, AS NOTED ON PLAN, BRUSH MOW ONCE SEASONALLY FOR INVASIVE SPECIES CONTROL.
18. CONTRACTOR SHALL NOT INSTALL PLANTS UNDER BUILDING OVERHANG AND SHALL NOTIFY LANDSCAPE ARCHITECT IF DRAWINGS CONFLICT WITH BUILDING OVERHANGS.
19. TREES SHALL NOT CONFLICT/ BLOCK PROPOSED REGULATORY/ DIRECTION SIGNAGE, MONUMENT SIGNS, ADDRESS OR LIGHT POLES. SHIFT TREES AS NECESSARY TYP.

NOT FOR CONSTRUCTION

PEA GROUP
t: 844.813.2949
www.peagroup.com

STATE OF MICHIGAN — JANET L EVANS — LANDSCAPE ARCHITECT — NO. 1301 — REGISTERED LANDSCAPE ARCHITECT

NORTH

0 15 30 60
SCALE: 1" = 30'

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

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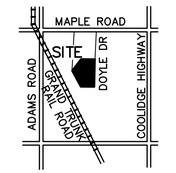

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TROY, MI 48084

PROJECT TITLE

TROY LIVING
1485 MAPLE WAY DR.
TROY, MI 48084

REVISIONS	
SPA	1/24/2025
SPA REVISIONS	3/21/2025

ORIGINAL ISSUE DATE:
JANUARY 10, 2025

DRAWING TITLE

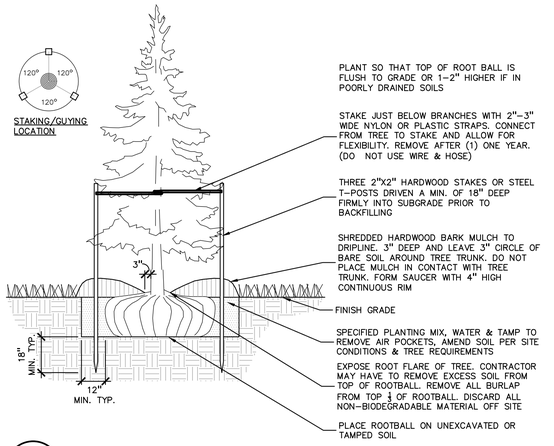
PRELIMINARY LANDSCAPE PLAN

PEA JOB NO.	24-2082
P.M.	JPB
DN.	CAL
DES.	JLE

DRAWING NUMBER:

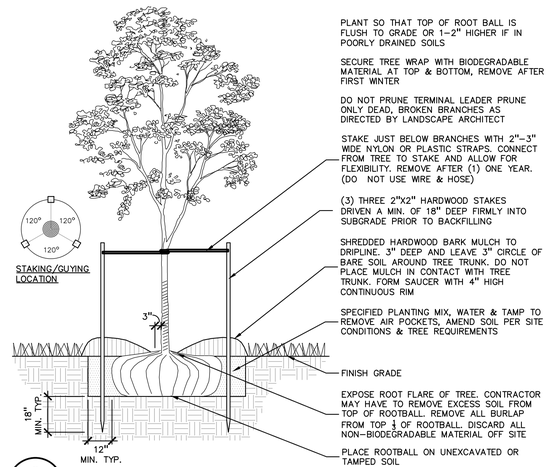
L-1.0

S:\PROJECTS\2024\24-2082 INV APARTMENTS\DWG\0_SITE_PLAN\LL-1.0_LANDSCAPE PLAN-24-2082.dwg PLOT DATE: 3/21/2025 BY: Janet Evans



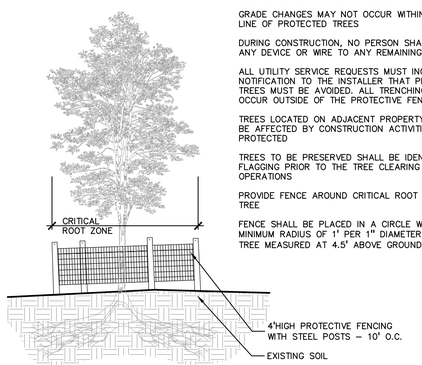
3 EVERGREEN TREE PLANTING DETAIL

SCALE: 1" = 3'-0"



2 DECIDUOUS TREE PLANTING DETAIL

SCALE: 1" = 3'-0"



TREE PROTECTION WILL BE ERECTED PRIOR TO START OF CONSTRUCTION ACTIVITIES AND SHALL REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETE

NO PERSON MAY CONDUCT ANY ACTIVITY WITHIN THE DRIP LINE OF ANY TREE DESIGNATED TO REMAIN; INCLUDING, BUT NOT LIMITED TO PLACING SOLVENTS, BUILDING MATERIAL, CONSTRUCTION EQUIPMENT OR SOIL DEPOSITS WITHIN DRIP LINES

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TREES LOCATED ON ADJACENT PROPERTY THAT MAY BE AFFECTED BY CONSTRUCTION ACTIVITIES MUST BE PROTECTED

TREES TO BE PRESERVED SHALL BE IDENTIFIED WITH FLAGGING PRIOR TO THE TREE CLEARING OPERATIONS

PROVIDE FENCE AROUND CRITICAL ROOT ZONE OF TREE

FENCE SHALL BE PLACED IN A CIRCLE WITH A MINIMUM RADIUS OF 1' PER 1" DIAMETER OF THE TREE MEASURED AT 4.5' ABOVE GROUND

1 TREE PROTECTION DETAIL

SCALE: 1" = 3'-0"

NOT FOR CONSTRUCTION

PEA GROUP
t: 844.813.2949
www.peagroup.com

STATE OF MICHIGAN
JANET L. EVANS
LANDSCAPE ARCHITECT
NO. 390
REGISTERED LANDSCAPE ARCHITECT

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

CAUTION!!
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CLIENT

SECURED STORAGE ACQUISITIONS, LLC
2966 INDUSTRIAL ROW
TROY, MI 48084

PROJECT TITLE

TROY LIVING
1485 MAPLE WAY DR.
TROY, MI 48084

REVISIONS	
SPA	1/24/2025
SPA REVISIONS	3/21/2025

ORIGINAL ISSUE DATE:
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LANDSCAPE DETAILS

PEA JOB NO.	24-2082
P.M.	JPB
DN.	CAL
DES.	JLE

DRAWING NUMBER:

L-1.1

Xref .\X-TBLK-23-1373.dwg

EXISTING TREE LIST

R = DENOTES A TREE TO BE REMOVED
S = TREE TO BE SAVED

TAG NO.	DBH	COMMON NAME	LATIN NAME	COND	COMMENTS	CLASS	SAVE / REMOVE	ON-SITE	REPLACE
~~942~~	~~9.5~~	~~Blue Spruce~~	~~Picea pungens~~	Good		WOODLAND	R	~~Y~~	REPLACE
~~943~~	~~8~~	~~(Eastern) White Pine~~	~~Pinus strobus~~	Good		WOODLAND	R	~~Y~~	REPLACE
~~944~~	~~9.5~~	~~Blue Spruce~~	~~Picea pungens~~	Good		WOODLAND	R	~~Y~~	REPLACE
~~945~~	~~2.5~~	~~European Buckthorn~~	~~Rhamnus cathartica~~	Good		INVASIVE	R	~~Y~~	-
~~946~~	~~4.5~~	~~Bradford Pear~~	~~Pyrus calleryanna~~	Good		WOODLAND	R	~~Y~~	-
~~947~~	~~4~~	~~White Mulberry~~	~~Morus alba~~	Good		INVASIVE	R	~~Y~~	-
~~948~~	~~11~~	~~Siberian Elm~~	~~Ulmus pumila~~	Good		INVASIVE	R	~~Y~~	-
949	5.5	Red Oak	Quercus rubra	Good		WOODLAND	S	N	-
~~950~~	~~4~~	~~Red Oak~~	~~Quercus rubra~~	Good		WOODLAND	R	N	-
~~951~~	~~5.5~~	~~Siberian Elm~~	~~Ulmus pumila~~	Good		INVASIVE	R	N	-
~~952~~	~~8.5~~	~~Austrian Pine~~	~~Pinus nigra~~	Good		WOODLAND	R	N	REPLACE
~~953~~	~~8.5~~	~~Austrian Pine~~	~~Pinus nigra~~	Good		WOODLAND	R	N	REPLACE
~~954~~	~~7.5~~	~~Austrian Pine~~	~~Pinus nigra~~	Good		WOODLAND	R	N	REPLACE
~~955~~	~~7~~	~~Austrian Pine~~	~~Pinus nigra~~	Fair		WOODLAND	R	N	REPLACE
~~956~~	~~6~~	~~Austrian Pine~~	~~Pinus nigra~~	Good		WOODLAND	R	N	REPLACE
~~957~~	~~6.5~~	~~Austrian Pine~~	~~Pinus nigra~~	Good		WOODLAND	R	N	REPLACE
958	8.5	White Spruce	Picea glauca	Good		WOODLAND	S	N	-
959	6	White Spruce	Picea glauca	Fair		WOODLAND	S	N	-
960	4.5	Box elder	Acer negundo	Good		INVASIVE	S	N	-
961	5	White Spruce	Picea glauca	Good		WOODLAND	S	N	-
962	7	White Spruce	Picea glauca	Good		WOODLAND	S	N	-
963	7.5	White Spruce	Picea glauca	Good		WOODLAND	S	N	-
964	7.5	White Spruce	Picea glauca	Good		WOODLAND	S	N	-
965	7	White Spruce	Picea glauca	Good		WOODLAND	S	N	-
966	7.5	White Spruce	Picea glauca	Good		WOODLAND	S	N	-
967	10.5	White Spruce	Picea glauca	Good		WOODLAND	S	N	-
968	8.5	White Spruce	Picea glauca	Good		WOODLAND	S	N	-
969	8.5	White Spruce	Picea glauca	Good		WOODLAND	S	N	-
970	11	White Spruce	Picea glauca	Good		WOODLAND	S	N	-
971	11.5	Bradford Pear	Pyrus calleryanna	Good		WOODLAND	S	N	-
972	9.5	Bradford Pear	Pyrus calleryanna	Good		WOODLAND	S	N	-
973	11	Bradford Pear	Pyrus calleryanna	Good		WOODLAND	S	N	-
974	8.5	Bradford Pear	Pyrus calleryanna	Good		WOODLAND	S	N	-
975	5	White Mulberry	Morus alba	Fair		INVASIVE	S	N	-
976	8.5	Bradford Pear	Pyrus calleryanna	Good		WOODLAND	S	N	-
977	10.5	Bradford Pear	Pyrus calleryanna	Good		WOODLAND	S	N	-
978	11.5	Bradford Pear	Pyrus calleryanna	Good		WOODLAND	S	N	-
979	10.5	Bradford Pear	Pyrus calleryanna	Good		WOODLAND	S	N	-
980	12	Bradford Pear	Pyrus calleryanna	Good		LANDMARK	S	N	-
981	10	Bradford Pear	Pyrus calleryanna	Good		WOODLAND	S	N	-
982	10	Bradford Pear	Pyrus calleryanna	Good		WOODLAND	S	N	-
983	10.5	Bradford Pear	Pyrus calleryanna	Good		WOODLAND	S	N	-
984	12	Bradford Pear	Pyrus calleryanna	Good		LANDMARK	S	N	-
985	7.5	Bradford Pear	Pyrus calleryanna	Good		WOODLAND	S	N	-

KEY:

- = EXISTING TREE TO REMAIN
- = EXISTING TREE TO BE REMOVED
- = TREE PROTECTION FENCING

SEE SHEET L-1.0 FOR TREE REPLACEMENT

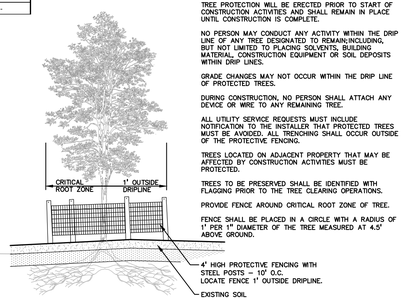
TREE INVENTORY/PRESERVATION CALCULATIONS

WOODLAND TREES				
WOODLAND TREES REMOVED:	**9**	(REPLACE AT 50% OF REMOVED DBH)		
71" DBH x 0.5 =	**36"**	REPLACEMENT		
WOODLAND TREES SAVED:	0	(CREDIT OF 2X DBH)		
" DBH x 2 =	**"**	CREDIT		
35.5 -	0	=	35.5	
36" **DBH REQUIRED FOR WOODLAND REPLACEMENT**				

LANDMARK TREES				
LANDMARK TREES REMOVED:	0	(REPLACE AT 100% OF REMOVED DBH)		
" DBH x 1 =	**"**	REPLACEMENT		
LANDMARK TREES SAVED:	0	(CREDIT OF 2X DBH)		
" DBH x 2 =	**"**	CREDIT		
0 -	0	=	0	
" **DBH CREDIT FOR LANDMARK PRESERVATION**				

36" **TOTAL DBH REQUIRED FOR REPLACEMENT**

EXEMPT TREES		
(NO REPLACEMENT REQUIRED FOR EXEMPT TREES)		
SAVED EXEMPT TREES:	0	**Trees**
EXEMPT TREES ON SITE:	1	**Trees**
TOTAL SAVED TREES 6" AND ABOVE ON SITE:	0	Trees
TOTAL TREE CREDITS 0	-----	TREE CREDITS



1 TREE PROTECTION DETAIL
NOT TO SCALE

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PEA GROUP
t: 844.813.2949
www.peagroup.com

STATE OF MICHIGAN — JANET L. EVANS — LANDSCAPE ARCHITECT — NO. 1301 — REGISTERED

NORTH

0 15 30 60
SCALE: 1" = 30'

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

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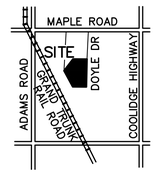


CLIENT

SECURED STORAGE ACQUISITIONS, LLC
2966 INDUSTRIAL ROW
TROY, MI 48084

PROJECT TITLE

TROY LIVING
1485 MAPLE WAY DR.
TROY, MI 48084

REVISIONS	
SPA	1/24/2025
SPA REVISIONS	3/21/2025

ORIGINAL ISSUE DATE:
JANUARY 10, 2025

DRAWING TITLE

TREE PRESERVATION PLAN

PEA JOB NO.	24-2082
P.M.	JPB
DN.	CAL
DES.	JLE

DRAWING NUMBER:
T-1.0

NOT FOR CONSTRUCTION

S:\PROJECTS\2024\24-2082 MY APPLICATIONS\PM\2_SITE_PLAN\[T-1.0]TREE PRESERVATION PLAN-24-2082.dwg PLOT DATE: 3/21/2025 BY: Janet Evans

Schedule

Symbol	Label	QTY	Manufacturer	Catalog	Description	Lamp Output	LLF	Input Power	New Column
	B1	17	ERCO	35749023_V03	Castor Bollard luminaire	295	0.9	14	3'-0"
	P1	16	Lithonia Lighting	DSX1 LED 40K 80CRI	D-Series Size 1 Area Luminaire Performance Package 4000K CCT 80 CRI	9186	0.9	102.17	25'-0"
	P2	1	Lithonia Lighting	DSX1 LED 40K 80CRI	D-Series Size 1 Area Luminaire Performance Package 4000K CCT 80 CRI	9268	0.9	102.17	25'-0"
	P3	3	Lithonia Lighting	DSX1 LED 40K 80CRI	D-Series Size 1 Area Luminaire Performance Package 4000K CCT 80 CRI	7683	0.9	67.7927	25'-0"
	P4	3	Lithonia Lighting	RADPT 40K SYM	RADEAN Post-Top 4000K	3344	0.9	25.4134	12'-0"
	S1	46	LUMINIS	SYP402-L1L10-VWD	SYP402	1430	0.9	12	6'-0"
	W1	1	Lithonia Lighting	WDGE2 LED 40K 70CRI	WDGE2 LED PERFORMANCE PACKAGE, 4000K, 70CRI,	3552	0.9	32.1375	12'-0"

Note

Will reduce provided lighting by using automatic devices for all non emergency lighting by at least 50% between 11PM and 5AM and have full cutoff shielding on all fixtures to prevent light trespass.

Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Interior Courtyard	✳	0.8 fc	4.8 fc	0.1 fc	48.0:1	8.0:1
Overall/Grade	+	0.8 fc	4.8 fc	0.0 fc	N/A	N/A
Parking & Drive Lanes	✳	1.7 fc	3.7 fc	0.4 fc	9.3:1	4.3:1
Property Line @ 5'	□	0.0 fc	0.2 fc	0.0 fc	N/A	N/A

General Note

1. SEE SCHEDULE FOR LUMINAIRE MOUNTING HEIGHT.
2. SEE LUMINAIRE SCHEDULE FOR LIGHT LOSS FACTOR.
3. CALCULATIONS ARE SHOWN IN FOOTCANDLES AT: GRADE & 5' - 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

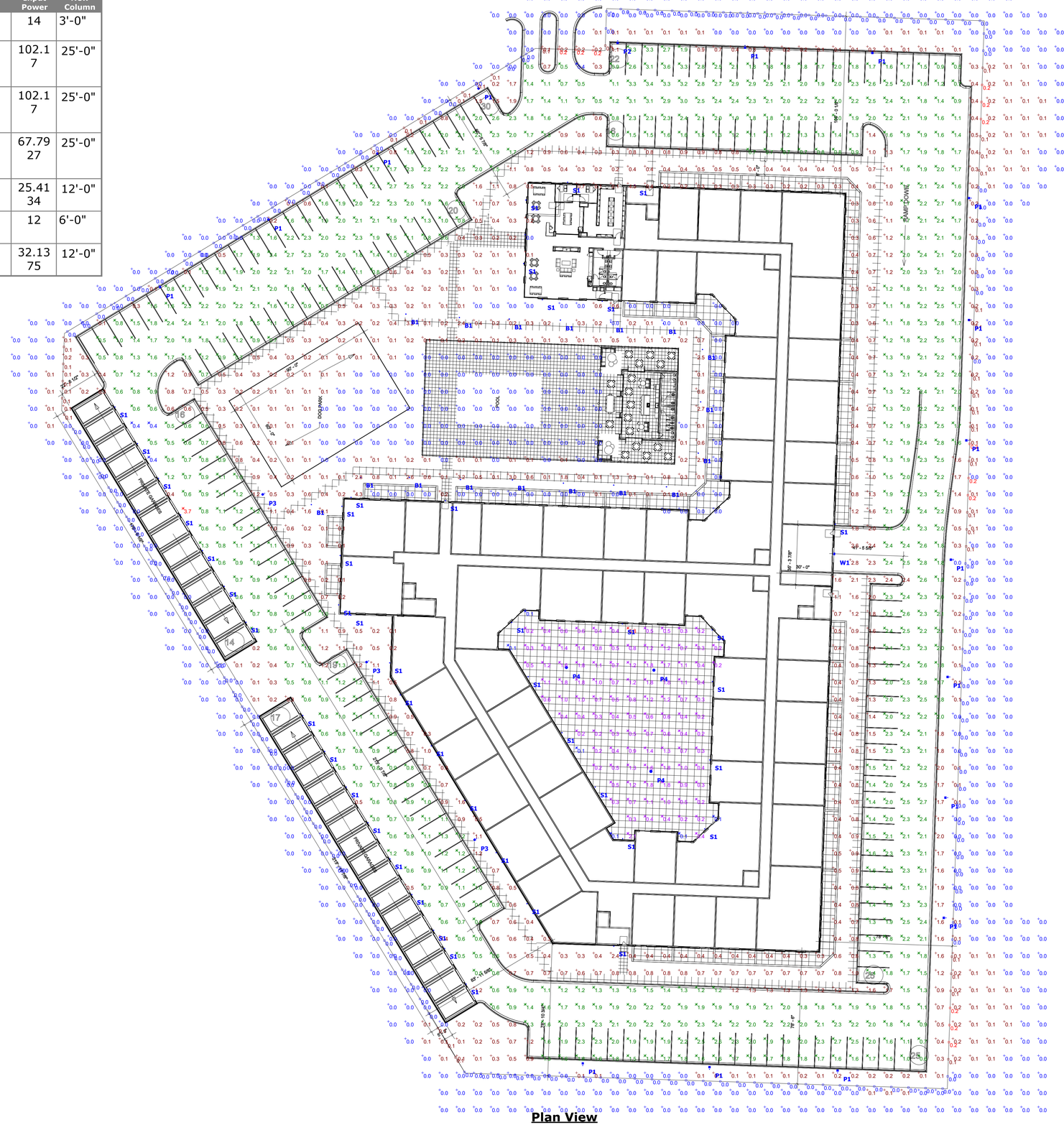
FOR INQUIRIES CONTACT GASSER BUSH AT QUOTES@GASSERBUSH.COM OR 734-266-6705.

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.



Plan View

Scale - 1" = 30ft

NELSON VENTURE - 1485 MAPLE WAY DR.
EXTERIOR PHOTOMETRIC PLAN
GASSER BUSH ASSOCIATES
WWW.GASSERBUSH.COM

Designer
BK/KS
Date
03/21/2025
Scale
Not to Scale
Drawing No.
#25-38067_V2

D-Series Size 1
LED Area Luminaire

Specifications

EPA:	0.69 ft² (0.06 m²)
Length:	32.71" (83.1 cm)
Width:	14.26" (36.2 cm)
Height H1:	7.88" (20.0 cm)
Height H2:	2.73" (6.9 cm)
Weight:	34 lbs (15.4 kg)

Design Select options indicated by this color background.

Catalog Number

Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

Introduction

The modern styling of the D-Series features a highly refined aesthetic that blends seamlessly with its environment. The D-Series offers the benefits of the latest in LED technology into a high performance, high efficacy, long-life luminaire.

The photometric performance results in sites with excellent uniformity, greater pole spacing and lower power density. D-Series outstanding photometry aids in reducing the number of poles required in area lighting applications with typical energy savings of 65% and expected service life of over 100,000 hours.

design select

Items marked by a shaded background qualify for the Design Select program and ship in 15 days or less. To learn more about Design Select, visit www.acuitybrands.com/designselect.
*See ordering tree for details

Ordering Information

EXAMPLE: DSX1 LED P7 40K 70CRI T3M MVOLT SPA NLTAIR2 PIRHN DDBXD

DSX1 LED

Series	LEDs	Color temperature	Color Rendering Index	Distribution	Voltage	Mounting

Radean Post Top
LED Area Luminaire

Specifications

EPA:	1.02 ft² (0.105 m²)
Length:	24" (61cm)
Width:	24" (61cm)
H1 Luminaire Height:	4" (10.16cm)
H2 Luminaire Height:	26" (66.04cm)
Weight:	38lbs (17.24Kg)

Catalog Number

Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

Introduction

The architecturally-inspired shape of the RADEAN™ post top area luminaire embodies the grace and strength of the RADEAN family. The twin copper-core cast aluminum arms support the slender superstructure, creating a beautiful sculpture by day transforming into a beacon of comfort by night. Triangular arms redirect reflection maintaining its visually quiet appearance. With sleek lines and simple silhouettes, these LED luminaires use specialized lighting and visual comfort to transform common areas like courtyards, outdoor retail locations, universities and corporate campuses into pedestrian-friendly nighttime environments.

Ordering Information

EXAMPLE: RADPT LED P3 30K SYM MVOLT PT4 PE DNAXD

RADPT LED

Series	Performance package	Color temperature	Distribution	Voltage	Mounting (required)

WDGE2 LED
Architectural Wall Sconce
Precision Refractive Optic

Specifications

Depth (D1):	7"
Depth (D2):	1.5"
Height:	9"
Width:	11.5"
Weight: (without options)	13.5 lbs

Catalog Number

Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

Introduction

The WDGE LED family is designed to meet specifier's every wall-mounted lighting need in a widely accepted shape that blends with any architecture. The clean rectilinear design comes in four sizes with lumen packages ranging from 1,200 to 25,000 lumens, providing a true site-wide solution. Embedded with nLight® AIR wireless controls, the WDGE family provides additional energy savings and code compliance.

WDGE2 with industry leading precision refractive optics provides great uniform distribution and optical control. When combined with multiple integrated emergency battery backup options, including an 18W cold temperature option, the WDGE2 becomes the ideal wall-mounted lighting solution for pedestrian scale applications in any environment.

WDGE LED Family Overview

Luminaire	Optics	Standard EM, 0°C	Cold EM, -20°C	Sensor	Approximate Lumens (4000K, 80CRI) P0	P1	P2	P3	P4	P5	P6
WDGE1 LED	Visual Comfort	4W		--	750	1,200	2,000	--	--	--	--
WDGE2 LED	Visual Comfort	10W	18W	Standalone / nLight	--	1,200	2,000	3,000	4,500	6,000	--
WDGE2 LED	Precision Refractive	10W	18W	Standalone / nLight	700	1,200	2,000	3,200	4,200	--	--
WDGE3 LED	Precision Refractive	15W	18W	Standalone / nLight	--	7,500	8,500	10,000	12,000	--	--
WDGE4 LED	Precision Refractive			Standalone / nLight	--	12,000	16,000	18,000	20,000	22,000	25,000

Ordering Information

EXAMPLE: WDGE2 LED P3 40K 80CRI T3M MVOLT SRM DDBXD

ERCO

Castor Bollard luminaire

Floor washlight

35749.023 Graphit m
LED module: 12.1W 1572lm 4000K neutral white
0-10V dimmable
Version 3
Wide beam

Product description
For mounting on accessories.
Bollard: corrosion-resistant aluminum profile, No-Rinse surface treatment. Double powder-coated. Optimized surface for reduced accumulation of dirt.
Upper cover and base plate: corrosion-resistant cast aluminum, No-Rinse surface treatment. Double powder-coated. Base plate for mounting on ground socket, concrete anchor or mounting plate.
2 cable entries. Through-wiring possible. 5 terminals.
Control gear 120V/277V, 60Hz, dimmable.
LED module: high-power LEDs.
180° light guidance ring made of optical polymer.
Anti-glare cone: corrosion-resistant cast aluminum, No-Rinse surface treatment. double powder-coated and black lacquered.
Glare-free above the light aperture.
Mounting accessories to be ordered separately.
Dimming with external dimmers possible (0-10V).
Suitable for wet location (IP65): dust-proof and water jet-proof.
Housing temperature 128°F / 53°C
Maximum wind load area 1.64ft² / 0.152m²
Weight 17.85lbs / 8.10kg
Version with 3000K CRI 97 or 2700K, 3500K, 4000K CRI 92 available on request.

Technical data

Luminous flux of the luminaire	294lm
Connected load	14.0W
Luminaire efficacy	21lm/W
Color deviation	1.5 SDCM
Color rendition index	CRI 82
Lumen maintenance (LED manufacturer specifications)	L90/B10 >50000h L90 >100000h
LED failure rate	0.1% >50000h
TLA (Temporal Light Artefacts)	SVM ≤ 0.4; PstLM ≤ 1
LMF	E
Temperature on the cover glass	95°F / 35°C

For your regional contact in the ERCO Sales network click herewww.erco.com/contact

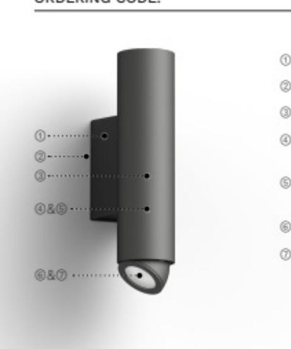
Technical region: 120V/60Hz, 277V/60Hz
We reserve the right to make technical and design changes.
Edition: 10.02.2025
Current version under www.erco.com/35749.023

LUMINIS

SYP402
SYRIOS PRO
WALL

PROJECT NAME: **QUANTITY:** **TYPE:**

ORDERING CODE:



1. Robust cast aluminum wall mounting box.
2. Sturdy galvanized steel mounting plate.
3. Seamless extruded aluminum cylindrical housing.
4. Asymmetric heatsink for perfect blend of clean æsthetic and efficient heat dissipation.
5. Sleek and durable sealed cast aluminum up and down light assembly.
6. 30º tilt and 355º rotation for light adjustability.
7. Faceted specular aluminum reflector offers smooth lighting and reduced glare (NR/FLD/VWD). While TIR collimator lens focuses light in a very narrow beam.

SYP402

MATERIALS

Syrios Pro is made of corrosion resistant 360 aluminum alloy with a copper (CU) content of less than 0.1%. The main housing is made of seamless 6063 extruded aluminum. with an integrally sealed LED light module designed for optimal heat dissipation. and lighting performance.

ELECTRICAL DRIVER

Driver is 0-10V dimming-ready (dims to 1%) with: 120-277 multi-volt (50-60Hz) or 347-480 high-volt (50-60Hz), operating temperature range of -30ºC/-22ºF to 45ºC/113ºF, output over voltage protection, output over current protection and output short circuit protection with auto-recovery.

LED LIGHT ENGINE

Offered in 2700K/3000K/3500K/4000K CCT with 80 CRI. 70% LED lumen maintenance at 60,000 hours (L70B50) based on IESNA. LM-80-08 LED extrapolated life, calculated per IESNA TM-21-21. Optional true amber LED for turtle sensitive areas. Wavelengths: 585nm to 597nm. RGBW with white CCT available in 3000K and 4000K. Quad chip technology, enabling optimal color mixing under each individual optic.

FINISH

Five-stage preparation process including preheating of cast aluminum parts for air extraction, and an environmentally friendly alloy sealant. Polyester powder coating is applied through an electrostatic process and oven cured for long term finish.

CERTIFICATION

UL Certified to Canadian and U.S. safety standards. Certified for use in wet locations. Rated IP65. Photometric testing performed by an independent laboratory in accordance with IES LM-79-08 standards at 25ºC. Actual performance may differ as a result of end-user environment and application.

WARRANTY

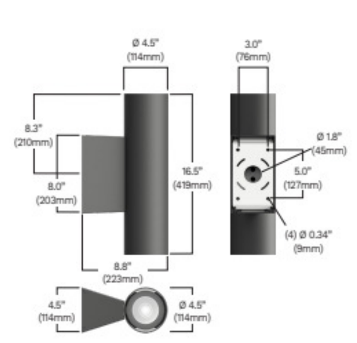
5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: https://www.acuitybrands.com/support/warranty/terms-and-conditions

MOUNTING

The mounting plate is designed to fit on a 4" (102mm) octagonal electrical box using 3.5" (89mm) C/C mounting holes. Additional mounting holes are provided as per site requirements.

MEASUREMENTS

Maximum weight: 12.7 lbs (5.8 kg)



LUMINIS.COM
Toll free: (866) 586-4647 | Fax: (514) 683-8872 | Email: info@luminis.com
260 Labrosse, Pointe-Claire (QC) Canada H9R 5L5

SYP402
Rev. 01/29/25

GBA

NELSON VENTURE - 1485 MAPLE WAY DR.
EXTERIOR PHOTOMETRIC PLAN
GASSER BUSH ASSOCIATES
WWW.GASSERBUSH.COM

Designer
BK/KS
Date
03/21/2025
Scale
Not to Scale
Drawing No.
#25-38067_V2

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Client:

Secured Storage Aquisitions, LLC
2966 Industrial Row Troy, MI 48084

Project:

Maple Lane Apartment Dev.
1485 Maple Lane Dr.
Troy, MI 48084

Issued	Description	By
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03-21-2025	Site Plan Approval	

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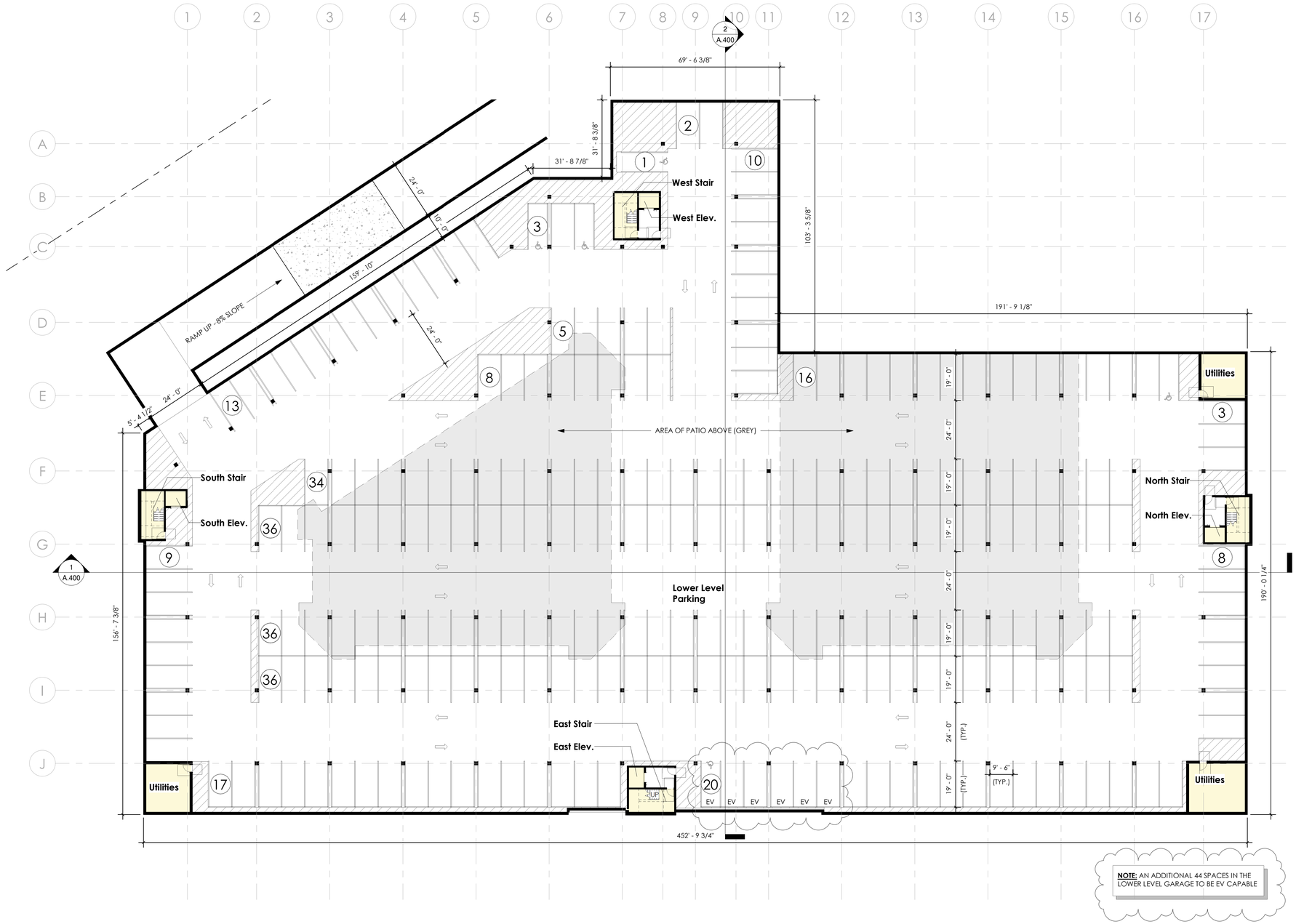


NOTE: AN ADDITIONAL 44 SPACES IN THE LOWER LEVEL GARAGE TO BE EV CAPABLE

Lower Level

3/64" = 1'-0"

Residential Net...

Area
01 - First Floor
57058 SF
02 - Second Floor
62052 SF
03 - Third Floor
62052 SF
04 - Fourth Floor
62052 SF
243215 SF

Gross SF

Area
00 - Lower Level
99023 SF
01 - First Floor
71628 SF
02 - Second Floor
71628 SF
03 - Third Floor
71628 SF
04 - Fourth Floor
71628 SF
385536 SF

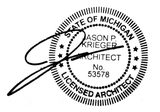
Unit SF

Name	Area
Unit A1 - Studio	662 SF
Unit A2 - Studio	557 SF
Unit B1 - 1BR	776 SF
Unit B2 - 1 BR	894 SF
Unit B3 - 1BR	891 SF
Unit B4 - 1 BR	841 SF
Unit B5 - 1 BR	1074 SF
Unit B6 - 1BR	974 SF
Unit C1 - 2 BR	1153 SF
Unit C2 - 2BR	1257 SF
Unit C3 - 2BR	1926 SF
Unit C7 - 2BR	1236 SF
Unit D1 - 3BR	1798 SF

Unit Mix

Department	Count	Unit Percentage
1 Bedroom	107	46%
1 Bedroom w/Den	18	8%
2 Bedroom	69	29%
2 Bedroom w/Den	24	10%
3 Bedroom	8	3%
Studio	8	3%
Total Units	234	

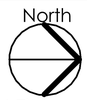
Seal:



Note:

Do not scale drawings. Use calculated dimensions only. Verify existing conditions in field.

North Arrow:



Sheet Title:

Lower Level Floor Plan

Project Number:

24-100

Scale:

3/64" = 1'-0"

Sheet Number:

A.100

First Floor Plan

3/64" = 1'-0"

Residential Net...
Area
01 - First Floor
57058 SF
02 - Second Floor
62052 SF
03 - Third Floor
62052 SF
04 - Fourth Floor
62052 SF
243215 SF

Gross SF
Area
00 - Lower Level
99023 SF
01 - First Floor
71628 SF
02 - Second Floor
71628 SF
03 - Third Floor
71628 SF
04 - Fourth Floor
71628 SF
385536 SF

Unit SF	
Name	Area
Unit A1 - Studio	662 SF
Unit A2 - Studio	557 SF
Unit B1 - 1BR	776 SF
Unit B2 - 1 BR	894 SF
Unit B3 - 1BR	891 SF
Unit B4 - 1 BR	841 SF
Unit B5 - 1 BR	1074 SF
Unit B6 - 1BR	974 SF
Unit C1 - 2 BR	1153 SF
Unit C2 - 2BR	1257 SF
Unit C3 - 2BR	1926 SF
Unit C7 - 2BR	1236 SF
Unit D1 - 3BR	1798 SF

Unit Mix		
Department	Count	Unit Percentage
1 Bedroom	107	46%
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2 Bedroom	69	29%
2 Bedroom w/Den	24	10%
3 Bedroom	8	3%
Studio	8	3%
Total Units	234	

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www.kriegerklatt.com

Client:

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2966 Industrial Row
Troy, MI 48084

Project:

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Troy, MI 48084

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03-21-2025	Site Plan Approval	

Seal:

STATE OF MICHIGAN
JASON P. KRIEGER
ARCHITECT
No. 53578
LICENSED ARCHITECT

Note:

Do not scale drawings. Use calculated dimensions only. Verify existing conditions in field.

North Arrow:

North

Sheet Title:

First Floor Plan

Project Number:

24-100

Scale:

3/64" = 1'-0"

Sheet Number:

A.101

Second Floor Plan

3/64" = 1'-0"

Residential Net...
Area
01 - First Floor
57058 SF
02 - Second Floor
62052 SF
03 - Third Floor
62052 SF
04 - Fourth Floor
62052 SF
243215 SF

Gross SF
Area
00 - Lower Level
99023 SF
01 - First Floor
71628 SF
02 - Second Floor
71628 SF
03 - Third Floor
71628 SF
04 - Fourth Floor
71628 SF
385536 SF

Unit SF	
Name	Area
Unit A1 - Studio	662 SF
Unit A2 - Studio	557 SF
Unit B1 - 1BR	776 SF
Unit B2 - 1 BR	894 SF
Unit B3 - 1BR	891 SF
Unit B4 - 1 BR	841 SF
Unit B5 - 1 BR	1074 SF
Unit B6 - 1BR	974 SF
Unit C1 - 2 BR	1153 SF
Unit C2 - 2BR	1257 SF
Unit C3 - 2BR	1926 SF
Unit C7 - 2BR	1236 SF
Unit D1 - 3BR	1798 SF

Unit Mix		
Department	Count	Unit Percentage
1 Bedroom	107	46%
1 Bedroom w/Den	18	8%
2 Bedroom	69	29%
2 Bedroom w/Den	24	10%
3 Bedroom	8	3%
Studio	8	3%
Total Units	234	

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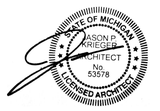
Seal:



Note:

Do not scale drawings. Use calculated dimensions only. Verify existing conditions in field.

North Arrow:

Sheet Title:

Second Floor Plan

Project Number:

24-100

Scale:

3/64" = 1'-0"

Sheet Number:

A.102

Third Floor Plan

3/64" = 1'-0"

Residential Net...
Area
01 - First Floor
57058 SF
02 - Second Floor
62052 SF
03 - Third Floor
62052 SF
04 - Fourth Floor
62052 SF
243215 SF

Gross SF
Area
00 - Lower Level
99023 SF
01 - First Floor
71628 SF
02 - Second Floor
71628 SF
03 - Third Floor
71628 SF
04 - Fourth Floor
71628 SF
385536 SF

Unit SF	
Name	Area
Unit A1 - Studio	662 SF
Unit A2 - Studio	557 SF
Unit B1 - 1BR	776 SF
Unit B2 - 1 BR	894 SF
Unit B3 - 1BR	891 SF
Unit B4 - 1 BR	841 SF
Unit B5 - 1 BR	1074 SF
Unit B6 - 1BR	974 SF
Unit C1 - 2 BR	1153 SF
Unit C2 - 2BR	1257 SF
Unit C3 - 2BR	1926 SF
Unit C7 - 2BR	1236 SF
Unit D1 - 3BR	1798 SF

Unit Mix		
Department	Count	Unit Percentage
1 Bedroom	107	46%
1 Bedroom w/Den	18	8%
2 Bedroom	69	29%
2 Bedroom w/Den	24	10%
3 Bedroom	8	3%
Studio	8	3%
Total Units	234	

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Seal:

Note:
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North Arrow:

Sheet Title:
Third Floor Plan

Project Number:
24-100

Scale:
3/64" = 1'-0"

Sheet Number:
A.103

Fourth Floor Plan

3/64" = 1'-0"

Residential Net...
Area
01 - First Floor
57058 SF
02 - Second Floor
62052 SF
03 - Third Floor
62052 SF
04 - Fourth Floor
62052 SF
243215 SF

Gross SF
Area
00 - Lower Level
99023 SF
01 - First Floor
71628 SF
02 - Second Floor
71628 SF
03 - Third Floor
71628 SF
04 - Fourth Floor
71628 SF
385536 SF

Unit SF	
Name	Area
Unit A1 - Studio	662 SF
Unit A2 - Studio	557 SF
Unit B1 - 1BR	776 SF
Unit B2 - 1 BR	894 SF
Unit B3 - 1BR	891 SF
Unit B4 - 1 BR	841 SF
Unit B5 - 1 BR	1074 SF
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Unit C1 - 2 BR	1153 SF
Unit C2 - 2BR	1257 SF
Unit C3 - 2BR	1926 SF
Unit C7 - 2BR	1236 SF
Unit D1 - 3BR	1798 SF

Unit Mix		
Department	Count	Unit Percentage
1 Bedroom	107	46%
1 Bedroom w/Den	18	8%
2 Bedroom	69	29%
2 Bedroom w/Den	24	10%
3 Bedroom	8	3%
Studio	8	3%
Total Units	234	

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JASON P. KRIEGER
ARCHITECT
No. 53578
LICENSED ARCHITECT

Note:
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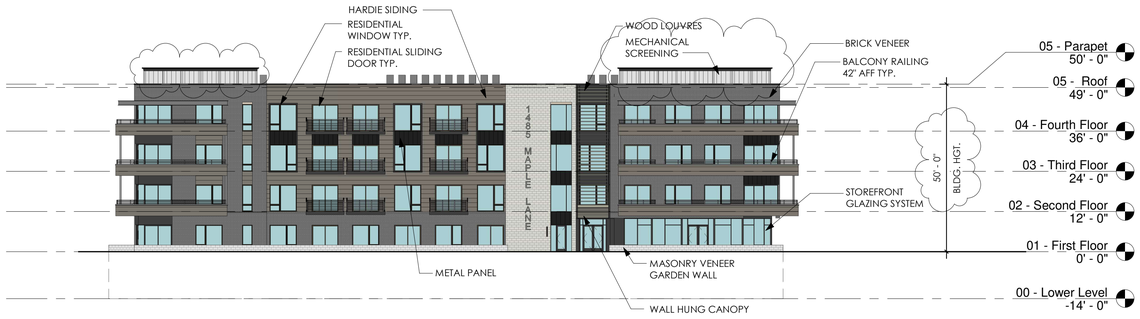
North Arrow:

Sheet Title:
Fourth Floor Plan

Project Number:
24-100

Scale:
3/64" = 1'-0"

Sheet Number:
A.104

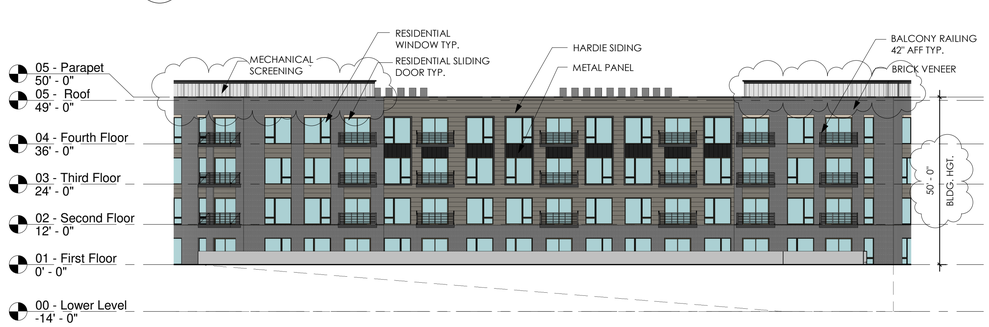


A A.101 Front (North) Elevation

3/64" = 1'-0"

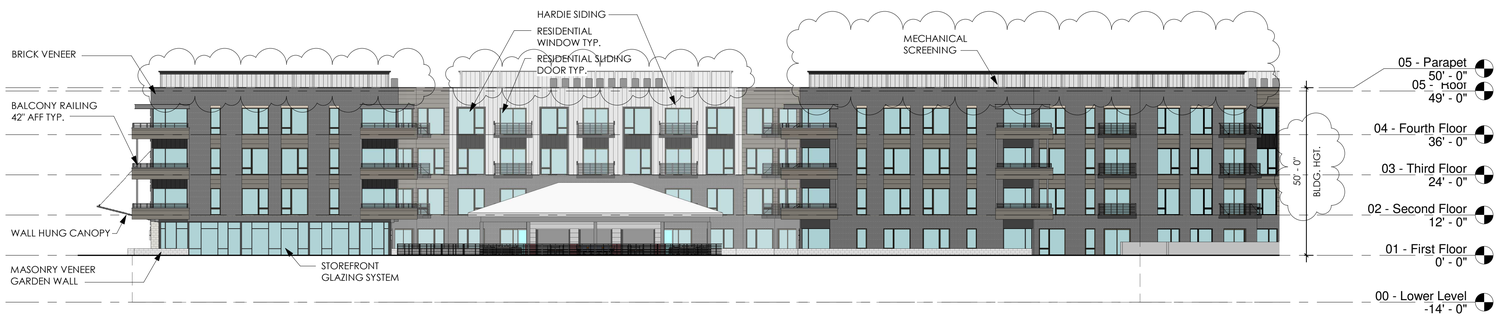
B A.101 Left (East) Side Elevation

3/64" = 1'-0"



C A.101 Southwest Elevation

3/64" = 1'-0"



D A.101 Rear (South) Elevation

3/64" = 1'-0"

E A.101 Right (West) Side Elevation

3/64" = 1'-0"

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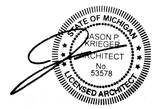

Note:

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North Arrow:

Sheet Title:

Elevations

Project Number:

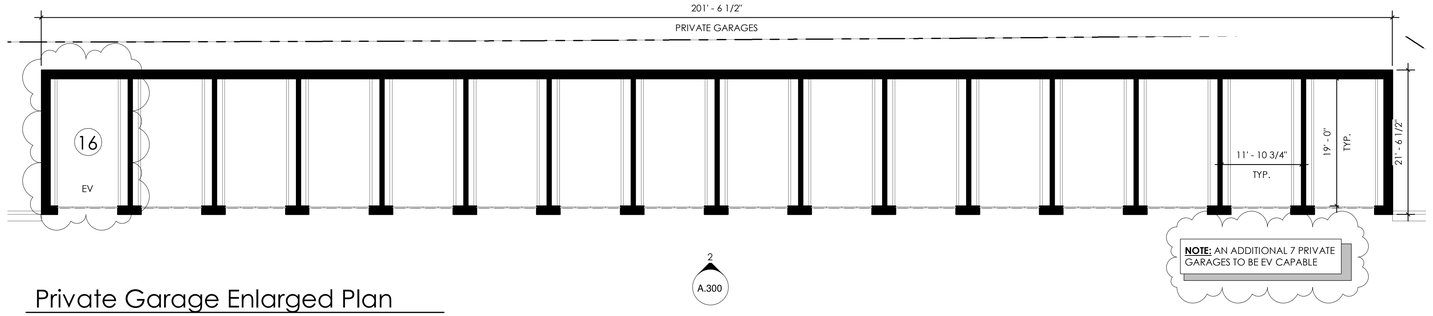
24-100

Scale:

3/64" = 1'-0"

Sheet Number:

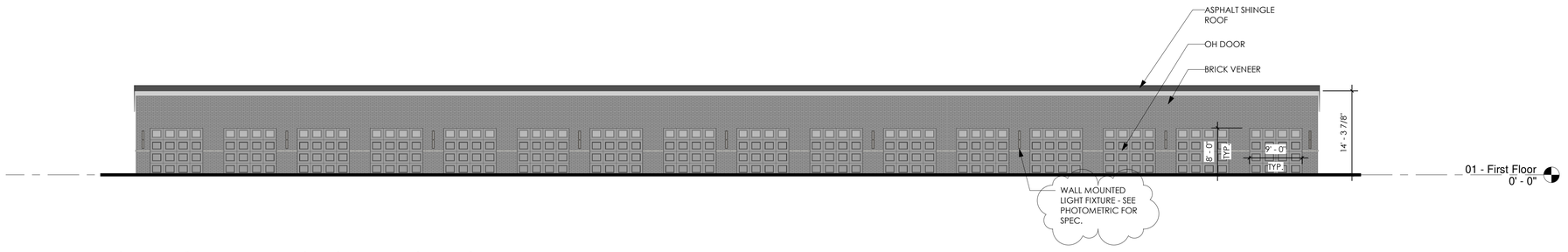
A.200



2
A.300

Private Garage Enlarged Plan

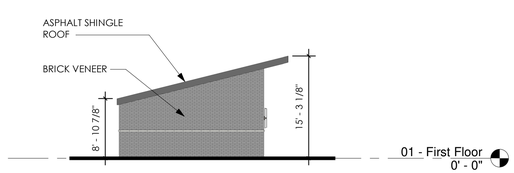
3/32" = 1'-0"



2
A.300

Private Garage Typical Front Elevation

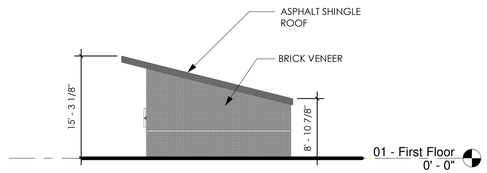
3/32" = 1'-0"



3

Private Garage Typical Left Elevation

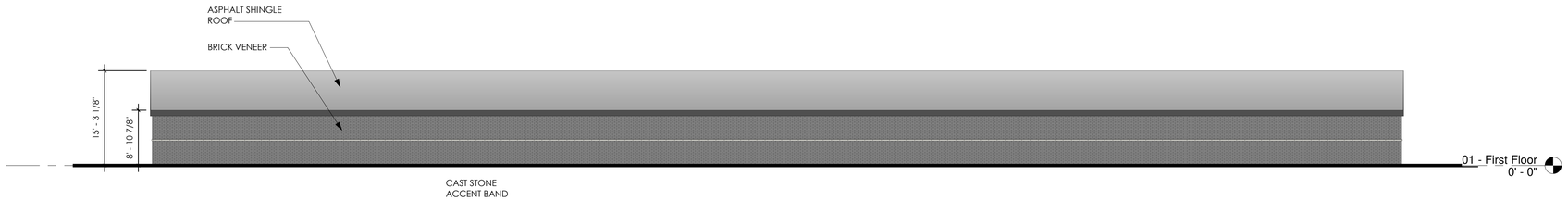
3/32" = 1'-0"



4

Private Garage Typical Right Elevation

3/32" = 1'-0"



5

Private Garage Typical Rear Elevation

3/32" = 1'-0"

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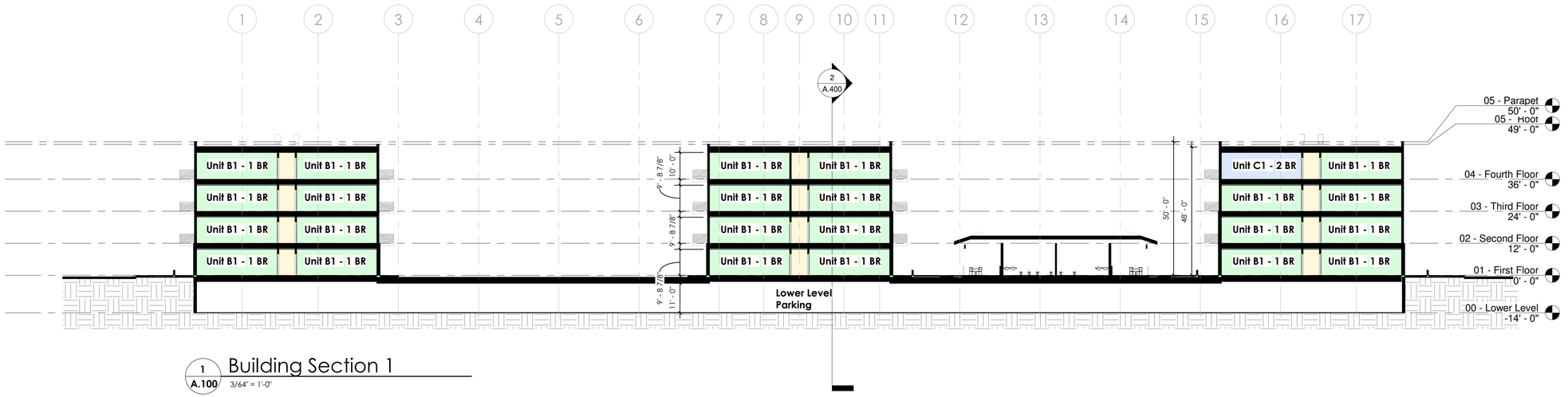
North Arrow:

Sheet Title:
Private Garage Plans & Elevations

Project Number:
24-100

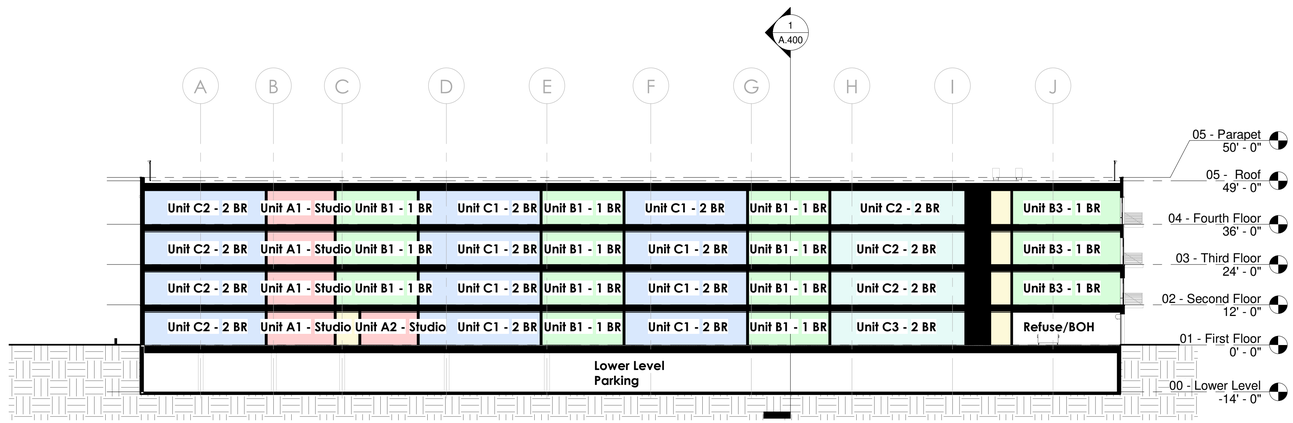
Scale:
3/32" = 1'-0"

Sheet Number:
A.300



1 A.100 Building Section 1

3/64" = 1'-0"



2 A.100 Building Section 2

3/64" = 1'-0"

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STATE OF MICHIGAN JASON P. KRIEGER ARCHITECT No. 53578 LICENSED ARCHITECT

Note:

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North Arrow:

Sheet Title:

Building Sections

Project Number:

24-100

Scale:

3/64" = 1'-0"

Sheet Number:

A.400

MEMO

FLEIS&VANDENBRINK
DESIGN. BUILD. OPERATE.

VIA EMAIL: sanford@nelsonventures.com

To:	**Secured Storage Acquisitions, LLC**
From:	**Jacob Swanson, PE, PTOE** **Haylee Rubin** **Fleis & VandenBrink**
Date:	**May 3, 2025**
Re:	**Proposed Residential Development** **Troy, Michigan** **Traffic Impact Study**

1 INTRODUCTION

This memorandum presents the results of the Traffic Impact Study (TIS) for the proposed multi-family residential development in Troy, Michigan. The project site is located at 1485 Maple Way Drive, adjacent to the south side of the LA Fitness parking lot, as shown in the attached **Figure 1**. The project site is currently occupied by a storage facility, which will be razed with the construction of the proposed development project. Site access is proposed via two (2) full access driveways to the project site, which provides shared access with the adjacent LA Fitness and Whole Foods parking lots. A TIS has been required by the City of Troy for this proposed development, as part of the site plan approval process.

The scope of work for this study was developed based upon Fleis & VandenBrink's (F&V) knowledge of the study area, understanding of the development program, accepted traffic engineering practice, methodologies published by the Institute of Transportation Engineers (ITE). Additionally, the City of Troy and their traffic engineering consultant (OHM) provided input on the scope of work. The study analyses were completed using Synchro/SimTraffic (Version 12) traffic analysis software. Sources of data for this study include F&V subconsultant Quality Counts, LLC (QC), the City of Troy, the City of Birmingham, the Road Commission for Oakland County (RCOC), the Michigan Department of Transportation (MDOT), the Southeast Michigan Council of Governments (SEMCOG), and ITE.

2 BACKGROUND

2.1 EXISTING ROAD NETWORK

The lane use and traffic control at the study intersections is shown in the attached **Figure 2**; additional roadway information is summarized below. For the purposes of this study, minor streets and driveways were assumed to have an operating speed of 25 miles per hour (mph), unless otherwise noted.

Maple Road runs in the east / west directions, approximately 600-feet north of the project site. The study roadway is classified as an *Other Principal Arterial*.

- West of N. Eton Street – Provides a typical four-lane cross-section, with two (2) lanes of travel in each direction. The study section of roadway is under the jurisdiction of the City of Birmingham and has a posted speed limit of 30-mph.
- Between N. Eton Street and Coolidge Highway – Provides a typical five-lane cross-section, with two (2) lanes of travel in each direction and a center two-way left-turn lane (TWLTL). The study roadway is under the jurisdiction of the City of Troy, has a posted speed limit of 35-mph, and has an Annual Average Daily Traffic (AADT) volume of approximately 16,889 (MDOT 2023) vehicles per day (vpd).

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

- East of Coolidge Highway – Provides a typical five-lane cross-section, with two (2) lanes of travel in each direction and a center TWLTL. The study roadway is under the jurisdiction of RCOC, has a posted speed limit of 40-mph, and has an AADT volume of approximately 28,469 vpd (MDOT 2023).
- Signalized intersection with Coolidge Highway – Maple Road widens to provides exclusive right-turn lanes in both the eastbound and westbound directions.

Coolidge Highway runs in the north / south directions, approximately ¼-mile east of the project site. The study section of roadway is classified as a *Minor Arterial*, is under the jurisdiction of the City of Troy, and has a posted speed limit of 35-mph. Coolidge Highway has an AADT volume of approximately 24,708 vpd (MDOT 2024). The study section of roadway provides a four-lane, median divided cross-section, with two (2) lanes of travel in each direction. Additionally, Coolidge Highway widens at the signalized intersection with Maple Road, in order to provide an exclusive northbound right-turn lane and an additional southbound through lane.

S. Eton Street runs in the north / south directions, approximately 1000-feet west of the project site. The study section of roadway has a posted speed limit of 25-mph, is classified as *a local road*, is under the jurisdiction of the City of Birmingham, and provides a typical two-lane cross-section, with one (1) lane of travel in each direction. Additionally, at the signalized study intersection with Maple Road, S. Eton Street widens, in order to provide an exclusive northbound left-turn lane.

N. Eton Street runs in the north / south directions, approximately 1000-feet west of the project site. The study section of roadway has a posted speed limit of 25-mph, is classified as *a local road*, is under the jurisdiction of the City of Birmingham, and provides a typical two-lane cross-section, with one (1) lane of travel in each direction. Additionally, at the signalized study intersection with Maple Road, N. Eton Street widens, in order to provide an exclusive southbound left-turn lane.

Maple Way Drive generally runs in the east / west directions, adjacent to the north side of the project site. Maple Way Drive is privately owned and serves as a connector road between Maple Road to the west of the Whole Foods and the LA Fitness parking lot. Maple Way Drive provides a typical two-lane cross-section, with one (1) lane of travel in each direction and has an assumed prima-facie speed limit of 25-mph.

2.2 DATA COLLECTION

F&V subconsultant QC collected existing weekday Turning Movement Count (TMC) data on Tuesday, February 4, 2025, during the AM (7:00 AM to 9:00 AM) and PM (4:00 PM to 6:00 PM) peak periods, at the following study intersections:

- Maple Road & S. Elton Street
- Maple Road & N. Elton Street
- Maple Road & Whole Foods Drive
- Maple Road & LA Fitness Drive
- Maple Road & Coolidge Highway
- Maple Way Drive & Site Drive

During the collection of the TMC data, Peak Hour Factors (PHFs), pedestrian and bicycle volumes, and commercial truck percentages were recorded and used in the traffic analysis. The peak hour traffic volumes for each of the study intersections was utilized and the volumes were balanced upward and carried through the study network. 'Dummy nodes' were also utilized in the Synchro models, in order to account for sink and source locations; therefore, the raw traffic volumes shown in the data collection may not match the volumes used in the analysis and shown in the attached traffic volume figures.

The weekday AM and PM peak hours for the adjacent study roadway network were observed to generally occur between 8:00 AM to 9:00 AM and 4:45 PM to 5:45 PM, respectively. The existing 2025 peak hour traffic volumes used in the analysis are shown in the attached **Figure 3**.

F&V also obtained the current signal timing permits from RCOC for the signalized study intersections within the roadway network. The signalized intersection of Maple Road & Coolidge Highway operates on RCOC's Sydney Coordinated Adaptive Traffic System (SCATS); therefore, the signal timings were optimized for each scenario studies, in order to reflect the true signal operations and real time optimizations made to accommodate the traffic volumes observed by the approach lane detectors. All applicable background data referenced in this memorandum is attached.

3 EXISTING CONDITIONS 2025

Existing peak hour vehicle delays and Levels of Service (LOS) were calculated at the study intersections using Synchro (Version 12) traffic analysis software. The study analyses were based on the existing lane use and traffic control shown in the attached **Figure 2**, the existing peak hour traffic volumes shown in the attached **Figure 3**, and the methodologies presented in the *Highway Capacity Manual 7th, Edition* (HCM7).

Note: The clustered signal operations and non-NEMA phasing at the signalized study intersection of Maple Road & Eton Street (North & South) is not supported by the HCM7 methodologies; therefore, HCM 2000 was determined to be more appropriate for the evaluation of these signalized study intersections.

Descriptions of LOS "A" through "F", as defined in the HCM, are attached. Typically, LOS D is considered acceptable, with LOS A representing minimal delay, and LOS F indicating failing conditions. Additionally, SimTraffic network simulations were reviewed to evaluate network operations and vehicle queues. Results for the existing conditions analysis are attached and summarized in **Table 1**.

The result of the existing conditions analysis indicates that all approaches and movements at the study intersections are currently operating acceptably, at LOS D or better, during both the AM and PM peak hours, with the exception of the following:

Maple Road & S. Eton Street

- During the PM peak hour: The northbound left-turn movement is currently operating at LOS E.

Maple Road & N. Eton Street

- During the PM peak hour: The westbound shared through-right lane, the northbound left-turn movement, and the southbound left-turn movements are ALL currently operating at LOS E.

Maple Road & Coolidge Highway

- During both the AM and PM peak hours: The eastbound left-turn, westbound left-turn, and northbound left-turn movements are ALL currently operating at LOS E.

Review of SimTraffic microsimulations indicates generally acceptable operations, throughout the study roadway network during both peak periods. Occasional periods of vehicle queues were observed at the signalized study intersections; however, the majority of vehicle queues were observed to be serviced within each cycle length, leaving minimal residual queueing. Additionally, the vehicle queues were observed to dissipate and were not present throughout the peak periods.

Table 1: Existing Intersection Operations

Intersection		Control	Approach	Existing Conditions			
				AM Peak		PM Peak	
				Delay (s/veh)	LOS	Delay (s/veh)	LOS
1	Maple Road & S. Eton Street	Signalized	EB	45.7	D	42.8	D
			WBTL	1.8	A	1.6	A
			NBL	48.3	D	61.9	E
			NBR	18.8	B	23.3	C
			Overall	**19.2**	**B**	**21.1**	**C**
2	Maple Road & N. Eton Street	Signalized	EB	2.0	A	1.3	A
			WBL	43.3	D	43.6	D
			WBTR	53.9	D	67.9	E
			NBL	47.7	D	70.5	E
			NBT	45.2	D	51.7	D
			NBR	45.1	D	50.6	D
			SBL	52.7	D	61.2	E
			SBR	29.2	C	23.4	C
			Overall	**27.8**	**C**	**33.1**	**C**

Intersection		Control	Approach	Existing Conditions			
				AM Peak		PM Peak	
				Delay (s/veh)	LOS	Delay (s/veh)	LOS
3	Maple Road & Whole Foods Drive	Stop (minor)	EB	Free			
			WBL	9.4	A	11.1	B
			NBR	11.2	B	14.0	B
4	Maple Road & LA Fitness	Stop (minor)	EB	Free			
			WBL	9.2	A	10.5	B
			NB	11.9	B	14.4	B
5	Maple Road & Coolidge Highway	Signalized	EBL	60.2	E	60.2	E
			EBT	42.4	D	45.8	D
			EBR	33.8	C	27.1	C
			WBL	67.9	E	65.8	E
			WBT	46.4	D	39.5	D
			WBR	42.4	D	36.7	D
			NBL	67.5	E	63.5	E
			NBT	12.9	B	23.5	C
			NBR	8.0	A	11.0	B
			SBTR	21.3	C	36.8	D
			Overall	**32.3**	**C**	**37.1**	**D**
6	Maple Way Drive & Site Drive	Stop (Minor)	EBL	0.0	A	7.2	A
			WBL	0.0	A	0.0	A
			NB	9.0	A	0.0	A
			SB	9.0	A	0.0	A

4 BACKGROUND CONDITIONS (2027 NO BUILD)

4.1 BACKGROUND GROWTH

Historical population and economic community profile data was obtained for the City of Troy from the Southeast Michigan Council of Governments (SEMCOG) database, in order to calculate an annual background growth rate to project the existing 2025 peak hour traffic volumes to the site buildout year of 2027. Population and employment projections from 2020 to 2050 were reviewed and showed average annual growth rates of approximately 0.30% and 0.33%, respectively.

In addition to the background traffic growth, it is important to account for traffic that will be generated by approved developments within the vicinity of the study area that are currently under construction or will be within the buildout year of 2027. At the time of this study, no planned background developments were identified within the vicinity of the project site.

Therefore, a conservative annual background growth rate of **0.50%** per year was applied to the existing peak hour traffic volumes, in order to forecast the background 2027 peak hour traffic volumes, ***without the proposed development***, as shown in the attached **Figure 4**.

4.2 BACKGROUND OPERATIONS

The background peak hour vehicle delays and LOS ***without the proposed development*** were calculated at the study intersections based on the existing lane use and traffic control shown in the attached **Figure 2**, the background peak hour traffic volumes shown in the attached **Figure 4**, and the methodologies presented in the HCM7. The results of the background conditions analysis are attached and summarized in **Table 2**.

Table 2: Background Intersection Operations

Intersection		Control	Approach	Existing Conditions				Background Conditions				Difference			
				AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
				Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS
1	Maple Road & S. Eton Street	Signal	EB	45.7	D	42.8	D	45.9	D	43.1	D	0.2	-	0.3	-
			WBTL	1.8	A	1.6	A	1.8	A	1.6	A	0.0	-	0.0	-
			NBL	48.3	D	61.9	E	48.3	D	62.1	E	0.0	-	0.2	-
			NBR	18.8	B	23.3	C	18.9	B	23.4	C	0.1	-	0.1	-
			Overall	**19.2**	**B**	**21.1**	**C**	**19.2**	**B**	**21.3**	**C**	0.0	-	0.2	-
2	Maple Road & N. Eton Street	Signal	EB	2.0	A	1.3	A	2.0	A	1.4	A	0.0	-	0.1	-
			WBL	43.3	D	43.6	D	43.6	D	43.3	D	0.3	-	-0.3	-
			WBTR	53.9	D	67.9	E	54.0	D	68.7	E	0.1	-	0.8	-
			NBL	47.7	D	70.5	E	47.7	D	71.0	E	0.0	-	0.5	-
			NBT	45.2	D	51.7	D	45.2	D	51.7	D	0.0	-	0.0	-
			NBR	45.1	D	50.6	D	45.1	D	50.6	D	0.0	-	0.0	-
			SBL	52.7	D	61.2	E	52.8	D	61.2	E	0.1	-	0.0	-
			SBR	29.2	C	23.4	C	29.3	C	23.4	C	0.1	-	0.0	-
			Overall	**27.8**	**C**	**33.1**	**C**	**27.9**	**C**	**33.5**	**C**	0.1	-	0.4	-
3	Maple Road & Whole Foods Drive	Stop (minor)	EB	Free				Free				N/A			
			WBL	9.4	A	11.1	B	9.4	A	11.1	B	0.0	-	0.0	-
			NBR	11.2	B	14.0	B	11.2	B	14.1	B	0.0	-	0.1	-
4	Maple Road & LA Fitness	Stop (minor)	EB	Free				Free				N/A			
			WBL	9.2	A	10.5	B	9.2	A	10.5	B	0.0	-	0.0	-
			NB	11.9	B	14.4	B	11.9	B	14.5	B	0.0	-	0.1	-
5	Maple Road & Coolidge Highway	Signal	EBL	60.2	E	60.2	E	60.1	E	60.4	E	-0.1	-	0.2	-
			EBT	42.4	D	45.8	D	42.3	D	45.9	D	-0.1	-	0.1	-
			EBR	33.8	C	27.1	C	33.6	C	26.9	C	-0.2	-	-0.2	-
			WBL	67.9	E	65.8	E	68.2	E	65.9	E	0.3	-	0.1	-
			WBT	46.4	D	39.5	D	46.3	D	39.4	D	-0.1	-	-0.1	-
			WBR	42.4	D	36.7	D	42.3	D	36.6	D	-0.1	-	-0.1	-
			NBL	67.5	E	63.5	E	67.3	E	63.5	E	-0.2	-	0.0	-
			NBT	12.9	B	23.5	C	13.1	B	23.8	C	0.2	-	0.3	-
			NBR	8.0	A	11.0	B	8.1	A	11.1	B	0.1	-	0.1	-
			SBTR	21.3	C	36.8	D	21.6	C	37.3	D	0.3	-	0.5	-
			Overall	**32.3**	**C**	**37.1**	**D**	**32.4**	**C**	**37.3**	**D**	**0.1**	**-**	**0.2**	**-**
6	Maple Way Drive & Site Drive	Stop (Minor)	EBL	0.0	A	7.2	A	0.0	A	7.2	A	0.0	-	0.0	-
			WBL	0.0	A	0.0	A	0.0	A	0.0	A	0.0	-	0.0	-
			NB	9.0	A	0.0	A	9.0	A	0.0	A	0.0	-	0.0	-
			SB	9.0	A	0.0	A	9.0	A	0.0	A	0.0	-	0.0	-

Note: Decreased delays are the result of SCATS real time optimizations, improved progression, and/or HCM weighting methodologies.

The results of the background conditions analysis indicates that all study intersection approaches and movements are expected to continue operating in a manner similar to the existing conditions analysis, with only minor increases in delay.

Review of SimTraffic microsimulations also indicates generally acceptable operations throughout the study roadway network, similar to those observed during the existing conditions analysis. Occasional periods of vehicle queues were observed at the signalized study intersections; however, the majority of vehicle queues were observed to be serviced within each cycle length, leaving minimal residual queueing.

5 SITE TRIP GENERATION

The number of weekday peak hour (AM and PM) and daily vehicle trips that would be generated by the proposed development were forecast based on data published by ITE in the *Trip Generation Manual, 11th Edition.* The proposed development includes the construction of residential multi-family units. Additionally, the existing use on the project site (mini warehouses), which will be razed prior to construction of the proposed development, is currently operational. Therefore, TMC data was collected at the existing driveway, in order to determine the current trip generation characteristics of the mini warehouse; these volumes were then reduced by the projected trip generation, in order to identify the amount of net new trips that would be generated by the site, as a result of the proposed development. The trip generation forecast is summarized in **Table 3**.

Table 3: Site Trip Generation

Site	Land Use	ITE Code	Amount	Units	Average Daily Traffic (vpd)	AM Peak Hour (vph)			PM Peak Hour (vph)		
						In	Out	Total	In	Out	Total
Exiting	Mini Warehouse				N/A	2	3	5	0	0	0
Proposed	Multi-Family Home (Mid-Rise)	221	234	DU	1,070	21	70	91	56	36	92
Net New Trips					**1,070**	**19**	**67**	**86**	**56**	**36**	**92**

6 SITE TRIP DISTRIBUTION

The vehicular trips that would be generated by the proposed development were assigned to the study roadway network based on the proposed site access plan, the existing peak hour traffic patterns in the adjacent roadway network, and the methodologies published by ITE. To determine residential trips distribution, it was assumed that the network trips in the AM are home-to-work based, and in the PM are work-to-home based. Therefore, the global network trip distribution is based on trips leaving the development in the AM and exiting the study network, then entering the study network and returning to the development in the PM. The ITE trip distribution methodology assumes that new trips will enter the network and access the development, then leave the development and return to their direction of origin. The site trip distributions are summarized in **Table 4**.

Table 4: Site Trip Distribution

To/From	Via	AM	PM
East	Maple Road	21%	27%
West	Maple Road	20%	16%
North	N. Eton Street	5%	4%
South	S. Eton Street	10%	9%
North	Coolidge Highway	17%	18%
South	Coolidge Highway	27%	26%
Total		**100%**	**100%**

The "net new" vehicular traffic volumes shown in **Table 3** were distributed to the study roadway network according to the distribution shown in **Table 4**. The site-generated trips shown in the attached **Figure 5** were added to the background peak hour traffic volumes shown in the attached **Figure 4**, in order to calculate the future peak hour traffic volumes, ***with the addition of the proposed development***. Future peak hour traffic volumes are shown in the attached **Figure 6**.

7 FUTURE (2027) CONDITIONS

Future peak hour vehicle delays and LOS ***with the site-generated trips from the proposed development*** were calculated based on the proposed lane use and traffic control shown in the attached **Figure 2**, the future peak hour traffic volumes shown in the attached **Figure 6**, and methodologies presented in the HCM7. The results of the future conditions analysis are attached and summarized in **Table 5**.

The results of the future conditions analysis indicates that all study intersection approaches and movements are expected to continue operating in a manner similar to the background conditions analysis. Review of SimTraffic microsimulations also indicates generally acceptable operations. Occasional periods of vehicle queues were observed at the signalized study intersections; however, the majority of vehicle queues were observed to be serviced within each cycle length, leaving minimal residual queueing.

The signalized study intersection of Maple Road & Coolidge Highway operates as a SCATS signal; therefore, the signal automatically optimizes the signal timings. The trips generated by the proposed development, which will travel through this intersection, are expected to account for less than 2% of the total entering intersection traffic volumes. As such, any impact from the proposed development at the study intersection of Maple Road & Coolidge Highway is expected to be negligible, as compared to typical daily fluctuations in traffic volumes (5%); therefore, any changes will be unperceivable to typical roadway users.

Table 5: Future Intersection Operations

Intersection		Control	Approach	Background Conditions				Future Conditions				Difference			
				AM Peak		PM Peak		AM Peak		PM Peak		AM Peak		PM Peak	
				Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS	Delay (s/veh)	LOS
1	Maple Road & S. Eton Street	Signal	EB	45.9	D	43.1	D	46.1	D	43.4	D	0.2	-	0.3	-
			WBTL	1.8	A	1.6	A	2.0	A	1.6	A	0.2	-	0.0	-
			NBL	48.3	D	62.1	E	48.3	D	62.1	E	0.0	-	0.0	-
			NBR	18.9	B	23.4	C	18.9	B	23.5	C	0.0	-	0.1	-
			Overall	**19.2**	**B**	**21.3**	**C**	**19.3**	**B**	**21.4**	**C**	**0.1**	**-**	**0.1**	**-**
2	Maple Road & N. Eton Street	Signal	EB	2.0	A	1.4	A	2.0	A	1.4	A	0.0	-	0.0	-
			WBL	43.6	D	43.3	D	41.6	D	42.1	D	-2.0	-	-1.2	-
			WBTR	54.0	D	68.7	E	53.4	D	68.1	E	-0.6	-	-0.6	-
			NBL	47.7	D	71.0	E	48.6	D	72.8	E	0.9	-	1.8	-
			NBT	45.2	D	51.7	D	45.3	D	51.8	D	0.1	-	0.1	-
			NBR	45.1	D	50.6	D	45.1	D	50.6	D	0.0	-	0.0	-
			SBL	52.8	D	61.2	E	53.0	D	62.2	E	0.2	-	1.0	-
			SBR	29.3	C	23.4	C	29.9	C	23.4	C	0.6	-	0.0	-
			Overall	**27.9**	**C**	**33.5**	**C**	**28.0**	**C**	**33.4**	**C**	**0.1**	**-**	**-0.1**	**-**
3	Maple Road & Whole Foods Drive	Stop (minor)	EB	Free				Free				N/A			
			WBL	9.4	A	11.1	B	9.4	A	11.2	B	0.0	-	0.1	-
			NBR	11.2	B	14.1	B	11.2	B	14.2	B	0.0	-	0.1	-
4	Maple Road & LA Fitness	Stop (minor)	EB	Free				Free				N/A			
			WBL	9.2	A	10.5	B	9.3	A	11.0	B	0.1	-	0.5	-
			NB	11.9	B	14.5	B	15.3	C	16.2	C	3.4	B→C	1.7	B→C
5	Maple Road & Coolidge Highway	Signal	EBL	60.1	E	60.4	E	59.2	E	61.1	E	-0.9	-	0.7	-
			EBT	42.3	D	45.9	D	41.7	D	46.1	D	-0.6	-	0.2	-
			EBR	33.6	C	26.9	C	33.2	C	26.2	C	-0.4	-	-0.7	-
			WBL	68.2	E	65.9	E	68.2	E	65.9	E	0.0	-	0.0	-
			WBT	46.3	D	39.4	D	46.8	D	39.9	D	0.5	-	0.5	-
			WBR	42.3	D	36.6	D	42.6	D	36.8	D	0.3	-	0.2	-
			NBL	67.3	E	63.5	E	66.6	E	62.8	E	-0.7	-	-0.7	-
			NBT	13.1	B	23.8	C	13.4	B	24.0	C	0.3	-	0.2	-
			NBR	8.1	A	11.1	B	8.3	A	11.2	B	0.2	-	0.1	-
			SBTR	21.6	C	37.3	D	22.3	C	39.1	D	0.7	-	1.8	-
			Overall	**32.4**	**C**	**37.3**	**D**	**32.8**	**C**	**37.8**	**D**	**0.4**	**-**	**0.5**	**-**
6	Maple Way Drive & Site Drive	Stop (Minor)	EBL	0.0	A	7.2	A	0.0	A	7.2	A	0.0	-	0.0	-
			WBL	0.0	A	0.0	A	0.0	A	0.0	A	0.0	-	0.0	-
			NB	9.0	A	0.0	A	9.6	A	9.3	A	0.6	-	9.3	-
			SB	9.0	A	0.0	A	9.2	A	9.2	A	0.2	-	9.2	-

Note: Decreased delays are the result of SCATS real time optimizations, improved progression, and/or HCM weighting methodologies.

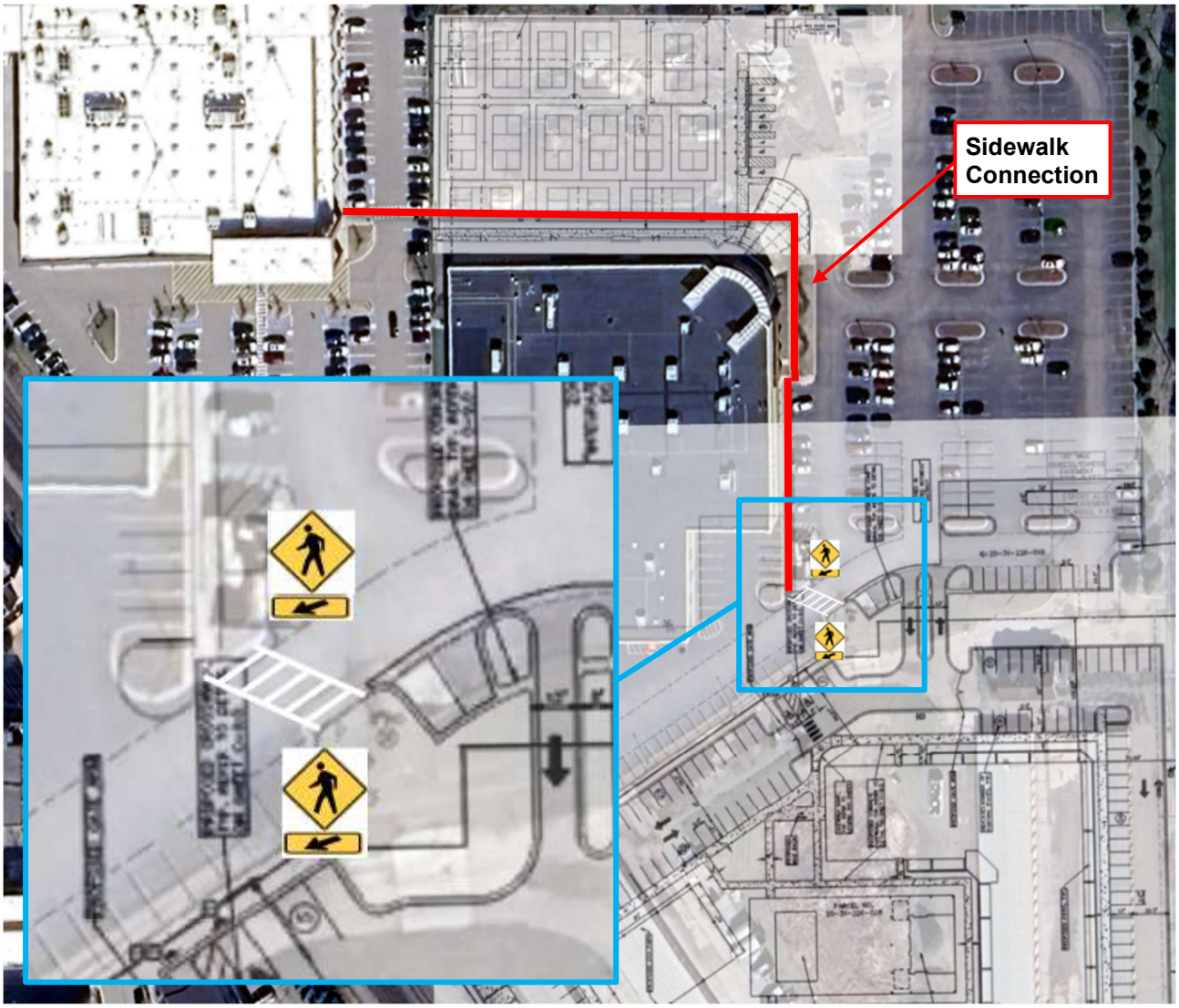
7.1 PEDESTRIAN-VEHICLE CONFLICTS

A review was performed evaluating the potential vehicle-pedestrian conflicts from the proposed development into the LA Fitness parking lot; the results indicate that the addition of signing and striping are recommended, in order to improve safety for pedestrians and identify the crossing location for motorists.

The following treatments are recommended, which are summarized below and shown on **Exhibit 1**.

- Provide continental pavement markings and pedestrian crossing signage (W11-2, with W16-7P directional arrows) at the proposed crosswalk location along Maple Way Drive.

Exhibit 1: Pedestrian-Vehicle Safety Implementations



8 CONCLUSIONS

The conclusions of this TIS are as follows:

1. Existing Conditions (2025)

The result of the existing conditions analysis indicates that all approaches and movements at the study intersections are currently operating acceptably, at LOS D or better, during both the AM and PM peak hours, with the exception of the following:

- Maple Road & S. Eton Street: The northbound left-turn movement is currently operating at LOS E, during the PM peak hour.

- Maple Road & N. Eton Street: The westbound shared through-right, northbound left-turn, and southbound left-turn movements are ALL currently operating at LOS E, during the PM peak hour.
- Maple Road & Coolidge Highway: The eastbound left-turn, westbound left-turn, and northbound left-turn movements are ALL currently operating at LOS E, during both the AM and PM peak hours.

Review of SimTraffic indicates generally acceptable operations, throughout the study roadway network. Occasional periods of vehicle queues were observed at the signalized study intersections; however, the majority were observed to be serviced within each cycle length, leaving minimal residual queueing. Additionally, the vehicle queues were observed to dissipate and were not present throughout the peak periods.

2. Background Conditions (2027)

- An annual background growth rate of **0.50%** per year was calculated to project the existing 2025 traffic volumes to the buildout year of 2027. No background developments were identified in the study area.
- The results of the background conditions analysis indicates that all approaches and movements at the study intersections are expected to continue operating acceptably, in a manner similar to the existing conditions analysis, with only minor increases in delay.

3. Future Conditions (2027)

- The results of the future conditions analysis indicates that all study intersection approaches and movements are expected to continue operating in a manner similar to background conditions.
- Review of SimTraffic also indicates generally acceptable operations. Occasional periods of vehicle queues were observed at the signalized study intersections; however, the majority of vehicle queues were observed to be serviced within each cycle length, leaving minimal residual queueing.

4. Pedestrian-Vehicle Improvements

- Pedestrian-Vehicle conflicts within the LA Fitness parking lot were reviewed; the results indicate that pedestrian crosswalk markings and signage are recommended, in order to improve safety for pedestrians and identify the crossing location for motorists (see Exhibit 1).

9 RECOMMENDATIONS

- Provide continental pavement markings and pedestrian crossing signage (W11-2, with W16-7P directional arrows) at the proposed crosswalk location along Maple Way Drive (see Exhibit 1).

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

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

Attachments: Figures 1 – 6
Site Plan
Traffic Volume Data
Signal Timing Permits
SEMCOG Data
Synchro / SimTraffic Results

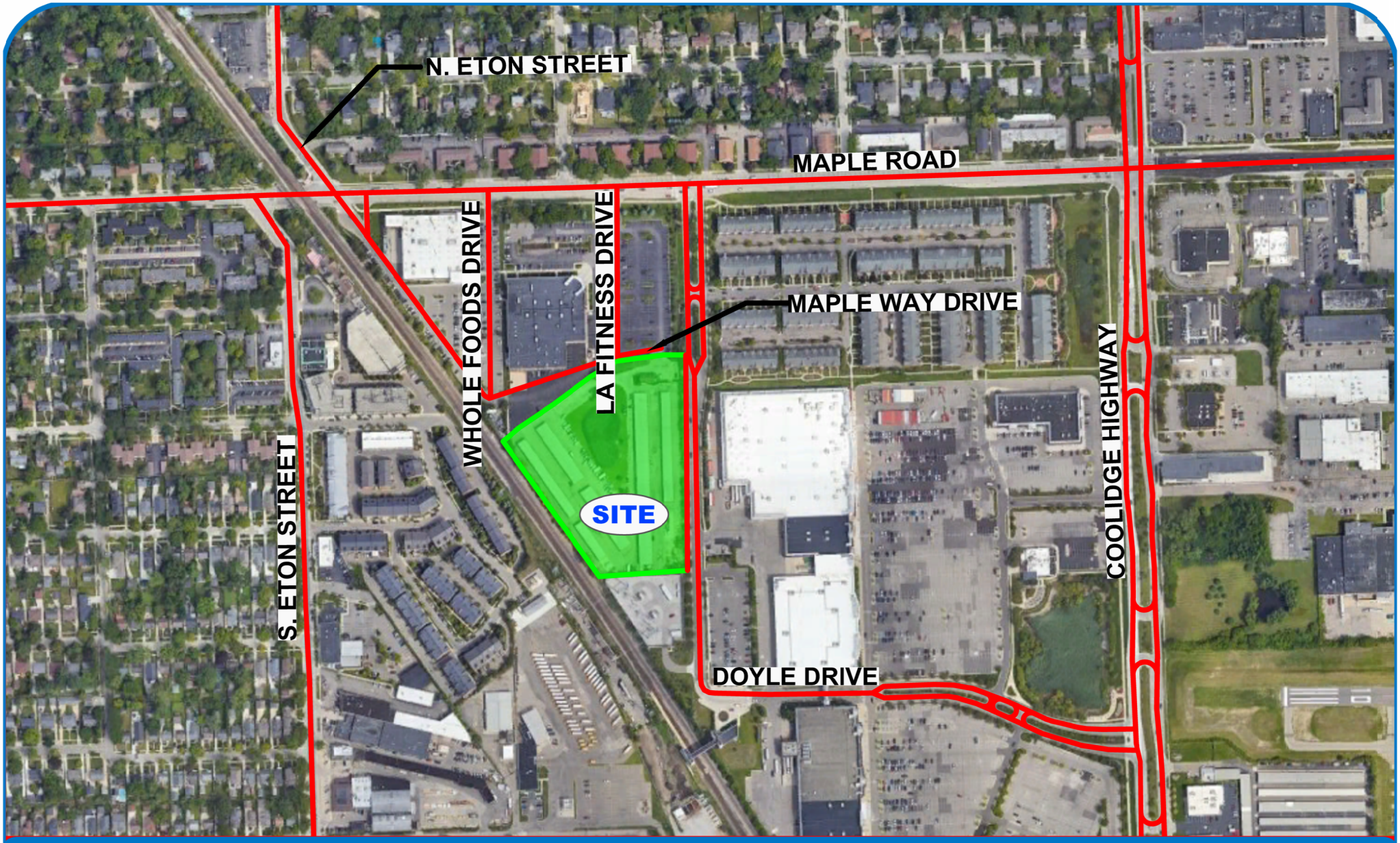


FIGURE 1

SITE LOCATION

RESIDENTIAL DEVELOPMENT TIS - TROY, MI

LEGEND

SITE SITE LOCATION

NORTH

SCALE: NOT TO SCALE

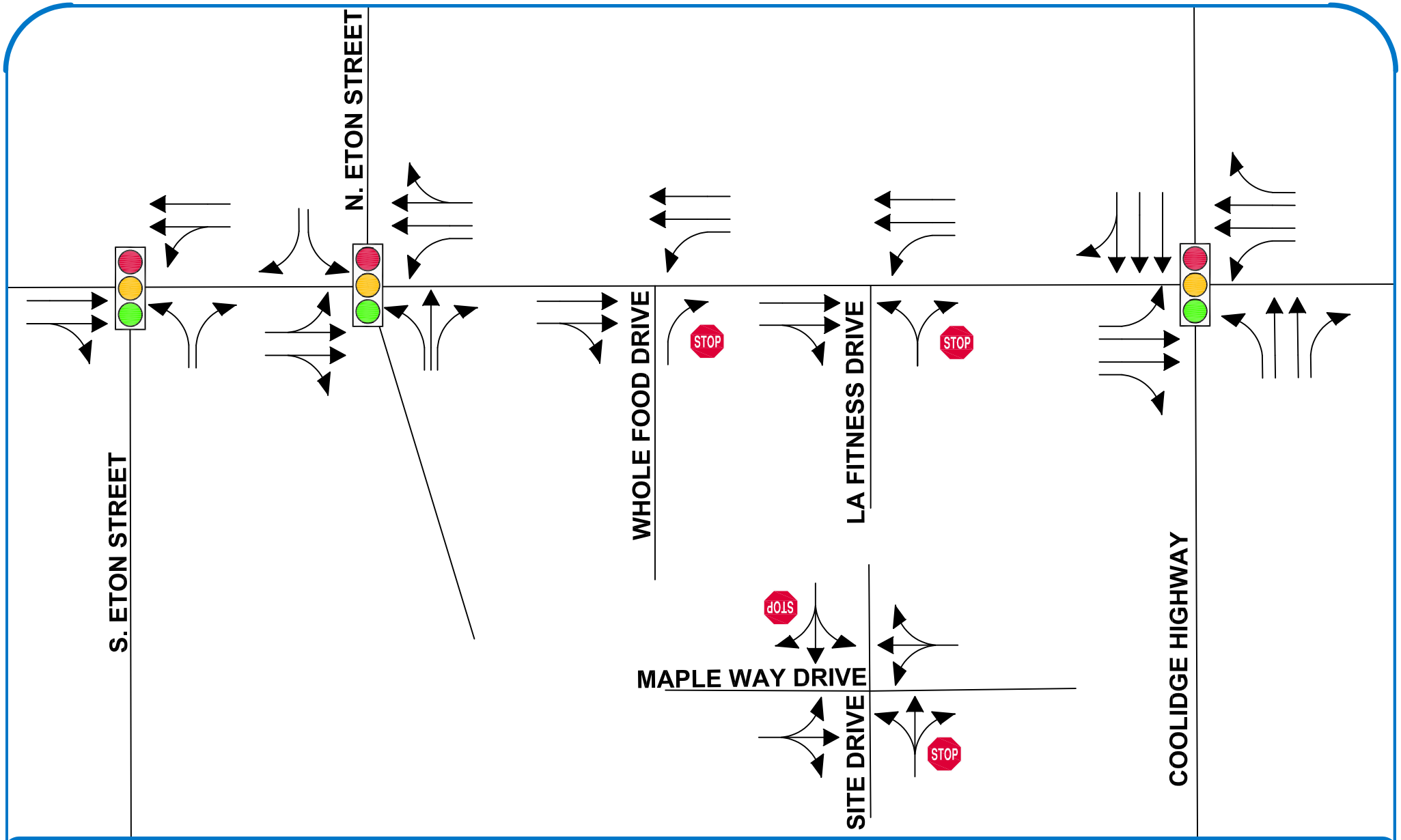


FIGURE 2

LANE USE AND TRAFFIC CONTROL

RESIDENTIAL DEVELOPMENT TIS - TROY, MI

LEGEND

- ROADS
- LANE USE
- SIGNALIZED INTERSECTION
- UNSIGNALIZED INTERSECTION

NORTH

SCALE: NOT TO SCALE

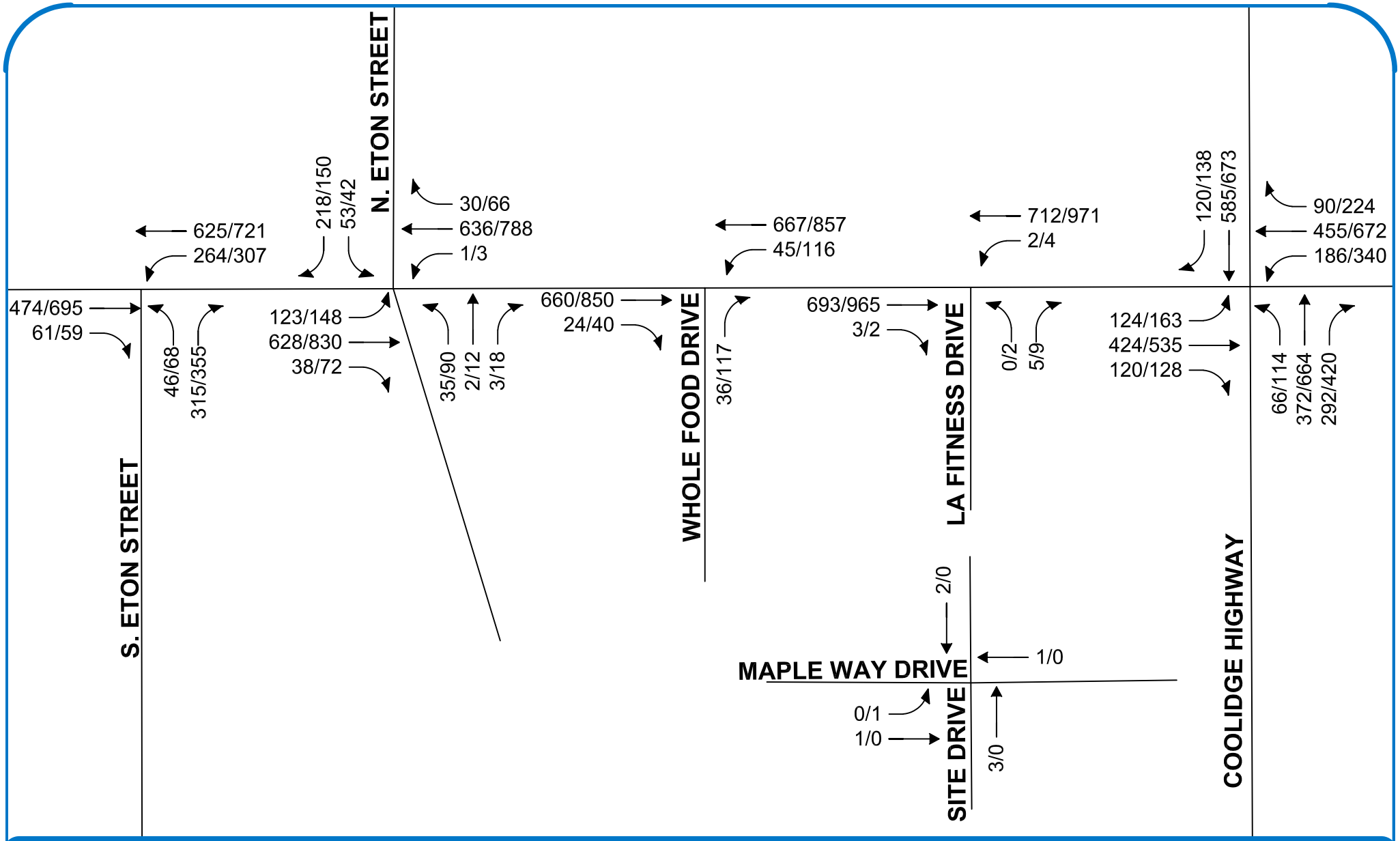


FIGURE 3

EXISTING TRAFFIC VOLUMES (2025)

RESIDENTIAL DEVELOPMENT TIS - TROY, MI

LEGEND

ROADS

TRAFFIC VOLUMES (AM/PM)

NORTH

SCALE: NOT TO SCALE

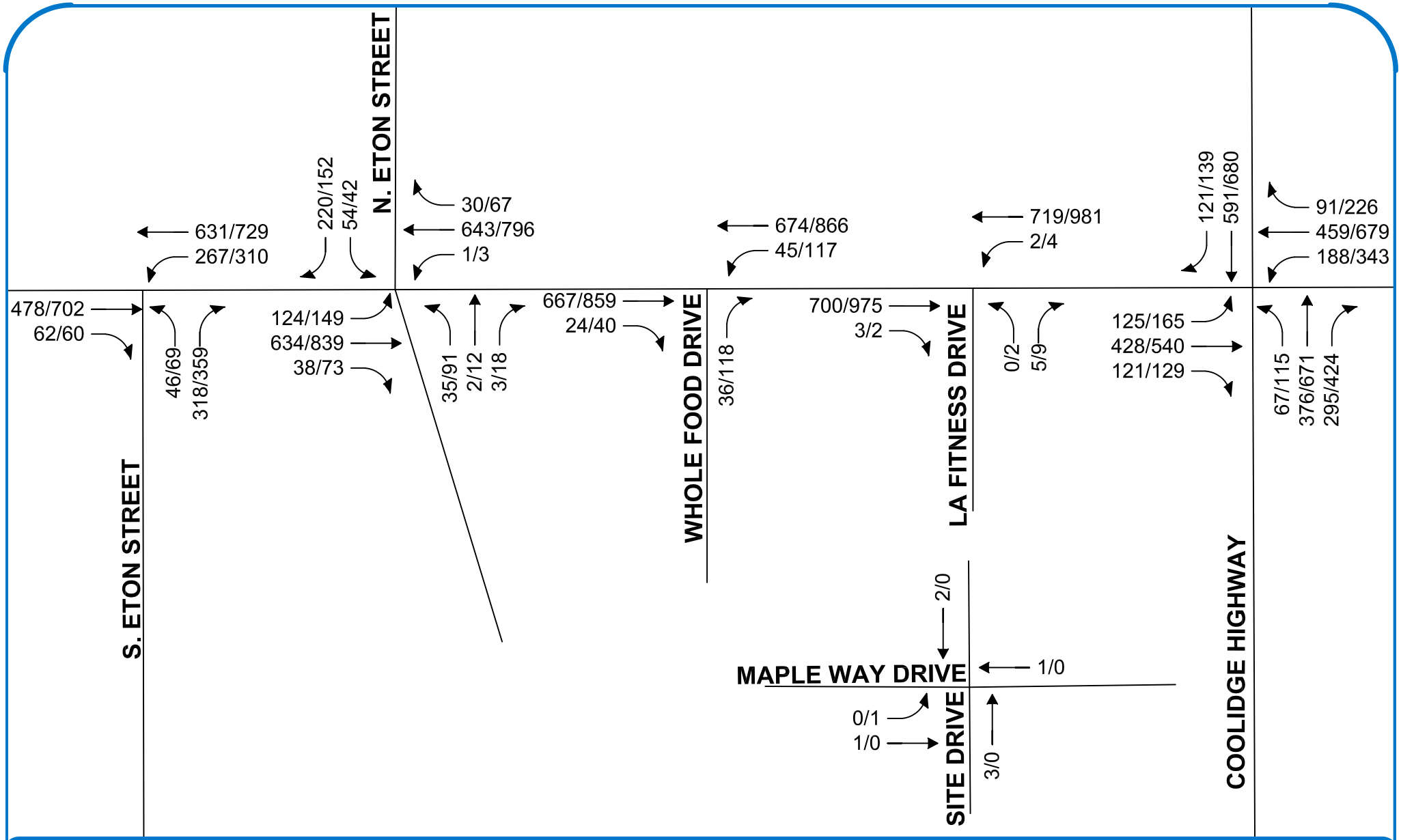


FIGURE 4
BACKGROUND TRAFFIC VOLUMES (2027)

RESIDENTIAL DEVELOPMENT TIS - TROY, MI

LEGEND

ROADS

TRAFFIC VOLUMES (AM/PM)

NORTH

SCALE: NOT TO SCALE

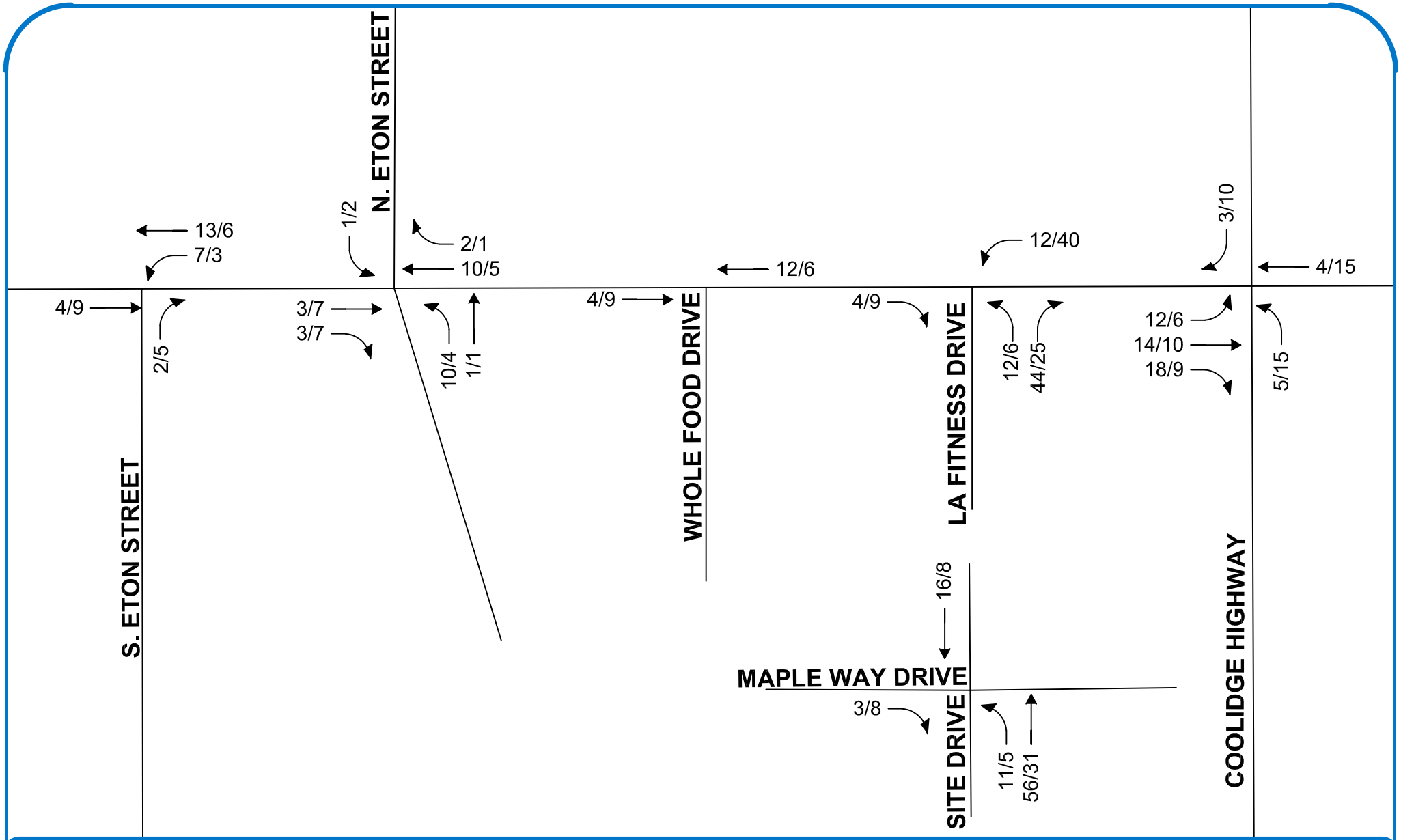


FIGURE 5

SITE-GENERATED TRAFFIC VOLUMES

RESIDENTIAL DEVELOPMENT TIS - TROY, MI

LEGEND

ROADS

TRAFFIC VOLUMES (AM/PM)

NORTH

SCALE: NOT TO SCALE

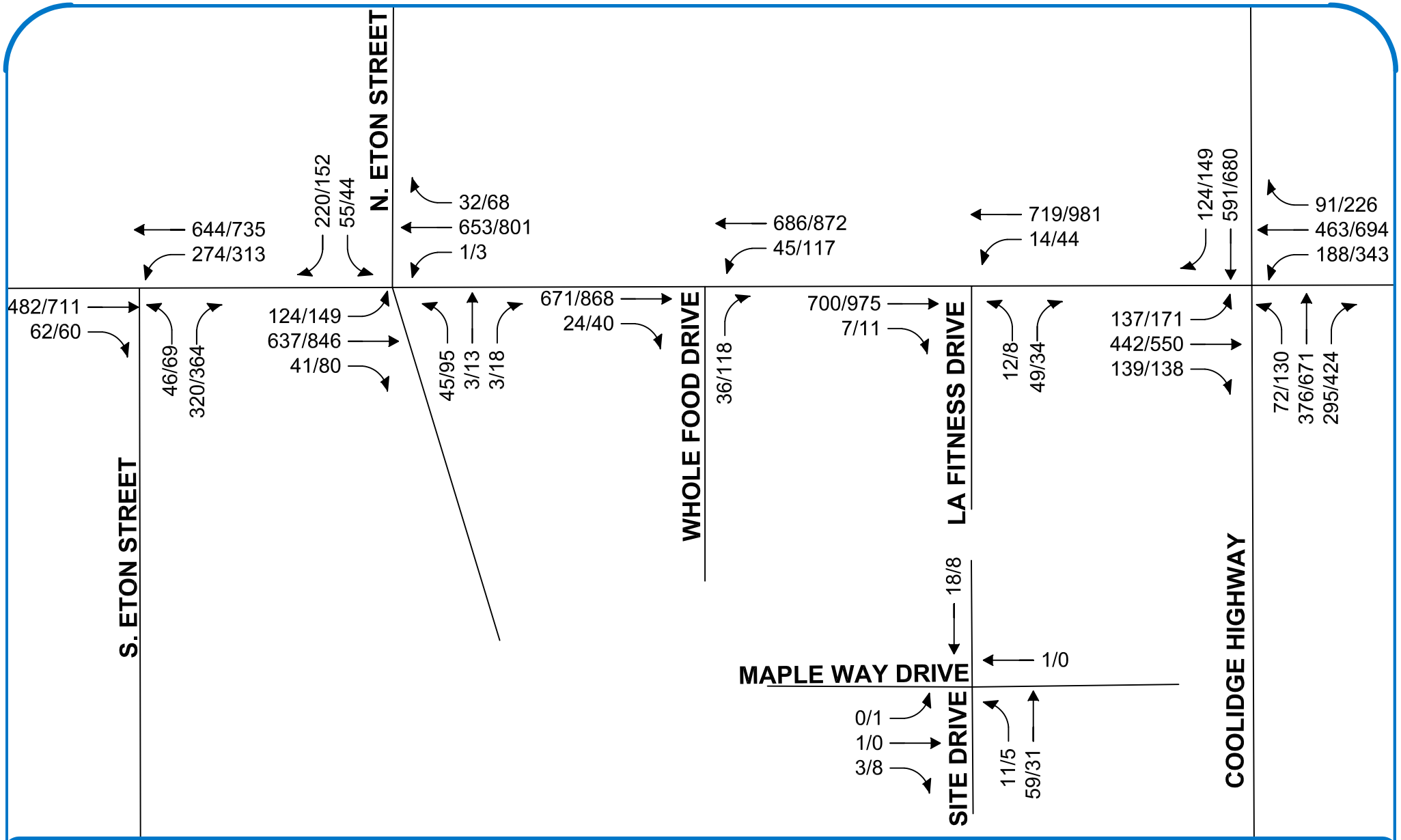


FIGURE 6

FUTURE TRAFFIC VOLUMES (2027)

RESIDENTIAL DEVELOPMENT TIS - TROY, MI

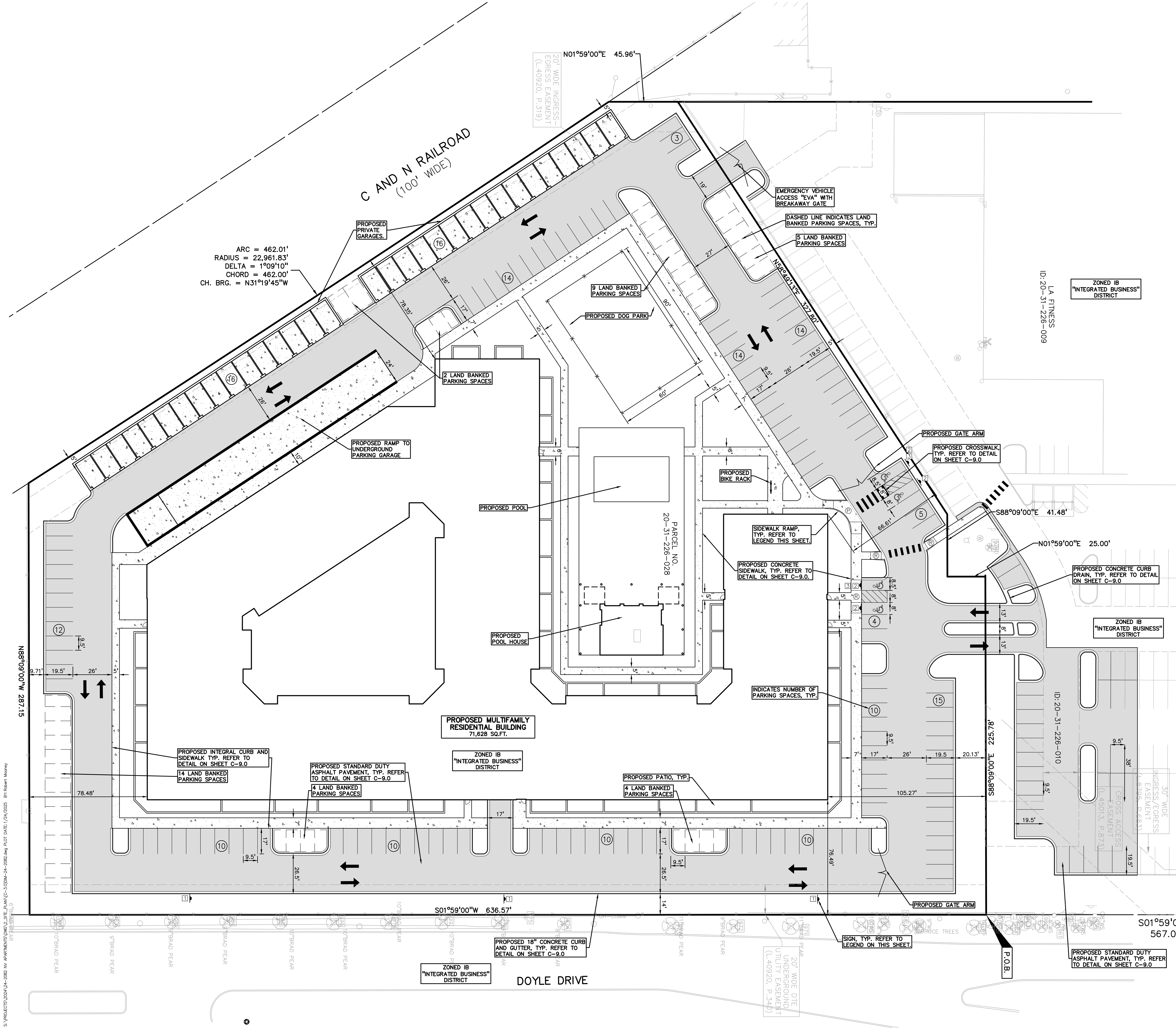
LEGEND

ROADS

TRAFFIC VOLUMES (AM/PM)

NORTH

SCALE: NOT TO SCALE



LEGEND:

- CONCRETE PAVEMENT (STD DUTY)
- ASPHALT PAVEMENT (STD DUTY)
- CONCRETE CURB AND GUTTER
- SETBACK LINE
- SIGN
- LIGHTPOLE
- FENCE

GENERAL NOTES:

THESE NOTES APPLY TO ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT.

1. ALL DIMENSIONS SHOWN ARE TO BACK OF CURB, FACE OF SIDEWALK, OUTSIDE FACE OF BUILDING, PROPERTY LINE, CENTER OF MANHOLE/CATCH BASIN OR CENTERLINE OF PIPE UNLESS OTHERWISE NOTED.
2. 'NO PARKING-FIRE LANE' SIGNS SHALL BE POSTED ALONG ALL FIRE LANES AT 100 FOOT INTERVALS OR AS DIRECTED BY THE FIRE OFFICIAL.
3. REFER TO NOTES & DETAILS SHEET FOR ON-SITE PAVING DETAILS.
4. REFER TO NOTES & DETAILS SHEET FOR ON-SITE SIDEWALK RAMP DETAILS

SITE DATA TABLE:

SITE AREA: 6.023 ACRES (262,362 SF.) NET AND GROSS

ZONING: IB (INTEGRATED INDUSTRIAL BUSINESS DISTRICT)

PROPOSED USE: MULTI-FAMILY DEVELOPMENT (71,628 SF)

BUILDING INFORMATION:
- MAXIMUM ALLOWABLE BUILDING HEIGHT = 50 FT
- PROPOSED BUILDING HEIGHT = 4 STORIES
- BUILDING FOOTPRINT AREA = 71,628 SF.
- BUILDING LOT COVERAGE = 27.3%

SETBACK REQUIREMENTS:	REQUIRED:	PROPOSED:
• FRONT (NORTH)	30'	105.27'
• SIDE (EAST)	10'	74.49'
• SIDE (WEST)	10'	78.35'
• REAR (SOUTH)	20'	78.48'

PARKING CALCULATIONS:

REQUIRED
- MULTI-FAMILY RESIDENTIAL = 1 SPACE PER EFFICIENCY UNIT + 2 SPACES PER EACH DWELLING UNIT
- TOTAL RESIDENTIAL PARKING REQUIRED =
  =8 EFFICIENCY UNITS X 1 = 8 SPACES +
  =226 DWELLING UNITS X 2 = 452 SPACES
- TOTAL REQUIRED PARKING = 460 SPACES

PROPOSED
- TOTAL PROPOSED PARKING SPACES = 131 SURFACE SPACES + 32 PRIVATE GARAGE SPACES + 257 LOWER LEVEL GARAGE SPACES.
  = 420 SPACES INC. 4 H/C SPACES + 40 LAND BANKED PARKING SPACES
  = 460 TOTAL SPACES PROVIDED

BICYCLE PARKING

REQUIRED
- BICYCLE PARKING REQUIRED = 1 BIKE RACK

PROPOSED
- BICYCLE PARKING PROVIDED = 1 BIKE RACK

SIGN LEGEND:

'NO PARKING FIRE LANE' SIGN	1
'BARRIER FREE PARKING' SIGN	2
'VAN ACCESSIBLE' SIGN	3

REFER TO DETAIL SHEET FOR SIGN DETAILS

SIDEWALK RAMP LEGEND:

SIDEWALK RAMP 'TYPE R'	R
SIDEWALK RAMP 'TYPE P'	P

REFER TO LATEST MDOT R-28 STANDARD RAMP AND DETECTABLE WARNING DETAILS

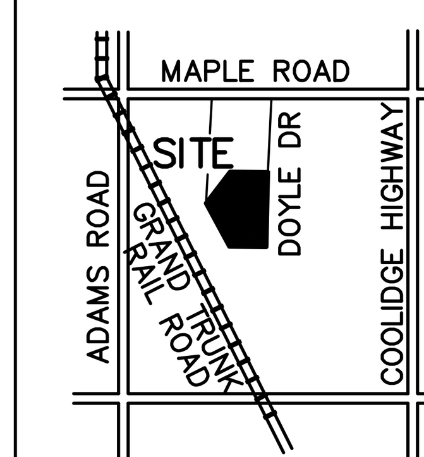
PEA GROUP
t: 844.813.2949
www.peagroup.com

NORTH

0 15 30 60
SCALE: 1" = 30'

Know what's below. Call before you dig.

CAUTION!!
THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING ARE ONLY APPROXIMATE. NO GUARANTEE IS EITHER EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING THE EXACT UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.



CLIENT
SECURED STORAGE ACQUISITIONS, LLC
2966 INDUSTRIAL ROW
TROY, MI 48084

PROJECT TITLE
TROY LIVING
1485 MAPLE WAY DR.
TROY, MI 48084

REVISIONS

SPA	1/24/2025

ORIGINAL ISSUE DATE:
JANUARY 10, 2025

DRAWING TITLE
PRELIMINARY SITE PLAN

PEA JOB NO.	24-2082
P.M.	JPB
DN.	RRM
DES.	LGD

DRAWING NUMBER:
C-3.0

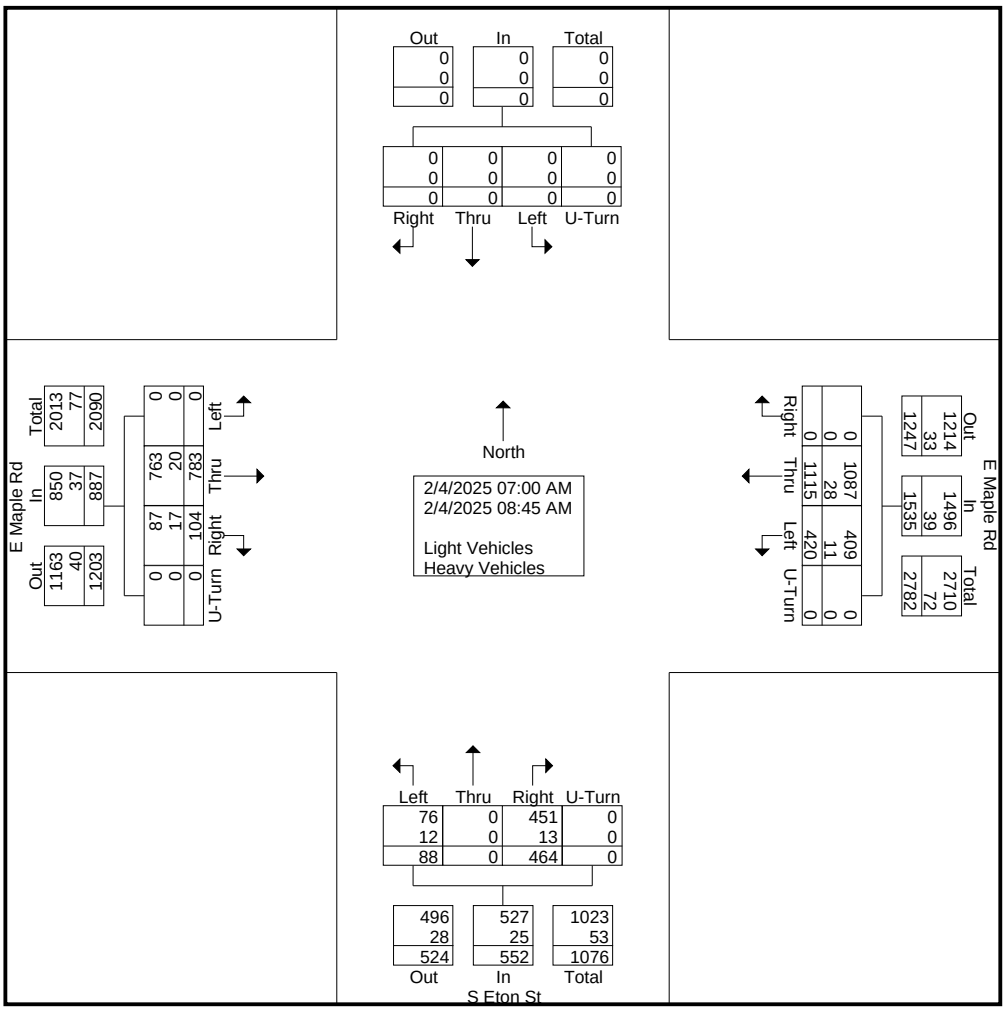
NOT FOR CONSTRUCTION

TRUE DATA TO IMPROVE MOBILITY

File Name : 16904301 - S Eton St -- E Maple Rd
Site Code : 16904301
Start Date : 2/4/2025
Page No : 1

Groups Printed- Light Vehicles - Heavy Vehicles

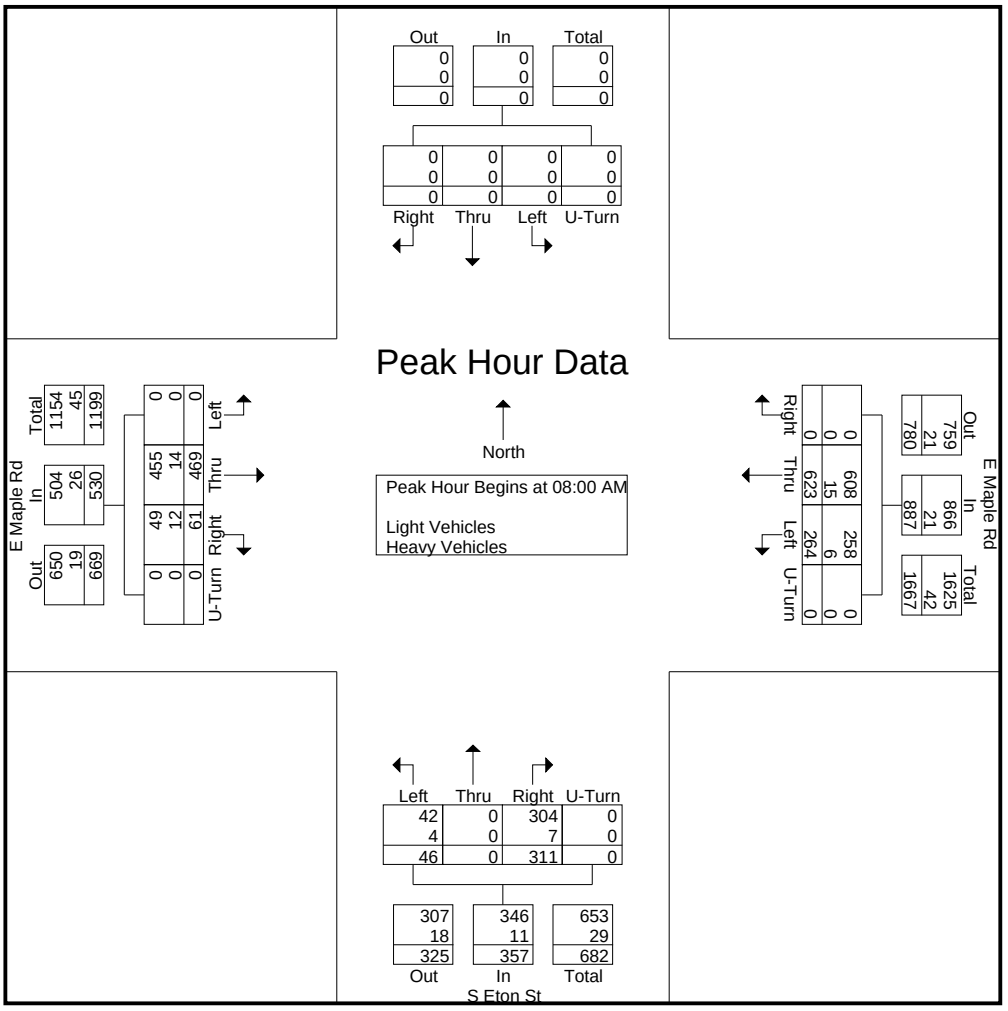
	E Maple Rd Eastbound					E Maple Rd Westbound					S Eton St Northbound					Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:00 AM	0	64	6	0	70	24	79	0	0	103	4	0	17	0	21	0	0	0	0	0	194
07:15 AM	0	59	9	0	68	36	110	0	0	146	13	0	36	0	49	0	0	0	0	0	263
07:30 AM	0	102	14	0	116	38	131	0	0	169	11	0	31	0	42	0	0	0	0	0	327
07:45 AM	0	89	14	0	103	58	172	0	0	230	14	0	69	0	83	0	0	0	0	0	416
Total	0	314	43	0	357	156	492	0	0	648	42	0	153	0	195	0	0	0	0	0	1200
08:00 AM	0	121	9	0	130	61	146	0	0	207	12	0	85	0	97	0	0	0	0	0	434
08:15 AM	0	109	15	0	124	63	162	0	0	225	11	0	80	0	91	0	0	0	0	0	440
08:30 AM	0	118	11	0	129	63	145	0	0	208	15	0	87	0	102	0	0	0	0	0	439
08:45 AM	0	121	26	0	147	77	170	0	0	247	8	0	59	0	67	0	0	0	0	0	461
Total	0	469	61	0	530	264	623	0	0	887	46	0	311	0	357	0	0	0	0	0	1774
Grand Total	0	783	104	0	887	420	1115	0	0	1535	88	0	464	0	552	0	0	0	0	0	2974
Apprch %	0	88.3	11.7	0		27.4	72.6	0	0		15.9	0	84.1	0		0	0	0	0		
Total %	0	26.3	3.5	0	29.8	14.1	37.5	0	0	51.6	3	0	15.6	0	18.6	0	0	0	0	0	
Light Vehicles	0	763	87	0	850	409	1087	0	0	1496	76	0	451	0	527	0	0	0	0	0	2873
% Light Vehicles	0	97.4	83.7	0	95.8	97.4	97.5	0	0	97.5	86.4	0	97.2	0	95.5	0	0	0	0	0	96.6
Heavy Vehicles	0	20	17	0	37	11	28	0	0	39	12	0	13	0	25	0	0	0	0	0	101
% Heavy Vehicles	0	2.6	16.3	0	4.2	2.6	2.5	0	0	2.5	13.6	0	2.8	0	4.5	0	0	0	0	0	3.4



TRUE DATA TO IMPROVE MOBILITY

File Name : 16904301 - S Eton St -- E Maple Rd
Site Code : 16904301
Start Date : 2/4/2025
Page No : 2

	E Maple Rd Eastbound					E Maple Rd Westbound					S Eton St Northbound					Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	**121**	9	0	130	61	146	0	0	207	12	0	85	0	97	0	0	0	0	0	434
08:15 AM	0	109	15	0	124	63	162	0	0	225	11	0	80	0	91	0	0	0	0	0	440
08:30 AM	0	118	11	0	129	63	145	0	0	208	**15**	0	**87**	0	**102**	0	0	0	0	0	439
08:45 AM	0	121	**26**	0	**147**	**77**	**170**	0	0	**247**	8	0	59	0	67	0	0	0	0	0	**461**
Total Volume	0	469	61	0	530	264	623	0	0	887	46	0	311	0	357	0	0	0	0	0	1774
% App. Total	0	88.5	11.5	0		29.8	70.2	0	0		12.9	0	87.1	0		0	0	0	0		
PHF	.000	.969	.587	.000	.901	.857	.916	.000	.000	.898	.767	.000	.894	.000	.875	.000	.000	.000	.000	.000	.962
Light Vehicles	0	455	49	0	504	258	608	0	0	866	42	0	304	0	346	0	0	0	0	0	1716
% Light Vehicles	0	97.0	80.3	0	95.1	97.7	97.6	0	0	97.6	91.3	0	97.7	0	96.9	0	0	0	0	0	96.7
Heavy Vehicles	0	14	12	0	26	6	15	0	0	21	4	0	7	0	11	0	0	0	0	0	58
% Heavy Vehicles	0	3.0	19.7	0	4.9	2.3	2.4	0	0	2.4	8.7	0	2.3	0	3.1	0	0	0	0	0	3.3



TRUE DATA TO IMPROVE MOBILITY

File Name : 16904301 - S Eton St -- E Maple Rd
Site Code : 16904301
Start Date : 2/4/2025
Page No : 1

Groups Printed- Bikes, Peds

	E Maple Rd Eastbound					E Maple Rd Westbound					S Eton St Northbound					Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	3
Total	0	0	0	2	2	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	4
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Grand Total	0	0	0	2	2	0	0	0	0	0	0	0	0	1	1	0	0	0	2	2	5
Apprch %	0	0	0	100		0	0	0	0		0	0	0	100		0	0	0	100		
Total %	0	0	0	40	40	0	0	0	0	0	0	0	0	20	20	0	0	0	40	40	

TRUE DATA TO IMPROVE MOBILITY

File Name : 16904301 - S Eton St -- E Maple Rd
Site Code : 16904301
Start Date : 2/4/2025
Page No : 2

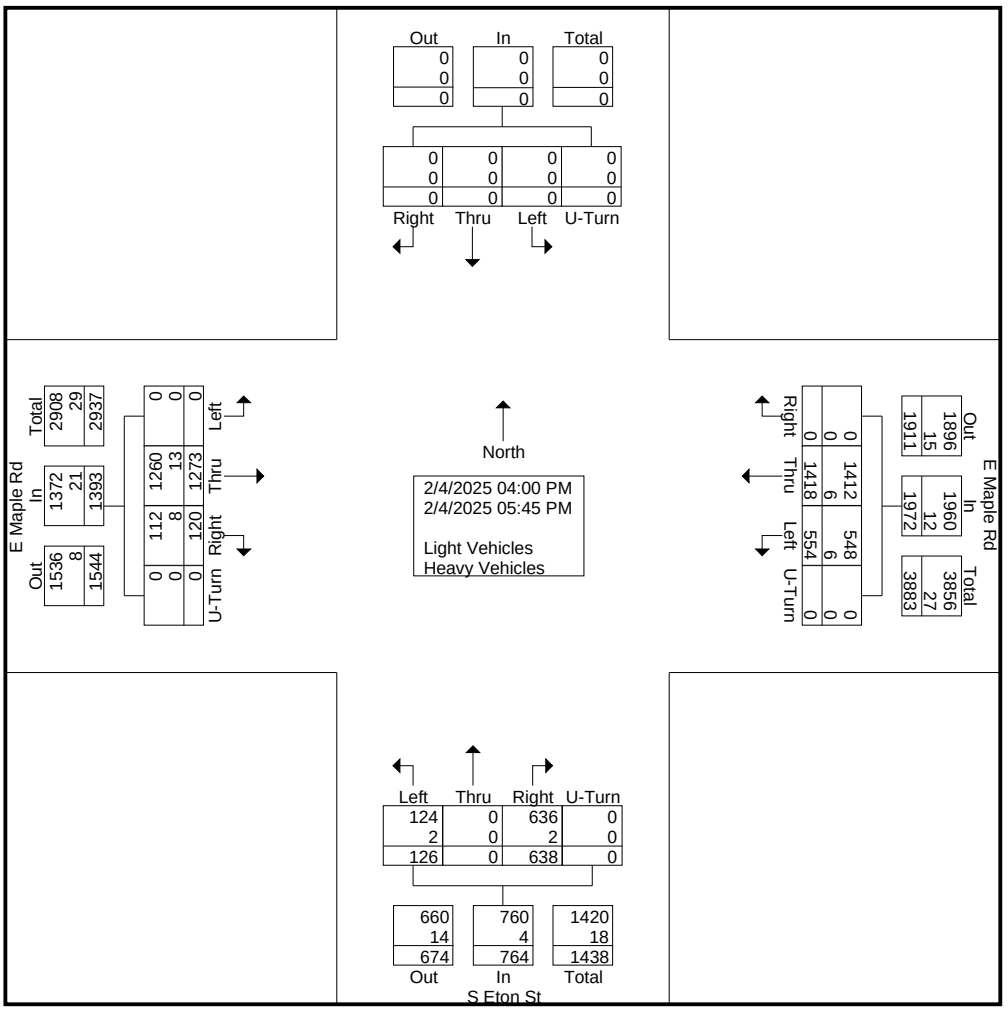
	E Maple Rd Eastbound					E Maple Rd Westbound					S Eton St Northbound					Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	**1**	**1**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	**1**	**1**	0	0	0	**1**	**1**	**3**
Total Volume	0	0	0	2	2	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	4
% App. Total	0	0	0	100		0	0	0	0		0	0	0	100		0	0	0	100		
PHF	.000	.000	.000	.500	.500	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.000	.250	.250	.333

TRUE DATA TO IMPROVE MOBILITY

File Name : 16904302 - S Eton St -- E Maple Rd
Site Code : 16904302
Start Date : 2/4/2025
Page No : 1

Groups Printed- Light Vehicles - Heavy Vehicles

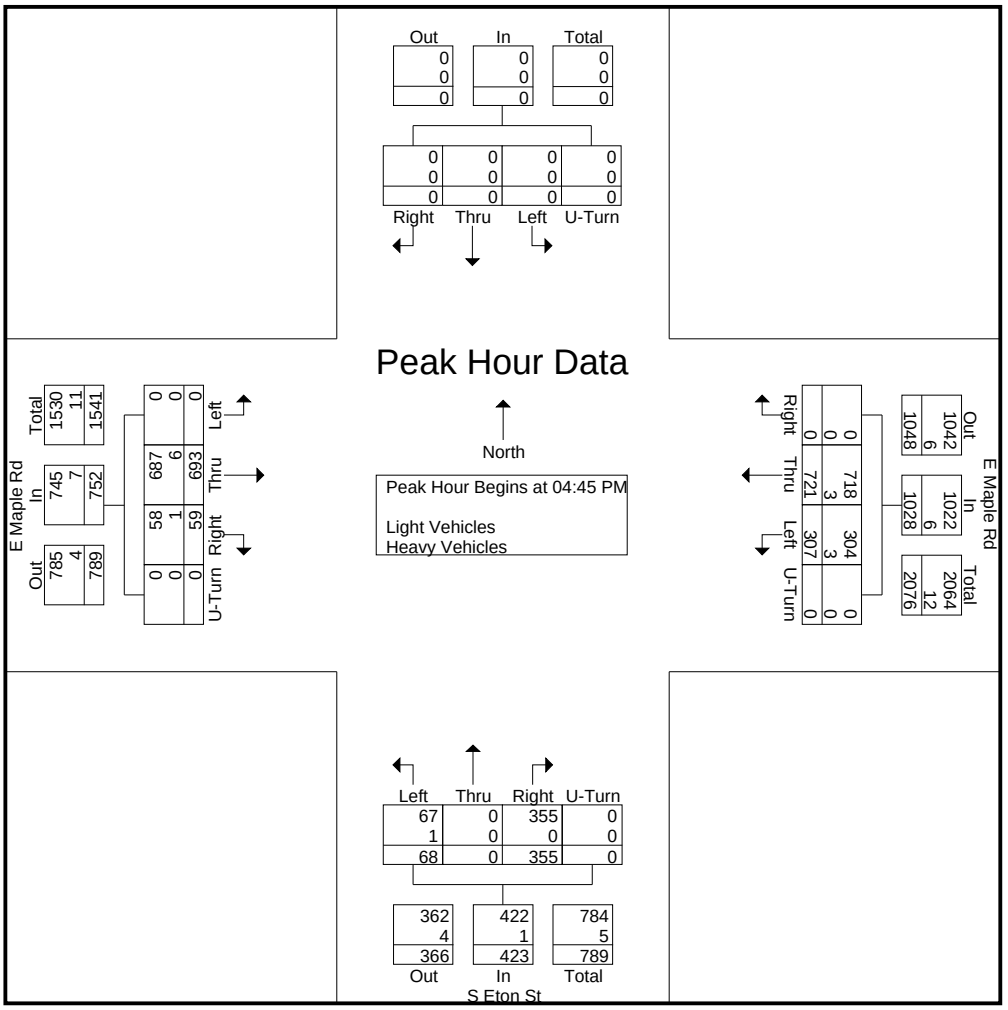
	E Maple Rd Eastbound					E Maple Rd Westbound					S Eton St Northbound					Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
04:00 PM	0	137	15	0	152	61	164	0	0	225	15	0	65	0	80	0	0	0	0	0	457
04:15 PM	0	145	20	0	165	65	188	0	0	253	16	0	70	0	86	0	0	0	0	0	504
04:30 PM	0	160	9	0	169	62	161	0	0	223	17	0	60	0	77	0	0	0	0	0	469
04:45 PM	0	151	19	0	170	88	166	0	0	254	16	0	92	0	108	0	0	0	0	0	532
Total	0	593	63	0	656	276	679	0	0	955	64	0	287	0	351	0	0	0	0	0	1962
05:00 PM	0	175	11	0	186	77	195	0	0	272	19	0	86	0	105	0	0	0	0	0	563
05:15 PM	0	178	18	0	196	76	188	0	0	264	18	0	96	0	114	0	0	0	0	0	574
05:30 PM	0	189	11	0	200	66	172	0	0	238	15	0	81	0	96	0	0	0	0	0	534
05:45 PM	0	138	17	0	155	59	184	0	0	243	10	0	88	0	98	0	0	0	0	0	496
Total	0	680	57	0	737	278	739	0	0	1017	62	0	351	0	413	0	0	0	0	0	2167
Grand Total	0	1273	120	0	1393	554	1418	0	0	1972	126	0	638	0	764	0	0	0	0	0	4129
Apprch %	0	91.4	8.6	0		28.1	71.9	0	0		16.5	0	83.5	0		0	0	0	0		
Total %	0	30.8	2.9	0	33.7	13.4	34.3	0	0	47.8	3.1	0	15.5	0	18.5	0	0	0	0	0	
Light Vehicles	0	1260	112	0	1372	548	1412	0	0	1960	124	0	636	0	760	0	0	0	0	0	4092
% Light Vehicles	0	99	93.3	0	98.5	98.9	99.6	0	0	99.4	98.4	0	99.7	0	99.5	0	0	0	0	0	99.1
Heavy Vehicles	0	13	8	0	21	6	6	0	0	12	2	0	2	0	4	0	0	0	0	0	37
% Heavy Vehicles	0	1	6.7	0	1.5	1.1	0.4	0	0	0.6	1.6	0	0.3	0	0.5	0	0	0	0	0	0.9



TRUE DATA TO IMPROVE MOBILITY

File Name : 16904302 - S Eton St -- E Maple Rd
Site Code : 16904302
Start Date : 2/4/2025
Page No : 2

	E Maple Rd Eastbound					E Maple Rd Westbound					S Eton St Northbound					Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	151	**19**	0	170	**88**	166	0	0	254	16	0	92	0	108	0	0	0	0	0	532
05:00 PM	0	175	11	0	186	77	**195**	0	0	**272**	**19**	0	86	0	105	0	0	0	0	0	563
05:15 PM	0	178	18	0	196	76	188	0	0	264	18	0	**96**	0	**114**	0	0	0	0	0	**574**
05:30 PM	0	**189**	11	0	**200**	66	172	0	0	238	15	0	81	0	96	0	0	0	0	0	534
Total Volume	0	693	59	0	752	307	721	0	0	1028	68	0	355	0	423	0	0	0	0	0	2203
% App. Total	0	92.2	7.8	0		29.9	70.1	0	0		16.1	0	83.9	0		0	0	0	0		
PHF	.000	.917	.776	.000	.940	.872	.924	.000	.000	.945	.895	.000	.924	.000	.928	.000	.000	.000	.000	.000	.959
Light Vehicles	0	687	58	0	745	304	718	0	0	1022	67	0	355	0	422	0	0	0	0	0	2189
% Light Vehicles	0	99.1	98.3	0	99.1	99.0	99.6	0	0	99.4	98.5	0	100	0	99.8	0	0	0	0	0	99.4
Heavy Vehicles	0	6	1	0	7	3	3	0	0	6	1	0	0	0	1	0	0	0	0	0	14
% Heavy Vehicles	0	0.9	1.7	0	0.9	1.0	0.4	0	0	0.6	1.5	0	0	0	0.2	0	0	0	0	0	0.6

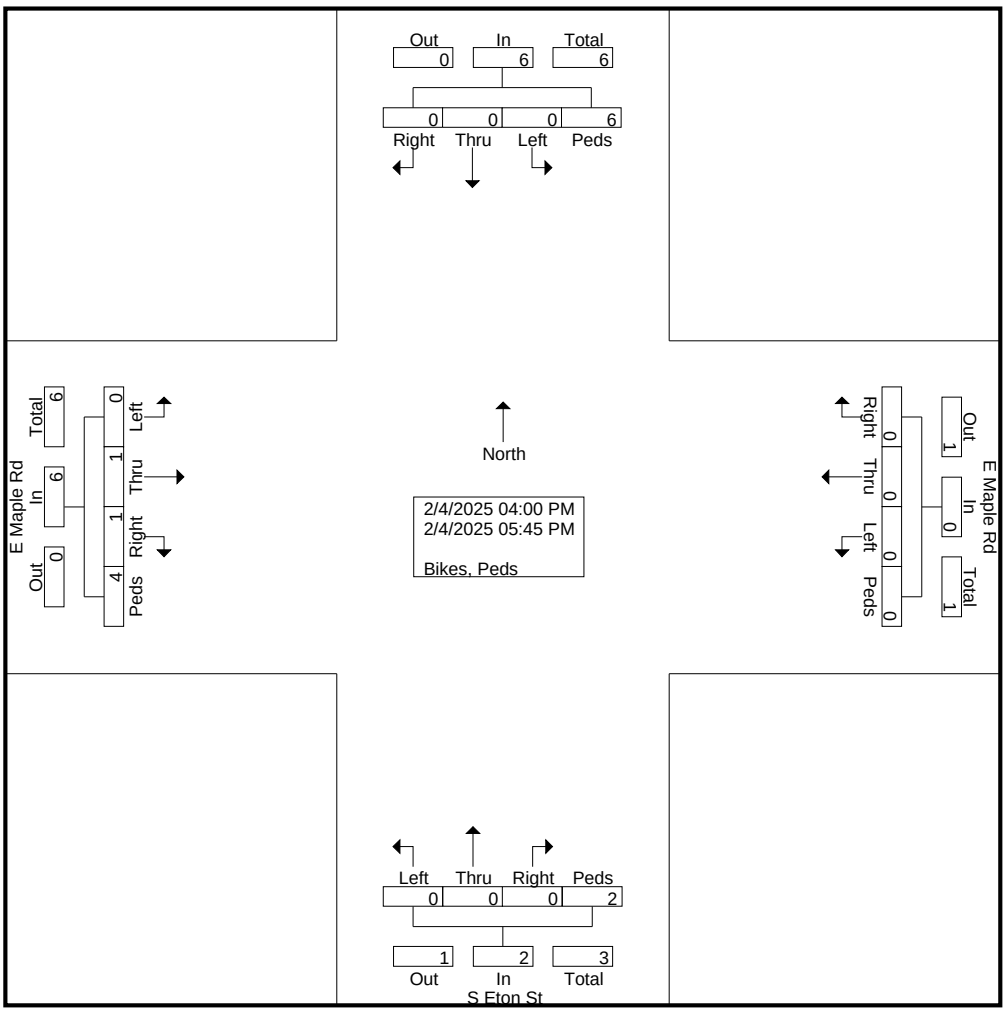


TRUE DATA TO IMPROVE MOBILITY

File Name : 16904302 - S Eton St -- E Maple Rd
Site Code : 16904302
Start Date : 2/4/2025
Page No : 1

Groups Printed- Bikes, Peds

	E Maple Rd Eastbound					E Maple Rd Westbound					S Eton St Northbound					Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2	2	3
04:15 PM	0	0	1	3	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	4	4
04:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	1	1	3	5	0	0	0	0	0	0	0	0	1	1	0	0	0	6	6	12
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	1	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2
Grand Total	0	1	1	4	6	0	0	0	0	0	0	0	0	2	2	0	0	0	6	6	14
Apprch %	0	16.7	16.7	66.7		0	0	0	0		0	0	0	100		0	0	0	100		
Total %	0	7.1	7.1	28.6	42.9	0	0	0	0	0	0	0	0	14.3	14.3	0	0	0	42.9	42.9	



TRUE DATA TO IMPROVE MOBILITY

File Name : 16904302 - S Eton St -- E Maple Rd
Site Code : 16904302
Start Date : 2/4/2025
Page No : 2

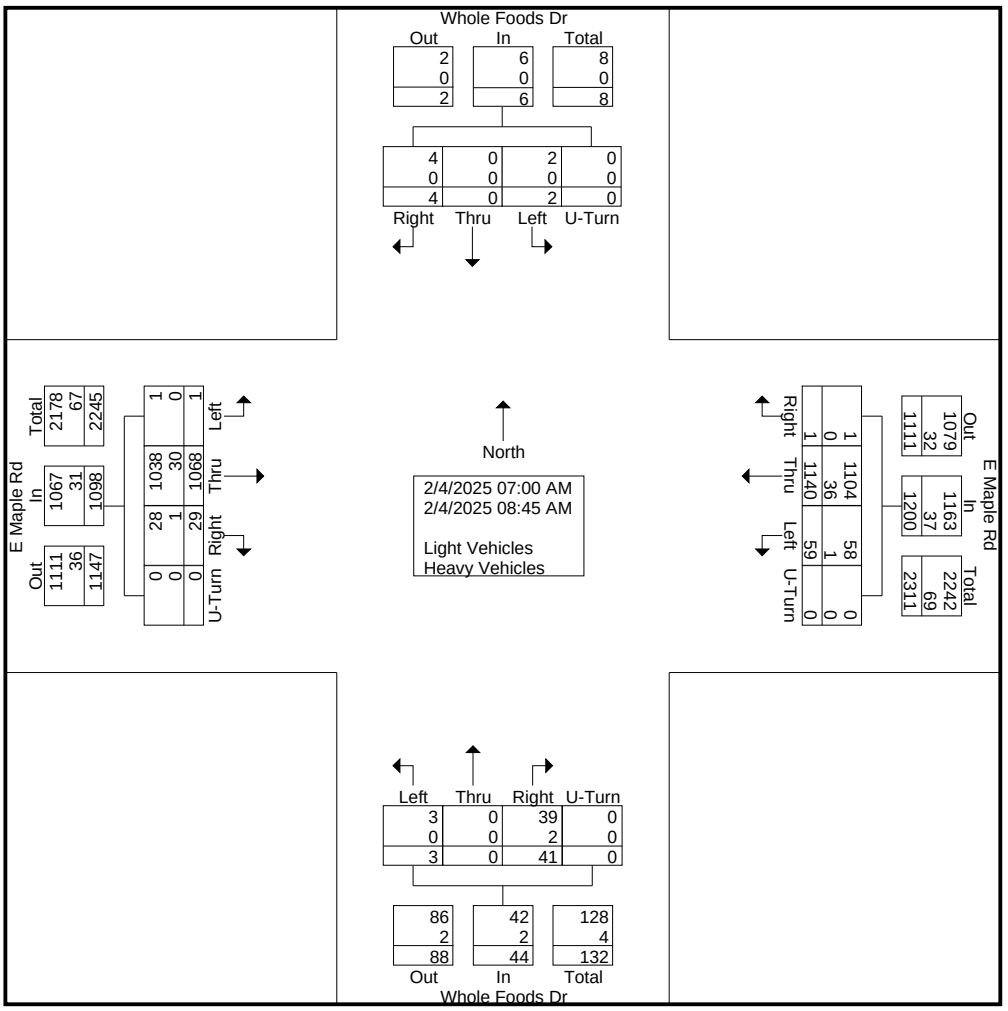
	E Maple Rd Eastbound					E Maple Rd Westbound					S Eton St Northbound					Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	**1**	0	0	0	2	2	3
04:15 PM	0	0	**1**	**3**	**4**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**4**
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**4**	**4**	4
04:45 PM	0	**1**	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	1	1	3	5	0	0	0	0	0	0	0	0	1	1	0	0	0	6	6	12
% App. Total	0	20	20	60		0	0	0	0		0	0	0	100		0	0	0	100		
PHF	.000	.250	.250	.250	.313	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.000	.375	.375	.750

TRUE DATA TO IMPROVE MOBILITY

File Name : 16904303 - Whole Foods Dr -- E Maple Rd
Site Code : 16904303
Start Date : 2/4/2025
Page No : 1

Groups Printed- Light Vehicles - Heavy Vehicles

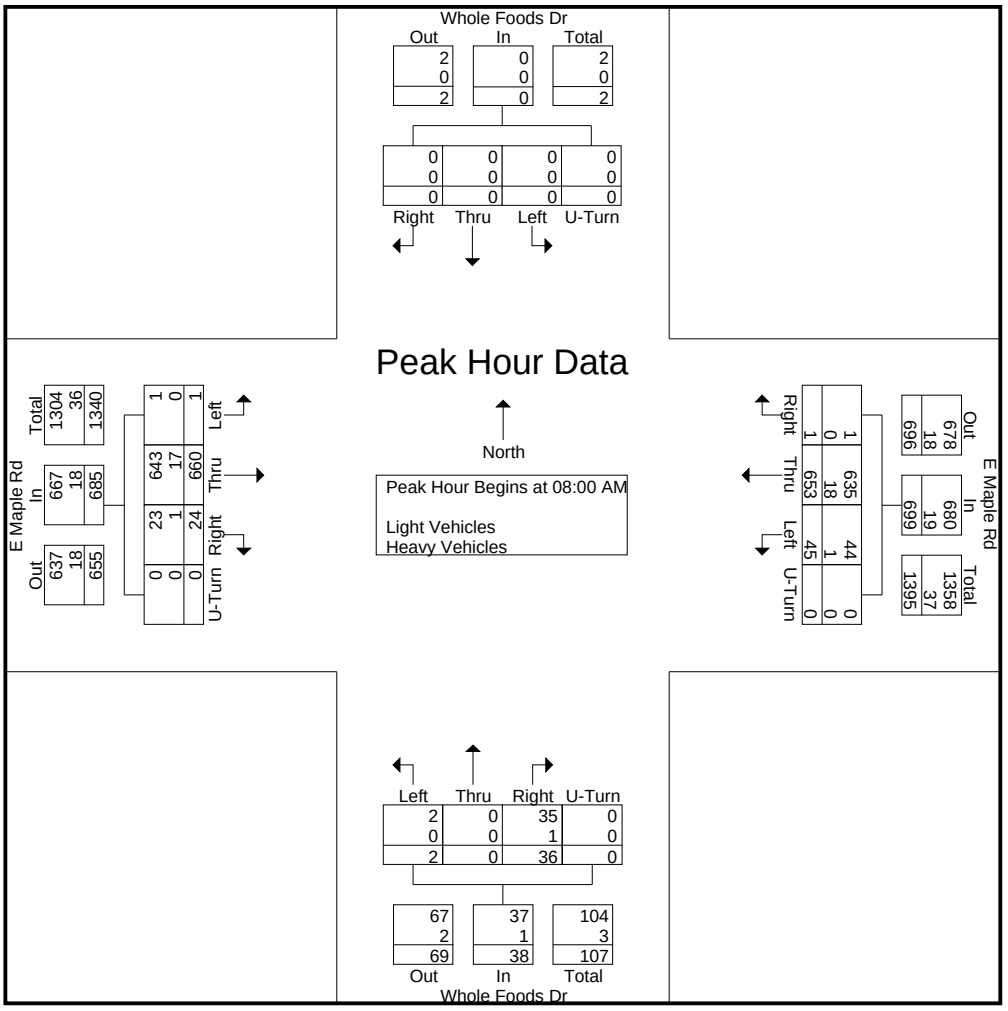
	E Maple Rd Eastbound					E Maple Rd Westbound					Whole Foods Dr Northbound					Whole Foods Dr Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:00 AM	0	74	0	0	74	5	82	0	0	87	1	0	1	0	2	0	0	1	0	1	164
07:15 AM	0	89	1	0	90	1	102	0	0	103	0	0	1	0	1	1	0	0	0	1	195
07:30 AM	0	119	1	0	120	3	134	0	0	137	0	0	0	0	0	1	0	0	0	1	258
07:45 AM	0	126	3	0	129	5	169	0	0	174	0	0	3	0	3	0	0	3	0	3	309
Total	0	408	5	0	413	14	487	0	0	501	1	0	5	0	6	2	0	4	0	6	926
08:00 AM	1	171	7	0	179	10	154	1	0	165	1	0	5	0	6	0	0	0	0	0	350
08:15 AM	0	155	4	0	159	11	184	0	0	195	1	0	8	0	9	0	0	0	0	0	363
08:30 AM	0	164	4	0	168	15	144	0	0	159	0	0	12	0	12	0	0	0	0	0	339
08:45 AM	0	170	9	0	179	9	171	0	0	180	0	0	11	0	11	0	0	0	0	0	370
Total	1	660	24	0	685	45	653	1	0	699	2	0	36	0	38	0	0	0	0	0	1422
Grand Total	1	1068	29	0	1098	59	1140	1	0	1200	3	0	41	0	44	2	0	4	0	6	2348
Apprch %	0.1	97.3	2.6	0		4.9	95	0.1	0		6.8	0	93.2	0		33.3	0	66.7	0		
Total %	0	45.5	1.2	0	46.8	2.5	48.6	0	0	51.1	0.1	0	1.7	0	1.9	0.1	0	0.2	0	0.3	
Light Vehicles	1	1038	28	0	1067	58	1104	1	0	1163	3	0	39	0	42	2	0	4	0	6	2278
% Light Vehicles	100	97.2	96.6	0	97.2	98.3	96.8	100	0	96.9	100	0	95.1	0	95.5	100	0	100	0	100	97
Heavy Vehicles	0	30	1	0	31	1	36	0	0	37	0	0	2	0	2	0	0	0	0	0	70
% Heavy Vehicles	0	2.8	3.4	0	2.8	1.7	3.2	0	0	3.1	0	0	4.9	0	4.5	0	0	0	0	0	3



TRUE DATA TO IMPROVE MOBILITY

File Name : 16904303 - Whole Foods Dr -- E Maple Rd
Site Code : 16904303
Start Date : 2/4/2025
Page No : 2

	E Maple Rd Eastbound					E Maple Rd Westbound					Whole Foods Dr Northbound					Whole Foods Dr Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	**1**	**171**	7	0	**179**	10	154	**1**	0	165	**1**	0	5	0	6	0	0	0	0	0	350
08:15 AM	0	155	4	0	159	11	**184**	0	0	**195**	1	0	8	0	9	0	0	0	0	0	363
08:30 AM	0	164	4	0	168	**15**	144	0	0	159	0	0	**12**	0	**12**	0	0	0	0	0	339
08:45 AM	0	170	**9**	0	179	9	171	0	0	180	0	0	11	0	11	0	0	0	0	0	**370**
Total Volume	1	660	24	0	685	45	653	1	0	699	2	0	36	0	38	0	0	0	0	0	1422
% App. Total	0.1	96.4	3.5	0		6.4	93.4	0.1	0		5.3	0	94.7	0		0	0	0	0		
PHF	.250	.965	.667	.000	.957	.750	.887	.250	.000	.896	.500	.000	.750	.000	.792	.000	.000	.000	.000	.000	.961
Light Vehicles	1	643	23	0	667	44	635	1	0	680	2	0	35	0	37	0	0	0	0	0	1384
% Light Vehicles	100	97.4	95.8	0	97.4	97.8	97.2	100	0	97.3	100	0	97.2	0	97.4	0	0	0	0	0	97.3
Heavy Vehicles	0	17	1	0	18	1	18	0	0	19	0	0	1	0	1	0	0	0	0	0	38
% Heavy Vehicles	0	2.6	4.2	0	2.6	2.2	2.8	0	0	2.7	0	0	2.8	0	2.6	0	0	0	0	0	2.7

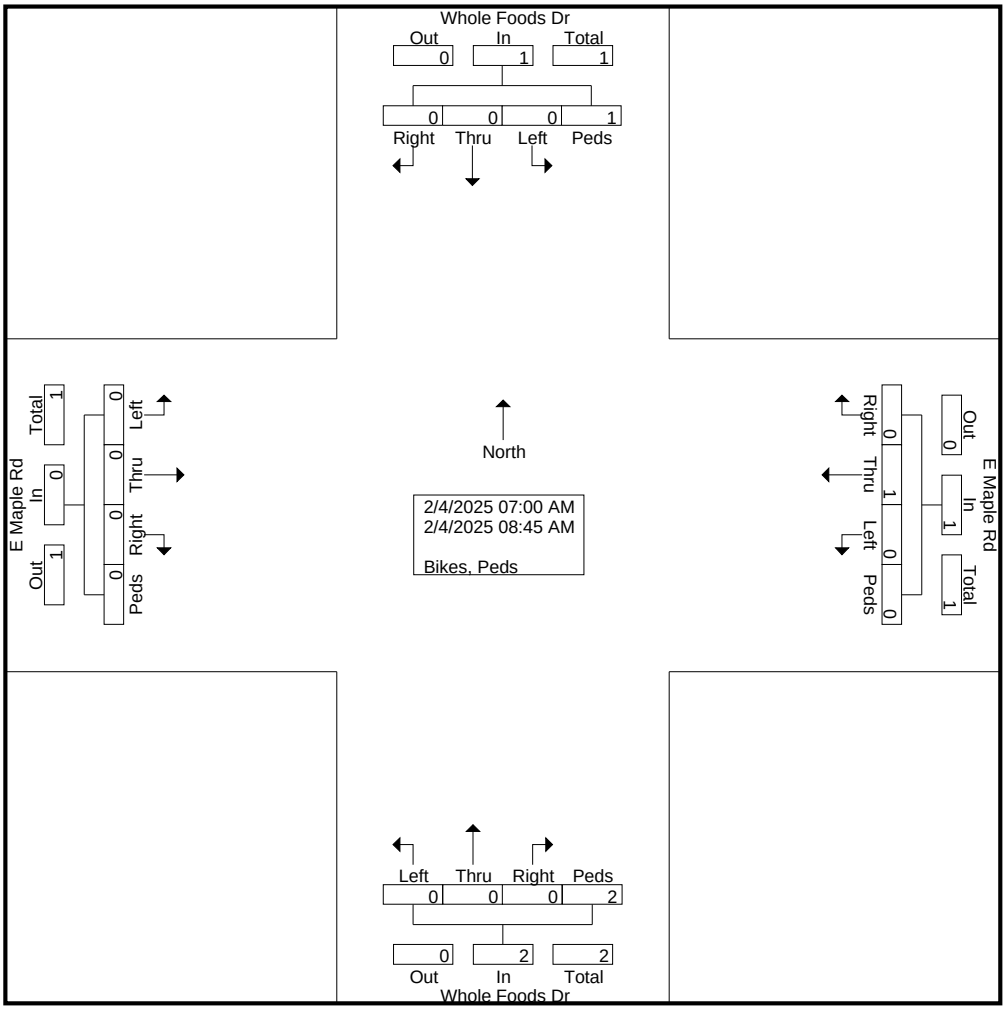


TRUE DATA TO IMPROVE MOBILITY

File Name : 16904303 - Whole Foods Dr -- E Maple Rd
Site Code : 16904303
Start Date : 2/4/2025
Page No : 1

Groups Printed- Bikes, Peds

	E Maple Rd Eastbound					E Maple Rd Westbound					Whole Foods Dr Northbound					Whole Foods Dr Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	2	2	0	0	0	0	0	3
Grand Total	0	0	0	0	0	0	1	0	0	1	0	0	0	2	2	0	0	0	1	1	4
Apprch %	0	0	0	0		0	100	0	0		0	0	0	100		0	0	0	100		
Total %	0	0	0	0	0	0	25	0	0	25	0	0	0	50	50	0	0	0	25	25	



TRUE DATA TO IMPROVE MOBILITY

File Name : 16904303 - Whole Foods Dr -- E Maple Rd
Site Code : 16904303
Start Date : 2/4/2025
Page No : 2

	E Maple Rd Eastbound					E Maple Rd Westbound					Whole Foods Dr Northbound					Whole Foods Dr Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	**1**	0	0	0	0	0	**1**
08:15 AM	0	0	0	0	0	0	**1**	0	0	**1**	0	0	0	0	0	0	0	0	0	0	1
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	1	0	0	1	0	0	0	2	2	0	0	0	0	0	3
% App. Total	0	0	0	0		0	100	0	0		0	0	0	100		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.250	.000	.000	.250	.000	.000	.000	.500	.500	.000	.000	.000	.000	.000	.750

TRUE DATA TO IMPROVE MOBILITY

File Name : 16904304 - Whole Foods Dr -- E Maple Rd
Site Code : 16904304
Start Date : 2/4/2025
Page No : 1

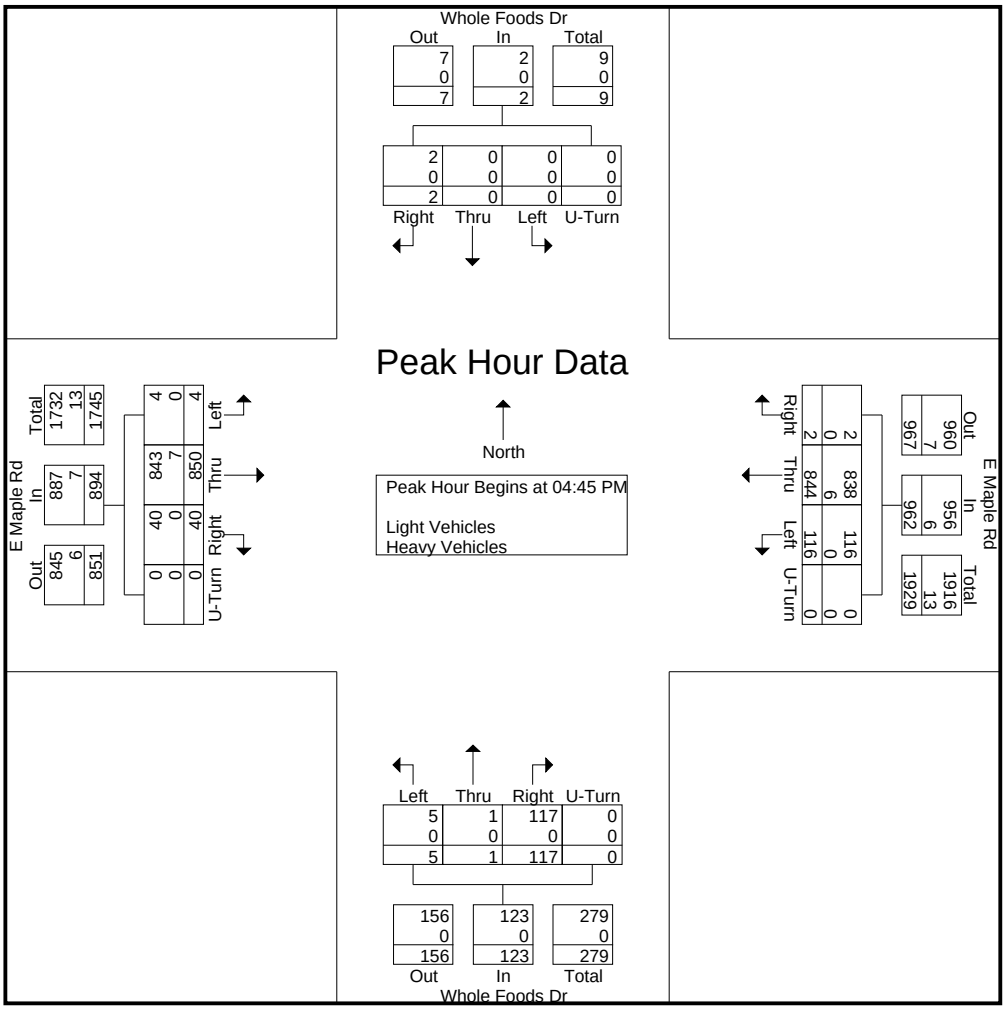
Groups Printed- Light Vehicles - Heavy Vehicles

	E Maple Rd Eastbound					E Maple Rd Westbound					Whole Foods Dr Northbound					Whole Foods Dr Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
04:00 PM	0	188	11	0	199	33	174	2	0	209	1	0	35	0	36	0	0	0	0	0	444
04:15 PM	0	184	10	0	194	33	194	0	0	227	1	0	41	0	42	0	0	0	0	0	463
04:30 PM	0	186	5	0	191	33	189	0	0	222	2	0	24	0	26	0	0	0	0	0	439
04:45 PM	2	180	14	0	196	34	207	0	0	241	0	0	26	0	26	0	0	1	0	1	464
Total	2	738	40	0	780	133	764	2	0	899	4	0	126	0	130	0	0	1	0	1	1810
05:00 PM	0	218	4	0	222	28	234	0	0	262	1	0	24	0	25	0	0	0	0	0	509
05:15 PM	1	229	10	0	240	33	199	1	0	233	3	0	33	0	36	0	0	0	0	0	509
05:30 PM	1	223	12	0	236	21	204	1	0	226	1	1	34	0	36	0	0	1	0	1	499
05:45 PM	0	178	11	0	189	33	178	0	0	211	5	0	28	0	33	1	0	1	1	3	436
Total	2	848	37	0	887	115	815	2	0	932	10	1	119	0	130	1	0	2	1	4	1953
Grand Total	4	1586	77	0	1667	248	1579	4	0	1831	14	1	245	0	260	1	0	3	1	5	3763
Apprch %	0.2	95.1	4.6	0		13.5	86.2	0.2	0		5.4	0.4	94.2	0		20	0	60	20		
Total %	0.1	42.1	2	0	44.3	6.6	42	0.1	0	48.7	0.4	0	6.5	0	6.9	0	0	0.1	0	0.1	
Light Vehicles	4	1569	77	0	1650	248	1568	4	0	1820	14	1	245	0	260	0	0	3	1	4	3734
% Light Vehicles	100	98.9	100	0	99	100	99.3	100	0	99.4	100	100	100	0	100	0	0	100	100	80	99.2
Heavy Vehicles	0	17	0	0	17	0	11	0	0	11	0	0	0	0	0	1	0	0	0	1	29
% Heavy Vehicles	0	1.1	0	0	1	0	0.7	0	0	0.6	0	0	0	0	0	100	0	0	0	20	0.8

TRUE DATA TO IMPROVE MOBILITY

File Name : 16904304 - Whole Foods Dr -- E Maple Rd
Site Code : 16904304
Start Date : 2/4/2025
Page No : 2

	E Maple Rd Eastbound					E Maple Rd Westbound					Whole Foods Dr Northbound					Whole Foods Dr Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	**2**	180	**14**	0	196	**34**	207	0	0	241	0	0	26	0	26	0	0	**1**	0	**1**	464
05:00 PM	0	218	4	0	222	28	**234**	0	0	**262**	1	0	24	0	25	0	0	0	0	0	**509**
05:15 PM	1	**229**	10	0	**240**	33	199	**1**	0	233	**3**	0	33	0	**36**	0	0	0	0	0	509
05:30 PM	1	223	12	0	236	21	204	1	0	226	1	**1**	**34**	0	36	0	0	1	0	1	499
Total Volume	4	850	40	0	894	116	844	2	0	962	5	1	117	0	123	0	0	2	0	2	1981
% App. Total	0.4	95.1	4.5	0		12.1	87.7	0.2	0		4.1	0.8	95.1	0		0	0	100	0		
PHF	.500	.928	.714	.000	.931	.853	.902	.500	.000	.918	.417	.250	.860	.000	.854	.000	.000	.500	.000	.500	.973
Light Vehicles	4	843	40	0	887	116	838	2	0	956	5	1	117	0	123	0	0	2	0	2	1968
% Light Vehicles	100	99.2	100	0	99.2	100	99.3	100	0	99.4	100	100	100	0	100	0	0	100	0	100	99.3
Heavy Vehicles	0	7	0	0	7	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	13
% Heavy Vehicles	0	0.8	0	0	0.8	0	0.7	0	0	0.6	0	0	0	0	0	0	0	0	0	0	0.7

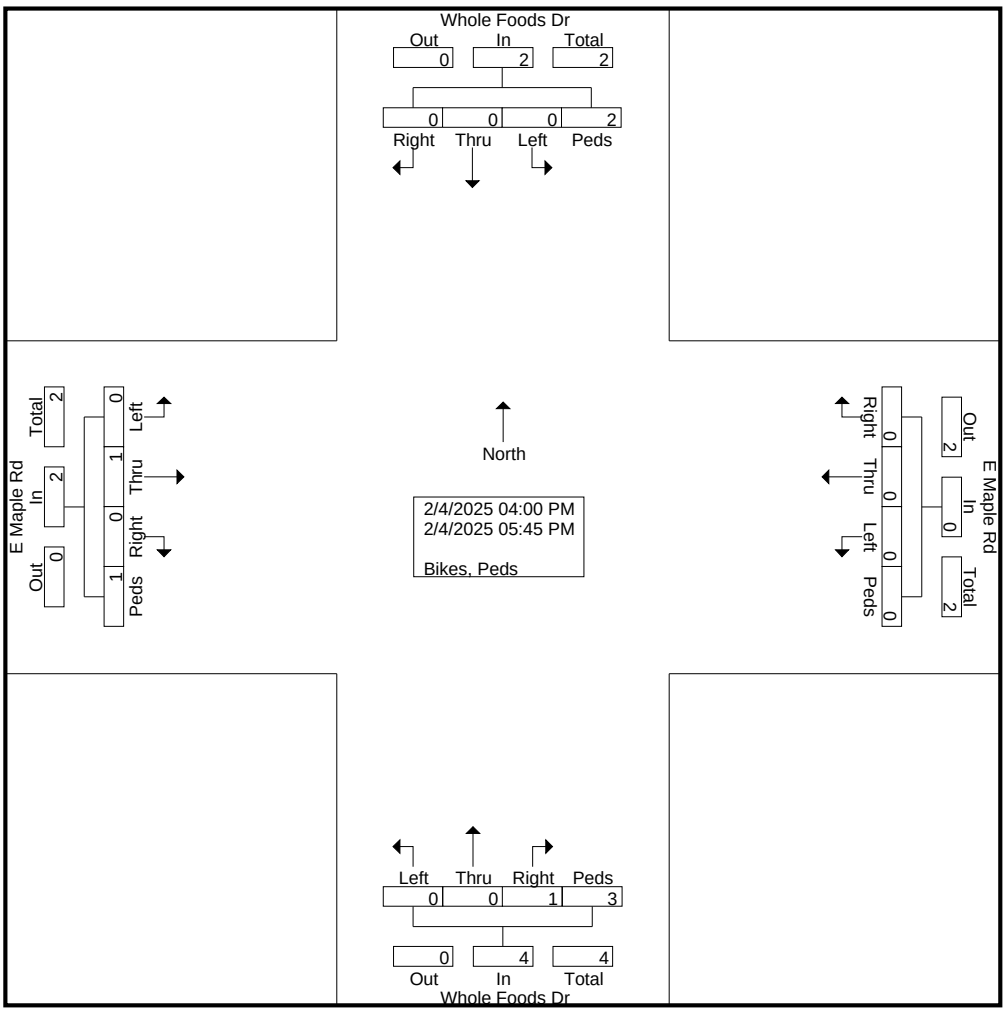


TRUE DATA TO IMPROVE MOBILITY

File Name : 16904304 - Whole Foods Dr -- E Maple Rd
Site Code : 16904304
Start Date : 2/4/2025
Page No : 1

Groups Printed- Bikes, Peds

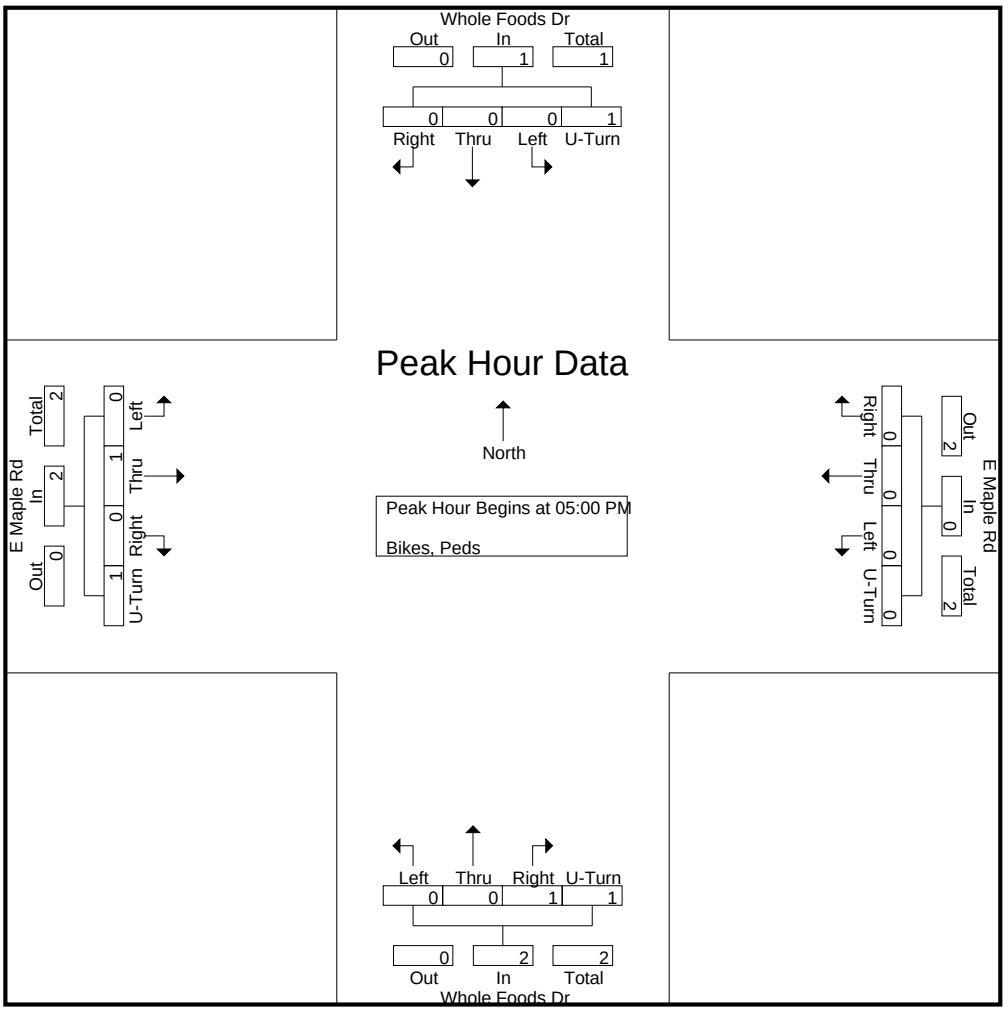
	E Maple Rd Eastbound					E Maple Rd Westbound					Whole Foods Dr Northbound					Whole Foods Dr Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	2
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	1	1	3
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	1	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	3
Total	0	1	0	1	2	0	0	0	0	0	0	0	1	1	2	0	0	0	1	1	5
Grand Total	0	1	0	1	2	0	0	0	0	0	0	0	1	3	4	0	0	0	2	2	8
Apprch %	0	50	0	50		0	0	0	0		0	0	25	75		0	0	0	100		
Total %	0	12.5	0	12.5	25	0	0	0	0	0	0	0	12.5	37.5	50	0	0	0	25	25	



TRUE DATA TO IMPROVE MOBILITY

File Name : 16904304 - Whole Foods Dr -- E Maple Rd
Site Code : 16904304
Start Date : 2/4/2025
Page No : 2

	E Maple Rd Eastbound					E Maple Rd Westbound					Whole Foods Dr Northbound					Whole Foods Dr Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	**1**	0	**1**	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	1	0	0	0	0	0	1
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	**1**	0	**1**	**2**	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	**1**	**3**
Total Volume	0	1	0	1	2	0	0	0	0	0	0	0	1	1	2	0	0	0	1	1	5
% App. Total	0	50	0	50		0	0	0	0		0	0	50	50		0	0	0	100		
PHF	.000	.250	.000	.250	.250	.000	.000	.000	.000	.000	.000	.000	.250	.250	.500	.000	.000	.000	.250	.250	.417

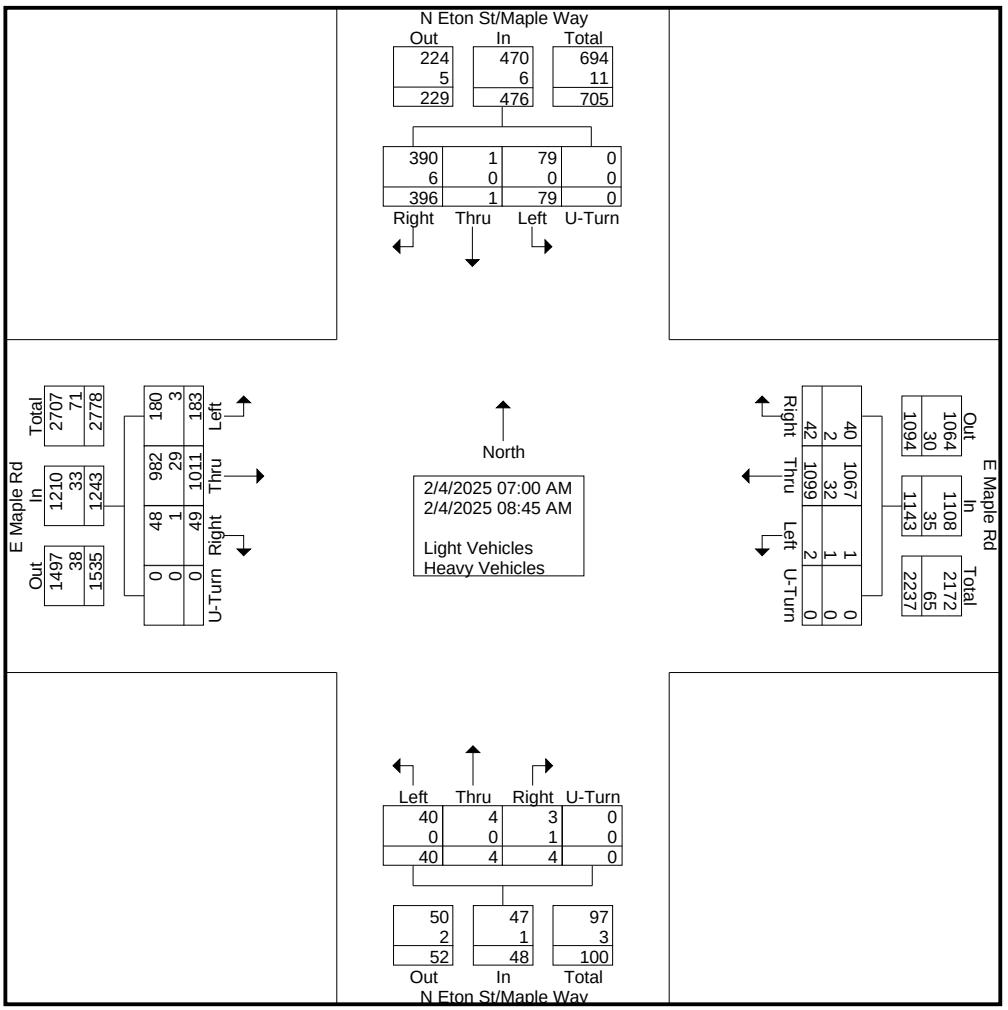


TRUE DATA TO IMPROVE MOBILITY

File Name : 16904305 - N Eton St_Maple Way -- E Maple Rd
Site Code : 16904305
Start Date : 2/4/2025
Page No : 1

Groups Printed- Light Vehicles - Heavy Vehicles

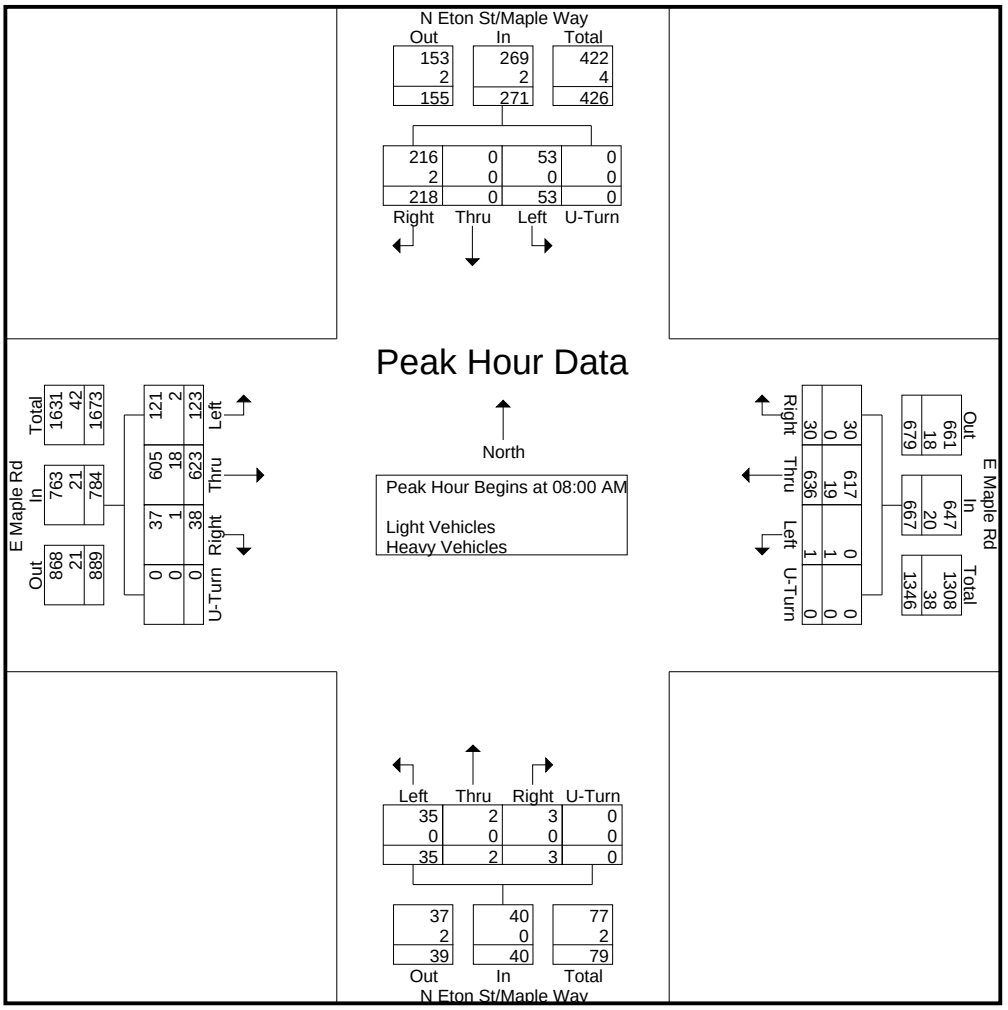
	E Maple Rd Eastbound					E Maple Rd Westbound					N Eton St/Maple Way Northbound					N Eton St/Maple Way Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:00 AM	10	70	0	0	80	0	76	3	0	79	0	0	1	0	1	2	0	30	0	32	192
07:15 AM	4	87	3	0	94	1	100	3	0	104	0	1	0	0	1	3	1	42	0	46	245
07:30 AM	15	116	3	0	134	0	121	1	0	122	3	1	0	0	4	4	0	48	0	52	312
07:45 AM	31	115	5	0	151	0	166	5	0	171	2	0	0	0	2	17	0	58	0	75	399
Total	60	388	11	0	459	1	463	12	0	476	5	2	1	0	8	26	1	178	0	205	1148
08:00 AM	32	170	10	0	212	0	160	8	0	168	4	1	0	0	5	8	0	46	0	54	439
08:15 AM	22	147	11	0	180	0	175	7	0	182	8	0	1	0	9	7	0	43	0	50	421
08:30 AM	52	150	12	0	214	0	142	11	0	153	12	0	1	0	13	17	0	56	0	73	453
08:45 AM	17	156	5	0	178	1	159	4	0	164	11	1	1	0	13	21	0	73	0	94	449
Total	123	623	38	0	784	1	636	30	0	667	35	2	3	0	40	53	0	218	0	271	1762
Grand Total	183	1011	49	0	1243	2	1099	42	0	1143	40	4	4	0	48	79	1	396	0	476	2910
Apprch %	14.7	81.3	3.9	0		0.2	96.2	3.7	0		83.3	8.3	8.3	0		16.6	0.2	83.2	0		
Total %	6.3	34.7	1.7	0	42.7	0.1	37.8	1.4	0	39.3	1.4	0.1	0.1	0	1.6	2.7	0	13.6	0	16.4	
Light Vehicles	180	982	48	0	1210	1	1067	40	0	1108	40	4	3	0	47	79	1	390	0	470	2835
% Light Vehicles	98.4	97.1	98	0	97.3	50	97.1	95.2	0	96.9	100	100	75	0	97.9	100	100	98.5	0	98.7	97.4
Heavy Vehicles	3	29	1	0	33	1	32	2	0	35	0	0	1	0	1	0	0	6	0	6	75
% Heavy Vehicles	1.6	2.9	2	0	2.7	50	2.9	4.8	0	3.1	0	0	25	0	2.1	0	0	1.5	0	1.3	2.6



TRUE DATA TO IMPROVE MOBILITY

File Name : 16904305 - N Eton St_Maple Way -- E Maple Rd
Site Code : 16904305
Start Date : 2/4/2025
Page No : 2

	E Maple Rd Eastbound					E Maple Rd Westbound					N Eton St/Maple Way Northbound					N Eton St/Maple Way Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	32	**170**	10	0	212	0	160	8	0	168	4	**1**	0	0	5	8	0	46	0	54	439
08:15 AM	22	147	11	0	180	0	**175**	7	0	**182**	8	0	**1**	0	9	7	0	43	0	50	421
08:30 AM	**52**	150	**12**	0	**214**	0	142	**11**	0	153	**12**	0	1	0	**13**	17	0	56	0	73	**453**
08:45 AM	17	156	5	0	178	**1**	159	4	0	164	11	1	1	0	13	**21**	0	**73**	0	**94**	449
Total Volume	123	623	38	0	784	1	636	30	0	667	35	2	3	0	40	53	0	218	0	271	1762
% App. Total	15.7	79.5	4.8	0		0.1	95.4	4.5	0		87.5	5	7.5	0		19.6	0	80.4	0		
PHF	.591	.916	.792	.000	.916	.250	.909	.682	.000	.916	.729	.500	.750	.000	.769	.631	.000	.747	.000	.721	.972
Light Vehicles	121	605	37	0	763	0	617	30	0	647	35	2	3	0	40	53	0	216	0	269	1719
% Light Vehicles	98.4	97.1	97.4	0	97.3	0	97.0	100	0	97.0	100	100	100	0	100	100	0	99.1	0	99.3	97.6
Heavy Vehicles	2	18	1	0	21	1	19	0	0	20	0	0	0	0	0	0	0	2	0	2	43
% Heavy Vehicles	1.6	2.9	2.6	0	2.7	100	3.0	0	0	3.0	0	0	0	0	0	0	0	0.9	0	0.7	2.4



TRUE DATA TO IMPROVE MOBILITY

File Name : 16904305 - N Eton St_Maple Way -- E Maple Rd
Site Code : 16904305
Start Date : 2/4/2025
Page No : 1

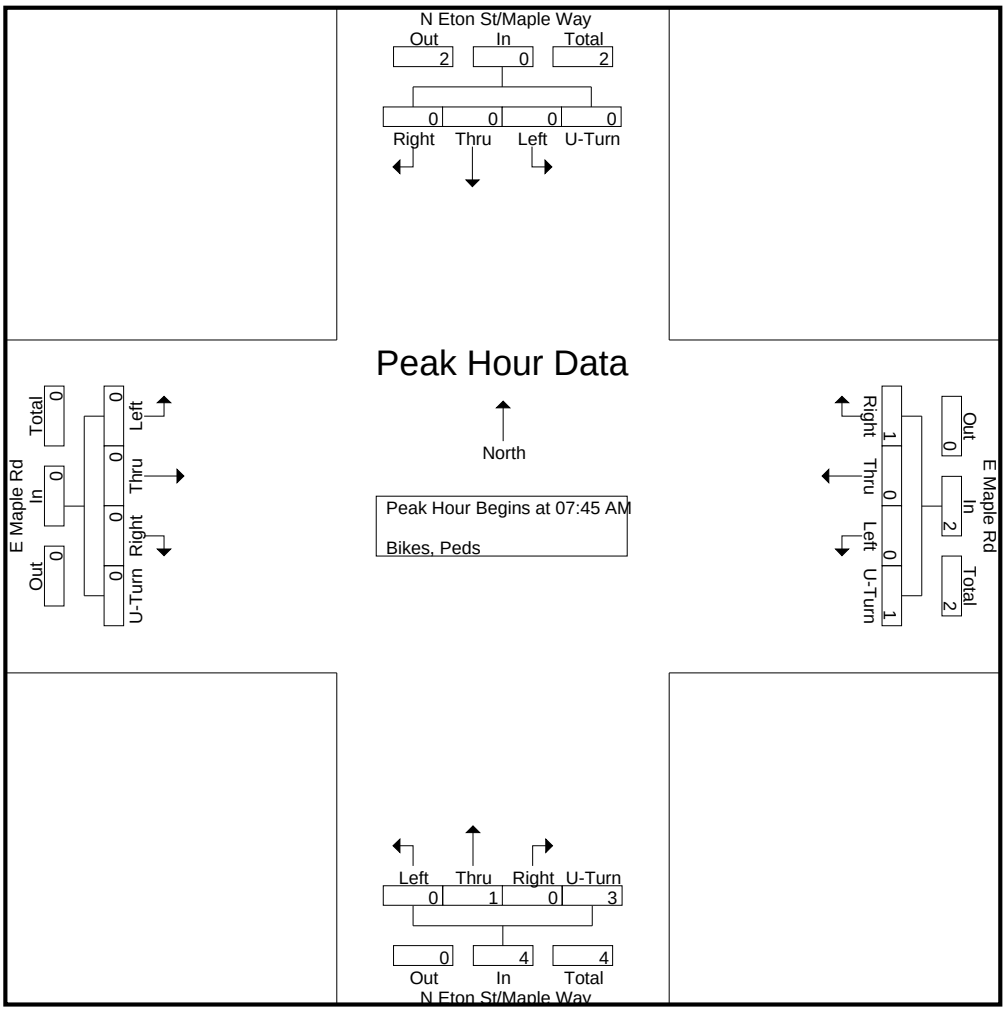
Groups Printed- Bikes, Peds

	E Maple Rd Eastbound					E Maple Rd Westbound					N Eton St/Maple Way Northbound					N Eton St/Maple Way Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	2
08:00 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	0	0	0	0	0	2
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	2
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	1	1	2	0	1	0	2	3	0	0	0	0	0	5
Grand Total	0	0	0	0	0	0	0	1	1	2	0	1	0	3	4	0	0	0	1	1	7
Apprch %	0	0	0	0		0	0	50	50		0	25	0	75		0	0	0	100		
Total %	0	0	0	0	0	0	0	14.3	14.3	28.6	0	14.3	0	42.9	57.1	0	0	0	14.3	14.3	

TRUE DATA TO IMPROVE MOBILITY

File Name : 16904305 - N Eton St_Maple Way -- E Maple Rd
Site Code : 16904305
Start Date : 2/4/2025
Page No : 2

	E Maple Rd Eastbound					E Maple Rd Westbound					N Eton St/Maple Way Northbound					N Eton St/Maple Way Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
08:00 AM	0	0	0	0	0	0	0	0	**1**	**1**	0	0	0	0	0	0	0	0	0	0	1
08:15 AM	0	0	0	0	0	0	0	**1**	0	1	0	**1**	0	0	1	0	0	0	0	0	**2**
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	**2**	**2**	0	0	0	0	0	2
Total Volume	0	0	0	0	0	0	0	1	1	2	0	1	0	3	4	0	0	0	0	0	6
% App. Total	0	0	0	0		0	0	50	50		0	25	0	75		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.250	.250	.500	.000	.250	.000	.375	.500	.000	.000	.000	.000	.000	.750

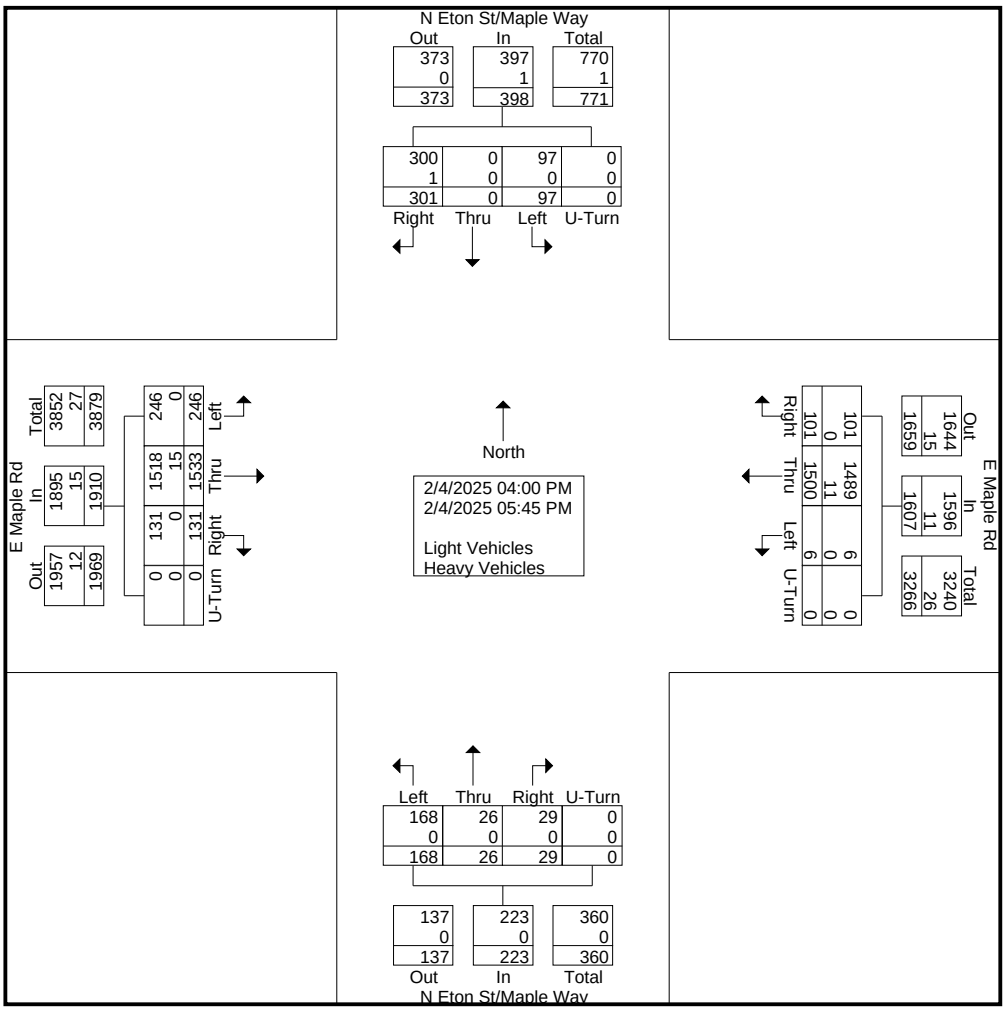


TRUE DATA TO IMPROVE MOBILITY

File Name : 16904306 - N Eton St_Maple Way -- E Maple Rd
Site Code : 16904306
Start Date : 2/4/2025
Page No : 1

Groups Printed- Light Vehicles - Heavy Vehicles

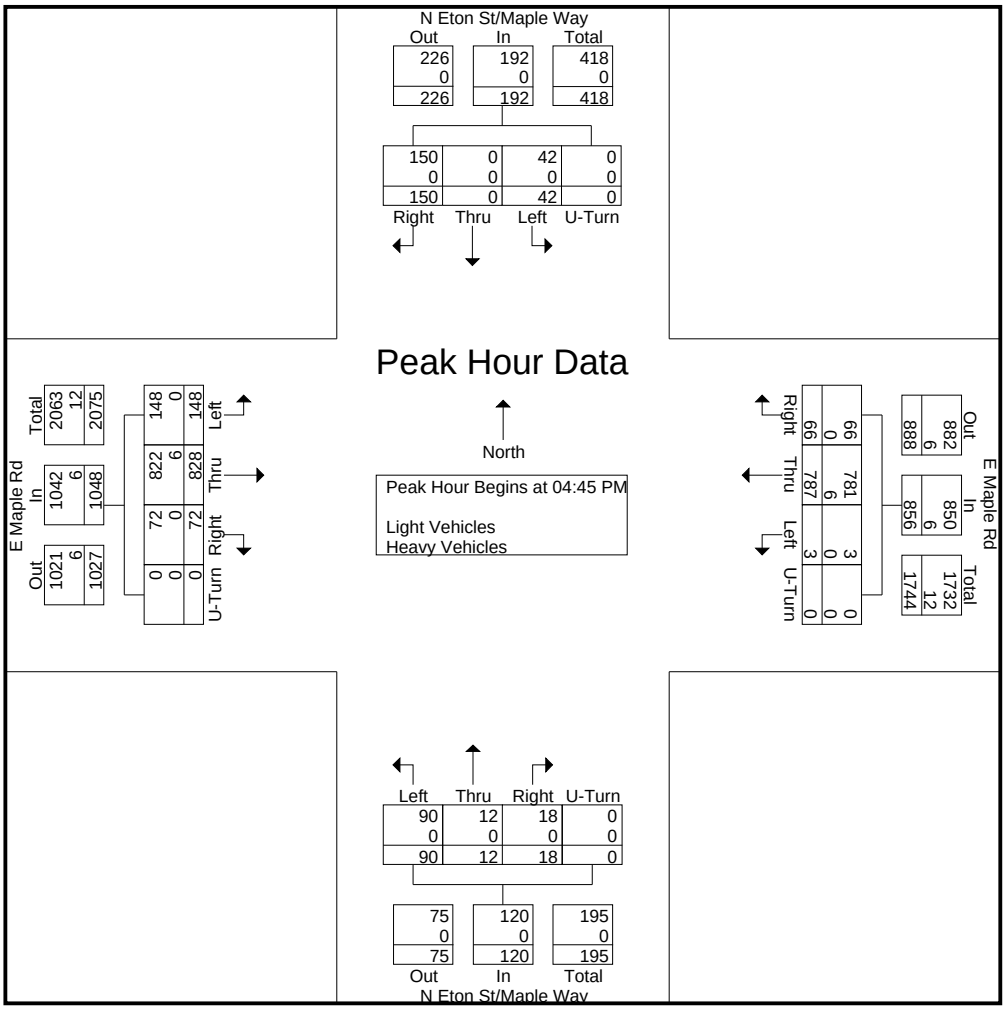
	E Maple Rd Eastbound					E Maple Rd Westbound					N Eton St/Maple Way Northbound					N Eton St/Maple Way Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
04:00 PM	19	176	10	0	205	1	151	6	0	158	24	5	3	0	32	18	0	43	0	61	456
04:15 PM	28	175	13	0	216	1	196	12	0	209	21	4	4	0	29	13	0	43	0	56	510
04:30 PM	21	180	19	0	220	1	173	6	0	180	13	2	4	0	19	10	0	30	0	40	459
04:45 PM	32	186	18	0	236	0	207	14	0	221	21	2	1	0	24	8	0	29	0	37	518
Total	100	717	60	0	877	3	727	38	0	768	79	13	12	0	104	49	0	145	0	194	1943
05:00 PM	38	208	22	0	268	1	209	16	0	226	22	4	5	0	31	8	0	38	0	46	571
05:15 PM	36	223	12	0	271	1	198	17	0	216	27	1	5	0	33	11	0	44	0	55	575
05:30 PM	42	211	20	0	273	1	173	19	0	193	20	5	7	0	32	15	0	39	0	54	552
05:45 PM	30	174	17	0	221	0	193	11	0	204	20	3	0	0	23	14	0	35	0	49	497
Total	146	816	71	0	1033	3	773	63	0	839	89	13	17	0	119	48	0	156	0	204	2195
Grand Total	246	1533	131	0	1910	6	1500	101	0	1607	168	26	29	0	223	97	0	301	0	398	4138
Apprch %	12.9	80.3	6.9	0		0.4	93.3	6.3	0		75.3	11.7	13	0		24.4	0	75.6	0		
Total %	5.9	37	3.2	0	46.2	0.1	36.2	2.4	0	38.8	4.1	0.6	0.7	0	5.4	2.3	0	7.3	0	9.6	
Light Vehicles	246	1518	131	0	1895	6	1489	101	0	1596	168	26	29	0	223	97	0	300	0	397	4111
% Light Vehicles	100	99	100	0	99.2	100	99.3	100	0	99.3	100	100	100	0	100	100	0	99.7	0	99.7	99.3
Heavy Vehicles	0	15	0	0	15	0	11	0	0	11	0	0	0	0	0	0	0	1	0	1	27
% Heavy Vehicles	0	1	0	0	0.8	0	0.7	0	0	0.7	0	0	0	0	0	0	0	0.3	0	0.3	0.7



TRUE DATA TO IMPROVE MOBILITY

File Name : 16904306 - N Eton St_Maple Way -- E Maple Rd
Site Code : 16904306
Start Date : 2/4/2025
Page No : 2

	E Maple Rd Eastbound					E Maple Rd Westbound					N Eton St/Maple Way Northbound					N Eton St/Maple Way Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	32	186	18	0	236	0	207	14	0	221	21	2	1	0	24	8	0	29	0	37	518
05:00 PM	38	208	**22**	0	268	**1**	**209**	16	0	**226**	22	4	5	0	31	8	0	38	0	46	571
05:15 PM	36	**223**	12	0	271	1	198	17	0	216	**27**	1	5	0	**33**	11	0	**44**	0	**55**	**575**
05:30 PM	**42**	211	20	0	**273**	1	173	**19**	0	193	20	**5**	**7**	0	32	**15**	0	39	0	54	552
Total Volume	148	828	72	0	1048	3	787	66	0	856	90	12	18	0	120	42	0	150	0	192	2216
% App. Total	14.1	79	6.9	0		0.4	91.9	7.7	0		75	10	15	0		21.9	0	78.1	0		
PHF	.881	.928	.818	.000	.960	.750	.941	.868	.000	.947	.833	.600	.643	.000	.909	.700	.000	.852	.000	.873	.963
Light Vehicles	148	822	72	0	1042	3	781	66	0	850	90	12	18	0	120	42	0	150	0	192	2204
% Light Vehicles	100	99.3	100	0	99.4	100	99.2	100	0	99.3	100	100	100	0	100	100	0	100	0	100	99.5
Heavy Vehicles	0	6	0	0	6	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	12
% Heavy Vehicles	0	0.7	0	0	0.6	0	0.8	0	0	0.7	0	0	0	0	0	0	0	0	0	0	0.5



TRUE DATA TO IMPROVE MOBILITY

File Name : 16904306 - N Eton St_Maple Way -- E Maple Rd
Site Code : 16904306
Start Date : 2/4/2025
Page No : 1

Groups Printed- Bikes, Peds

	E Maple Rd Eastbound					E Maple Rd Westbound					N Eton St/Maple Way Northbound					N Eton St/Maple Way Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	3	3	0	0	0	3	3	0	0	0	0	0	6
04:15 PM	0	0	0	0	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	3
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
04:45 PM	0	1	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2
Total	0	1	0	0	1	0	0	0	7	7	0	0	0	4	4	0	0	0	0	0	12
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	2	2	0	0	0	0	0	3
05:30 PM	0	0	0	0	0	0	0	0	2	2	0	0	0	1	1	0	0	0	2	2	5
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	3	3	0	0	0	4	4	0	0	0	2	2	9
Grand Total	0	1	0	0	1	0	0	0	10	10	0	0	0	8	8	0	0	0	2	2	21
Apprch %	0	100	0	0		0	0	0	100		0	0	0	100		0	0	0	100		
Total %	0	4.8	0	0	4.8	0	0	0	47.6	47.6	0	0	0	38.1	38.1	0	0	0	9.5	9.5	

TRUE DATA TO IMPROVE MOBILITY

File Name : 16904306 - N Eton St_Maple Way -- E Maple Rd
Site Code : 16904306
Start Date : 2/4/2025
Page No : 2

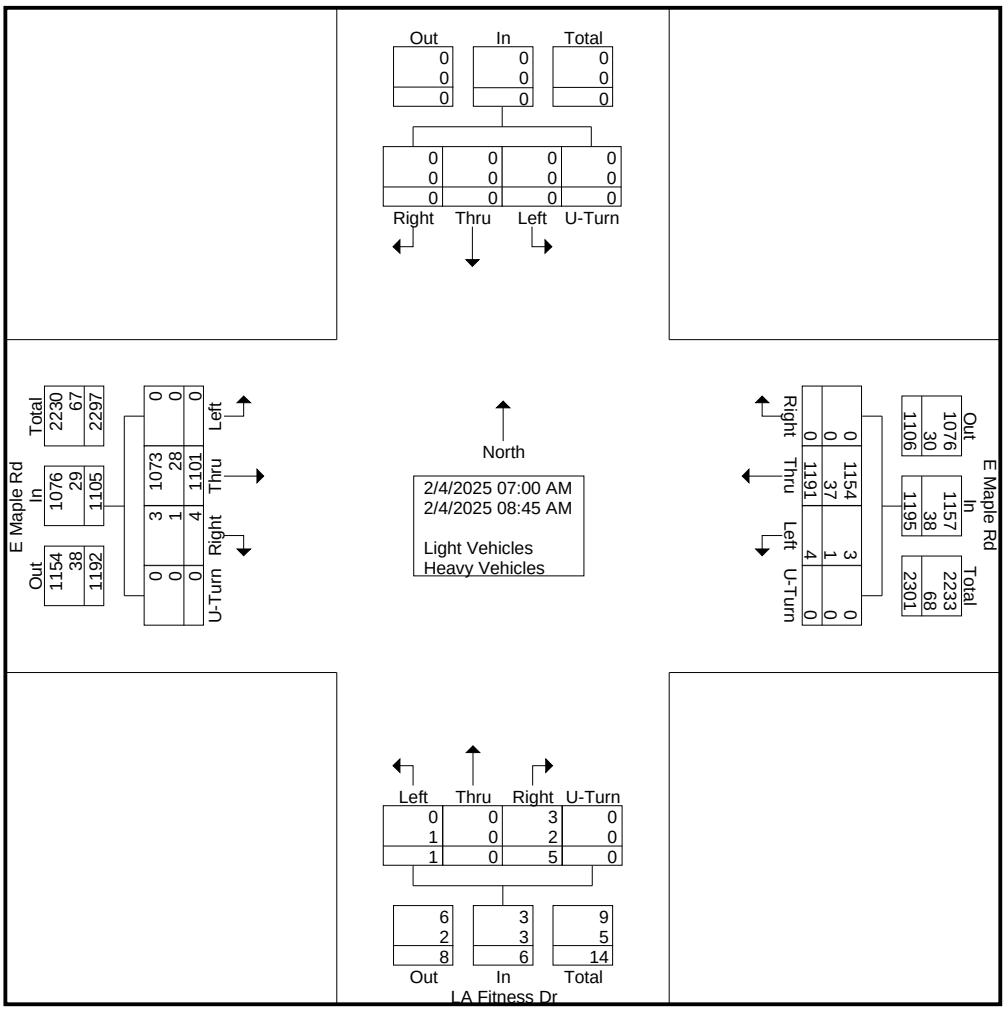
	E Maple Rd Eastbound					E Maple Rd Westbound					N Eton St/Maple Way Northbound					N Eton St/Maple Way Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	0	0	0	0	0	0	0	**3**	**3**	0	0	0	**3**	**3**	0	0	0	0	0	**6**
04:15 PM	0	0	0	0	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	0	3
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
04:45 PM	0	**1**	0	0	**1**	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2
Total Volume	0	1	0	0	1	0	0	0	7	7	0	0	0	4	4	0	0	0	0	0	12
% App. Total	0	100	0	0		0	0	0	100		0	0	0	100		0	0	0	0		
PHF	.000	.250	.000	.000	.250	.000	.000	.000	.583	.583	.000	.000	.000	.333	.333	.000	.000	.000	.000	.000	.500

TRUE DATA TO IMPROVE MOBILITY

File Name : 16904307 - LA Fitness Dr -- E Maple Rd
Site Code : 16904307
Start Date : 2/4/2025
Page No : 1

Groups Printed- Light Vehicles - Heavy Vehicles

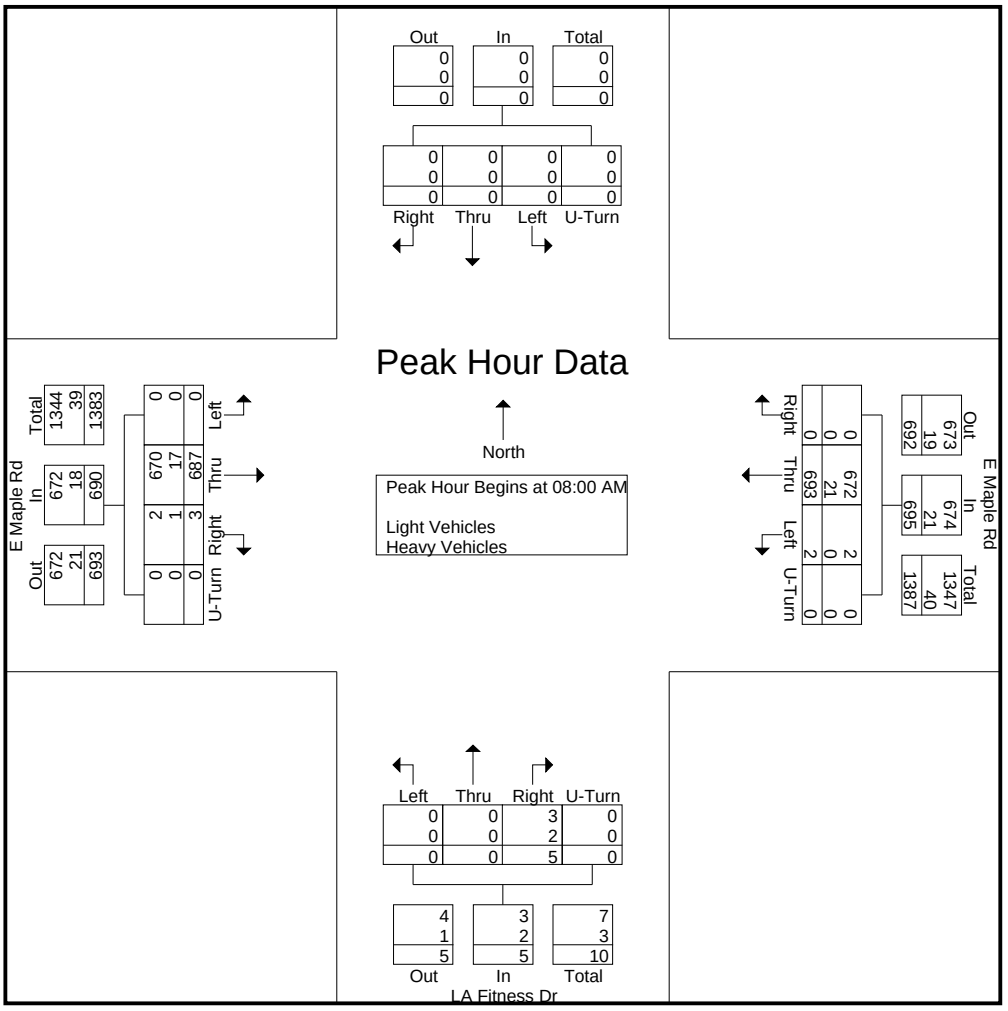
	E Maple Rd Eastbound					E Maple Rd Westbound					LA Fitness Dr Northbound					Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:00 AM	0	76	0	0	76	1	82	0	0	83	0	0	0	0	0	0	0	0	0	0	159
07:15 AM	0	92	0	0	92	1	103	0	0	104	0	0	0	0	0	0	0	0	0	0	196
07:30 AM	0	120	0	0	120	0	137	0	0	137	1	0	0	0	1	0	0	0	0	0	258
07:45 AM	0	126	1	0	127	0	176	0	0	176	0	0	0	0	0	0	0	0	0	0	303
Total	0	414	1	0	415	2	498	0	0	500	1	0	0	0	1	0	0	0	0	0	916
08:00 AM	0	179	1	0	180	0	164	0	0	164	0	0	1	0	1	0	0	0	0	0	345
08:15 AM	0	158	0	0	158	0	193	0	0	193	0	0	0	0	0	0	0	0	0	0	351
08:30 AM	0	174	2	0	176	2	158	0	0	160	0	0	0	0	0	0	0	0	0	0	336
08:45 AM	0	176	0	0	176	0	178	0	0	178	0	0	4	0	4	0	0	0	0	0	358
Total	0	687	3	0	690	2	693	0	0	695	0	0	5	0	5	0	0	0	0	0	1390
Grand Total	0	1101	4	0	1105	4	1191	0	0	1195	1	0	5	0	6	0	0	0	0	0	2306
Apprch %	0	99.6	0.4	0		0.3	99.7	0	0		16.7	0	83.3	0		0	0	0	0		
Total %	0	47.7	0.2	0	47.9	0.2	51.6	0	0	51.8	0	0	0.2	0	0.3	0	0	0	0	0	
Light Vehicles	0	1073	3	0	1076	3	1154	0	0	1157	0	0	3	0	3	0	0	0	0	0	2236
% Light Vehicles	0	97.5	75	0	97.4	75	96.9	0	0	96.8	0	0	60	0	50	0	0	0	0	0	97
Heavy Vehicles	0	28	1	0	29	1	37	0	0	38	1	0	2	0	3	0	0	0	0	0	70
% Heavy Vehicles	0	2.5	25	0	2.6	25	3.1	0	0	3.2	100	0	40	0	50	0	0	0	0	0	3



TRUE DATA TO IMPROVE MOBILITY

File Name : 16904307 - LA Fitness Dr -- E Maple Rd
Site Code : 16904307
Start Date : 2/4/2025
Page No : 2

	E Maple Rd Eastbound					E Maple Rd Westbound					LA Fitness Dr Northbound					Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	**179**	1	0	**180**	0	164	0	0	164	0	0	1	0	1	0	0	0	0	0	345
08:15 AM	0	158	0	0	158	0	**193**	0	0	**193**	0	0	0	0	0	0	0	0	0	0	351
08:30 AM	0	174	**2**	0	176	**2**	158	0	0	160	0	0	0	0	0	0	0	0	0	0	336
08:45 AM	0	176	0	0	176	0	178	0	0	178	0	0	**4**	0	**4**	0	0	0	0	0	**358**
Total Volume	0	687	3	0	690	2	693	0	0	695	0	0	5	0	5	0	0	0	0	0	1390
% App. Total	0	99.6	0.4	0		0.3	99.7	0	0		0	0	100	0		0	0	0	0		
PHF	.000	.959	.375	.000	.958	.250	.898	.000	.000	.900	.000	.000	.313	.000	.313	.000	.000	.000	.000	.000	.971
Light Vehicles	0	670	2	0	672	2	672	0	0	674	0	0	3	0	3	0	0	0	0	0	1349
% Light Vehicles	0	97.5	66.7	0	97.4	100	97.0	0	0	97.0	0	0	60.0	0	60.0	0	0	0	0	0	97.1
Heavy Vehicles	0	17	1	0	18	0	21	0	0	21	0	0	2	0	2	0	0	0	0	0	41
% Heavy Vehicles	0	2.5	33.3	0	2.6	0	3.0	0	0	3.0	0	0	40.0	0	40.0	0	0	0	0	0	2.9



TRUE DATA TO IMPROVE MOBILITY

File Name : 16904307 - LA Fitness Dr -- E Maple Rd
Site Code : 16904307
Start Date : 2/4/2025

Groups Printed- Bikes, Peds

	E Maple Rd Eastbound					E Maple Rd Westbound					LA Fitness Dr Northbound					Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	2
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	1	1	0	0	0	0	0	2
Grand Total	0	0	0	0	0	0	1	0	0	1	0	0	0	2	2	0	0	0	1	1	4
Apprch %	0	0	0	0		0	100	0	0		0	0	0	100		0	0	0	100		
Total %	0	0	0	0	0	0	25	0	0	25	0	0	0	50	50	0	0	0	25	25	

TRUE DATA TO IMPROVE MOBILITY

File Name : 16904307 - LA Fitness Dr -- E Maple Rd
Site Code : 16904307
Start Date : 2/4/2025
Page No : 2

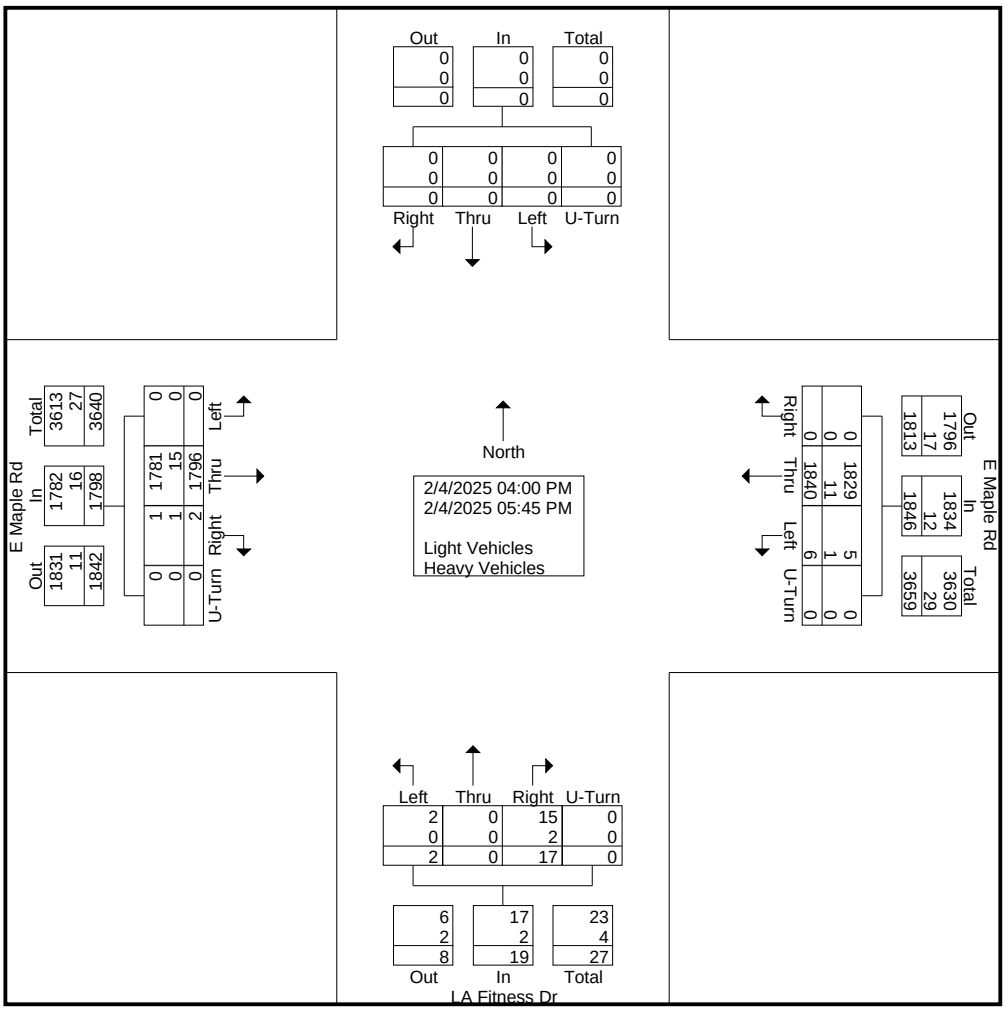
	E Maple Rd Eastbound					E Maple Rd Westbound					LA Fitness Dr Northbound					Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	**1**	**1**
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	**1**	0	0	0	0	0	1
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	2
% App. Total	0	0	0	0		0	0	0	0		0	0	0	100		0	0	0	100		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.000	.250	.250	.500

TRUE DATA TO IMPROVE MOBILITY

File Name : 16904308 - LA Fitness Dr -- E Maple Rd
Site Code : 16904308
Start Date : 2/4/2025
Page No : 1

Groups Printed- Light Vehicles - Heavy Vehicles

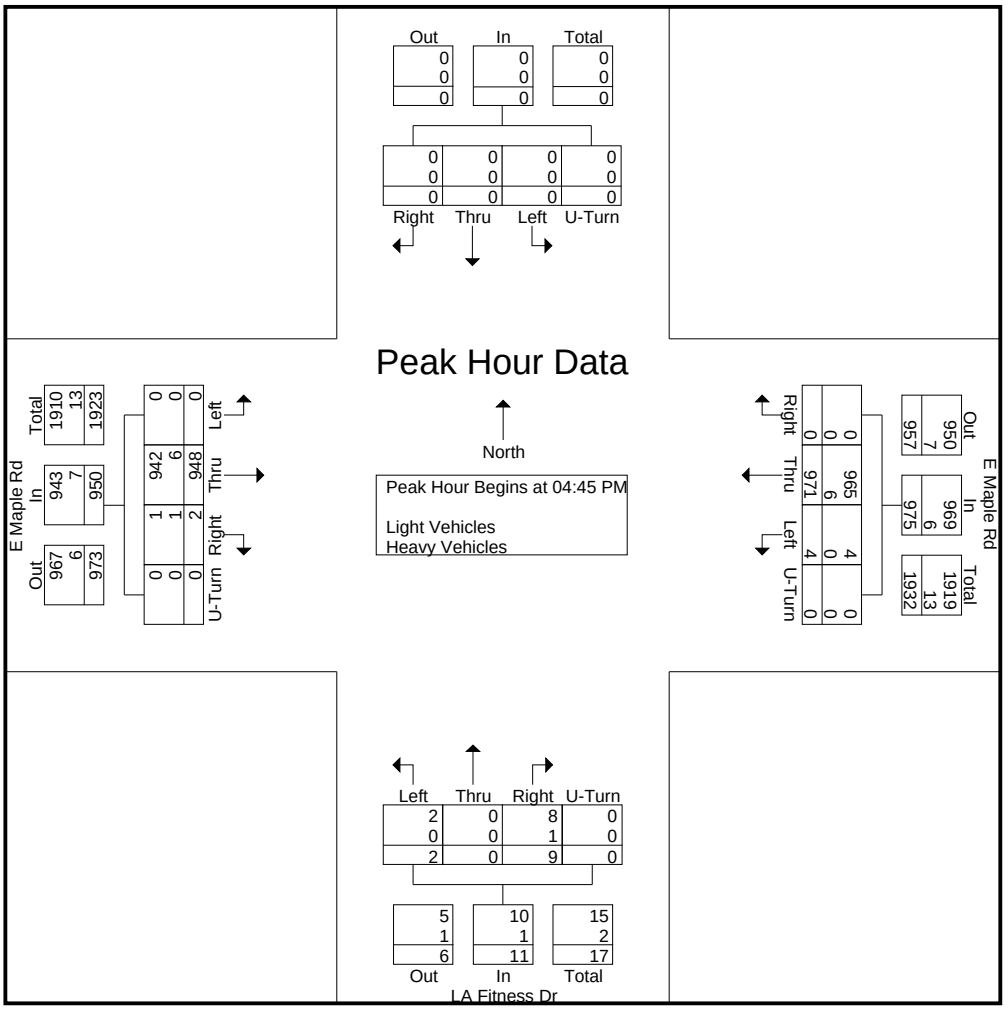
	E Maple Rd Eastbound					E Maple Rd Westbound					LA Fitness Dr Northbound					Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
04:00 PM	0	217	0	0	217	1	214	0	0	215	0	0	2	0	2	0	0	0	0	0	434
04:15 PM	0	222	0	0	222	0	224	0	0	224	0	0	4	0	4	0	0	0	0	0	450
04:30 PM	0	203	0	0	203	1	227	0	0	228	0	0	2	0	2	0	0	0	0	0	433
04:45 PM	0	201	1	0	202	0	237	0	0	237	1	0	2	0	3	0	0	0	0	0	442
Total	0	843	1	0	844	2	902	0	0	904	1	0	10	0	11	0	0	0	0	0	1759
05:00 PM	0	236	0	0	236	1	277	0	0	278	0	0	3	0	3	0	0	0	0	0	517
05:15 PM	0	258	1	0	259	3	224	0	0	227	1	0	3	0	4	0	0	0	0	0	490
05:30 PM	0	253	0	0	253	0	233	0	0	233	0	0	1	0	1	0	0	0	0	0	487
05:45 PM	0	206	0	0	206	0	204	0	0	204	0	0	0	0	0	0	0	0	0	0	410
Total	0	953	1	0	954	4	938	0	0	942	1	0	7	0	8	0	0	0	0	0	1904
Grand Total	0	1796	2	0	1798	6	1840	0	0	1846	2	0	17	0	19	0	0	0	0	0	3663
Apprch %	0	99.9	0.1	0		0.3	99.7	0	0		10.5	0	89.5	0		0	0	0	0		
Total %	0	49	0.1	0	49.1	0.2	50.2	0	0	50.4	0.1	0	0.5	0	0.5	0	0	0	0	0	
Light Vehicles	0	1781	1	0	1782	5	1829	0	0	1834	2	0	15	0	17	0	0	0	0	0	3633
% Light Vehicles	0	99.2	50	0	99.1	83.3	99.4	0	0	99.3	100	0	88.2	0	89.5	0	0	0	0	0	99.2
Heavy Vehicles	0	15	1	0	16	1	11	0	0	12	0	0	2	0	2	0	0	0	0	0	30
% Heavy Vehicles	0	0.8	50	0	0.9	16.7	0.6	0	0	0.7	0	0	11.8	0	10.5	0	0	0	0	0	0.8



TRUE DATA TO IMPROVE MOBILITY

File Name : 16904308 - LA Fitness Dr -- E Maple Rd
Site Code : 16904308
Start Date : 2/4/2025
Page No : 2

	E Maple Rd Eastbound					E Maple Rd Westbound					LA Fitness Dr Northbound					Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	201	**1**	0	202	0	237	0	0	237	**1**	0	2	0	3	0	0	0	0	0	442
05:00 PM	0	236	0	0	236	1	**277**	0	0	**278**	0	0	**3**	0	3	0	0	0	0	0	**517**
05:15 PM	0	**258**	1	0	**259**	**3**	224	0	0	227	1	0	3	0	**4**	0	0	0	0	0	490
05:30 PM	0	253	0	0	253	0	233	0	0	233	0	0	1	0	1	0	0	0	0	0	487
Total Volume	0	948	2	0	950	4	971	0	0	975	2	0	9	0	11	0	0	0	0	0	1936
% App. Total	0	99.8	0.2	0		0.4	99.6	0	0		18.2	0	81.8	0		0	0	0	0		
PHF	.000	.919	.500	.000	.917	.333	.876	.000	.000	.877	.500	.000	.750	.000	.688	.000	.000	.000	.000	.000	.936
Light Vehicles	0	942	1	0	943	4	965	0	0	969	2	0	8	0	10	0	0	0	0	0	1922
% Light Vehicles	0	99.4	50.0	0	99.3	100	99.4	0	0	99.4	100	0	88.9	0	90.9	0	0	0	0	0	99.3
Heavy Vehicles	0	6	1	0	7	0	6	0	0	6	0	0	1	0	1	0	0	0	0	0	14
% Heavy Vehicles	0	0.6	50.0	0	0.7	0	0.6	0	0	0.6	0	0	11.1	0	9.1	0	0	0	0	0	0.7

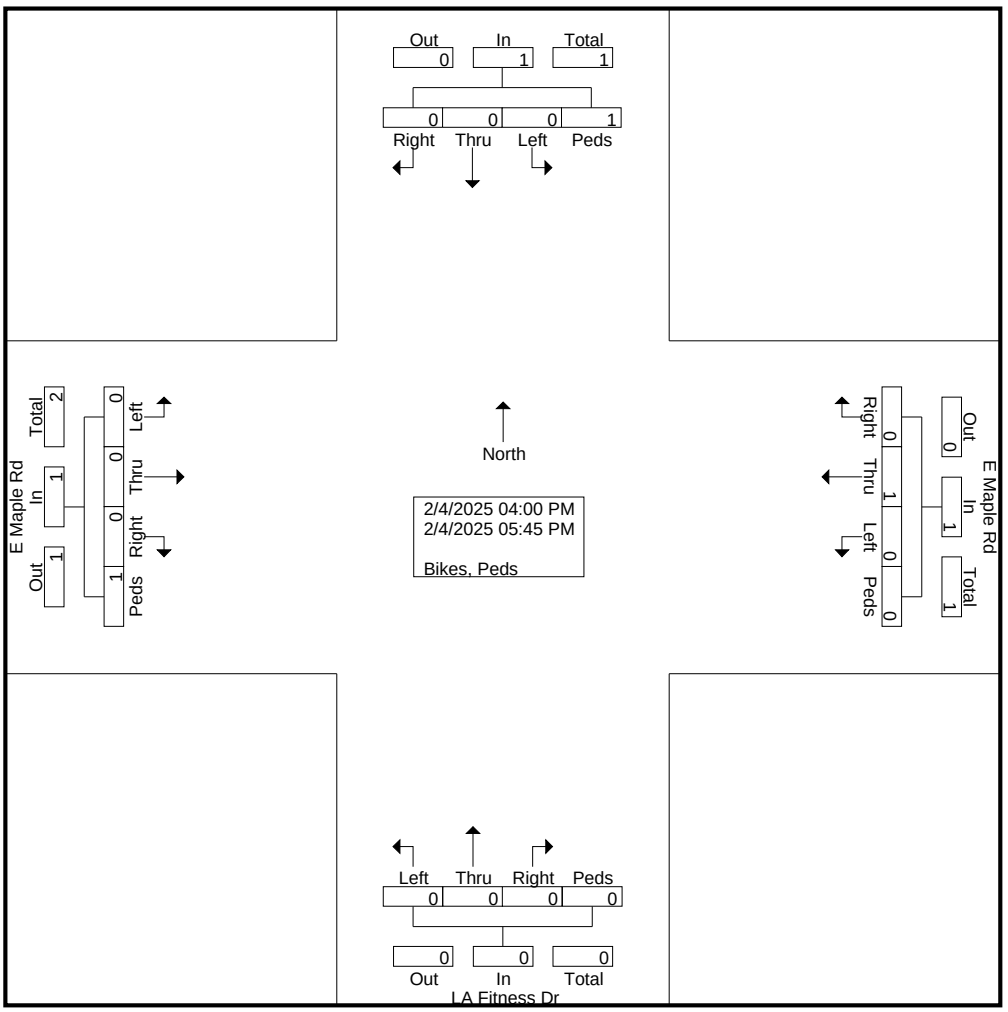


TRUE DATA TO IMPROVE MOBILITY

File Name : 16904308 - LA Fitness Dr -- E Maple Rd
Site Code : 16904308
Start Date : 2/4/2025
Page No : 1

Groups Printed- Bikes, Peds

	E Maple Rd Eastbound					E Maple Rd Westbound					LA Fitness Dr Northbound					Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	1	2
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	1	2
05:00 PM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Grand Total	0	0	0	1	1	0	1	0	0	1	0	0	0	0	0	0	0	0	1	1	3
Apprch %	0	0	0	100		0	100	0	0		0	0	0	0		0	0	0	100		
Total %	0	0	0	33.3	33.3	0	33.3	0	0	33.3	0	0	0	0	0	0	0	0	33.3	33.3	



TRUE DATA TO IMPROVE MOBILITY

File Name : 16904308 - LA Fitness Dr -- E Maple Rd
Site Code : 16904308
Start Date : 2/4/2025

	E Maple Rd Eastbound					E Maple Rd Westbound					LA Fitness Dr Northbound					Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:30 PM	0	0	0	0	0	0	**1**	0	0	**1**	0	0	0	0	0	0	0	0	**1**	**1**	**2**
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	**1**	**1**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	0	1	1	0	1	0	0	1	0	0	0	0	0	0	0	0	1	1	3
% App. Total	0	0	0	100		0	100	0	0		0	0	0	0		0	0	0	100		
PHF	.000	.000	.000	.250	.250	.000	.250	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.375

TRUE DATA TO IMPROVE MOBILITY

File Name : 16904309 - Coolidge Hwy -- E Maple Rd
Site Code : 16904309
Start Date : 2/4/2025
Page No : 1

Groups Printed- Light Vehicles - Heavy Vehicles

	E Maple Rd Eastbound					E Maple Rd Westbound					Coolidge Hwy Northbound					Coolidge Hwy Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:00 AM	17	43	10	0	70	26	66	3	0	95	3	30	32	0	65	0	89	11	0	100	330
07:15 AM	15	80	13	0	108	27	65	8	0	100	7	44	34	0	85	0	120	19	0	139	432
07:30 AM	15	93	13	0	121	41	103	10	0	154	8	71	48	0	127	0	166	19	0	185	587
07:45 AM	12	103	25	0	140	45	126	22	0	193	15	91	69	0	175	0	154	35	0	189	697
Total	59	319	61	0	439	139	360	43	0	542	33	236	183	0	452	0	529	84	0	613	2046
08:00 AM	34	123	20	0	177	46	108	15	0	169	12	90	70	0	172	0	162	37	0	199	717
08:15 AM	28	109	33	0	170	41	123	26	0	190	18	102	62	0	182	0	151	33	0	184	726
08:30 AM	31	86	36	0	153	48	110	26	0	184	16	81	66	0	163	0	117	19	0	136	636
08:45 AM	31	106	31	0	168	51	114	23	0	188	20	99	94	2	215	0	155	31	0	186	757
Total	124	424	120	0	668	186	455	90	0	731	66	372	292	2	732	0	585	120	0	705	2836
Grand Total	183	743	181	0	1107	325	815	133	0	1273	99	608	475	2	1184	0	1114	204	0	1318	4882
Apprch %	16.5	67.1	16.4	0		25.5	64	10.4	0		8.4	51.4	40.1	0.2		0	84.5	15.5	0		
Total %	3.7	15.2	3.7	0	22.7	6.7	16.7	2.7	0	26.1	2	12.5	9.7	0	24.3	0	22.8	4.2	0	27	
Light Vehicles	176	727	174	0	1077	311	791	126	0	1228	95	593	457	2	1147	0	1098	197	0	1295	4747
% Light Vehicles	96.2	97.8	96.1	0	97.3	95.7	97.1	94.7	0	96.5	96	97.5	96.2	100	96.9	0	98.6	96.6	0	98.3	97.2
Heavy Vehicles	7	16	7	0	30	14	24	7	0	45	4	15	18	0	37	0	16	7	0	23	135
% Heavy Vehicles	3.8	2.2	3.9	0	2.7	4.3	2.9	5.3	0	3.5	4	2.5	3.8	0	3.1	0	1.4	3.4	0	1.7	2.8

TRUE DATA TO IMPROVE MOBILITY

File Name : 16904309 - Coolidge Hwy -- E Maple Rd
Site Code : 16904309
Start Date : 2/4/2025
Page No : 2

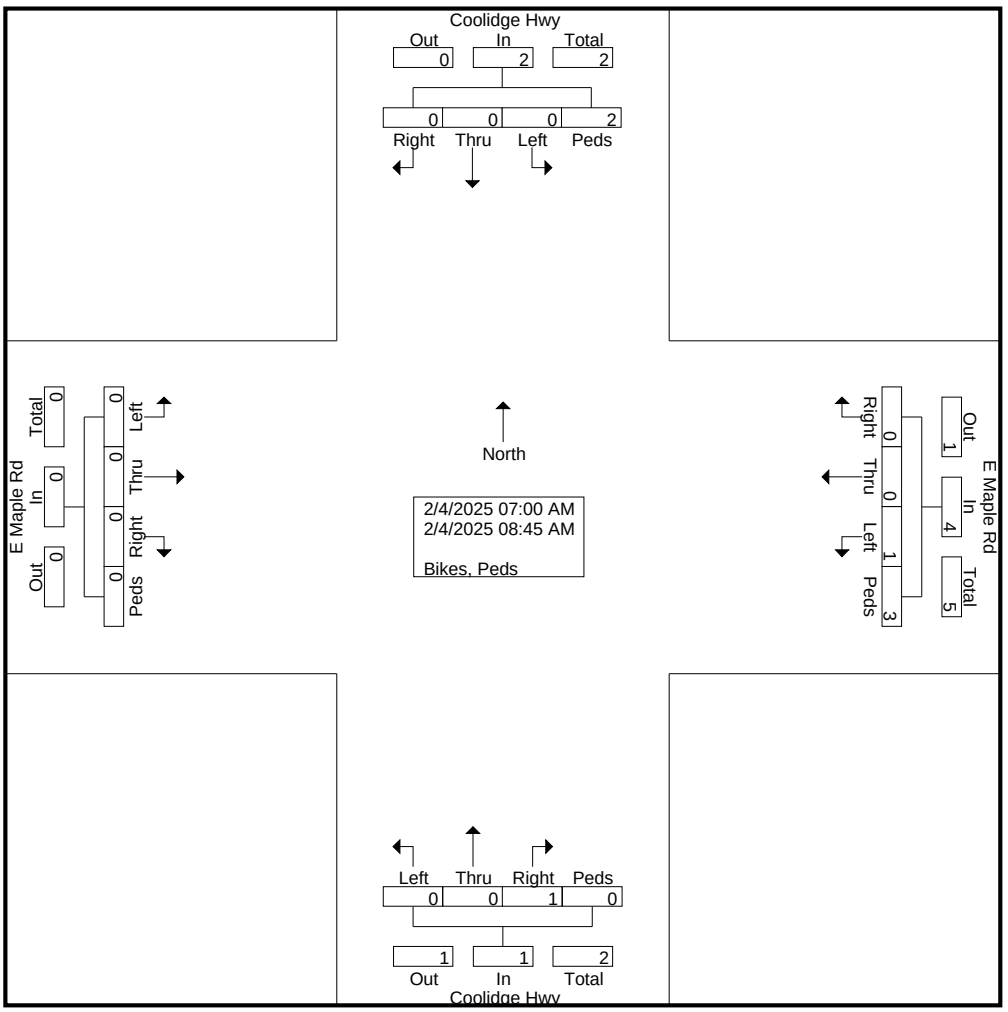
	E Maple Rd Eastbound					E Maple Rd Westbound					Coolidge Hwy Northbound					Coolidge Hwy Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	**34**	**123**	20	0	**177**	46	108	15	0	169	12	90	70	0	172	0	**162**	**37**	0	**199**	717
08:15 AM	28	109	33	0	170	41	**123**	**26**	0	**190**	18	**102**	62	0	182	0	151	33	0	184	726
08:30 AM	31	86	**36**	0	153	48	110	26	0	184	16	81	66	0	163	0	117	19	0	136	636
08:45 AM	31	106	31	0	168	**51**	114	23	0	188	**20**	99	**94**	**2**	**215**	0	155	31	0	186	**757**
Total Volume	124	424	120	0	668	186	455	90	0	731	66	372	292	2	732	0	585	120	0	705	2836
% App. Total	18.6	63.5	18	0		25.4	62.2	12.3	0		9	50.8	39.9	0.3		0	83	17	0		
PHF	.912	.862	.833	.000	.944	.912	.925	.865	.000	.962	.825	.912	.777	.250	.851	.000	.903	.811	.000	.886	.937
Light Vehicles	120	414	115	0	649	179	440	87	0	706	64	363	280	2	709	0	575	118	0	693	2757
% Light Vehicles	96.8	97.6	95.8	0	97.2	96.2	96.7	96.7	0	96.6	97.0	97.6	95.9	100	96.9	0	98.3	98.3	0	98.3	97.2
Heavy Vehicles	4	10	5	0	19	7	15	3	0	25	2	9	12	0	23	0	10	2	0	12	79
% Heavy Vehicles	3.2	2.4	4.2	0	2.8	3.8	3.3	3.3	0	3.4	3.0	2.4	4.1	0	3.1	0	1.7	1.7	0	1.7	2.8

TRUE DATA TO IMPROVE MOBILITY

File Name : 16904309 - Coolidge Hwy -- E Maple Rd
Site Code : 16904309
Start Date : 2/4/2025
Page No : 1

Groups Printed- Bikes, Peds

	E Maple Rd Eastbound					E Maple Rd Westbound					Coolidge Hwy Northbound					Coolidge Hwy Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
07:30 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1
07:45 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	1	1	3
08:00 AM	0	0	0	0	0	1	0	0	0	1	0	0	1	0	1	0	0	0	1	1	3
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	1	0	0	1	2	0	0	1	0	1	0	0	0	1	1	4
Grand Total	0	0	0	0	0	1	0	0	3	4	0	0	1	0	1	0	0	0	2	2	7
Apprch %	0	0	0	0		25	0	0	75		0	0	100	0		0	0	0	100		
Total %	0	0	0	0	0	14.3	0	0	42.9	57.1	0	0	14.3	0	14.3	0	0	0	28.6	28.6	



TRUE DATA TO IMPROVE MOBILITY

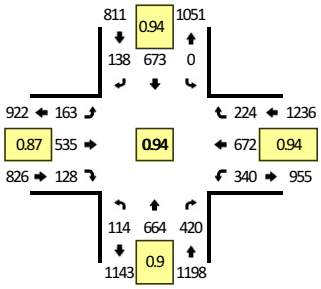
File Name : 16904309 - Coolidge Hwy -- E Maple Rd
Site Code : 16904309
Start Date : 2/4/2025

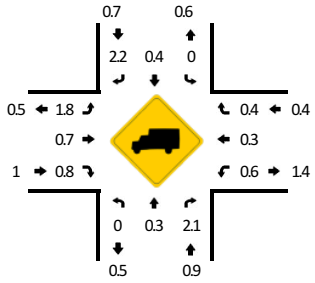
	E Maple Rd Eastbound					E Maple Rd Westbound					Coolidge Hwy Northbound					Coolidge Hwy Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	**1**	1
07:30 AM	0	0	0	0	0	0	0	0	**1**	**1**	0	0	0	0	0	0	0	0	0	0	1
07:45 AM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1
08:00 AM	0	0	0	0	0	**1**	0	0	0	1	0	0	**1**	0	**1**	0	0	0	1	1	**3**
Total Volume	0	0	0	0	0	1	0	0	2	3	0	0	1	0	1	0	0	0	2	2	6
% App. Total	0	0	0	0		33.3	0	0	66.7		0	0	100	0		0	0	0	100		
PHF	.000	.000	.000	.000	.000	.250	.000	.000	.500	.750	.000	.000	.250	.000	.250	.000	.000	.000	.500	.500	.500

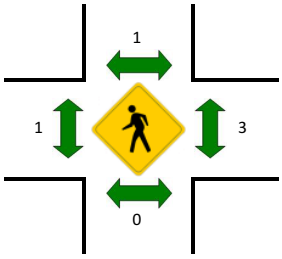
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

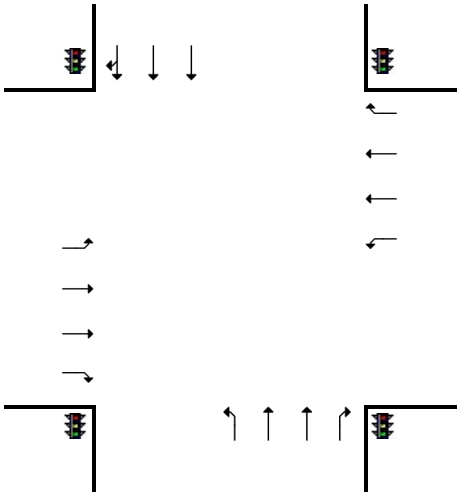
LOCATION: Coolidge Hwy -- E Maple Rd | **QC JOB #:** 16904310
CITY/STATE: Troy, MI | **DATE:** Tue, Feb 4 2025

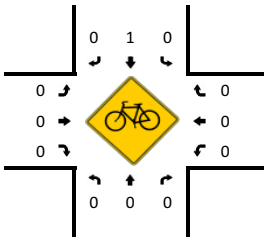
Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

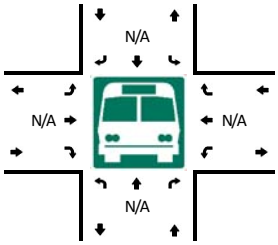


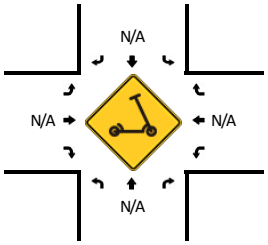












TRUE DATA TO IMPROVE MOBILITY

15-Min Count Period Beginning At	Coolidge Hwy (Northbound)				Coolidge Hwy (Southbound)				E Maple Rd (Eastbound)				E Maple Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	24	163	105	0	0	168	32	0	36	126	30	0	86	138	42	0	950	
4:15 PM	30	145	96	0	0	119	24	0	37	161	32	0	82	162	50	0	938	
4:30 PM	23	174	108	0	0	161	46	0	32	131	32	0	78	159	50	0	994	
4:45 PM	28	152	102	1	0	135	39	0	46	118	27	0	80	173	54	0	955	3837
5:00 PM	32	190	111	0	0	194	22	0	31	138	33	0	89	181	58	0	1079	3966
5:15 PM	29	148	99	1	0	183	31	0	54	148	36	0	93	159	62	0	1043	4071
5:30 PM	39	170	85	0	0	155	28	0	34	120	43	0	88	142	47	1	952	4029
5:45 PM	25	159	76	0	1	148	24	0	58	109	32	0	80	137	43	0	892	3966

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	128	760	444	0	0	776	88	0	124	552	132	0	356	724	232	0	4316
Heavy Trucks	0	0	8		0	0	4		0	0	0		0	4	4		20
Buses																	
Pedestrians		0				4				4				0			8
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 2/13/2025 10:34 AM | SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

TRUE DATA TO IMPROVE MOBILITY

File Name : 16904311 - Maple Way Drive -- Site Drive
Site Code : 16904311
Start Date : 2/4/2025
Page No : 1

Groups Printed- Light Vehicles - Heavy Vehicles

	Site Drive Eastbound					Site Drive Westbound					Northbound					Maple Way Drive Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
07:30 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	3	3
08:45 AM	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Total	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3	1	4	7
Grand Total	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4	1	5	9
Apprch %	100	0	0	0		0	0	0	0		0	0	0	0		0	0	80	20		
Total %	44.4	0	0	0	44.4	0	0	0	0	0	0	0	0	0	0	0	0	44.4	11.1	55.6	
Light Vehicles	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	1	3	5
% Light Vehicles	50	0	0	0	50	0	0	0	0	0	0	0	0	0	0	0	0	50	100	60	55.6
Heavy Vehicles	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	4
% Heavy Vehicles	50	0	0	0	50	0	0	0	0	0	0	0	0	0	0	0	0	50	0	40	44.4

TRUE DATA TO IMPROVE MOBILITY

File Name : 16904311 - Maple Way Drive -- Site Drive
Site Code : 16904311
Start Date : 2/4/2025

Maple Way Drive

Maple Way Drive

Site Drive

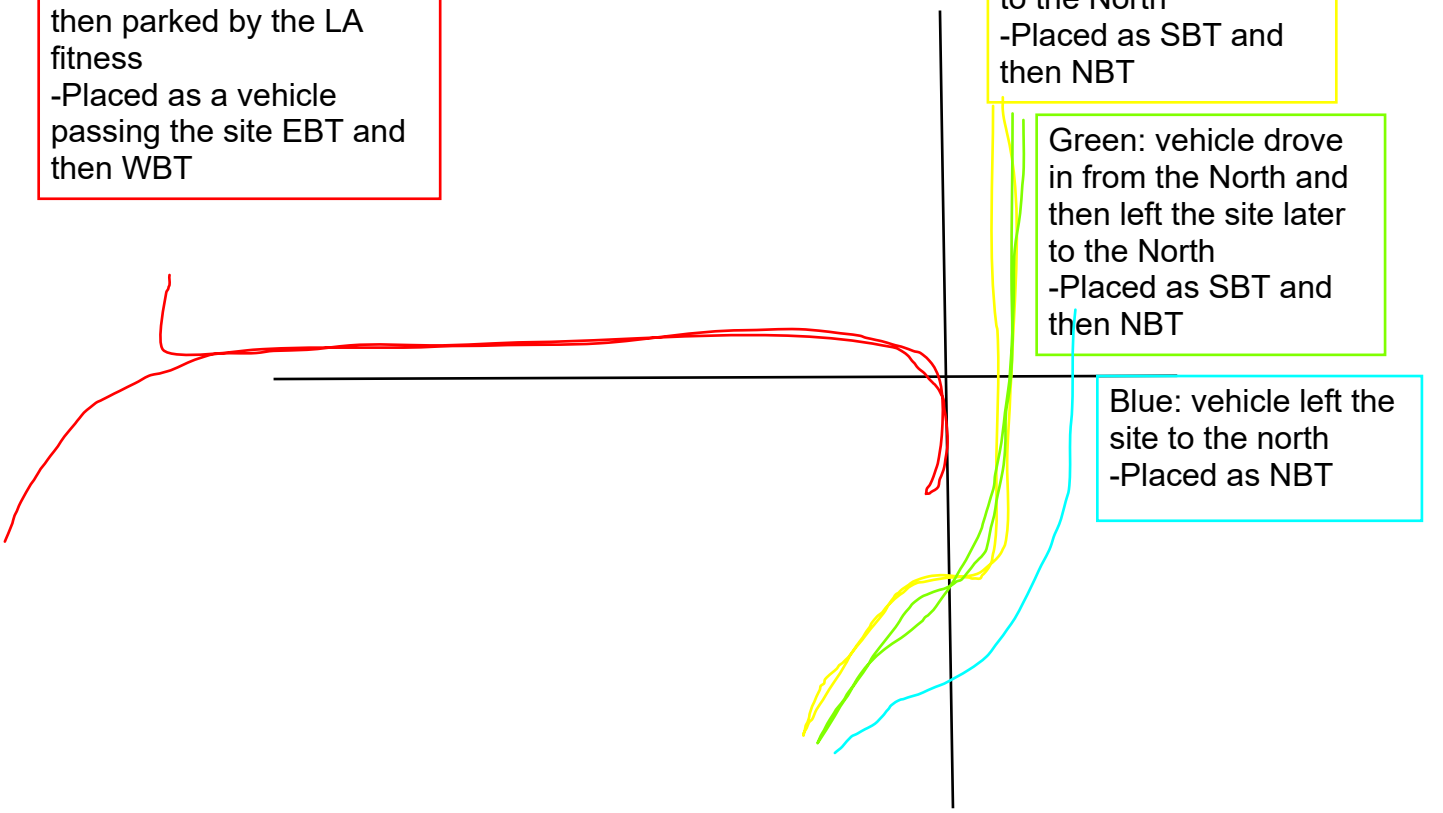
	Site Drive Eastbound					Site Drive Westbound					Northbound					Maple Way Drive Southbound					
Start Time	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	1	1
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**3**	0	**3**	**3**
08:45 AM	**3**	0	0	0	**3**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Total Volume	3	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	3	1	4	7
% App. Total	100	0	0	0		0	0	0	0		0	0	0	0		0	0	75	25		
PHF	.250	.000	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.333	.583
Light Vehicles	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	1	3	5
% Light Vehicles	66.7	0	0	0	66.7	0	0	0	0	0	0	0	0	0	0	0	0	66.7	100	75.0	71.4
Heavy Vehicles	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
% Heavy Vehicles	33.3	0	0	0	33.3	0	0	0	0	0	0	0	0	0	0	0	0	33.3	0	25.0	28.6

Red: this jeep used the site drive as a U-Turn and then parked by the LA fitness
-Placed as a vehicle passing the site EBT and then WBT

Yellow: van drove in from the North and then left the site later to the North
-Placed as SBT and then NBT

Green: vehicle drove in from the North and then left the site later to the North
-Placed as SBT and then NBT

Blue: vehicle left the site to the north
-Placed as NBT

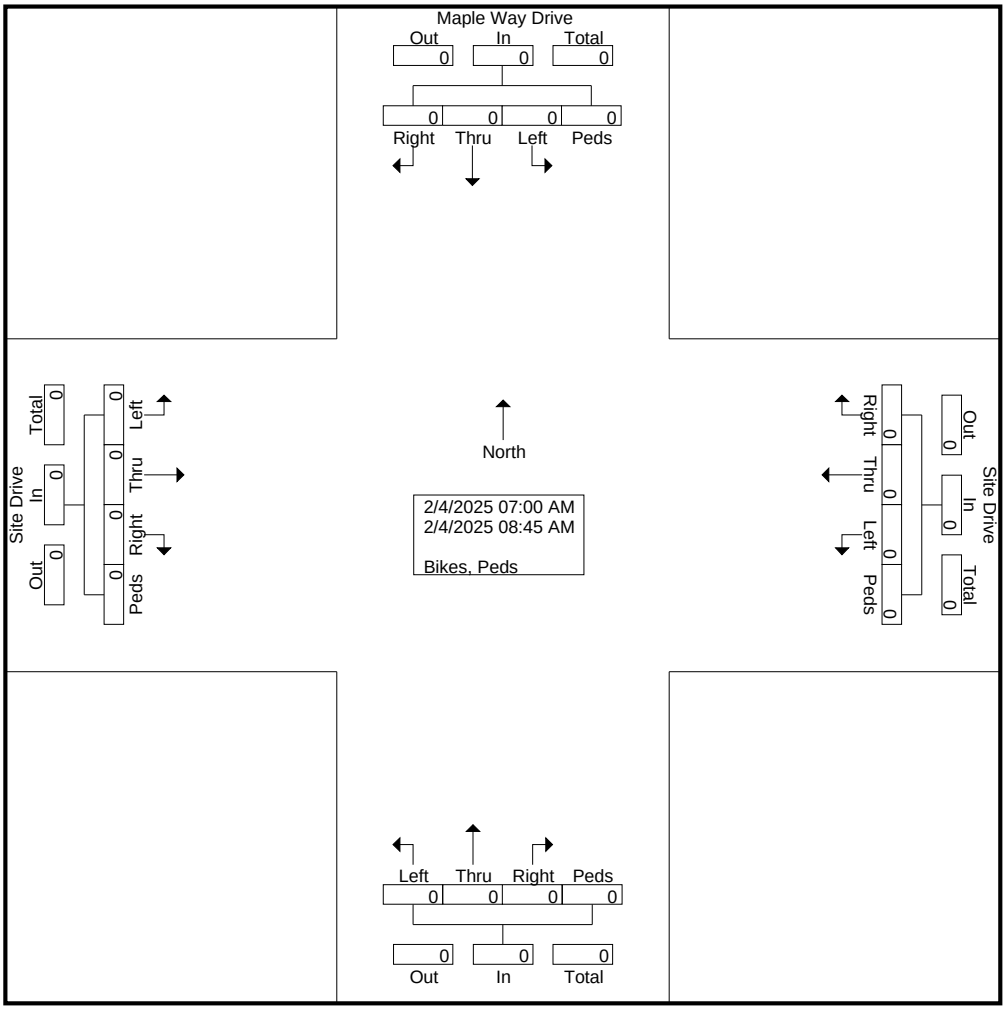


TRUE DATA TO IMPROVE MOBILITY

File Name : 16904311 - Maple Way Drive -- Site Drive
Site Code : 16904311
Start Date : 2/4/2025
Page No : 1

Groups Printed- Bikes, Peds

	Site Drive Eastbound					Site Drive Westbound					Northbound					Maple Way Drive Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apprch %	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
Total %																					



TRUE DATA TO IMPROVE MOBILITY

File Name : 16904311 - Maple Way Drive -- Site Drive
Site Code : 16904311
Start Date : 2/4/2025
Page No : 2

	Site Drive Eastbound					Site Drive Westbound					Northbound					Maple Way Drive Southbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

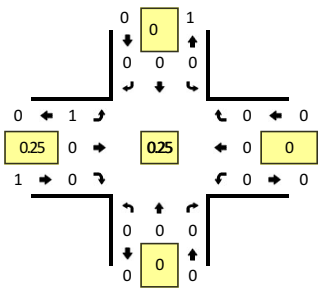
Type of peak hour being reported: Intersection Peak

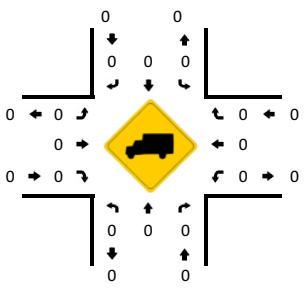
Method for determining peak hour: Total Entering Volume

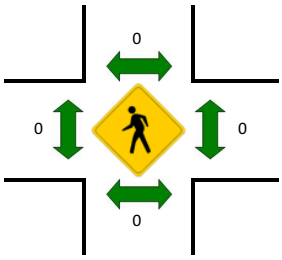
LOCATION: Maple Way Drive -- Site Drive
CITY/STATE: Troy, MI

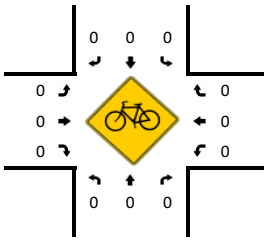
QC JOB #: 16904312
DATE: Tue, Feb 4 2025

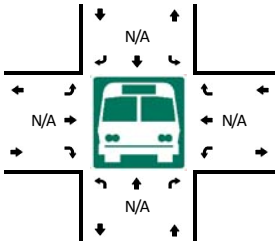
Peak-Hour: 4:00 PM -- 5:00 PM
Peak 15-Min: 4:15 PM -- 4:30 PM

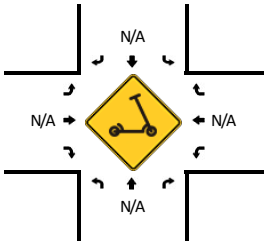












15-Min Count Period Beginning At	Maple Way Drive (Northbound)				Maple Way Drive (Southbound)				Site Drive (Eastbound)				Site Drive (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:15 PM	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	4
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Buses																	
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Scooters																	

Comments:

Report generated on 2/13/2025 10:34 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

no vehicles were at the site drive

Disclaimer: The Michigan Department of Transportation (MDOT) works with individual agencies (cities/villages, counties, metropolitan planning organizations (MPOs), regional planning organizations (RPOs), and other areas of MDOT) to identify existing traffic count programs and/or traffic data. ... more

List View | All DIRs | Report Center

Record 1 of 1 Goto Record go

Location ID	63-6025	**MPO ID**	40942
Type	SPOT	**HPMS ID**	
On NHS	No	**On HPMS**	No
LRS ID	0693006	**LRS Loc Pt.**	0.1943263
SF Group	Urban Non State (2025)	**Route Type**	
AF Group	NoFactor (2025)	**Route**	
GF Group	Urban Non State (2024)	**Active**	Yes
Class Dist Grp	NTL_4 (2024)	**Category**	Primary
Seas Clss Grp			
WIM Group			
QC Group	Default		
Fnct'l Class	(4) Minor Arterial	**Milepost**	
Located On	COOLIDGE RD		
Loc On Alias	Coolidge		
NORTH OF	W 14 Mile Rd		

More Detail

STATION DATA

Directions: 2-WAY | NB | SB

AADT

Year	AADT	DHV-30	K %	D %	PA	BC	Src
2024	24,708						
2023	37,378[3]				36,369 (97%)	1,009 (3%)	Grown from 2022
2022	36,573[3]				35,511 (97%)	1,062 (3%)	Grown from 2021
2021	36,536[3]				34,817 (95%)	1,719 (5%)	Grown from 2020
2020	32,066[3]				30,527 (95%)	1,539 (5%)	Grown from 2019

|<< < > >>| 1-5 of 9

VOLUME COUNT

	Date	Int	Total
	Wed 8/21/2024	15	24,611
	Tue 8/20/2024	15	24,805
	Tue 7/12/2016	60	36,030
	Mon 7/11/2016	60	36,472

VOLUME TREND

Year	Annual Growth
2024	-34%
2023	2%
2022	0%
2021	14%
2020	-15%
2019	-1%
2018	0%
2017	4%

CLASSIFICATION

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List View | All DIRs | Report Center

Record 1 of 1 Goto Record go

Location ID	63-5334	**MPO ID**	40319
Type	SPOT	**HPMS ID**	1_4_125_038
On NHS	Yes	**On HPMS**	Yes
LRS ID	0683906	**LRS Loc Pt.**	14.5676754
SF Group	Urban Non State (2025)	**Route Type**	
AF Group	NoFactor (2025)	**Route**	
GF Group	Urban Non State (2024)	**Active**	Yes
Class Dist Grp	NTL_3 (2024)	**Category**	Primary
Seas Clss Grp			
WIM Group			
QC Group	Default		
Fnct'l Class	(3) Other Principal Arterial	**Milepost**	
Located On	MAPLE RD		
Loc On Alias			
	BETWEEN COLUMBIA AND CAMBRIDGE (IN BIRMINGHAM)		

More Detail

STATION DATA

Directions: 2-WAY EB WB

AADT

Year	AADT	DHV-30	K %	D %	PA	BC	Src
2023	16,889[3]		9	52	16,315 (97%)	574 (3%)	Grown from 2022
2022	16,525	1,407	9	52	16,127 (98%)	398 (2%)	
2021	23,104[3]		8	54	22,435 (97%)	669 (3%)	Grown from 2020
2020	20,277[3]		8	54	19,546 (96%)	731 (4%)	Grown from 2019
2019	23,743	1,800	8	54	23,094 (97%)	649 (3%)	

|<< < > >>| 1-5 of 8

VOLUME COUNT

	Date	Int	Total
	Mon 3/7/2022	15	16,525
	Tue 6/4/2019	15	23,743
	Mon 11/21/2016	60	19,789

VOLUME TREND

Year	Annual Growth
2023	2%
2022	-28%
2021	14%
2020	-15%
2019	15%
2018	0%
2017	4%

CLASSIFICATION

	Date	Int	Total
	Mon 3/7/2022	15	16,525

OAKLAND COUNTY ROAD COMMISSION
TRAFFIC - SAFETY DEPARTMENT
SIGNAL WORK ORDER

LOCATION: MAPLE & COOLIDGE DATE: 1-9-24

CITY/TOWNSHIP: TROY BY: RACHEL JONES

COUNTY#: 125 STATE#: — CHARGES: 00125J

PLEASE PERFORM THE FOLLOWING:

_____ ELECTRICAL DEVICE: ____ INSTALL _____ MODERNIZE _____ MAINTENANCE

_____ UNDERGROUND: _____

_____ EDISON OK: _____ YES _____ NO JOB#: _____

_____ COORDINATE W/DISTRICT 7: _____

DIAL..	1	1	1	1		2	2	2	2		3	3	3	3		4	4	4	4
SPLIT.	1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4
_____ CHANGE TIMING.....																			
_____ CHANGE OFFSET.....																			
_____ CHANGE CYCLE LENGTH.....																			
_____ ADD DIAL/SPLIT.....																			

_____CHANGE BREAKOUT OR EPROM: _____

_____ CHANGE HOURS OF OPERATION:

OLD: _____

NEW: _____

Road Commission For Oakland County

JAN 29 2024

Traffic Operations

_____ REPROGRAM TBC

_____ INSTALL INTERCONNECT: _____ TBC _____ MINITROL _____ TONE

_____ MBT OK: _____ YES _____ NO

_____ NO CHANGE - RECORD CORRECTION

X OTHER: WIRE LS 3, 5 & 7 FOR FLASH RED.

APPROVED BY: _____ DATE: 1/9/24

DATE INSTALLED: 1/23/24

INSTALLED BY: French, Larson

INTERSECTION :- 125 MAPLE & COOLIDGE
CONTROLLER TYPE :-STANDARD PERSONALITY CONTROLLER
SOFTWARE TYPE :- TS2 MOD 52 SCATS S30

INPUTS :-

1. SB COOLIDGE L (LK)
2. SB COOLIDGE C (LK)
3. SB COOLIDGE R (LK)
4. EB MAPLE LT (LK)
5. EB MAPLE LT ADV (LK)
6. EB MAPLE L (LK)
7. EB MAPLE R (LK)
8. EB MAPLE RT (NL)
9. NB COOLIDGE LT (LK)
10. NB COOLIDGE LT ADV (LK)
11. NB COOLIDGE L (LK)
12. NB COOLIDGE R (LK)
13. NB COOLIDGE RT (LK)
14. WB MAPLE LT (LK)
15. WB MAPLE LT ADV (LK)
16. WB MAPLE L (LK)
17. WB MAPLE R (LK)
18. WB MAPLE RT (NL)

NOTE: All Detectors are Gridsmart.

Opticom 1: TB2 PREEMPT INPUT 3 (CALLS NB & SB COOLIDGE).
Opticom 2: TB2 PREEMPT INPUT 4 (CALLS EB & WB MAPLE).

PED2: NB COOLIDGE PED (EAST LEG) P.B. (WA)
PED4: WB MAPLE PED (NORTH LEG) P.B. (WB)
PED6: SB COOLIDGE PED (WEST LEG) P.B. (WC)
PED8: EB MAPLE PED (SOUTH LEG) P.B. (WD)

APPROACHES :-

A APPR 1 : NB COOLIDGE	A APPR 2 : SB COOLIDGE
B APPR 1 : EB MAPLE LT	B APPR 2 : WB MAPLE LT
C APPR 1 : WB MAPLE	C APPR 2 : EB MAPLE
D APPR 1 : NONE	D APPR 2 : NB COOLIDGE LT

FLEXIDATA :-

SEQUENCE	A,B,C,D	A,B,C,D
AUTO REL		
R- REL	A	A
R+ REL	B	B
Q- REL	C	C
Q+ REL	D	D
LOOK A->		
LOOK B->	A,C,D	A,C,D
LOOK C->	A,D	A,D
LOOK D->	A	A

PEDESTRIANS :-

1. -
2. NB COOLIDGE PED (EAST LEG)
3. -
4. WB MAPLE PED (NORTH LEG)
5. -
6. SB COOLIDGE PED (WEST LEG)
7. -
8. EB MAPLE PED (SOUTH LEG)

SPECIAL FEATURES :-

Controller Software must be 2070/M52 S30 or later (VC=5).
Personality revision is 1 (=A).

Ped outputs mapped to phases as follows: ped 2 = 9, ped 4 = 10, ped 6 = 11 and ped 8 = 12. VC5 software reports them as mapped.

TSM 21 through TSM 28 sets demand for phases 1-8 (in use) respectively for the amount of seconds entered, with no extension (set to TIME.0).

TSM 21 through TSM 28 sets demand for phases 1-8 (in use) respectively for the amount of seconds entered, then extends the green based on detection (set to TIME.1)

A STAGE HAS A PERMANENT DEMAND. DEMAND FOR STAGES B, C, D IN FLEXI AND ISOLATED. SET ZNEG TO DISABLE.

PERSONALITY MUST CYCLE THRU C PHASE IN ALL RUNNING MODES IF B OR D STAGE DEMANDED.

Pedestrians have automatic introduction using XSF2 (XL 02)for PED2, XSF4 (XL 08) for PED4, XSF6 (XL 20) for PED6, XSF8 (XL 80) for PED8.

Pedestrians have automatic introduction using SCATS Y- to cycle all peds.

Night Flash code: Set Y+ to activate the night flash in Flexilink.

If used, Opticom Min time set by TSM 15 and Max time set by TSM 16.

BACKPANEL :- SIZE P44-16 TS2 CABINET

LOAD SWITCH 2:	NB COOLIDGE	A	FLR
LOAD SWITCH 3:	EB MAPLE LT	DL	FLR
LOAD SWITCH 4:	WB MAPLE	B	FLR
LOAD SWITCH 5:	NB COOLIDGE LT & EB MAPLE RT (G,A)	AL & DR	FLR
LOAD SWITCH 6:	SB COOLIDGE	C	FLR
LOAD SWITCH 7:	WB MAPLE LT & NB COOLIDGE RT (G,A)	BL & AR	FLR
LOAD SWITCH 8:	EB MAPLE	D	FLR
LOAD SWITCH 9:	NB COOLIDGE PED (EAST LEG)	WA	
LOAD SWITCH 10:	WB MAPLE PED (NORTH LEG)	WB	
LOAD SWITCH 11:	SB COOLIDGE PED (WEST LEG)	WC	
LOAD SWITCH 12:	EB MAPLE PED (SOUTH LEG)	WD	

MMU 2 :- (MENU : SET/VIEW CONFIG)

Field Check Enable	Channel 2: G, Y, R Channel 3: G, Y, R Channel 4: G, Y, R Channel 5: G, Y, R Channel 6: G, Y, R Channel 7: G, Y, R Channel 8: G, Y, R
Dual Indication Enable:	R+G: Channel 2,3,4,5,6,7,8,9,10,11,12 R+Y: Channel 2,3,4,5,6,7,8 G+Y: Channel 2,3,4,5,6,7,8
Red Fail Enable:	Enable: Channel 2,3,4,5,6,7,8
Y & R Clearance Disable:	Channel 2,4,6,8,13,14,15,16 Enabled
Unit Options:	All OFF except: Recurrent pulse LED Guard Program Memory Card
Program Card:	Compatible Channels: 2-5, 2-6, 2-9, 2-11, 3-7, 3-8, 3-12, 4-7, 4-8, 4-10, 4-12, 5-9, 6-9, 6-11, 7-10, 8-10, 8-12, 9-11, 10-12. Min Flash Time: 4+2+1 Min Yellow Change Disable: 9,10,11,12 Voltage Monitor Latch: NONE

Note: Add Jumper 16 MMU Flash - Monitor ST OUT (116 Siemens/17 Econolite)

```
*********************************
* CONTROLLER INFORMATION SHEET  *
*     FOR SITE NO.  125         *
*         12-JUN-2023           *
*          T CREECH             *
*********************************
```

CHECKSUMS	
TIMES:	83 / 203
PERS:	F9 / 371
TOTAL:	7A / 172

FLEXILINK PLAN DATA

Intersection # 125 **State #** _____ **Date:** 06/12/23 **Prepared By:** T. Creech

Intersection: Coolidge & Maple **City:** Troy

Hours of Operation: 7 Days: 24 Hours **Approved By:** R. Jones

Hours of Flashing: None

		PL0	PL1	PL2	PL3	PL4	PL5	PL6	PL7	PL8
0	CL	0	90	120	120	80				
1	A		0	0	0	0				
2	B		32	48	42	27				
3	C		53	72	71	38				
4	D		78	105	104	68				
5	E									
6	F									
7	G									
8	R-									
9	R+									
10	Of (Y-)		0	0	0	0				
11	Y+	C								
12	Z-									
13	Z+									
14	Q-									
15	Q+									
16	XH									
17	XL									

NOTE: Stages with 1 second of phase time are skipped. Blank entries are default values equal to 0.
Except for an AWA controller, entries #8 to #15 (=254) and 'C' entry means continuous (=255).

							Timers		
Phase	Direction	Min	Max	ECO	Amber	All Red	Gap	Hdwy	Waste
A	Coolidge	10.0	50.0		3.6	2.4	3.0	1.2	10.0
B	Maple LT	5.0	20.0		3.9	2.5	3.5	1.2	10.0
C	Maple	10.0	50.0		3.9	2.5	3.0	1.2	10.0
D	NB Coolidge LT/Thru	5.0	20.0		3.6	2.4	3.0	1.2	10.0
E									
F									
G									

	Day	Hours	Plan#
SC1	14	0:00	4
SC2	8	6:00	2
SC3	8	9:00	1
SC4	8	15:00	3
SC5	8	19:00	1
SC6	8	22:00	4
SC7	13	7:00	1
SC8	13	22:00	4
SC9			
SC10			

Pedestrian Crossing Times

Direction	Walk	CL 1	CL 2
NB Coolidge Ped East (Ped 2)	7.0	16.0	3.0
WB Maple Ped North (Ped 4)	7.0	16.0	3.4
SB Coolige Ped West (Ped 6)	7.0	16.0	3.0
EB Maple Ped South (Ped 8)	7.0	20.0	3.4

TSM15 = Opticom Min Alarm Time = 10
TSM16 = Opticom Max Alarm Time = 200

Normal Operating Mode

Isolated	Flexilink	Masterlink	Master Isolated	Flexi Isolated
		X		

DAY OF WEEK CODE NUMBER

0	End of Schedule	4	WED	8	MON-FRI	12	MON,FRI,SAT
1	SUN	5	THUR	9	MON-SAT	13	SAT,SUN
2	MON	6	FRI	10	TUE,WED,THU	14	EVERY DAY
3	TUE	7	SAT	11	MON,FRI	15	NEVER

TS2 Gridsmart Detectors BIU #1

CO# 125 - Maple & Coolidge

Detector # on print	Description	Phase	Output
1	SB COOLIDGE L	6	1
2	SB COOLIDGE C	6	2
3	SB COOLIDGE R	6	3
4	EB MAPLE LT	3	4
5	EB MAPLE LT ADV	3	5
6	EB MAPLE L	8	6
7	EB MAPLE R	8	7
8	EB MAPLE RT	8	8
9	NB COOLIDGE LT	5	9
10	NB COOLIDGE LT ADV	5	10
11	NB COOLIDGE L	2	11
12	NB COOLIDGE R	2	12
13	NB COOLIDGE RT	2	13
14	WB MAPLE LT	7	14
15	WB MAPLE LT ADV	7	15
16	WB MAPLE L	4	16

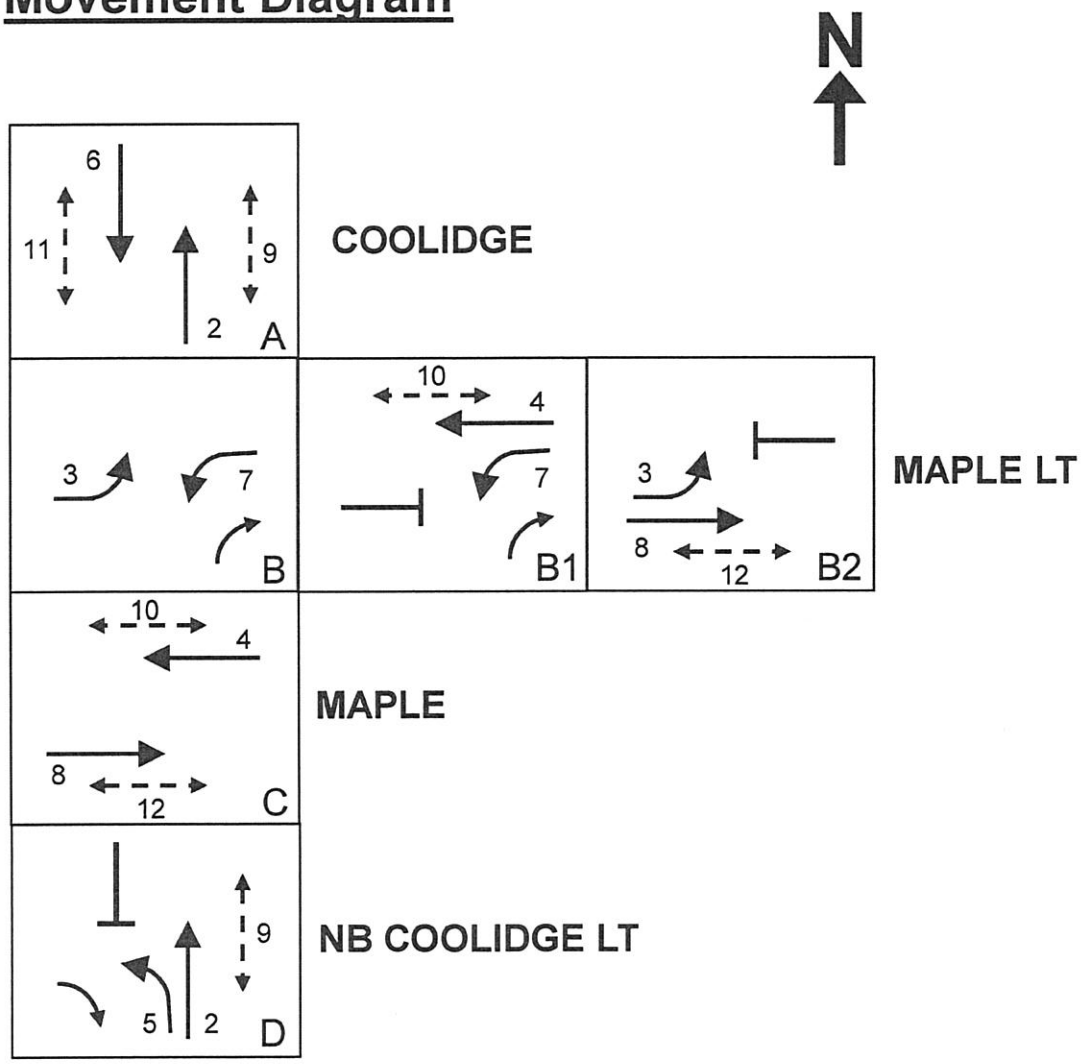
TS2 Gridsmart Detectors BIU #2

CO# 125 - Maple & Coolidge

Detector # on print	Description	Phase	Output
17	WB MAPLE R	4	17
18	WB MAPLE RT	4	18
			19
			20
			21
			22
			23
			24
			25
			26
			27
			28
			29
			30
			31
			32

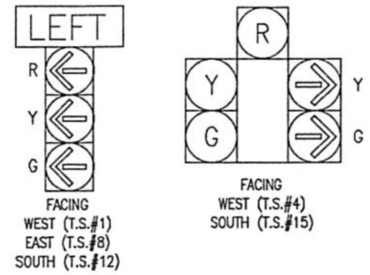
#125 – MAPLE & COOLIDGE

- **Movement Diagram**



INSTALL PIPE EXTENSIONS AS LISTED:

T.S.#1	0" PIPE
T.S.#2	14" PIPE
T.S.#3	20" PIPE
T.S.#4	28" PIPE
T.S.#5	0" PIPE
T.S.#6	6" PIPE
T.S.#7	16" PIPE
T.S.#8	0" PIPE
T.S.#9	18" PIPE
T.S.#10	24" PIPE
T.S.#11	36" PIPE
T.S.#12	0" PIPE
T.S.#13	12" PIPE
T.S.#14	16" PIPE
T.S.#15	20" PIPE



FACING NORTH (C.S.#1)
INSTALL ONE WAY, 24"X30" NON-ILLUMINATED CASE SIGN

Maple Rd

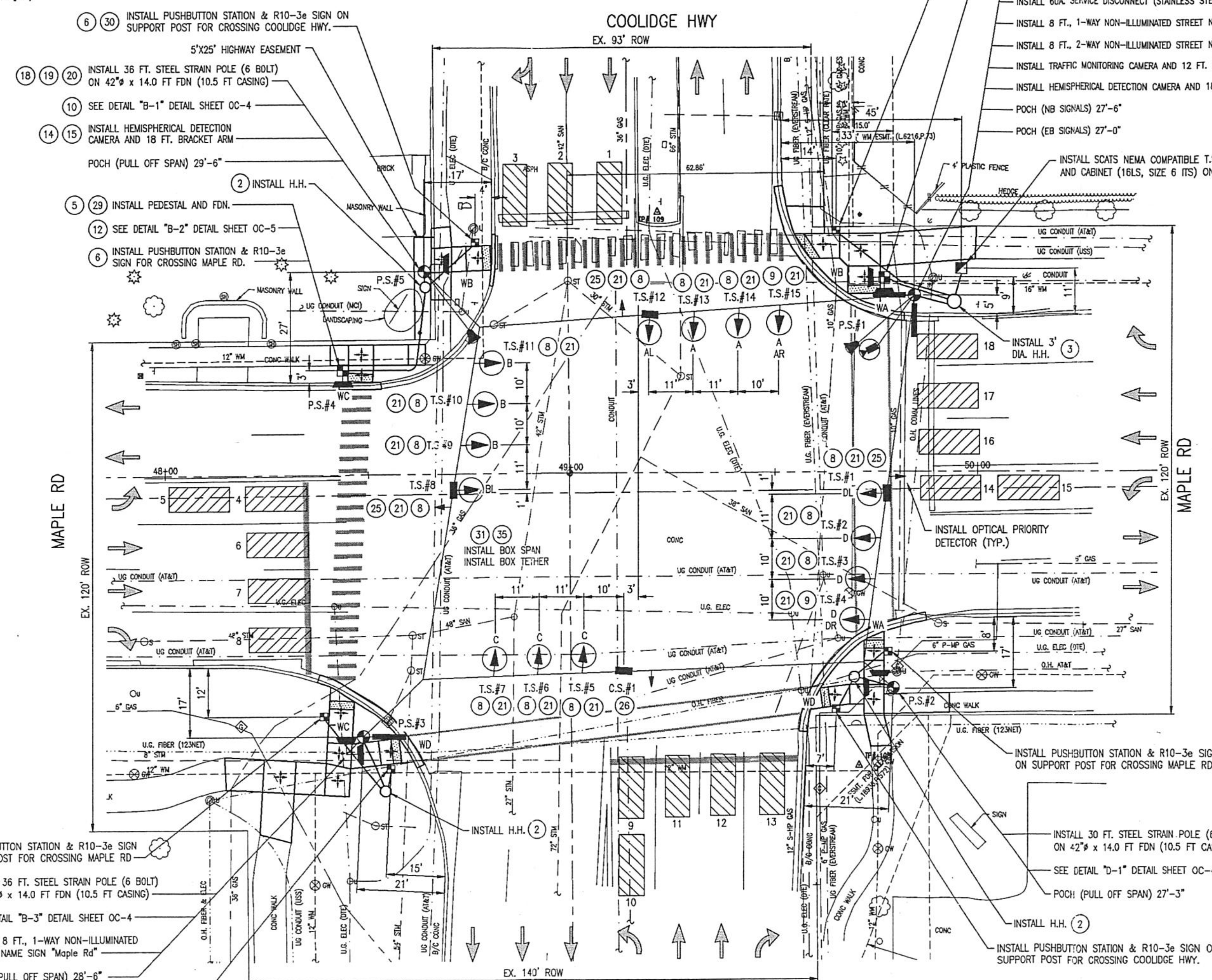
FACING NORTH & SOUTH
INSTALL ONE WAY, 8 FOOT NON-ILLUMINATED STREET NAME SIGN (CLEARVIEW HWY 1W FONT)

Coolidge Hwy

FACING EAST & WEST
INSTALL TWO WAY, 8 FOOT NON-ILLUMINATED STREET NAME SIGN (CLEARVIEW HWY 1W FONT)

QUANTITIES THIS SHEET

1	Serv Disconnect	1 Ea
2	Hh, Round, 2 foot Dia, RCOC	3 Ea
3	Hh, Round, 3 foot Dia, RCOC	1 Ea
4	Controller Fdn, Base Mtd	1 Ea
5	Pedestal, Fdn	2 Ea
6	Push Button Station and Sign	8 Ea
7	Pedestrian Signal System, Accessible	1 Ea
8	TS, One Way Span Wire Mtd (LED)	13 Ea
9	TS, One Way Span Wire Mtd, Five Sect (LED)	2 Ea
10	TS, Pedestrian, One Way Bracket Arm Mtd (LED) Countdown	1 Ea
11	TS, Pedestrian, Two Way Bracket Arm Mtd (LED) Countdown	2 Ea
12	TS, Pedestrian, One Way Pedestal Mtd (LED) Countdown	1 Ea
13	Bracket, Truss, With 12 Foot Arm	1 Ea
14	Bracket, Truss, With 18 Foot Arm	2 Ea
15	Hemispherical Video Detection Camera	2 Ea
16	Hemispherical Video Detection System	1 Ea
17	Strain Pole, Steel, 6 bolt, 30 foot	1 Ea
18	Strain Pole, Steel, 6 bolt, 36 foot	3 Ea
19	Strain Pole Fdn, 6 Bolt	56 Ft
20	Casing	42 Ft
21	Backplate, TS, RCOC	15 Ea
22	Cabinet, ITS Type, Delivered, RCOC	1 Ea
23	Cabinet, ITS Type, RCOC	1 Ea
24	Camera, Traffic Monitoring, RCOC	1 Ea
25	Case Sign, One Way, 12 inch by 27 inch, Non-illuminated, RCOC	3 Ea
26	Case Sign, One Way, 24 inch by 30 inch, Non-illuminated, RCOC	1 Ea
27	Controller, Digital Type, Delivered, SCATS, RCOC	1 Ea
28	Optical and GPS Priority Control System, Salv, RCOC	1 Ea
29	Pedestal, Alum, RCOC	2 Ea
30	Pushbutton Support Post, RCOC	6 Ea
31	Span Wire, Box, RCOC	1 Ea
32	Street Name Sign, Non-illuminated, Bracket Arm, RCOC	3 Ea
33	Street Name Sign, Non-illuminated, One Way, 8 foot, RCOC	2 Ea
34	Street Name Sign, Non-illuminated, Two Way, 8 foot, RCOC	1 Ea
35	Tether Wire, Box, Bottom, RCOC	1 Ea
36	TS, Pedestrian, Two Way Pedestal Mtd (LED) Countdown	1 Ea
	Conduit, DB, 1, 1 1/4 inch	215 Ft
	Conduit, DB, 1, 3 inch	15 Ft
	Conduit, DB, 3, 3 inch	45 Ft
	Conduit, DB, 3, 4 inch	15 Ft
	Cable, Sec, 600V, 1, 3/C#6	80 Ft



COOLIDGE HWY

PLAN

SCALE: 1"=30' (11"X17")

PEDESTRIAN COUNTDOWN LEGEND

R10-3e SIGN TYPICAL

CONDUIT TYPICALS:

STEEL POLE TO H.H. ------3-3" & 1-1 1/4"
WOOD POLE TO H.H. ------AS INDICATED
PEDESTAL TO H.H. --------1-3" & 1-1 1/4"
SUPPORT POST TO H.H. ---1-1 1/4"

CONTROLLER TO H.H. SHALL BE 3-4" D.B., 1-3" D.B. & 1-1 1/4" D.B. (CAP 1-3" CONDUIT IN H.H. & CABINET FOR R.C.O.C. USE ONLY)

NOTES:
1. INSTALL 1-1 1/4" D.B. CONDUIT FROM NEW SUPPORT POST TO H.H.
2. EXACT LOCATIONS OF SUPPORT POSTS SHALL BE DETERMINED BY THE ENGINEER.
3. PUSHBUTTONS SHALL BE 10" (SIDE REACH) FROM EDGE OF LANDING.
4. SEE DETAIL GRADING SHEETS FOR SIDEWALK DETAIL GRADES. COORDINATE SIDEWALK AND SIGNAL CONSTRUCTION.

SCATS COMMUNICATIONS SHALL BE VIA AT&T CELLULAR MODEM. INSTALLATION SHALL BE COORDINATED BY THE R.C.O.C. FIELD ENGINEER.

APPROACH SPEEDS:

N.BD.	35 MPH
S.BD.	35 MPH
E.BD.	35 MPH
W.BD.	40 MPH

ALL SPAN WIRE POLE CONTACT HEIGHTS AND SIGNAL STEM LENGTHS SHALL BE COORDINATED WITH THE FIELD ENGINEER SO THAT A MINIMUM 17 FT. UNDERCLEARANCE IS MAINTAINED. (INCLUDED IN THE INSTALLATION OF SPAN WIRE, BOX ON THIS CONTRACT.)

CO. 125
ATS 674

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

OHM
ARCHITECTS ENGINEERS PLANNERS
34000 Plymouth Road
Livonia, MI 48150
P (734) 522-6711 | F (734) 522-6427
OHM-ADVISORS.COM

ROAD COMMISSION FOR OAKLAND COUNTY
TRAFFIC SIGNAL MODERNIZATION PROJECT #902022-1
COOLIDGE HWY & MAPLE RD

DRAWING PATH: Dec 07, 2022 - 8:38am

OAKLAND COUNTY ROAD COMMISSION
TRAFFIC - SAFETY DEPARTMENT
SIGNAL WORK ORDER

LOCATION: Maple + Eton DATE: 10/17/17

CITY/TOWNSHIP: Birmingham BY: CARISSA MARKEL

COUNTY#: 283 STATE#: — CHARGES: 7800 2830

PLEASE PERFORM THE FOLLOWING:

_____ ELECTRICAL DEVICE: ____ INSTALL _____ MODERNIZE _____ MAINTENANCE

_____ UNDERGROUND: _____

_____ EDISON OK: _____ YES _____ NO JOB#: _____

OCT 30 2017

_____ COORDINATE W/DISTRICT 7: _____

	DIAL..	1	1	1	1		2	2	2	2		3	3	3	3		4	4	4	4
	SPLIT.	1	2	3	4		1	2	3	4		1	2	3	4		1	2	3	4
X	CHANGE TIMING.....	X					X					X	X				X			
_____	CHANGE OFFSET.....																			
_____	CHANGE CYCLE LENGTH.....																			
_____	ADD DIAL/SPLIT.....																			

_____ CHANGE BREAKOUT OR EPROM: _____

_____ CHANGE HOURS OF OPERATION:

OLD: _____

NEW: _____

_____ REPROGRAM TBC

_____ INSTALL INTERCONNECT: _____ TBC _____ MINITROL _____ TONE

_____ MBT OK: _____ YES _____ NO

_____ NO CHANGE - RECORD CORRECTION

X OTHER: 3. Phase Data - 1. Basic Timings

(Rev #4)

APPROVED BY: _____ DATE: 10/24/17

DATE INSTALLED: 10/20/17

INSTALLED BY: Dave Hollier

OAKLAND COUNTY, WATERFORD, MICHIGAN
PROGRAM LOG FOR EAGLE SIGNAL CONTROLLER - MOD 52 EPAC

INTERSECTION: Maple + Eton

CITY/VILLAGE/TOWNSHIP: Birmingham

COUNTY#: 283 MDOT#: — REV#: 4 DETROIT EDISON#:

DRAWN BY: C. Markel APPROVED BY: DATE DRAWN: 10/17/17

INSTALLED BY: DATE INSTLD: / /

HOURS OF OPERATION: 7 Days : 24 Hours

HOURS OF FLASHING: None

2. UTILITIES - 1. ACCESS

CODE.....: 1642 CODE: Four digits (0000 - 9999)

2. UTILITIES - 6. LOAD DEFAULT

C - CHANGE CURRENT SOFTWARE OPTION

SELECT SOFTWARE OPTION 2 1- FIO (TS1 ONLY); 2- TS2 (TS2 ONLY)

4. UNIT DATA - 5. RING STRUCTURE

**** NOTE: INSERT ALL RING #'S FIRST, THEN NXT & CONCUR ****

CHANNEL:	RING	PHNXT	CONCURRENT PHASES																CHANNEL	
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	VEH	PED
PHASE 1:	1	7	1					1											1	
PHASE 2:	1	8		1															2	9
PHASE 3:	1	5			1															
PHASE 4:	1	2				1													4	10
PHASE 5:	1	4					1													
PHASE 6:	2	6	1					1	1										6	11
PHASE 7:	1	3						1	1											
PHASE 8:	1	1								1										
PHASE 9:											1									
PHASE 10:												1								
PHASE 11:													1							
PHASE 12:														1						
PHASE 13:															1					
PHASE 14:																1				
PHASE 15:																	1			
PHASE 16:																		1		

CODES:

RING	Ring Number for Phase (1-4)
PHNXT	Phase Next in Ring (1-16)
CONCUR PH	Phases To Be Concurrent (0=NO, 1=YES)

For vehicle channel & ped channel, enter "1" under channel# shown.

3. PHASE DATA - 1. BASIC TIMINGS

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	RANGE
Minimum Green	5	5	5	5	5	5	5	5									00-99
Passage																	0.0-9.9
Maximum #1	36	36	5	24	5	36	36	5									000-999
Maximum #2																	000-999
Yellow Clearance	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5									3.0-9.9
Red Clearance	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5									0.0-9.9

ROAD COMMISSION FOR OAKLAND COUNTY, WATERFORD, MICHIGAN
PROGRAM LOG FOR EAGLE SIGNAL CONTROLLER - MOD 52 EPAC

3. PHASE DATA - 3. PEDESTRIAN TIMINGS

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	RANGE (SEC)
Walk		7		4		7											00-99
Pedest Clearance		13		13		18											00-99
Flashing Walk																	
Extend Ped Clear		2		0		2											(0-no, 1-Y+R, 2-Y)
Act Rest in Walk																	

3. PHASE DATA - 4. INITIALIZE & NON ACTUATED RESPONSE

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Initial	1	4	1	1	1	1	1	1								
NA Response																

CODES:	0	1	2	3	4
Initial	none	inactive	red	yellow	green
NA Response	none	to 1	to 2	both	------

3. PHASE DATA - 5. VEHICLE & PEDESTRIAN RECALLS

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Vehicle Recall	3	3	3	3	3	3	3	3								
Pedestrian Recall		2		0		2										

CODES:	0	1	2	3	4
Vehicle	none	1 call	min	max	soft
Pedestrian	none	1 call	ped	bot N. A.	------

3. PHASE DATA - 6. NONLOCK & MISC CONTROLS

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Nonlock Memory																
Dual Entry																
Last Car Passage																
Conditional Service																

CODES: 0 = NO 1 = YES

3. PHASE DATA - 7. SPECIAL SEQUENCE

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Omit					3		1									
-Yel																
Ocal																

3. PHASE DATA - 8. SPECIAL DETECTOR - 0. SPC 1-8 (TS1 ONLY)

Detector # on Print	1	2	3	4	5	6	7	8
Assigned Phase								

CODES: 0 1 2 3 4
Operation Mode: Norm Veh Norm Ped 1 call St Bar A St Bar B

A. CONTROLS	RANGE (SEC)
Extend Time	00-99
Delay Time	00-999

3. PHASE DATA - 8. SPECIAL DETECTOR - 1. VEH 1-8 OR 2.VEH 9-16 (TS2 ONLY)

Detector # on Print	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Assigned Phase																

CODES: 0 1 2 3 4
Operation Mode: Norm Veh Norm Ped 1 call St Bar A St Bar B

A. CONTROLS	RANGE (SEC)
Extend Time	00-99
Delay Time	00-999

ROAD COMMISSION FOR OAKLAND COUNTY, WATERFORD, MICHIGAN
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3. PHASE DATA - 0. MISC PED+VEH OPT

Phase	1	2	3	4	5	6	7	8
WOFF/10								
MODE								

Walk Offset MODE: 0 = Advance Walk 1 = Delay Walk

GDLY/10								
YDLY/10								

GDLY = Amt of time Advance Warning remains ON after the beginning of Green

YDLY = Amt of time the Advance Warning turns ON before the end of Green

4. UNIT DATA - 1. STARTUP & MISCELLANEOUS

Start up time : 10 (00-99) State : 0 (0 = fl, 1 = red)
Auto ped clear : 0 Red revert : 7.0 (2.0 - 9.9)
Stop time reset : 0 (0 = No, 1 = Yes)

4. UNIT DATA - 2. REMOTE FLASH

Phase	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
FLASH																	(0=No; 1=R, 2=Y)
ALT																	(0=On/Off; 1=Off/On)
ENTER																	
EXIT																	

* DO NOT USE NIGHT FLASH *

Test A = Remote Flash: _____ (0 = no & 1 = yes)

6. TIME BASE - 0. SPC FUNCTION MAPPING

FUNCTION NAME
AS 8-15 = OLI - P FL G PHS
AS 8-15 = OLI - P FL R PHS

SPC FUNC

1	2	3	4	5	6	7	8

NOTE: Go up after entering to get this screen.

4. UNIT DATA - 6. ALT SEQ. 08-15

EPAC ALT SEQ (PHASE PAIR TO REVERSE)

SEQ	.PP1.	.PP2.	.PP3.	.PP4.	.PP5.	.PP6.
08						
09						
10						
11						

SEQ	.PP1.	.PP2.	.PP3.	.PP4.	.PP5.	.PP6.
12						
13						
14						
15						

4. UNIT DATA - 3. OVERLAP STANDARD

Phase	1	2	3	4	5	6	7	8	CH#
OVL A Phses									13
+GRN Phses							1		
OVL B Phses									14
+GRN Phses				1					
OVL C Phses		1	1		1	1		1	15
OVL D			1		1	1			16
OVL E		1						1	5
OVL F		1					1	1	7

Phase	1	2	3	4	5	6	7	8	CH#
Overlap G		1		1				1	8
Overlap H				1	1		1		3
Overlap K									
Overlap L									
Overlap M									
Overlap N									
Overlap 0									
Overlap P									

* For FYA operation, '+GRN' entry is the thru phase opposing the FYA phase

4. UNIT DATA - 4. OVERLAP SPECIAL

Overlap	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
Trail green																
Trail yellow																
Trail red																
-Green / -yellow (-G/Y)	1	9														
TG Preempt																

* Overlap green omitted by # - phase green; Overlap yellow omitted by # - phase yellow
* For FYA operation, '-G/Y' entry defines the phase that is the green arrow

4. UNIT DATA - 7. PORT 1 / ITS DATA (TS2 ONLY)

ADDRESS	DESCRIPTION	PRES	M40
0	T&F BIU #1 TS2	\	
1	T&F BIU #2 TS2	\	
2	T&F BIU #3 TS2		
3	T&F BIU #4 TS2		
4	T&F BIU #5 RESERVED		
5	T&F BIU #6 RESERVED		
6	T&F BIU #7 MFG USE		
7	T&F BIU #8 MFG USE		
8	DET BIU #1 TS2		
9	DET BIU #2 TS2		
10	DET BIU #3 TS2		
11	DET BIU #4 TS2		
12	DET BIU #5 RESERVED		
13	DET BIU #6 RESERVED		
14	DET BIU #7 MFG USE		
15	DET BIU #8 MFG USE		
16	MALFUNCTION UNIT	\	
17	DIAGNOSTIC (MSG 30)		
18	CONTROLLER UNIT	\	

CODES: 0=NO / 1=YES

4. UNIT DATA - 8. I/O MISCELLANEOUS

Ring#	1	2	3	4
Input Response	\	2		
Output Select	\	2		

I/O Modes	INPUT	OUTPUT
"ABC" Connector		
"D" Connector		

Controller with Detection (TS1 ONLY):
EPAC300/M52 enter "1" under D Conn Input
2070 enter "0" under D Conn Input

5. COORDINATION DATA - 1. COORD SETUP

		0	1	2	3	4	5
OPER:	\	FRE	AUT	MAN	--------	--------	--------
MODE:	0	PRM	YLD	PYL	POM	SOM	FAC
MAX :	0	INH	MX1	MX2	--------	--------	--------
CORR:	2	DWL	MDW	SWY	SW+	--------	--------
OFST:	0	BEG	END	OF GREEN			
FRCE:	0	PLN CYC LE TIME					

MX DWELL: 0 YIELD PERIOD: 0

5. COORDINATION DATA - 3. DIAL/SPLIT DATA

Mode: 0 = actuated
1 = coord phase
2 = minimum recall
3 = maximum recall
4 = pedestrain recall
5 = maximum + pedestrain recall
6 = phase omit
7 = dual coord phase

Sequence: 00 - 15 (Unit data has definition)
Ring Lag: Ring offset from local cycle zero when not barrier locked to Ring #1.
Time: 00 - 99 seconds.

ROAD COMMISSION FOR OAKLAND COUNTY, WATERFORD, MICHIGAN
PROGRAM LOG FOR EAGLE SIGNAL CONTROLLER - MOD 52 EPAC

5. COORDINATION DATA - 3. DIAL/SPLIT DATA

LEVEL 2

DIAL 1 / SPLIT 1 CYCLE LENGTH: 110

PHASE	1	2	3	4	5	6	7	8
TIME	31	31	12	24	0	31	0	12
MODE	7	1	3	3	6	7	6	3

1/1/1

DIAL 1 / SPLIT 2 CYCLE LENGTH: 120

PHASE	1	2	3	4	5	6	7	8
TIME	0	35	0	26	12	35	35	12
MODE	6	1	6	3	3	7	7	3

1/1/1

DIAL 1 / SPLIT 3 CYCLE LENGTH: 120

PHASE	1	2	3	4	5	6	7	8
TIME	0	35	0	26	12	35	35	12
MODE	6	1	6	3	3	7	7	3

DIAL 1 / SPLIT 4 CYCLE LENGTH:

PHASE	1	2	3	4	5	6	7	8
TIME								
MODE								

LEVEL 1

OFFSET	1	2	3
TIME	0		
SEQUENCE			
RING 2 LAG			
RING 3 LAG			
RING 4 LAG			
OFFSET	1	2	3
TIME	0		
SEQUENCE			
RING 2 LAG			
RING 3 LAG			
RING 4 LAG			
OFFSET	1	2	3
TIME	0		
SEQUENCE			
RING 2 LAG			
RING 3 LAG			
RING 4 LAG			
OFFSET	1	2	3
TIME			
SEQUENCE			
RING 2 LAG			
RING 3 LAG			
RING 4 LAG			

DIAL 2 / SPLIT 1 CYCLE LENGTH: 130

PHASE	1	2	3	4	5	6	7	8
TIME	43	39	12	24	0	43	0	12
MODE	7	1	3	3	6	7	6	3

2/1/1

DIAL 2 / SPLIT 2 CYCLE LENGTH: 120

PHASE	1	2	3	4	5	6	7	8
TIME	0	35	0	22	12	39	39	12
MODE	6	1	6	3	3	7	7	3

DIAL 2 / SPLIT 3 CYCLE LENGTH:

PHASE	1	2	3	4	5	6	7	8
TIME								
MODE								

DIAL 2 / SPLIT 4 CYCLE LENGTH:

PHASE	1	2	3	4	5	6	7	8
TIME								
MODE								

OFFSET	1	2	3
TIME	0		
SEQUENCE			
RING 2 LAG			
RING 3 LAG			
RING 4 LAG			
OFFSET	1	2	3
TIME	0		
SEQUENCE			
RING 2 LAG			
RING 3 LAG			
RING 4 LAG			
OFFSET	1	2	3
TIME			
SEQUENCE			
RING 2 LAG			
RING 3 LAG			
RING 4 LAG			
OFFSET	1	2	3
TIME			
SEQUENCE			
RING 2 LAG			
RING 3 LAG			
RING 4 LAG			

* Note: PH 3, 5, 8 = Trail green = 5 + 1 + 3.5 + 2.5 = 12 sec * - DO NOT CHANGE!
(5 = Trail Green; 1 = Y; 2.5 = AR)

ROAD COMMISSION FOR OAKLAND COUNTY, WATERFORD, MICHIGAN
PROGRAM LOG FOR EAGLE SIGNAL CONTROLLER - MOD 52 EPAC

5. COORDINATION DATA - 3. DIAL/SPLIT DATA

LEVEL 2

DIAL 3 / SPLIT 1 CYCLE LENGTH: 130

PHASE	1	2	3	4	5	6	7	8
TIME	41	41	12	24	0	41	0	12
MODE	7	1	3	3	6	7	6	3

DIAL 3 / SPLIT 2 CYCLE LENGTH: 130

PHASE	1	2	3	4	5	6	7	8
TIME	0	46	0	17	12	43	43	12
MODE	6	1	6	3	3	7	7	3

3/2/1

DIAL 3 / SPLIT 3 CYCLE LENGTH: 120

PHASE	1	2	3	4	5	6	7	8
TIME	0	41	0	16	12	39	39	12
MODE	6	1	6	3	3	7	7	3

3/1/1

DIAL 3 / SPLIT 4 CYCLE LENGTH: 120

PHASE	1	2	3	4	5	6	7	8
TIME	0	37	0	22	12	37	37	12
MODE	6	1	6	3	3	7	7	3

LEVEL 1

OFFSET	1	2	3
TIME	0		
SEQUENCE			
RING 2 LAG			
RING 3 LAG			
RING 4 LAG			
OFFSET	1	2	3
TIME	0		
SEQUENCE			
RING 2 LAG			
RING 3 LAG			
RING 4 LAG			
OFFSET	1	2	3
TIME	0		
SEQUENCE			
RING 2 LAG			
RING 3 LAG			
RING 4 LAG			
OFFSET	1	2	3
TIME	0		
SEQUENCE			
RING 2 LAG			
RING 3 LAG			
RING 4 LAG			

DIAL 4 / SPLIT 1 CYCLE LENGTH: 130

PHASE	1	2	3	4	5	6	7	8
TIME	42	40	12	24	0	43	0	12
MODE	7	1	3	3	6	7	6	3

4/1/1

DIAL 4 / SPLIT 2 CYCLE LENGTH: 120

PHASE	1	2	3	4	5	6	7	8
TIME	0	36	0	22	12	38	38	12
MODE	6	1	6	3	3	7	7	3

DIAL 4 / SPLIT 3 CYCLE LENGTH:

PHASE	1	2	3	4	5	6	7	8
TIME								
MODE								

DIAL 4 / SPLIT 4 CYCLE LENGTH:

PHASE	1	2	3	4	5	6	7	8
TIME								
MODE								

OFFSET	1	2	3
TIME	0		
SEQUENCE			
RING 2 LAG			
RING 3 LAG			
RING 4 LAG			
OFFSET	1	2	3
TIME	0		
SEQUENCE			
RING 2 LAG			
RING 3 LAG			
RING 4 LAG			
OFFSET	1	2	3
TIME			
SEQUENCE			
RING 2 LAG			
RING 3 LAG			
RING 4 LAG			
OFFSET	1	2	3
TIME			
SEQUENCE			
RING 2 LAG			
RING 3 LAG			
RING 4 LAG			

ROAD COMMISSION FOR OAKLAND COUNTY, WATERFORD, MICHIGAN
PROGRAM LOG FOR EAGLE SIGNAL CONTROLLER - MOD 52 EPAC

6. TIME BASE DATA - 2. SET TIME / DATE

-- DATE -- MM/DD/YY	-- TIME -- HH:MM:SS	MON & WEEK:	BEG -- DST MM	BEG SW	-- END MM	END SW
/ /	: :		03	02	11	01

CYCLE ZERO: 24 : 00 (HH:MM - EVENT)

STZ DIFF: -18000 (GPS OFFSET)

2. UTILITIES - 8. CONFIGURE PORTS - 8. GPS CONFIGURATION

GPS: 1 (0-NO, 1-YES) PORT: 4

6. TIME BASE DATA - 3. TRAFFIC EVENTS

PRO DAY	TIME HH : MM	COORD PATRN		MAX 2 PHASE #S									OMIT PHASE #S							
* * *	* * * * *	D / S / O		*	*	*	*	*	*	*	*		*	*	*	*	*	*	*	*
01	00 : 00	4 / 1 / 1																		
01	10 : 00	1 / 1 / 1																		
01	19 : 00	4 / 1 / 1																		
02	00 : 00	4 / 1 / 1																		
02	07 : 00	2 / 1 / 1																		
02	12 : 00	3 / 1 / 1																		
02	16 : 00	3 / 2 / 1																		
02	18 : 00	3 / 1 / 1																		
02	20 : 00	4 / 1 / 1																		
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REFERENCE DATA
PRO DAY = 01 - 99
(Program day)

HH:MM = 24 Hour clock

PATTERN: (D/S/O)
FLASH =5/5/
FREE =0/0/4

MAX2 & OMITS:
Call free, set pattern to 0/0/0.

D = DIAL #
S = SPLIT #
0 = OFFSET #

ROAD COMMISSION FOR OAKLAND COUNTY, WATERFORD, MICHIGAN
PROGRAM LOG FOR EAGLE SIGNAL CONTROLLER - MOD 52 EPAC

6. TIME BASE DATA - 4. AUXILIARY EVENTS

PRO DAY	TIME H H : M M		AUX A1	A2	A3		DET VALUE D1	D2	D3		DIM DIM
	:										
	:										
	:										
	:										
	:										
	:										
	:										
	:										
	:										
	:										
	:										
	:										

REFERENCE DATA:
PRO DAY = 00 - 99
(Program day)

HH:MM = 24 Hour clock

AUX = Output states
DET VALUE:
1 = Det diag value
2 = Enables report
3 = Repeat multiplier

DIM = Dimming state

ALL: 0 = off, 1 = on

6. TIME BASE DATA - 5. TIME OF YEAR EVENTS

DATE MM / DD / YY		SPECIAL DAY	WEEK
/ /			
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DATE MM / DD / YY		SPECIAL DAY	WEEK
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REFERENCE DATA
Special day = Any program day 00 - 99.

Special week:
Week 0 = Pro Day 01-07
Week 1 = Pro Day 11-17
Week 2 = Pro Day 21-27

6. TIME BASE DATA - 6. EQUATE/TRANSFER

CODE: 0 (0 = equate, 1 = transfer)

FROM							
01 = 07							
02 = 03	04	05	06				
=							
=							
=							
=							
=							

DAY EQUATE: Care must be taken to insure days are not equated to undefined days or days that are equated to other days. The result will be a day without events to run.

ROAD COMMISSION FOR OAKLAND COUNTY, WATERFORD, MICHIGAN
PROGRAM LOG FOR EAGLE SIGNAL CONTROLLER - MOD 52 EPAC

7. PREEMPT DATA - 1. ALL PREEMPTS

RING TIMES	1	2	3	4	
MIN GREEN/WALK					
OVERRIDE	FL	1/2	2/3	3/4	4/5	5/6
STATUS						

CODES 0 = NO, 1 = YES

7. PREEMPT DATA - PREEMPT 1

1. MISC DATA: (0 = no, 1 = yes)

TEST..: ___ N-LOCK.: ___ LINK PR#..: ___
DELAY: ___ EXTEND: ___ DURATION: ___
MXCALL: ___ LOCK OUT: ___

RING	1	2	3	4	5	6	7	8
EXIT								
CALLS								

2. INTERVAL TIMES:

SEL PED CLR : ____ TRK YEL CHG : __.__
SEL YEL CHG : __.__ TRK RED CLR : __.__
SEL RED CLR : __.__ DWELL GREEN: ____
TRACK GREEN: ____ RET PED CLR : ____
TRK PED CLR : ____ RET YEL CHG : __.__
RET YEL CLR : __.__

3. VEHICLE STATUS:

PHASE	1	2	3	4	5	6	7	8
TRK GRN								
DWELL								

(0=red, 1=grn, 2=flr, 3=fly, 4=dark)

CYCLE								

(0=no, 1=act, 2=min recall, 3=max recall)

4. PEDESTRIAN STATUS:

PHASE	1	2	3	4	5	6	7	8
TRK GRN								
DWELL								

(0=dont wlk, 1=wlk, 2=flwlk, 3=dark)

CYCLE								

(0 = no, 1 = act, 2 = recall)

5. OVERLAP STATUS:

OVERLAP	A	B	C	D
TRK GRN				
DWELL				

(0=red, 1=grn, 2=flr, 3=fly, 4=dark)

CYCLE								

(0 = no, 1 = act)

6. LOW PRIORITY: (0=no, 1=yes)

TEST..: __ N-LOCK.: __ SKIP.....: __
DELAY: __ EXTEND: __ DURATION: __
DWELL: __ MXCALL: __ LOCK OUT: __

RING	1	2	3	4	5	6	7	8
DWELL								
CALLS								

SIGNAL PHASING

PHASE#	ROAD	PHASE	LOAD SW	FLASH
1	WB Maple LT (East) (Green Arrow)	ALE	1	—
2	EB Maple (West)	CW	2	R
3	Dummy - Trail Green OLC/D (Following 1)			
4	NB Eton (East, West)	DE, DW	4	R
5	Dummy - Trail Green OLC/D/F (Following 7)			
6	WB Maple (East)	AE	6	R
7	Dummy - Runs EB/WB			
8	Dummy - Trail Green OLC/E/F (Following 2)			
OLA	WB Maple LT (East) (FYA, yellow arrow, red arrow)	ALE	13	R
OLB	SB Eton LT (East) (FYA, yellow arrow, red arrow)	BE	14	R
OLC	WB Maple (West)	AW	15	R
OLD	WB Maple LT (West) (Lr, A)	ALW	16	—
OLE	EB Maple LT (East) (Lr, A)	CLE	5	—
OLF	EB Maple (East)	CE	7	R
OLG	SB Eton RT (East)	BRE	8	R
OLH	NB Eton RT&A (West)	DRW	3	—
2PED	EB Maple Ped (South Leg East, South Leg West)	WCE, WXW	9	—
4PED	Eton Ped (East Leg East, West Leg West)	WDE, WDW	10	—
6PED	WB Maple Ped (North Leg East)	WAE	11	—

CONTROLLER INFORMATION SHEET
Size P44-16 TS2 Cabinet with MOD 60 EPAC

INTERSECTION: Maple & Eton
COUNTY NO: 283
STATE NO: -
PREPARED BY: Carissa Markel
DATE: 10/11/17

BACKPANEL :- SIZE P44-16 TS2 CABINET

Load Switch 1:	WB Maple LT (East)(G arrow)	ALE	-
Load Switch 2:	EB Maple (West)	CW	FLR
Load Switch 3 (OLH):	NB Eton RTGA (West) (G Only)	DRW	-
Load Switch 4:	NB Eton (East & West)	DE & DW	FLR
Load Switch 5 (OLE):	EB Maple LT (East) (G,A)	CLE	-
Load Switch 6 (OLI):	WB Maple (East)	AE	FLR
Load Switch 7 (OLF):	EB Maple (East)	CE	FLR
Load Switch 8 (OLG):	SB Eton RT (East)	BRE	FLR
Load Switch 9:	EB Maple Ped (South Leg East & South Leg West)	WCE & WCW	
Load Switch 10:	Eton Ped East Lag East & West Leg West)	WDE & WDW	
Load Switch 11:	WB Maple Ped (North Leg East)	WAE	
Load Switch 13 (OLA):	WB Maple LT (East) (FYA, Y arrow, R arrow)	ALE	FLR
Load Switch 14 (OLB):	SB Eton LT (East) (FYA, Y arrow, R arrow)	BE	FLR
Load Switch 15 (OLC):	WB Maple (West)	AW	FLR
Load Switch 16 (OLD):	WB Maple LT(West) (G,A)	ALW	-

MMU 2 :- (MENU : SET/VIEW CONFIG)

Field Check Enable

Channel 1: G
Channel 2: G, Y, R
Channel 3: G
Channel 4: G, Y, R
Channel 5: G, Y
Channel 6: G, Y, R
Channel 7: G, Y, R
Channel 8: G, Y, R
Channel 13: G, Y, R
Channel 14: G, Y, R
Channel 15: G, Y, R
Channel 16: G, Y

Dual Indication Enable:

R+G: Channel 2,4,6,7,8,9,10,11,13,14,15
R+Y: Channel 2,4,6,7,8,13,14,15
G+Y: Channel 2,4,5,6,7,8,13,14,15,16

Red Fail Enable:

Enable: Channel 1,2,3,4,5,6,7,8,13,14,15,16

Unit Options:

All OFF except:
Recurrent pulse
Program Memory Card

Y & R Clearance Disable:

Channel 2,4,5,6,7,8,13,14,15,16 Enabled

Flashing Yellow Arrow:

Enable: Channel Pair 1-13

Program Card:

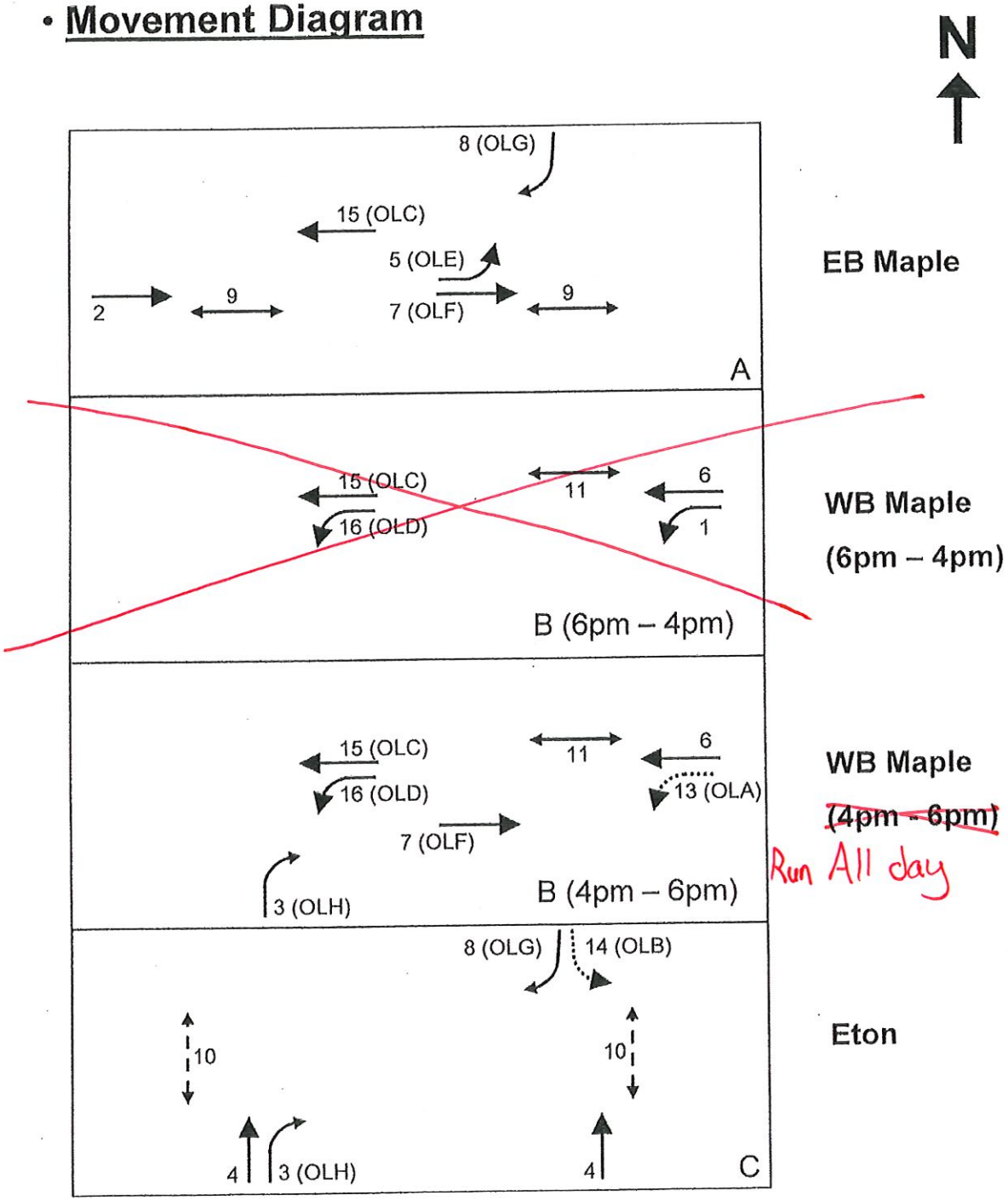
Compatible Channels:
1-6, 1-11, 1-13, 1-15, 1-16, 2-5, 2-7, 2-8, 2-9, 2-15, 3-4, 3-6, 3-7, 3-8, 3-10, 3-11, 3-13, 3-14, 3-15, 3-16, 4-8, 4-10, 4-14, 5-7, 5-8, 5-9, 5-15, 6-7, 6-11, 6-13, 6-15, 6-16, 7-8, 7-9, 7-11, 7-13, 7-15, 7-16, 8-9, 8-10, 8-14, 8-15, 9-15, 10-14, 11-13, 11-15, 11-16, 13-15, 13-16, 15-16

Min Flash Time: 4+2+1
Min Yellow Change Disable: 9,10,11
Voltage Monitor Latch: NONE

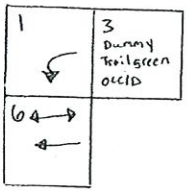
Note: Add jumper 16 MMU flash – 116 Monitor ST Out

#283 – Maple & Eton

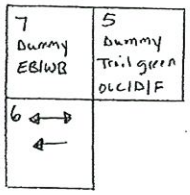
- **Movement Diagram**

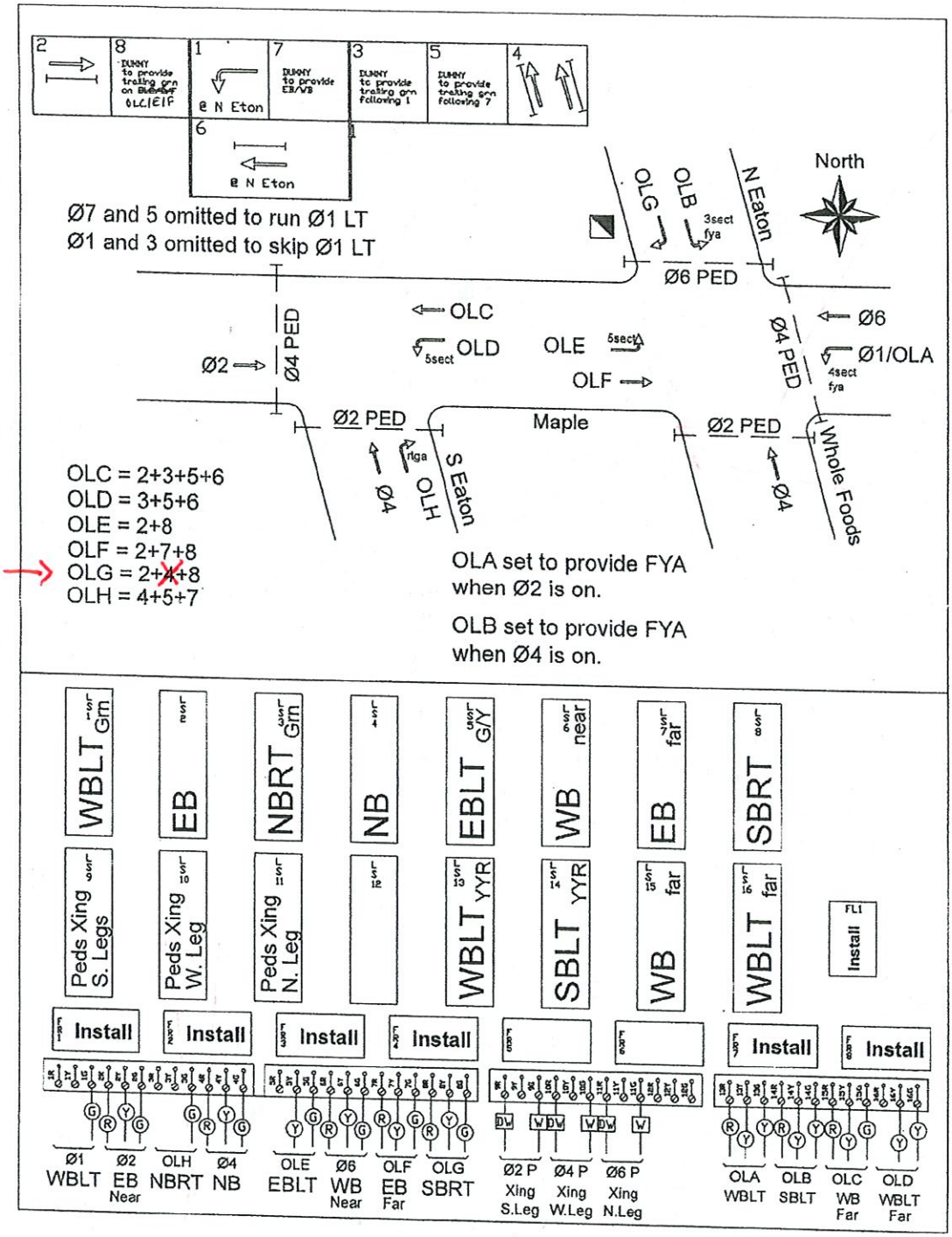


Runs WBLT green
Omit 5+7



Runs WBLT Flashing Yellow (No green arrows)
Omit 1+3





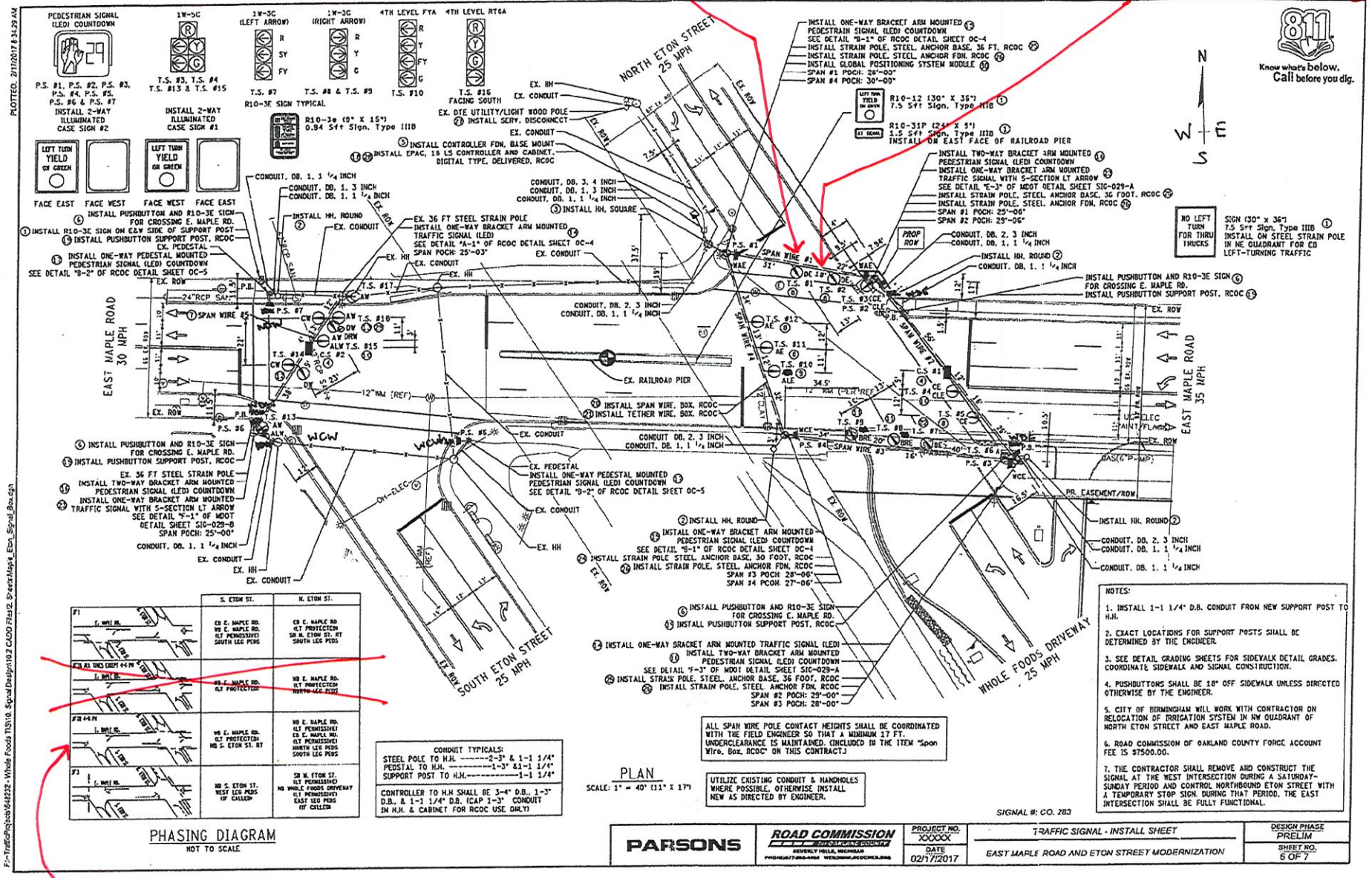
Only run during 2 & 8 →

1W-3G (left arrow)

R
Y
G

Replace Signal head

Remove "left turn yield on green ●" sign



	S. ETON ST.	N. ETON ST.
#1	EB E. MAPLE RD. WB E. MAPLE RD. (LT PERMISSIVE) SOUTH LEG PEDS	EB E. MAPLE RD (LT PROTECTED) SB N. ETON ST. RT SOUTH LEG PEDS
#2 & #4	EB E. MAPLE RD. (LT PROTECTED)	WB E. MAPLE RD. (LT PROTECTED) NORTH LEG PEDS
#3	WB E. MAPLE RD. (LT PROTECTED) NB S. ETON ST. RT	NB E. MAPLE RD. (LT PERMISSIVE) EB E. MAPLE RD. (LT PERMISSIVE) NORTH LEG PEDS SOUTH LEG PEDS
#5	NB S. ETON ST. WEST LEG PEDS (IF CALLED)	SB N. ETON ST. (LT PERMISSIVE) NB WHOLE FOODS DRIVEWAY (LT PERMISSIVE) EAST LEG PEDS (IF CALLED)

PHASING DIAGRAM
NOT TO SCALE

CONDUIT TYPICALS:
STEEL POLE TO H.H. ------2-3" & 1-1 1/4"
PEDSTAL TO H.H. ---------1-3" &1-1 1/4"
SUPPORT POST TO H.H.----------1-1 1/4"

CONTROLLER TO H.H SHALL BE 3-4" D.B., 1-3" D.B. & 1-1 1/4" D.B. (CAP 1-3" CONDUIT IN H.H. & CABINET FOR RCOC USE ONLY)

PLAN
SCALE: 1" = 40' (11" X 17")

ALL SPAN WIRE POLE CONTACT HEIGHTS SHALL BE COORDINATED WITH THE FIELD ENGINEER SO THAT A MINIMUM 17 FT. UNDERCLEARANCE IS MAINTAINED. (INCLUDED IN THE ITEM "Span Wire, Box, RCOC" ON THIS CONTRACT.)

UTILIZE EXISTING CONDUIT & HANDHOLES WHERE POSSIBLE, OTHERWISE INSTALL NEW AS DIRECTED BY ENGINEER.

NOTES:

1. INSTALL 1-1 1/4" D.B. CONDUIT FROM NEW SUPPORT POST TO H.H.
2. EXACT LOCATIONS FOR SUPPORT POSTS SHALL BE DETERMINED BY THE ENGINEER.
3. SEE DETAIL GRADING SHEETS FOR SIDEWALK DETAIL GRADES. COORDINATE SIDEWALK AND SIGNAL CONSTRUCTION.
4. PUSHBUTTONS SHALL BE 18" OFF SIDEWALK UNLESS DIRECTED OTHERWISE BY THE ENGINEER.
5. CITY OF BIRMINGHAM WILL WORK WITH CONTRACTOR ON RELOCATION OF IRRIGATION SYSTEM IN NW QUADRANT OF NORTH ETON STREET AND EAST MAPLE ROAD.
6. ROAD COMMISSION OF OAKLAND COUNTY FORCE ACCOUNT FEE IS $7500.00.
7. THE CONTRACTOR SHALL REMOVE AND CONSTRUCT THE SIGNAL AT THE WEST INTERSECTION DURING A SATURDAY-SUNDAY PERIOD AND CONTROL NORTHBOUND ETON STREET WITH A TEMPORARY STOP SIGN. DURING THAT PERIOD, THE EAST INTERSECTION SHALL BE FULLY FUNCTIONAL.

SIGNAL #: CO. 283

PARSONS	ROAD COMMISSION FOR OAKLAND COUNTY BEVERLY HILLS, MICHIGAN	PROJECT NO. XXXXX	TRAFFIC SIGNAL - INSTALL SHEET	DESIGN PHASE PRELIM
		DATE 02/17/2017	EAST MAPLE ROAD AND ETON STREET MODERNIZATION	SHEET NO. 6 OF 7

PLOTTED: 2/17/2017 8:34:29 AM
F:\-TrafficProjects\54232 - Whole Foods TIS\10. Signal Design\10.2 CADD Files\2. Sheets\Maple_Eton_Signal_Box.dgn

Run All day

SEMCOG | Southeast Michigan Council of Governments

Community Profiles

YOU ARE VIEWING DATA FOR:

City of Troy

500 W Big Beaver Rd
Troy, MI 48084-5285
https://troymi.gov/

SEMCOG MEMBER

Census 2020 Population: 87,294
Area: 33.6 square miles

VIEW COMMUNITY EXPLORER MAP VIEW 2020 CENSUS MAP

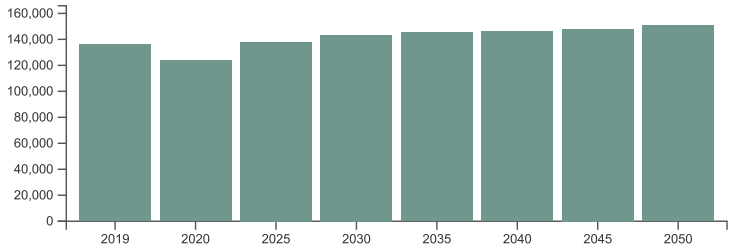
Economy & Jobs

Link to American Community Survey (ACS) Profiles: **Select a Year** 2023 **Economic**

Historic Population and Employment by Minor Civil Division, Southeast Michigan

Forecasted Jobs

NUMBER OF J
150,79



Note: The base year for the employment forecast is 2019, as 2020 employment was artificially low due to the COVID recession.

Source: **SEMCOG 2050 Regional Development Forecast**

Forecasted Jobs by Industry Sector

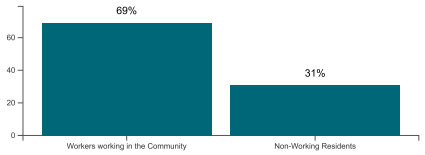
Forecasted Jobs By Industry Sector	2019	2020	2025	2030	2035	2040	2045	2050	Change 2019-2050	Pct Change 2019-2050
Natural Resources, Mining, & Construction	4,121	3,991	5,324	5,294	5,308	5,251	5,250	5,205	1,084	26.3%
Manufacturing	10,401	9,405	10,667	10,820	10,494	10,102	9,828	9,840	-561	-5.4%
Wholesale Trade	6,399	5,992	6,554	6,802	6,943	6,961	6,980	6,953	554	8.7%
Retail Trade	14,163	12,488	12,845	12,371	11,541	10,923	10,425	9,997	-4,166	-29.4%
Transportation, Warehousing, & Utilities	2,779	2,770	3,271	3,465	3,519	3,550	3,557	3,632	853	30.7%
Information & Financial Activities	22,072	20,903	21,714	22,748	23,216	23,562	24,093	24,782	2,710	12.3%
Professional and Technical Services & Corporate HQ	29,277	27,447	30,785	32,196	32,978	33,812	34,912	36,472	7,195	24.6%
Administrative, Support, & Waste Services	11,134	10,257	10,833	11,319	11,662	11,901	12,203	12,618	1,484	13.3%
Education Services	4,508	4,192	4,503	4,655	4,748	4,772	4,780	4,822	314	7%
Healthcare Services	14,022	12,945	14,512	15,457	16,114	16,468	17,078	17,696	3,674	26.2%
Leisure & Hospitality	10,743	7,869	10,630	11,525	11,654	11,679	11,704	11,656	913	8.5%
Other Services	5,099	4,387	5,093	5,495	5,710	5,736	5,757	5,815	716	14%
Public Administration	1,294	1,230	1,301	1,309	1,313	1,314	1,313	1,311	17	1.3%
Total Employment Numbers	136,012	123,876	138,032	143,456	145,200	146,031	147,880	150,799	14,787	10.9%

Note: The base year for the employment forecast is 2019, as 2020 employment was artificially low due to the COVID recession.

Source: **SEMCOG 2050 Regional Development Forecast**

Daytime Population

Daytime Population	ACS 2022
Workers working in the Community	94,365
Non-Working Residents	42,007
Age 15 and under	15,653
Not in labor force	24,045
Unemployed	2,309
Daytime Population	136,372



Source: **2018-2022 American Community Survey 5-Year Estimates**. For additional information, visit SEMCOG's **Interactive Commuting Patterns Map**

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

Household Income

Income (in 2022 dollars)	ACS 2010	ACS 2022	Change 2010-2022	Percent Change 2010-2022
Median Household Income	$117,125	$115,639	$-1,486	-1.3%
Per Capita Income	$55,307	$54,762	$-545	-1%

Source: **U.S. Census Bureau, 2006-2010 and 2018-2022 American Community Survey 5-Year Estimates**

SEMCOG | Southeast Michigan Council of Governments

Community Profiles

YOU ARE VIEWING DATA FOR:

City of Troy

500 W Big Beaver Rd
Troy, MI 48084-5285
https://troymi.gov/

SEMCOG MEMBER

Census 2020 Population: 87,294
Area: 33.6 square miles

VIEW COMMUNITY EXPLORER MAP VIEW 2020 CENSUS MAP

Population and Households

Link to American Community Survey (ACS) Profiles: **Select a Year** 2023 **Social** | **Demographic**

Population and Household Estimates for Southeast Michigan, 2024

Historic Population and Employment by Minor Civil Division, Southeast Michigan

Population Forecast

POPULATION:

Note for City of Troy : Incorporated as of the 1960 Census from Troy Township. Population numbers prior to 1960 are of the township.

Population and Households

Population and Households	Census 2020	Census 2010	Change 2010-2020	Pct Change 2010-2020	SEMCOG Jul 2024	SEMCOG 2050
Total Population	87,294	80,980	6,314	7.8%	88,109	95,523
Group Quarters Population	510	310	200	64.5%	721	1,104
Household Population	86,784	80,670	6,114	7.6%	87,388	94,419
Housing Units	34,488	32,907	1,581	4.8%	35,496	-
Households (Occupied Units)	32,961	30,703	2,258	7.4%	34,657	36,316
Residential Vacancy Rate	4.4%	6.7%	-2.3%	-	2.4%	-
Average Household Size	2.63	2.63	0.01	-	2.52	2.60

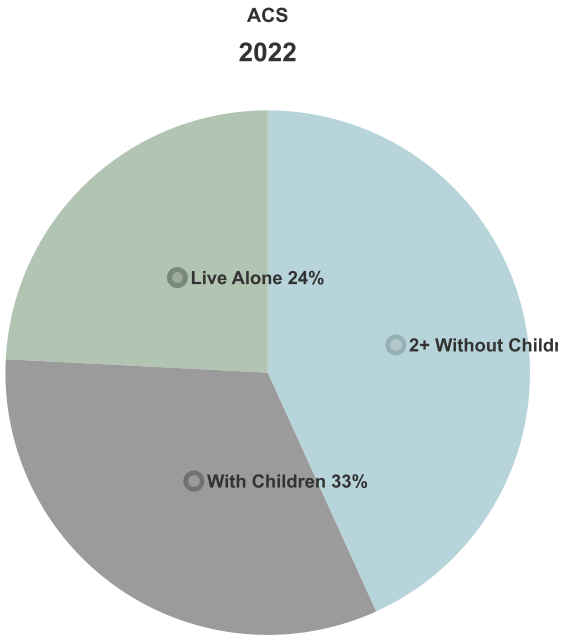
Source: **U.S. Census Bureau**, **2018-2022 American Community Survey 5-Year Estimates**, and **SEMCOG 2050 Regional Development Forecast**

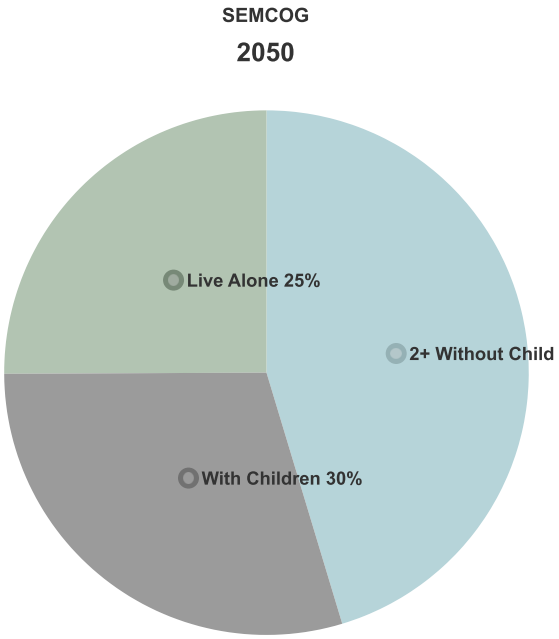
Components of Population Change

Components of Population Change	2010-2020 Avg.	2020-2022 Avg.
Natural Increase (Births - Deaths)	213	48
Births	785	736
Deaths	572	688
Net Migration (Movement In - Movement Out)	418	220
Population Change (Natural Increase + Net Migration)	631	268

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

Household Types





Level of Service Criteria for Stop Sign Controlled Intersections

The level of service criteria are given in Exhibit 20-2. As used here, control delay is defined as the total elapsed time from the time a vehicle stops at the end of the queue until the vehicle departs from the stop line; this time includes the time required for the vehicle to travel from the last-in-queue position to the first-in-queue position, including deceleration of vehicles from free-flow speed to the speed of vehicles in queue.

The average total delay for any particular controlled movement is a function three (capacity) factors: distribution of gaps in the major-street traffic stream, driver judgment in selecting gaps through which to execute the desired maneuvers, and the follow-up headways required by each driver in a queue.

The basic capacity model assumes gaps in the conflicting movements are randomly distributed. When traffic signals are present on the major street, upstream of the subject intersection, flows may not be random but will likely have some platoon structure. Although the procedures in this chapter provide a method for approximating the operations of a TWSC intersection with an upstream signal, the operations of such an intersection is arguably best handled by including it in a complete simulation

Exhibit 20-2. Level of Service Criteria for Stop-Controlled Intersections (Motor Vehciles)

LEVEL OF SERVICE	AVERAGE CONTROL DELAY (sec/veh)
A	$\leq$ 10
B	> 10 and $\leq$ 15
C	> 15 and $\leq$ 25
D	> 25 and $\leq$ 35
E	> 35 and $\leq$ 50
F	> 50

Average total delay less than 10 sec/veh is defined as Level of Service (LOS) A. Follow-up times of less than 5 sec have been measured when there is no conflicting traffic for a minor street movement, so control delays of less than 10 sec/veh are appropriate for low flow conditions. A total delay of 50 sec/veh is assumed as the break point between LOS E and F.

The LOS criteria for TWSC intersections differ somewhat from the criteria used in Chapter 19 for signalized intersections, primarily because user perceptions differ among transportation facility types. The expectation is that a signalized intersection is designed to carry higher traffic volumes and will present greater delay than an unsignalized intersection. Additionally, several driver behavior considerations combine to make delays at signalized intersections less onerous than at unsignalized intersections. For example, drivers at signalized intersections are able to relax during the red interval, where drivers on the minor approaches to unsignalized intersections must remain attentive to the task of identifying acceptable gaps and vehicle conflicts. Also, there is often much more variability in the amount of delay experienced by individual drivers at unsignalized than signalized intersections. For these reasons, it is considered that the total delay threshold for any given level of service is less for an unsignalized intersection than for a signalized intersection.

LOS F exists when there are insufficient gaps of suitable size to allow a side street demand to cross safely through a major street traffic stream. This level of service is generally evident from extremely long total delays experienced by side street traffic and by queueing on the minor approaches. The method, however, is based on a constant critical gap size - that is, the critical gap remains constant, no matter how long the side street motorist waits. LOS F may also appear in the form of side street vehicles' selecting smaller-than-usual gaps. In such cases, safety may be a problem and some disruption to the major traffic stream may result. It is important to note that LOS F may not always result in long queues but may result in adjustments to normal gap acceptance behavior. The latter is more difficult to observe on the field than queueing, which is more obvious.

Source: Highway Capacity Manual, 6th Edition. Transportation Research Board, National Research Council

Level of Service for Signalized Intersections

Level of service for signalized intersections is defined in terms of delay, which is a measure of driver discomfort and frustration, fuel consumption, and lost travel time. LOS can be characterized for the entire intersection, each intersection approach, and each lane group. Specifically, level-of-service (LOS) criteria are stated in terms of the average stopped delay per vehicle. The criteria are given in Exhibit 19-8. Delay may be measured in the field or estimated using procedures presented later in this chapter. Delay is a complex measure and is dependent on a number of variables, including the quality of progression, the cycle length, the green ratio, and the v/c ratio for the lane group in question.

LOS A describes operations with a control delay of 10 s/veh or less. This level is typically assigned when the volume-to-capacity ratio is low and either progression is extremely favorable or the cycle length is very short. If LOS A is the result of favorable progression, most vehicles arrive during a green indication and travel through the intersection without stopping.

LOS B describes operations with control delay between 10 and 20 s/veh. This level is typically assigned when the volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.

Exhibit 19.8. Level-of-Service Criteria for Signalized Intersections (Motorized Vehicles)

LEVEL OF SERVICE	STOPPED DELAY PER VEHICLE (SEC)
A	≤10.0
B	> 10.0 and ≤20.0
C	> 20.0 and ≤ 35.0
D	> 35.0 and ≤ 55.0
E	> 55.0 and ≤ 80.0
F	>80.0

1. If the v/c ratio for a lane group exceeds 1.0, a LOS F is assigned to the individual lane group. LOS for approach-based and intersection-wide assessments are determined solely by the control delay.

LOS C describes operations with control delay between 20 and 35 s/veh. This level is typically assigned when progression is favorable or the cycle length is moderate. Individual *cycle failures* (i.e. one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear at this level. The number if vehicle stopping is significant, although many vehicles still pass through the intersection without stopping.

LOS D describes operations with control delay between 35 and 55 s/veh. This level is typically assigned when when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.

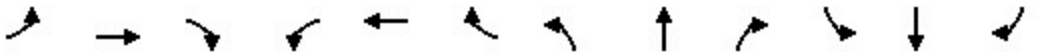
LOS E describes operations with control delay between 55 and 80 s/veh. This level is typically assigned when when the volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.

LOS F describes operations with control delay exceeding 80 s/veh or a volume-to-capacity ratio greater than 1.0. This level, considered to be unacceptable to most drivers, often occurs with over-saturation, that is, when arrival flow rates exceed the capacity of the intersection. This level is typically assigned when the volume-to-capacity ratio is high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.

Source: Highway Capacity Manual, 6th Edition. Transportation Research Board, National Research Council

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	474	61	264	625	46	315
Future Volume (vph)	474	61	264	625	46	315
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000
Total Lost time (s)	18.0			6.0	6.0	6.0
Lane Util. Factor	0.95			0.95	1.00	1.00
Frpb, ped/bikes	1.00			1.00	1.00	1.00
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	0.98			1.00	1.00	0.85
Flt Protected	1.00			0.99	0.95	1.00
Satd. Flow (prot)	3557			3671	1845	1650
Flt Permitted	1.00			0.65	0.95	1.00
Satd. Flow (perm)	3557			2422	1845	1650
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.88	0.88
Adj. Flow (vph)	527	68	293	694	52	358
RTOR Reduction (vph)	8	0	0	0	0	29
Lane Group Flow (vph)	587	0	0	987	52	329
Confl. Peds. (#/hr)						
Heavy Vehicles (%)	5%	5%	2%	2%	3%	3%
Turn Type	NA		pm+pt	NA	Prot	pm+ov
Protected Phases	6		1	3	8	1
Permitted Phases			3			8
Actuated Green, G (s)	29.0			92.0	16.0	61.0
Effective Green, g (s)	29.0			92.0	16.0	61.0
Actuated g/C Ratio	0.24			0.77	0.13	0.51
Clearance Time (s)	18.0			6.0	6.0	6.0
Lane Grp Cap (vph)	859			2325	246	921
v/s Ratio Prot	c0.16			c0.16	0.03	c0.13
v/s Ratio Perm				0.17		0.07
v/c Ratio	0.68			0.42	0.21	0.36
Uniform Delay, d1	41.3			4.8	46.4	17.7
Progression Factor	1.00			0.28	1.00	1.00
Incremental Delay, d2	4.4			0.5	2.0	1.1
Delay (s)	45.7			1.8	48.3	18.8
Level of Service	D			A	D	B
Approach Delay (s/veh)	45.7			1.8	22.5	
Approach LOS	D			A	C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	19.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	67.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	123	628	38	1	636	30	35	2	3	53	0	218
Future Volume (vph)	123	628	38	1	636	30	35	2	3	53	0	218
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		6.0		18.0	18.0		6.0	6.0	6.0	6.0		6.0
Lane Util. Factor		0.95		1.00	0.95		1.00	1.00	1.00	1.00		1.00
Frpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	0.98	1.00		1.00
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	1.00	1.00		1.00
Frt		0.99		1.00	0.99		1.00	1.00	0.85	1.00		0.85
Flt Protected		0.99		0.95	1.00		0.95	1.00	1.00	0.95		1.00
Satd. Flow (prot)		3630		1841	3661		1900	2000	1673	1877		1683
Flt Permitted		0.65		0.33	1.00		0.95	1.00	1.00	0.76		1.00
Satd. Flow (perm)		2360		639	3661		1900	2000	1673	1493		1683
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.77	0.77	0.77	0.72	0.72	0.72
Adj. Flow (vph)	134	683	41	1	691	33	45	3	4	74	0	303
RTOR Reduction (vph)	0	3	0	0	3	0	0	0	3	0	0	169
Lane Group Flow (vph)	0	855	0	1	721	0	45	3	1	74	0	134
Confl. Peds. (#/hr)			2	2					1	1		
Confl. Bikes (#/hr)						1			1			
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	0%	0%	0%	1%	1%	1%
Turn Type	pm+pt	NA		Perm	NA		Split	NA	Perm	Perm		Over
Protected Phases	5	7			2		8	8				5
Permitted Phases	7			2					8	4		
Actuated Green, G (s)		92.0		33.0	33.0		16.0	16.0	16.0	16.0		41.0
Effective Green, g (s)		92.0		33.0	33.0		16.0	16.0	16.0	16.0		41.0
Actuated g/C Ratio		0.77		0.28	0.28		0.13	0.13	0.13	0.13		0.34
Clearance Time (s)		6.0		18.0	18.0		6.0	6.0	6.0	6.0		6.0
Lane Grp Cap (vph)		2243		175	1006		253	266	223	199		575
v/s Ratio Prot		c0.13			c0.20		0.02	0.00				0.08
v/s Ratio Perm		0.16		0.00					0.00	c0.05		
v/c Ratio		0.38		0.01	0.72		0.18	0.01	0.00	0.37		0.23
Uniform Delay, d1		4.6		31.6	39.3		46.2	45.1	45.1	47.4		28.3
Progression Factor		0.34		1.37	1.26		1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2		0.4		0.1	4.3		1.5	0.1	0.0	5.3		1.0
Delay (s)		2.0		43.3	53.9		47.7	45.2	45.1	52.7		29.2
Level of Service		A		D	D		D	D	D	D		C
Approach Delay (s/veh)		2.0			53.9			47.4			33.8	
Approach LOS		A			D			D			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	27.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	72.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	660	24	45	667	0	36
Future Vol, veh/h	660	24	45	667	0	36
Conflicting Peds, #/hr	0	2	2	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	500	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	90	90	79	79
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	695	25	50	741	0	46

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	722	0	-	362
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.16	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.23	-	-	3.33
Pot Cap-1 Maneuver	-	-	869	-	0	632
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	868	-	-	631
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.59	11.15
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	631	-	-	868	-
HCM Lane V/C Ratio	0.072	-	-	0.058	-
HCM Control Delay (s/veh)	11.2	-	-	9.4	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.2	-

Intersection	
Int Delay, s/veh	0.1

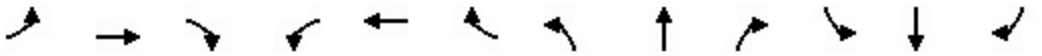
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	693	3	2	712	0	5
Future Vol, veh/h	693	3	2	712	0	5
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	500	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	90	90	60	60
Heavy Vehicles, %	3	3	3	3	40	40
Mvmt Flow	729	3	2	791	0	8

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	734	0	1132	367
Stage 1	-	-	-	-	732	-
Stage 2	-	-	-	-	400	-
Critical Hdwy	-	-	4.16	-	7.6	7.7
Critical Hdwy Stg 1	-	-	-	-	6.6	-
Critical Hdwy Stg 2	-	-	-	-	6.6	-
Follow-up Hdwy	-	-	2.23	-	3.9	3.7
Pot Cap-1 Maneuver	-	-	861	-	*215	532
Stage 1	-	-	-	-	*349	-
Stage 2	-	-	-	-	*785	-
Platoon blocked, %	-	-		-	0	
Mov Cap-1 Maneuver	-	-	860	-	*215	532
Mov Cap-2 Maneuver	-	-	-	-	*295	-
Stage 1	-	-	-	-	*349	-
Stage 2	-	-	-	-	*783	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.03	11.87
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	532	-	-	860	-
HCM Lane V/C Ratio	0.016	-	-	0.003	-
HCM Control Delay (s/veh)	11.9	-	-	9.2	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	124	424	120	186	455	90	66	372	292	0	585	120
Future Volume (veh/h)	124	424	120	186	455	90	66	372	292	0	585	120
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1953	1953	1953	1953	1953	1953	1953	1953	1953	0	1969	1969
Adj Flow Rate, veh/h	132	451	128	196	479	95	78	438	344	0	657	135
Peak Hour Factor	0.94	0.94	0.94	0.95	0.95	0.95	0.85	0.85	0.85	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	0	2	2
Cap, veh/h	161	568	343	228	703	309	101	2106	1131	0	2075	420
Arrive On Green	0.17	0.31	0.31	0.12	0.19	0.19	0.05	0.57	0.57	0.00	0.46	0.46
Sat Flow, veh/h	1860	3711	1652	1860	3711	1631	1860	3711	1634	0	4658	908
Grp Volume(v), veh/h	132	451	128	196	479	95	78	438	344	0	524	268
Grp Sat Flow(s),veh/h/ln	1860	1856	1652	1860	1856	1631	1860	1856	1634	0	1792	1805
Q Serve(g_s), s	8.2	13.4	7.1	12.4	14.4	6.0	5.0	6.9	9.9	0.0	11.0	11.3
Cycle Q Clear(g_c), s	8.2	13.4	7.1	12.4	14.4	6.0	5.0	6.9	9.9	0.0	11.0	11.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	0.00		0.50
Lane Grp Cap(c), veh/h	161	568	343	228	703	309	101	2106	1131	0	1659	836
V/C Ratio(X)	0.82	0.79	0.37	0.86	0.68	0.31	0.77	0.21	0.30	0.00	0.32	0.32
Avail Cap(c_a), veh/h	319	977	525	319	977	429	279	2106	1131	0	1659	836
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	48.8	39.9	33.2	51.6	45.3	41.9	56.0	12.7	7.3	0.0	20.3	20.3
Incr Delay (d2), s/veh	11.5	2.5	0.7	16.3	1.2	0.6	11.5	0.2	0.7	0.0	0.5	1.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	5.4	0.1	6.7	6.6	2.4	2.6	2.9	3.4	0.0	4.7	4.9
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	60.2	42.4	33.8	67.9	46.4	42.4	67.5	12.9	8.0	0.0	20.8	21.3
LnGrp LOS	E	D	C	E	D	D	E	B	A		C	C
Approach Vol, veh/h		711			770			860			792	
Approach Delay, s/veh		44.2			51.4			15.9			21.0	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	74.1	16.8	29.1	12.5	61.6	21.1	24.8
Change Period (Y+Rc), s	6.0	6.4	6.4	6.0	6.0	6.4	6.4
Max Green Setting (Gmax), s	49.0	20.6	31.6	18.0	25.0	20.6	31.6
Max Q Clear Time (g_c+I1), s	11.9	10.2	16.4	7.0	13.3	14.4	15.4
Green Ext Time (p_c), s	4.4	0.3	2.9	0.1	3.9	0.3	3.0

Intersection Summary	
HCM 7th Control Delay, s/veh	32.3
HCM 7th LOS	C

Notes

User approved changes to right turn type.

Intersection	
Int Delay, s/veh	6.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	1	0	0	1	0	0	3	0	0	2	0
Future Vol, veh/h	0	1	0	0	1	0	0	3	0	0	2	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	60	60	60	60	60	60	60	60	60
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	2	0	0	2	0	0	5	0	0	3	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	2	0	0	2	0	0	5	3	2	6	3	2
Stage 1	-	-	-	-	-	-	2	2	-	2	2	-
Stage 2	-	-	-	-	-	-	3	2	-	4	2	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1634	-	-	1634	-	-	1021	896	1089	1020	896	1089
Stage 1	-	-	-	-	-	-	1027	899	-	1027	899	-
Stage 2	-	-	-	-	-	-	1024	899	-	1023	899	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1634	-	-	1634	-	-	1017	896	1089	1014	896	1089
Mov Cap-2 Maneuver	-	-	-	-	-	-	1017	896	-	1014	896	-
Stage 1	-	-	-	-	-	-	1027	899	-	1027	899	-
Stage 2	-	-	-	-	-	-	1021	899	-	1018	899	-

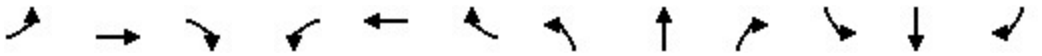
Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	0	9.04	9.03
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	896	1634	-	-	1634	-	-	896
HCM Lane V/C Ratio	0.006	-	-	-	-	-	-	0.004
HCM Control Delay (s/veh)	9	0	-	-	0	-	-	9
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	695	59	307	721	68	355
Future Volume (vph)	695	59	307	721	68	355
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000
Total Lost time (s)	18.0			6.0	6.0	6.0
Lane Util. Factor	0.95			0.95	1.00	1.00
Frpb, ped/bikes	1.00			1.00	1.00	1.00
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	0.99			1.00	1.00	0.85
Flt Protected	1.00			0.99	0.95	1.00
Satd. Flow (prot)	3711			3707	1900	1700
Flt Permitted	1.00			0.57	0.95	1.00
Satd. Flow (perm)	3711			2157	1900	1700
Peak-hour factor, PHF	0.94	0.94	0.95	0.95	0.93	0.93
Adj. Flow (vph)	739	63	323	759	73	382
RTOR Reduction (vph)	5	0	0	0	0	19
Lane Group Flow (vph)	797	0	0	1082	73	363
Confl. Peds. (#/hr)		1	1			
Confl. Bikes (#/hr)		1				
Heavy Vehicles (%)	1%	1%	1%	1%	0%	0%
Turn Type	NA		pm+pt	NA	Prot	pm+ov
Protected Phases	6		1	3	8	1
Permitted Phases			3			8
Actuated Green, G (s)	35.0			98.0	10.0	55.0
Effective Green, g (s)	35.0			98.0	10.0	55.0
Actuated g/C Ratio	0.29			0.82	0.08	0.46
Clearance Time (s)	18.0			6.0	6.0	6.0
Lane Grp Cap (vph)	1082			2342	158	864
v/s Ratio Prot	c0.21			c0.17	0.04	c0.16
v/s Ratio Perm				0.20		0.06
v/c Ratio	0.74			0.46	0.46	0.42
Uniform Delay, d1	38.3			3.2	52.4	21.8
Progression Factor	1.00			0.35	1.00	1.00
Incremental Delay, d2	4.5			0.4	9.4	1.5
Delay (s)	42.8			1.6	61.9	23.3
Level of Service	D			A	E	C
Approach Delay (s/veh)	42.8			1.6	29.5	
Approach LOS	D			A	C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	21.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	76.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	148	830	72	3	788	66	90	12	18	42	0	150
Future Volume (vph)	148	830	72	3	788	66	90	12	18	42	0	150
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		6.0		18.0	18.0		6.0	6.0	6.0	6.0		6.0
Lane Util. Factor		0.95		1.00	0.95		1.00	1.00	1.00	1.00		1.00
Frpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	0.97	1.00		1.00
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	1.00	0.99		1.00
Frt		0.99		1.00	0.99		1.00	1.00	0.85	1.00		0.85
Flt Protected		0.99		0.95	1.00		0.95	1.00	1.00	0.95		1.00
Satd. Flow (prot)		3689		1876	3712		1900	2000	1656	1873		1700
Flt Permitted		0.57		0.26	1.00		0.95	1.00	1.00	0.75		1.00
Satd. Flow (perm)		2117		509	3712		1900	2000	1656	1477		1700
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.91	0.91	0.91	0.87	0.87	0.87
Adj. Flow (vph)	156	874	76	3	829	69	99	13	20	48	0	172
RTOR Reduction (vph)	0	5	0	0	5	0	0	0	18	0	0	105
Lane Group Flow (vph)	0	1101	0	3	893	0	99	13	2	48	0	67
Confl. Peds. (#/hr)	2		4	4		2			4	4		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		Perm	NA		Split	NA	Perm	Perm		Over
Protected Phases	5	7			2		8	8				5
Permitted Phases	7			2					8	4		
Actuated Green, G (s)		98.0		33.0	33.0		10.0	10.0	10.0	10.0		47.0
Effective Green, g (s)		98.0		33.0	33.0		10.0	10.0	10.0	10.0		47.0
Actuated g/C Ratio		0.82		0.28	0.28		0.08	0.08	0.08	0.08		0.39
Clearance Time (s)		6.0		18.0	18.0		6.0	6.0	6.0	6.0		6.0
Lane Grp Cap (vph)		2344		139	1020		158	166	138	123		665
v/s Ratio Prot		c0.18			c0.24		c0.05	0.01				0.04
v/s Ratio Perm		0.20		0.01					0.00	0.03		
v/c Ratio		0.47		0.02	0.88		0.63	0.08	0.01	0.39		0.10
Uniform Delay, d1		3.3		31.7	41.5		53.2	50.7	50.5	52.1		23.1
Progression Factor		0.25		1.37	1.39		1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2		0.5		0.3	10.1		17.3	0.9	0.2	9.1		0.3
Delay (s)		1.3		43.6	67.9		70.5	51.7	50.6	61.2		23.4
Level of Service		A		D	E		E	D	D	E		C
Approach Delay (s/veh)		1.3			67.8			65.7			31.7	
Approach LOS		A			E			E			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	33.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	87.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	1.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	850	40	116	857	0	117
Future Vol, veh/h	850	40	116	857	0	117
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	500	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	92	92	85	85
Heavy Vehicles, %	1	1	1	1	0	0
Mvmt Flow	914	43	126	932	0	138

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	958	0	-	479
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.12	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.21	-	-	3.3
Pot Cap-1 Maneuver	-	-	720	-	0	538
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	719	-	-	537
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	1.32	13.99
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	537	-	-	719	-
HCM Lane V/C Ratio	0.256	-	-	0.175	-
HCM Control Delay (s/veh)	14	-	-	11.1	-
HCM Lane LOS	B	-	-	B	-
HCM 95th %tile Q(veh)	1	-	-	0.6	-

Intersection	
Int Delay, s/veh	0.1

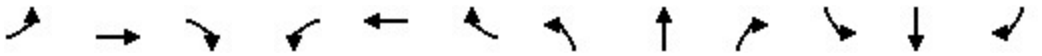
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	965	2	4	971	2	9
Future Vol, veh/h	965	2	4	971	2	9
Conflicting Peds, #/hr	0	0	0	0	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	500	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	88	88	69	69
Heavy Vehicles, %	1	1	1	1	9	9
Mvmt Flow	1049	2	5	1103	3	13

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1051	0	1612	526
Stage 1	-	-	-	-	1050	-
Stage 2	-	-	-	-	562	-
Critical Hdwy	-	-	4.12	-	6.98	7.08
Critical Hdwy Stg 1	-	-	-	-	5.98	-
Critical Hdwy Stg 2	-	-	-	-	5.98	-
Follow-up Hdwy	-	-	2.21	-	3.59	3.39
Pot Cap-1 Maneuver	-	-	664	-	*122	479
Stage 1	-	-	-	-	*283	-
Stage 2	-	-	-	-	*800	-
Platoon blocked, %	-	-		-	0	
Mov Cap-1 Maneuver	-	-	664	-	*121	479
Mov Cap-2 Maneuver	-	-	-	-	*230	-
Stage 1	-	-	-	-	*283	-
Stage 2	-	-	-	-	*794	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.04	14.38
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	400	-	-	664	-
HCM Lane V/C Ratio	0.04	-	-	0.007	-
HCM Control Delay (s/veh)	14.4	-	-	10.5	-
HCM Lane LOS	B	-	-	B	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	163	535	128	340	672	224	114	664	420	0	673	138
Future Volume (veh/h)	163	535	128	340	672	224	114	664	420	0	673	138
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1984	1984	1984	2000	2000	2000	1984	1984	1984	0	1984	1984
Adj Flow Rate, veh/h	183	615	147	362	715	238	127	738	467	0	716	147
Peak Hour Factor	0.89	0.87	0.87	0.94	0.94	0.94	0.90	0.90	0.90	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	1	0	0	0	1	1	1	0	1	1
Cap, veh/h	212	702	452	398	1074	478	157	1691	1104	0	1420	288
Arrive On Green	0.22	0.37	0.37	0.21	0.28	0.28	0.08	0.45	0.45	0.00	0.32	0.32
Sat Flow, veh/h	1890	3770	1679	1905	3800	1693	1890	3770	1678	0	4682	913
Grp Volume(v), veh/h	183	615	147	362	715	238	127	738	467	0	572	291
Grp Sat Flow(s),veh/h/ln	1890	1885	1679	1905	1900	1693	1890	1885	1678	0	1806	1805
Q Serve(g_s), s	11.2	18.2	7.2	22.3	20.0	14.1	7.9	16.1	15.9	0.0	15.5	15.8
Cycle Q Clear(g_c), s	11.2	18.2	7.2	22.3	20.0	14.1	7.9	16.1	15.9	0.0	15.5	15.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	0.00		0.51
Lane Grp Cap(c), veh/h	212	702	452	398	1074	478	157	1691	1104	0	1139	569
V/C Ratio(X)	0.86	0.88	0.33	0.91	0.67	0.50	0.81	0.44	0.42	0.00	0.50	0.51
Avail Cap(c_a), veh/h	324	804	498	486	1127	502	299	1691	1104	0	1139	569
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.96	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	45.6	36.4	26.7	46.4	38.0	35.9	54.1	22.7	9.8	0.0	33.4	33.5
Incr Delay (d2), s/veh	14.6	9.4	0.4	19.4	1.4	0.8	9.5	0.8	1.2	0.0	1.6	3.2
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	7.6	2.6	12.4	9.3	5.8	4.2	7.2	5.7	0.0	7.0	7.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	60.2	45.8	27.1	65.8	39.5	36.7	63.5	23.5	11.0	0.0	35.0	36.8
LnGrp LOS	E	D	C	E	D	D	E	C	B		D	D
Approach Vol, veh/h		945			1315			1332			863	
Approach Delay, s/veh		45.7			46.2			22.9			35.6	
Approach LOS		D			D			C			D	

Timer - Assigned Phs	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	59.8	19.9	40.3	16.0	43.8	31.4	28.7
Change Period (Y+Rc), s	6.0	6.4	6.4	6.0	6.0	6.4	6.4
Max Green Setting (Gmax), s	45.0	20.6	35.6	19.0	20.0	30.6	25.6
Max Q Clear Time (g_c+I1), s	18.1	13.2	22.0	9.9	17.8	24.3	20.2
Green Ext Time (p_c), s	7.5	0.3	4.6	0.2	1.2	0.8	2.1

Intersection Summary	
HCM 7th Control Delay, s/veh	37.1
HCM 7th LOS	D

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	0	0	0	0	0	0	0	0	0	0
Future Vol, veh/h	1	0	0	0	0	0	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	60	60	60	60	60	60	60	60	60
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	2	0	0	0	0	0	0	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	2	0	0	0	0	0	5	5	0	5	5	2
Stage 1	-	-	-	-	-	-	3	3	-	2	2	-
Stage 2	-	-	-	-	-	-	2	2	-	3	3	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1634	-	-	-	-	-	1021	894	-	1021	894	1089
Stage 1	-	-	-	-	-	-	1024	897	-	1027	899	-
Stage 2	-	-	-	-	-	-	1027	899	-	1024	897	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1634	-	-	-	-	-	1020	893	-	1020	893	1089
Mov Cap-2 Maneuver	-	-	-	-	-	-	1020	893	-	1020	893	-
Stage 1	-	-	-	-	-	-	1023	896	-	1027	899	-
Stage 2	-	-	-	-	-	-	1027	899	-	1023	896	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	7.21	0	0	0
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1634	-	-	-	-	-	-
HCM Lane V/C Ratio	-	0.001	-	-	-	-	-	-
HCM Control Delay (s/veh)	0	7.2	0	-	0	-	-	0
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	-	0	-	-	-	-	-	-

Intersection: 1: S. Eton Street & Maple Road

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	TR	LT	T	L	R
Maximum Queue (ft)	280	284	118	59	72	162
Average Queue (ft)	185	179	62	14	20	67
95th Queue (ft)	259	262	112	43	54	129
Link Distance (ft)	1254	1254	93	93		432
Upstream Blk Time (%)			3	0		
Queuing Penalty (veh)			12	0		
Storage Bay Dist (ft)					275	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 2: N. Eton Street & Maple Road

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	LT	TR	L	T	TR	L	T	R	L	R
Maximum Queue (ft)	72	77	9	323	332	69	25	41	105	299
Average Queue (ft)	11	17	0	219	214	18	2	6	28	136
95th Queue (ft)	40	54	5	315	314	51	12	31	88	249
Link Distance (ft)	93	93		392	392	353				685
Upstream Blk Time (%)	0	0								
Queuing Penalty (veh)	0	0								
Storage Bay Dist (ft)			500				50	50	175	
Storage Blk Time (%)						3	0	0		6
Queuing Penalty (veh)						0	0	0		4

Intersection: 3: Whole Foods Drive & Maple Road

Movement	EB	WB	NB
Directions Served	TR	L	R
Maximum Queue (ft)	12	60	59
Average Queue (ft)	0	16	23
95th Queue (ft)	7	46	52
Link Distance (ft)	392		267
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		500	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: LA Fitness Drive & Maple Road

Movement	EB	NB
Directions Served	TR	LR
Maximum Queue (ft)	11	56
Average Queue (ft)	0	5
95th Queue (ft)	8	28
Link Distance (ft)	358	173
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: Coolidge Highway & Maple Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	R	L	T	T	R	L	T	T	R
Maximum Queue (ft)	167	214	237	74	271	274	214	54	115	197	164	130
Average Queue (ft)	94	82	98	29	138	153	109	25	43	101	47	45
95th Queue (ft)	158	162	177	62	222	231	197	48	94	174	125	99
Link Distance (ft)		1229	1229			776	776			675	675	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	500			435	500			375	160			550
Storage Blk Time (%)										1		
Queuing Penalty (veh)										1		

Intersection: 5: Coolidge Highway & Maple Road

Movement	SB	SB	SB
Directions Served	T	T	TR
Maximum Queue (ft)	222	272	238
Average Queue (ft)	114	173	98
95th Queue (ft)	214	250	187
Link Distance (ft)		645	645
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	370		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: Site Drive & Maple Way Drive

Movement	NB	SB
Directions Served	LTR	LTR
Maximum Queue (ft)	18	28
Average Queue (ft)	2	2
95th Queue (ft)	13	15
Link Distance (ft)	100	125
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 17

Intersection: 1: S. Eton Street & Maple Road

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	TR	LT	T	L	R
Maximum Queue (ft)	328	342	120	66	103	191
Average Queue (ft)	225	233	64	17	37	85
95th Queue (ft)	313	316	110	47	82	159
Link Distance (ft)	1254	1254	93	93		432
Upstream Blk Time (%)			4	0		
Queuing Penalty (veh)			21	0		
Storage Bay Dist (ft)					275	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 2: N. Eton Street & Maple Road

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	LT	TR	L	T	TR	L	T	R	L	R
Maximum Queue (ft)	61	71	15	396	393	159	100	53	83	162
Average Queue (ft)	10	15	1	282	282	57	12	20	24	82
95th Queue (ft)	37	47	9	373	383	123	55	59	64	141
Link Distance (ft)	93	93		392	392	353				685
Upstream Blk Time (%)	0	0		0	0					
Queuing Penalty (veh)	0	0		2	2					
Storage Bay Dist (ft)			500				50	50	175	
Storage Blk Time (%)				0		18	2	0		0
Queuing Penalty (veh)				0		6	2	0		0

Intersection: 3: Whole Foods Drive & Maple Road

Movement	EB	EB	WB	WB	WB	NB
Directions Served	T	TR	L	T	T	R
Maximum Queue (ft)	6	9	99	13	25	82
Average Queue (ft)	0	0	37	1	1	40
95th Queue (ft)	4	5	73	9	15	65
Link Distance (ft)	392	392		358	358	267
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			500			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 4: LA Fitness Drive & Maple Road

Movement	EB	WB	WB	NB
Directions Served	T	L	T	LR
Maximum Queue (ft)	12	31	17	47
Average Queue (ft)	0	3	1	8
95th Queue (ft)	6	18	9	32
Link Distance (ft)	358		167	173
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		500		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Coolidge Highway & Maple Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	R	L	T	T	R	L	T	T	R
Maximum Queue (ft)	215	214	230	54	405	305	253	119	172	296	265	194
Average Queue (ft)	127	113	124	28	216	196	162	56	78	174	129	74
95th Queue (ft)	197	199	207	52	338	279	244	98	144	258	226	156
Link Distance (ft)		1229	1229			776	776			675	675	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	500			435	500			375	160			550
Storage Blk Time (%)					0				1	10		
Queuing Penalty (veh)					0				2	12		

Intersection: 5: Coolidge Highway & Maple Road

Movement	SB	SB	SB
Directions Served	T	T	TR
Maximum Queue (ft)	272	307	284
Average Queue (ft)	154	206	142
95th Queue (ft)	247	284	236
Link Distance (ft)		645	645
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	370		
Storage Blk Time (%)		0	
Queuing Penalty (veh)		0	

Intersection: 6: Site Drive & Maple Way Drive

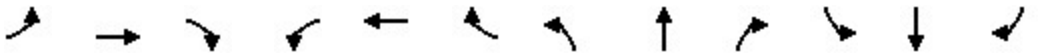
Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Zone Summary

Zone wide Queuing Penalty: 48

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	478	62	267	631	46	318
Future Volume (vph)	478	62	267	631	46	318
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000
Total Lost time (s)	18.0			6.0	6.0	6.0
Lane Util. Factor	0.95			0.95	1.00	1.00
Frpb, ped/bikes	1.00			1.00	1.00	1.00
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	0.98			1.00	1.00	0.85
Flt Protected	1.00			0.99	0.95	1.00
Satd. Flow (prot)	3557			3671	1845	1650
Flt Permitted	1.00			0.65	0.95	1.00
Satd. Flow (perm)	3557			2412	1845	1650
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.88	0.88
Adj. Flow (vph)	531	69	297	701	52	361
RTOR Reduction (vph)	8	0	0	0	0	28
Lane Group Flow (vph)	592	0	0	998	52	333
Confl. Peds. (#/hr)						
Heavy Vehicles (%)	5%	5%	2%	2%	3%	3%
Turn Type	NA		pm+pt	NA	Prot	pm+ov
Protected Phases	6		1	3	8	1
Permitted Phases			3			8
Actuated Green, G (s)	29.0			92.0	16.0	61.0
Effective Green, g (s)	29.0			92.0	16.0	61.0
Actuated g/C Ratio	0.24			0.77	0.13	0.51
Clearance Time (s)	18.0			6.0	6.0	6.0
Lane Grp Cap (vph)	859			2321	246	921
v/s Ratio Prot	c0.17			c0.16	0.03	c0.14
v/s Ratio Perm				0.17		0.07
v/c Ratio	0.69			0.43	0.21	0.36
Uniform Delay, d1	41.4			4.9	46.4	17.8
Progression Factor	1.00			0.28	1.00	1.00
Incremental Delay, d2	4.5			0.5	2.0	1.1
Delay (s)	45.9			1.8	48.3	18.9
Level of Service	D			A	D	B
Approach Delay (s/veh)	45.9			1.8	22.6	
Approach LOS	D			A	C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	19.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	634	38	1	643	30	35	2	3	54	0	220
Future Volume (vph)	124	634	38	1	643	30	35	2	3	54	0	220
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		6.0		18.0	18.0		6.0	6.0	6.0	6.0		6.0
Lane Util. Factor		0.95		1.00	0.95		1.00	1.00	1.00	1.00		1.00
Frpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	0.98	1.00		1.00
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	1.00	1.00		1.00
Frt		0.99		1.00	0.99		1.00	1.00	0.85	1.00		0.85
Flt Protected		0.99		0.95	1.00		0.95	1.00	1.00	0.95		1.00
Satd. Flow (prot)		3630		1841	3661		1900	2000	1673	1877		1683
Flt Permitted		0.64		0.33	1.00		0.95	1.00	1.00	0.76		1.00
Satd. Flow (perm)		2343		635	3661		1900	2000	1673	1493		1683
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.77	0.77	0.77	0.72	0.72	0.72
Adj. Flow (vph)	135	689	41	1	699	33	45	3	4	75	0	306
RTOR Reduction (vph)	0	3	0	0	3	0	0	0	3	0	0	168
Lane Group Flow (vph)	0	862	0	1	729	0	45	3	1	75	0	138
Confl. Peds. (#/hr)			2	2					1	1		
Confl. Bikes (#/hr)						1			1			
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	0%	0%	0%	1%	1%	1%
Turn Type	pm+pt	NA		Perm	NA		Split	NA	Perm	Perm		Over
Protected Phases	5	7			2		8	8				5
Permitted Phases	7			2					8	4		
Actuated Green, G (s)		92.0		33.0	33.0		16.0	16.0	16.0	16.0		41.0
Effective Green, g (s)		92.0		33.0	33.0		16.0	16.0	16.0	16.0		41.0
Actuated g/C Ratio		0.77		0.28	0.28		0.13	0.13	0.13	0.13		0.34
Clearance Time (s)		6.0		18.0	18.0		6.0	6.0	6.0	6.0		6.0
Lane Grp Cap (vph)		2236		174	1006		253	266	223	199		575
v/s Ratio Prot		c0.13			c0.20		0.02	0.00				0.08
v/s Ratio Perm		0.16		0.00					0.00	c0.05		
v/c Ratio		0.39		0.01	0.72		0.18	0.01	0.00	0.38		0.24
Uniform Delay, d1		4.6		31.6	39.4		46.2	45.1	45.1	47.5		28.3
Progression Factor		0.34		1.38	1.26		1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2		0.4		0.1	4.4		1.5	0.1	0.0	5.4		1.0
Delay (s)		2.0		43.6	54.0		47.7	45.2	45.1	52.8		29.3
Level of Service		A		D	D		D	D	D	D		C
Approach Delay (s/veh)		2.0			54.0			47.4			33.9	
Approach LOS		A			D			D			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	27.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	667	24	45	674	0	36
Future Vol, veh/h	667	24	45	674	0	36
Conflicting Peds, #/hr	0	2	2	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	500	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	90	90	79	79
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	702	25	50	749	0	46

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	729	0	-	366
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.16	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.23	-	-	3.33
Pot Cap-1 Maneuver	-	-	864	-	0	628
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	862	-	-	627
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.59	11.19
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	627	-	-	862	-
HCM Lane V/C Ratio	0.073	-	-	0.058	-
HCM Control Delay (s/veh)	11.2	-	-	9.4	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.2	-

Intersection	
Int Delay, s/veh	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	700	3	2	719	0	5
Future Vol, veh/h	700	3	2	719	0	5
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	500	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	90	90	60	60
Heavy Vehicles, %	3	3	3	3	40	40
Mvmt Flow	737	3	2	799	0	8

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	741	0	1143	371
Stage 1	-	-	-	-	739	-
Stage 2	-	-	-	-	404	-
Critical Hdwy	-	-	4.16	-	7.6	7.7
Critical Hdwy Stg 1	-	-	-	-	6.6	-
Critical Hdwy Stg 2	-	-	-	-	6.6	-
Follow-up Hdwy	-	-	2.23	-	3.9	3.7
Pot Cap-1 Maneuver	-	-	855	-	*211	529
Stage 1	-	-	-	-	*346	-
Stage 2	-	-	-	-	*785	-
Platoon blocked, %	-	-		-	0	
Mov Cap-1 Maneuver	-	-	854	-	*210	529
Mov Cap-2 Maneuver	-	-	-	-	*292	-
Stage 1	-	-	-	-	*346	-
Stage 2	-	-	-	-	*783	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.03	11.92
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	529	-	-	854	-
HCM Lane V/C Ratio	0.016	-	-	0.003	-
HCM Control Delay (s/veh)	11.9	-	-	9.2	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0	-	-	0	-

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	125	428	121	188	459	91	67	376	295	0	591	121
Future Volume (veh/h)	125	428	121	188	459	91	67	376	295	0	591	121
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1953	1953	1953	1953	1953	1953	1953	1953	1953	0	1969	1969
Adj Flow Rate, veh/h	133	455	129	198	483	96	79	442	347	0	664	136
Peak Hour Factor	0.94	0.94	0.94	0.95	0.95	0.95	0.85	0.85	0.85	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	0	2	2
Cap, veh/h	162	572	346	230	709	312	103	2098	1129	0	2063	417
Arrive On Green	0.17	0.31	0.31	0.12	0.19	0.19	0.06	0.57	0.57	0.00	0.46	0.46
Sat Flow, veh/h	1860	3711	1652	1860	3711	1631	1860	3711	1634	0	4660	906
Grp Volume(v), veh/h	133	455	129	198	483	96	79	442	347	0	529	271
Grp Sat Flow(s),veh/h/ln	1860	1856	1652	1860	1856	1631	1860	1856	1634	0	1792	1806
Q Serve(g_s), s	8.3	13.5	7.2	12.5	14.5	6.1	5.0	7.1	10.1	0.0	11.2	11.4
Cycle Q Clear(g_c), s	8.3	13.5	7.2	12.5	14.5	6.1	5.0	7.1	10.1	0.0	11.2	11.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	0.00		0.50
Lane Grp Cap(c), veh/h	162	572	346	230	709	312	103	2098	1129	0	1649	831
V/C Ratio(X)	0.82	0.80	0.37	0.86	0.68	0.31	0.77	0.21	0.31	0.00	0.32	0.33
Avail Cap(c_a), veh/h	319	977	526	319	977	429	279	2098	1129	0	1649	831
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	48.7	39.8	33.0	51.6	45.1	41.7	55.9	12.9	7.4	0.0	20.5	20.6
Incr Delay (d2), s/veh	11.4	2.5	0.6	16.6	1.2	0.6	11.4	0.2	0.7	0.0	0.5	1.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.0	5.4	2.7	6.8	6.7	2.5	2.7	2.9	3.4	0.0	4.7	5.0
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	60.1	42.3	33.6	68.2	46.3	42.3	67.3	13.1	8.1	0.0	21.0	21.6
LnGrp LOS	E	D	C	E	D	D	E	B	A		C	C
Approach Vol, veh/h		717			777			868			800	
Approach Delay, s/veh		44.0			51.4			16.0			21.2	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	73.8	16.8	29.3	12.6	61.2	21.3	24.9
Change Period (Y+Rc), s	6.0	6.4	6.4	6.0	6.0	6.4	6.4
Max Green Setting (Gmax), s	49.0	20.6	31.6	18.0	25.0	20.6	31.6
Max Q Clear Time (g_c+I1), s	12.1	10.3	16.5	7.0	13.4	14.5	15.5
Green Ext Time (p_c), s	4.5	0.3	2.9	0.1	3.9	0.3	3.0

Intersection Summary	
HCM 7th Control Delay, s/veh	32.4
HCM 7th LOS	C

Notes

User approved changes to right turn type.

Intersection	
Int Delay, s/veh	6.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	1	0	0	1	0	0	3	0	0	2	0
Future Vol, veh/h	0	1	0	0	1	0	0	3	0	0	2	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	60	60	60	60	60	60	60	60	60
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	2	0	0	2	0	0	5	0	0	3	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	2	0	0	2	0	0	5	3	2	6	3	2
Stage 1	-	-	-	-	-	-	2	2	-	2	2	-
Stage 2	-	-	-	-	-	-	3	2	-	4	2	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1634	-	-	1634	-	-	1021	896	1089	1020	896	1089
Stage 1	-	-	-	-	-	-	1027	899	-	1027	899	-
Stage 2	-	-	-	-	-	-	1024	899	-	1023	899	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1634	-	-	1634	-	-	1017	896	1089	1014	896	1089
Mov Cap-2 Maneuver	-	-	-	-	-	-	1017	896	-	1014	896	-
Stage 1	-	-	-	-	-	-	1027	899	-	1027	899	-
Stage 2	-	-	-	-	-	-	1021	899	-	1018	899	-

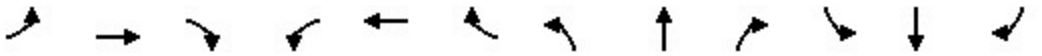
Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	0	9.04	9.03
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	896	1634	-	-	1634	-	-	896
HCM Lane V/C Ratio	0.006	-	-	-	-	-	-	0.004
HCM Control Delay (s/veh)	9	0	-	-	0	-	-	9
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0	0	-	-	0	-	-	0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	702	60	310	729	69	359
Future Volume (vph)	702	60	310	729	69	359
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000
Total Lost time (s)	18.0			6.0	6.0	6.0
Lane Util. Factor	0.95			0.95	1.00	1.00
Frpb, ped/bikes	1.00			1.00	1.00	1.00
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	0.99			1.00	1.00	0.85
Flt Protected	1.00			0.99	0.95	1.00
Satd. Flow (prot)	3711			3707	1900	1700
Flt Permitted	1.00			0.57	0.95	1.00
Satd. Flow (perm)	3711			2146	1900	1700
Peak-hour factor, PHF	0.94	0.94	0.95	0.95	0.93	0.93
Adj. Flow (vph)	747	64	326	767	74	386
RTOR Reduction (vph)	5	0	0	0	0	18
Lane Group Flow (vph)	806	0	0	1093	74	368
Confl. Peds. (#/hr)		1	1			
Confl. Bikes (#/hr)		1				
Heavy Vehicles (%)	1%	1%	1%	1%	0%	0%
Turn Type	NA		pm+pt	NA	Prot	pm+ov
Protected Phases	6		1	3	8	1
Permitted Phases			3			8
Actuated Green, G (s)	35.0			98.0	10.0	55.0
Effective Green, g (s)	35.0			98.0	10.0	55.0
Actuated g/C Ratio	0.29			0.82	0.08	0.46
Clearance Time (s)	18.0			6.0	6.0	6.0
Lane Grp Cap (vph)	1082			2337	158	864
v/s Ratio Prot	c0.22			c0.18	0.04	c0.16
v/s Ratio Perm				0.21		0.06
v/c Ratio	0.74			0.47	0.47	0.43
Uniform Delay, d1	38.5			3.3	52.5	21.9
Progression Factor	1.00			0.36	1.00	1.00
Incremental Delay, d2	4.7			0.4	9.6	1.5
Delay (s)	43.1			1.6	62.1	23.4
Level of Service	D			A	E	C
Approach Delay (s/veh)	43.1			1.6	29.6	
Approach LOS	D			A	C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	21.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	77.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	149	839	73	3	796	67	91	12	18	42	0	152
Future Volume (vph)	149	839	73	3	796	67	91	12	18	42	0	152
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		6.0		18.0	18.0		6.0	6.0	6.0	6.0		6.0
Lane Util. Factor		0.95		1.00	0.95		1.00	1.00	1.00	1.00		1.00
Frpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	0.97	1.00		1.00
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	1.00	0.99		1.00
Frt		0.99		1.00	0.99		1.00	1.00	0.85	1.00		0.85
Flt Protected		0.99		0.95	1.00		0.95	1.00	1.00	0.95		1.00
Satd. Flow (prot)		3689		1876	3711		1900	2000	1656	1873		1700
Flt Permitted		0.57		0.26	1.00		0.95	1.00	1.00	0.75		1.00
Satd. Flow (perm)		2103		504	3711		1900	2000	1656	1477		1700
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.91	0.91	0.91	0.87	0.87	0.87
Adj. Flow (vph)	157	883	77	3	838	71	100	13	20	48	0	175
RTOR Reduction (vph)	0	5	0	0	5	0	0	0	18	0	0	106
Lane Group Flow (vph)	0	1112	0	3	904	0	100	13	2	48	0	69
Confl. Peds. (#/hr)	2		4	4		2			4	4		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		Perm	NA		Split	NA	Perm	Perm		Over
Protected Phases	5	7			2		8	8				5
Permitted Phases	7			2					8	4		
Actuated Green, G (s)		98.0		33.0	33.0		10.0	10.0	10.0	10.0		47.0
Effective Green, g (s)		98.0		33.0	33.0		10.0	10.0	10.0	10.0		47.0
Actuated g/C Ratio		0.82		0.28	0.28		0.08	0.08	0.08	0.08		0.39
Clearance Time (s)		6.0		18.0	18.0		6.0	6.0	6.0	6.0		6.0
Lane Grp Cap (vph)		2338		138	1020		158	166	138	123		665
v/s Ratio Prot		c0.19			c0.24		c0.05	0.01				0.04
v/s Ratio Perm		0.20		0.01					0.00	0.03		
v/c Ratio		0.48		0.02	0.89		0.63	0.08	0.01	0.39		0.10
Uniform Delay, d1		3.3		31.7	41.7		53.2	50.7	50.5	52.1		23.1
Progression Factor		0.25		1.36	1.39		1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2		0.5		0.3	10.9		17.7	0.9	0.2	9.1		0.3
Delay (s)		1.4		43.3	68.7		71.0	51.7	50.6	61.2		23.4
Level of Service		A		D	E		E	D	D	E		C
Approach Delay (s/veh)		1.4			68.6			66.0			31.6	
Approach LOS		A			E			E			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	33.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	87.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	1.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	859	40	117	866	0	118
Future Vol, veh/h	859	40	117	866	0	118
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	500	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	92	92	85	85
Heavy Vehicles, %	1	1	1	1	0	0
Mvmt Flow	924	43	127	941	0	139

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	968	0	-	484
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.12	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.21	-	-	3.3
Pot Cap-1 Maneuver	-	-	714	-	0	534
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	713	-	-	533
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	1.33	14.11
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	533	-	-	713	-
HCM Lane V/C Ratio	0.26	-	-	0.178	-
HCM Control Delay (s/veh)	14.1	-	-	11.1	-
HCM Lane LOS	B	-	-	B	-
HCM 95th %tile Q(veh)	1	-	-	0.6	-

Intersection	
Int Delay, s/veh	0.1

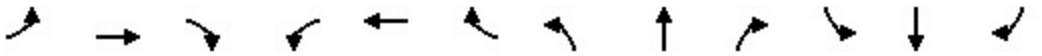
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	975	2	4	981	2	9
Future Vol, veh/h	975	2	4	981	2	9
Conflicting Peds, #/hr	0	0	0	0	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	500	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	88	88	69	69
Heavy Vehicles, %	1	1	1	1	9	9
Mvmt Flow	1060	2	5	1115	3	13

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1062	0	1628	531
Stage 1	-	-	-	-	1061	-
Stage 2	-	-	-	-	567	-
Critical Hdwy	-	-	4.12	-	6.98	7.08
Critical Hdwy Stg 1	-	-	-	-	5.98	-
Critical Hdwy Stg 2	-	-	-	-	5.98	-
Follow-up Hdwy	-	-	2.21	-	3.59	3.39
Pot Cap-1 Maneuver	-	-	658	-	*118	475
Stage 1	-	-	-	-	*279	-
Stage 2	-	-	-	-	*800	-
Platoon blocked, %	-	-		-	0	
Mov Cap-1 Maneuver	-	-	658	-	*117	475
Mov Cap-2 Maneuver	-	-	-	-	*226	-
Stage 1	-	-	-	-	*279	-
Stage 2	-	-	-	-	*794	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.04	14.48
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	396	-	-	658	-
HCM Lane V/C Ratio	0.04	-	-	0.007	-
HCM Control Delay (s/veh)	14.5	-	-	10.5	-
HCM Lane LOS	B	-	-	B	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	165	540	129	343	679	226	115	671	424	0	680	139
Future Volume (veh/h)	165	540	129	343	679	226	115	671	424	0	680	139
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1984	1984	1984	2000	2000	2000	1984	1984	1984	0	1984	1984
Adj Flow Rate, veh/h	185	621	148	365	722	240	128	746	471	0	723	148
Peak Hour Factor	0.89	0.87	0.87	0.94	0.94	0.94	0.90	0.90	0.90	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	1	0	0	0	1	1	1	0	1	1
Cap, veh/h	214	707	455	400	1080	481	158	1680	1101	0	1406	284
Arrive On Green	0.23	0.37	0.37	0.21	0.28	0.28	0.08	0.45	0.45	0.00	0.31	0.31
Sat Flow, veh/h	1890	3770	1679	1905	3800	1693	1890	3770	1678	0	4684	911
Grp Volume(v), veh/h	185	621	148	365	722	240	128	746	471	0	578	293
Grp Sat Flow(s),veh/h/ln	1890	1885	1679	1905	1900	1693	1890	1885	1678	0	1806	1805
Q Serve(g_s), s	11.3	18.4	7.2	22.5	20.1	14.2	8.0	16.4	16.1	0.0	15.7	16.0
Cycle Q Clear(g_c), s	11.3	18.4	7.2	22.5	20.1	14.2	8.0	16.4	16.1	0.0	15.7	16.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	0.00		0.50
Lane Grp Cap(c), veh/h	214	707	455	400	1080	481	158	1680	1101	0	1127	563
V/C Ratio(X)	0.86	0.88	0.33	0.91	0.67	0.50	0.81	0.44	0.43	0.00	0.51	0.52
Avail Cap(c_a), veh/h	324	804	499	486	1127	502	299	1680	1101	0	1127	563
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.96	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	45.5	36.2	26.5	46.3	37.9	35.8	54.0	23.0	9.9	0.0	33.8	33.9
Incr Delay (d2), s/veh	14.9	9.7	0.4	19.6	1.5	0.8	9.4	0.9	1.2	0.0	1.7	3.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	7.7	2.6	12.6	9.4	5.8	4.2	7.3	5.8	0.0	7.1	7.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	60.4	45.9	26.9	65.9	39.4	36.6	63.5	23.8	11.1	0.0	35.5	37.3
LnGrp LOS	E	D	C	E	D	D	E	C	B		D	D
Approach Vol, veh/h		954			1327			1345			871	
Approach Delay, s/veh		45.8			46.2			23.1			36.1	
Approach LOS		D			D			C			D	

Timer - Assigned Phs	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	59.5	20.0	40.5	16.0	43.4	31.6	28.9
Change Period (Y+Rc), s	6.0	6.4	6.4	6.0	6.0	6.4	6.4
Max Green Setting (Gmax), s	45.0	20.6	35.6	19.0	20.0	30.6	25.6
Max Q Clear Time (g_c+I1), s	18.4	13.3	22.1	10.0	18.0	24.5	20.4
Green Ext Time (p_c), s	7.6	0.3	4.6	0.2	1.1	0.8	2.1

Intersection Summary	
HCM 7th Control Delay, s/veh	37.3
HCM 7th LOS	D

Intersection	
Int Delay, s/veh	3.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	0	0	0	0	0	0	0	0	0	0
Future Vol, veh/h	1	0	0	0	0	0	0	0	0	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	60	60	60	60	60	60	60	60	60
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	2	0	0	0	0	0	0	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	2	0	0	0	0	0	5	5	0	5	5	2
Stage 1	-	-	-	-	-	-	3	3	-	2	2	-
Stage 2	-	-	-	-	-	-	2	2	-	3	3	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1634	-	-	-	-	-	1021	894	-	1021	894	1089
Stage 1	-	-	-	-	-	-	1024	897	-	1027	899	-
Stage 2	-	-	-	-	-	-	1027	899	-	1024	897	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1634	-	-	-	-	-	1020	893	-	1020	893	1089
Mov Cap-2 Maneuver	-	-	-	-	-	-	1020	893	-	1020	893	-
Stage 1	-	-	-	-	-	-	1023	896	-	1027	899	-
Stage 2	-	-	-	-	-	-	1027	899	-	1023	896	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	7.21	0	0	0
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1634	-	-	-	-	-	-
HCM Lane V/C Ratio	-	0.001	-	-	-	-	-	-
HCM Control Delay (s/veh)	0	7.2	0	-	0	-	-	0
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	-	0	-	-	-	-	-	-

Intersection: 1: S. Eton Street & Maple Road

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	TR	LT	T	L	R
Maximum Queue (ft)	302	302	121	41	91	150
Average Queue (ft)	193	183	57	11	26	62
95th Queue (ft)	270	262	105	39	71	116
Link Distance (ft)	1254	1254	93	93		432
Upstream Blk Time (%)			2			
Queuing Penalty (veh)			12			
Storage Bay Dist (ft)					275	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 2: N. Eton Street & Maple Road

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	LT	TR	L	T	TR	L	T	R	L	R
Maximum Queue (ft)	58	70	3	358	346	57	27	50	148	303
Average Queue (ft)	9	15	0	229	224	17	1	7	33	128
95th Queue (ft)	36	51	2	330	323	46	12	34	92	227
Link Distance (ft)	93	93		392	392	353				685
Upstream Blk Time (%)	0	0		0	0					
Queuing Penalty (veh)	0	0		0	0					
Storage Bay Dist (ft)			500				50	50	175	
Storage Blk Time (%)				0		1		0	0	4
Queuing Penalty (veh)				0		0		0	0	3

Intersection: 3: Whole Foods Drive & Maple Road

Movement	WB	NB
Directions Served	L	R
Maximum Queue (ft)	56	53
Average Queue (ft)	15	24
95th Queue (ft)	44	51
Link Distance (ft)		267
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	500	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 4: LA Fitness Drive & Maple Road

Movement	EB	EB	WB	NB
Directions Served	T	TR	L	LR
Maximum Queue (ft)	40	33	12	50
Average Queue (ft)	2	2	0	5
95th Queue (ft)	30	23	6	28
Link Distance (ft)	358	358		173
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			500	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Coolidge Highway & Maple Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	R	L	T	T	R	L	T	T	R
Maximum Queue (ft)	204	189	198	86	244	269	247	61	110	203	152	113
Average Queue (ft)	103	78	92	27	130	163	124	25	50	101	44	38
95th Queue (ft)	176	153	162	63	208	246	217	50	103	171	116	83
Link Distance (ft)		1229	1229			776	776			675	675	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	500			435	500			375	160			550
Storage Blk Time (%)										1		
Queuing Penalty (veh)										1		

Intersection: 5: Coolidge Highway & Maple Road

Movement	SB	SB	SB
Directions Served	T	T	TR
Maximum Queue (ft)	237	270	226
Average Queue (ft)	108	170	101
95th Queue (ft)	222	251	197
Link Distance (ft)		645	645
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	370		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: Site Drive & Maple Way Drive

Movement	NB	SB
Directions Served	LTR	LTR
Maximum Queue (ft)	30	24
Average Queue (ft)	2	1
95th Queue (ft)	16	11
Link Distance (ft)	100	125
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 16

Intersection: 1: S. Eton Street & Maple Road

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	TR	LT	T	L	R
Maximum Queue (ft)	330	359	119	66	115	191
Average Queue (ft)	229	247	63	20	38	94
95th Queue (ft)	306	336	107	51	88	164
Link Distance (ft)	1254	1254	93	93		432
Upstream Blk Time (%)			4	0		
Queuing Penalty (veh)			20	0		
Storage Bay Dist (ft)					275	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 2: N. Eton Street & Maple Road

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	LT	TR	L	T	TR	L	T	R	L	R
Maximum Queue (ft)	72	87	91	401	397	175	100	56	82	166
Average Queue (ft)	16	17	4	298	299	61	16	14	24	80
95th Queue (ft)	52	57	58	402	408	134	60	52	62	143
Link Distance (ft)	93	93		392	392	353				685
Upstream Blk Time (%)	0	0	0	1	2					
Queuing Penalty (veh)	0	0	0	6	7					
Storage Bay Dist (ft)			500				50	50	175	
Storage Blk Time (%)			0	1		21	2	1		0
Queuing Penalty (veh)			0	0		7	2	0		0

Intersection: 3: Whole Foods Drive & Maple Road

Movement	EB	WB	WB	WB	NB
Directions Served	TR	L	T	T	R
Maximum Queue (ft)	27	96	79	53	87
Average Queue (ft)	1	38	5	5	42
95th Queue (ft)	15	77	39	35	69
Link Distance (ft)	392		358	358	267
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		500			
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 4: LA Fitness Drive & Maple Road

Movement	EB	EB	WB	WB	WB	NB
Directions Served	T	TR	L	T	T	LR
Maximum Queue (ft)	21	6	24	16	16	38
Average Queue (ft)	1	0	2	1	1	10
95th Queue (ft)	12	4	15	9	9	33
Link Distance (ft)	358	358		167	167	173
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			500			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 5: Coolidge Highway & Maple Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	R	L	T	T	R	L	T	T	R
Maximum Queue (ft)	234	253	250	61	363	309	294	115	192	328	288	216
Average Queue (ft)	139	113	126	27	232	200	166	56	80	188	147	69
95th Queue (ft)	220	201	205	54	342	284	252	97	151	274	248	146
Link Distance (ft)		1229	1229			776	776			675	675	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	500			435	500			375	160			550
Storage Blk Time (%)									0	13		
Queuing Penalty (veh)									1	15		

Intersection: 5: Coolidge Highway & Maple Road

Movement	SB	SB	SB
Directions Served	T	T	TR
Maximum Queue (ft)	289	309	323
Average Queue (ft)	170	214	157
95th Queue (ft)	256	286	265
Link Distance (ft)		645	645
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	370		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: Site Drive & Maple Way Drive

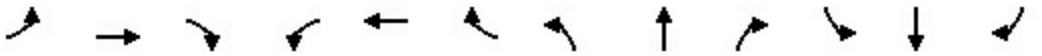
Movement
Directions Served
Maximum Queue (ft)
Average Queue (ft)
95th Queue (ft)
Link Distance (ft)
Upstream Blk Time (%)
Queuing Penalty (veh)
Storage Bay Dist (ft)
Storage Blk Time (%)
Queuing Penalty (veh)

Zone Summary

Zone wide Queuing Penalty: 59

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	482	62	274	644	46	320
Future Volume (vph)	482	62	274	644	46	320
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000
Total Lost time (s)	18.0			6.0	6.0	6.0
Lane Util. Factor	0.95			0.95	1.00	1.00
Frpb, ped/bikes	1.00			1.00	1.00	1.00
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	0.98			1.00	1.00	0.85
Flt Protected	1.00			0.99	0.95	1.00
Satd. Flow (prot)	3557			3671	1845	1650
Flt Permitted	1.00			0.64	0.95	1.00
Satd. Flow (perm)	3557			2402	1845	1650
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.88	0.88
Adj. Flow (vph)	536	69	304	716	52	364
RTOR Reduction (vph)	8	0	0	0	0	28
Lane Group Flow (vph)	597	0	0	1020	52	336
Confl. Peds. (#/hr)						
Heavy Vehicles (%)	5%	5%	2%	2%	3%	3%
Turn Type	NA		pm+pt	NA	Prot	pm+ov
Protected Phases	6		1	3	8	1
Permitted Phases			3			8
Actuated Green, G (s)	29.0			92.0	16.0	61.0
Effective Green, g (s)	29.0			92.0	16.0	61.0
Actuated g/C Ratio	0.24			0.77	0.13	0.51
Clearance Time (s)	18.0			6.0	6.0	6.0
Lane Grp Cap (vph)	859			2317	246	921
v/s Ratio Prot	c0.17			c0.17	0.03	c0.14
v/s Ratio Perm				0.17		0.07
v/c Ratio	0.69			0.44	0.21	0.37
Uniform Delay, d1	41.5			4.9	46.4	17.8
Progression Factor	1.00			0.32	1.00	1.00
Incremental Delay, d2	4.6			0.5	2.0	1.1
Delay (s)	46.1			2.0	48.3	18.9
Level of Service	D			A	D	B
Approach Delay (s/veh)	46.1			2.0	22.6	
Approach LOS	D			A	C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	19.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	68.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	124	637	41	1	653	32	45	3	3	55	0	220
Future Volume (vph)	124	637	41	1	653	32	45	3	3	55	0	220
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		6.0		18.0	18.0		6.0	6.0	6.0	6.0		6.0
Lane Util. Factor		0.95		1.00	0.95		1.00	1.00	1.00	1.00		1.00
Frpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	0.98	1.00		1.00
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	1.00	1.00		1.00
Frt		0.99		1.00	0.99		1.00	1.00	0.85	1.00		0.85
Flt Protected		0.99		0.95	1.00		0.95	1.00	1.00	0.95		1.00
Satd. Flow (prot)		3628		1841	3660		1900	2000	1673	1877		1683
Flt Permitted		0.64		0.33	1.00		0.95	1.00	1.00	0.76		1.00
Satd. Flow (perm)		2323		631	3660		1900	2000	1673	1492		1683
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.77	0.77	0.77	0.72	0.72	0.72
Adj. Flow (vph)	135	692	45	1	710	35	58	4	4	76	0	306
RTOR Reduction (vph)	0	3	0	0	3	0	0	0	3	0	0	149
Lane Group Flow (vph)	0	869	0	1	742	0	58	4	1	76	0	157
Confl. Peds. (#/hr)			2	2					1	1		
Confl. Bikes (#/hr)						1			1			
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	0%	0%	0%	1%	1%	1%
Turn Type	pm+pt	NA		Perm	NA		Split	NA	Perm	Perm		Over
Protected Phases	5	7			2		8	8				5
Permitted Phases	7			2					8	4		
Actuated Green, G (s)		92.0		33.0	33.0		16.0	16.0	16.0	16.0		41.0
Effective Green, g (s)		92.0		33.0	33.0		16.0	16.0	16.0	16.0		41.0
Actuated g/C Ratio		0.77		0.28	0.28		0.13	0.13	0.13	0.13		0.34
Clearance Time (s)		6.0		18.0	18.0		6.0	6.0	6.0	6.0		6.0
Lane Grp Cap (vph)		2226		173	1006		253	266	223	198		575
v/s Ratio Prot		c0.13			c0.20		0.03	0.00				0.09
v/s Ratio Perm		0.17		0.00					0.00	c0.05		
v/c Ratio		0.39		0.01	0.74		0.23	0.02	0.00	0.38		0.27
Uniform Delay, d1		4.7		31.6	39.6		46.5	45.2	45.1	47.5		28.7
Progression Factor		0.34		1.32	1.23		1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2		0.4		0.1	4.7		2.1	0.1	0.0	5.6		1.2
Delay (s)		2.0		41.6	53.4		48.6	45.3	45.1	53.0		29.9
Level of Service		A		D	D		D	D	D	D		C
Approach Delay (s/veh)		2.0			53.4			48.2			34.5	
Approach LOS		A			D			D			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	28.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	0.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	671	24	45	686	0	36
Future Vol, veh/h	671	24	45	686	0	36
Conflicting Peds, #/hr	0	2	2	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	500	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	90	90	79	79
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	706	25	50	762	0	46

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	734	0	-	368
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.16	-	-	6.96
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.23	-	-	3.33
Pot Cap-1 Maneuver	-	-	861	-	0	626
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	859	-	-	625
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.58	11.21
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	625	-	-	859	-
HCM Lane V/C Ratio	0.073	-	-	0.058	-
HCM Control Delay (s/veh)	11.2	-	-	9.4	-
HCM Lane LOS	B	-	-	A	-
HCM 95th %tile Q(veh)	0.2	-	-	0.2	-

Intersection	
Int Delay, s/veh	1

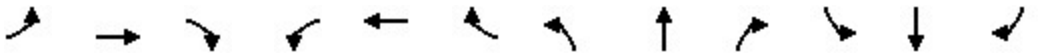
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	700	7	14	719	12	49
Future Vol, veh/h	700	7	14	719	12	49
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	500	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	95	95	90	90	60	60
Heavy Vehicles, %	3	3	3	3	40	40
Mvmt Flow	737	7	16	799	20	82

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	745	0	1172	373
Stage 1	-	-	-	-	742	-
Stage 2	-	-	-	-	431	-
Critical Hdwy	-	-	4.16	-	7.6	7.7
Critical Hdwy Stg 1	-	-	-	-	6.6	-
Critical Hdwy Stg 2	-	-	-	-	6.6	-
Follow-up Hdwy	-	-	2.23	-	3.9	3.7
Pot Cap-1 Maneuver	-	-	852	-	*199	527
Stage 1	-	-	-	-	*345	-
Stage 2	-	-	-	-	*785	-
Platoon blocked, %	-	-		-	0	
Mov Cap-1 Maneuver	-	-	851	-	*195	527
Mov Cap-2 Maneuver	-	-	-	-	*287	-
Stage 1	-	-	-	-	*345	-
Stage 2	-	-	-	-	*771	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.18	15.25
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	452	-	-	851	-
HCM Lane V/C Ratio	0.225	-	-	0.018	-
HCM Control Delay (s/veh)	15.3	-	-	9.3	-
HCM Lane LOS	C	-	-	A	-
HCM 95th %tile Q(veh)	0.9	-	-	0.1	-

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	137	442	139	188	463	91	72	376	295	0	591	124
Future Volume (veh/h)	137	442	139	188	463	91	72	376	295	0	591	124
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.99	1.00		0.99	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1953	1953	1953	1953	1953	1953	1953	1953	1953	0	1969	1969
Adj Flow Rate, veh/h	146	470	148	198	487	96	85	442	347	0	664	139
Peak Hour Factor	0.94	0.94	0.94	0.95	0.95	0.95	0.85	0.85	0.85	0.89	0.89	0.89
Percent Heavy Veh, %	3	3	3	3	3	3	3	3	3	0	2	2
Cap, veh/h	175	589	360	230	699	307	110	2081	1121	0	2017	417
Arrive On Green	0.19	0.32	0.32	0.12	0.19	0.19	0.06	0.56	0.56	0.00	0.45	0.45
Sat Flow, veh/h	1860	3711	1652	1860	3711	1631	1860	3711	1634	0	4642	922
Grp Volume(v), veh/h	146	470	148	198	487	96	85	442	347	0	531	272
Grp Sat Flow(s),veh/h/ln	1860	1856	1652	1860	1856	1631	1860	1856	1634	0	1792	1803
Q Serve(g_s), s	9.1	13.9	8.3	12.5	14.7	6.1	5.4	7.1	10.2	0.0	11.4	11.7
Cycle Q Clear(g_c), s	9.1	13.9	8.3	12.5	14.7	6.1	5.4	7.1	10.2	0.0	11.4	11.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	0.00		0.51
Lane Grp Cap(c), veh/h	175	589	360	230	699	307	110	2081	1121	0	1619	815
V/C Ratio(X)	0.83	0.80	0.41	0.86	0.70	0.31	0.77	0.21	0.31	0.00	0.33	0.33
Avail Cap(c_a), veh/h	319	977	533	319	977	429	279	2081	1121	0	1619	815
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.97	0.97	0.97	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	47.8	39.2	32.4	51.6	45.5	42.0	55.7	13.1	7.6	0.0	21.2	21.2
Incr Delay (d2), s/veh	11.4	2.5	0.7	16.6	1.3	0.6	11.0	0.2	0.7	0.0	0.5	1.1
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.4	5.5	3.0	6.8	6.8	2.5	2.9	3.0	3.5	0.0	4.9	5.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	59.2	41.7	33.2	68.2	46.8	42.6	66.6	13.4	8.3	0.0	21.7	22.3
LnGrp LOS	E	D	C	E	D	D	E	B	A		C	C
Approach Vol, veh/h		764			781			874			803	
Approach Delay, s/veh		43.4			51.7			16.5			21.9	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	73.3	17.7	29.0	13.1	60.2	21.3	25.4
Change Period (Y+Rc), s	6.0	6.4	6.4	6.0	6.0	6.4	6.4
Max Green Setting (Gmax), s	49.0	20.6	31.6	18.0	25.0	20.6	31.6
Max Q Clear Time (g_c+I1), s	12.2	11.1	16.7	7.4	13.7	14.5	15.9
Green Ext Time (p_c), s	4.5	0.3	2.9	0.1	3.9	0.3	3.1

Intersection Summary	
HCM 7th Control Delay, s/veh	32.8
HCM 7th LOS	C

Notes

User approved changes to right turn type.

Intersection	
Int Delay, s/veh	9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	1	3	0	1	0	11	59	0	0	18	0
Future Vol, veh/h	0	1	3	0	1	0	11	59	0	0	18	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	60	60	60	60	60	60	60	60	60
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	0	2	5	0	2	0	18	98	0	0	30	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	2	0	0	7	0	0	21	6	4	53	8	2
Stage 1	-	-	-	-	-	-	4	4	-	2	2	-
Stage 2	-	-	-	-	-	-	17	2	-	51	7	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1634	-	-	1627	-	-	997	893	1085	951	891	1089
Stage 1	-	-	-	-	-	-	1023	896	-	1027	899	-
Stage 2	-	-	-	-	-	-	1008	899	-	967	894	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1634	-	-	1627	-	-	964	893	1085	847	891	1089
Mov Cap-2 Maneuver	-	-	-	-	-	-	964	893	-	847	891	-
Stage 1	-	-	-	-	-	-	1023	896	-	1027	899	-
Stage 2	-	-	-	-	-	-	974	899	-	861	894	-

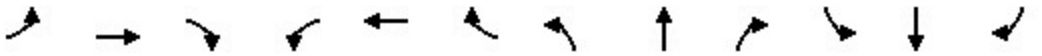
Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0	0	9.57	9.18
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	904	1634	-	-	1627	-	-	891
HCM Lane V/C Ratio	0.129	-	-	-	-	-	-	0.034
HCM Control Delay (s/veh)	9.6	0	-	-	0	-	-	9.2
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.4	0	-	-	0	-	-	0.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	711	60	313	735	69	364
Future Volume (vph)	711	60	313	735	69	364
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000
Total Lost time (s)	18.0			6.0	6.0	6.0
Lane Util. Factor	0.95			0.95	1.00	1.00
Frpb, ped/bikes	1.00			1.00	1.00	1.00
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	0.99			1.00	1.00	0.85
Flt Protected	1.00			0.99	0.95	1.00
Satd. Flow (prot)	3711			3707	1900	1700
Flt Permitted	1.00			0.57	0.95	1.00
Satd. Flow (perm)	3711			2135	1900	1700
Peak-hour factor, PHF	0.94	0.94	0.95	0.95	0.93	0.93
Adj. Flow (vph)	756	64	329	774	74	391
RTOR Reduction (vph)	5	0	0	0	0	18
Lane Group Flow (vph)	815	0	0	1103	74	373
Confl. Peds. (#/hr)		1	1			
Confl. Bikes (#/hr)		1				
Heavy Vehicles (%)	1%	1%	1%	1%	0%	0%
Turn Type	NA		pm+pt	NA	Prot	pm+ov
Protected Phases	6		1	3	8	1
Permitted Phases			3			8
Actuated Green, G (s)	35.0			98.0	10.0	55.0
Effective Green, g (s)	35.0			98.0	10.0	55.0
Actuated g/C Ratio	0.29			0.82	0.08	0.46
Clearance Time (s)	18.0			6.0	6.0	6.0
Lane Grp Cap (vph)	1082			2333	158	864
v/s Ratio Prot	c0.22			c0.18	0.04	c0.16
v/s Ratio Perm				0.21		0.06
v/c Ratio	0.75			0.47	0.47	0.43
Uniform Delay, d1	38.6			3.3	52.5	21.9
Progression Factor	1.00			0.37	1.00	1.00
Incremental Delay, d2	4.9			0.4	9.6	1.6
Delay (s)	43.4			1.6	62.1	23.5
Level of Service	D			A	E	C
Approach Delay (s/veh)	43.4			1.6	29.7	
Approach LOS	D			A	C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	21.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	77.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	149	846	80	3	801	68	95	13	18	44	0	152
Future Volume (vph)	149	846	80	3	801	68	95	13	18	44	0	152
Ideal Flow (vphpl)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
Total Lost time (s)		6.0		18.0	18.0		6.0	6.0	6.0	6.0		6.0
Lane Util. Factor		0.95		1.00	0.95		1.00	1.00	1.00	1.00		1.00
Frpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	0.97	1.00		1.00
Flpb, ped/bikes		1.00		1.00	1.00		1.00	1.00	1.00	0.99		1.00
Frt		0.99		1.00	0.99		1.00	1.00	0.85	1.00		0.85
Flt Protected		0.99		0.95	1.00		0.95	1.00	1.00	0.95		1.00
Satd. Flow (prot)		3686		1876	3710		1900	2000	1656	1873		1700
Flt Permitted		0.56		0.25	1.00		0.95	1.00	1.00	0.75		1.00
Satd. Flow (perm)		2096		496	3710		1900	2000	1656	1476		1700
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.91	0.91	0.91	0.87	0.87	0.87
Adj. Flow (vph)	157	891	84	3	843	72	104	14	20	51	0	175
RTOR Reduction (vph)	0	5	0	0	5	0	0	0	18	0	0	106
Lane Group Flow (vph)	0	1127	0	3	910	0	104	14	2	51	0	69
Confl. Peds. (#/hr)	2		4	4		2			4	4		
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA		Perm	NA		Split	NA	Perm	Perm		Over
Protected Phases	5	7			2		8	8				5
Permitted Phases	7			2					8	4		
Actuated Green, G (s)		98.0		33.0	33.0		10.0	10.0	10.0	10.0		47.0
Effective Green, g (s)		98.0		33.0	33.0		10.0	10.0	10.0	10.0		47.0
Actuated g/C Ratio		0.82		0.28	0.28		0.08	0.08	0.08	0.08		0.39
Clearance Time (s)		6.0		18.0	18.0		6.0	6.0	6.0	6.0		6.0
Lane Grp Cap (vph)		2334		136	1020		158	166	138	123		665
v/s Ratio Prot		c0.19			c0.25		c0.05	0.01				0.04
v/s Ratio Perm		0.21		0.01					0.00	0.03		
v/c Ratio		0.48		0.02	0.89		0.66	0.08	0.01	0.41		0.10
Uniform Delay, d1		3.3		31.7	41.8		53.3	50.8	50.5	52.2		23.1
Progression Factor		0.25		1.32	1.36		1.00	1.00	1.00	1.00		1.00
Incremental Delay, d2		0.5		0.3	11.3		19.5	1.0	0.2	10.0		0.3
Delay (s)		1.4		42.1	68.1		72.8	51.8	50.6	62.2		23.4
Level of Service		A		D	E		E	D	D	E		C
Approach Delay (s/veh)		1.4			68.0			67.5			32.2	
Approach LOS		A			E			E			C	

Intersection Summary			
HCM 2000 Control Delay (s/veh)	33.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	30.0
Intersection Capacity Utilization	88.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Int Delay, s/veh	1.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	868	40	117	872	0	118
Future Vol, veh/h	868	40	117	872	0	118
Conflicting Peds, #/hr	0	1	1	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	500	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	92	92	85	85
Heavy Vehicles, %	1	1	1	1	0	0
Mvmt Flow	933	43	127	948	0	139

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	977	0	-	489
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-
Critical Hdwy	-	-	4.12	-	-	6.9
Critical Hdwy Stg 1	-	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-	-
Follow-up Hdwy	-	-	2.21	-	-	3.3
Pot Cap-1 Maneuver	-	-	708	-	0	530
Stage 1	-	-	-	-	0	-
Stage 2	-	-	-	-	0	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	707	-	-	530
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	-	-	-	-	-	-
Stage 2	-	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	1.33	14.19
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	530	-	-	707	-
HCM Lane V/C Ratio	0.262	-	-	0.18	-
HCM Control Delay (s/veh)	14.2	-	-	11.2	-
HCM Lane LOS	B	-	-	B	-
HCM 95th %tile Q(veh)	1	-	-	0.7	-

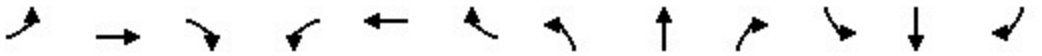
Intersection	
Int Delay, s/veh	0.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	975	11	44	981	8	34
Future Vol, veh/h	975	11	44	981	8	34
Conflicting Peds, #/hr	0	0	0	0	1	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	500	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	88	88	69	69
Heavy Vehicles, %	1	1	1	1	9	9
Mvmt Flow	1060	12	50	1115	12	49

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1072	0	1724	536
Stage 1	-	-	-	-	1066	-
Stage 2	-	-	-	-	658	-
Critical Hdwy	-	-	4.12	-	6.98	7.08
Critical Hdwy Stg 1	-	-	-	-	5.98	-
Critical Hdwy Stg 2	-	-	-	-	5.98	-
Follow-up Hdwy	-	-	2.21	-	3.59	3.39
Pot Cap-1 Maneuver	-	-	652	-	98	471
Stage 1	-	-	-	-	277	-
Stage 2	-	-	-	-	741	-
Platoon blocked, %	-	-		-	0	
Mov Cap-1 Maneuver	-	-	652	-	91	471
Mov Cap-2 Maneuver	-	-	-	-	212	-
Stage 1	-	-	-	-	277	-
Stage 2	-	-	-	-	684	-

Approach	EB	WB	NB
HCM Control Delay, s/v	0	0.47	16.19
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	382	-	-	652	-
HCM Lane V/C Ratio	0.159	-	-	0.077	-
HCM Control Delay (s/veh)	16.2	-	-	11	-
HCM Lane LOS	C	-	-	B	-
HCM 95th %tile Q(veh)	0.6	-	-	0.2	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	171	550	138	343	694	226	130	671	424	0	680	149
Future Volume (veh/h)	171	550	138	343	694	226	130	671	424	0	680	149
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Lane Width Adj.	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1984	1984	1984	2000	2000	2000	1984	1984	1984	0	1984	1984
Adj Flow Rate, veh/h	192	632	159	365	738	240	144	746	471	0	723	159
Peak Hour Factor	0.89	0.87	0.87	0.94	0.94	0.94	0.90	0.90	0.90	0.94	0.94	0.94
Percent Heavy Veh, %	1	1	1	0	0	0	1	1	1	0	1	1
Cap, veh/h	221	716	474	400	1075	479	175	1671	1097	0	1336	290
Arrive On Green	0.23	0.38	0.38	0.21	0.28	0.28	0.09	0.44	0.44	0.00	0.30	0.30
Sat Flow, veh/h	1890	3770	1679	1905	3800	1693	1890	3770	1678	0	4620	965
Grp Volume(v), veh/h	192	632	159	365	738	240	144	746	471	0	586	296
Grp Sat Flow(s),veh/h/ln	1890	1885	1679	1905	1900	1693	1890	1885	1678	0	1806	1795
Q Serve(g_s), s	11.7	18.8	7.7	22.5	20.7	14.2	9.0	16.5	16.2	0.0	16.3	16.6
Cycle Q Clear(g_c), s	11.7	18.8	7.7	22.5	20.7	14.2	9.0	16.5	16.2	0.0	16.3	16.6
Prop In Lane	1.00		1.00	1.00		1.00	1.00		1.00	0.00		0.54
Lane Grp Cap(c), veh/h	221	716	474	400	1075	479	175	1671	1097	0	1086	540
V/C Ratio(X)	0.87	0.88	0.34	0.91	0.69	0.50	0.82	0.45	0.43	0.00	0.54	0.55
Avail Cap(c_a), veh/h	324	804	514	486	1127	502	299	1671	1097	0	1086	540
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.96	0.96	0.96	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00
Uniform Delay (d), s/veh	45.1	36.0	25.8	46.3	38.3	35.9	53.5	23.2	10.0	0.0	35.0	35.1
Incr Delay (d2), s/veh	16.0	10.1	0.4	19.6	1.7	0.8	9.3	0.9	1.2	0.0	1.9	4.0
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.8	7.9	2.8	12.6	9.7	5.9	4.7	7.4	5.9	0.0	7.4	7.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	61.1	46.1	26.2	65.9	39.9	36.8	62.8	24.0	11.2	0.0	36.9	39.1
LnGrp LOS	E	D	C	E	D	D	E	C	B		D	D
Approach Vol, veh/h		983			1343			1361			882	
Approach Delay, s/veh		45.8			46.4			23.7			37.7	
Approach LOS		D			D			C			D	

Timer - Assigned Phs	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	59.2	20.4	40.4	17.1	42.1	31.6	29.2
Change Period (Y+Rc), s	6.0	6.4	6.4	6.0	6.0	6.4	6.4
Max Green Setting (Gmax), s	45.0	20.6	35.6	19.0	20.0	30.6	25.6
Max Q Clear Time (g_c+I1), s	18.5	13.7	22.7	11.0	18.6	24.5	20.8
Green Ext Time (p_c), s	7.6	0.4	4.6	0.2	0.8	0.8	2.0

Intersection Summary	
HCM 7th Control Delay, s/veh	37.8
HCM 7th LOS	D

Intersection	
Int Delay, s/veh	7.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	1	0	8	0	0	0	5	31	0	0	8	0
Future Vol, veh/h	1	0	8	0	0	0	5	31	0	0	8	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	60	60	60	60	60	60	60	60	60	60	60	60
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	2	0	13	0	0	0	8	52	0	0	13	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	2	0	0	13	0	0	18	12	7	31	18	2
Stage 1	-	-	-	-	-	-	10	10	-	2	2	-
Stage 2	-	-	-	-	-	-	8	2	-	29	17	-
Critical Hdwy	4.1	-	-	4.1	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.2	-	-	2.2	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1634	-	-	1618	-	-	1001	887	1082	982	880	1089
Stage 1	-	-	-	-	-	-	1016	891	-	1027	899	-
Stage 2	-	-	-	-	-	-	1018	899	-	993	886	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1634	-	-	1618	-	-	985	886	1082	924	879	1089
Mov Cap-2 Maneuver	-	-	-	-	-	-	985	886	-	924	879	-
Stage 1	-	-	-	-	-	-	1015	890	-	1027	899	-
Stage 2	-	-	-	-	-	-	1003	899	-	934	885	-

Approach	EB	WB	NB	SB
HCM Control Delay, s/v	0.8	0	9.29	9.16
HCM LOS			A	A

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	899	167	-	-	1618	-	-	879
HCM Lane V/C Ratio	0.067	0.001	-	-	-	-	-	0.015
HCM Control Delay (s/veh)	9.3	7.2	0	-	0	-	-	9.2
HCM Lane LOS	A	A	A	-	A	-	-	A
HCM 95th %tile Q(veh)	0.2	0	-	-	0	-	-	0

Intersection: 1: S. Eton Street & Maple Road

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	TR	LT	T	L	R
Maximum Queue (ft)	285	302	119	73	71	152
Average Queue (ft)	191	182	60	21	20	68
95th Queue (ft)	267	261	106	56	51	123
Link Distance (ft)	1254	1254	93	93		432
Upstream Blk Time (%)			3	0		
Queuing Penalty (veh)			12	0		
Storage Bay Dist (ft)					275	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 2: N. Eton Street & Maple Road

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB
Directions Served	LT	TR	T	TR	L	T	R	L	R
Maximum Queue (ft)	62	73	349	341	90	21	51	170	303
Average Queue (ft)	15	15	235	226	25	3	7	29	128
95th Queue (ft)	46	48	331	326	65	15	35	88	225
Link Distance (ft)	93	93	392	392	353				685
Upstream Blk Time (%)	0	0	0						
Queuing Penalty (veh)	0	0	0						
Storage Bay Dist (ft)						50	50	175	
Storage Blk Time (%)			0		5		0		4
Queuing Penalty (veh)			0		0		0		3

Intersection: 3: Whole Foods Drive & Maple Road

Movement	EB	WB	NB
Directions Served	TR	L	R
Maximum Queue (ft)	11	61	51
Average Queue (ft)	1	16	25
95th Queue (ft)	7	47	50
Link Distance (ft)	392		267
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		500	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 4: LA Fitness Drive & Maple Road

Movement	EB	EB	WB	NB
Directions Served	T	TR	L	LR
Maximum Queue (ft)	6	38	31	98
Average Queue (ft)	0	2	6	42
95th Queue (ft)	4	22	25	84
Link Distance (ft)	358	358		173
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)			500	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Coolidge Highway & Maple Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	R	L	T	T	R	L	T	T	R
Maximum Queue (ft)	222	182	168	78	228	260	239	66	112	188	167	146
Average Queue (ft)	119	87	95	29	135	166	133	29	50	98	49	45
95th Queue (ft)	190	156	159	62	221	241	217	55	98	165	127	107
Link Distance (ft)		1229	1229			776	776			675	675	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	500			435	500			375	160			550
Storage Blk Time (%)										1		
Queuing Penalty (veh)										1		

Intersection: 5: Coolidge Highway & Maple Road

Movement	SB	SB	SB
Directions Served	T	T	TR
Maximum Queue (ft)	240	273	220
Average Queue (ft)	114	173	105
95th Queue (ft)	226	250	193
Link Distance (ft)		645	645
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	370		
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 6: Site Drive & Maple Way Drive

Movement	NB	SB
Directions Served	LTR	LTR
Maximum Queue (ft)	56	50
Average Queue (ft)	29	16
95th Queue (ft)	52	42
Link Distance (ft)	100	125
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 17

Intersection: 1: S. Eton Street & Maple Road

Movement	EB	EB	WB	WB	NB	NB
Directions Served	T	TR	LT	T	L	R
Maximum Queue (ft)	331	366	114	64	123	184
Average Queue (ft)	234	248	62	16	35	95
95th Queue (ft)	312	342	108	47	84	169
Link Distance (ft)	1254	1254	93	93		432
Upstream Blk Time (%)			4	0		
Queuing Penalty (veh)			23	0		
Storage Bay Dist (ft)					275	
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 2: N. Eton Street & Maple Road

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB
Directions Served	LT	TR	L	T	TR	L	T	R	L	R
Maximum Queue (ft)	80	73	24	389	388	157	94	53	74	178
Average Queue (ft)	12	15	2	294	294	63	14	20	24	74
95th Queue (ft)	46	47	13	403	401	132	56	60	58	140
Link Distance (ft)	93	93		392	392	353				685
Upstream Blk Time (%)	0	0		4	4					
Queuing Penalty (veh)	0	0		15	15					
Storage Bay Dist (ft)			500				50	50	175	
Storage Blk Time (%)				4		25	2	0		0
Queuing Penalty (veh)				0		8	2	0		0

Intersection: 3: Whole Foods Drive & Maple Road

Movement	WB	WB	WB	NB
Directions Served	L	T	T	R
Maximum Queue (ft)	89	123	100	92
Average Queue (ft)	38	12	12	44
95th Queue (ft)	76	78	76	73
Link Distance (ft)		358	358	267
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)	500			
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 4: LA Fitness Drive & Maple Road

Movement	EB	WB	WB	NB
Directions Served	TR	L	T	LR
Maximum Queue (ft)	27	58	8	87
Average Queue (ft)	1	17	0	29
95th Queue (ft)	17	46	6	65
Link Distance (ft)	358		167	173
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		500		
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 5: Coolidge Highway & Maple Road

Movement	EB	EB	EB	EB	WB	WB	WB	WB	NB	NB	NB	NB
Directions Served	L	T	T	R	L	T	T	R	L	T	T	R
Maximum Queue (ft)	241	279	276	74	390	297	266	126	190	306	258	187
Average Queue (ft)	143	125	133	26	223	202	166	55	83	182	139	73
95th Queue (ft)	213	219	225	57	343	287	254	97	152	268	231	145
Link Distance (ft)		1229	1229			776	776			675	675	
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	500			435	500			375	160			550
Storage Blk Time (%)									1	12		
Queuing Penalty (veh)									3	16		

Intersection: 5: Coolidge Highway & Maple Road

Movement	SB	SB	SB
Directions Served	T	T	TR
Maximum Queue (ft)	275	313	305
Average Queue (ft)	170	221	167
95th Queue (ft)	254	299	263
Link Distance (ft)		645	645
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)	370		
Storage Blk Time (%)		0	
Queuing Penalty (veh)		0	

Intersection: 6: Site Drive & Maple Way Drive

Movement	NB	SB
Directions Served	LTR	LTR
Maximum Queue (ft)	46	30
Average Queue (ft)	20	7
95th Queue (ft)	46	27
Link Distance (ft)	100	125
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 83

memorandum

Date: May 1, 2025

To: Scott Finlay, PE

From: Stephen Dearing, PE, PTOE

Re: Proposed 1485 Maple Lane Residential Development
Site Plan and Traffic Impact Study Review

We have reviewed the site plan and traffic impact study for the proposed 1485 Maple Lane Residential development in Troy, Michigan. The site plan was prepared by PEA and is dated January 24, 2025. The TIS was prepared by Fleis & Vandenbrink and is dated March 5, 2025.

OHM's comments are as follows:

1. Traffic Impact Study: Is generally acceptable, but there is one typographical error that needs to be corrected:

    a. In Table 2 for the intersection of Maple Rd at N. Eaton Rd, the LOS in the PM peak for the NB Right turn is shown changing from 'E' to 'D' even though the average delay remains unchanged at 50.6 seconds. Checking the Synchro printouts, 50.6 seconds is correct for both existing and background conditions and LOS 'D' should be shown for both conditions.

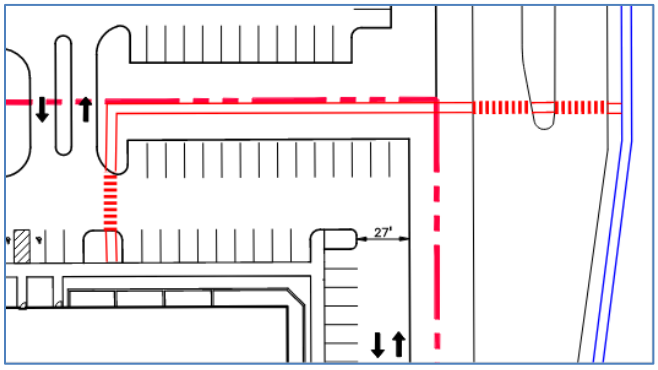
2. Site Plan: There are a few clarifications and changes being recommended:

    a. Clarify the operation of the gate arms (operated by fobs) to isolate the resident parking areas. The symbol used implies that the gate arms swing open. But if fully opened for emergencies, the gate to the west of the main entrance would block the ADA parking provided adjacent to the gate. The opening of the gate must not block any parking stalls, let alone ADA stalls.

    b. The existing pedestrian connection for LA Fitness to the sidewalk along Maple Rd is very poor in that it requires users to leave a protected walkway and move through the middle of vehicle circulation area of the parking lot. As residents of the proposed development rely on traveling through the LA Fitness property, need an ADA-compliant path provided all the way to Maple Rd. Easiest way to achieve this is having a new sidewalk connection to Maple Rd that uses the sidewalk that lines the head of the handicap parking stalls. This new walk would be about 65' west of the existing connection.

    c. Sidewalk exists along entire east side of Doyle Dr. It is desirable if can provide pedestrian facilities that tie into the sidewalk so residents can walk to nearby stores/ restaurants/ transit facilities. This will require discussions with the adjacent property owners to obtain permission to connect to their pedestrian facilities.

OHM Advisors
34000 PLYMOUTH ROAD
LIVONIA, MICHIGAN 48150
T 734.522.6711
F 734.522.6427
OHM-Advisors.com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