



10405 Merrill Road
P.O. Box 157
Hamburg, MI 48139
(810) 231-1000
www.hamburg.mi.us

PLANNING COMMISSION REGULAR MEETING

Wednesday, October 16, 2024 at 7:00 PM
Hamburg Township Hall Board Room

AGENDA

CALL TO ORDER

PLEDGE TO THE FLAG

APPROVAL OF THE AGENDA

APPROVAL OF MINUTES

1. Approval of the September 18, 2024 Planning Commission minutes.

CALL TO THE PUBLIC

OLD BUSINESS

2. Final Site Plan Review (PPAM24-001) The Crossing at Lakelands Trail

NEW BUSINESS

3. Consideration of the repeal of Zoning Ordinance Section 36-434. - Cottage housing planned unit development (CHPUD)
4. Proposed Amendments to (PZTA24-0004) Zoning Ordinance Article 3, **Sec. 36-482. Sign regulation enforcement.**

ZONING ADMINISTRATOR'S REPORT

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10405 Merrill Road
P.O. Box 157
Hamburg, MI 48139
(810) 231-1000
www.hamburg.mi.us

Supervisor Pat Hohl Clerk Mike Dolan Treasurer Jason Negri Trustees Bill Hahn, Patricia Hughes, Chuck Menzies, Cindy Michniewicz

PLANNING COMMISSION MEETING
Wednesday, September 18, 2024, at 7:00 PM
Hamburg Township Hall Board Room

MINUTES

CALL TO ORDER

Commissioner Muck called the meeting to order at 7:00 pm.

PLEDGE TO THE FLAG

ROLL CALL OF THE BOARD:

- 1) **PRESENT:**
John Hamlin
Patricia Hughes
Victor Leabu Jr
Deborah Mariani
Ron Muir
Jeff Muck, Chair
Joyce Priebe

2) **ABSENT:**

APPROVAL OF MEETING AGENDA for tonight.

Commissioner Hughes stated that she would like to add a discussion about our township having two cottage ordinances, moving forward. The Township Board has voted to approve our amendments to the elderly housing, but this leaves us with two cottage sections in our ordinance. Chair Muck said this line item would be added under New Business, a discussion on cottage housing ordinances.

Approval Motion made by Commissioner Hughes, seconded by Commissioner Hamlin, to approve the agenda as amended.

Vote: Ayes (7)

VOTE: MOTION CARRIED UNANIMOUSLY**APPROVAL OF THE MEETING MINUTES**

Approval Motion made by Commissioner Muir, seconded by Commissioner Mariani, to approve June 19, 2024, Planning Commission Meeting Minutes.

Vote: Ayes (7)

VOTE: MOTION CARRIED UNANIMOUSLY**CALL TO THE PUBLIC-**

1. Dustin Hitchings (10530 Hall Rd) talked about setbacks and screening. Mr. Hitchings stated that this apartment complex site plan shows only a 15 feet setback from his property line. He stated that due to the clear-cut woods that used to buffer his property from the abandoned school lot, he has been picking up a lot of debris near his yard due to unwanted foot traffic. He expressed his concern with the new complex's patrons access his lot in the future. He expressed his opinion that a cedar fence would be more welcomed to the single-family residential lots that border the apartment PUD, rather than a vinyl fence. He stated that a vinyl fence would age quicker than cedar. He mentioned John Hamlin's statements at the last PC meeting about needed screening. Next Mr. Hitchings was happy that the MDOT traffic study found a need for a specific left hand turn lane that will reduce mid-intersection traffic. Hitchings looked at the MDOT traffic counts accessing US 23 and M-36, sharing his concern that with these increases in people and vehicles in the township, it will take Hamburg residents longer to commute to and from work. He brought up some statements from Commissioner Leabu at past PC meetings. He continued to say that the PC is not enforcing their PUD ordinance for setbacks, buffers and density requirements. He said that the PC is not following its Village Center or Master Plan either.
2. McKenzie Johnson (10603 Livingston St) Wanted to speak on the master plan for the Lakeland Trails Apartments. She talked to the buffering and fencing being stipulated in the site plan. The new plans do not show a lot of fencing around the whole PUD community. On page 3 & 4 of the site plan mentions a white vinyl fence, even though the ordinance requires masonry and wood. It did not appear that the buffer between the PUD and the residents had increased any. We would like to see a 20-foot buffer rather than 15. The foot path between Lakeland Trail and the PUD has not been confirmed yet. The old sidewalk here is very small and always covered by parked vehicles for the Hamburg Pub patrons. Elder and young families will not be able to utilize the Lakeland Trail if this continues to happen. A two-way stop at a three-way intersection is difficult to design. Daily, at this intersection, there are numerous near miss accidents and illegal turns being attempted. The PUD complex only has 10 handicapped parking spaces out of 407 parking spaces in total. The Hamburg Township population consists of more seniors. This developer has not designed this community to meet most of our community's needs. Affordability has been touted as an important factor of why we need this type of development in our community. Can the Kroger workers who make \$12-14 per hour or even retirees on a fixed income afford to live in this community?

OLD BUSINESS

1. **Final Site Plan Review (PPAM 24-001) The Crossings at Lakeland Trail.**

Chair Muck opened the public hearing to the applicant's architect. He said that he would be willing to let David Rohr open this meeting with discussion of his staff report. This project dates to 2016 and 2017 and was reopened in June 2024. This PUD Development is proposing 208 apartment units on the former school site. David said that he has met with the developer about the buffer and the setbacks of this proposal. There has been some additional landscaping but not a lot has been changed. We need to discuss the lighting issues here. Victor had some issues with the lighting as proposed. David stated that more lighting would be needed for the courtyard which is too dark for a common area. The Lakeland Trail connection between the PUD parcel and accessing a neighboring lot would be a good topic as well. The public comments have brought up some good questions.

Chair Muck opened the discussion up to the commissioners. Commissioner Hughes asked the developer to walk the members around the perimeter of the PUD development, during his presentation to explain how much space would be for a buffer and what it would consist of. The developer said that they listened to all of the comments provided during the preliminary site plan review. As they met with their engineers and landscape architect, they felt that enclosing the three smaller buildings that are located to the northwest side of the PUD complex with fencing would be very restrictive on the aesthetics for the residents renting the apartments. He said that they did not imagine that the local single family residential lots would feel threatened by future residents not being corralled into their community. The thought process was to enclose this smaller lot with solid fencing would become obnoxious since no wildlife could access this parcel. They designed the larger structures with a solid fence to buffer the view. The ordinance mentions a fence is needed when neighboring lots are residential but in the Village Center, many of these lots are zoned as industrial.

The applicant asked Commissioner Hughes if he addressed her question about the fencing. She said she wanted to know how wide the buffer was, with and without the road area being counted. She asked David what the PC had agreed the buffer was supposed to be for this development. He said the buffer was supposed to be 20 feet for the landscaping but in some places, the road and the design features, there wasn't 20 feet of buffering in those areas. Commissioner Hughes said that when the PC had approved the preliminary site plan, with a second motion to amend the original motion, to ensure that there was 20 feet of buffering around the whole community despite the road. The developer said that they redesigned this complex so that there was a road and landscape buffering separating the apartment buildings from the surrounding single-family lots. They ensured that those surrounding lots viewed the smaller end of the buildings rather than the longer edge. He said that they did this to minimize the site impacts on the surrounding community. Commissioner Hughes said that she would really want to see a solid 20-foot landscape buffer for the surrounding existing residential homes. The applicant group showed with the projector that most of the 20 ft buffer existed around the community except where the three smaller buildings were being proposed.

Chair Muck shared with the group that they received an email communication from Kim Whitmore on Livingston St. The email subject was regarding the fencing, the access to the Lakeland Trail, and the surrounding buffer between the PUD development and the surrounding residential homes.

Commissioner Muir stated that at the last site plan meeting that the PC commissioners stated that they wanted the fence to be wood but the site plan before us today is vinyl. The developer said that his group discussed this vinyl fence option with the staff at the Township, and that the belief was that vinyl was

more superior product than wood. It requires less maintenance, and it lasts longer. The developer said that they would take care of the wood fence on the inside only and not on the outside, and the resident would see a deteriorated fence. Commissioner Muir said he felt that Mr. Hitchings is entitled to a wood fence around his whole property. The developer said if that is what the township decides it wants, then he would provide it to this homeowner.

Commissioner Hamlin reiterated what he said at past PC meetings, when he reads the ordinance, is that this is a permitted use. That the density maximum for the development is 10 dwelling units per acre, and that this development is not eligible to be a general planned unit development or to have a 35% density increase. In the enclave (smaller building area to the west of the development) does not show any landscaping between the development or the single-family home that exists here. Minimally Hamburg Township's buffer requirement is a six-foot-high masonry or wood fence wall, one canopy wall, one evergreen and one shrub every 30 feet. This is the minimum landscape requirement, and this should be 20 feet wide. A pine plantation on the site plan is shown on a residential homestead. People will walk their dogs and without a fence, this will become a problem down the road. The surrounding homeowners would be forced to put up a fence to keep apartment community people out of their yards. The developer said that many of these lots are zoned as industrial, so the developer is not required to put up a fence according to the Hamburg Township Ordinance. Commissioner Hamlin said that because these lots are being used as residential the PC would require them to put up a fence between the properties. Hamlin stated that if they went by the ordinance, this development would be limited to 154 units to his interpretation of the ordinance. Hamlin also told the developer that on the east side, the landscape plan only shows one deciduous tree every 45 feet. He said that he does not have any of the other landscaping ordinance requirements for this surrounding buffer. The email letter said that the fence stops and does not go around the whole community. Hamlin reiterated that the PC will require fencing and landscaping all the way around the development. He then went on to talk about the lighting onsite, which was brought up at the Township Board Meeting. Hamlin spoke on the photometric lighting plan and that the lights are not pointing downward facing. There is no information regarding the lighting on the buildings which will be important. Also, the pedestrian access to the Lakeland Trail was discussed at the preliminary site plan meeting but there is nothing shown on this site plan. The developer said that they are trying to work with the neighboring property owner about making a path, while sharing some utilities here. They want to link the two paved paths to connect them to one another. There have been no final agreements so the developer can't show that on the site plan yet. We are looking to build a combined, non-motorized pathway down to the west public road. According to the developer, the site has access to the public road right of way to the west.

Commissioner Leabu agreed that this wall needs to be a wood fence. He said that the vinyl fences and decks need to be power washed and if using irrigation without a water softener, the white vinyl will turn rusty colored due to hard water. Wood fencing panels can be replaced by panel over a 30-yr period. Vinyl requires a complete section to be removed for replacement. Village Center lighting requirements are on the Todd's Service site and the Baker Building and the Hamburg Township Fire Station. Area Architectural Lighting doesn't make these lights anymore. This site will need to have downward lighting fixtures. Leabu told the developer that he needs to pick one of these light fixtures, showing it in their design light plans for the PC to approve.

The developer showed his samples of the shingles, siding and door colors. They stipulated that GAF Timberline HDZ High-Definition Lifetime were the asphalt shingles that they were proposing to use on

the buildings. They were showing ProVia Manufactured Stone in Limestone Harbor for the entry signature. CertainTeed Mainstreet D4/D6 Sterling Gray Vinyl siding. And the entry doors are being painted Sea Serpent SW7615 Sherwin-Williams color. Commissioner Leabu asked if all the buildings in the community the same color will be. The developer said yes.

Commissioner Priebe stated that she agrees that the PC needs to require a 20-foot buffer around the whole community and a 6-foot-high fence with landscaping there. The access to the Lakeland Trail can't be guaranteed since they would have to go through a neighboring owner's parcel that you do not own. She agreed with the rest of the PC members that the lighting would need to meet the Village Center Regulations. Priebe felt that they should table this proposal until the developer had time to follow their recommendations and come forward with better plans before doing a final site plan review. Otherwise, the PC should make additional conditions to the final site plan.

Commissioner Mariani stated that she agreed with everything that Priebe said but she circled back to what David said earlier about the poor lighting in the parking lots. David did respond to Mariani clearly stating that the poor lighting conditions were documented in the courtyards and walking paths. The developer responded positively to his direction. Mariani continued to ask the developer if the rental rates for these units would be affordable and what would the range be estimated. The developer said that they expect that rents for a 1-bedroom unit would be about \$1200 to \$1500 per month. The 2-bedroom units would be \$1700 to \$1900 per month. The 3-bedroom units would be \$2000 to \$2200 per month. These figures will be based on the market in about 2 years from now. This would be based on an annual lease, with some short-term leases for corporate people. Mariani asked the developer if he would maintain the property, who said that they hire a very good (RPM Living) property management company to do the daily onsite maintenance work for them.

Chair Muck stated that he agreed regarding the wood fencing since it fits better with the rural wooded community surround this project. He continued to state that he supported the developer ensuring that Mr. Hitching's yard was completely fenced in from this community. Muck continued stating that he was disappointed that the access to Lakeland Trail was not yet attained since there would be an existing safety issue if people tried to the trails through the downtown Village. He has seen many cars parking on the sidewalks across from the Hamburg Pub. With this PUD, we definitely need a dedicated access route to the trails for the new community residents. He continued to state that he supported many of Commissioner Hamlin's comments regarding the landscaping plan that we need to require additional buffers and trees. We need additional lighting. One question that did not get address is the issue with handicapped parking and the calculations on that issue. The developer stated that the handicapped space allocation is based on the standards. The whole site, sidewalks, and the lower units are ADA accessible. The applicant said that their company prioritizes ADA accessibility. David said that he will review the percentage of ADA parking spots onsite.

Commissioner Leabu mentioned that the developer should include in their management strategy to ensure when a handicapped resident signs a lease for a unit in a building, their company should dedicate a few parking spots for their accessible parking near that unit and building for them. The developer agreed and said he doesn't want any attention for not providing ADA accessible spots. Muck said that he drives by the developer's South Lyon property multiple times per week, and he gets a good sense that the complex has a very welcoming and provides a good feel to the town. They are good looking buildings there.

Chair Muck brought the meeting back to the commissioners for a final say, asking if anything was missed or if additional clarification was needed on something. Commissioner Hughes brought up fencing and lighting being used to keep neighbors from getting car lights shining into their rooms. She supports having the wooden fence for such a purpose. She asked David if he reviewed the PUD site plan to ensure that the fence will block car headlights from the surrounding homeowner's view. Hughes continued stating that she learned a great deal about traffic

studies though the Chilson Commons project. She explained that MDOT approves a “D level or above” for a project. An “F level” project is failing and not acceptable. Chair Muck asked David if the Townhomes project north of this complex was moving to a four-way stop. David confirmed that it was. Muck stated that this four-way stop will impact this community’s traffic as well. The developer explained that their project’s traffic study contemplates this four-way stop as well. Hughes asked David how closely these projects would be completed in relation to one another. David stated that the Townhomes project was a two-phase project which could move the second phase to one to three years from now. Hughes asked David when the four-way stop would go in. He said it should be installed for phase one. The developer stated that they would have their first occupancy, in a perfect world with so many layers of agency approvals, we expect to be in early 2026.

Commissioner Muir pushed his comment that the developer appeared again before the Planning Commission without ensuring that a fence buffer completely surround this proposed complex, despite the PC and the Township Board requiring such a fencing buffer in their deliberations. The developer explained that he didn’t think that the PC would want to have that small area to be enclosed with a fence. The developer stated that they must have misunderstood their direction. Chair Muck requested that Muir and the developer end their discussion due to their conflicts. Muck said he is looking for some resolution to next steps from the PC commissioners. Commissioner Hamlin clarified that we need a lighting plan, some designated access to the Lakeland Trail, and we need a buffer and a wood fence. He continued to state that this project should be tabled until they can see this on the plans, as we are directing, and if this happens, then we can approve it. Chair Muck stated that is what Commissioner Priebe had stated in her earlier comments. Commissioner Hughes said that she would like to make the access to Lakeland Trail a condition for the future. The developer stated that he would love to get access to the Lakeland Trail through the neighboring owner, but we don’t have eminent domain power. He said that they have access to a public road, a block and a half from the trail. Chair Muck again clarified the Planning Commission’s recommendations for approval requirements needed for this development. He said they needed a 20 ft buffer and wood 6 ft tall fence around the project’s extensions and whole perimeter (a landscaping plan that meets our ordinance requirements), stipulate designated access to the Lakeland Trail even if that is through Washington, installation of fencing around 10350 Hall Rd, and the Village Center lighting plan with improved lighting of the courtyard and an image of the downward pointing, shielded light fixtures on the lighting plan. Commissioner Leabu stated that not all community lighting should be placed high up on buildings, but some should be installed lower on poles for the trails. Leabu stated that these devices and poles should be shown on the lighting plans. Also, they need to show that that the berms installed will not increase storm water movement onto neighboring parcels.

Approval Motion made by Commissioner Priebe, seconded by Commissioner Muir, to table this final site plan, to allow the applicant time to make said changes to his site plans as discussed at tonight’s meeting.

Roll Call Vote: Ayes (7)

VOTE: MOTION CARRIED UNANIMOUSLY

NEW BUSINESS

1. Discussion on Cottage Housing Ordinances-

Chair Muck welcomed Commissioner Hughes to begin. She stated that we have amended Section 36-429 Elderly Cottage Housing Opportunity. This is what we revised and what the Township Board has approved, which is now called Cottage Community Opportunities.

There is also Section 36- 434 Cottage Housing Planned Unit Development (CHPUD) which has not been tweaked or eliminated. She wanted to bring it to the PC since there shouldn't be two different ordinances for cottage housing. Hughes recommended that the PC walk through the ordinance language and see if they needed to eliminate this section. Do we want to put this later section through the process of elimination? Hughes also said there were some items in the later section that she wished the PC would have included in the earlier amended cottage housing section. We could put this on an agenda, and have David send us a printed version of this amended ordinance. Chair Muck asked David if there was a mechanism to eliminate that section when they amended the earlier section.

Commissioner Hamlin stated that when Commissioner Muir and David had met to talk through the proposed changes to the Cottage Housing ordinance, they found that the later portion was not functional, and they were planning on abandoning it. David said that we would have to go through a process to eliminate that later section just like they did when they amended the earlier section. This would need a recommendation from the planning commission, approval from Livingston County Planning Commission, and Hamburg Township Board. David said he can put this on the agenda for the October 2024 PC Meeting as a hearing for this ordinance change.

Chair Muck invited David to give his Zoning Administrator's report. David reminded the PC members that it is towards the end of the year and that 2025 is next year and it has been five years since we reviewed our master plan. David said it is up to the board whether they want to start it this year or wait till next year. Muck said that he felt it would be best to wait until 2025 after the holidays to kick that off. David said he could create a work plan to help the PC members be more efficient.

ADJOURNMENT

Approval motion to adjourn at 8:11 pm made by Commissioner Muir and seconded by Commissioner Mariani.

Roll Call Vote: Ayes (7)

VOTE: MOTION CARRIED UNANIMOUSLY

Respectfully submitted,

Lisa Perschke

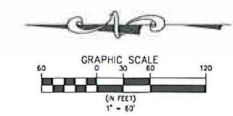
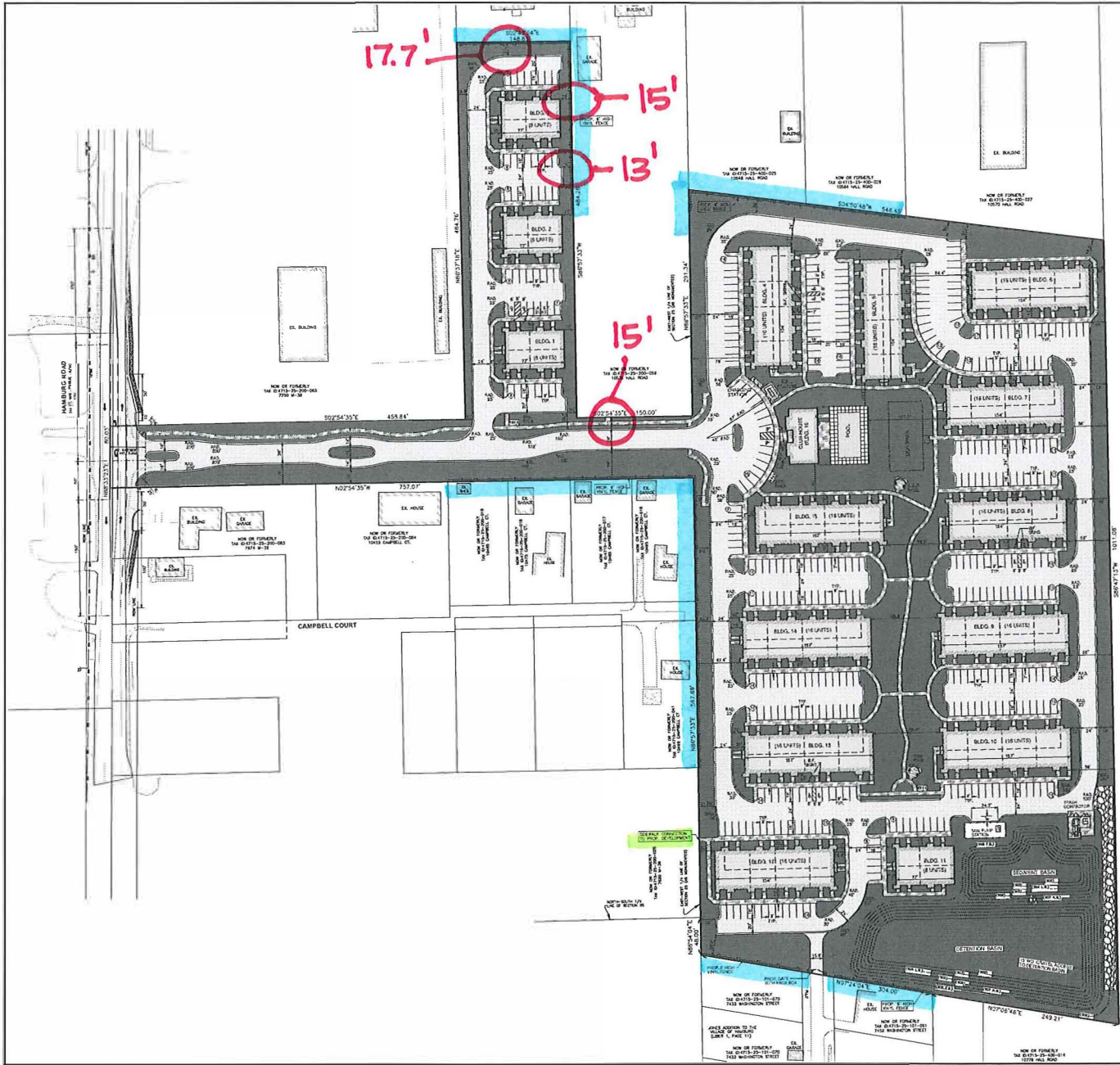
Planning/Zoning Coordinator & Recording Secretary

David Rohr

Planning & Zoning Director

The minutes were approved as presented/corrected: _____

Commissioner Jeff Muck, Chairperson



BUILDING TIME	1 BR	2 BR	3 BR	TOTAL UNITS PER BLDG	TOTAL BLDG TIME	12% ALL BLDGS
17' VD	4	4	0	8	12	4
15' VD	10	4	2	16	9	14
13' VD	6	8	2	16	5	30
1 BR UNITS	100	61%			15	30
2 BR UNITS	66	36%				
3 BR UNITS	22	11%				
	26	33%				

SITE DATA
 EXISTING ZONING: GENERAL PLANNED UNIT DEVELOPMENT (GPUD)
 SITE AREA = 15.478 ACRES
 MAX DWELLING UNITS PER ACRE (VD) 10 DU/ACRE
 NO. OF BUILDING ON SITE: 16
 NO. OF UNITS PROPOSED: 208
 DWELLING UNITS PER ACRE: 13.44 DU/ACRE (AMND TO PUD AGREEMENT)

BUILDING SETBACKS	REQUIRED	PREVIOUSLY APPROVED	PROPOSED
FRONT (FROM PAVEMENT) SIDE:	27'	15'	N/A
REAR TO PROPERTY LINE	10'	15'	20' MIN
BUILDING TO BUILDING	25'	30'	20' MIN
BUILDING FRONT TO SIDE	35'	N/A	N/A
BUILDING SIDE TO SIDE	N/A	25'	N/A
MINIMUM BUILDING HEIGHT:	35'	35'	35'
MINIMUM BUILDING STORES:	2.5 STORES	2 STORES	2 STORES
MINIMUM FLOOR AREA:			
1 BEDROOM	550 S.F.	875 S.F.	815 S.F.
2 BEDROOMS	650 S.F.	1,000 S.F.	1,100 S.F.
3 BEDROOMS	N/A	N/A	1,435 S.F.
BUILDING COVERAGE:	50% MAX.	15%	15.8%
IMPERVIOUS AREA CALCULATOR:	N/A	32%	37.65%
OPEN SPACE PROVIDED:			
1,000 S.F./UNIT=1,000 X 208	44%	37%	42.56%
312,000 S.F. (7.19 AC)			
OPEN SPACE PROVIDED:		8.03 AC.	6.41 AC.
PARKING PROVIDED: (1.5 SPACES/UNIT)			
409 SPACES (INCLUDING TO B.F. SPACES)			
(1,956 SPACES/UNIT)			

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3 WORKING DAYS BEFORE YOU DIG
 1-800-482-7171
 www.811.com

CLIENT INFO:
 THE CROSSING AT LAKELANDS TRAIL THE CROSSING 128 N. CENTER STREET NORTHVILLE, MI 48167
 248.344.1885

PROJECT NAME: THE CROSSING AT LAKELANDS TRAIL THE CROSSING 128 N. CENTER STREET NORTHVILLE, MI 48167

SHEET TITLE: OVERALL PLAN AND OPEN SPACE PLAN

DATE: 08/27/24

SCALE: 1" = 60'

PROJECT NUMBER: 24-033

DRAWN BY: [Name]

CHECKED BY: [Name]

DATE: 08/27/24

PROJECT NO.: 24-033

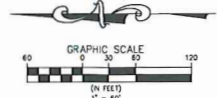
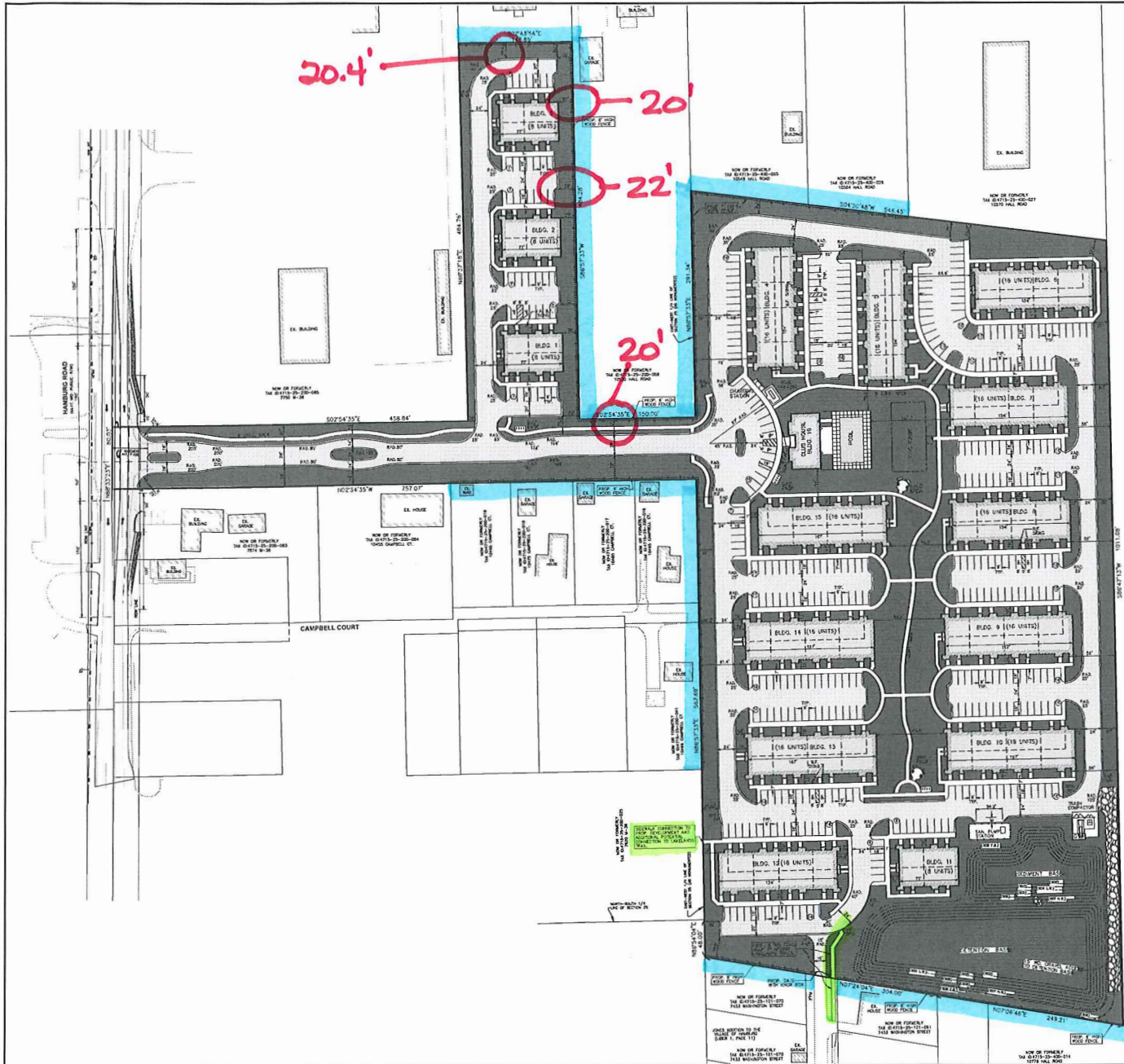
DATE: 08/27/24

PAGE NO.: 3

SEE LANDSCAPE PLANS FOR SCREENING WALL DETAILS

PROPOSED LEGEND

[Symbol]	SANITARY SEWER
[Symbol]	SEWER MAIN
[Symbol]	STORM SEWER
[Symbol]	STORM MAIN
[Symbol]	TREE PROTECTION FENCE
[Symbol]	SOFT FENCE
[Symbol]	WOODPOST
[Symbol]	METALAS
[Symbol]	CONDUIT
[Symbol]	SOLE AND GUTTER
[Symbol]	SANITARY MANHOLE
[Symbol]	SANITARY CLEANOUT
[Symbol]	STORM MANHOLE
[Symbol]	ROAD CATCH BASIN
[Symbol]	ROAD CATCH BASIN W/RT SAC
[Symbol]	END SECTION
[Symbol]	FIRE HYDRANT
[Symbol]	EASE VALUE AND WELL
[Symbol]	PARKING (APRVAL)
[Symbol]	PAVEMENT (CONCRETE SIDEWALK)
[Symbol]	DIRECTION OF FLOW WATER FLOW OVERFLOW RATE
[Symbol]	GRADE



BUILDING TYPE	TOTAL UNITS PER BLDG TYPE				TOTAL BLDG TYPE
	1BR	2BR	3BR	4BR	
77 UNITS	4	4	2	8	12
154 UNITS	15	4	2	15	24
107 UNITS	6	5	2	15	58
18 UNITS	106	314			25
3 UNITS	50	304			
3 UNITS	22	115			
	206	1004			

SITE DATA
 EXISTING ZONING: GENERAL PLANNED UNIT DEVELOPMENT (GPUD)
 SITE AREA = 15.478 ACRES
 MAX. DENSITIES UNITS PER ACRE (VU) 120/ACRE
 NO. OF BUILDINGS ON SITE: 16
 NO. OF UNITS PROPOSED: 208
 DWELLING UNITS PER ACRE: 13.44 DU/ACRE (AMSD TO PUD AGREEMENT)

BUILDING SUBTRACTS	REQUIRED	PREVIOUSLY APPROVED	PROPOSED
FRONT YIELD (FRONT YIELD)	20'	15'	N/A
REAR: TO PROPERTY LINE	10'	15'	20' MIN.
BUILDING TO BUILDING	25'	35'	20' MIN.
BUILDING FRONT TO SIDE:	35'	N/A	N/A
BUILDING SIDE TO SIDE:	N/A	25'	N/A
BUILDING SIDE TO SIDE:	N/A	15'	N/A
MAXIMUM BUILDING HEIGHT:	35'	35'	35'
MAXIMUM BUILDING STOREYS:	2.5 STOREYS	2 STOREYS	2 STOREYS
MINIMUM FLOOR AREA:	550 S.F.	875 S.F.	815 S.F.
1 BEDROOM	450 S.F.	1,100 S.F.	1,100 S.F.
2 BEDROOMS	N/A	N/A	1,455 S.F.
3 BEDROOMS	N/A	N/A	N/A
BUILDING COVERAGE:	50% MAX.	15%	15.5%
IMPERVIOUS AREA CALCULATION:	N/A	32%	37.55%
OPEN SPACE REQUIRED:	1,500 S.F./ UNIT=1,500 + 208	44%	37%
312,000 S.F. (7.16 AC)			42.56%
OPEN SPACE PROVIDED:		6.03 AC.	6.41 AC.
PARKING REQUIRED: (1.3 SPACES/UNIT)			
15 + 208 = 312 SPACES			
PARKING PROVIDED: 403 SPACES (INCLUDING TO R.F. SPACES)			
(1,955 SPACES/UNIT)			

	PREVIOUSLY APPROVED PLANS	CURRENT PLANS
SITE AREA	16.1 AC	15.478 AC
NO. OF BUILDING ON SITE:	23	16
NO. OF UNITS PROPOSED:	208	208
DWELLING UNITS PER ACRE:	12.91 DU/ACRE	13.44 DU/ACRE
BUILDING COVERAGE:	15%	15.5%
PAVED SURFACE PARKING AND ROADS INFRASTRUCTURE:	32%	35.4%
OPEN SPACE:	37%	41.41%
PARKING PROVIDED:	403 SPACES (1,952 SPACES/UNIT)	403 SPACES (1,937 SPACES/UNIT)



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CLIENT INFO:
 ELEVATE LAND HOLDINGS - THE CROSSING AT LAKELANDS TRAIL, 128 N. CENTER STREET NORTHVILLE, MI 48167
 248.344.1885

PROJECT NAME:
 THE CROSSING AT LAKELANDS TRAIL
 OVERALL PLAN AND OPNRR SPACE PLAN

DATE:
 10-22-24
 10-22-24
 10-22-24

REVISIONS:

PROJECT NUMBER:
 248-344-1885

PREPARED BY:
 PROJECT MANAGER: [Name]
 DRAWN BY: [Name]
 CHECKED BY: [Name]
 DATE: 10/22/24
 PROJECT NUMBER: 248-344-1885

3 WORKING DAYS BEFORE YOU DIG CALL MISS DIG

811

SEE LANDSCAPE PLANS FOR SCREENING WALL DETAILS

PAGE No. 3

OCTOBER 1/4

Item 2.



Seal:



Title:
Landscape Plan

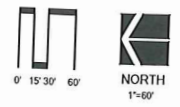
Project:
Lakeland Trails
Hamburg Township, Michigan

Prepared for:
Elevate Property Partners, LLC
128 North Center
Northville, Michigan 48167

Revision: Issued:
Review April 11, 2024
Revised April 22, 2024
Revised August 16, 2024
Revised September 25, 2024

Job Number:
24-019

Drawn By: Checked By:
JDR JDR



Sheet No.



Landscape Summary - This Sheet

Existing Zoning	GPUD
Greenbelt	
Street Frontage	80 LI.
Trees Required	2 Trees (80 / 40)
Trees Provided	6 Trees
Shrubs Required	8 Shrubs (80 / 40) x 4
Shrubs Provided	25 Shrubs
Land Use Buffers	
Buffer Length West and North	1,300 LI. (Type C)
Trees Required	65 Trees (1,300 / 20)
Trees Provided	65 Trees (7 Existing)
Shrubs Required	260 Shrubs (1,300 / 20) x 4
Shrubs Provided	260 Shrubs
Buffer Length West and East	1,078 LI. (Type B)
Canopy Trees Required	35.9 Trees (1,078 / 30)
Canopy Trees Provided	36 Trees
Evergreen Trees Required	35.9 Trees (1,078 / 30)
Evergreen Trees Provided	62 Trees (36 Existing)
Shrubs Required	143.7 Shrubs (1,078 / 30) x 4
Shrubs Provided	144 Shrubs
Parking Lot Landscaping	
Parking Lot Area	
Trees Required	5.8 Trees (11,654 / 2,000)
Trees Provided	6 Trees

Plant List - This Sheet

Qty	SP	Botanical Name	Common Name	Exposure	Height	Width	Notes
650	27	Thuja occidentalis	Green Tree		12'	12'	
200	3	Juniperus horizontalis	Groundcover		4"	4"	
100	9	Thuja occidentalis	Green Tree		12'	12'	
100	8	Thuja occidentalis	Green Tree		12'	12'	
100	13	Rosa rugosa	Shrub		20'	20'	
25	3	Thuja occidentalis	Green Tree		12'	12'	
100	25	Thuja occidentalis	Green Tree		12'	12'	
100	26	Thuja occidentalis	Green Tree		12'	12'	
100	27	Thuja occidentalis	Green Tree		12'	12'	
100	28	Thuja occidentalis	Green Tree		12'	12'	
100	29	Thuja occidentalis	Green Tree		12'	12'	
100	30	Thuja occidentalis	Green Tree		12'	12'	
100	31	Thuja occidentalis	Green Tree		12'	12'	
100	32	Thuja occidentalis	Green Tree		12'	12'	
100	33	Thuja occidentalis	Green Tree		12'	12'	
100	34	Thuja occidentalis	Green Tree		12'	12'	
100	35	Thuja occidentalis	Green Tree		12'	12'	
100	36	Thuja occidentalis	Green Tree		12'	12'	
100	37	Thuja occidentalis	Green Tree		12'	12'	
100	38	Thuja occidentalis	Green Tree		12'	12'	
100	39	Thuja occidentalis	Green Tree		12'	12'	
100	40	Thuja occidentalis	Green Tree		12'	12'	
100	41	Thuja occidentalis	Green Tree		12'	12'	
100	42	Thuja occidentalis	Green Tree		12'	12'	
100	43	Thuja occidentalis	Green Tree		12'	12'	
100	44	Thuja occidentalis	Green Tree		12'	12'	
100	45	Thuja occidentalis	Green Tree		12'	12'	
100	46	Thuja occidentalis	Green Tree		12'	12'	
100	47	Thuja occidentalis	Green Tree		12'	12'	
100	48	Thuja occidentalis	Green Tree		12'	12'	
100	49	Thuja occidentalis	Green Tree		12'	12'	
100	50	Thuja occidentalis	Green Tree		12'	12'	
100	51	Thuja occidentalis	Green Tree		12'	12'	
100	52	Thuja occidentalis	Green Tree		12'	12'	
100	53	Thuja occidentalis	Green Tree		12'	12'	
100	54	Thuja occidentalis	Green Tree		12'	12'	
100	55	Thuja occidentalis	Green Tree		12'	12'	
100	56	Thuja occidentalis	Green Tree		12'	12'	
100	57	Thuja occidentalis	Green Tree		12'	12'	
100	58	Thuja occidentalis	Green Tree		12'	12'	
100	59	Thuja occidentalis	Green Tree		12'	12'	
100	60	Thuja occidentalis	Green Tree		12'	12'	
100	61	Thuja occidentalis	Green Tree		12'	12'	
100	62	Thuja occidentalis	Green Tree		12'	12'	
100	63	Thuja occidentalis	Green Tree		12'	12'	
100	64	Thuja occidentalis	Green Tree		12'	12'	
100	65	Thuja occidentalis	Green Tree		12'	12'	
100	66	Thuja occidentalis	Green Tree		12'	12'	
100	67	Thuja occidentalis	Green Tree		12'	12'	
100	68	Thuja occidentalis	Green Tree		12'	12'	
100	69	Thuja occidentalis	Green Tree		12'	12'	
100	70	Thuja occidentalis	Green Tree		12'	12'	
100	71	Thuja occidentalis	Green Tree		12'	12'	
100	72	Thuja occidentalis	Green Tree		12'	12'	
100	73	Thuja occidentalis	Green Tree		12'	12'	
100	74	Thuja occidentalis	Green Tree		12'	12'	
100	75	Thuja occidentalis	Green Tree		12'	12'	
100	76	Thuja occidentalis	Green Tree		12'	12'	
100	77	Thuja occidentalis	Green Tree		12'	12'	
100	78	Thuja occidentalis	Green Tree		12'	12'	
100	79	Thuja occidentalis	Green Tree		12'	12'	
100	80	Thuja occidentalis	Green Tree		12'	12'	
100	81	Thuja occidentalis	Green Tree		12'	12'	
100	82	Thuja occidentalis	Green Tree		12'	12'	
100	83	Thuja occidentalis	Green Tree		12'	12'	
100	84	Thuja occidentalis	Green Tree		12'	12'	
100	85	Thuja occidentalis	Green Tree		12'	12'	
100	86	Thuja occidentalis	Green Tree		12'	12'	
100	87	Thuja occidentalis	Green Tree		12'	12'	
100	88	Thuja occidentalis	Green Tree		12'	12'	
100	89	Thuja occidentalis	Green Tree		12'	12'	
100	90	Thuja occidentalis	Green Tree		12'	12'	
100	91	Thuja occidentalis	Green Tree		12'	12'	
100	92	Thuja occidentalis	Green Tree		12'	12'	
100	93	Thuja occidentalis	Green Tree		12'	12'	
100	94	Thuja occidentalis	Green Tree		12'	12'	
100	95	Thuja occidentalis	Green Tree		12'	12'	
100	96	Thuja occidentalis	Green Tree		12'	12'	
100	97	Thuja occidentalis	Green Tree		12'	12'	
100	98	Thuja occidentalis	Green Tree		12'	12'	
100	99	Thuja occidentalis	Green Tree		12'	12'	
100	100	Thuja occidentalis	Green Tree		12'	12'	

OCTOBER 2/4

Item 2.



Seal:



Title:
Landscape Plan

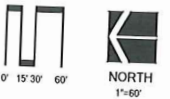
Project:
**Lakeland Trails
Hamburg Township, Michigan**

Prepared for:
**128 North Center
Northville, Michigan 48167**

Revision: Issued:
 Revised April 11, 2024
 Revised April 22, 2024
 Revised August 16, 2024
 Revised September 25, 2024

Job Number:
24-019

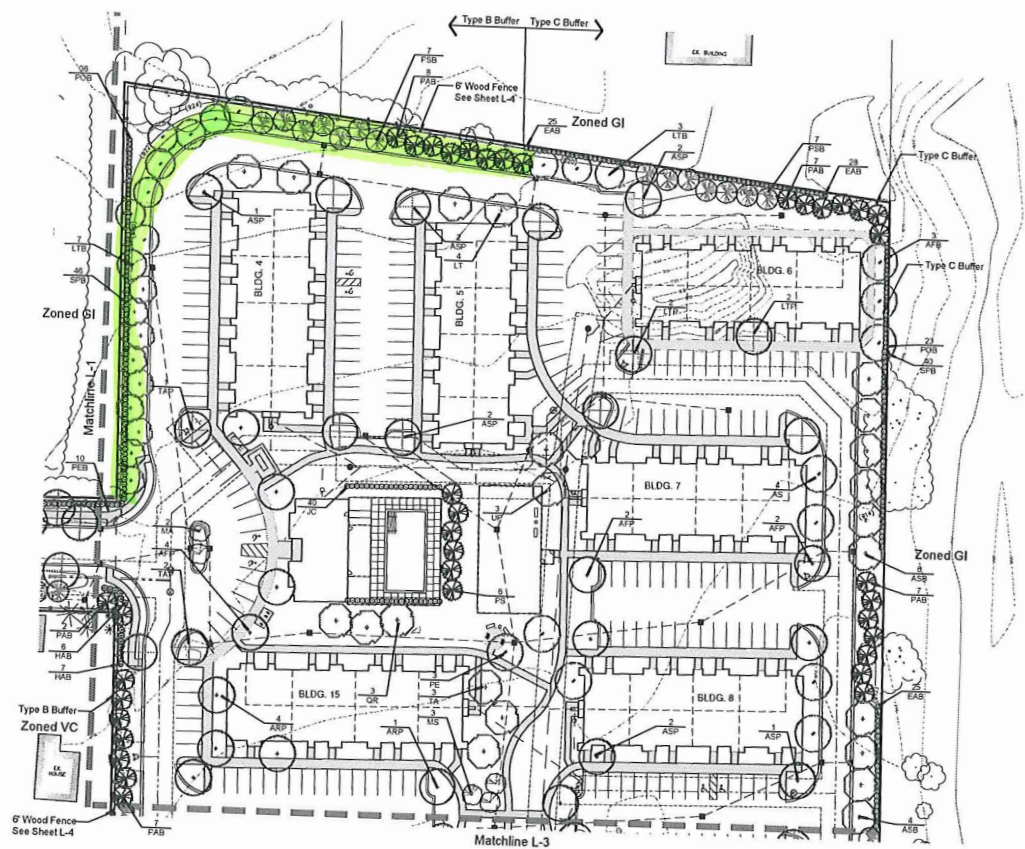
Drawn By: Checked By:
jja jja



Sheet No.

L-2

13



Landscape Summary - This Sheet

- Existing Zoning: GPUD
 Land Use Buffers: 712 LF. (Type B)
 Buffer Length East, North: 23.7 Trees (712/30)
 Canopy Trees Provided: 24 Trees (6 Existing)
 Evergreen Trees Required: 23.7 Trees (712/30)
 Evergreen Trees Provided: 24 Trees
 Shrubs Required: 94.9 Shrubs (712/30) x 4
 Shrubs Provided: 95 Shrubs
 Buffer Length East, South: 702 LF. (Type C)
 Trees Required: 35.1 Trees (702/20)
 Trees Provided: 36 Trees
 Shrubs Required: 140.4 Shrubs (702/20) x 4
 Shrubs Provided: 141 Shrubs
 Parking Lot Landscaping
 Parking Lot Area:
 Trees Required: 29.4 Trees (58,786 / 2,000)
 Trees Provided: 30 Trees

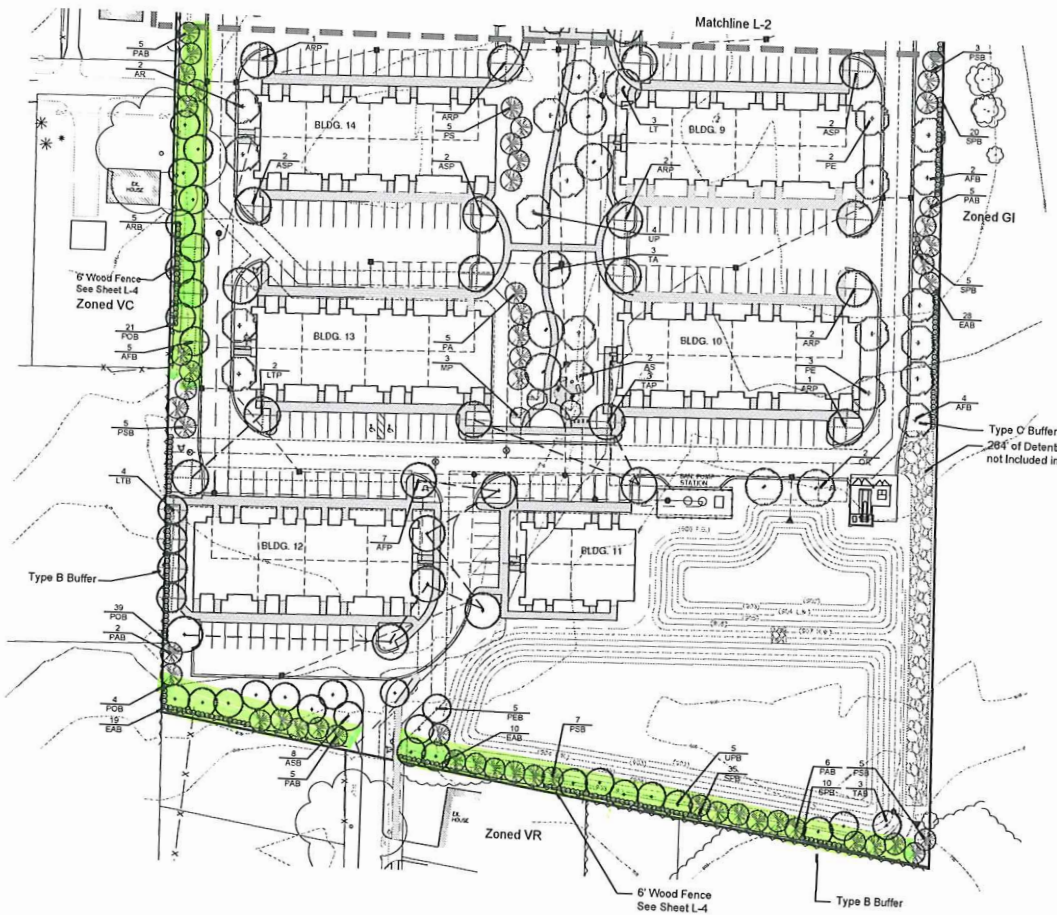
Plant List - This Sheet

SYM	QTY	DESCRIPTION	COMMON NAME	CALIBER	SPACING	ROOT	HEIGHT
APB	3	Aster x Hemlock 'Rubrum Queen'	Autumn Blaze Maple	2.5"	as shown	8.0'	8.0'
ASB	10	Aster saccharinum 'Legacy'	Sugar Maple	2.5"	as shown	8.0'	8.0'
SAB	16	Euonymia alata 'Compacta'	Burning Bush	2.5"	as shown	6.0'	6.0'
HAB	13	Hydrangea arborescens 'Annabelle'	Annabelle Hydrangea	2.5"	as shown	6.0'	24"
LHB	10	Lindobardus tulipifera	Tulip tree	2.5"	as shown	6.0'	6.0'
PAB	21	Platanus	Honey Sycamore	2.5"	as shown	8.0'	6'
PEB	10	Platanus x acerifolia 'Excelsior'	Excelsior London Plane	2.5"	as shown	8.0'	6'
POB	19	Physocarpus opulifolius 'Doubt'	Double Shrub	2.5"	as shown	6.0'	24"
PFB	14	Pyrus sibirica	Vitality Pear	2.5"	as shown	6.0'	6'
PSB	60	Spirea x 'Tina Turner'	Little Princess Spirea	2.5"	as shown	6.0'	24"
TSB	78	Tilia Prunifolia	Shrub Provided				
TPB	30	Tilia Prunifolia	Shrub Provided				
APB	6	Aster x 'Flemish' 'William Elliott'	Autumn Blaze Maple	2.5"	as shown	8.0'	8.0'
ASB	5	Aster saccharinum 'Legacy'	Flamingo Maple	2.5"	as shown	8.0'	8.0'
LHB	4	Lindobardus tulipifera	Royal Maple	2.5"	as shown	8.0'	8.0'
TAP	3	Tilia americana 'Racemosa'	Tulip Tree	2.5"	as shown	8.0'	8.0'
TSB	30	Tilia Prunifolia	Rainford Linden	2.5"	as shown	8.0'	8.0'
ASB	4	Aster saccharinum 'Legacy'	Sugar Maple	2.5"	as shown	8.0'	8.0'
LC	40	Lampyrus ch. 'Estimote'	Kalm's Dogwood	2.5"	as shown	8.0'	8.0'
LT	4	Lindobardus tulipifera	Tulip tree	2.5"	as shown	8.0'	8.0'
MA	2	Malva 'Kobold'	Admiral's Cross Apple	2.5"	as shown	8.0'	8.0'
MS	2	Malva 'Spring Snow'	Spring Snow Cross Apple	2.5"	as shown	8.0'	8.0'
PS	2	Platanus x acerifolia 'Excelsior'	Excelsior London Plane	2.5"	as shown	8.0'	8.0'
SP	2	Spirea 'Golden Flame'	Spirea	2.5"	as shown	8.0'	8.0'
CB	2	Quercus rubra	Red Oak	2.5"	as shown	8.0'	8.0'
LA	2	Lilium 'American Beauty'	Lilium	2.5"	as shown	8.0'	8.0'
LR	3	Lilium 'American Beauty'	Rainford Linden	2.5"	as shown	8.0'	8.0'



OCTOBER 3/4

Item 2.



Landscape Summary - This Sheet

Existing Zoning	GPUID
Land Use Buffers	
Buffer Length- West and North	1,033 LF (Type B)
Deciduous Trees Required	34.4 Trees (1,033 / 30)
Deciduous Trees Provided	35 Trees
Evergreen Trees Required	34.4 Trees (1,033 / 30)
Evergreen Trees Provided	35 Trees
Shrubs Required	137.7 Shrubs (1,033 / 30) x 4
Shrubs Provided	138 Shrubs
Buffer Length- South	262 LF (Type C)
Trees Required	13.1 Trees (262 / 20)
Trees Provided	14 Trees
Shrubs Required	52.4 Shrubs (262 / 20) x 4
Shrubs Provided	53 Shrubs
Parking Lot Landscaping	
Parking Lot Area	
Trees Required	25.4 Trees (50,809 / 2,000)
Trees Provided	25 Trees

Plant List - This Sheet

sym	qty	botanical name	common name	caliper	spacing	root	height
Land Use Buffers							
APP	11	Acer s. Freemanii 'Autumn Blaze'	Autumn Blaze Maple	2.5"	as shown	EBB	
ASB	5	Acer saccharum 'Redpoint'	Redpoint Maple	2.5"	as shown	EBB	
ASB	5	Acer saccharum 'Legacy'	Legacy Maple	2.5"	as shown	EBB	
EAB	57	Quercus prinus 'Compact'	Scupper Maple	2.5"	as shown	EBB	
LTP	4	Liriodendron tulipifera	Burning Bush	2.5"	as shown	cont.	24'
PAB	5	Picea canadensis	White Pine	2.5"	as shown	cont.	24'
PEB	23	Picea abies	Norway Spruce	2.5"	as shown	EBB	6'
PCB	5	Platanus acerifolia 'Excelsior'	Excelsior London Plane Tree	2.5"	as shown	EBB	
PCB	84	Physocarpus opulifolius 'Diable'	Diablo Diabolo	2.5"	as shown	cont.	24'
PFB	20	Pinus strobus	White Pine	2.5"	as shown	EBB	5'
SFB	20	Sorbus 'Little Princess'	Little Princess Sorbus	2.5"	as shown	EBB	5'
TAB	3	Tilia americana 'Redmond'	Redmond Linden	2.5"	as shown	cont.	24'
UFB	5	Ulmus americana 'Princeton'	Princeton Elm	2.5"	as shown	EBB	
	84	Trees Provided					
	191	Shrubs Provided					
Parking Lot Trees							
APP	7	Acer s. Freemanii 'Autumn Blaze'	Autumn Blaze Maple	2.5"	as shown	EBB	
ASB	7	Acer saccharum 'Redpoint'	Redpoint Maple	2.5"	as shown	EBB	
ASB	7	Acer saccharum 'Legacy'	Legacy Maple	2.5"	as shown	EBB	
LTP	2	Liriodendron tulipifera	Burning Bush	2.5"	as shown	EBB	
TAB	3	Tilia americana 'Redmond'	Redmond Linden	2.5"	as shown	EBB	
	25	Trees Provided					
General Plantings							
AB	2	Acer rubrum 'Redpoint'	Redpoint Maple	2.5"	as shown	EBB	
A3	2	Acer saccharum 'Legacy'	Legacy Maple	2.5"	as shown	EBB	
LT	3	Liriodendron tulipifera	Burning Bush	2.5"	as shown	EBB	
MP	1	Malus 'Princeton'	Princeton Malus	2.5"	as shown	EBB	
PA	5	Picea abies	White Pine	2.5"	as shown	EBB	
PE	4	Platanus acerifolia 'Excelsior'	Excelsior London Plane Tree	2.5"	as shown	EBB	6'
PB	5	Pinus strobus	White Pine	2.5"	as shown	EBB	
PC	4	Quercus rubra	Red Oak	2.5"	as shown	EBB	
OR	4	Tilia americana 'Redmond'	Redmond Linden	2.5"	as shown	EBB	
TA	4	Tilia americana 'Princeton'	Princeton Elm	2.5"	as shown	EBB	

Seal:



Title:
Landscape Plan

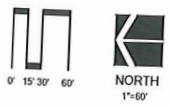
Project:
**Lakeland Trails
Hamburg Township, Michigan**

Prepared for:
**Elisave Property Partners, LLC
128 North Center
Northville, Michigan 48167**

Revision: Issued:
 Review April 11, 2024
 Revised April 22, 2024
 Revised August 16, 2024
 Revised September 25, 2024

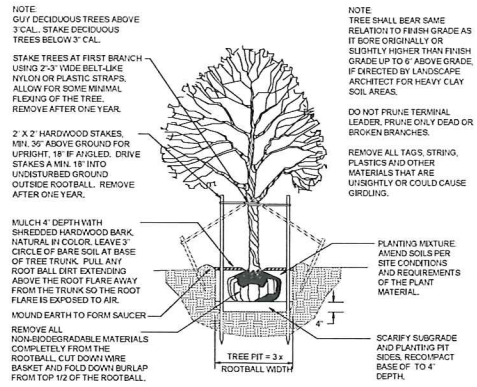
Job Number:
24-019

Drawn By: Checked By:
jca jca



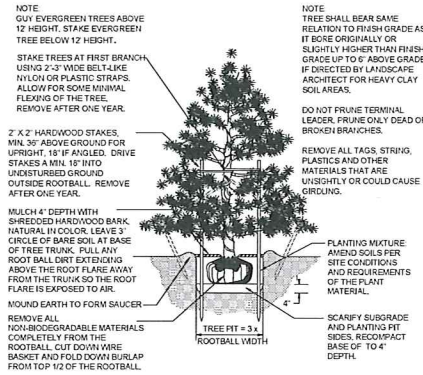
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L-3



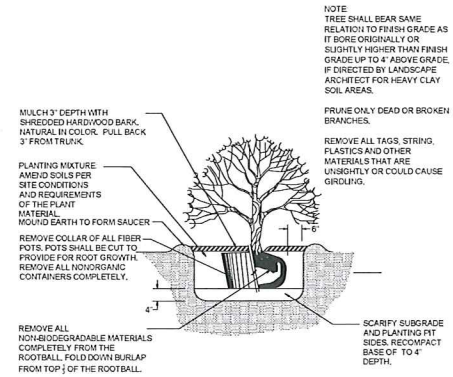
DECIDUOUS TREE PLANTING DETAIL

Not to scale



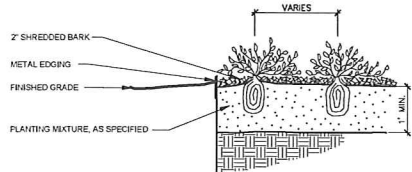
EVERGREEN TREE PLANTING DETAIL

Not to scale



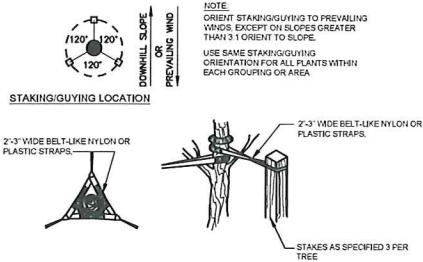
SHRUB PLANTING DETAIL

NOT TO SCALE



PERENNIAL PLANTING DETAIL

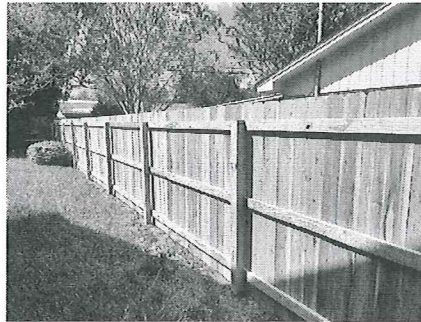
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TREE STAKING DETAIL

Not to scale

6' Pressure Treated Wood Fence

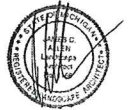


Size: 6' High, 8' Long Panels with Structural Members Facing Project Site

LANDSCAPE NOTES

- All plants shall be north Midwest American region group, No. 1 grade plant materials, and shall be true to name, free from physical damage and wind burn.
- Plants shall be full, well-branched, and in healthy vigorous growing condition.
- Plants shall be watered before and after planting is complete.
- All trees must be staked, fertilized and mulched and shall be guaranteed to exhibit a normal growth cycle for at least two (2) full years following Township approval.
- All material shall conform to the guidelines established in the most recent edition of the American Standard for Nursery Stock.
- Provide clean backfill not using material stockpiled on site. Soil shall be screened and free of any debris, foreign material, and stone.
- "Apform" tabs or similar slow-release fertilizer shall be added to the planting pits before being backfilled.
- Amended planting mix shall consist of 1/3 screened topsoil, 1/3 sand and 1/3 peat, mixed well and spread to the depth as indicated in planting details.
- All plantings shall be mulched per planting details located on this sheet.
- The Landscape Contractor shall be responsible for all work shown on the landscape drawings and specifications.
- No substitutions or changes of location, or plant types shall be made without the approval of the Landscape Architect.
- The Landscape Architect shall be notified in writing of any discrepancies between the plans and field conditions prior to installation.
- The Landscape Contractor shall be responsible for maintaining all plant material in a vertical condition throughout the guaranteed period.
- The Landscape Architect shall have the right, at any stage of the installation, to reject any work or material that does not meet the requirements of the plans and specifications, if requested by owner.
- Contractor shall be responsible for checking plant quantities to ensure quantities on drawings and plant list are the same. In the event of a discrepancy, the quantities on the plans shall prevail.
- The Landscape Contractor shall seed and mulch or sod (as indicated on plans) all areas disturbed during construction throughout the construction period.
- A pre-emergent weed control agent, "Premer" or equal, shall be applied uniformly on top of all mulching in all planting beds.
- All landscape areas shall be provided with an underground automatic sprinkler system.
- Sod shall be two year old "BaronCherokee" Kentucky Blue Grass grown in a sod nursery on loam soil.

Seal:



Title:

Landscape Details

Project:

Lakeland Trails
Hamburg Township, Michigan

Prepared for:

Elevate Property Partners, LLC
128 North Center
Northville, Michigan 48167

Revision:

Review
Revised
Revised
Revised

Issued:

April 11, 2024
April 22, 2024
August 16, 2024
September 25, 2024

Job Number:

24-019

Drawn By:

JSA

Checked By:

JSA

Sheet No.



L-4

PHONE: 810-231-1000
FAX: 810-231-4295



P.O. Box 157
10405 Merrill Road
Hamburg, Michigan 48139-0157

To: Planning Commissioners
From: David Rohr
Hamburg Township
Township Planner
Date: September 18, 2024
Agenda Item:
Project Number: Final Site Plan Application for General Planned Unit
Development (PCPUD24-0001)
Project Location: Learning Ln. (15-25-400-048)
Owner: Michael Parliament/Alan Gottlieb
Applicant: Elevate Land Holdings, LLC

LOCATION:

The project is located on a 15-acre site south of E. M-36. The site is accessed by Learning Lane. The site is currently vacant.

PROJECT HISTORY:

Project PCPUD24-0001, Site Plan Application for General Planned Unit Development received conceptual site plan review from the Planning Commission on February 21, 2024. No formal action was taken at the meeting and the project was scheduled to be returned to the Planning Commission for formal preliminary site plan review.

The Planning Commission granted preliminary site plan approval on May 15, 2024. The Hamburg Township Board of Trustees granted preliminary site plan approval on June 4, 2024.

Location Map



PROJECT DESCRIPTION:

The proposed project will utilize the General Planned Unit Development (GPUD) regulations (Section 36-439). The proposed project proposes a 208-unit apartment complex with a club house. The complex will be located on old Hamburg Elementary Site. The subject property

consists of five existing parcels (15-25-200-056 (VC), 15-25-200-062(GI), 15-25-400-013 (VC), 15-25-400-042 (VC), and 15-25-101-084 (VR)) totaling 15.4 acres. The apartment complex will consist of 22 residential structures, 14 structures with 8 residential units and 15 structures with between 8-16 residential units; a community club house with offices, a gym, a community recreational room, and a pool.

GENERAL PLANNED UNIT DEVELOPMENT REVIEW PROCESS:

Sec. 36-447. - Final PUD site plan review.

(a) The applicant shall submit a final PUD site plan which contains all information required for site plan review under [section 36-73](#)(6) and approvals from all appropriate county, state and federal agencies, including, but not limited to, the county road commission, county drain commissioner, county health department and the Michigan Department of Transportation.

(b) The planning commission shall review the submitted final PUD site plan to ensure compliance with all standards and criteria of the Hamburg Township zoning ordinance, the master plan, village center master plan, and the Southeast Livingston County Greenways Plan where applicable. The planning commission then shall take action to recommend approval or denial of the final PUD site plan to the Township Board based upon compliance with the above referenced standards.

(c) Upon receipt of the report and recommendation of the planning commission, the Township Board shall review all findings. If the Township Board determines that approval would be appropriate, it shall work with the application and the Township Attorney to prepare a development agreement setting forth the conditions upon which such approval is based. Such conditions shall include, where appropriate, identification of the phases and timetable for development, and an estimate of the costs of implementing each phase.

(d) After approval by resolution of the Township Board, the development agreement shall be executed by the Township and the applicant and recorded in the county records. Approval shall be granted only upon the Township Board determining that all qualification requirements, conditions of approval, and provisions of this and other Township ordinances have been met, and that the proposed development will not adversely affect the public health, welfare and safety. Approval shall further be subjected to the condition that the contract will be properly recorded.

(e) Approval of a PUD site plan shall be effective upon recording the contract and filing proof of recording with the Township Clerk.

(f) Once an area has been included, within the boundaries of an approved PUD, no development may take place in the PUD except in accordance with the Township Board-approved PUD site plan.

(g) Prior to any development within the area involved, an approved PUD site plan may be terminated by the applicant or the applicant's successors or assigns, by filing with the Township

and recording in the county records an affidavit so stating. The approval of the plan shall terminate upon such recording.

(h) No approved plan shall be terminated after development commences except with the approval of the Township Board and of all parties having an equity interest in the land.

ZONING ORDINANCE REGULATIONS:

The subject site is located within the **Village Center (VC)** Zoning District. The zoning district regulations are listed below with the GPUD process allows flexibility to the required regulations. Table 1 summarizes the zoning regulations that apply for the proposed project:

Table 1 (Page 3 Site Plan)

SITE DATA			
EXISTING ZONING: GENERAL PLANNED UNIT DEVELOPMENT (GPUD)			
SITE AREA - 15.478 ACRES			
MAX. DWELLING UNITS PER ACRE (VC): 10 DU/CCRE			
NO. OF BUILDING ON SITE: 16			
NO. OF UNITS PROPOSED: 208			
DWELLING UNITS PER ACRE: 13.44 DU/CCRE (AMEND TO PUD AGREEMENT)			
BUILDING SETBACKS:	REQUIRED	PREVIOUSLY APPROVED	PROPOSED
FRONT (FROM PAVEMENT):	20'	15'	N/A
SIDE:	10'	15'	20' MIN.
REAR: TO PROPERTY LINE	25'	30'	20' MIN.
BUILDING TO BUILDING:	35'	N/A	N/A
BUILDING FRONT TO SIDE:	N/A	25'	N/A
BUILDING SIDE TO SIDE:	N/A	15'	N/A
MAXIMUM BUILDING HEIGHT:	35'	35'	35'
MAXIMUM BUILDING STORIES:	2.5 STORIES	2 STORIES	2 STORIES
MINIMUM FLOOR AREA:			
1 BEDROOM	550 S.F.	875 S.F.	815 S.F.
2 BEDROOMS	650 S.F.	1,100 S.F.	1,106 S.F.
3 BEDROOMS		N/A	1,435 S.F.
BUILDING COVERAGE:	50% MAX.	16%	16.8%
IMPERVIOUS AREA CALCULATION:	N/A	32%	37.85%
OPEN SPACE REQUIRED:			
1,500 S.F./ UNIT=1,500 x 208			
312,000 S.F. (7.16 AC.)			
	44%	37%	42.56%
OPEN SPACE PROVIDED:			
		6.03 AC.	6.41 AC.
PARKING REQUIRED: (1.5 SPACE/UNIT)			
1.5 x 208 = 312 SPACES			
PARKING PROPOSED: 409 SPACES			
(INCLUDING 10 B.F. SPACES)			
(1.966 SPACES/UNIT)			
		PREVIOUSLY APPROVED PLANS	CURRENT PLANS
SITE AREA		16.1 AC.	15.478 AC.
NO. OF BUILDING ON SITE:		23	16
NO. OF UNITS PROPOSED:		208	208
DWELLING UNITS PER ACRE:		12.91 DU/CCRE	13.44 DU/CCRE
BUILDING COVERAGE:		16%	15.8%
PAVED SURFACE PARKING AND ROADS CIRCULATION		32%	35.4%
OPEN SPACE:		37%	41.41%
PARKING PROVIDED:		406 SPACES (1.952 SPACES/UNIT)	409 SPACES (1.966 SPACES/UNIT)

Landscaping:
 The final plan provides a tree planting plan. L-1, L-2, L-3, and L-4 provide detailed landscaping details for different sections of the development.

The landscaping plan does not note a continuous 20foot buffer and proposes a six-foot vinyl fence in areas abutting residential housing.

In the Zoning Regulations the Planning Commission may waive or reduce the buffer zone landscaping requirement if equivalent screening is provided by existing or planned parks, parkways, recreation areas, or by existing woodlands on the lot, and topographic or other natural conditions. Existing quality trees (hickory, oak, maple, ash) with a caliper at least eight inches shall count as two trees toward the above requirements.

Because this project is a General Planned Unit Development the landscape requirements can be set by the Development Agreement as part of the Planned Unit Development process and the Planning Commission does not need to officially waive the landscaping requirements.

Lighting:

In the Village Center area, A consistent type of pedestrian scale ornamental lighting shall be provided along all sidewalks, within any off-street parking lots and along road frontages.

Suggested Condition 1:
 A lighting plan that should include additional pedestrian scale lighting in the common areas between buildings.

Signs:
 Sign details were submitted. Proposed signage should be provided as a part of the final site plan review and shall meet the requirements of the zoning regulations.

<p>Sidewalks/pedestrian circulation.</p> <ol style="list-style-type: none"> 1. Site design shall demonstrate a special sensitivity to pedestrian circulation and safety. 2. Sidewalks at least five feet wide and at least seven feet wide where abutting parking shall be provided along public streets and private roads; bike paths shall be required in locations designated in the Hamburg Village master plan or to provide linkages with existing or planned bikepaths. 3. All developments shall provide pedestrian linkages between public 	<p>✓</p> <p>✓</p>
---	-------------------

<p>sidewalks and the building entrances.</p> <p>Staff Analysis: The sidewalk system within the development has been designed to provide good pedestrian access within the site and to Hamburg Rd.</p>	<p>✓</p>
<p>Architecture.</p> <ol style="list-style-type: none"> 1. Buildings shall possess architectural variety but enhance the overall cohesive and historic village character. ✓ 2. Building architecture shall meet the standards of section 36-73(7). ✓ 3. The first floor of front facades shall include at least 30 percent windows. The approximate size, shape, orientation and spacing shall match that of buildings on adjacent lots. ✓ 4. The mass and proportion of structures shall be similar to structures on adjacent lots and on the opposite side of the street. Larger buildings may be broken-up with varying building lines and rooflines to provide a series of smaller scale sections which are individually similar in mass and proportion to surrounding structures. ✓ 5. Buildings located on corner lots shall provide distinct and prominent architectural features or site elements which reflect the importance of the building's corner location and creates a positive visual landmark. An entry feature or site landmark shall be required at corners designated for such a feature in the Hamburg Village master plan. The architectural feature or site element shall be subject to planning commission approval. ✓ 	<p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p> <p>✓</p>
<p>GPUD Requirements:</p> <ol style="list-style-type: none"> A. Location. A GPUD shall only be created on development sites within the Township which have a portion of the property located within the Neighborhood Service (NS), Community Service (CS), Mixed Use Development (MD), Village Residential (VR), or Village Center (VC) zoning districts. ✓ B. Size. A GPUD shall only be created on development sites one (1) acre in area or greater. ✓ C. Permitted Uses. <ol style="list-style-type: none"> 1. Uses that are listed as Permitted Uses or Special Uses in the underlying zoning district or uses identified in the underlying future land use category of the Township Master Plans may be permitted in a GPUD development. 	<p>✓</p> <p>✓</p>

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Planned Unit Development Project Standards (Section 36-442)

In considering any application for approval of any Planned Unit Development community site plan, the Planning Commission shall make their determinations on the basis of the standards for site plan approval set forth in Article 3 of this chapter, as well as the following standards and requirements:

(1)

A GPUD shall promote the goals and objectives of the Township master plan, and village center master plan. Including the intent and guidelines related to site design as stated in the transportation section of the master plan, and the village design chapter of the Hamburg Township village center master plan, where applicable. Along with other appropriate site design standards, guidelines, and principles, the following site development elements shall also be reviewed for consistency with the applicable guidelines of the master plan and the village center master plan:

- a. Sidewalks/pedestrian circulation.
- b. Parking/loading areas.
- c. Architecture.
- d. Signs.
- e. Street and access design.
- f. Lighting.
- g. Landscaping.

This project has been designed to comply with the Village Center Master Plan. The future land use designation of the subject site is Village Core along M-36.

(2)

A GPUD shall result in a higher quality of development than could be achieved under conventional zoning.

The common open space areas, private amenities and the extensive sidewalk connections will make this development a very desirable location for area residents and will result in a higher quality of development than could be achieved otherwise.

(3)

A GPUD shall not be created in situations where the same land use objectives can be accomplished by the application of conventional zoning provisions or standards without the need for variances.

The developer is requesting an increase in density.

(4)

A GPUD may be created only when the proposed land use will not add public service and facility loads beyond those contemplated in the master plan or other applicable plans or policies of the Township unless the applicant can demonstrate to the sole satisfaction of the Township Board that such added loads will be accommodated or mitigated by the proponent as part of the GPUD or by some other means deemed acceptable to the Township Board.

The proposed GPUD will add additional public service and facility loads envisioned by the Village center master plan. The Township Board should confirm this in the final site plan review.

(5)

Creation of a GPUD shall establish land use patterns which are compatible with and protect existing or planned use. The use of the GPUD option shall not be for the purpose of avoiding applicable zoning requirements of the underlying zoning district.

The proposed project is a General Planned Unit Development (GPUD). The proposed project meets most of the regulations of the zoning district.

The Hamburg Township zoning ordinance states that the intent of the GPUD is to

- Permit private development which is substantially in accordance with the goals and objectives of the Township Master Plan which and the Township Village Center Master Plan.
- Permit regulatory flexibility to achieve development that comply with the Township's Master Plans in order to achieve economy and efficiency in the use of land, natural resources, energy and in the provision of public services and utilities; to encourage the creation of useful open space particularly suited to the proposed development and parcel on which it is located; and to provide appropriate housing, employment, services and shopping opportunities to satisfy the needs of residents of the Township of Hamburg.

The GPUD should be laid out so that proposed uses, buildings, and site improvements relate to each other and to adjoining existing and planned uses in such a way that they will be compatible, with no material adverse impact of one use on another.

It appears that the proposed project will meet the intent of the GPUD. By allowing this project some slight regulatory flexibility, the proposed development will be compatible with the Master Plan, provided needed multi-unit housing within the village area, achieve the efficient use of the land, and will provide important pedestrian connections and amenities in the village area.

(6)

A GPUD shall not be allowed solely as a means of increasing the density or intensity of development.

The density of the project will increase. However, the development will provide additional amenities for residents.

(7)

A GPUD shall improve the appearance of the Township through quality building design and site development, the provision of trees and landscaping consistent with or beyond minimum requirements; the preservation of unique and/or historic sites or structures; and the provision of open space or other desirable features of a site beyond minimum requirements.

The design of this project will improve the appearance of the Township and will provide needed connection through the site to the surrounding community., The proposed for-rent apartments will provide the Village area with a much-needed housing alternative to the existing single-family housing within the Village.

Standards for Site Plan Review (Section 36-73).

Compliance with the standards of this section are required as a part of the final Site Plan review. Staff has included these standards into the review of the preliminary site plan to make sure that if the preliminary site plan review is approved the applicant is aware that the project will need to meet the requirement of this section once all the required information is submitted for final site plan review. In the review of all site plans, the Zoning Administrator and the Planning Commission shall endeavor to assure the following:

a. The proposed development conforms to all provisions of this chapter.

The proposed development has been designed to meet all the required site plan review requirements.

b. All required information has been provided.

The application is for the final site plan for the GPUD. It appears that the applicant has submitted adequate information for the planning commission review of the preliminary site plan for the proposed GPUD project. All required information under section 36-73 and as to address the initial comments from the different agencies and reviewing bodies will be required prior to final site plan review.

c. The movement of vehicular and pedestrian traffic within the site and in relation to access streets and sidewalks will be safe and convenient.

The Township fire district and township engineer has reviewed the roadway and sidewalk layout of the project.

MDOT approvals will also be required prior to issuance of a zoning permit for this project.

d. The proposed development will be harmonious with existing and future uses in the immediate area and the community.

The development will be harmonious with existing and future uses.

- e. **The proposed development provides the necessary infrastructure improvements, such as roads, drainage, pedestrian facilities and utilities, to serve the site, and be adequately coordinated with the current and future use of adjacent properties.**
Please see engineering comments attached.

- f. **The applicable requirements of Township, county and state agencies are met regarding grading and surface drainage and for the design and construction of storm sewers, stormwater holding facilities, water mains, and sanitary sewers.**
See comments in item e above. The plans submitted as a part of the final site plan review will address the Township Engineers initial comments and will provide greater details on the drainage, the design and construction of storm sewers, stormwater holding facilities, water mains, and sanitary sewers.

- g. **Natural resources will be preserved to the maximum extent possible in the site design by developing in a manner which will not detrimentally affect or destroy natural features such as lakes, ponds, streams, wetlands, steep slopes, and woodlands.**
There are not any lakes, ponds, streams, wetlands, or steep slopes on the site. The site is vacant cleared land.

- h. **The proposed development shall respect the natural topography to the maximum extent possible by minimizing the amount of cutting, filling, and grading required.**
A detailed grading plan has been submitted. The subject property is relatively flat and the location of the improvements on the site have been placed on the areas with the least slope.

- i. **The proposed development will not cause soil erosion or sedimentation.**
Prior to issuance of a building permit for this project the Livingston County Drainage Commission will require approval of a soil erosion and sedimentation plan that meets the local and state requirements.

- j. **Landscaping, including trees, shrubs and other vegetative material is provided to maintain, improve and/or restore the aesthetic quality of the site.**
A detailed landscape plan has been provided as a part of the GPUD final site plan review.

- k. **Conformance to the adopted Hamburg Township Engineering and design standards.**
 - b. Please see engineering comments attached.

- a. **All proposed commercial, office, industrial, institutional and multiple-family development shall utilize quality architecture to ensure that buildings are compatible with surrounding uses, protect the investment of adjacent landowners, blend harmoniously into the streetscape and meet the objectives the Township master plan. New buildings, additions and renovations shall be designed to preserve or complement the design character of existing development, provide visual harmony between old and new buildings, and create a positive image for the Township's various commercial shopping nodes. Commercial, office, industrial, institutional and multiple-family architecture shall be reviewed by the planning commission under the following criteria:**

- 1. Buildings shall front towards and relate to the public street. Buildings shall be located to create a defined streetscape through uniform setbacks and proper relationship to adjacent structures. Proper relationship to existing structures in the area shall be maintained through building mass, proportion, scale, roofline shapes and rhythm. Buildings within the area designated on the master plan and Village Center master plan as the "Hamburg Village" shall be compatible with the historic character of the unincorporated place commonly referred to as the "Old Hamburg Village."**
- 2. Building materials and colors shall relate well and be harmonious with the surrounding area. Roof shape and materials shall be architecturally compatible with adjacent buildings and enhance the predominant streetscape. For any side of a principal building facing a public or private street, at least 50 percent of the facade shall be constructed of, or covered with, the following materials:**
 - 1. Brick;**
 - 2. Fluted or scored concrete block;**
 - 3. Cut stone;**
 - 4. Vinyl siding;**
 - 5. Wood siding;**
 - 6. Glass; or**
 - 7. Other materials similar to the above as determined by the planning commission.**
- 3. Buildings shall possess architectural variety, but enhance the overall cohesive community character. Buildings shall provide architectural features, details and ornaments such as archways, colonnades, towers, cornices or peaked rooflines.**
- 4. Building walls over 100 feet in length shall be broken up with a combination of the following: varying building lines, windows, architectural accents and trees.**
- 5. Building entrances shall utilize windows, canopies and awnings; provide unity of scale, texture, and color; and provide a sense of place.**
- 6. Where the rear facade of a building will be visible from a residential zoning district, or the rear of the site will be used for public access or parking, such rear facade shall be constructed to a finished quality comparable to the front facade.**
- 7. Signs, landscaping, lighting and other site elements shall be coordinated and compatible with the building design, as well as harmonious with other nearby developments. Developments shall provide site features such as decorative entry signs, ornamental lighting, pedestrian plazas and/or pedestrian furniture.**

The proposed layout and structures on the site have been designed to be compatible with the village character of the ‘Old Hamburg Village’ and to comply with the Village Center Master Plan.

RECOMMENDATIONS:

The Planning Commission should review and discuss the final GPUD site plan application, the submitted materials including the project plans, the staff report, and any information presented at the public meeting; and either recommend approval or denial of the preliminary site plan for the GPUD to the Township Board.

Example Approval Motion:

The Planning Commission recommends approval of the final GPUD site plan, as shown on project plan (Exhibit A) , to the Township Board because the project as conditioned it is consistent with the requirements of the General Planned Unit Development regulations and will be able to meet site plan review standards of the zoning ordinance as discussed at the meeting tonight and presented in the staff report with the following conditioned of approval:

Suggested Condition 1:

The lighting plan should include pedestrian scale lighting in the park to allow safe pedestrian access.

Suggested Condition 2:

Prior to the issuance of a land use permit, all appropriate approvals from local, county, state, and federal agencies, including, but not limited to, Hamburg Township Fire, Assessor, and Public Works Departments, the Livingston County Road Commission, Drain Commissioner, and Health Department; and the Michigan Department of Environment, Great Lakes and Energy and Transportation shall be received.

Suggested Condition 3:

A development agreement including master deeds and bylaws will be submitted for this project. This agreement will be reviewed by the Township Attorney. This agreement shall include a cross access agreement that allows public use of the private roadways, sidewalks and parks within the project.

Next Steps:

If the Planning Commission recommends approval of the final GPUD site plan, the Township Board shall consider the Planning Commission recommendation and shall take action to approve, deny or remand the site plan back to the Planning Commission for further review.

Upon receipt of the report and recommendation of the Planning Commission, the Township Board shall review all findings. If the Township Board determines that approval would be appropriate, it shall instruct the Applicant to work with the Township Attorney to prepare a development agreement setting forth the conditions upon which such approval is based. Such conditions shall include, where appropriate, identification of the phases and timetable for development, and an estimate of the costs of implementing each phase.

After approval by resolution of the Township Board, the Development Agreement shall be executed by the Township and the applicant and recorded in the County records. Approval shall be granted only upon the Township Board determining that all qualification requirements, conditions of approval, and provisions of this and other Township Ordinances have been met, and that the proposed development will not adversely affect the public health, welfare and safety. Approval shall further be subjected to the condition that the contract will be properly recorded.

Exhibits:

Exhibit A: Project Application.

Exhibit B: Final GPUD site plan and other project plans.

Exhibit D: Hamburg Township Fire Department Initial Review

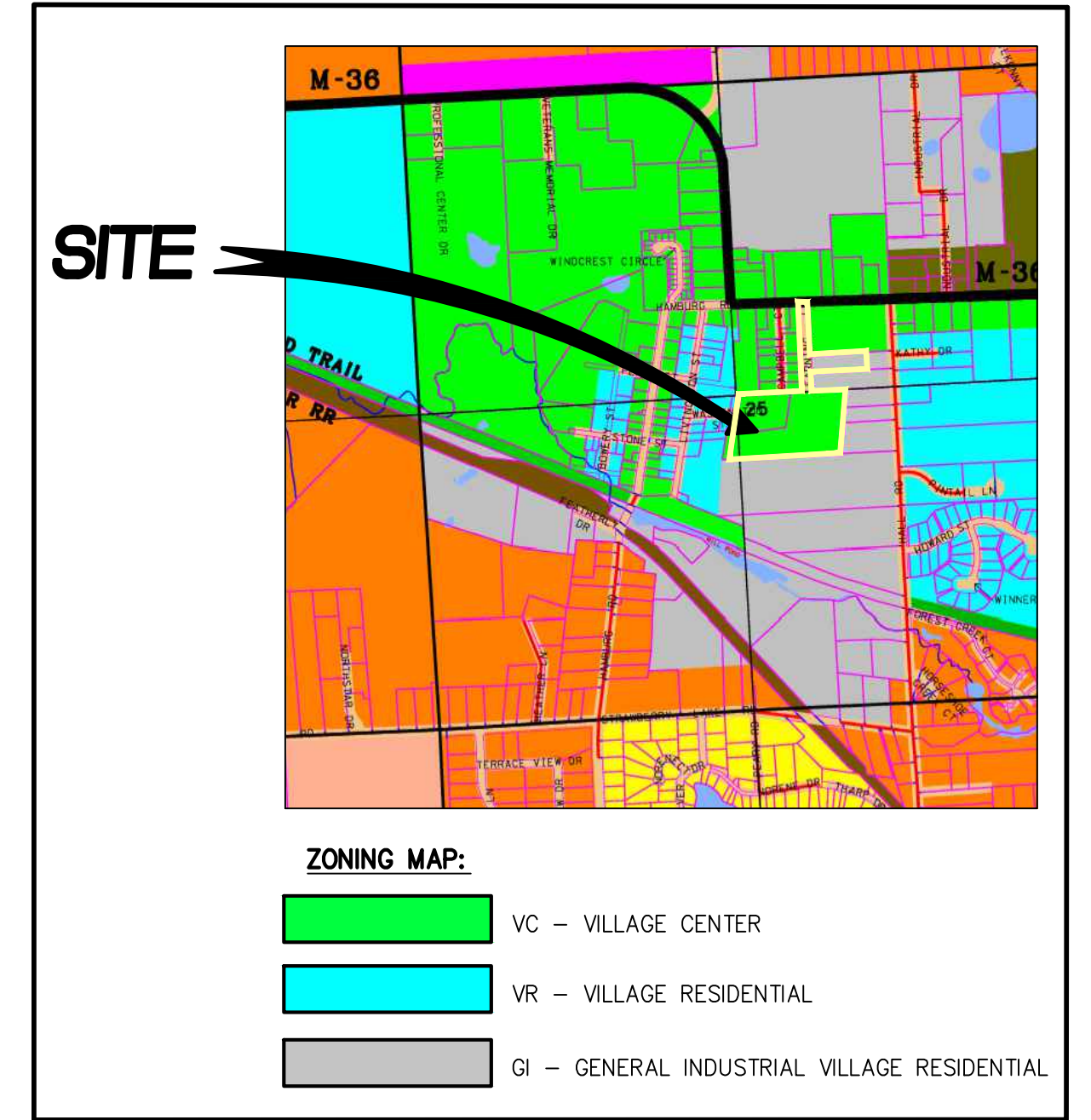
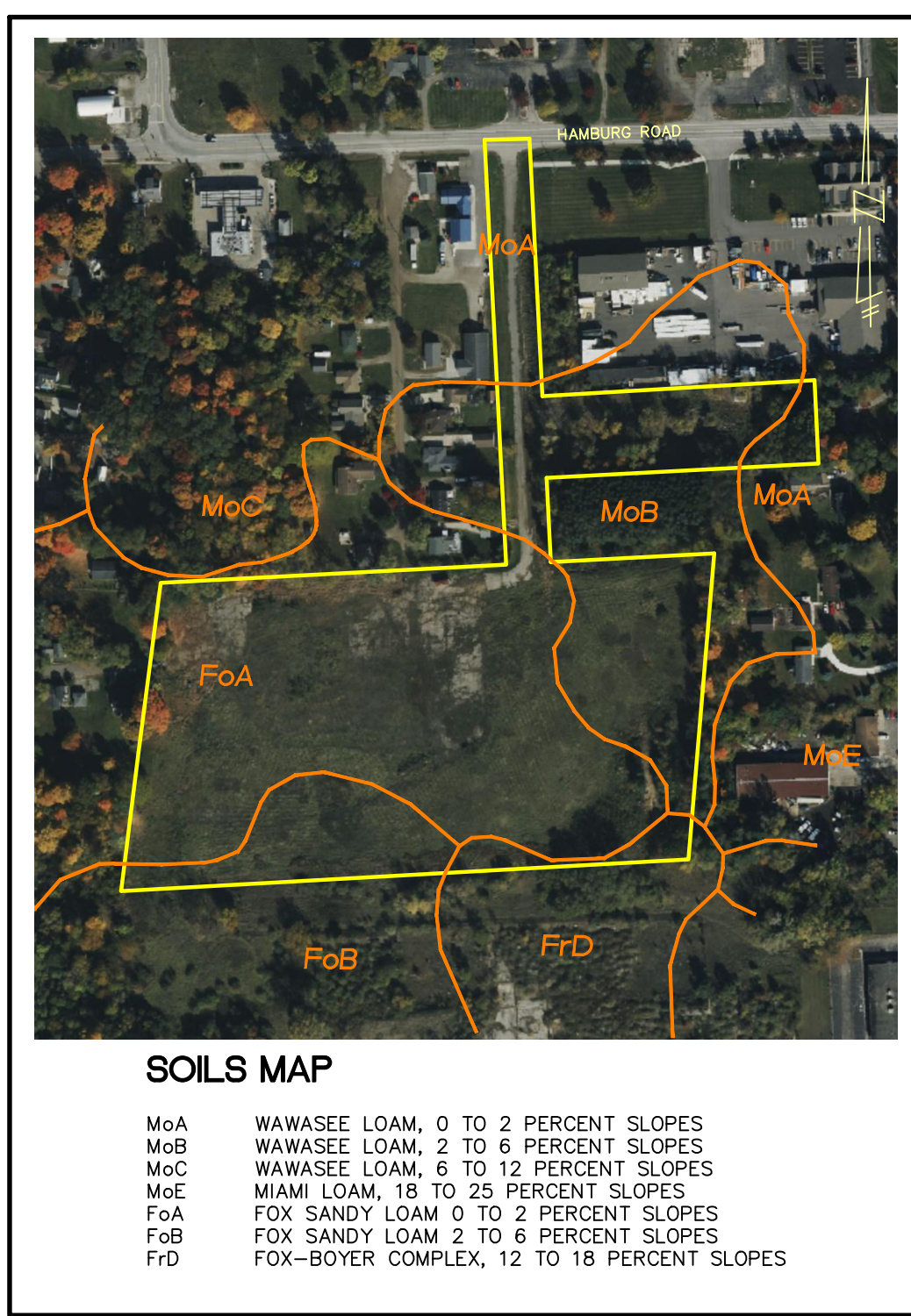
Exhibit E: Hamburg Township Engineering Consultant Initial Review

Exhibit F: Township Board Meeting Minutes

PRELIMINARY SITE PLANS FOR:
THE CROSSING AT LAKELANDS TRAIL

PART OF E. 1/2 OF SECTION 25, TOWN 1 NORTH, RANGE 5 EAST
 HAMBURG TWP., LIVINGSTON COUNTY, MICHIGAN

PREPARED FOR:
 ELEVATE LAND HOLDINGS - THE CROSSING
 128 N. CENTER STREET
 NORTHVILLE, MICHIGAN 48167
 248.344.1885



SHEET INDEX

ENGINEERING PLANS:

- COVER SHEET
- PREVIOUSLY APPROVED OPEN SPACE PLAN
- OVERALL PLAN AND OPEN SPACE PLAN
- UTILITIES PLAN
- GRADING PLAN
- GRADING PLAN
- GRADING PLAN
- STORM WATER MANAGEMENT PLAN

LANDSCAPE PLANS:

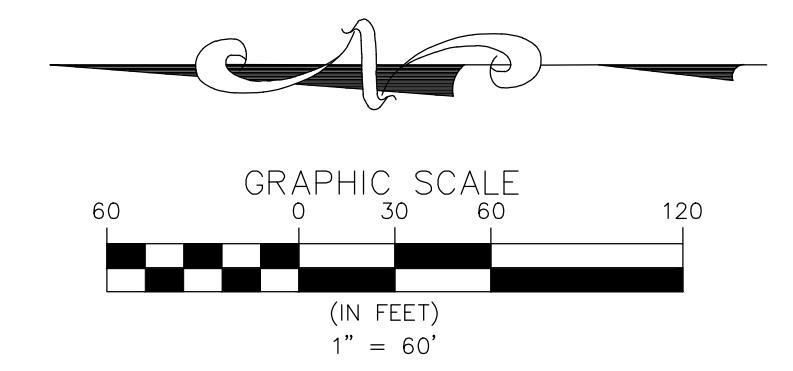
- LANDSCAPE PLAN
- LANDSCAPE PLAN
- LANDSCAPE PLAN
- LANDSCAPE DETAILS

ARCHITECTURAL PLANS PREPARED BY:	LANDSCAPE PLANS PROVIDED BY:	TOPOGRAPHIC SURVEY PREPARED BY:
TK DESIGN & ASSOCIATES 26030 PONTIAC TRAIL SOUTH LYON, MICHIGAN, 48178 PHONE: 248.446.1960	ALLEN DESIGN 557 CARPENTER NORTHVILLE, MICHIGAN 48167 PHONE: 248.467.4668	M. E. G. A. 298 VETERANS DRIVE FOWLerville, MICHIGAN, 48836 PHONE: 517.223.3512

CLINTON TOWNSHIP OFFICE
 17001 NINETEEN MILE ROAD, SUITE 3
 CLINTON TOWNSHIP, MI 48038
 586.412.7050

FARMINGTON HILLS OFFICE
 39205 COUNTRY CLUB DRIVE, SUITE C8
 FARMINGTON HILLS, MI 48331
 248.308.3331

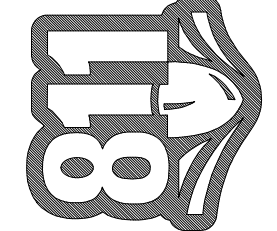
REVISIONS			ENGINEER'S SEAL
NO.	ITEM	DATE	
1.	PRE-APP SUBMITTAL	4-22-24	
2.	SUBMIT TO HAMBURG TWP.	8-16-24	
3.	SUBMIT TO HAMBURG TWP.	9-25-24	
DATE: 1-5-2024			DESIGNED BY: A.A. JOB NUMBER: 23-239
			CHECKED BY: C.S. DRAWING FILE: 1-23239-CV.dwg

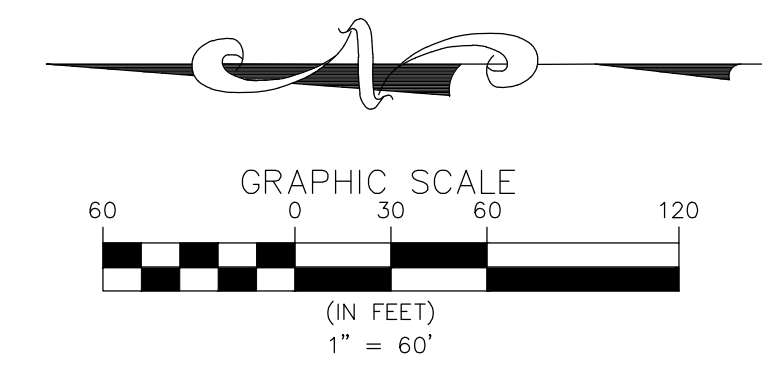


PER PREVIOUSLY APPROVED PLANS
 PREPARED BY M.E.G.A. ENGINEERING
 DATED: 8-30-2022

OPEN SPACE REQUIRED:
 1,500 S.F./ UNIT=1,500 x 208
 312,000 S.F. (7.16 AC.) 44% OF SITE AREA (16.1 AC.)

OPEN SPACE PROVIDED:
 262,684 S.F. (6.03 AC.) 37% OF SITE AREA (16.1 AC.)

PAGE No.: 2	PROJECT NAME: THE CROSSING AT LAKELANDS TRAIL PART OF E. 1/2 OF SEC. 25, T.1N., R.5E., HAMBURG TWP., LIVINGSTON COUNTY, MI	CLIENT INFO: ELEVATE LAND HOLDINGS- THE CROSSING 128 N. CENTER STREET NORTHVILLE, MI 48167 248.344.1885	 <p>3 WORKING DAYS BEFORE YOU DIG CALL MISS DIG 1-800-482-7171 TOLL FREE FOR THE LOCATION OF UNDERGROUND FACILITIES</p>
SHEET TITLE: PREVIOUSLY APPROVED SITE PLAN - OPEN SPACE			

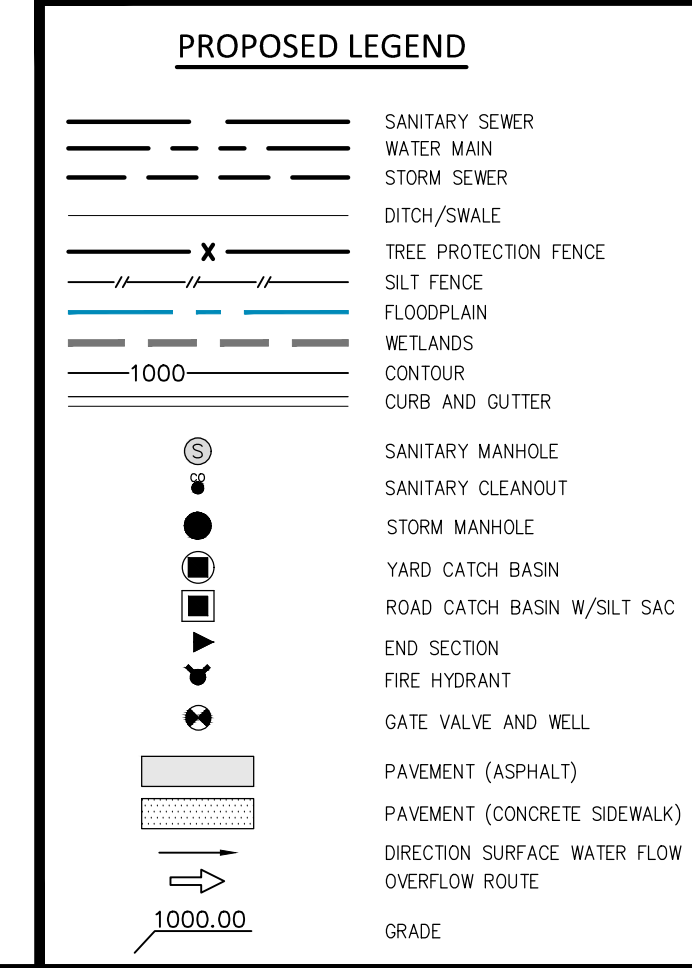


BUILDING TYPE	1B/R	2B/R	3B/R	TOTAL UNITS PER BLDG TYPE	TOTAL B/R PER BLDG TYPE	NO OF BLDGS	TOTAL B/R ALL BLDG TYPE
77 WD.	4	4	0	8	12	4	48
154 WD.	10	4	2	16	24	6	144
167 WD.	6	8	2	16	28	5	140
1B/R UNITS	106	51%				15	332
2B/R UNITS	80	38%					
3B/R UNITS	22	11%					
	208	100%					

SITE DATA
 EXISTING ZONING: GENERAL PLANNED UNIT DEVELOPMENT (GPUD)
 SITE AREA = 15.478 ACRES
 MAX. DWELLING UNITS PER ACRE (V/C): 10 DU/CCRE
 NO. OF BUILDING ON SITE: 16
 NO. OF UNITS PROPOSED: 208
 DWELLING UNITS PER ACRE: 13.44 DU/CCRE (AMEND TO PUD AGREEMENT)

BUILDING SETBACKS:	REQUIRED	PREVIOUSLY APPROVED	PROPOSED
FRONT (FROM PAVEMENT):	20'	15'	N/A
SIDE:	10'	15'	20' MIN.
REAR: TO PROPERTY LINE	25'	30'	20' MIN.
BUILDING TO BUILDING:	35'	N/A	N/A
BUILDING FRONT TO SIDE:	N/A	25'	N/A
BUILDING SIDE TO SIDE:	N/A	15'	N/A
MAXIMUM BUILDING HEIGHT:	35'	35'	35'
MAXIMUM BUILDING STORIES:	2.5 STORIES	2 STORIES	2 STORIES
MINIMUM FLOOR AREA:			
1 BEDROOM	550 S.F.	875 S.F.	815 S.F.
2 BEDROOMS	650 S.F.	1,100 S.F.	1,106 S.F.
3 BEDROOMS		N/A	1,435 S.F.
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	PREVIOUSLY APPROVED PLANS	CURRENT PLANS
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OPEN SPACE:	37%	41.41%
PARKING PROVIDED:	406 SPACES (1.952 SPACES/UNIT)	403 SPACES (1.937 SPACES/UNIT)



SEE LANDSCAPE PLANS FOR SCREENING WALL DETAILS

SEIBER KEAST LEHNER
 ENGINEERING | SURVEYING

SKL

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NO.	REVISIONS	DATE
1	REV. LAYOUT PER HAMBURG TWP. REVIEW	4-22-24
2	REV. ISLAND, ADD VINYL FENCE	6-26-24
3	SUBMIT TO HAMBURG TWP.	8-16-24
4	SUBMIT TO HAMBURG TWP.	9-25-24

3 WORKING DAYS BEFORE YOU DIG
 CALL MISS DIG
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 TOLL FREE FOR THE LOCATION OF UNDERGROUND UTILITIES

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 128 N. CENTER STREET
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 248.344.1885

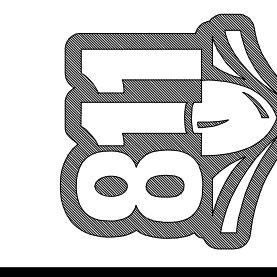
PROJECT NAME:
 THE CROSSING AT LAKELANDS TRAIL
 PART OF E. 1/2 OF SEC. 25, T.1N., R.1E., HAMBURG TWP., LIVINGSTON COUNTY, MI

SHEET TITLE:
 OVERALL PLAN AND OPN SPACE PLAN

PAGE No.: 3

NO.	REVISIONS	DESCRIPTION	DATE
1.	REV. LAYOUT PER HAMBURG TWP. REVIEW		4-22-24
2.	REV. ISLAND, ADD VINYL FENCE		6-26-24
3.	SUBMIT TO HAMBURG TWP.		8-16-24
4.	SUBMIT TO HAMBURG TWP.		9-25-24

3 WORKING DAYS BEFORE YOU DIG
CALL MISS DIG
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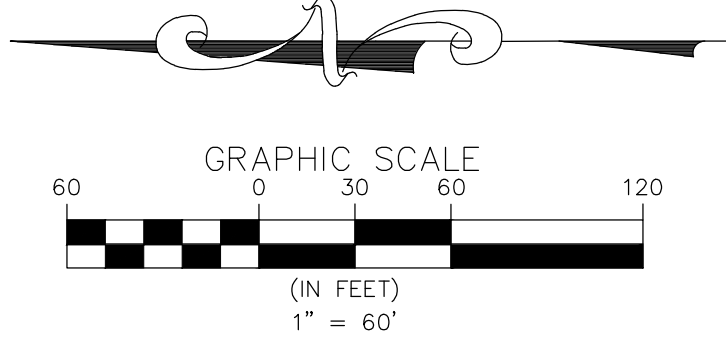
PROJECT NUMBER: 23-239
PROJECT MANAGER: B. EMERINE
DRAWN BY: C.S.
CHECKED BY: C.S.
DATE: 1/10/24
OFFICE: FARMINGTON HILLS

CLIENT INFO:
**ELEVATE LAND HOLDINGS-
THE CROSSING AT
LAKELANDS TRAIL**
128 N. CENTER STREET
NORTHVILLE, MI 48167
248.344.1885

PROJECT NAME:
**THE CROSSING AT
LAKELANDS TRAIL**
PART OF E. 1/2 OF SEC. 25, T.1N., R.5E.,
HAMBURG TWP., LIVINGSTON COUNTY, MI

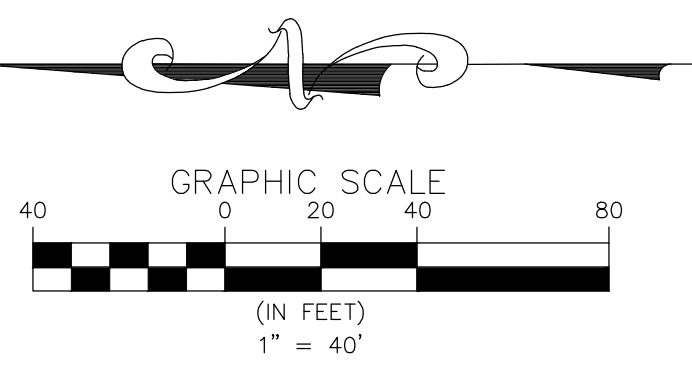
PAGE No.:
4

SHEET TITLE:
UTILITIES PLAN



PROPOSED LEGEND

	SANITARY SEWER
	WATER MAIN
	STORM SEWER
	DITCH/SWALE
	TREE PROTECTION FENCE
	SILT FENCE
	FLOODPLAIN
	WETLANDS
	CONTOUR
	CURB AND GUTTER
	SANITARY MANHOLE
	SANITARY CLEANOUT
	STORM MANHOLE
	YARD CATCH BASIN
	ROAD CATCH BASIN W/SILT SAC
	END SECTION
	FIRE HYDRANT
	GATE VALVE AND WELL
	PAVEMENT (ASPHALT)
	PAVEMENT (CONCRETE SIDEWALK)
	DIRECTION SURFACE WATER FLOW
	OVERFLOW ROUTE
	GRADE



(SEE SHEET 6)

PROPOSED LEGEND

	SANITARY SEWER
	WATER MAIN
	STORM SEWER
	DITCH/SWALE
	TREE PROTECTION FENCE
	SILT FENCE
	FLOODPLAIN
	WETLANDS
	CONTOUR
	CURB AND GUTTER
	SANITARY MANHOLE
	SANITARY CLEANOUT
	STORM MANHOLE
	YARD CATCH BASIN
	ROAD CATCH BASIN W/SILT SAC
	END SECTION
	FIRE HYDRANT
	GATE VALVE AND WELL
	PAVEMENT (ASPHALT)
	PAVEMENT (CONCRETE SIDEWALK)
	DIRECTION SURFACE WATER FLOW
	OVERFLOW ROUTE
	GRADE

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NO.	REVISIONS	DESCRIPTION	DATE
1.	REV. LAYOUT PER HAMBURG TWP. REVIEW		4-22-24
2.	REV. ISLAND, ADD VINYL FENCE		6-26-24
3.	SUBMIT TO HAMBURG TWP.		8-16-24
4.	SUBMIT TO HAMBURG TWP.		9-25-24

3 WORKING DAYS BEFORE YOU DIG
CALL MISS DIG
1-800-482-7171
TOLL FREE FOR THE LOCATION OF UNDERGROUND UTILITIES

PROJECT NUMBER:	23-239
PROJECT MANAGER:	B. EMERINE
DRAWN BY:	
CHECKED BY:	
DATE:	1/10/24
OFFICE:	FARMINGTON HILLS

CLIENT INFO:
ELEVATE LAND HOLDINGS-
THE CROSSING
128 N. CENTER STREET
NORTHVILLE, MI 48167
248.344.1885

PROJECT NAME:
THE CROSSING AT
LAKELANDS TRAIL
PART OF E. 1/2 OF SEC. 25, T.1N., R.9E.,
HAMBURG TWP., LIVINGSTON COUNTY, MI

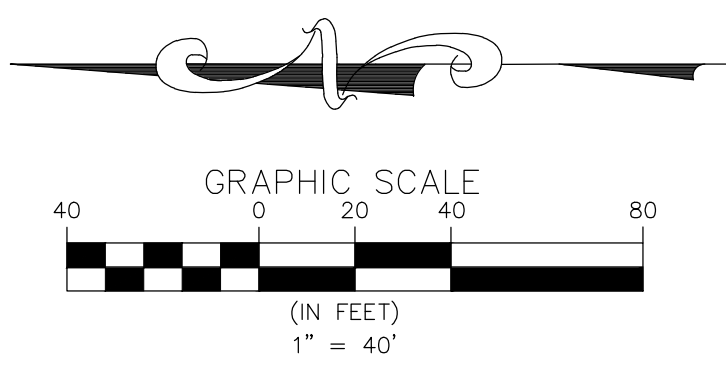
SHEET TITLE:
GRADING PLAN

PAGE No.: 5

(SEE SHEET 5)



(SEE SHEET 7)

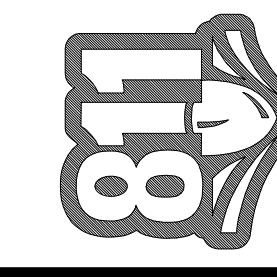


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PROJECT MANAGER:	B. EMERINE
DRAWN BY:	
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OFFICE:	FARMINGTON HILLS

CLIENT INFO:
ELEVATE LAND HOLDINGS—
THE CROSSING AT
LAKELANDS TRAIL
128 N. CENTER STREET
NORTHVILLE, MI 48167
248.344.1885

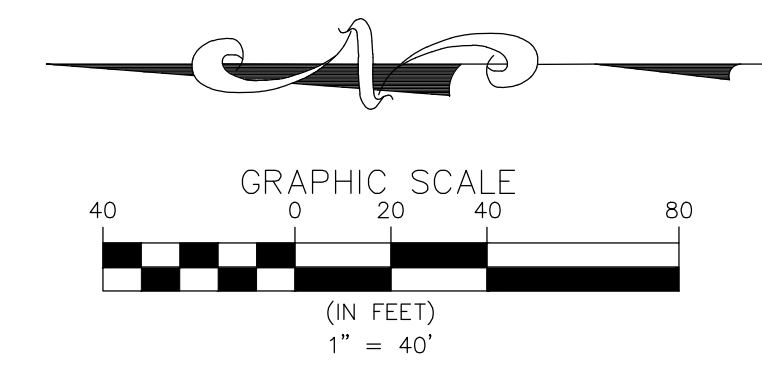
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THE CROSSING AT
LAKELANDS TRAIL
PART OF E. 1/2 OF SEC. 25, T.1N., R.5E.,
HAMBURG TWP., LIVINGSTON COUNTY, MI

SHEET TITLE:
GRADING PLAN

PAGE No.:
6

PROPOSED LEGEND	
	SANITARY SEWER
	WATER MAIN
	STORM SEWER
	DITCH/SWALE
	TREE PROTECTION FENCE
	SILT FENCE
	FLOODPLAIN
	WETLANDS
	CONTOUR
	CURB AND GUTTER
	SANITARY MANHOLE
	SANITARY CLEANOUT
	STORM MANHOLE
	YARD CATCH BASIN
	ROAD CATCH BASIN W/SILT SAC
	END SECTION
	FIRE HYDRANT
	GATE VALVE AND WELL
	PAVEMENT (ASPHALT)
	PAVEMENT (CONCRETE SIDEWALK)
	DIRECTION SURFACE WATER FLOW
	OVERFLOW ROUTE
	GRADE

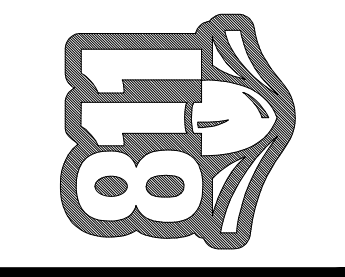
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NO.	REVISIONS	DESCRIPTION	DATE
1.	REV. LAYOUT PER HAMBURG TWP. REVIEW		4-22-24
2.	REV. ISLAND, ADD VINYL FENCE		6-26-24
3.	SUBMIT TO HAMBURG TWP.		8-16-24
4.	SUBMIT TO HAMBURG TWP.		9-25-24

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PROJECT NUMBER: 23-239
PROJECT MANAGER: B. EMERINE
DRAWN BY: C.S.
CHECKED BY: C.S.
DATE: 1/10/24
OFFICE: FARMINGTON HILLS

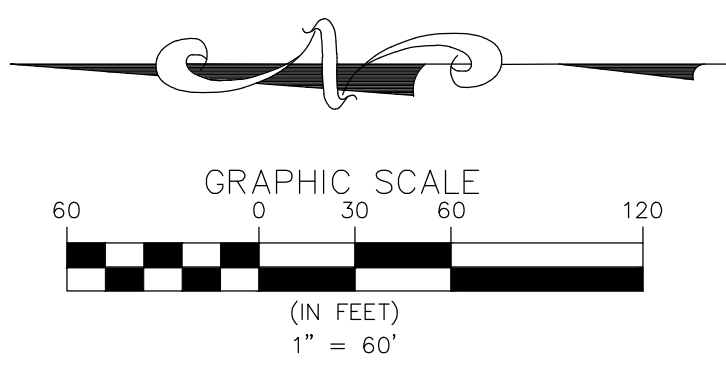
CLIENT INFO:
 ELEVATE LAND HOLDINGS-
 THE CROSSING AT
 128 N. CENTER STREET
 NORTHVILLE, MI 48167
 248.344.1885

PROJECT NAME:
 THE CROSSING AT
 LAKELANDS TRAIL
 PART OF E. 1/2 OF SEC. 25, T.1N., R.9E.,
 HAMBURG TWP., LIVINGSTON COUNTY, MI

SHEET TITLE:
 GRADING PLAN

PAGE No.: 7

PROPOSED LEGEND	
	SANITARY SEWER
	WATER MAIN
	STORM SEWER
	DITCH/SWALE
	TREE PROTECTION FENCE
	SILT FENCE
	FLOODPLAIN
	WETLANDS
	CONTOUR
	CURB AND GUTTER
	SANITARY MANHOLE
	SANITARY CLEANOUT
	STORM MANHOLE
	YARD CATCH BASIN
	ROAD CATCH BASIN W/SILT SAC
	END SECTION
	FIRE HYDRANT
	GATE VALVE AND WELL
	PAVEMENT (ASPHALT)
	PAVEMENT (CONCRETE SIDEWALK)
	DIRECTION SURFACE WATER FLOW
	OVERFLOW ROUTE
	GRADE



WATER QUALITY VOLUME REQUIRED
 A = 15.11 Ac
 C = 0.65
 $Vw-q = 3,630 \times C \times A = 35,652 \text{ ft}^3 \text{ required} < Vr-a$

DETERMINE DETENTION REQUIREMENTS (100-YEAR STORM)
 Ac = 15.11 Ac (Onsite Area Tributary to Basin)
 Ac_{off} = 0.00 Ac (Offsite Area Tributary to Basin)
 C = 0.65

CALCULATE VARIABLE RELEASE RATE
 $Qvrr = 1.1055-0.206 \ln(A)$ Qrr = Allowable release rate in cfs/acre
 A = Contributign area in acres (does not govern)
 Qvrr = 0.55 cfs/acre
 $Q100p = Qvrr \times A$ Q100p = Allowable 100-year post-development peak flow rate in cfs
 Q100p = 8.25 cfs

CALCULATE 100-YEAR DETENTION VOLUME (V100D)
 Ac = 15.11 Ac (Onsite Area Tributary to Basin)
 Ac_{off} = 0.00 Ac (Offsite Area Tributary to Basin)
 $V100 = 18985 \times C \times A$ V100 = POST-DEVELOPMENT 100-YEAR RUNOFF VOLUME IN CF
 V100 = 186461 cf

CALCULATE 100-YEAR PEAK INFLOW RATE (Q100IN)
 Ac = 15.11 Ac (Onsite Area Tributary to Basin)
 Ac_{off} = 0.00 Ac (Offsite Area Tributary to Basin)
 $Q100IN = C \times I100 \times A$ Q100IN = 100-YEAR POST-DEVELOPMENT PEAK INFLOW RATE IN CFS
 $I100 = 83.3 / (Tc + 9.17)^{0.81}$ I100 = 100-year peak rainfall intensity in inches/hour
 I100 = 4.658 in/hr
 Q100IN = 45.75 cfs

CALCULATE STORAGE CURVE FACTOR FOR THE 100-YEAR DETENTION VOLUME (R)
 $R = [0.206 - 0.15 \ln(Q100P/Q100IN)]$
 R = 0.463

CALCULATE 100-YEAR REQUIRED DETENTION BASIN VOLUME
 $V100D = (V100R \times R) - VCP-P$ V100D = Required 100-year detention volume in cf
 V100R = 100-Year runoff volume in cf
 R = Storage curve factor
 Vcp-p = Provided CVPC Volume in cf
 $V100D \geq VED$
 V100D = 86316 C.F. **REQUIRED DETENTION VOLUME**
 117041 C.F. **PROVIDED DETENTION VOLUME**

DETERMINE STORAGE IN SEDIMENT BASIN

Elevation	Area	Volume (c.f.)
904	6864	0
905	8526	7695
906	10321	17119
907	12214	28386

HW EL = 907.0 Volume at HW = 28386

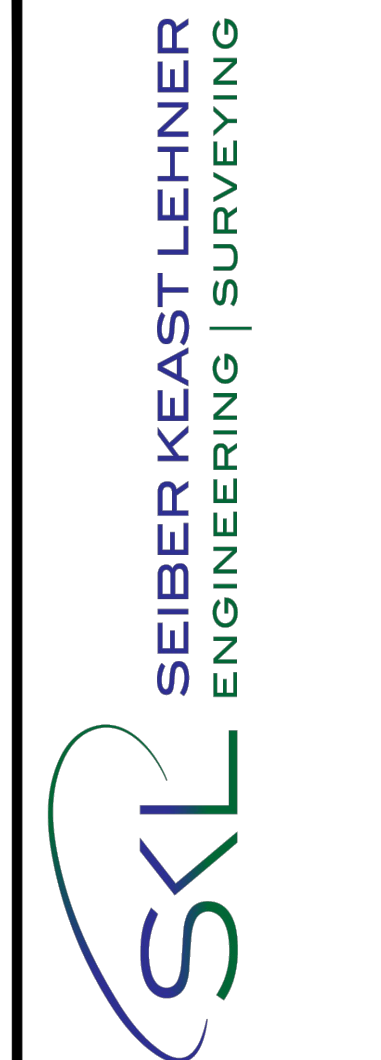
DETERMINE STORAGE IN DETENTION BASIN

Elevation	Area	Volume (c.f.)
904	24897	0
905	27939	26418
906	31098	55937
907	34338	88655

HW EL = 907.0 Volume at HW = 88655

C-Factor Determination

Tributary Area =	15.11 Acres		
ImperVIOUS Areas			
Bldgs, Roads and S/W =	8.83 Ac.	at C =	0.90
PervIOUS Areas			
Lawn Areas =	5.60 Ac.	at C =	0.20
Low Water	0.68 Ac.	at C =	1.00
C Avg.	= 0.65		



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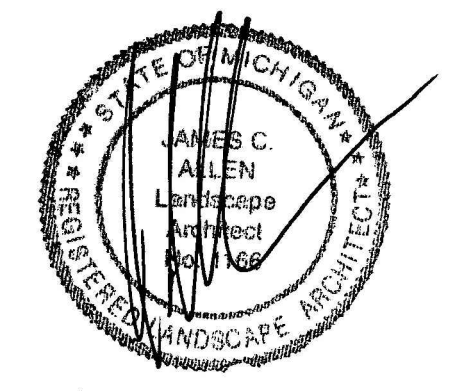
PROJECT NUMBER:	23-239
PROJECT MANAGER:	B. EMERINE
DRAWN BY:	
CHECKED BY:	
DATE:	1/10/24
OFFICE:	FARMINGTON HILLS

CLIENT INFO:
 ELEVATE LAND HOLDINGS-
 THE CROSSING
 128 N. CENTER STREET
 NORTHVILLE, MI 48167
 248.344.1885

PROJECT NAME:
 THE CROSSING AT
 LAKELANDS TRAIL
 PART OF E. 1/2 OF SEC. 25, T.1N., R.9E.,
 HAMBURG TWP., UNIVINGSTON COUNTY, MI

SHEET TITLE:
 STORM WATER
 MANAGEMENT PLAN

Seal: _____



Title: _____

Landscape Plan

Project: _____

Lakeland Trails
Hamburg Township, Michigan

Prepared for: _____

Elevate Property Partners, LLC
128 North Center
Northville, Michigan 48167

Revision: _____ Issued: _____

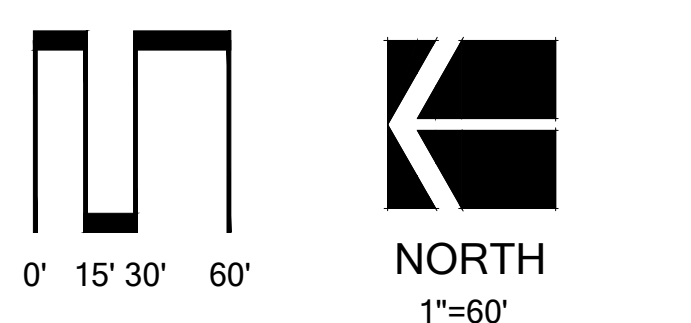
Review April 11, 2024
Revised April 22, 2024
Revised August 16, 2024
Revised September 25, 2024

Job Number: _____

24-019

Drawn By: _____ Checked By: _____

jca jca



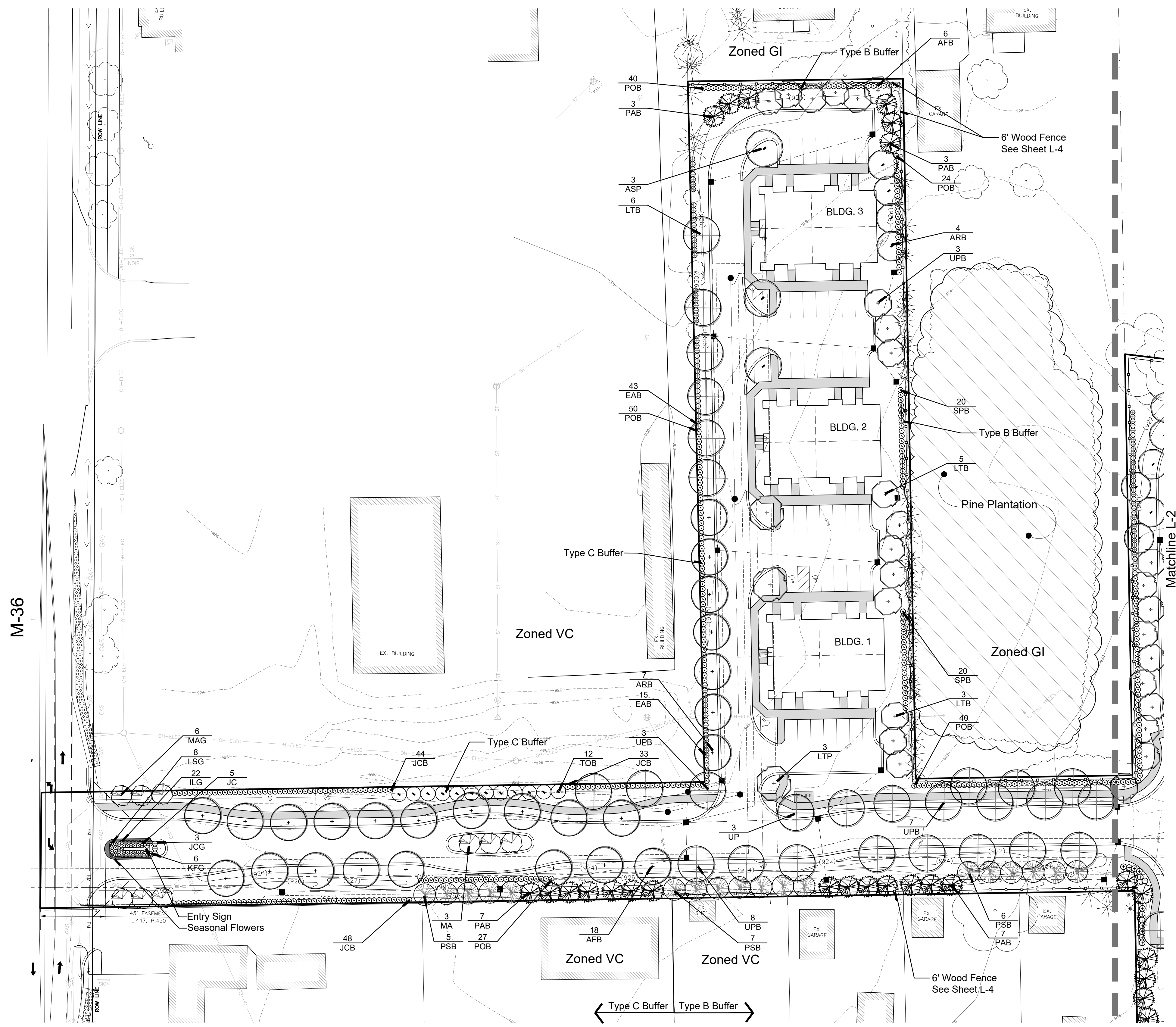
Sheet No. _____

Landscape Summary - This Sheet

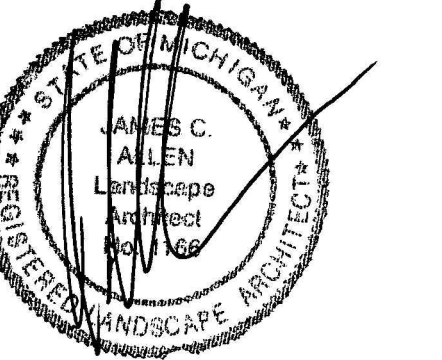
Existing Zoning	GPUD
Greenbelt	
Street Frontage	80 l.f.
Trees Required	2 Trees (80 / 40)
Trees Provided	6 Trees
Shrubs Required	8 Shrubs (80 / 40) x 4
Shrubs Provided	25 Shrubs
Land Use Buffers	
Buffer Length West and North	1,300 l.f. (Type C)
Trees Required	65 Trees (1,300 / 20)
Trees Provided	65 Trees (7 Existing)
Shrubs Required	260 Shrubs (1,300 / 20) x 4
Shrubs Provided	260 Shrubs
Buffer Length West and East	1,078 l.f. (Type B)
Canopy Trees Required	35.9 Trees (1,078 / 30)
Canopy Trees Provided	36 Trees
Evergreen Trees Required	35.9 Trees (1,078 / 30)
Evergreen Trees Provided	62 Trees (36 Existing)
Shrubs Required	143.7 Shrubs (1,078 / 30) x 4
Shrubs Provided	144 Shrubs
Parking Lot Landscaping	
Parking Lot Area	
Trees Required	5.8 Trees (11,654 / 2,000)
Trees Provided	6 Trees

Plant List - This Sheet

sym.	qty.	botanical name	common name	caliper	spacing	root	height
Greenbelt							
ILG	22	Ilex glabra 'Nordic'	Nordic Inkberry		as shown	cont	24"
JCG	3	Juniperus ch. keteleeri	Keteleeri Juniper		as shown	B&B	6', Hedge to 5'
KFG	6	Calamagrostis x. a. 'Karl Forester'	Karl Forester Grass		as shown	cont	#3
LSG	8	Leucanthemum 'Snow Lady'	Short Shasta Daisy		as shown	cont	#2
MAG	6	Malus 'Adirondack'	Adirondack Crab Apple	2.0"	as shown	B&B	
ROG	13	Rosa 'Knockout'	Knockout Rose		spacing	cont	#3
	6	Trees Provided					
	25	Shrubs Provided					
Land Use Buffers							
AFB	24	Acer x. freemanii 'Autumn Blaze'	Autumn Blaze Maple	2.5"	as shown	B&B	
ARB	11	Acer rubrum 'Redpoint'	Redpoint Maple	2.5"	as shown	B&B	
EAB	58	Euconymus alata 'Compacta'	Burning Bush		as shown	cont	24"
JCB	125	Juniperus ch. keteleeri	Keteleeri Juniper		as shown	B&B	6', Hedge to 5'
LTB	14	Liriodendron tulipifera	Tulip Tree	2.5"	as shown	B&B	
PAB	20	Picea abies	Norway Spruce		as shown	B&B	6'
POB	181	Physocarpus opulifolius 'Diablo'	Diablo Ninebark		as shown	cont	24"
PSB	18	Pinus strobus	White Pine		as shown	B&B	6'
SPB	40	Spiraea j. 'Little Princess'	Little Princess Spirea		as shown	cont	24"
TOB	12	Thuja pl. 'Green Giant'	Green Giant Arborvitae		as shown	B&B	6'
UPB	21	Ulmus americana 'Princeton'	Princeton Elm	2.5"	as shown	B&B	
	120	Trees Provided					
	404	Shrubs Provided					
Parking Lot Trees							
ASP	3	Acer saccharum 'Legacy'	Sugar Maple	2.5"	as shown	B&B	
LTP	3	Liriodendron tulipifera	Tulip Tree	2.5"	as shown	B&B	
	6	Trees Provided					
General Plantings							
MA	3	Malus 'Adirondack'	Adirondack Crab Apple	2.0"	as shown	B&B	
UP	3	Ulmus americana 'Princeton'	Princeton Elm	2.5"	as shown	B&B	



Seal:



Title:

Landscape Plan

Project:

Lakeland Trails
Hamburg Township, Michigan

Prepared for:

Elevate Property Partners, LLC
128 North Center
Northville, Michigan 48167

Revision:

Issued:

Review	April 11, 2024
Revised	April 22, 2024
Revised	August 16, 2024
Revised	September 25, 2024

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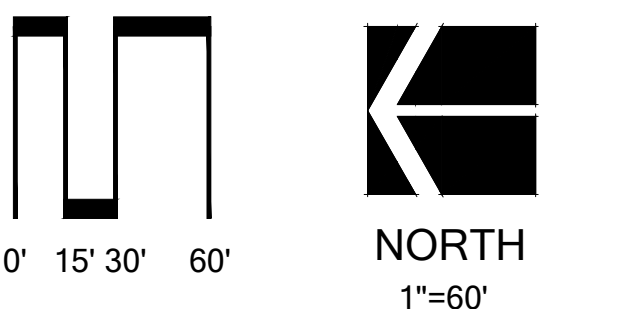
24-019

Drawn By:

jca

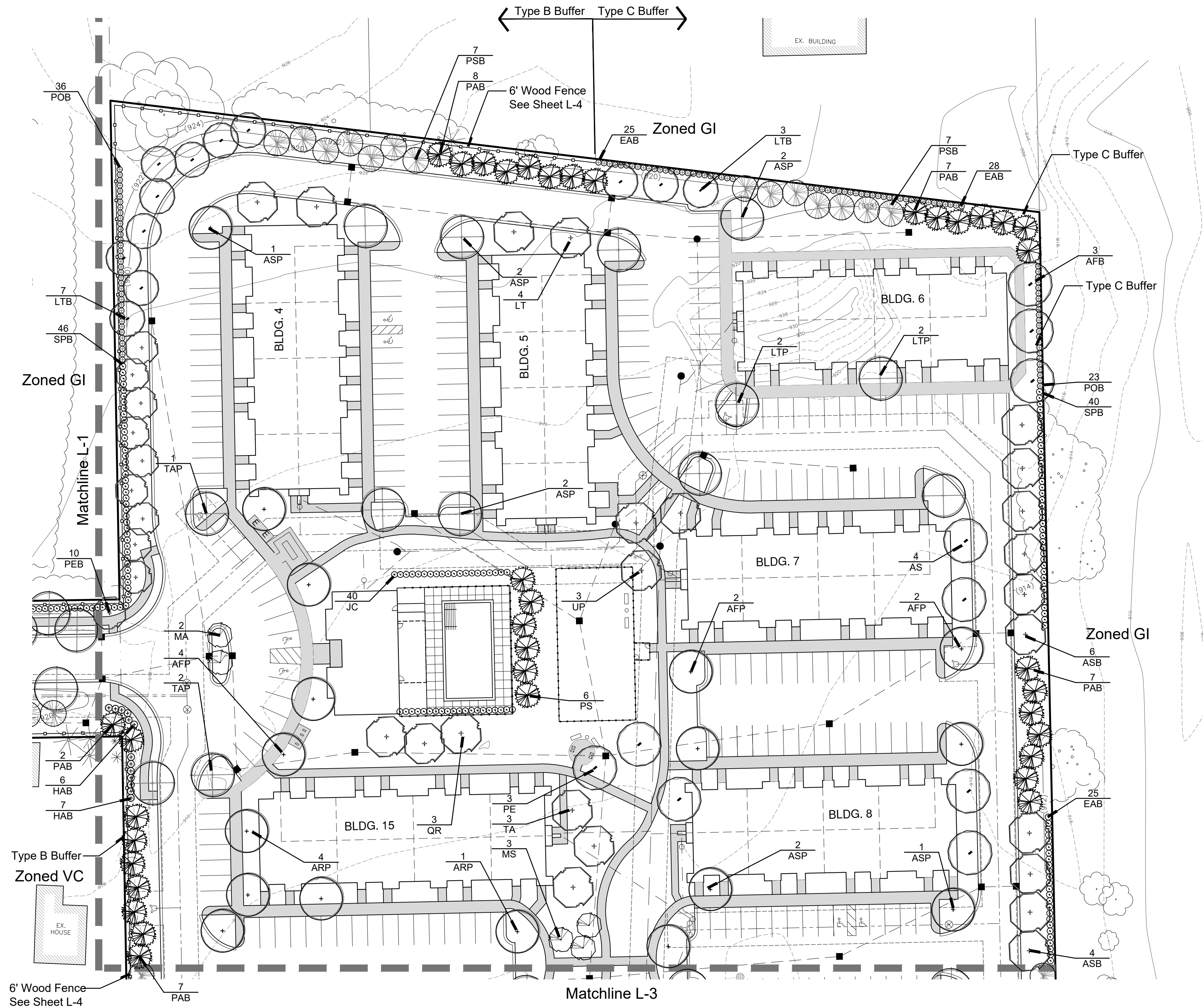
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Sheet No.

L-2



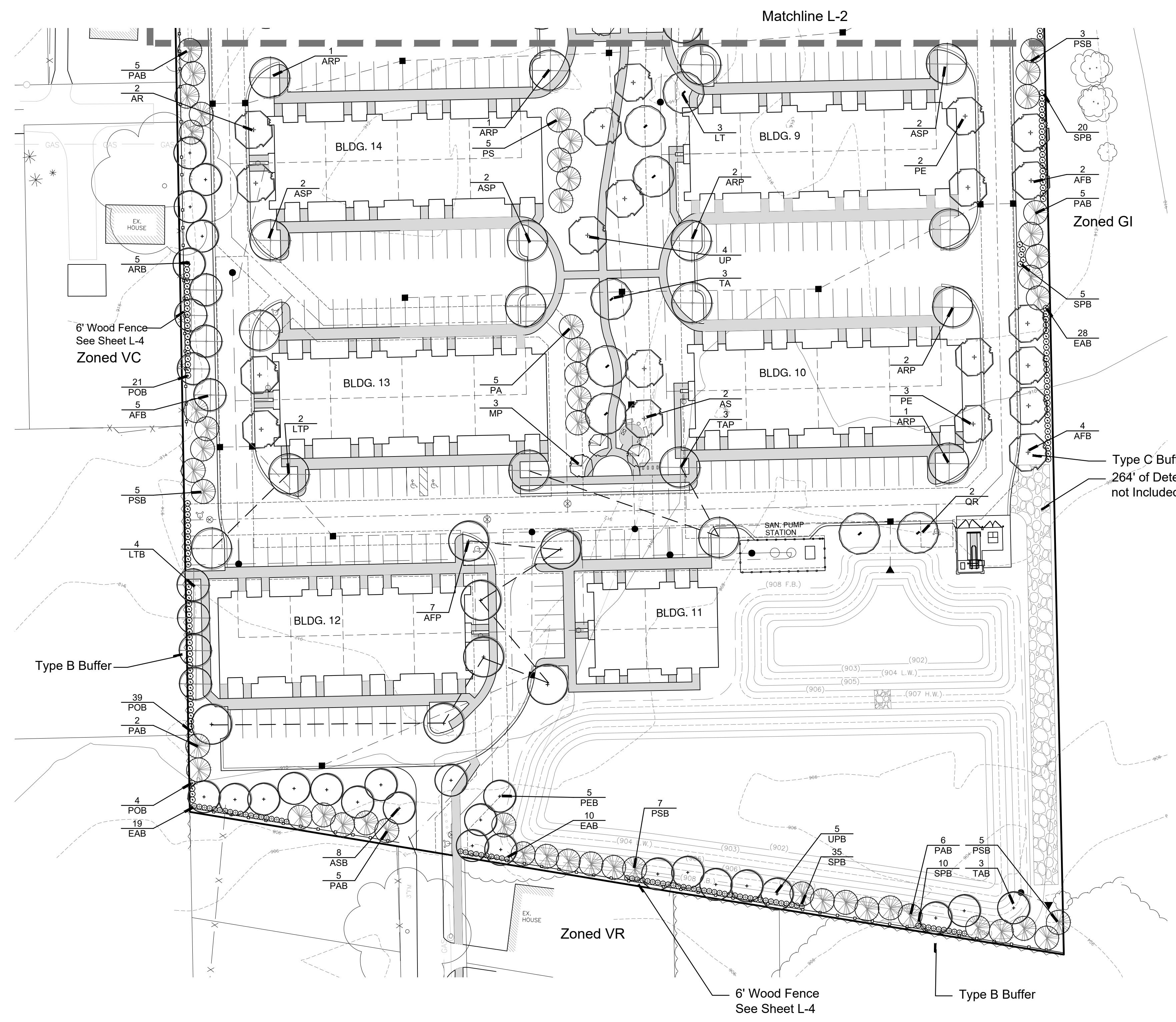
Landscape Summary - This Sheet

Existing Zoning	GPUD
Land Use Buffers	
Buffer Length East, North	712 l.f. (Type B)
Canopy Trees Required	23.7 Trees (712/ 30)
Canopy Trees Provided	24 Trees (6 Existing)
Evergreen Trees Required	23.7 Trees (712/ 30)
Evergreen Trees Provided	24 Trees
Shrubs Required	94.9 Shrubs (712 / 30) x 4
Shrubs Provided	95 Shrubs
Buffer Length East, South	702 l.f. (Type C)
Trees Required	35.1 Trees (702 / 20)
Trees Provided	36 Trees
Shrubs Required	140.4 Shrubs (702 / 20) x 4
Shrubs Provided	141 Shrubs
Parking Lot Landscaping	
Parking Lot Area	
Trees Required	29.4 Trees (58,786 / 2,000)
Trees Provided	30 Trees

Plant List - This Sheet

sym.	qty.	botanical name	common name	caliper	spacing	root	height
Land Use Buffers							
AFB	3	Acer x. freemanii 'Autumn Blaze'	Autumn Blaze Maple	2.5"	as shown	B&B	
ASB	10	Acer saccharum 'Legacy'	Sugar Maple	2.5"	as shown	B&B	
EAB	78	Euonymus alata 'Compacta'	Burning Bush	as shown	cont	24"	
HAB	13	Hydrangea aoreascens 'Annabelle'	Annabelle Hydrangea	as shown	cont	24"	
LTB	10	Liriodendron tulipifera	Tulip Tree	2.5"	as shown	B&B	
PAB	31	Picea abies	Norway Spruce	as shown	B&B	6'	
PEB	10	Platanus x acerifolia 'Exclamation'	Exclamation London Planetree	2.5"	as shown	B&B	
POB	59	Physocarpus opulifolius 'Diablo'	Diablo Ninebark	as shown	cont	24"	
PSB	14	Pinus strobus	White Pine	as shown	B&B	6'	
SPB	86	Spiraea j. 'Little Princess'	Little Princess Spiraea	as shown	cont	24"	
	78	Trees Provided					
	236	Shrubs Provided					
Parking Lot Trees							
AFP	8	Acer x. freemanii 'Autumn Blaze'	Autumn Blaze Maple	2.5"	as shown	B&B	
ARP	5	Acer rubrum 'Redpoint'	Redpoint Maple	2.5"	as shown	B&B	
ASP	10	Acer saccharum 'Legacy'	Sugar Maple	2.5"	as shown	B&B	
LTP	4	Liriodendron tulipifera	Tulip Tree	2.5"	as shown	B&B	
TAP	3	Tilia americana 'Redmond'	Redmond Linden	2.5"	as shown	B&B	
	30	Trees Provided					
General Plantings							
AS	4	Acer saccharum 'Legacy'	Sugar Maple	2.5"	as shown	B&B	
JC	40	Juniperus ch. keteleeri	Keteleeri Juniper	as shown	B&B	6', Hedge to 5'	
LT	4	Liriodendron tulipifera	Tulip Tree	2.5"	as shown	B&B	
MA	2	Malus 'Adirondack'	Adirondack Crab Apple	2.0"	as shown	B&B	
MS	3	Malus 'Spring Snow'	Spring Snow Crab Apple	2.0"	as shown	B&B	
PE	3	Platanus x acerifolia 'Exclamation'	Exclamation London Planetree	2.5"	as shown	B&B	
PS	6	Pinus strobus	White Pine	as shown	B&B	6'	
QR	3	Quercus rubra	Red Oak	2.5"	as shown	B&B	
TA	3	Tilia americana 'Redmond'	Redmond Linden	2.5"	as shown	B&B	
UP	3	Ulmus americana 'Princeton'	Princeton Elm	2.5"	as shown	B&B	





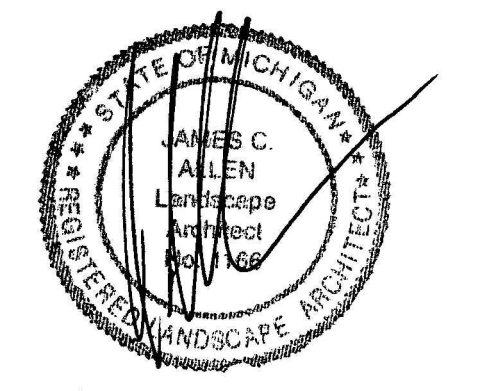
Landscape Summary - This Sheet

Existing Zoning	GPUD
Land Use Buffers	
Buffer Length - West and North	1,033 l.f. (Type B)
Deciduous Trees Required	34.4 Trees (1,033 / 30)
Deciduous Trees Provided	35 Trees
Evergreen Trees Required	34.4 Trees (1,033 / 30)
Evergreen Trees Provided	35 Trees
Shrubs Required	137.7 Shrubs (1,033 / 30) x 4
Shrubs Provided	138 Shrubs
Buffer Length - South	262 l.f. (Type C)
Trees Required	13.1 Trees (262 / 20)
Trees Provided	14 Trees
Shrubs Required	52.4 Shrubs (262 / 20) x 4
Shrubs Provided	53 Shrubs
Parking Lot Landscaping	
Parking Lot Area	
Trees Required	25.4 Trees (50,809 / 2,000)
Trees Provided	25 Trees

Plant List - This Sheet

sym.	qty.	botanical name	common name	caliper	spacing	root	height
Land Use Buffers							
AFB	11	Acer x. freemanii 'Autumn Blaze'	Autumn Blaze Maple	2.5"	as shown	B&B	
ARB	5	Acer rubrum 'Redpoint'	Redpoint Maple	2.5"	as shown	B&B	
ASB	8	Acer saccharum 'Legacy'	Sugar Maple	2.5"	as shown	B&B	
EAB	57	Euonymus alata 'Compacta'	Burning Bush		as shown	cont	24"
LTB	4	Liriodendron tulipifera	Tulip Tree	2.5"	as shown	B&B	
PAB	23	Picea abies	Norway Spruce		as shown	B&B	6'
PEB	5	Platanus x acerifolia 'Exclamation'	Exclamation London Planetree	2.5"	as shown	B&B	
POB	64	Physocarpus opulifolius 'Diablo'	Diablo Ninebark		as shown	cont	24"
PSB	20	Pinus strobus	White Pine		as shown	B&B	6'
SPB	70	Spiraea j. 'Little Princess'	Little Princess Spirea		as shown	cont	24"
TAB	3	Tilia americana 'Redmond'	Redmond Linden	2.5"	as shown	B&B	
UPB	5	Ulmus americana 'Princeton'	Princeton Elm	2.5"	as shown	B&B	
	84	Trees Provided					
	191	Shrubs Provided					
Parking Lot Trees							
AFP	7	Acer x. freemanii 'Autumn Blaze'	Autumn Blaze Maple	2.5"	as shown	B&B	
ARP	7	Acer rubrum 'Redpoint'	Redpoint Maple	2.5"	as shown	B&B	
ASP	6	Acer saccharum 'Legacy'	Sugar Maple	2.5"	as shown	B&B	
LTP	2	Liriodendron tulipifera	Tulip Tree	2.5"	as shown	B&B	
TAP	3	Tilia americana 'Redmond'	Redmond Linden	2.5"	as shown	B&B	
	25	Trees Provided					
General Plantings							
AR	2	Acer rubrum 'Redpoint'	Redpoint Maple	2.5"	as shown	B&B	
AS	2	Acer saccharum 'Legacy'	Sugar Maple	2.5"	as shown	B&B	
LT	3	Liriodendron tulipifera	Tulip Tree	2.5"	as shown	B&B	
MP	3	Malus 'Profusion'	Profusion Crab Apple	2.0"	as shown	B&B	
PA	5	Picea abies	Norway Spruce		as shown	B&B	6'
PE	4	Platanus x acerifolia 'Exclamation'	Exclamation London Planetree	2.5"	as shown	B&B	
PS	5	Pinus strobus	White Pine		as shown	B&B	6'
QR	2	Quercus rubra	Red Oak	2.5"	as shown	B&B	
TA	3	Tilia americana 'Redmond'	Redmond Linden	2.5"	as shown	B&B	
UP	4	Ulmus americana 'Princeton'	Princeton Elm	2.5"	as shown	B&B	

Seal:



Title:

Landscape Plan

Project:

Lakeland Trails
Hamburg Township, Michigan

Prepared for:

Elevate Property Partners, LLC
128 North Center
Northville, Michigan 48167

Revision:

Revised
Revised
Revised

Issued:

April 11, 2024
April 22, 2024
August 16, 2024
September 25, 2024

Job Number:

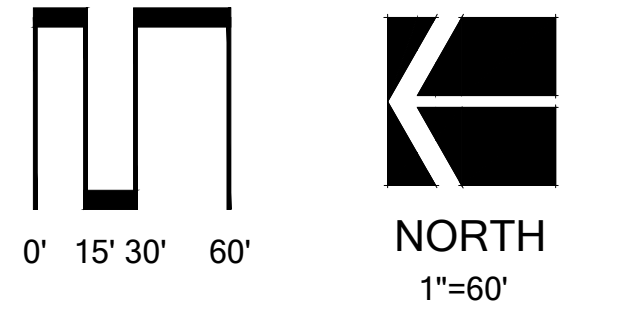
24-019

Drawn By:

jca

Checked By:

jca



Sheet No.

L-3



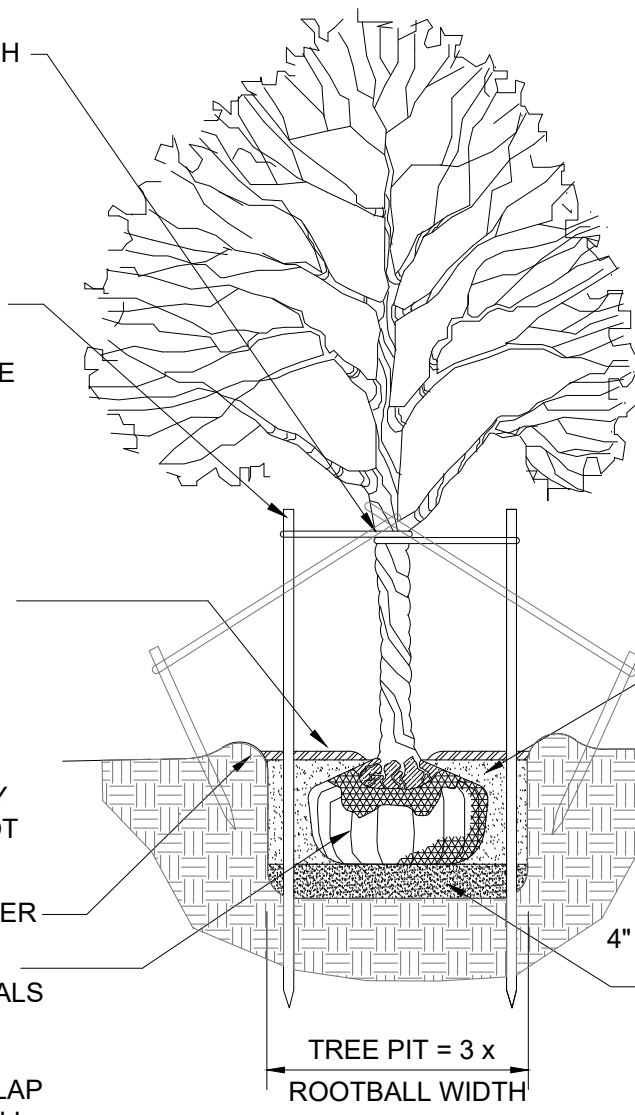
NOTE:
 GUY DECIDUOUS TREES ABOVE
 3" CAL. STAKE DECIDUOUS
 TREES BELOW 3" CAL.

STAKE TREES AT FIRST BRANCH
 USING 2"-3" WIDE BELT-LIKE
 NYLON OR PLASTIC STRAPS.
 ALLOW FOR SOME MINIMAL
 FLEXING OF THE TREE.
 REMOVE AFTER ONE YEAR.

2" X 2" HARDWOOD STAKES,
 MIN. 36" ABOVE GROUND FOR
 UPRIGHT, 18" IF ANGLED. DRIVE
 STAKES A MIN. 18" INTO
 UNDISTURBED GROUND
 OUTSIDE ROOTBALL. REMOVE
 AFTER ONE YEAR.

MULCH 4" DEPTH WITH
 SHREDDED HARDWOOD BARK.
 NATURAL IN COLOR. LEAVE 3"
 CIRCLE OF BARE SOIL AT BASE
 OF TREE TRUNK. PULL ANY
 ROOT BALL DIRT EXTENDING
 ABOVE THE ROOT FLARE AWAY
 FROM THE TRUNK SO THE ROOT
 FLARE IS EXPOSED TO AIR.

MOUND EARTH TO FORM SAUCER
 REMOVE ALL
 NON-BIODEGRADABLE MATERIALS
 COMPLETELY FROM THE
 ROOTBALL. CUT DOWN WIRE
 BASKET AND FOLD DOWN BURLAP
 FROM TOP 1/2 OF THE ROOTBALL.



NOTE:
 TREE SHALL BEAR SAME
 RELATION TO FINISH GRADE AS
 IT BORE ORIGINALLY OR
 SLIGHTLY HIGHER THAN FINISH
 GRADE UP TO 6" ABOVE GRADE,
 IF DIRECTED BY LANDSCAPE
 ARCHITECT FOR HEAVY CLAY
 SOIL AREAS.

DO NOT PRUNE TERMINAL
 LEADER. PRUNE ONLY DEAD OR
 BROKEN BRANCHES.

REMOVE ALL TAGS, STRING,
 PLASTICS AND OTHER
 MATERIALS THAT ARE
 UNSIGHTLY OR COULD CAUSE
 GIRDLING.

PLANTING MIXTURE:
 AMEND SOILS PER
 SITE CONDITIONS
 AND REQUIREMENTS
 OF THE PLANT
 MATERIAL.

SCARIFY SUBGRADE
 AND PLANTING PIT
 SIDES. RECOMPACT
 BASE OF TO 4"
 DEPTH.

DECIDUOUS TREE PLANTING DETAIL

Not to scale

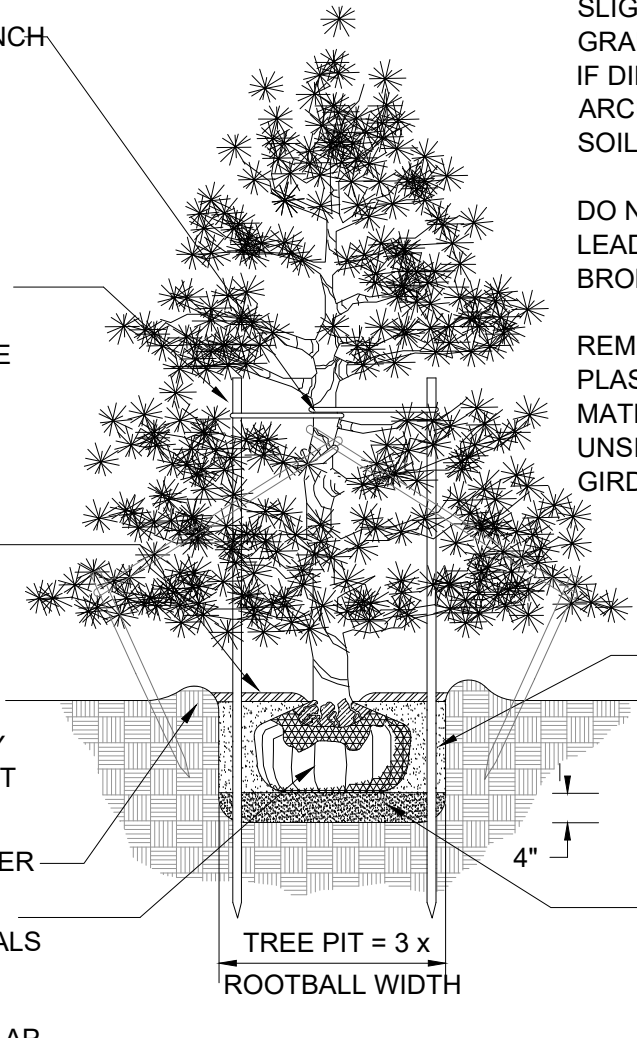
NOTE:
 GUY EVERGREEN TREES ABOVE
 12' HEIGHT. STAKE EVERGREEN
 TREE BELOW 12' HEIGHT.

STAKE TREES AT FIRST BRANCH
 USING 2"-3" WIDE BELT-LIKE
 NYLON OR PLASTIC STRAPS.
 ALLOW FOR SOME MINIMAL
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PLANTING MIXTURE:
 AMEND SOILS PER
 SITE CONDITIONS
 AND REQUIREMENTS
 OF THE PLANT
 MATERIAL.

SCARIFY SUBGRADE
 AND PLANTING PIT
 SIDES. RECOMPACT
 BASE OF TO 4"
 DEPTH.

EVERGREEN TREE PLANTING DETAIL

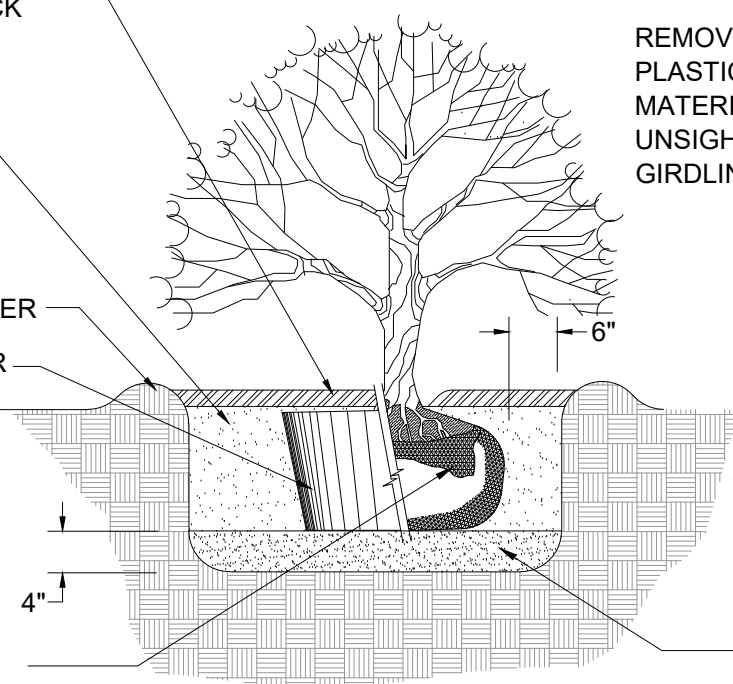
Not to scale

MULCH 3" DEPTH WITH
 SHREDDED HARDWOOD BARK.
 NATURAL IN COLOR. PULL BACK
 3" FROM TRUNK.

PLANTING MIXTURE:
 AMEND SOILS PER
 SITE CONDITIONS
 AND REQUIREMENTS
 OF THE PLANT
 MATERIAL
 MOUND EARTH TO FORM SAUCER

REMOVE COLLAR OF ALL FIBER
 POTS. POTS SHALL BE CUT TO
 PROVIDE FOR ROOT GROWTH.
 REMOVE ALL NONORGANIC
 CONTAINERS COMPLETELY.

REMOVE ALL
 NON-BIODEGRADABLE MATERIALS
 COMPLETELY FROM THE
 ROOTBALL. FOLD DOWN BURLAP
 FROM TOP 1/2 OF THE ROOTBALL.



NOTE:
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 RELATION TO FINISH GRADE AS
 IT BORE ORIGINALLY OR
 SLIGHTLY HIGHER THAN FINISH
 GRADE UP TO 4" ABOVE GRADE,
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 ARCHITECT FOR HEAVY CLAY
 SOIL AREAS.

PRUNE ONLY DEAD OR BROKEN
 BRANCHES.

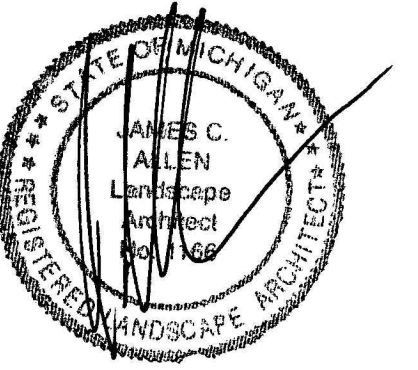
REMOVE ALL TAGS, STRING,
 PLASTICS AND OTHER
 MATERIALS THAT ARE
 UNSIGHTLY OR COULD CAUSE
 GIRDLING.

SCARIFY SUBGRADE
 AND PLANTING PIT
 SIDES. RECOMPACT
 BASE OF TO 4"
 DEPTH.

SHRUB PLANTING DETAIL

NOT TO SCALE

Seal:



Title:

Landscape Details

Project:

Lakeland Trails
 Hamburg Township, Michigan

Prepared for:

Elevate Property Partners, LLC
 128 North Center
 Northville, Michigan 48167

Revision:

Issued:

Review
 Revised
 Revised
 Revised

April 11, 2024
 April 22, 2024
 August 16, 2024
 September 25, 2024

Job Number:

24-019

Drawn By:

jca

Checked By:

jca

Sheet No.



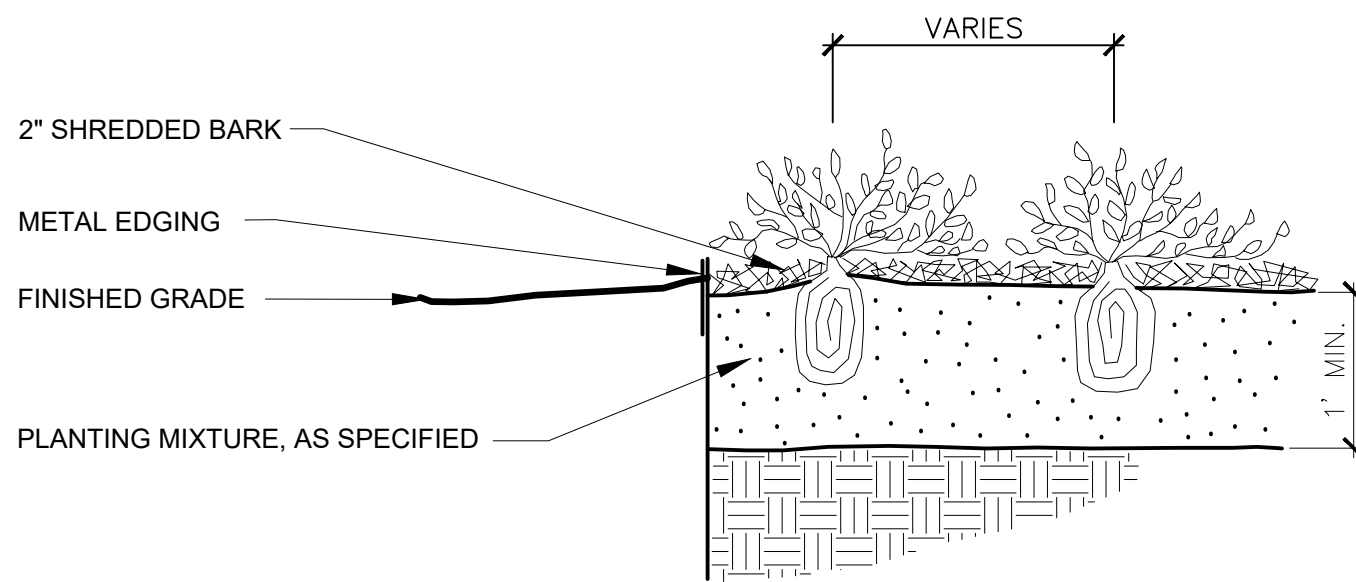
6' Pressure Treated Wood Fence



Size: 6' High, 8' Long Panels with Structural Members
 Facing Project Site

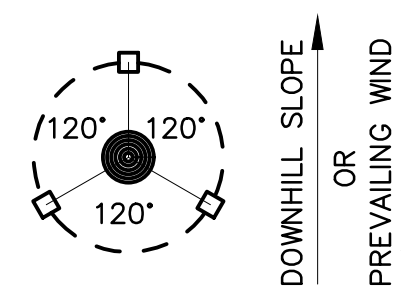
LANDSCAPE NOTES

- All plants shall be north Midwest American region grown, No. 1 grade plant materials, and shall be true to name, free from physical damage and wind burn. Plants shall be full, well-branched, and in healthy vigorous growing condition.
- Plants shall be watered before and after planting is complete.
- All trees must be staked, fertilized and mulched and shall be guaranteed to exhibit a normal growth cycle for at least two (2) full years following Township approval.
- All material shall conform to the guidelines established in the most recent edition of the American Standard for Nursery Stock.
- Provide clean backfill soil, using material stockpiled on site. Soil shall be screened and free of any debris, foreign material, and stone.
- "Agriform" tabs or similar slow-release fertilizer shall be added to the planting pits before being backfilled.
- Amended planting mix shall consist of 1/3 screened topsoil, 1/3 sand and 1/3 peat, mixed well and spread to the depth as indicated in planting details.
- All plantings shall be mulched per planting details located on this sheet.
- The Landscape Contractor shall be responsible for all work shown on the landscape drawings and specifications.
- No substitutions or changes of location, or plant types shall be made without the approval of the Landscape Architect.
- The Landscape Architect shall be notified in writing of any discrepancies between the plans and field conditions prior to installation.
- The Landscape Contractor shall be responsible for maintaining all plant material in a vertical condition throughout the guaranteed period.
- The Landscape Architect shall have the right, at any stage of the installation, to reject any work or material that does not meet the requirements of the plans and specifications, if requested by owner.
- Contractor shall be responsible for checking plant quantities to ensure quantities on drawings and plant list are the same. In the event of a discrepancy, the quantities on the plans shall prevail.
- The Landscape Contractor shall seed and mulch or sod (as indicated on plans) all areas disturbed during construction, throughout the contract limits.
- A pre-emergent weed control agent, "Preen" or equal, shall be applied uniformly on top of all mulching in all planting beds.
- All landscape areas shall be provided with an underground automatic sprinkler system.
- Sod shall be two year old "Baron/Cheriadelpi" Kentucky Blue Grass grown in a sod nursery on loam soil.



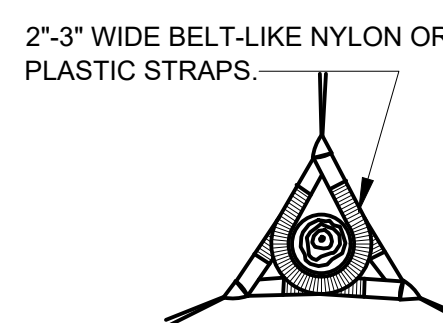
PERENNIAL PLANTING DETAIL

Not to scale

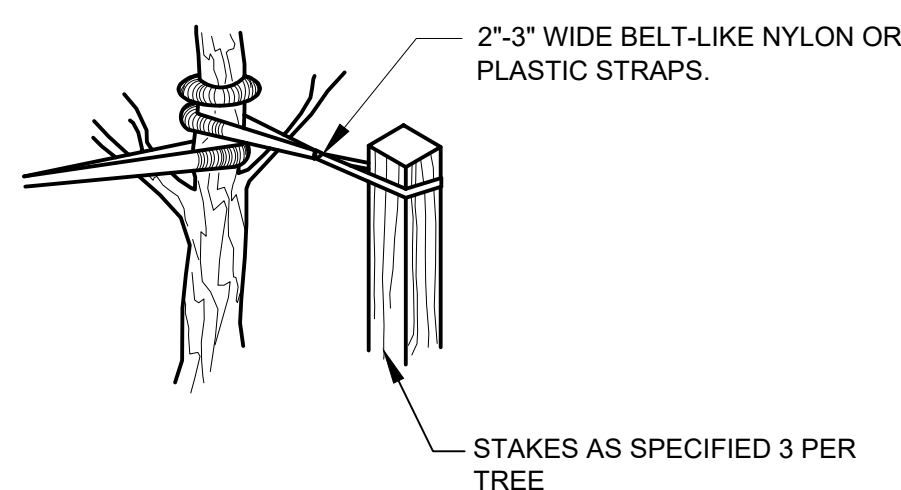


NOTE:
 ORIENT STAKING/GUYING TO PREVAILING
 WINDS, EXCEPT ON SLOPES GREATER
 THAN 3:1 ORIENT TO SLOPE.
 USE SAME STAKING/GUYING
 ORIENTATION FOR ALL PLANTS WITHIN
 EACH GROUPING OR AREA

STAKING/GUYING LOCATION



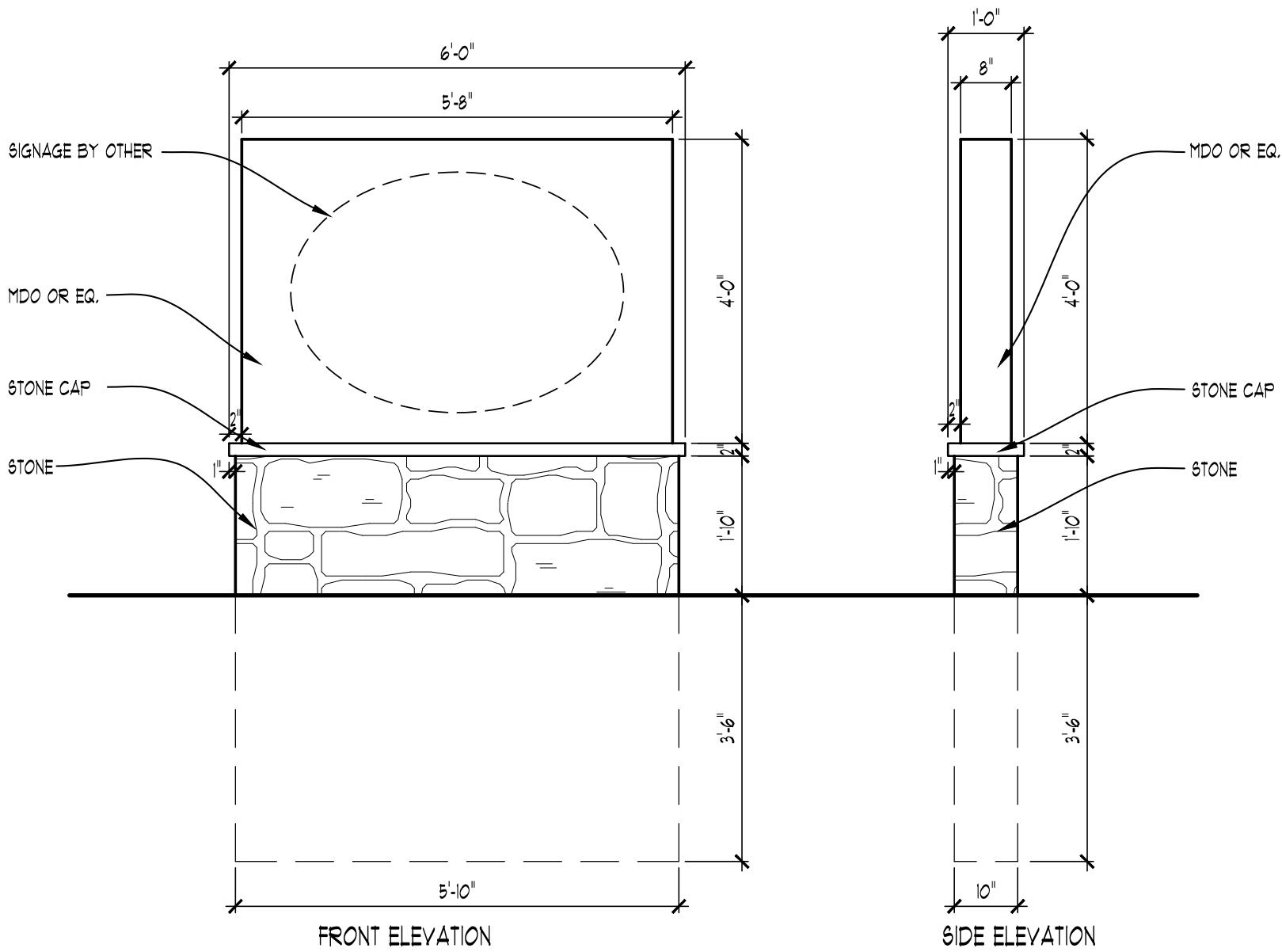
GUYING DETAIL



STAKING DETAIL


TREE STAKING DETAIL

Not to scale



SIGNAGE DETAIL

SCALE: 1/2" = 1'-0"

 <p>TK DESIGN & ASSOCIATES</p> <p>WWW.TKHOMEDSIGN.COM</p> <p>26030 PONTIAC TRAIL SOUTH LYON, MI 48178 PHONE: (248)-446-1960 FAX: (248)-446-1961</p> <p><small>COPYRIGHT 2014 TK DESIGN AND ASSOCIATES</small></p> <p><small>-DO NOT SCALE DRAWINGS. USE CALCULATED DIMENSIONS ONLY -CONTRACTOR TO FIELD VERIFY ALL DRAWING ASPECTS BEFORE CONSTRUCTION. DISCREPANCIES AND DESIGN CHANGES SHALL BE REPORTED TO THE DESIGNER IN WRITTEN FORM IMMEDIATELY -CALL MKS D/C AT 688-482-7271 3 DAYS PRIOR TO ANY EXCAVATION -CONSTRUCTION IS THE SOLE RESPONSIBILITY OF THE PERMIT HOLDER</small></p>	
CLIENT / PROJECT	<p>THE CROSSING AT LAKELANDS TRAIL</p> <p>HAMBURG, MI</p>

THE CROSSING AT LAKELANDS TRAIL

PROPOSED APARTMENT DEVELOPMENT
8-12-2024





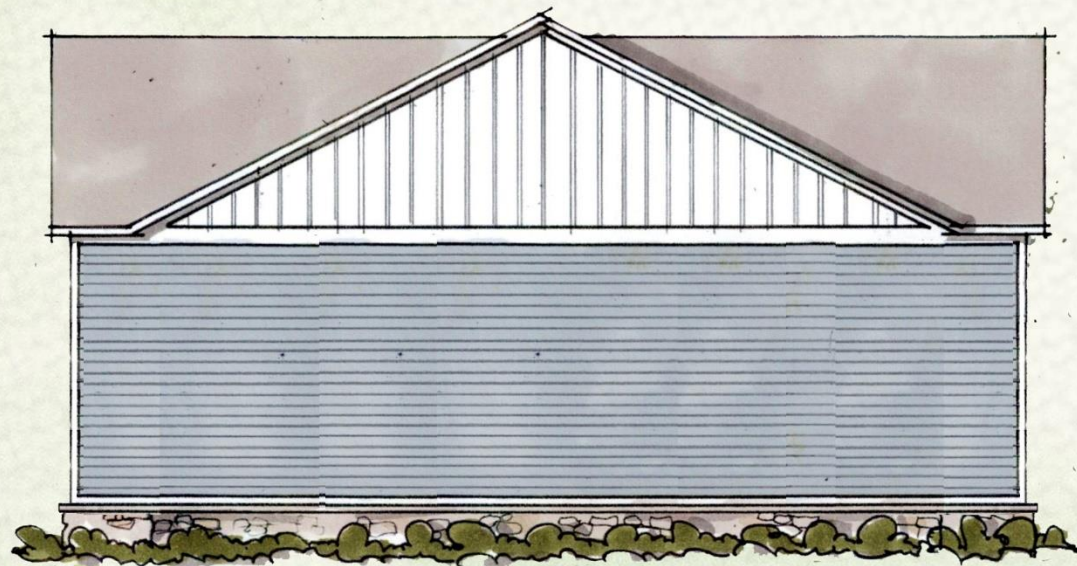
77' 8 UNIT BUILDING FLOOR PLAN



ELEVATION 1



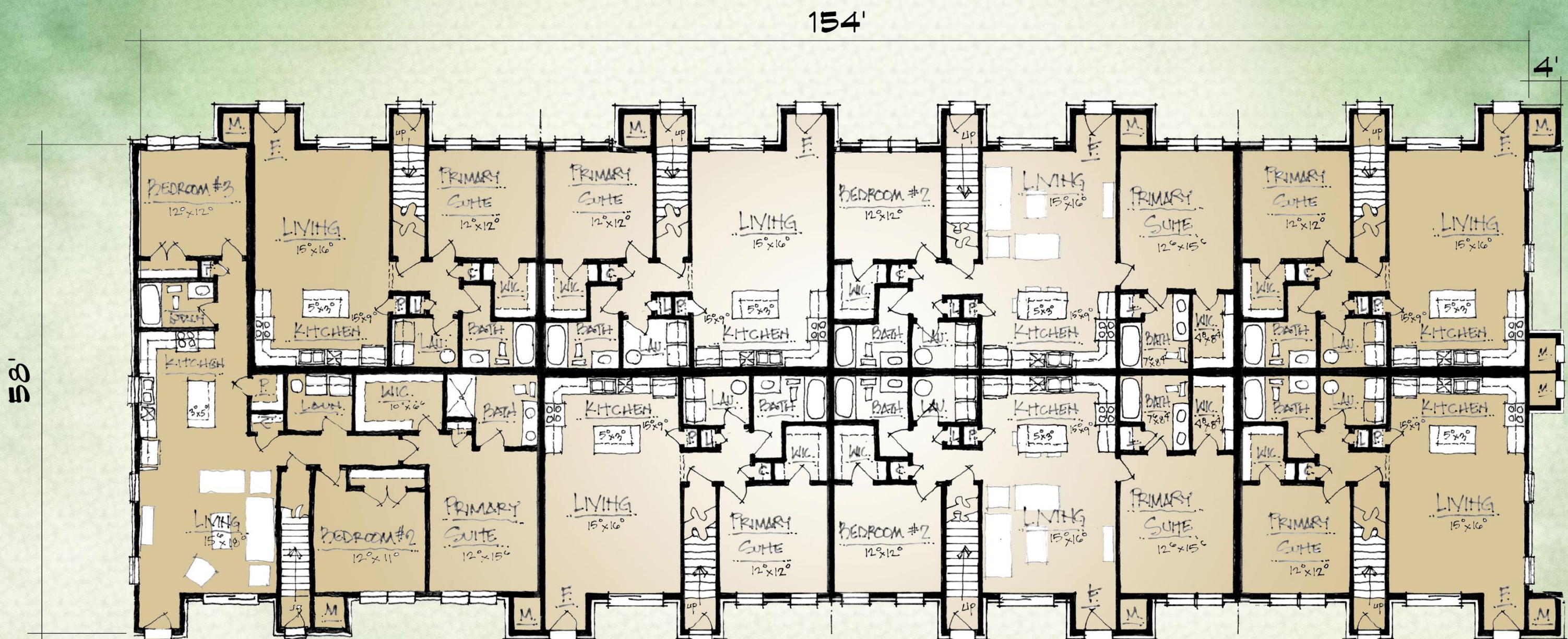
ELEVATION 2



LEFT ELEVATION



RIGHT ELEVATION



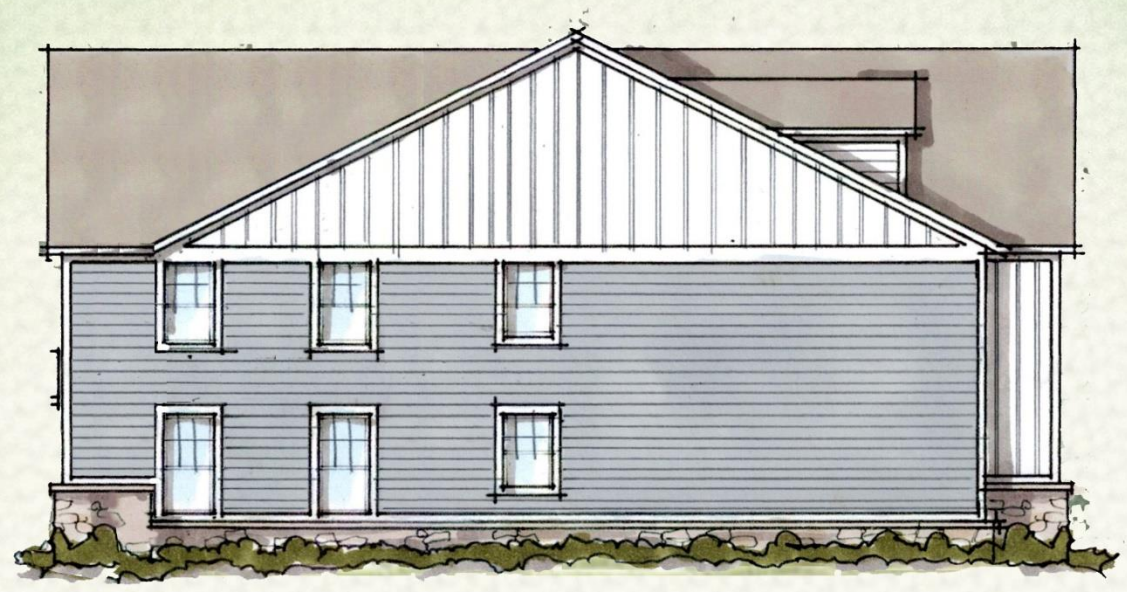
154' 16 UNIT BUILDING FLOOR PLAN



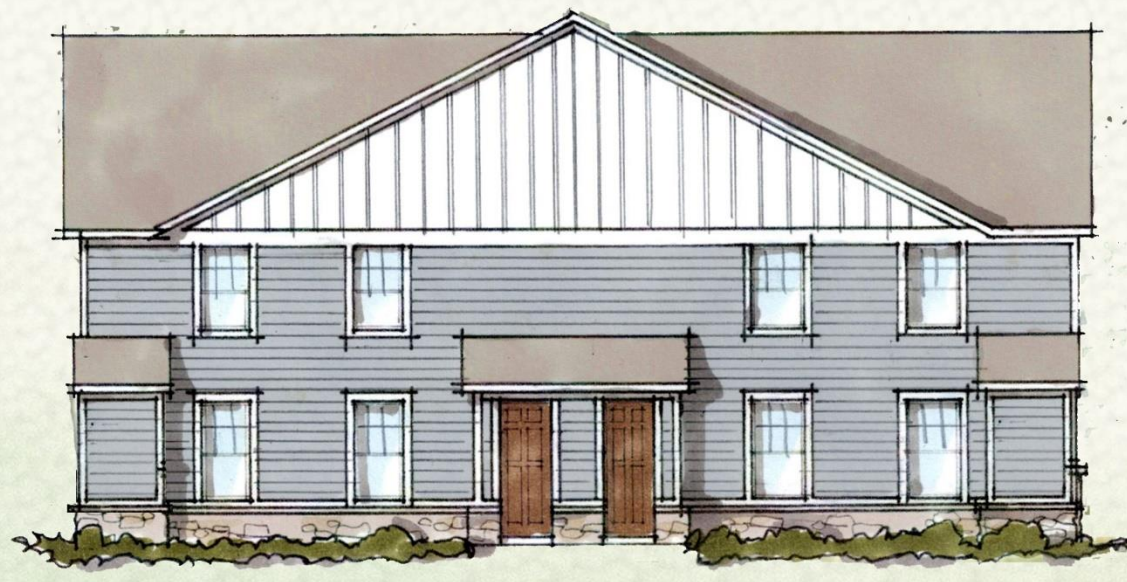
ELEVATION 1



ELEVATION 2



LEFT ELEVATION



RIGHT ELEVATION

167'

6'

12'

58'

3 BEDROOM UNIT PLAN

1450 sf.

2 BEDROOM UNIT PLAN

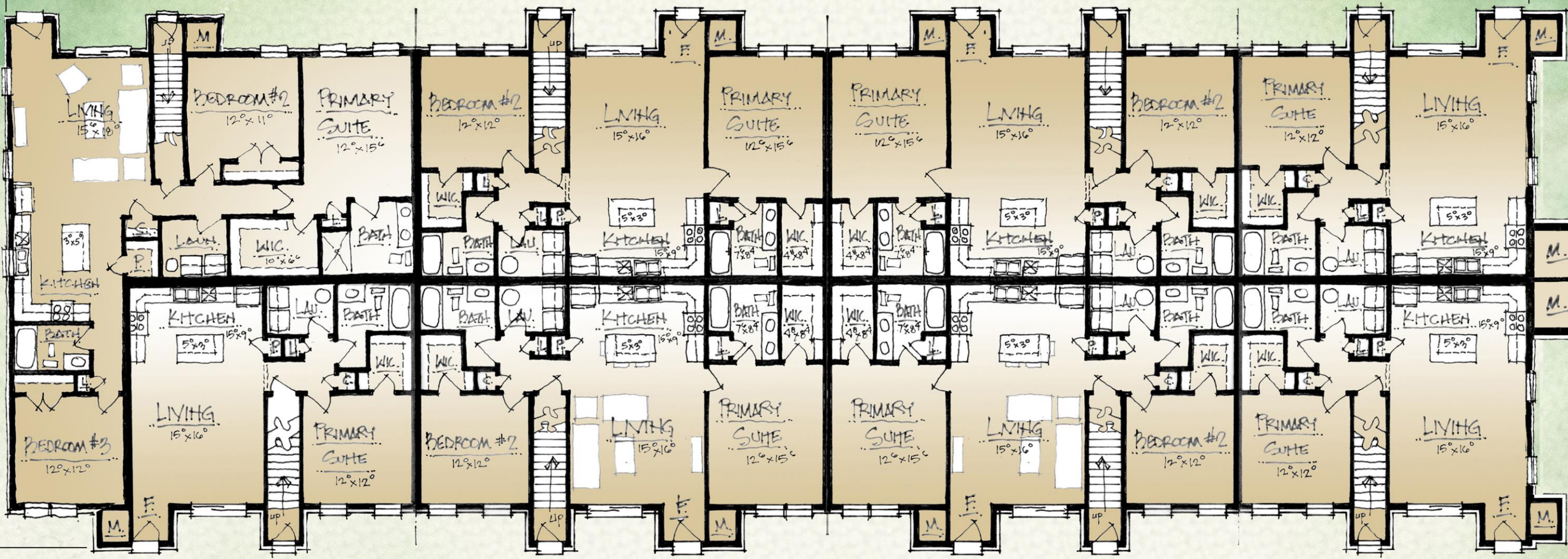
1125 sf.

2 BEDROOM UNIT PLAN

1125 sf.

1 BEDROOM UNIT PLAN

800 sf.



1 BEDROOM UNIT PLAN

800 sf.

2 BEDROOM UNIT PLAN

1125 sf.

2 BEDROOM UNIT PLAN

1125 sf.

1 BEDROOM UNIT PLAN

800 sf.

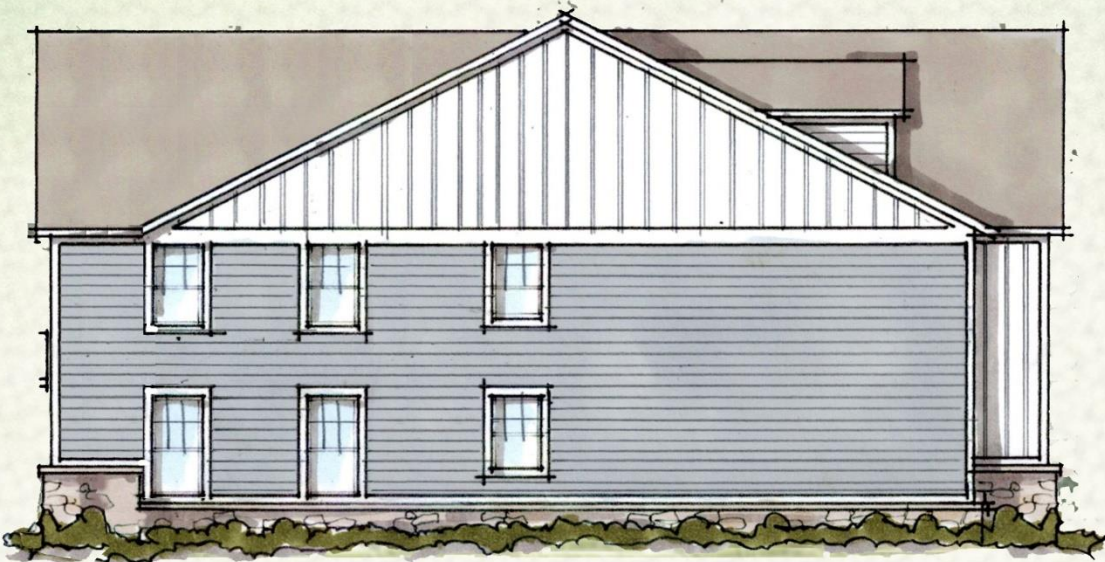
167' 16 UNIT BUILDING FLOOR PLAN



ELEVATION 1



ELEVATION 2



LEFT ELEVATION



RIGHT ELEVATION



Hamburg Township Public Safety – Fire Division

Item 2.

10100 VETERANS MEMORIAL DRIVE
P.O. BOX 157 ♦ HAMBURG, MI 48139-0157
PHONE: 810-222-1100 ♦ FAX: 810-231-9401
E-MAIL: HTFD@HAMBURG.MI.US

DEPUTY FIRE CHIEF JORDAN ZERNICK *PLAN REVIEW RESULTS*

To: Hamburg Twp. Zoning

From: Deputy Fire Chief, Jordan Zernick

Subject: Site Plan Review – Lakeland Crossing

Date: September 5, 2024

I have completed the plan review of the Final Site Plan submittal for the Lakeland Crossing Development in Hamburg Township. The review was based on the applicable Fire Code and Hamburg Township Ordinance Requirements.

The plans are approved as submitted with the following requirements, revisions, and clarification:

1. All buildings on property are to be suppressed by an NFPA 13/NFPA 13R approved suppression system. This requirement is in place due to the road widths being decreased from a 26ft minimum road width in a hydrated district, to a 20ft minimum road width requirement.
2. There shall be no street parking in the 20ft drive isle other than in designated parking spaces that are not within the 20ft drive isle. All streets shall be posted as no parking other than in designated parking areas.
3. Building plans to be submitted to the fire department for review.
4. Suppression and alarm plans shall be submitted to the Hamburg Township Fire Department for review and approval.
5. A 3200 Series Knox Box shall be placed on the Club House. Copies of master keys for the property shall be placed in Knox Box at the time of C of O Inspection.
6. Fire extinguishers shall be placed within the Club House in locations as defined in the International Fire Code. Extinguishers shall be on site during the time of construction.
7. Address labeling and posting for each building shall be placed on each tenant space and each nonresidential building in conjunction with the requirements set forth in the International Fire Code.
8. Any additional plans through this process, including as built plans, shall be submitted directly to the Hamburg Township Fire Department. A minimum of one hard copy and electronic copies will be required.
9. Any gate or means of blocking permanent access to Washington St. shall be submitted to the fire department for approval prior to installation. (proposed Knox box will suffice)



Hamburg Township Public Safety – Fire Division

Item 2.

10100 VETERANS MEMORIAL DRIVE
P.O. BOX 157 ♦ HAMBURG, MI 48139-0157
PHONE: 810-222-1100 ♦ FAX: 810-231-9401
E-MAIL: HTFD@HAMBURG.MI.US

DEPUTY FIRE CHIEF JORDAN ZERNICK **PLAN REVIEW RESULTS**

This approval is subject to field inspection. This approval shall be valid for one year. If construction has not begun within 12 months of the date on this letter the plans must be resubmitted for approval. This approval does not exempt the project from complying with all applicable codes. Additional submittals and approvals may be required.

A handwritten signature in blue ink, appearing to read "J Zernick".

Deputy Chief Jordan Zernick



10405 Merrill Road
 P.O. Box 157
 Hamburg, MI 48139
 (810) 231-1000
www.hamburg.mi.us

Supervisor Pat Hohl Clerk Mike Dolan Treasurer Jason Negri Trustees Bill Hahn, Patricia Hughes, Chuck Menzies, Cindy Michniewicz

BOARD OF TRUSTEES REGULAR MEETING

Tuesday, June 04, 2024 at 2:30 PM
Hamburg Township Hall Board Room

MINUTES

CALL TO ORDER

The meeting was called to order at 2:30 pm.

PLEDGE TO THE FLAG

ROLL CALL OF THE BOARD

PRESENT

- Pat Hohl
- Bill Hahn
- Chuck Menzies
- Cindy Michniewicz
- Jason Negri
- Patricia Hughes

ABSENT

- Mike Dolan

ALSO PRESENT

- Mary Kuzner

CONSENT AGENDA

Motion by Menzies, Seconded by Michniewicz, to approve the consent agenda.

Voting Yea: Hohl, Hahn, Menzies, Michniewicz, Negri, Hughes

1. 5-7-24 130 Township Board Work-Study Session Minutes
2. 5-21-24 700 Board of Trustees Regular Meeting Minutes
3. DPW Monthly Report - March-April 2024
4. Approved MUC Minutes - March 13, 2024
5. Parks and Recreation - Approved Minutes - May 2024

- 6. Township Coordinator - Monthly Report - May 2024
- 7. Senior Center - Monthly Report - May 2024
- 8. Bills List 06.04.2024

CALL TO THE PUBLIC

Sarah Bennett, 10582 Livingston St, is concerned about the apartment complex proposed at the old Hamburg Elementary property. Her concerns are the density it will bring, the traffic volume, the size of the proposed buildings, the landscaping, the location of the sanitary lift station, and the possibility of low income subsidies.

Brenda Vibbart, 10564 Hall Road, would like specifics of the utilities planned and has concerns with the lack of fencing to keep people and dogs on their own property, the increased traffic problems the proposed apartments will bring and how MDOT will manage it.

Makenzie Johnson, 10603 Livingston St, has many of the same concerns mentioned by others and wants to be sure all zoning ordinances are followed by the developer, including the 20 foot buffer zone and open space requirements.

Erin Gottbreht, 7930 Forest Creek Court, is concerned with the magnitude of a development of this size, the disregard for the township ordinances, the landscaping and open space ordinances. This will impact homeowners on Hamburg Lake due to the traffic increase and residents needing alternative driving routes.

Lisa Wack, 7860 Forest Creek Court, would like to know the cost of the proposed apartments compared to the benefits the township will see. Increased traffic on the Lakeland Trail will also bring the possibility of trash and problems.

APPROVAL OF THE AGENDA

Motion by Negri, Seconded by Hahn, to approve the agenda as presented, with items 9 & 13 to be tabled.

Voting Yea: Hohl, Hahn, Menzies, Michniewicz, Negri, Hughes

UNFINISHED BUSINESS

- 9. Employee Evaluation Review form changes
Tabled.

- 10. Utilities & Special Projects Coordinator job description update
Motion by Hohl, Seconded by Michniewicz, to approve the changes to the job description, noting that we need to add the pay grade level to the job description header.

Voting Yea: Hohl, Hahn, Menzies, Michniewicz, Negri, Hughes

- 11. Accounting & Benefits Coordinator job description update
Motion by Negri, Seconded by Hahn, to approve the changed job description of the Accounting & Benefits Coordinator, as presented in the packet.

Voting Yea: Hohl, Hahn, Menzies, Michniewicz, Negri, Hughes

- 12. ARPA Update - May 22, 2024
Motion by Hohl, Seconded by Hughes, to receive and file the ARPA summary and to request the Clerk to schedule an update on the next board meeting for formal discussion.
Voting Yea: Hohl, Hahn, Menzies, Michniewicz, Negri, Hughes

CURRENT BUSINESS

- 13. Deputy Clerk & Elections Coordinator Recognition
Tabled.

- 14. Updated Public Safety SOP
Motion by Hughes, Seconded by Negri, to approve the change to the Public Safety SOP 300-16, as updated in the packet.
Voting Yea: Hohl, Hahn, Menzies, Michniewicz, Negri, Hughes

- 15. Preliminary Site Plan Review (GPUD24-0001) - The Crossing at Lakelands Trail
Motion by Negri, Seconded by Michniewicz, to approve the preliminary site plan application for GPUD24-0001, for the proposed project proposing a 208 unit apartment complex with a clubhouse with conditions 1-6 inclusive. The project does meet the site plan review standards A-L of section 36-73,7 of the zoning ordinance as discussed at the May 15, 2024 Planning Commission Meeting and as discussed here today and as presented in the staff report.
Voting Yea: Hohl, Hahn, Menzies, Michniewicz, Negri, Hughes

Motion by Negri, Seconded by Michniewicz, to amend the original motion with the amendment to urge the Planning Commission to expand the buffer zone required.
Voting Yea: Hohl, Hahn, Menzies, Michniewicz, Negri, Hughes

- 16. Treasury Department Personnel
Motion by Negri, Seconded by Hahn to approve the promotion of Susan Deadman, Senior Treasurer's Assistant, pay grade 4 to Assistant Deputy Treasurer, grade 5, step 8, effective July 1, 2024.
Voting Yea: Hohl, Hahn, Menzies, Michniewicz, Hughes, Negri

Motion by Negri, Seconded by Hughes to approve the monetary recognition for the over-the-top work that Susan did during the transition for Deputy Treasurers in the amount of \$1400.00 for Susan Deadman, to be processed on payroll June 10, 2024.
Voting Yea: Hohl, Hahn, Menzies, Michniewicz, Hughes, Negri

- 17. Community Drive SAD - Road Maintenance Bid Results
Motion by Hohl, Seconded by Negri, to award the 2 year contract to Bob Meyers Excavating and Big Barney's beginning on Jun 22, 2024 - June 21, 2026 for the maintenance of Community Drive. This bid was sent out to 14 contractors.
Voting Yea: Hohl, Hahn, Menzies, Michniewicz, Negri, Hughes

- 18. Purchase Policy Update
Motion by Hughes, Seconded by Negri, to update the Hamburg Township purchase policy as presented in the packet.
Voting Yea: Hohl, Hahn, Menzies, Michniewicz, Negri, Hughes

- 19. PTA waiver of penalties resolution
Motion by Negri, Seconded by Hughes, to adopt Resolution #240601, PTA Waiver of fines for not filing a Property Transfer Affidavit within 45 days of property transfer.
Voting Yea: Hohl, Hahn, Menzies, Michniewicz, Negri, Hughes

- 20. Township Complex Survey
Motion by Hohl, Seconded by Hughes, to approve the endorsement of the agreement with Alpine Survey, and pay the \$5000.00 deposit and get the Hamburg Township property surveys done & recorded.
Voting Yea: Hohl, Hahn, Menzies, Michniewicz, Negri, Hughes

- 21. Grinder Pump Station Purchase Request
Motion by Hohl, Seconded by Michniewicz, to authorize the purchase of the 55 simplex and 1 duplex pump. The cost is \$317,100.00.
Voting Yea: Hohl, Hahn, Menzies, Michniewicz, Negri, Hughes

- 22. Township Board 2024-2025 Fiscal Year Meeting Dates
Motion by Negri, Seconded by Menzies, to adopt, file and publish the Regular Board Meeting schedule dates for the 24/25 fiscal year, as proposed in the packet.
Voting Yea: Hohl, Hahn, Menzies, Michniewicz, Negri, Hughes

- 23. DPW Technician - On call
Motion by Hohl, Seconded by Hahn, to approve the hiring of a part-time, on-call DPW Tech as outlined in Tony Randazzo's memo dated May 30, 2024, contingent upon all pre-employment prerequisites.
Voting Yea: Hohl, Hahn, Menzies, Michniewicz, Negri, Hughes

CALL TO THE PUBLIC

Bob Langan, 128 North Center St, Northville, partner at Elevate Property Partners, thanked the Board and Planning Committee for their work on the townhome and apartment complex. He said Elevate Property Partners is a market driven company with no intention of ever having any subsidies or government grants for this or any developments. They intend to increase the buffers for the community.

BOARD COMMENTS

Updated sound system for the boardroom is targeted to be done by Labor Day.

May 4, 2024

ADJOURNMENT

Motion by Negri, Seconded by Menzies, to adjourn the meeting.

Voting Yea: Hohl, Hahn, Menzies, Michniewicz, Negri, Hughes

The meeting was adjourned at 3:47 pm.

Respectfully submitted,



Jennifer Daniels
Recording Secretary



Mike Dolan
Township Clerk



September 9, 2024

Mr. David Rohr, Planning and Zoning Director
Hamburg Township
10405 Merrill Road
P.O. Box 157
Hamburg, Michigan 48139

Re: The Crossings at Lakes Trail
Final Site Plan Review

Dear David:

We have reviewed the plans for the referenced site plan dated August 19, 2024, as prepared by Seiber Keast Lehner. We offer the following comments for your consideration:

1. No phasing is currently shown on the site plan. If the applicant plans to phase the project, phases should be clearly shown on the drawings with consideration of the proposed pump station, stormwater management, and any water main looping if required by the Livingston County Water Authority (LCWA).
2. A gravity sanitary sewer collection system with a pump station is proposed. The applicant will be required to go through the Township's sewer use application when appropriate. Ideally, the capacity of the proposed pump station is coordinated with the development to the north.
3. The pool shall not drain to the sanitary sewer.
4. The proposed water main will be reviewed and approved by LCWA prior to submitting for an Act 399 permit. Likely a second water main feed into the development will be required.
5. Insufficient detail is provided to determine any impacts offsite from the grading. The applicant should show proposed contours.
6. The preliminary storm water management calculations are generally in conformance with the Livingston County Drain Commissioner standards with the following comments.

- a. The time of concentration (TofC) shall be documented and justified.
- b. The applicant shall provide an analysis and consideration for infiltration.
- c. Conveyance calculations are required for the final site plan.
- d. Drainage areas for each catch basin should be delineated and the C Factor should be calculated for each.

7. An MDOT permit will be required for the entrance on M-36.

In summary, we offer no objection to the approval of the final site plan contingent upon these comments.

If you have any questions, please contact me at (734) 657-4925.

Ted Erickson
Digitally signed by Ted Erickson
DN: C=US,
E=t.ed.erickson@imegcorp.com,
O=IMEG Corp, CN=Ted Erickson
Date: 2024.09.09 11:53:29 -0400

Sincerely,

Ted L. Erickson
Principal

TLE/jdf

\\files\Active\Projects\2024\24002543.00\Design\Civil\Crossings at Lakeland Trail SPR_20240909.docx



MEMO

VIA EMAIL bobl@elevate-property.com

To: Elevate Land Holdings

From: Jacob Swanson, PE, PTOE
Paul Bonner, EIT
Fleis & VandenBrink

Date: September 5, 2024

Re: **The Crossing at Lakelands Trail**
Hamburg Township, Michigan
Traffic Impact Study

1 INTRODUCTION

This memorandum presents the results of the Traffic Impact Study (TIS) for the proposed residential development in Hamburg Township, Michigan. The project site is located south of M-36, adjacent to the existing Learning Lane, as shown on the attached **Figure 1**. The proposed development includes the construction of multi-family residential units on property that is currently vacant; however, the site was previously occupied by Hamburg Elementary School. Site access is proposed via the existing Learning Lane access location on M-36, which is under the jurisdiction of the Michigan Department of Transportation (MDOT). This TIS has been performed pursuant to MDOT requirements for the permitting of site access and the requirements of Hamburg Township for site plan approval.

The scope of work for this study was developed based on Fleis & VandenBrink's (F&V) knowledge of the study area, understanding of the development program, accepted traffic engineering practices, and information published by the Institute of Transportation Engineers (ITE). The study analyses were completed using Synchro/SimTraffic (Version 11) traffic analysis software. Sources of data for this study include F&V subconsultant Quality Counts, LLC (QC), Hamburg Township, MDOT, the Southeast Michigan Council of Governments (SEMCOG), and ITE.

2 BACKGROUND DATA

2.1 EXISTING ROAD NETWORK

The lane use and traffic control at the study intersections is shown on the attached **Figure 2** and the study roadways are further described 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.

M-36 runs in the generally in the east / west directions, adjacent to the north side of the project site. The study section of M-36 is classified as a *Minor Arterial*, is under the jurisdiction of MDOT, and has an Annual Average Daily Traffic (AADT) volume of approximately 9,300 (SEMCOG 2022) vehicles per day (vpd). The posted speed limit changes at the Hall Road intersection, from 45-mph east of the intersection to 40-mph west of the intersection. The study section of roadway provides a typical two-lane cross-section, with one (1) lane of travel in each direction. Additionally, the roadway turns north/south for a short section, north of Hamburg Road, and widens to provide a typical three-lane cross-section, with one (1) lane of travel in each direction and a center two-way left-turn lane (TWLTL). An exclusive westbound right-turn lane is also provided on the M-36 approach at the Hamburg Road intersection.

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Hamburg Road generally runs in the north / south directions, southwest of M-36, approximately 600-feet west of the project site. Hamburg Road is classified as a *Major Collector*, is under the jurisdiction of LCRC, has a posted speed limit of 25-mph, and has an AADT volume of approximately 3,500 vpd (SEMCOG 2022). The study section of roadway provides a typical two-lane cross-section, with one (1) lane of travel in each direction.

Hall Road runs in the north / south directions, approximately 700-feet east of the project site. The study section of roadway is classified as a *Local Road*, is under the jurisdiction of LCRC, has an assumed prima facie speed limit of 55-mph, and has an AADT volume of approximately 592 vpd (MDOT 2023). Hall Road provides a typical two-lane cross-section, with one (1) lane of travel in each direction.

2.2 EXISTING TRAFFIC VOLUMES

F&V subconsultant QC collected existing Turning Movement Count (TMC) data on Thursday, July 18, 2024, during the AM (7:00 AM to 9:00 AM) peak period and Wednesday, July 17, 2024, during the PM (4:00 PM to 6:00 PM) peak period, at the following study intersections:

- M-36 & Hamburg Road
- M-36 & Hall Road
- M-36 & Learning Lane

During collection of the turning movement counts, Peak Hour Factors (PHFs), pedestrian and bicycle volumes, and commercial truck percentages were recorded and used in the traffic analysis. The peak hour of each of the study intersections was utilized and the through volumes were balanced upwards through the roadway network. Therefore, the traffic volumes utilized in the analysis and shown on the attached traffic volume figures may not match the raw traffic volumes shown in the attached data collection.

The weekday AM and PM peak hours for the adjacent study roadway network were observed to generally occur between 7:15 AM to 8:15 AM and 4:00 PM to 5:00 PM, respectively. F&V collected an inventory of the existing lane use and traffic control, as shown on the attached **Figure 2**. The existing 2024 peak hour traffic volumes used in the analysis are shown on the attached **Figure 3**. All applicable background data is attached.

3 EXISTING CONDITIONS (2024)

Existing peak hour vehicle delays and Levels of Service (LOS) were calculated at the study intersections using Synchro/SimTraffic (Version 11) traffic analysis software. This analysis was based on the existing lane use and traffic control shown on the attached **Figure 2**, the existing peak hour traffic volumes shown on the attached **Figure 3**, and the methodologies presented in the *Highway Capacity Manual, 6th Edition* (HCM6).

Note: The study intersection of M-36 & Hamburg Road currently contains unique two-way stop-control, with stop signs on adjacent approaches (eastbound and southbound). None of the HCM methodologies support this unique geometry; therefore, SimTraffic Delay Reports were utilized to evaluate this study intersection.

Descriptions of LOS “A” through “F”, as defined in the HCM6, are attached. Typically, LOS D is considered acceptable, with LOS A representing minimal delay, and LOS F indicating failing conditions. Additionally, SimTraffic network simulations were reviewed to evaluate network operations and vehicle queues. The results of the existing conditions analysis are attached and summarized in **Table 1**.

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

M-36 & Hamburg Road

- During the PM peak hour: The eastbound approach is currently operating at LOS E.

Review of SimTraffic network simulations indicates occasional periods of vehicle queues; however, these queues were observed to dissipate and were not present throughout the entire peak period. The reported 95th percentile vehicle queue lengths were observed to not exceed 180-feet (7-8 vehicles). Additionally, it should be noted that MDOT has programmed improvements for this study intersection (all-way stop-control); therefore, mitigation measures are not recommended at this time.

Review of SimTraffic network simulations for the remaining study roadway network indicates acceptable operations during both peak periods. Vehicles were observed to find adequate gaps within the through traffic along M-36, without experiencing significant delays or excessive vehicle queueing.

Table 1: Existing Intersection Operations

	Intersection	Control	Approach	Existing Conditions			
				AM Peak		PM Peak	
				Delay (s/veh)	LOS	Delay (s/veh)	LOS
1	M-36 & Hamburg Road	Stop (EB & SB)	EB	9.3	A	40.1	E
			WBT	Free			
			WBR	Free			
			SBL	10.7	B	15.1	C
			SBT	3.4	A	4.9	A
2	M-36 & Learning Lane / Church Drive	Stop (Minor)	EBL	0.0*	A	9.3	A
			WBL	0.0*	A	0.0*	A
			NB	0.0*	A	0.0*	A
			SB	0.0*	A	17.2	C
3	M-36 & Hall Road	Stop (Minor)	EB	Free			
			WBL	9.1	A	8.2	A
			NB	16.3	C	21.0	C

* Indicates no vehicle volume present.

4 BACKGROUND CONDITIONS (2028)

4.1 BACKGROUND GROWTH

Historical population and economic profile data was obtained for Hamburg Township from the Southeast Michigan Council of Governments (SEMCOG) database, in order to calculate an annual background growth rate to project the existing 2024 peak hour traffic volumes to the site buildout year of 2028. Population and employment projections from 2020 to 2050 were reviewed and showed average annual growth rates of approximately 0.35% and 0.40%, respectively. Therefore, a conservative annual background growth rate of **0.50%** per year was applied to the existing 2024 peak hour traffic volumes, in order to forecast the background 2028 peak hour traffic volumes without the proposed development.

In addition to background growth, it is important to account for traffic that will be generated by approved developments within the vicinity of the study roadway network, that have yet to be constructed or are currently under construction. At the time of this study, the following development plan was identified by MDOT and was included as background traffic:

- M-36 & Hamburg Road – Mixed Use Development

The projected trips generated by this development were applied to the study roadway network, based on the TIS completed for the project site. Therefore, these trips were added to the existing traffic volumes, after applying the **0.50%** annual growth rate, in order to calculate the background 2028 peak hour traffic volumes **without the proposed development**, as shown on the attached **Figure 4**.

Additionally, the background development has proposed a fourth leg to the existing study intersection of M-36 & Hamburg Road. Therefore, as part of the background development, MDOT has programmed improvements to update the existing traffic control for the intersection to all-way stop-control; these improvements were assumed as a baseline condition for the study roadway network for both the background and the future conditions analyses. Furthermore, the revised intersection geometry and traffic control has removed the unique stop-control condition; therefore, the HCM6 evaluation methodologies were utilized for this study intersection under the background and future condition analyses.

4.2 BACKGROUND INTERSECTION OPERATIONS

Background peak hour vehicle delays and LOS **without the proposed development** were calculated at the study intersections based on the background lane use and traffic control shown on the attached **Figure 2**, the background peak hour traffic volumes shown on the attached **Figure 4**, and the methodologies presented in the HCM6. 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 M-36 & Hamburg Road / Driveway	Existing Stop (EB & SB)	EB	9.3	A	40.1	E	12.9	B	14.3	B	3.6	A→B	-25.8	E→B
		WBTL	Free				10.8	B	10.5	B	N/A			
		WBR	Free				16.5	C	108.9	F	N/A			
	Background Stop (All-Way)	NB	N/A				10.6	B	11.9	B	N/A			
		SBL	10.7	B	15.1	C	52.6	F	28.0	D	41.9	B→F	12.9	C→D
		SBTR	3.4	A	4.9	A	8.9	A	10.8	B	5.5	-	5.9	A→B
		Overall	N/A				32.5	D	64.8	F	N/A			
2 M-36 & Learning Lane / Church Drive	Stop (Minor)	EBL	0.0*	A	9.3	A	0.0*	A	9.4	A	0.0*	-	0.1	-
		WBL	0.0*	A	0.0*	A	0.0*	A	0.0*	A	0.0*	-	0.0*	-
		NB	0.0*	A	0.0*	A	0.0*	A	0.0*	A	0.0*	-	0.0*	-
		SB	0.0*	A	17.2	C	0.0*	A	18.0	C	0.0*	-	0.8	-
3 M-36 & Hall Road	Stop (Minor)	EB	Free				Free				Free			
		WBL	9.1	A	8.2	A	9.2	A	8.3	A	0.1	-	0.1	-
		NB	16.3	C	21.0	C	17.2	C	22.5	C	0.9	-	1.5	-

* Indicates no vehicle volume present. NOTE: Decreased delays and improved LOS are the result of the baseline background improvements.

The results of the background conditions analysis indicates that all approaches and movements at the study intersections are expected to continue operating acceptably, at LOS D or better, during both peak periods, in a manner similar to the existing conditions analysis, with the exception of the following:

M-36 & Hamburg Road

- During the AM peak hour: The southbound left-turn lane is expected to operate at LOS F.
- During the PM peak hour: The westbound right-turn is expected to operate at LOS F.

Review of SimTraffic network simulations indicates occasional periods of vehicle queues; however, these queues were observed to dissipate and were not present throughout the entire peak period.

Review of SimTraffic network simulations indicates acceptable operations throughout the remaining study roadway network, similar operations to the existing conditions observations.

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 calculated using the information published by ITE in the *Trip Generation Manual, 11th Edition*. The proposed development includes the construction of multi-family residential units, with access provided via the existing Learning Lane access location on M-36. The stie trip generation forecast utilized for this study is summarized in **Table 3**.

Table 3: Site Trip Generation Summary

Land Use	ITE Code	Amount	Units	Average Daily Traffic (vpd)	AM Peak Hour (vph)			PM Peak Hour (vph)		
					In	Out	Total	In	Out	Total
Multi-Family Housing (Low-Rise)	220	208	DU	1,409	21	66	87	69	41	110

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 and driveway configurations, the existing peak hour traffic patterns in the adjacent roadway network, and the methodologies published by ITE. 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 utilized in the analysis are summarized in **Table 4**.

Table 4: Site Trip Distribution

To/From	Via	AM	PM
Northwest	M-36	33%	30%
South	Hall Road	2%	4%
East	M-36	58%	56%
Southwest	Hamburg Road	7%	10%
Total		100%	100%

The site-generated 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 on the attached **Figure 5** were added to the background peak hour traffic volumes shown on 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 on the attached **Figure 6**.

7 FUTURE CONDITIONS (2028)

Future peak hour vehicle delays and LOS **with the addition of the proposed development**, were calculated based on the background and proposed lane use and traffic controls shown on the attached **Figure 2**, the future peak hour traffic volumes shown on the attached **Figure 6**, and the methodologies presented in the HCM6. The results of the future conditions analysis are attached and summarized in **Table 5**.

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 M-36 & Hamburg Road / Driveway	Stop (All-way)	EB	12.9	B	14.3	B	13.2	B	14.9	B	0.3	-	0.6	-
		WBT	10.8	B	10.5	B	11.0	B	10.8	B	0.2	-	0.3	-
		WBR	16.5	C	108.9	F	18.4	C	127.1	F	1.9	-	18.2	-
		NB	10.6	B	11.9	B	10.8	B	12.1	B	0.2	-	0.2	-
		SBTL	52.6	F	28.0	D	59.7	F	32.8	D	7.1	-	4.8	-
		SBR	8.9	A	10.8	B	9.1	A	10.9	B	0.2	-	0.1	-
		Overall	32.5	D	64.8	F	36.0	E	74.5	F	3.5	D→E	9.7	-
2 M-36 & Learning Lane / Church Drive	Stop (Minor)	EBL	0.0*	A	9.4	A	0.0*	A	9.4	A	0.0*	-	0.0	-
		WBL	0.0*	A	0.0*	A	9.1	A	8.4	A	9.1	-	8.4	-
		NB	0.0*	A	0.0*	A	20.1	C	23.3	C	20.1	A→C	23.3	A→C
		SB	0.0*	A	18.0	C	0.0*	A	20.0	C	0.0*	-	2.0	-
3 M-36 & Hall Road	Stop (Minor)	EB	Free				Free				Free			
		WBL	9.2	A	8.3	A	9.4	A	8.4	A	0.2	-	0.1	-
		NB	17.2	C	22.5	C	18.4	C	26.0	D	1.2	-	3.5	C→D

* Indicates no vehicle volume present.

The results of the future conditions analysis indicates that all approaches and movements at the study intersections are expected to continue operating in a manner similar to the background conditions analysis, with minimal increases in delay. Additionally, the proposed site driveway (Learning Lane) intersection is expected to operate acceptably, at LOS D or better, during both peak periods.

Review of SimTraffic network simulations throughout the study roadway network indicates similar observations to those made during the existing and background conditions analyses. Occasional periods of vehicle queues were observed at the programmed all-way stop-control study intersection of M-36 & Hamburg Road; however, these queues were observed to dissipate and were not present throughout the peak periods. Additionally, vehicles were observed to find adequate gaps within the through traffic along M-36, without experiencing significant delays or excessive vehicle queueing.

8 ACCESS MANAGEMENT

8.1 DRIVEWAY SPACING

The MDOT Geometric Design Guidance, Section 1.2.2, was utilized to evaluate the proposed site driveway location, in relation to the nearby driveways and access points along M-36. The MDOT desirable unsignalized access spacing criteria were evaluated for the 40-mph section of roadway. The distance of the proposed site driveways from nearby access points and the warranting criteria are summarized in **Table 6** and displayed in **Exhibit 1**.

Table 6: Driveway Spacing Summary

Adjacent Driveways & Intersections		Spacing	Criteria (40-mph)	Meets
Learning Lane	To Water Treatment Drive	50 feet	300 feet	No
Learning Lane	to CEI Drive	370 feet	300 feet	Yes

The results of the driveway spacing analysis indicates that the proposed site driveway (Learning Lane) is not expected to meet desirable MDOT spacing criteria. Additional and/or alternative site access to the west, via Washington Road, was reviewed; however, it was determined that only emergency access would be feasible at the location on Washington Road.

Furthermore, potential ingress left-turn conflict with the existing Church Driveway was evaluated. The results indicate that the potential for interlocking left-turns occurring between the proposed site driveway (Learning Lane) and the Church is negligible, based on the minimal volume (3 vehicles or less) of ingress left-turn traffic associated with the church activities.

Exhibit 1: Driveway & Intersection Spacing



8.2 AUXILIARY TURN LANE EVALUATION

The MDOT auxiliary turn lane warranting criteria were evaluated at the proposed site driveway (Learning Lane) on M-36. This analysis was based on the future peak hour traffic volumes shown on the attached **Figure 6**. The results of the analysis are shown on the attached MDOT warranting charts and summarized in **Table 7**.

Table 7: Auxiliary Turn Lane Analysis Summary

Intersection	Treatment	AM Peak Hour	PM Peak Hour	Recommendation
M-36 & Learning Lane / Church Drive	Right-Turn	No Treatment	No Treatment	No Treatment
	Left-Turn	No Treatment	Left-Turn Lane	Left-Turn Lane

The results of the auxiliary turn lane evaluation indicates that a westbound left-turn lane is warranted on M-36 at the proposed site driveway (Learning Lane).

8.3 FUTURE CONDITIONS WITH IMPROVEMENTS ANALYSIS

The results of the future improvements analysis, with the implementation of the recommended auxiliary westbound left-turn lane at Learning Lane, are attached and summarized in **Table 8**.

Table 8: Future Intersection Operations

Intersection	Control	Approach	Future Conditions				Future IMP				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
M-36 & Learning Lane / Church Drive	Stop (Minor)	EBL	0.0*	A	9.4	A	0.0*	A	9.4	A	0.0*	-	0.0	-
		WBL	0.0*	A	0.0*	A	9.1	A	8.4	A	0.0	-	0.0	-
		NB	20.1	C	23.3	C	20.1	C	22.9	C	0.0	-	-0.4	-
		SB	0.0*	A	20.0	C	0.0*	A	19.8	C	0.0*	-	-0.2	-

* Indicates no vehicle volume present.

The results of the future conditions with improvements analysis indicates that, with the implementation of the recommended auxiliary left-turn lane, all approaches and movements at the study intersection of M-36 & Learning Lane / Church Drive are expected to continue to operate acceptably, at LOS D or better, during both the AM and PM peak hours.

Review of SimTraffic microsimulations also indicates acceptable operations during both peak periods, throughout the study roadway network.

9 CONCLUSIONS

Conclusions of this TIS are as follows:

1. Existing Conditions (2024)

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

M-36 & Hamburg Road: The EB approach is currently operating at LOS E during the PM peak hour. Review of SimTraffic network simulations indicates occasional periods of vehicle queues; however, these queues were observed to dissipate and were not present throughout the entire peak period.

- Review of SimTraffic network simulations for the remaining study roadway network indicates acceptable operations during both peak periods. Vehicles were observed to find adequate gaps within the through traffic along M-36, without experiencing significant delays or excessive vehicle queuing.

2. Background Conditions (2028)

- A conservative annual background growth rate of **0.5%** per year was utilized to project the existing 2024 peak hour traffic volumes to the buildout year of 2028.
- The following approved background developments were identified for construction within the vicinity of the project site and were included within the background traffic volumes:
 - *M-36 & Hamburg Road – Mixed Use Development*
 - As part of the background development, a fourth leg will be added to the study intersection of M-36 & Hamburg Road. Therefore, MDOT has programmed improvements to update the existing traffic control for the intersection to all-way stop-control.
- The results of the background conditions analysis indicates that all approaches and movements at the study intersections are expected to continue operating acceptably, at LOS D or better during both peak periods, in a manner similar to the existing conditions analysis, with the exception of the following:
M-36 & Hamburg Road: The SB left-turn movement is expected to operate at LOS F during the AM peak hour. Additionally, the WB right-turn movement is expected to operate at LOS F during the PM peak hour.

3. Future Conditions (2028)

- The results of the future conditions analysis indicates that all approaches and movements at the study intersections are expected to continue to operate in a manner similar to the background conditions analysis, with minor increases in delay. Additionally, the proposed site driveway (Learning Lane) intersection is expected to operate acceptably, at LOS D or better, during both peak periods.
- Review of SimTraffic indicates similar observations to those made during the existing and background conditions analyses. Occasional periods of vehicle queues were observed at the programmed all-way stop-control study intersection of M-36 & Hamburg Road; however, these queues were observed to dissipate and were not present throughout the peak periods. Additionally, vehicles were observed to be able to find adequate gaps within the through traffic along M-36, without experiencing significant delays or excessive vehicle queueing.

4. Access Management

- The driveway spacing analysis indicates that the proposed site driveway (Learning Lane) is not expected to meet the desirable MDOT spacing criteria. However, the Learning Lane access is the only access for this development and there is not sufficient property frontage to locate the driveway in an alternative location along M-36.
- Additional and/or alternative site access to the west, via Washington Road, was reviewed; however, it was determined that only emergency access would be feasible at the location on Washington Road
- The results of the auxiliary turn lane treatment evaluation indicates that a westbound left-turn lane is warranted along M-36 at the proposed site driveway (Learning Lane).

5. Future Conditions with Improvements (2028)

- The results of the future conditions with improvements analysis indicates that, with the implementation of the recommended auxiliary westbound left-turn lane, all approaches and movements at the proposed site driveway (Learning Lane) are expected to continue to operate acceptably, at LOS D or better, during both peak periods.

Review of SimTraffic network simulations also indicates acceptable operations, throughout the remaining study roadway network, during both peak periods.

10 RECOMMENDATIONS

Recommendations of this TIS are as follows:

M-36 & Learning Lane / Church Drive

- Provide a westbound left-turn lane along M-36 at the proposed site driveway (Learning Lane).

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



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

Digitally signed
by Jacob Swanson
Date: 2024.09.05
15:09:23 -04'00'

- Attachments:** Figures 1 – 6
Proposed Site Plan
Traffic Volume Data
SEMCOG Data
Synchro / SimTraffic Results
Auxiliary Lane Warrants

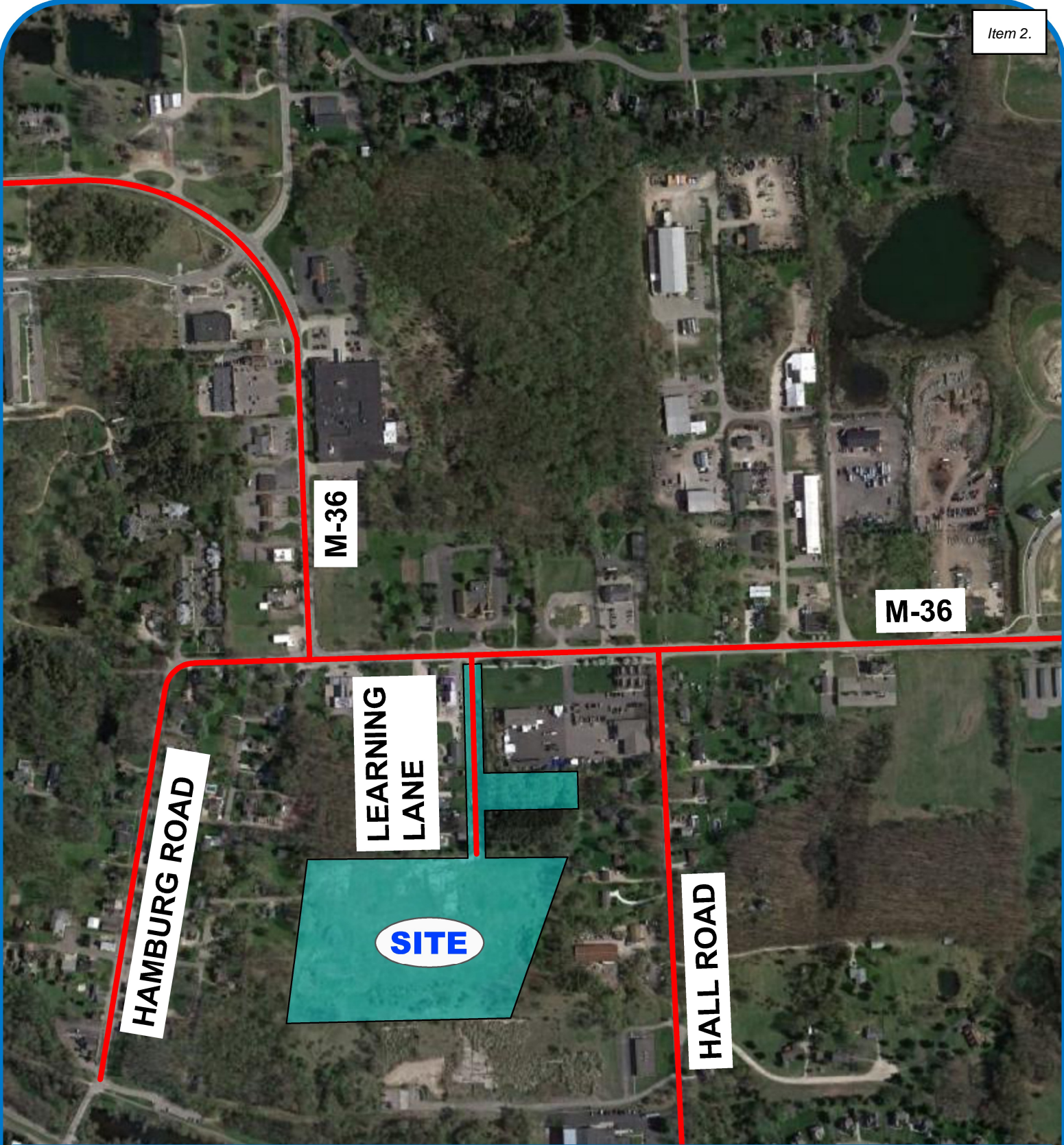


FIGURE 1

SITE LOCATION MAP

THE CROSSING TIS - HAMBURG TOWNSHIP, MI



LEGEND

 SITE LOCATION



NORTH
SCALE: NOT TO

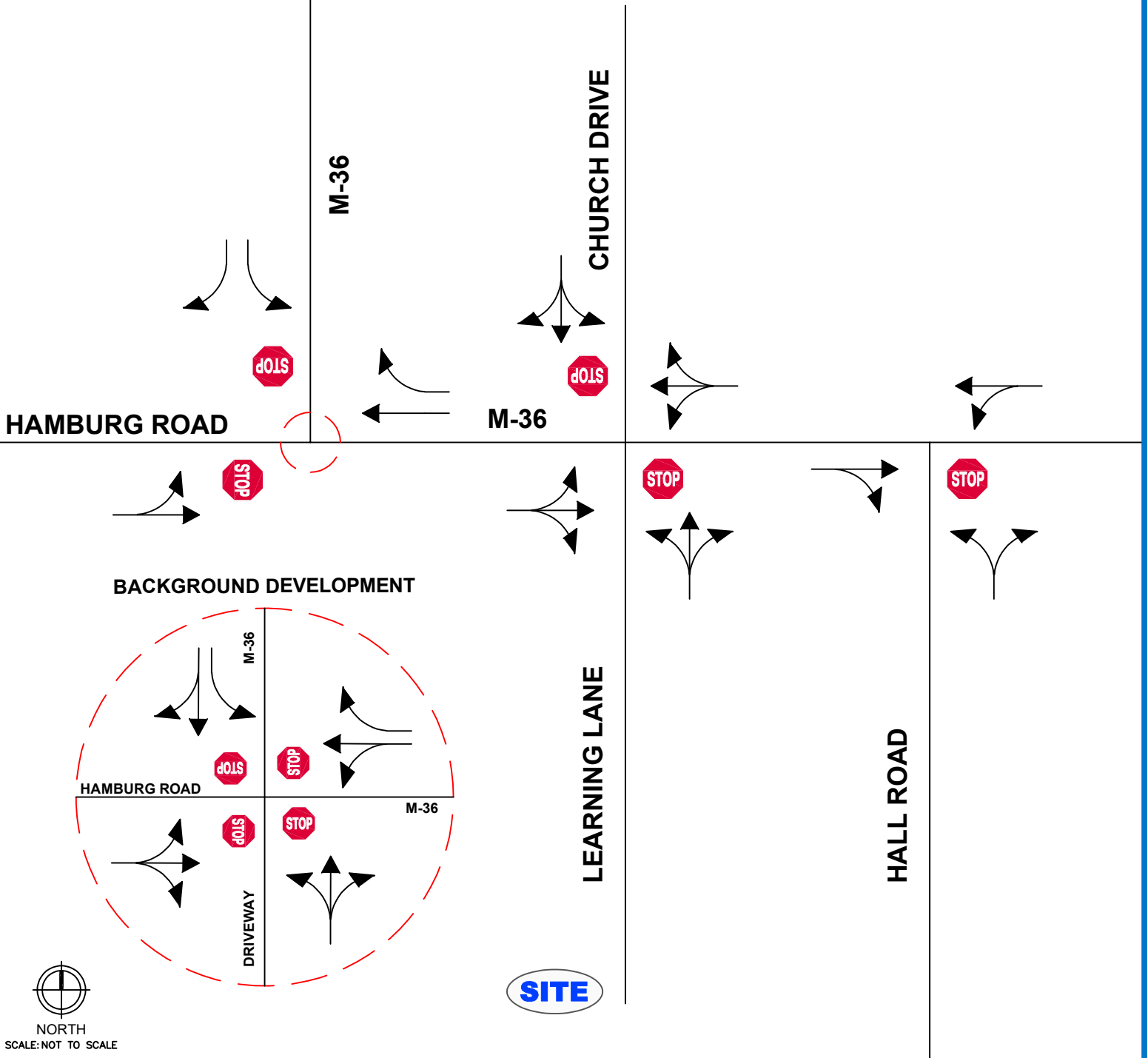


FIGURE 2
LANE USE AND TRAFFIC CONTROL

THE CROSSING TIS - HAMBURG TOWNSHIP, MI

LEGEND

- ROADS
- ↔ LANE USE
- STOP UNSIGNALIZED INTERSECTION

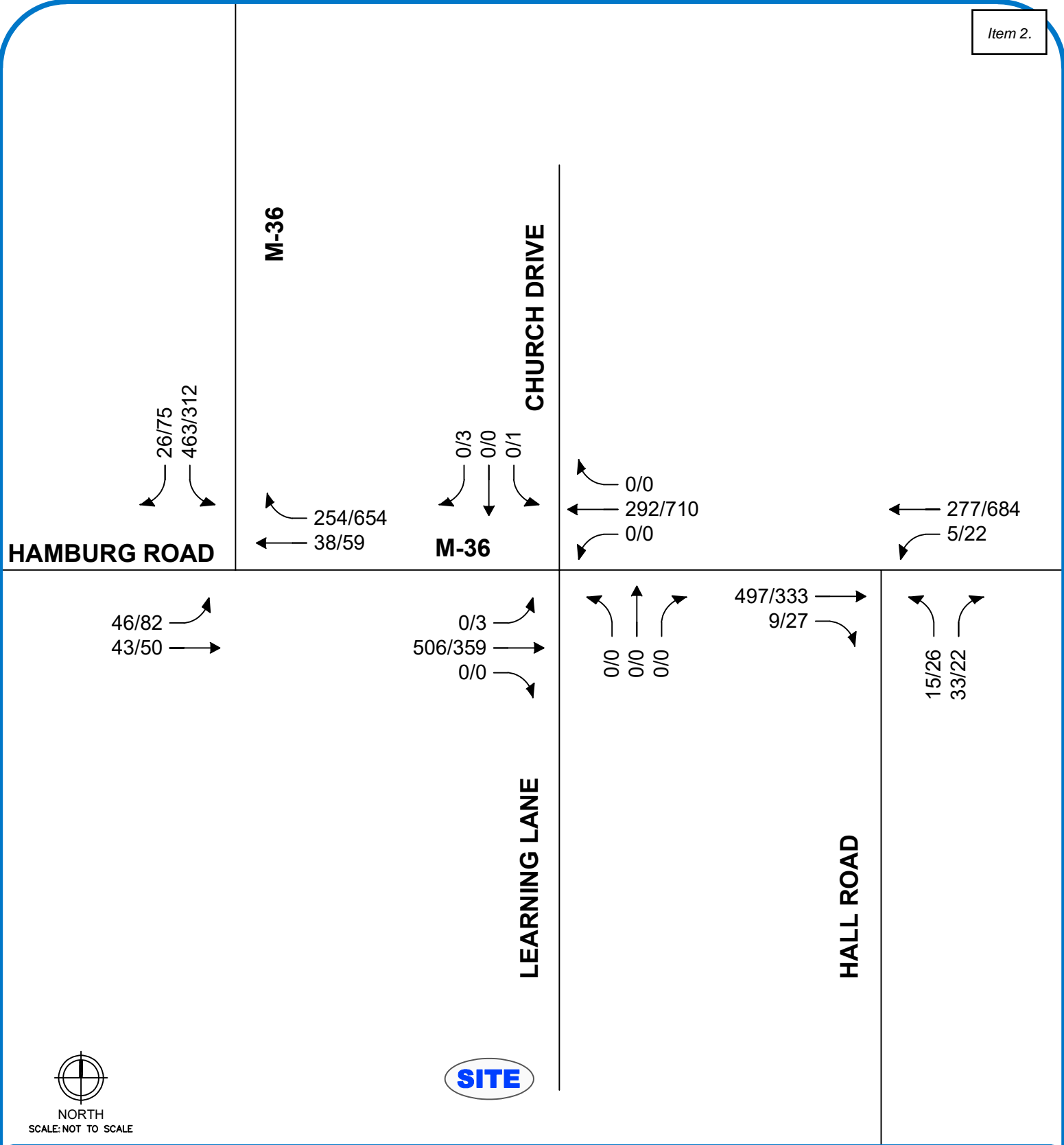


FIGURE 3
EXISTING (2024)
TRAFFIC VOLUMES



THE CROSSING TIS - HAMBURG TOWNSHIP, MI

LEGEND

- ROADS
- - - PROPOSED ROADS
- TRAFFIC VOLUMES (AM/PM)

HAMBURG ROAD

27/77
13/10
472/318

M-36

CHURCH DRIVE

259/667
39/60
8/18

0/3
0/0
0/1

M-36

0/0
306/742
0/0

291/715
5/22

47/84
44/51
3/2

DRIVEWAY

3/3
12/14
21/6

0/3
537/372
0/0

LEARNING LANE

0/0
0/0
0/0

528/345
9/28

HALL ROAD

15/27
34/22

SITE



NORTH
SCALE: NOT TO SCALE

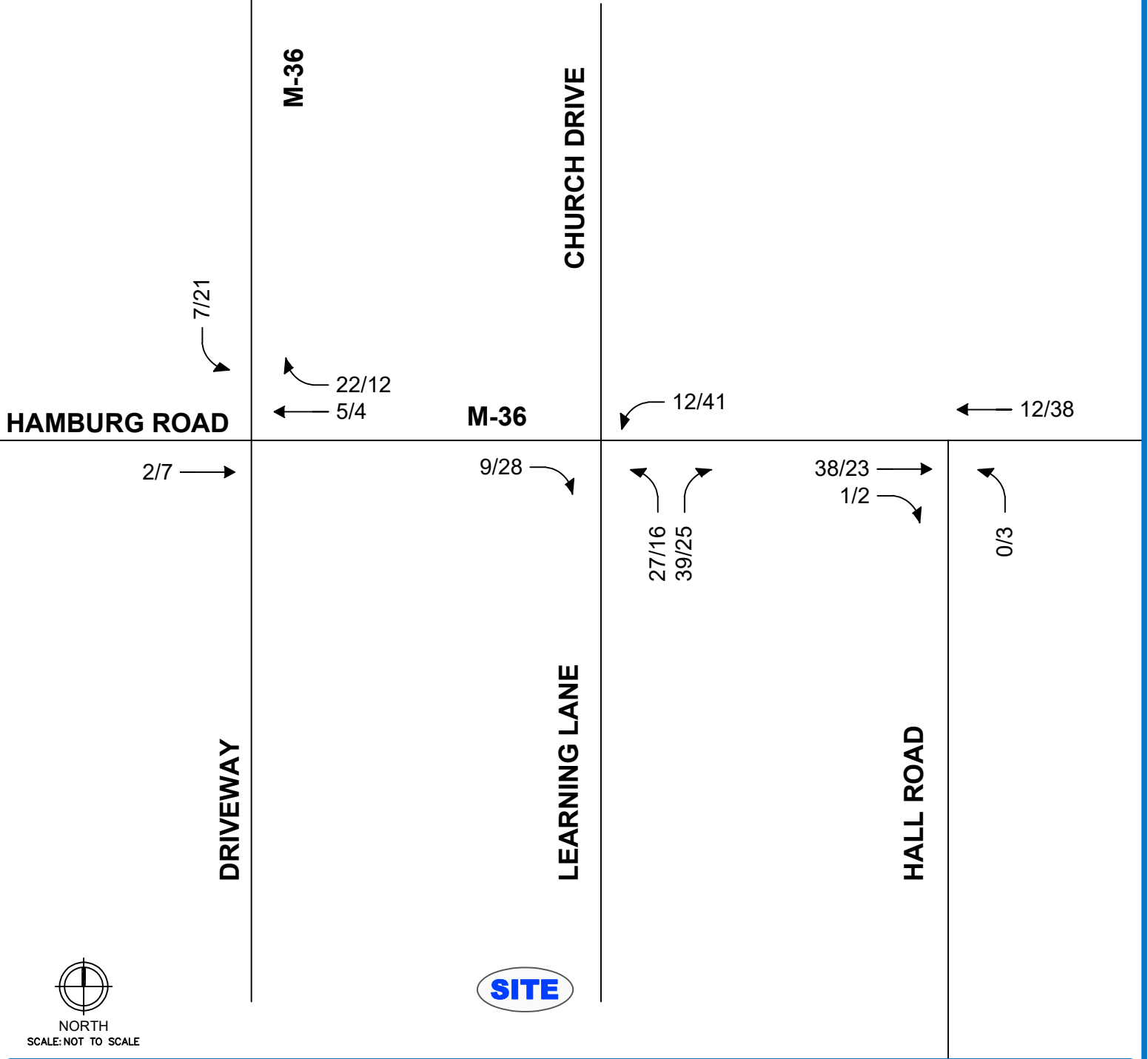


**FIGURE 4
BACKGROUND (2028)
TRAFFIC VOLUMES**

THE CROSSING TIS - HAMBURG TOWNSHIP, MI

LEGEND

- ROADS
- - - PROPOSED ROADS
- TRAFFIC VOLUMES (AM/PM)



SITE

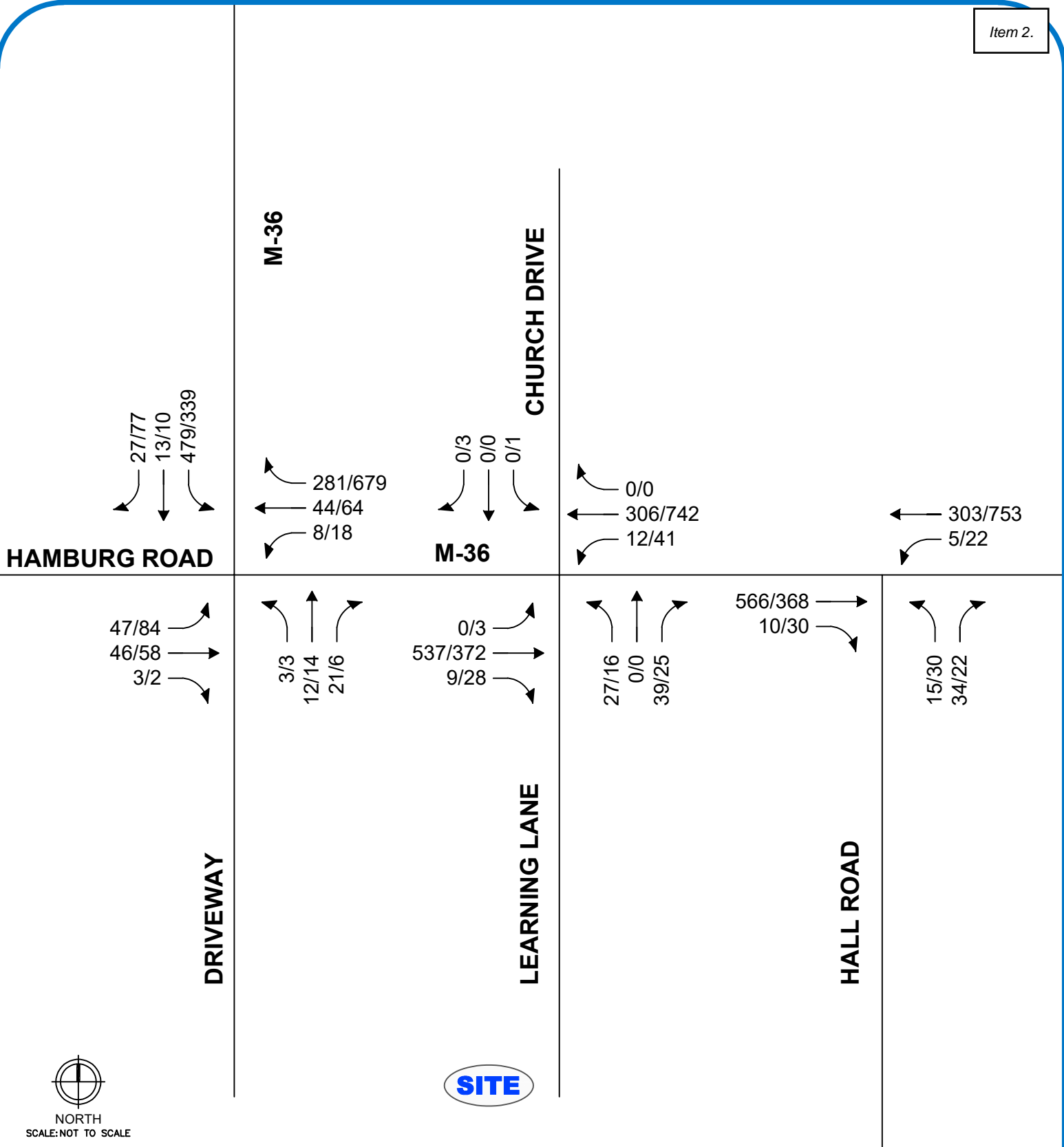


FIGURE 5 SITE-GENERATED TRAFFIC VOLUMES

THE CROSSING TIS - HAMBURG TOWNSHIP, MI

LEGEND

- ROADS
- - - PROPOSED ROADS
- ↔ TRAFFIC VOLUMES (AM/PM)



SITE

NORTH
SCALE: NOT TO SCALE

**FIGURE 6
FUTURE (2028)
TRAFFIC VOLUMES**

THE CROSSING TIS - HAMBURG TOWNSHIP, MI



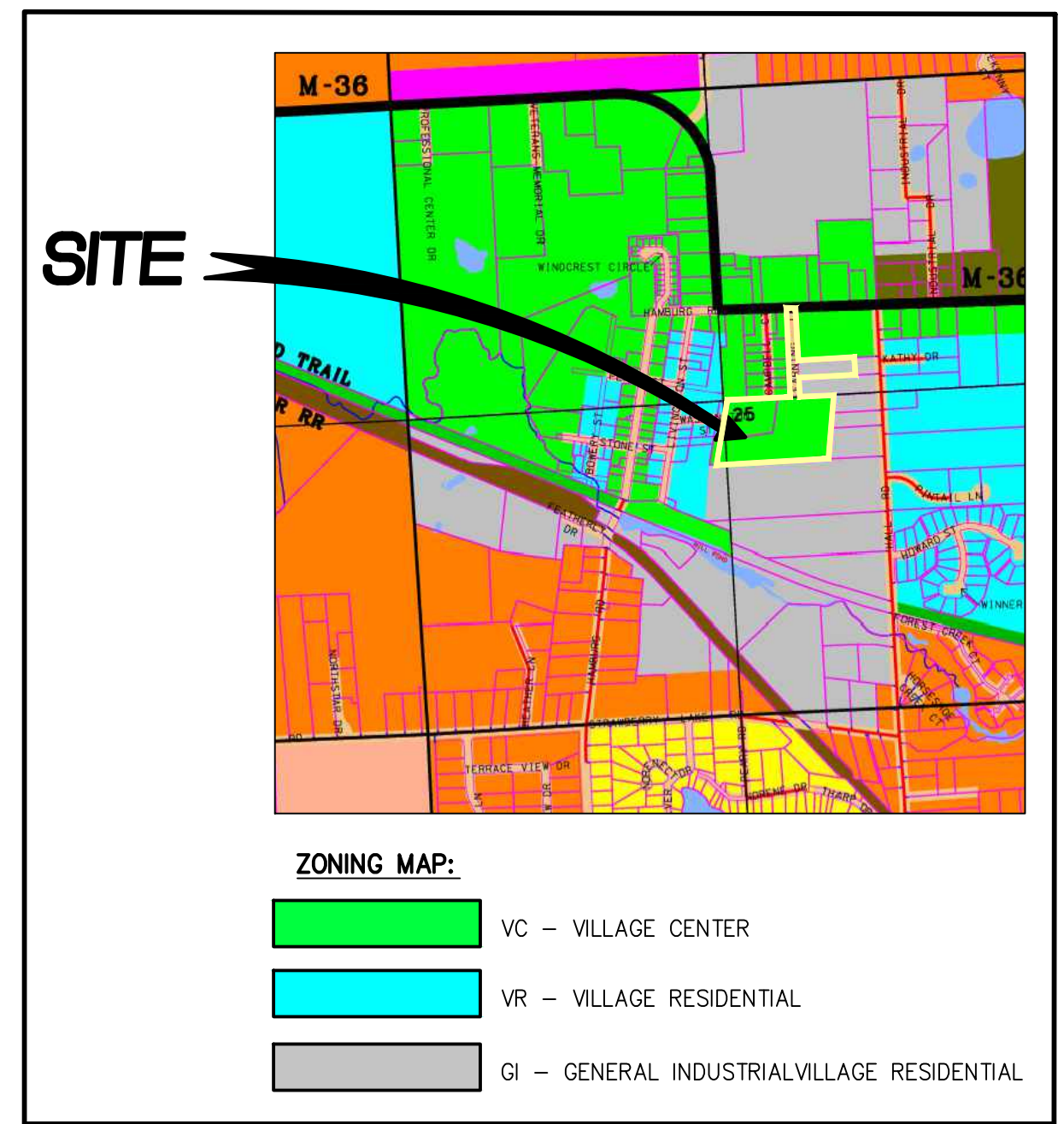
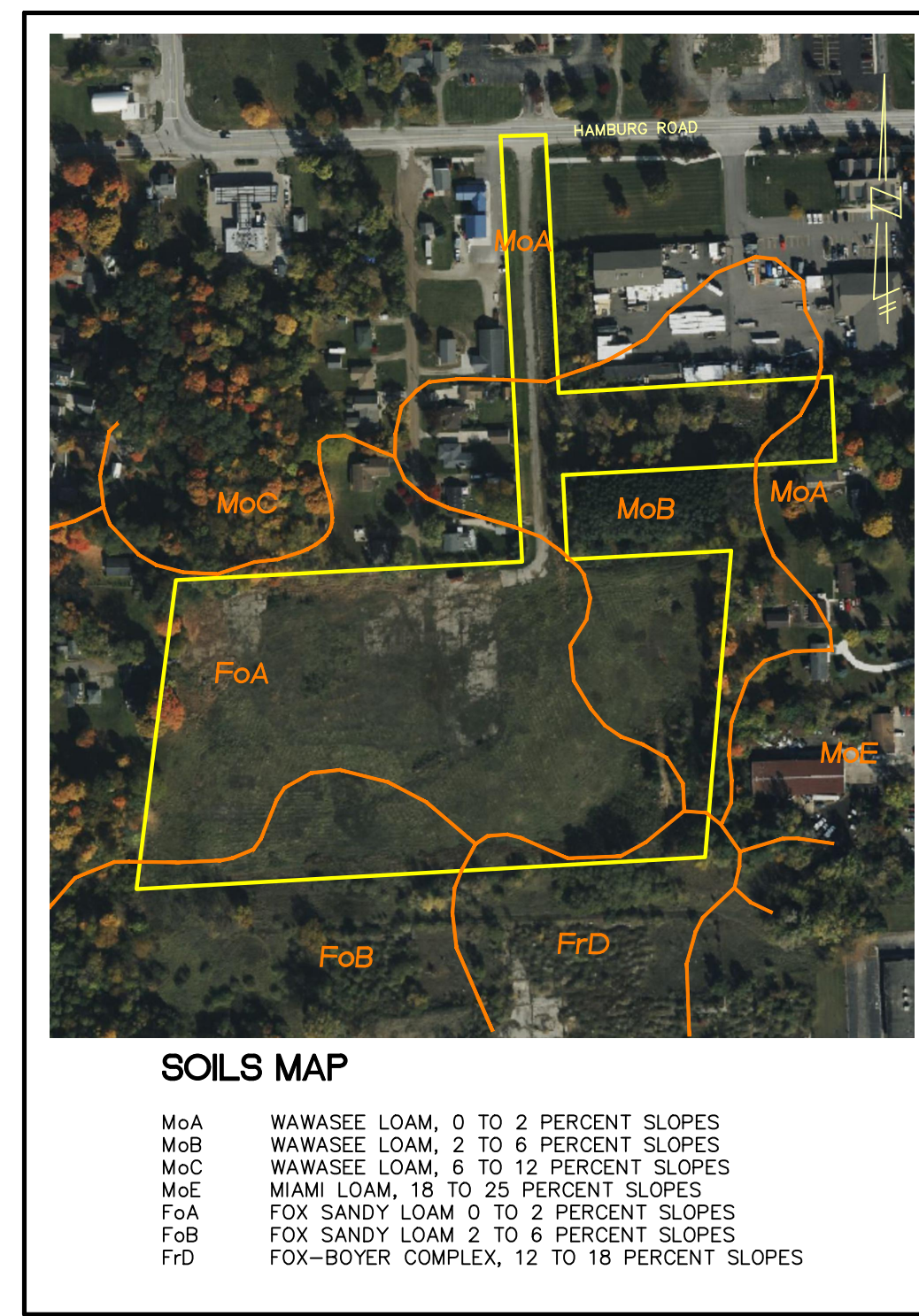
LEGEND

- ROADS
- - - PROPOSED ROADS
- ↔ TRAFFIC VOLUMES (AM/PM)

PRELIMINARY SITE PLANS FOR: **THE CROSSING AT LAKELANDS TRAIL**

PART OF E. 1/2 OF SECTION 25, TOWN 1 NORTH, RANGE 5 EAST
HAMBURG TWP., LIVINGSTON COUNTY, MICHIGAN

PREPARED FOR:
ELEVATE LAND HOLDINGS - THE CROSSING
128 N. CENTER STREET
NORTHVILLE, MICHIGAN 48167
248.344.1885



SHEET INDEX

ENGINEERING PLANS:

- COVER SHEET
- PREVIOUSLY APPROVED OPEN SPACE PLAN
- OVERALL PLAN AND OPEN SPACE PLAN
- UTILITIES PLAN
- GRADING PLAN
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LANDSCAPE PLANS:

- LANDSCAPE PLAN
- LANDSCAPE PLAN
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- LANDSCAPE DETAILS

ARCHITECTURAL PLANS PREPARED BY:
TK DESIGN & ASSOCIATES
26030 PONTIAC TRAIL
SOUTH LYON, MICHIGAN, 48178
PHONE: 248.446.1960

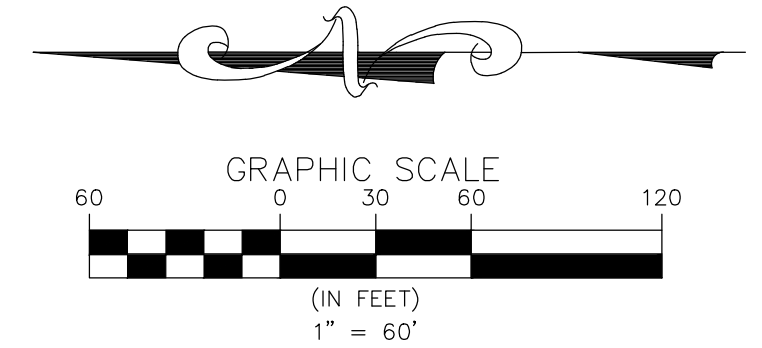
LANDSCAPE PLANS PROVIDED BY:
ALLEN DESIGN
557 CARPENTER
NORTHVILLE, MICHIGAN 48167
PHONE: 248.467.4668

TOPOGRAPHIC SURVEY PREPARED BY:
M. E. G. A.
298 VETERANS DRIVE
FOWLerville, MICHIGAN, 48836
PHONE: 517.223.3512

CLINTON TOWNSHIP OFFICE
17001 NINETEEN MILE ROAD, SUITE 3
CLINTON TOWNSHIP, MI 48038
586.412.7050

FARMINGTON HILLS OFFICE
39205 COUNTRY CLUB DRIVE, SUITE C8
FARMINGTON HILLS, MI 48331
248.308.3331

REVISIONS			ENGINEER'S SEAL
NO.	ITEM	DATE	
1.	PRE-APP SUBMITTAL	4-22-24	
DATE: 1-5-2024 DESIGNED BY: A.A. CHECKED BY: C.S.			JOB NUMBER: 23-299 DRAWING FILE: 1-23289-CV.dwg



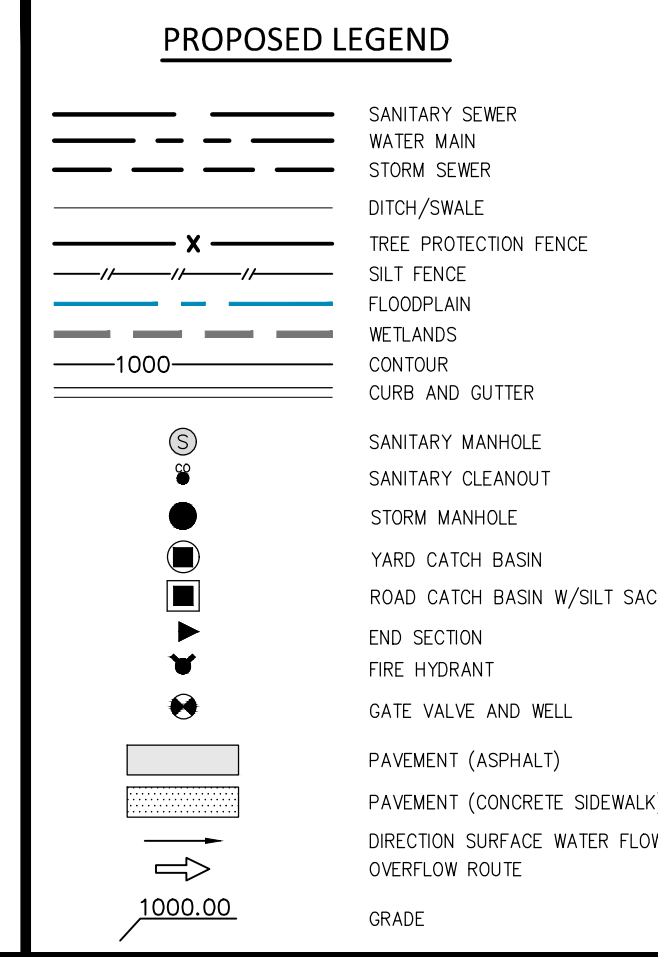
SITE DATA
 EXISTING ZONING: GENERAL PLANNED UNIT DEVELOPMENT (GPUD)
 SITE AREA = 15.478 ACRES
 MAX. DWELLING UNITS PER ACRE (VC): 10 DU/CCRE
 NO. OF BUILDING ON SITE: 16
 NO. OF UNITS PROPOSED: 208
 DWELLING UNITS PER ACRE: 13.44 DU/CCRE (AMEND TO PUD AGREEMENT)

BUILDING SETBACKS:	REQUIRED	PREVIOUSLY APPROVED	PROPOSED
FRONT (FROM PAVEMENT):	20'	15'	N/A
SIDE:	10'	15'	20' MIN.
REAR: TO PROPERTY LINE	25'	30'	20' MIN.
BUILDING TO BUILDING:	35'	N/A	N/A
BUILDING FRONT TO SIDE:	N/A	25'	N/A
BUILDING SIDE TO SIDE:	N/A	15'	N/A
MAXIMUM BUILDING HEIGHT:	35'	35'	35'
MAXIMUM BUILDING STORIES:	2.5 STORIES	2 STORIES	2 STORIES
MINIMUM FLOOR AREA:			
1 BEDROOM	550 S.F.	875 S.F.	600 S.F.
2 BEDROOMS	650 S.F.	1100 S.F.	898 S.F.
3 BEDROOMS		N/A	936 S.F.
BUILDING COVERAGE:	50% MAX.	16%	15.83%
IMPERVIOUS AREA CALCULATION:	N/A	32%	37.85%
OPEN SPACE REQUIRED: 1,500 S.F. / UNIT=1,500 x 208 312,000 S.F. (7.16 AC.)	44%	37%	42.56%
OPEN SPACE PROVIDED:		6.03 AC.	6.59 AC.

PARKING REQUIRED: (1.5 SPACE/UNIT)
 1.5 x 208 = 312 SPACES
 PARKING PROVIDED: 407 SPACES
 (INCLUDING 10 B.F. SPACES)
 (1.957 SPACES/UNIT)

	PREVIOUSLY APPROVED PLANS	CURRENT PLANS
SITE AREA	16.1 AC.	15.478 AC.
NO. OF BUILDING ON SITE:	23	16
NO. OF UNITS PROPOSED:	208	208
DWELLING UNITS PER ACRE:	12.91 DU/CCRE	13.44 DU/CCRE
BUILDING COVERAGE:	16%	15.8%
PAVED SURFACE PARKING AND ROADS CIRCULATION	32%	37.85%
OPEN SPACE:	37%	42.96%
PARKING PROVIDED:	406 SPACES (1.952 SPACES/UNIT)	407 SPACES (1.957 SPACES/UNIT)

SEE LANDSCAPE PLANS FOR SCREENING WALL DETAILS



REVISIONS

NO.	DESCRIPTION	DATE
1.	REV. LAYOUT PER HAMBURG TWP. REVIEW	4-22-24
2.	REV. ISLAND, ADD VINYL FENCE	6-26-24

3 WORKING DAYS BEFORE YOU DIG
 CALL MISS DIG
 1-800-482-7171
 TOLL FREE FOR THE LOCATION OF UNDERGROUND UTILITIES

PROJECT NUMBER: 248-344-1885
PROJECT MANAGER: B. EMERINE
DRAWN BY: A. AWAD
CHECKED BY: J.S.
DATE: 04/24/24
OFFICE: FARMINGTON HILLS

CLIENT INFO:
 ELEVATE LAND HOLDINGS - THE CROSSING TRAIL
 128 N. CENTER STREET
 NORTHVILLE, MI 48167
 248-344-1885

PROJECT NAME: THE CROSSING AT LAKELANDS TRAIL
 PART OF E. 1/2 OF SEC. 25, T.1N., R.5E., HAMBURG TWP., LIVINGSTON COUNTY, MI

SHEET TITLE: OVERALL PLAN

PAGE No.: 3

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 ENGINEERING | SURVEYING

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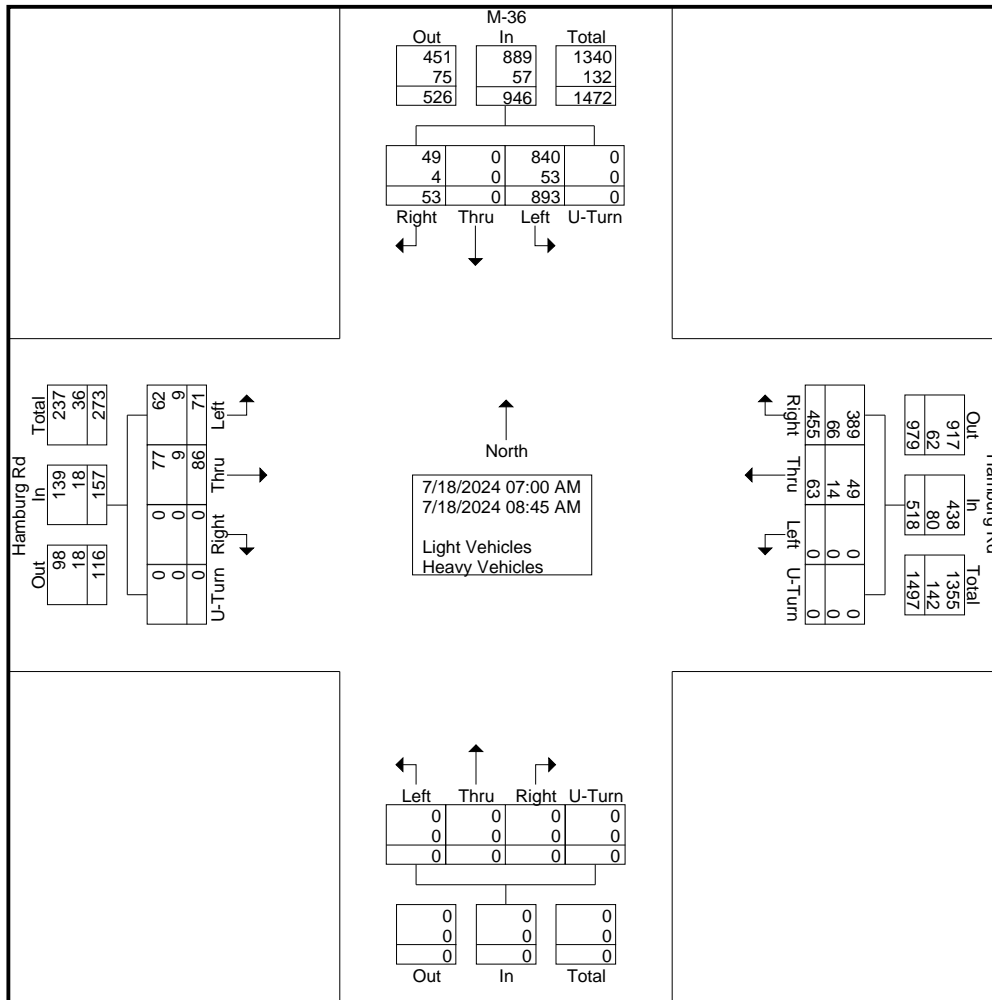
TRUE DATA TO IMPROVE MOBILITY

File Name : 16678701 - M-36 -- Hamburg Rd
 Site Code : 16678701
 Start Date : 7/18/2024
 Page No : 1

Item 2.

Groups Printed- Light Vehicles - Heavy Vehicles

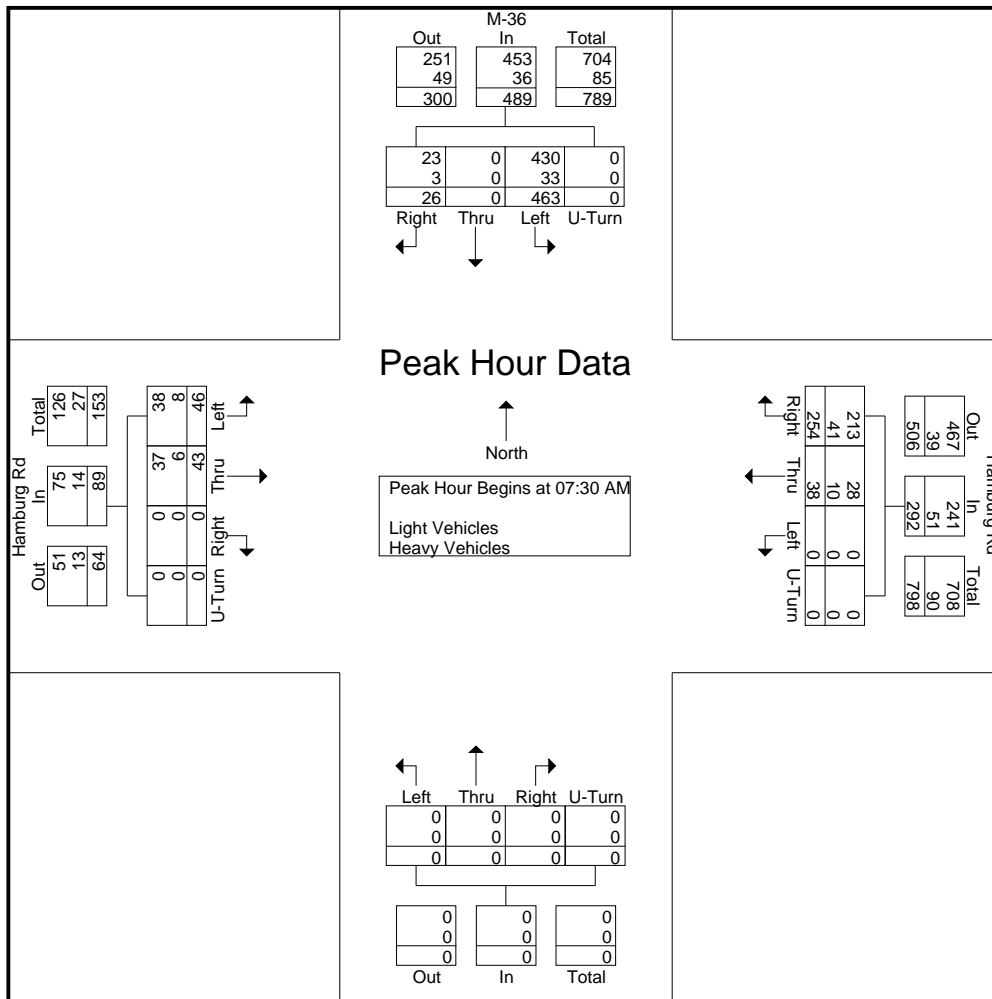
Start Time	Hamburg Rd Eastbound					Hamburg Rd Westbound					Northbound					M-36 Southbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
07:00 AM	3	9	0	0	12	0	6	36	0	42	0	0	0	0	0	109	0	3	0	112	166
07:15 AM	3	11	0	0	14	0	8	41	0	49	0	0	0	0	0	133	0	4	0	137	200
07:30 AM	10	10	0	0	20	0	7	51	0	58	0	0	0	0	0	123	0	9	0	132	210
07:45 AM	11	13	0	0	24	0	16	72	0	88	0	0	0	0	0	120	0	6	0	126	238
Total	27	43	0	0	70	0	37	200	0	237	0	0	0	0	0	485	0	22	0	507	814
08:00 AM	13	13	0	0	26	0	8	57	0	65	0	0	0	0	0	115	0	4	0	119	210
08:15 AM	12	7	0	0	19	0	7	74	0	81	0	0	0	0	0	105	0	7	0	112	212
08:30 AM	10	9	0	0	19	0	5	61	0	66	0	0	0	0	0	97	0	7	0	104	189
08:45 AM	9	14	0	0	23	0	6	63	0	69	0	0	0	0	0	91	0	13	0	104	196
Total	44	43	0	0	87	0	26	255	0	281	0	0	0	0	0	408	0	31	0	439	807
Grand Total	71	86	0	0	157	0	63	455	0	518	0	0	0	0	0	893	0	53	0	946	1621
Apprch %	45.2	54.8	0	0		0	12.2	87.8	0		0	0	0	0		94.4	0	5.6	0		
Total %	4.4	5.3	0	0	9.7	0	3.9	28.1	0	32	0	0	0	0	0	55.1	0	3.3	0	58.4	
Light Vehicles	62	77	0	0	139	0	49	389	0	438	0	0	0	0	0	840	0	49	0	889	1466
% Light Vehicles	87.3	89.5	0	0	88.5	0	77.8	85.5	0	84.6	0	0	0	0	0	94.1	0	92.5	0	94	90.4
Heavy Vehicles	9	9	0	0	18	0	14	66	0	80	0	0	0	0	0	53	0	4	0	57	155
% Heavy Vehicles	12.7	10.5	0	0	11.5	0	22.2	14.5	0	15.4	0	0	0	0	0	5.9	0	7.5	0	6	9.6





Item 2.

Start Time	Hamburg Rd Eastbound					Hamburg Rd Westbound					Northbound					M-36 Southbound					Int. Total
	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	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	10	10	0	0	20	0	7	51	0	58	0	0	0	0	0	123	0	9	0	132	210
07:45 AM	11	13	0	0	24	0	16	72	0	88	0	0	0	0	0	120	0	6	0	126	238
08:00 AM	13	13	0	0	26	0	8	57	0	65	0	0	0	0	0	115	0	4	0	119	210
08:15 AM	12	7	0	0	19	0	7	74	0	81	0	0	0	0	0	105	0	7	0	112	212
Total Volume	46	43	0	0	89	0	38	254	0	292	0	0	0	0	0	463	0	26	0	489	870
% App. Total	51.7	48.3	0	0		0	13	87	0		0	0	0	0		94.7	0	5.3	0		
PHF	.885	.827	.000	.000	.856	.000	.594	.858	.000	.830	.000	.000	.000	.000	.000	.941	.000	.722	.000	.926	.914
Light Vehicles	38	37	0	0	75	0	28	213	0	241	0	0	0	0	0	430	0	23	0	453	769
% Light Vehicles	82.6	86.0	0	0	84.3	0	73.7	83.9	0	82.5	0	0	0	0	0	92.9	0	88.5	0	92.6	88.4
Heavy Vehicles	8	6	0	0	14	0	10	41	0	51	0	0	0	0	0	33	0	3	0	36	101
% Heavy Vehicles	17.4	14.0	0	0	15.7	0	26.3	16.1	0	17.5	0	0	0	0	0	7.1	0	11.5	0	7.4	11.6

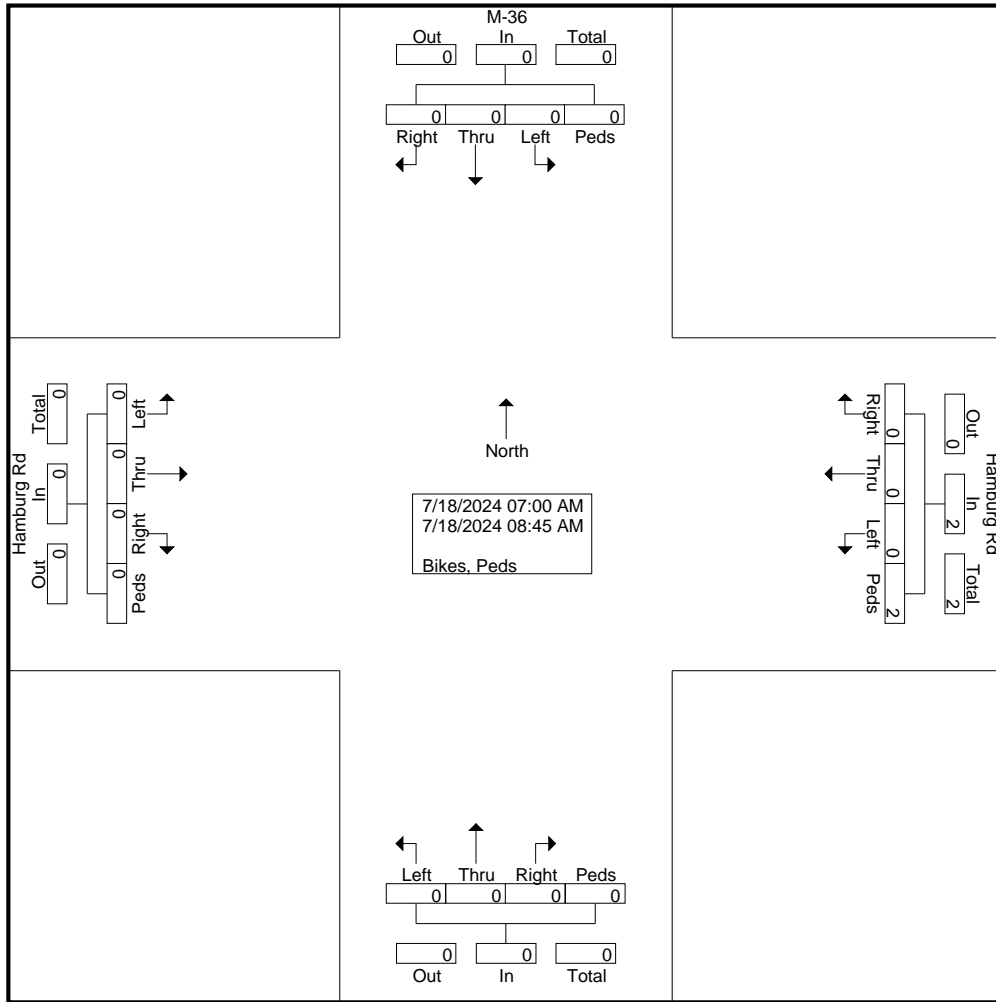




Item 2.

Groups Printed- Bikes, Peds

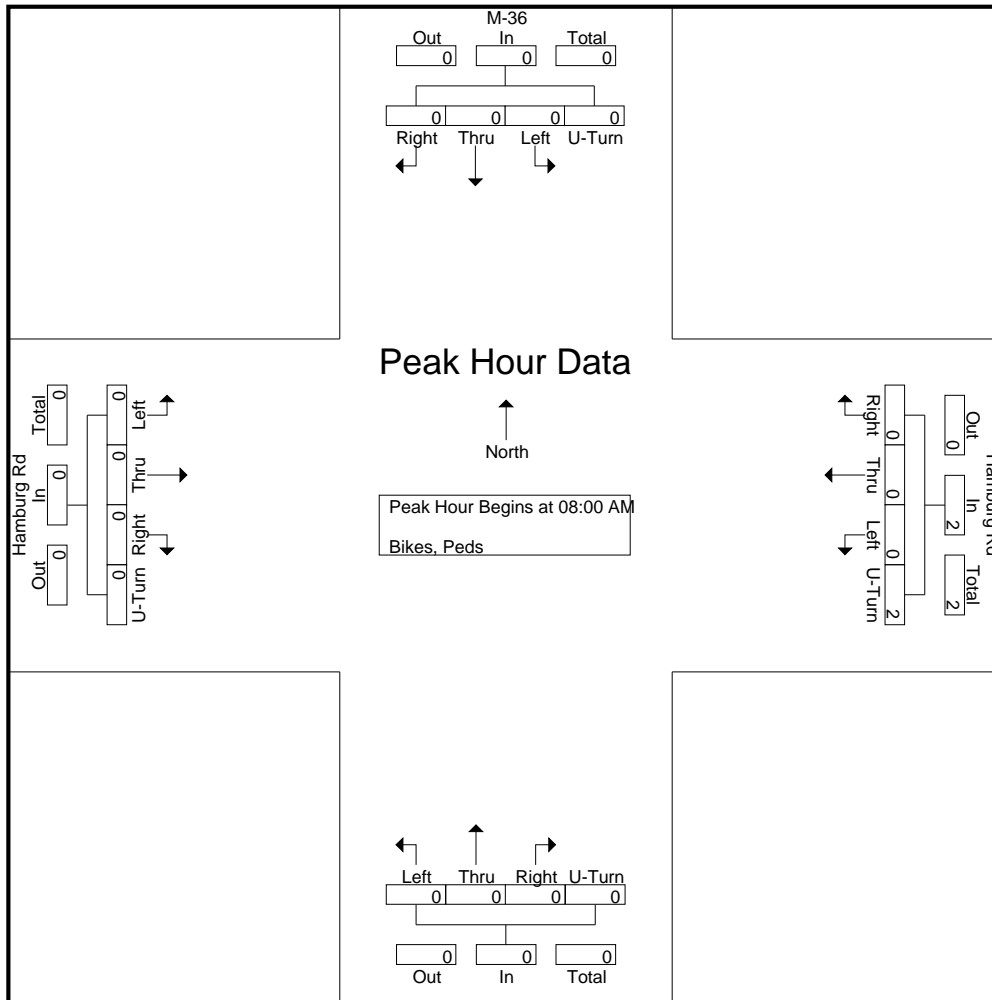
Start Time	Hamburg Rd Eastbound					Hamburg Rd Westbound					Northbound					M-36 Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:15 AM	0	0	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	2	2	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	2
Grand Total	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	2
Apprch %	0	0	0	0	0	0	0	0	100	100	0	0	0	0	0	0	0	0	0	0	
Total %	0	0	0	0	0	0	0	0	100	100	0	0	0	0	0	0	0	0	0	0	





Item 2.

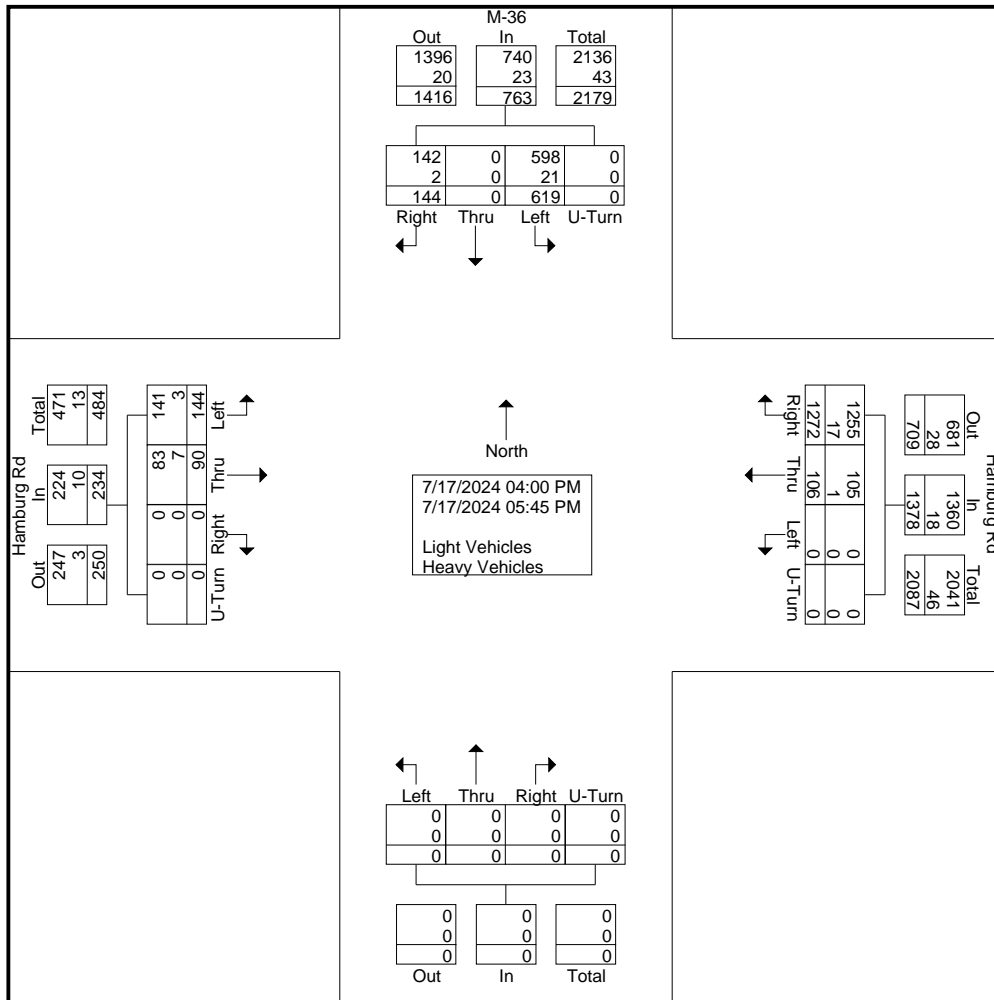
Start Time	Hamburg Rd Eastbound					Hamburg Rd Westbound					Northbound					M-36 Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
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	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	2	2	0	0	0	0	0	0	0	0	0	0	2
Total Volume	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	2
% App. Total	0	0	0	0	0	0	0	0	100		0	0	0	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250





Groups Printed- Light Vehicles - Heavy Vehicles

Start Time	Hamburg Rd Eastbound					Hamburg Rd Westbound					Northbound					M-36 Southbound					Int. Total
	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	
04:00 PM	15	16	0	0	31	0	13	170	0	183	0	0	0	0	0	81	0	16	0	97	311
04:15 PM	23	14	0	0	37	0	16	144	0	160	0	0	0	0	0	86	0	20	0	106	303
04:30 PM	24	9	0	0	33	0	15	176	0	191	0	0	0	0	0	69	0	18	0	87	311
04:45 PM	20	11	0	0	31	0	15	164	0	179	0	0	0	0	0	76	0	21	0	97	307
Total	82	50	0	0	132	0	59	654	0	713	0	0	0	0	0	312	0	75	0	387	1232
05:00 PM	14	9	0	0	23	0	17	163	0	180	0	0	0	0	0	82	0	18	0	100	303
05:15 PM	22	13	0	0	35	0	12	157	0	169	0	0	0	0	0	77	0	23	0	100	304
05:30 PM	15	6	0	0	21	0	9	162	0	171	0	0	0	0	0	79	0	14	0	93	285
05:45 PM	11	12	0	0	23	0	9	136	0	145	0	0	0	0	0	69	0	14	0	83	251
Total	62	40	0	0	102	0	47	618	0	665	0	0	0	0	0	307	0	69	0	376	1143
Grand Total	144	90	0	0	234	0	106	1272	0	1378	0	0	0	0	0	619	0	144	0	763	2375
Apprch %	61.5	38.5	0	0		0	7.7	92.3	0		0	0	0	0		81.1	0	18.9	0		
Total %	6.1	3.8	0	0	9.9	0	4.5	53.6	0	58	0	0	0	0	0	26.1	0	6.1	0	32.1	
Light Vehicles	141	83	0	0	224	0	105	1255	0	1360	0	0	0	0	0	598	0	142	0	740	2324
% Light Vehicles	97.9	92.2	0	0	95.7	0	99.1	98.7	0	98.7	0	0	0	0	0	96.6	0	98.6	0	97	97.9
Heavy Vehicles	3	7	0	0	10	0	1	17	0	18	0	0	0	0	0	21	0	2	0	23	51
% Heavy Vehicles	2.1	7.8	0	0	4.3	0	0.9	1.3	0	1.3	0	0	0	0	0	3.4	0	1.4	0	3	2.1

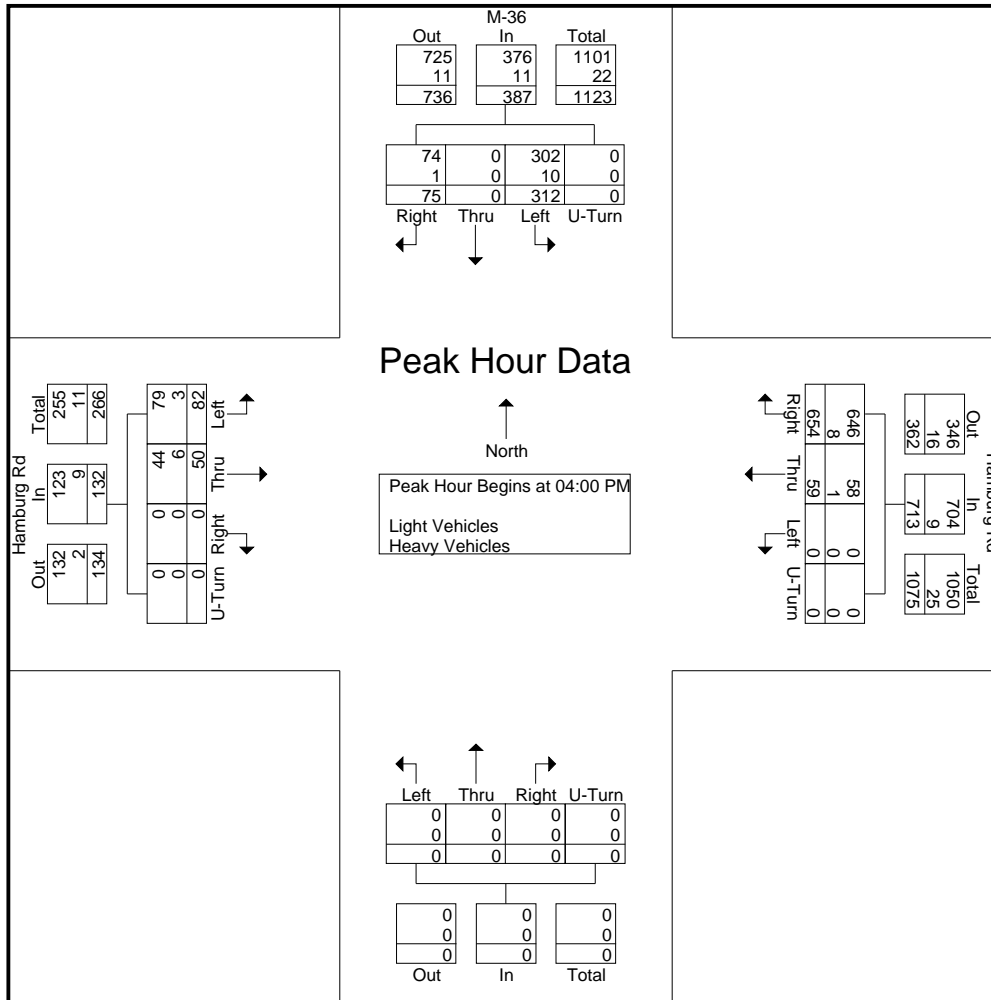




TRUE DATA TO IMPROVE MOBILITY

Item 2.

Start Time	Hamburg Rd Eastbound					Hamburg Rd Westbound					Northbound					M-36 Southbound					Int. Total
	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	
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	15	16	0	0	31	0	13	170	0	183	0	0	0	0	0	81	0	16	0	97	311
04:15 PM	23	14	0	0	37	0	16	144	0	160	0	0	0	0	0	86	0	20	0	106	303
04:30 PM	24	9	0	0	33	0	15	176	0	191	0	0	0	0	0	69	0	18	0	87	311
04:45 PM	20	11	0	0	31	0	15	164	0	179	0	0	0	0	0	76	0	21	0	97	307
Total Volume	82	50	0	0	132	0	59	654	0	713	0	0	0	0	0	312	0	75	0	387	1232
% App. Total	62.1	37.9	0	0		0	8.3	91.7	0		0	0	0	0		80.6	0	19.4	0		
PHF	.854	.781	.000	.000	.892	.000	.922	.929	.000	.933	.000	.000	.000	.000	.000	.907	.000	.893	.000	.913	.990
Light Vehicles	79	44	0	0	123	0	58	646	0	704	0	0	0	0	0	302	0	74	0	376	1203
% Light Vehicles	96.3	88.0	0	0	93.2	0	98.3	98.8	0	98.7	0	0	0	0	0	96.8	0	98.7	0	97.2	97.6
Heavy Vehicles	3	6	0	0	9	0	1	8	0	9	0	0	0	0	0	10	0	1	0	11	29
% Heavy Vehicles	3.7	12.0	0	0	6.8	0	1.7	1.2	0	1.3	0	0	0	0	0	3.2	0	1.3	0	2.8	2.4

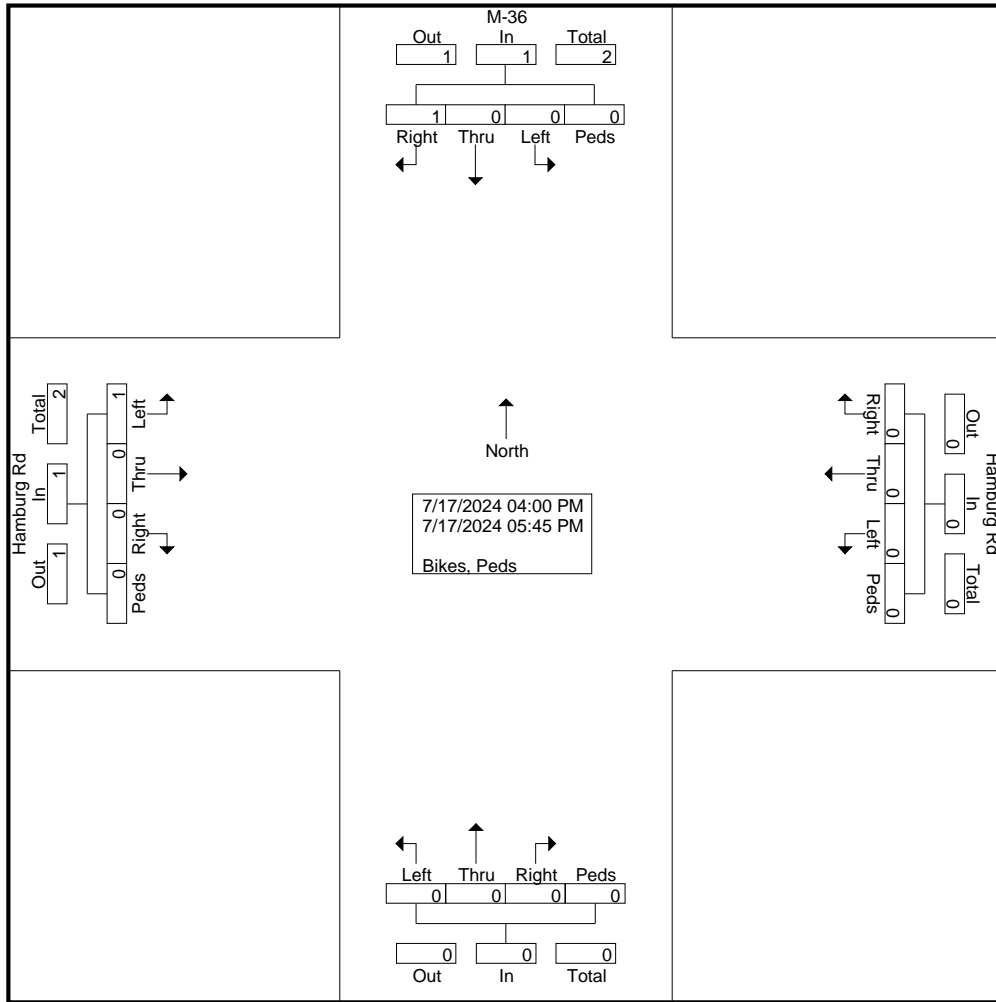




Item 2.

Groups Printed- Bikes, Peds

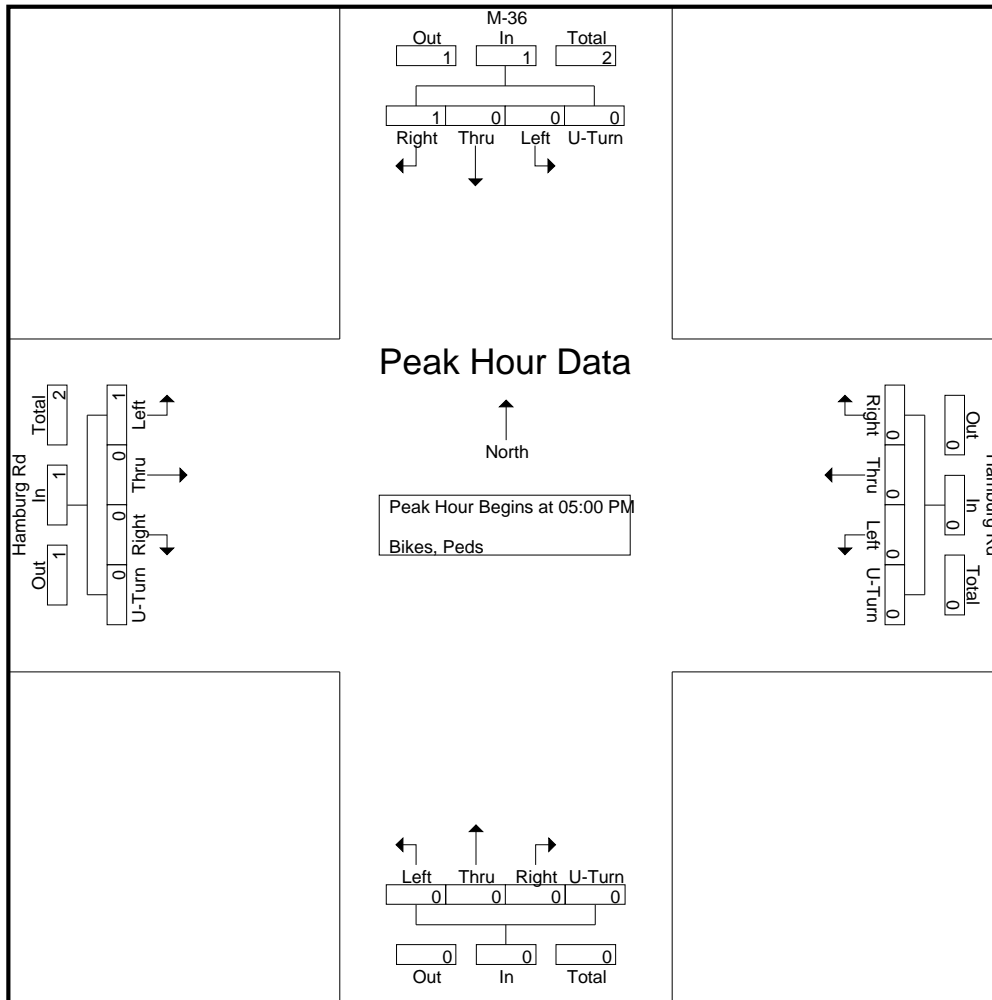
Start Time	Hamburg Rd Eastbound					Hamburg Rd Westbound					Northbound					M-36 Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
04:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:15 PM	0	0	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	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	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	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	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
Grand Total	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
Apprch %	100	0	0	0		0	0	0	0		0	0	0	0		0	0	100	0		
Total %	50	0	0	0	50	0	0	0	0	0	0	0	0	0	0	0	0	50	0	50	





Item 2.

Start Time	Hamburg Rd Eastbound					Hamburg Rd Westbound					Northbound					M-36 Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. 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	0	0	0	0	0	1	0	1	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	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2
% App. Total	100	0	0	0		0	0	0	0		0	0	0	0		0	0	100	0		
PHF	.250	.000	.000	.000	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.000	.250	.500

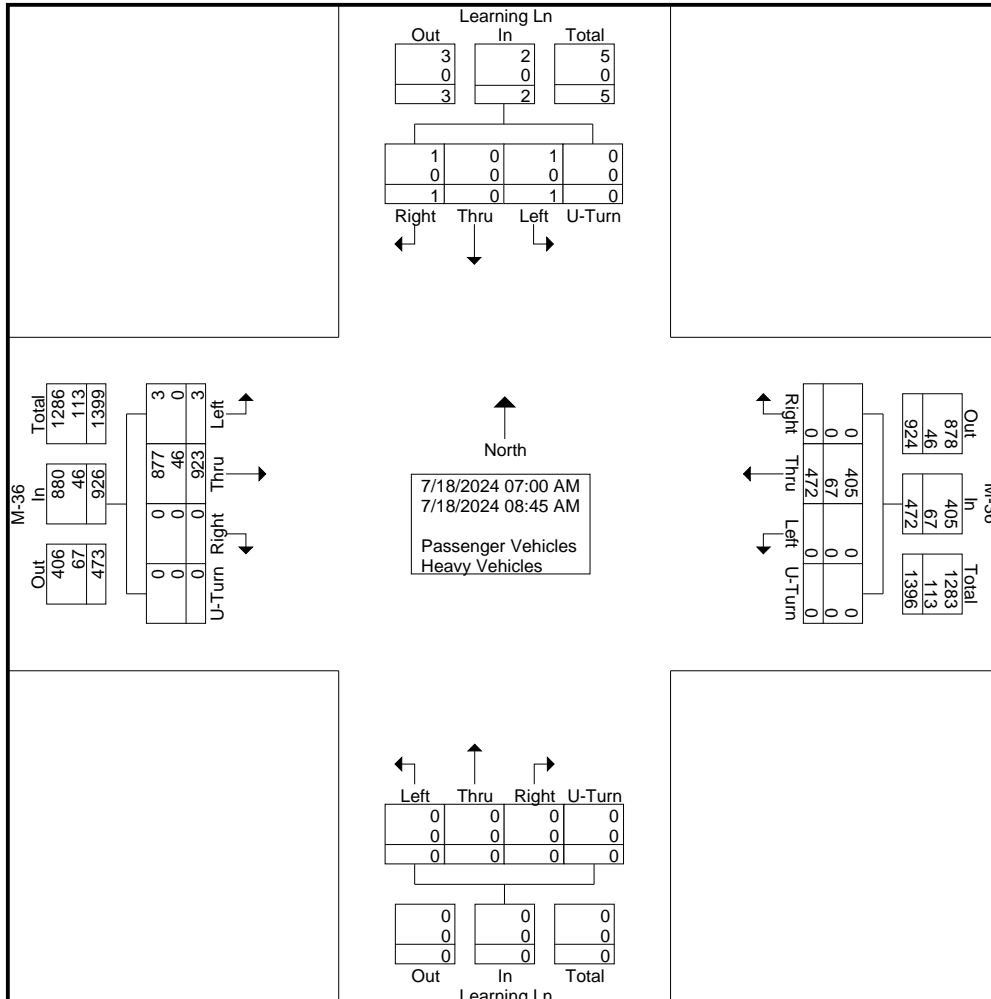




TRUE DATA TO IMPROVE MOBILITY

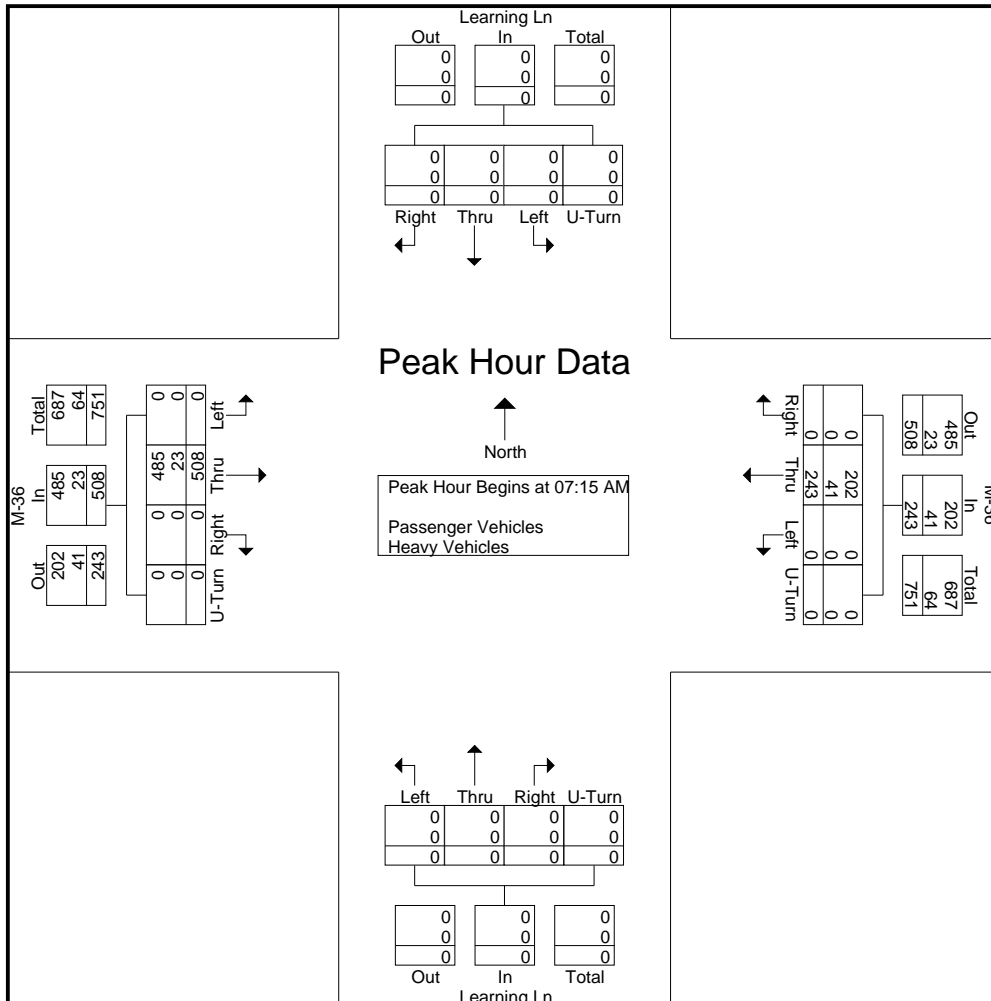
Groups Printed- Passenger Vehicles - Heavy Vehicles

Start Time	M-36 Eastbound					M-36 Westbound					Learning Ln Northbound					Learning Ln Southbound					Int. Total
	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	
07:00 AM	2	113	0	0	115	0	37	0	0	37	0	0	0	0	0	1	0	1	0	2	154
07:15 AM	0	146	0	0	146	0	48	0	0	48	0	0	0	0	0	0	0	0	0	0	194
07:30 AM	0	130	0	0	130	0	57	0	0	57	0	0	0	0	0	0	0	0	0	0	187
07:45 AM	0	119	0	0	119	0	78	0	0	78	0	0	0	0	0	0	0	0	0	0	197
Total	2	508	0	0	510	0	220	0	0	220	0	0	0	0	0	1	0	1	0	2	732
08:00 AM	0	113	0	0	113	0	60	0	0	60	0	0	0	0	0	0	0	0	0	0	173
08:15 AM	0	106	0	0	106	0	69	0	0	69	0	0	0	0	0	0	0	0	0	0	175
08:30 AM	0	102	0	0	102	0	58	0	0	58	0	0	0	0	0	0	0	0	0	0	160
08:45 AM	1	94	0	0	95	0	65	0	0	65	0	0	0	0	0	0	0	0	0	0	160
Total	1	415	0	0	416	0	252	0	0	252	0	0	0	0	0	0	0	0	0	0	668
Grand Total	3	923	0	0	926	0	472	0	0	472	0	0	0	0	0	1	0	1	0	2	1400
Apprch %	0.3	99.7	0	0		0	100	0	0		0	0	0	0		50	0	50	0		
Total %	0.2	65.9	0	0	66.1	0	33.7	0	0	33.7	0	0	0	0	0	0.1	0	0.1	0	0.1	
Passenger Vehicles	3	877	0	0	880	0	405	0	0	405	0	0	0	0	0	1	0	1	0	2	1287
% Passenger Vehicles	100	95	0	0	95	0	85.8	0	0	85.8	0	0	0	0	0	100	0	100	0	100	91.9
Heavy Vehicles	0	46	0	0	46	0	67	0	0	67	0	0	0	0	0	0	0	0	0	0	113
% Heavy Vehicles	0	5	0	0	5	0	14.2	0	0	14.2	0	0	0	0	0	0	0	0	0	0	8.1





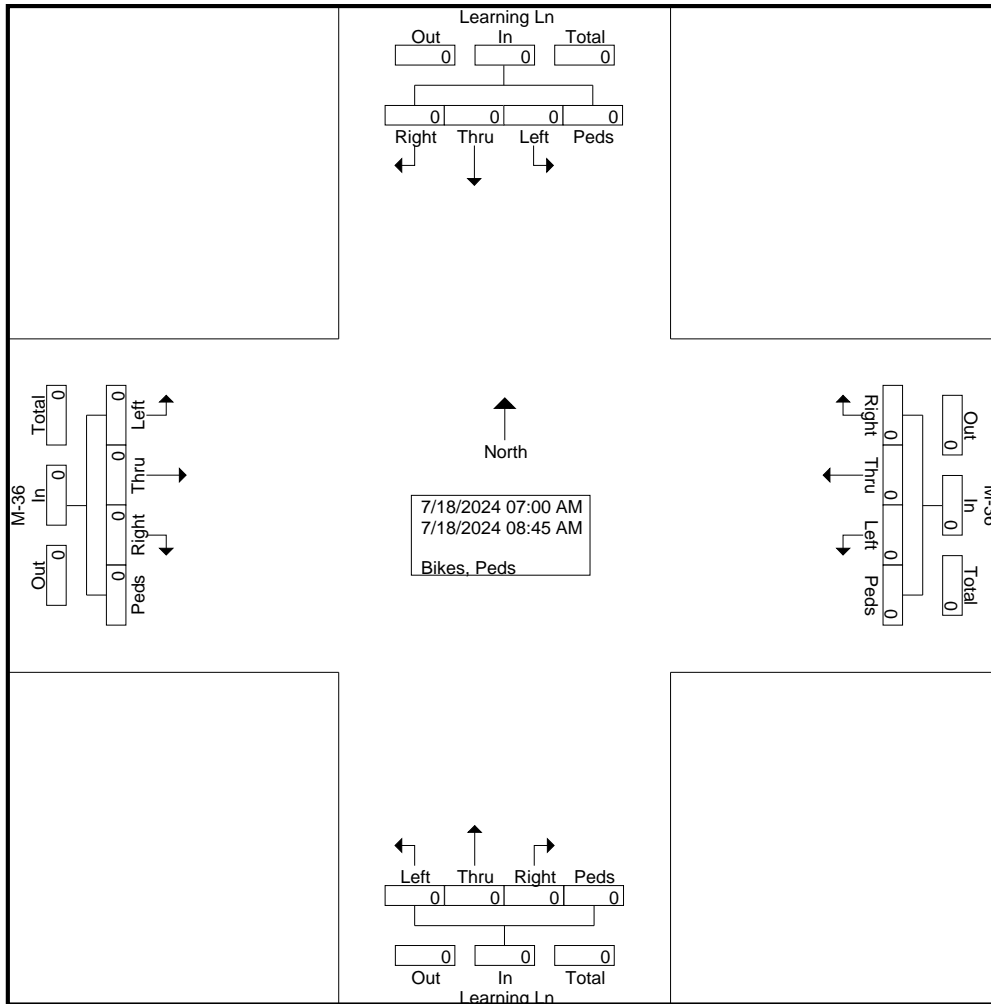
Start Time	M-36 Eastbound					M-36 Westbound					Learning Ln Northbound					Learning Ln Southbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	146	0	0	146	0	48	0	0	48	0	0	0	0	0	0	0	0	0	0	194
07:30 AM	0	130	0	0	130	0	57	0	0	57	0	0	0	0	0	0	0	0	0	0	187
07:45 AM	0	119	0	0	119	0	78	0	0	78	0	0	0	0	0	0	0	0	0	0	197
08:00 AM	0	113	0	0	113	0	60	0	0	60	0	0	0	0	0	0	0	0	0	0	173
Total Volume	0	508	0	0	508	0	243	0	0	243	0	0	0	0	0	0	0	0	0	0	751
% App. Total	0	100	0	0		0	100	0	0		0	0	0	0	0	0	0	0	0	0	
PHF	.000	.870	.000	.000	.870	.000	.779	.000	.000	.779	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.953
Passenger Vehicles	0	485	0	0	485	0	202	0	0	202	0	0	0	0	0	0	0	0	0	0	687
% Passenger Vehicles	0	95.5	0	0	95.5	0	83.1	0	0	83.1	0	0	0	0	0	0	0	0	0	0	91.5
Heavy Vehicles	0	23	0	0	23	0	41	0	0	41	0	0	0	0	0	0	0	0	0	0	64
% Heavy Vehicles	0	4.5	0	0	4.5	0	16.9	0	0	16.9	0	0	0	0	0	0	0	0	0	0	8.5





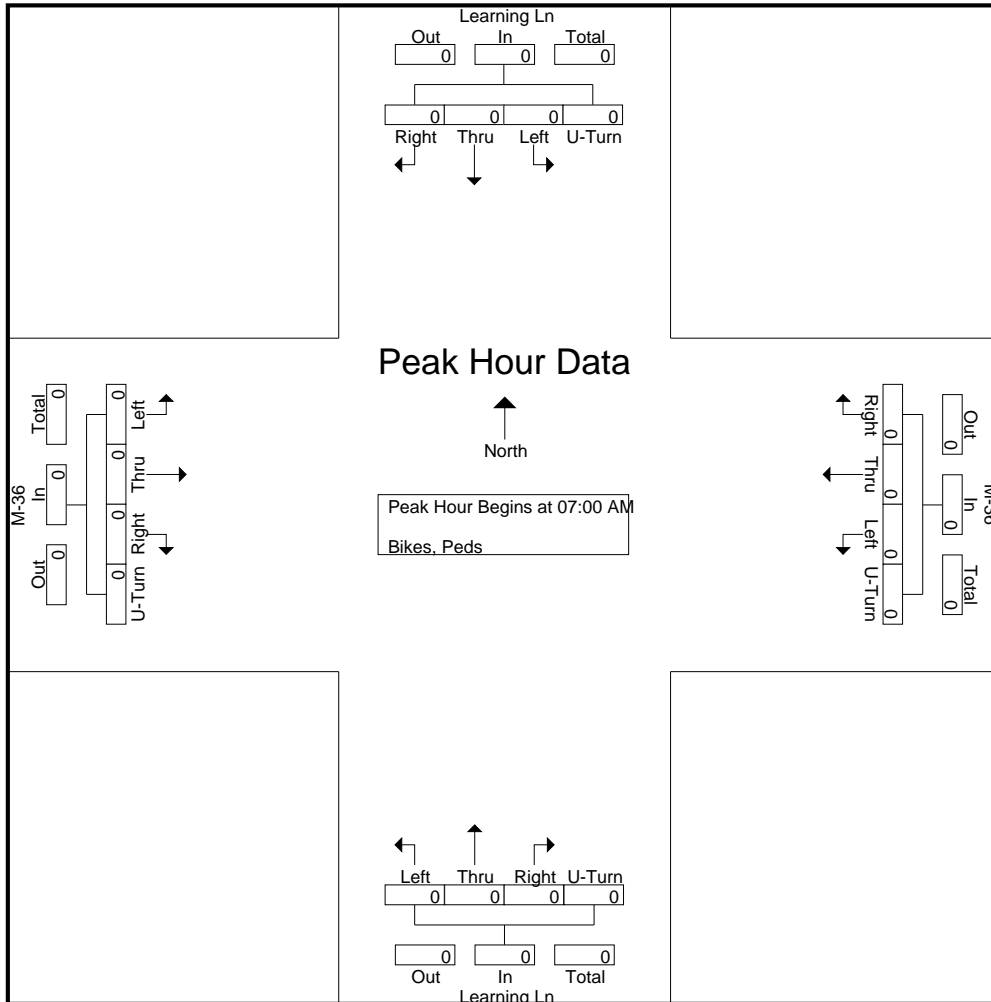
Groups Printed- Bikes, Peds

Start Time	M-36 Eastbound					M-36 Westbound					Learning Ln Northbound					Learning Ln Southbound					Int. Total					
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. 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	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	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	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	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	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	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	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	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	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	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	0	0	0	0	0
Apprch %	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
Total %																										





Start Time	M-36 Eastbound					M-36 Westbound					Learning Ln Northbound					Learning Ln Southbound					Int. Total	
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. 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	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	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	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	0
Total Volume	0	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	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	.000

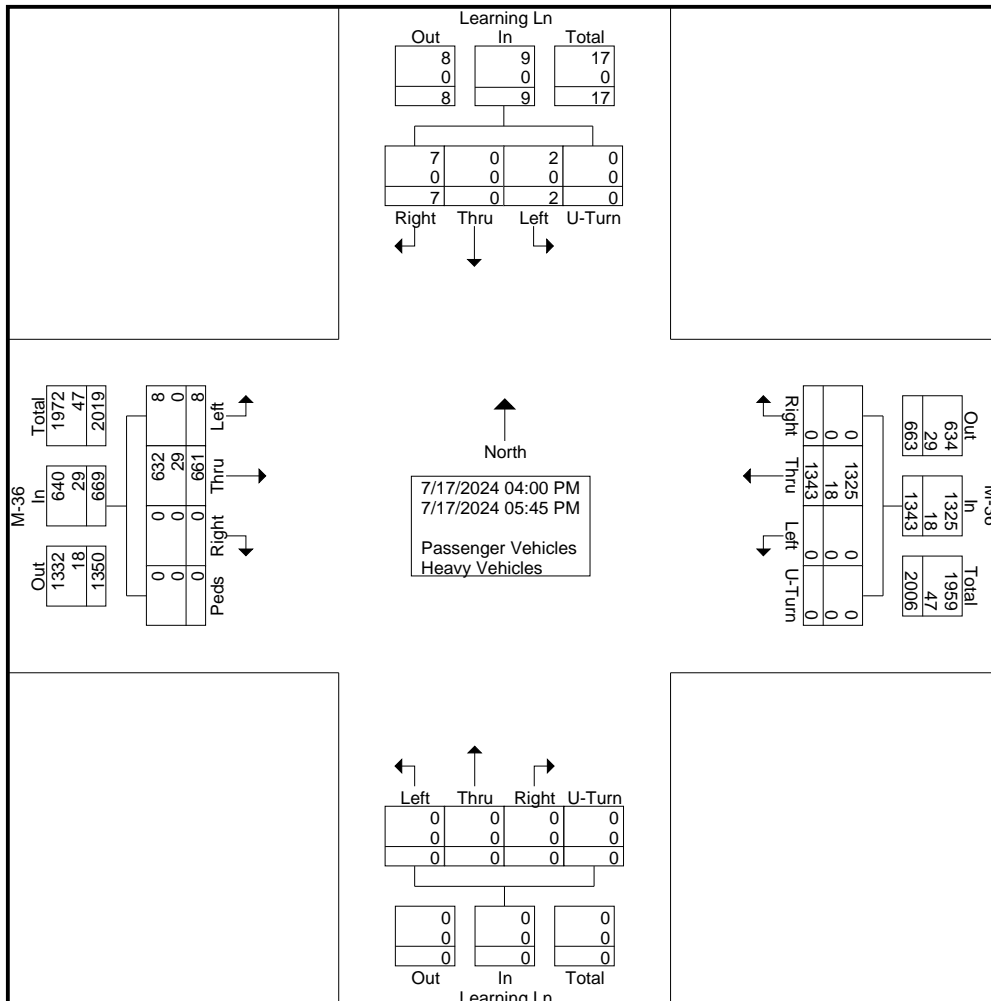




TRUE DATA TO IMPROVE MOBILITY

Groups Printed- Passenger Vehicles - Heavy Vehicles

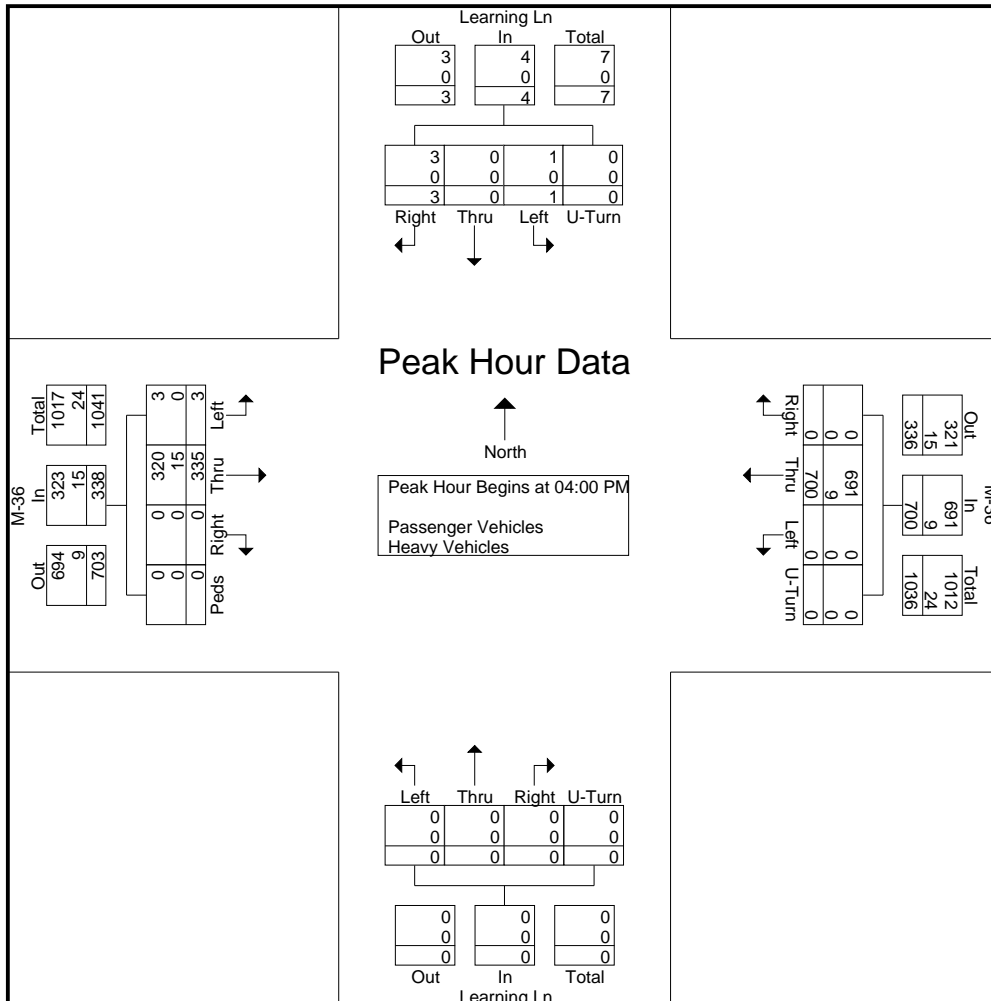
Start Time	M-36 Eastbound					M-36 Westbound					Learning Ln Northbound					Learning Ln Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
04:00 PM	0	88	0	0	88	0	188	0	0	188	0	0	0	0	0	0	0	1	0	1	277
04:15 PM	1	94	0	0	95	0	152	0	0	152	0	0	0	0	0	1	0	0	0	1	248
04:30 PM	0	74	0	0	74	0	184	0	0	184	0	0	0	0	0	0	0	0	0	0	258
04:45 PM	2	79	0	0	81	0	176	0	0	176	0	0	0	0	0	0	0	2	0	2	259
Total	3	335	0	0	338	0	700	0	0	700	0	0	0	0	0	1	0	3	0	4	1042
05:00 PM	1	79	0	0	80	0	169	0	0	169	0	0	0	0	0	0	0	1	0	1	250
05:15 PM	2	89	0	0	91	0	161	0	0	161	0	0	0	0	0	0	0	1	0	1	253
05:30 PM	0	81	0	0	81	0	173	0	0	173	0	0	0	0	0	1	0	1	0	2	256
05:45 PM	2	77	0	0	79	0	140	0	0	140	0	0	0	0	0	0	0	1	0	1	220
Total	5	326	0	0	331	0	643	0	0	643	0	0	0	0	0	1	0	4	0	5	979
Grand Total	8	661	0	0	669	0	1343	0	0	1343	0	0	0	0	0	2	0	7	0	9	2021
Apprch %	1.2	98.8	0	0		0	100	0	0		0	0	0	0		22.2	0	77.8	0		
Total %	0.4	32.7	0	0	33.1	0	66.5	0	0	66.5	0	0	0	0	0	0.1	0	0.3	0	0.4	
Passenger Vehicles	8	632	0	0	640	0	1325	0	0	1325	0	0	0	0	0	2	0	7	0	9	1974
% Passenger Vehicles	100	95.6	0	0	95.7	0	98.7	0	0	98.7	0	0	0	0	0	100	0	100	0	100	97.7
Heavy Vehicles	0	29	0	0	29	0	18	0	0	18	0	0	0	0	0	0	0	0	0	0	47
% Heavy Vehicles	0	4.4	0	0	4.3	0	1.3	0	0	1.3	0	0	0	0	0	0	0	0	0	0	2.3





TRUE DATA TO IMPROVE MOBILITY

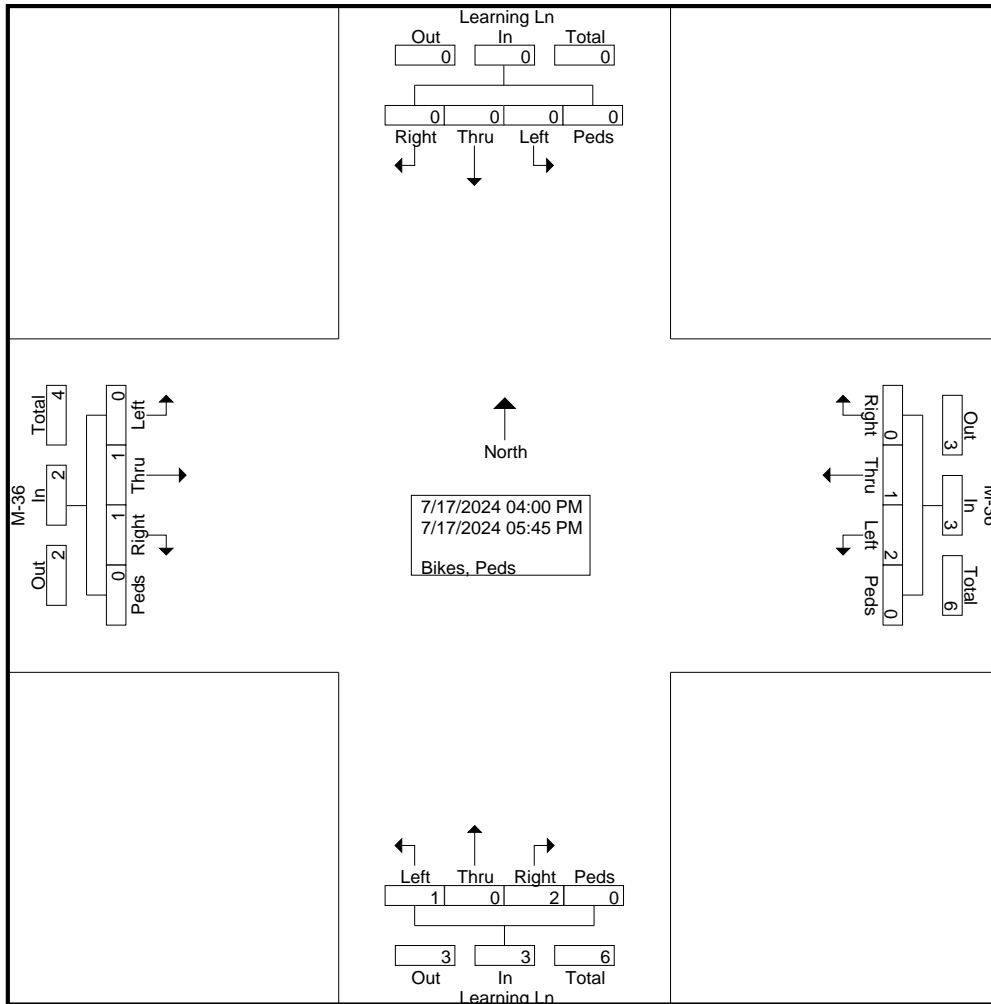
Start Time	M-36 Eastbound					M-36 Westbound					Learning Ln Northbound					Learning Ln Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	88	0	0	88	0	188	0	0	188	0	0	0	0	0	0	0	1	0	1	277
04:15 PM	1	94	0	0	95	0	152	0	0	152	0	0	0	0	0	1	0	0	0	1	248
04:30 PM	0	74	0	0	74	0	184	0	0	184	0	0	0	0	0	0	0	0	0	0	258
04:45 PM	2	79	0	0	81	0	176	0	0	176	0	0	0	0	0	0	0	2	0	2	259
Total Volume	3	335	0	0	338	0	700	0	0	700	0	0	0	0	0	1	0	3	0	4	1042
% App. Total	0.9	99.1	0	0		0	100	0	0		0	0	0	0		25	0	75	0		
PHF	.375	.891	.000	.000	.889	.000	.931	.000	.000	.931	.000	.000	.000	.000	.250	.000	.375	.000	.500		.940
Passenger Vehicles	3	320	0	0	323	0	691	0	0	691	0	0	0	0	0	1	0	3	0	4	1018
% Passenger Vehicles	100	95.5	0	0	95.6	0	98.7	0	0	98.7	0	0	0	0	0	100	0	100	0	100	97.7
Heavy Vehicles	0	15	0	0	15	0	9	0	0	9	0	0	0	0	0	0	0	0	0	0	24
% Heavy Vehicles	0	4.5	0	0	4.4	0	1.3	0	0	1.3	0	0	0	0	0	0	0	0	0	0	2.3





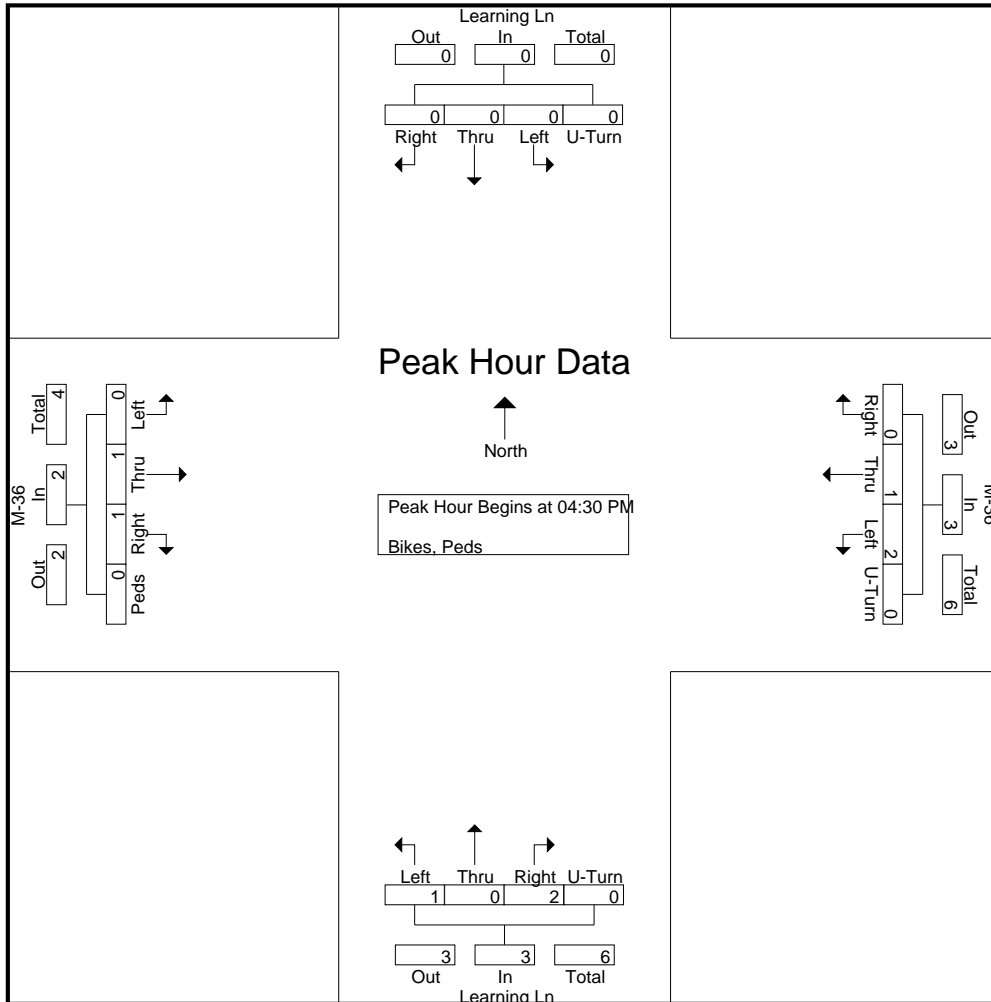
Groups Printed- Bikes, Peds

Start Time	M-36 Eastbound					M-36 Westbound					Learning Ln Northbound					Learning Ln Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. 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	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	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	2	1	0	0	3	1	0	0	0	1	0	0	0	0	0	4
05:15 PM	0	1	1	0	2	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	4
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	1	1	0	2	2	1	0	0	3	1	0	2	0	3	0	0	0	0	0	8
Grand Total	0	1	1	0	2	2	1	0	0	3	1	0	2	0	3	0	0	0	0	0	8
Apprch %	0	50	50	0		66.7	33.3	0	0		33.3	0	66.7	0		0	0	0	0		
Total %	0	12.5	12.5	0	25	25	12.5	0	0	37.5	12.5	0	25	0	37.5	0	0	0	0	0	





Start Time	M-36 Eastbound					M-36 Westbound					Learning Ln Northbound					Learning Ln Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
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
05:00 PM	0	0	0	0	0	2	1	0	0	3	1	0	0	0	1	0	0	0	0	0	0
05:15 PM	0	1	1	0	2	0	0	0	0	0	0	0	2	0	2	0	0	0	0	0	0
Total Volume	0	1	1	0	2	2	1	0	0	3	1	0	2	0	3	0	0	0	0	0	0
% App. Total	0	50	50	0		66.7	33.3	0	0		33.3	0	66.7	0		0	0	0	0	0	
PHF	.000	.250	.250	.000	.250	.250	.250	.000	.000	.250	.250	.000	.250	.000	.375	.000	.000	.000	.000	.000	.500

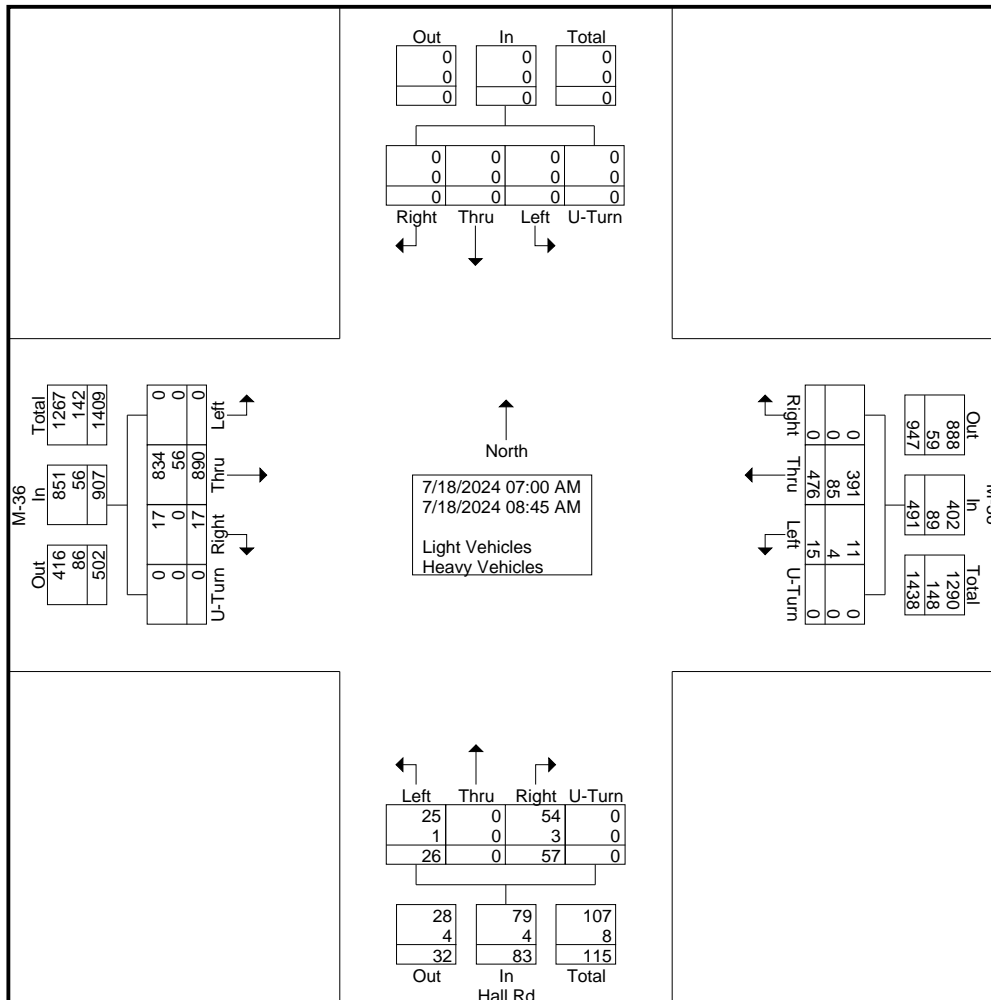




TRUE DATA TO IMPROVE MOBILITY

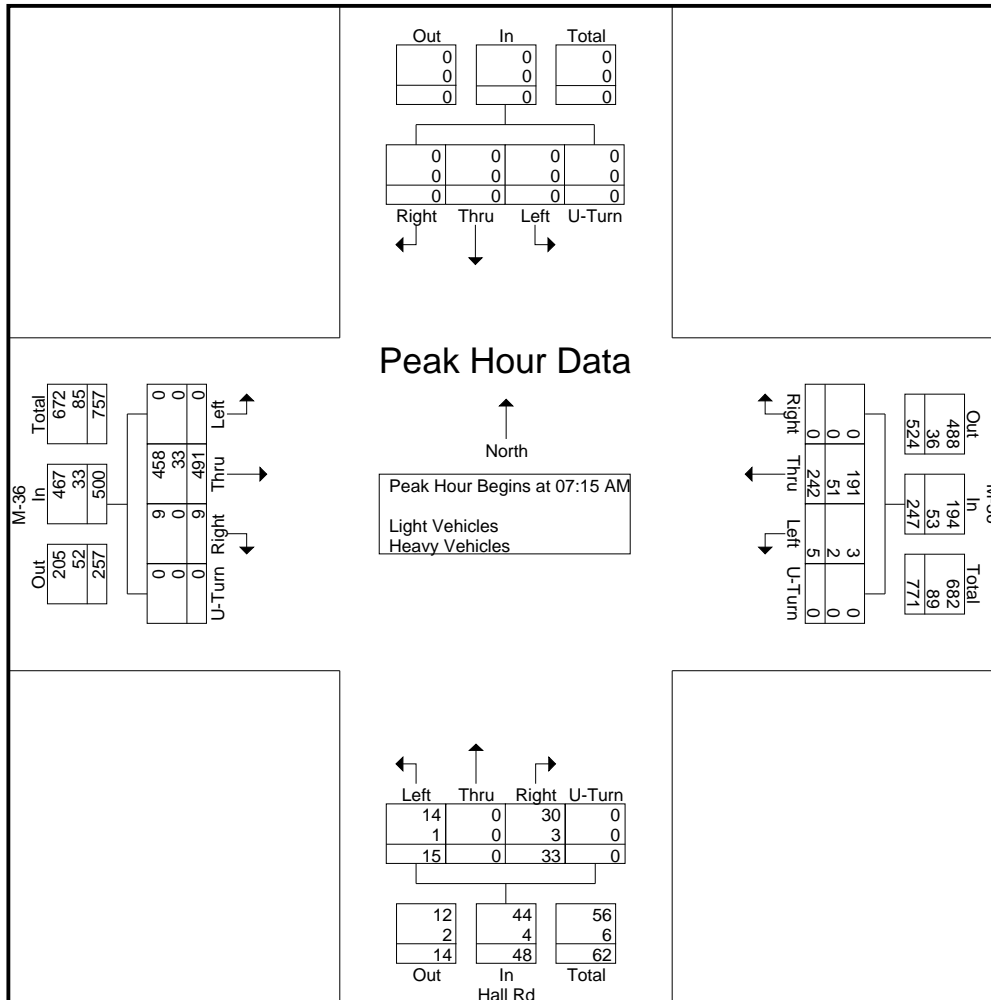
Groups Printed- Light Vehicles - Heavy Vehicles

Start Time	M-36 Eastbound					M-36 Westbound					Hall Rd Northbound					Southbound					Int. Total
	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	
07:00 AM	0	106	2	0	108	2	42	0	0	44	2	0	6	0	8	0	0	0	0	0	160
07:15 AM	0	148	1	0	149	0	46	0	0	46	3	0	3	0	6	0	0	0	0	0	201
07:30 AM	0	117	3	0	120	3	55	0	0	58	5	0	14	0	19	0	0	0	0	0	197
07:45 AM	0	113	4	0	117	0	79	0	0	79	4	0	10	0	14	0	0	0	0	0	210
Total	0	484	10	0	494	5	222	0	0	227	14	0	33	0	47	0	0	0	0	0	768
08:00 AM	0	113	1	0	114	2	62	0	0	64	3	0	6	0	9	0	0	0	0	0	187
08:15 AM	0	98	5	0	103	1	66	0	0	67	3	0	7	0	10	0	0	0	0	0	180
08:30 AM	0	102	0	0	102	3	57	0	0	60	3	0	8	0	11	0	0	0	0	0	173
08:45 AM	0	93	1	0	94	4	69	0	0	73	3	0	3	0	6	0	0	0	0	0	173
Total	0	406	7	0	413	10	254	0	0	264	12	0	24	0	36	0	0	0	0	0	713
Grand Total	0	890	17	0	907	15	476	0	0	491	26	0	57	0	83	0	0	0	0	0	1481
Apprch %	0	98.1	1.9	0		3.1	96.9	0	0		31.3	0	68.7	0		0	0	0	0		
Total %	0	60.1	1.1	0	61.2	1	32.1	0	0	33.2	1.8	0	3.8	0	5.6	0	0	0	0	0	
Light Vehicles	0	834	17	0	851	11	391	0	0	402	25	0	54	0	79	0	0	0	0	0	1332
% Light Vehicles	0	93.7	100	0	93.8	73.3	82.1	0	0	81.9	96.2	0	94.7	0	95.2	0	0	0	0	0	89.9
Heavy Vehicles	0	56	0	0	56	4	85	0	0	89	1	0	3	0	4	0	0	0	0	0	149
% Heavy Vehicles	0	6.3	0	0	6.2	26.7	17.9	0	0	18.1	3.8	0	5.3	0	4.8	0	0	0	0	0	10.1





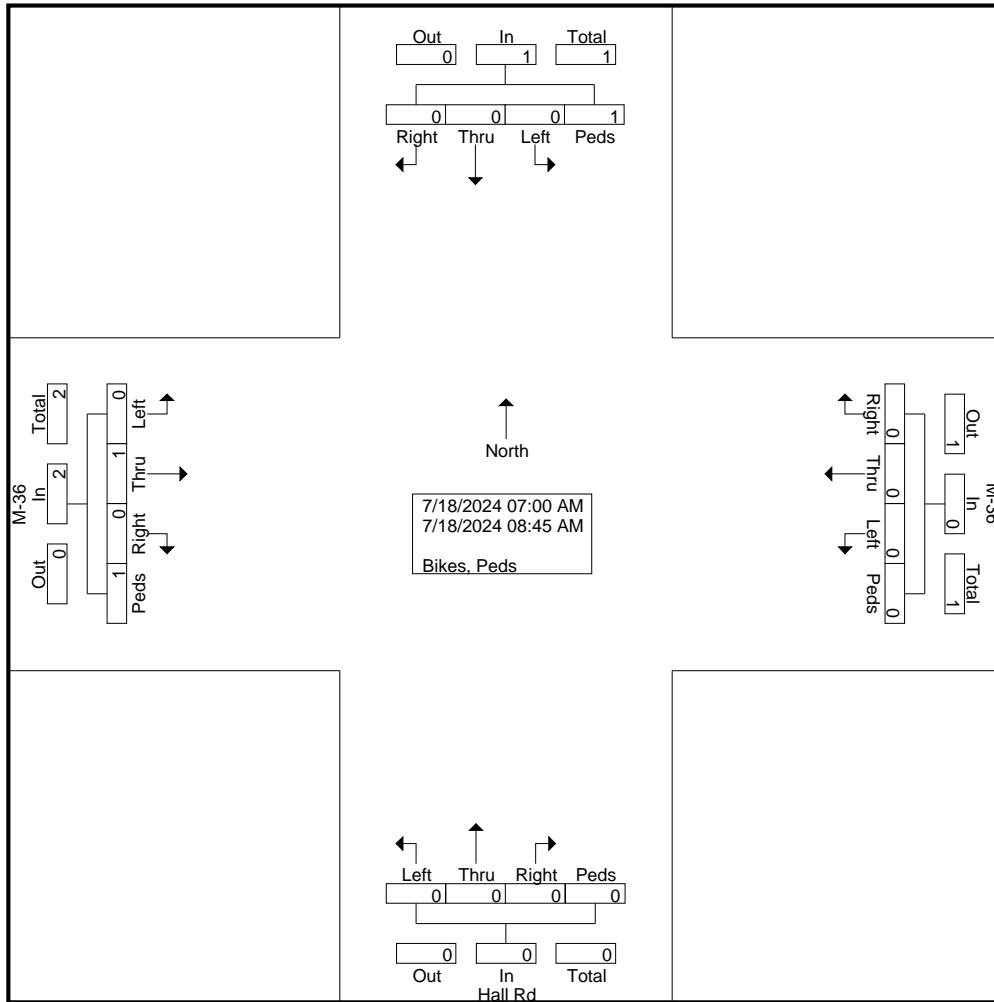
Start Time	M-36 Eastbound					M-36 Westbound					Hall Rd Northbound					Southbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:15 AM																					
07:15 AM	0	148	1	0	149	0	46	0	0	46	3	0	3	0	6	0	0	0	0	0	201
07:30 AM	0	117	3	0	120	3	55	0	0	58	5	0	14	0	19	0	0	0	0	0	197
07:45 AM	0	113	4	0	117	0	79	0	0	79	4	0	10	0	14	0	0	0	0	0	210
08:00 AM	0	113	1	0	114	2	62	0	0	64	3	0	6	0	9	0	0	0	0	0	187
Total Volume	0	491	9	0	500	5	242	0	0	247	15	0	33	0	48	0	0	0	0	0	795
% App. Total	0	98.2	1.8	0		2	98	0	0		31.2	0	68.8	0		0	0	0	0		
PHF	.000	.829	.563	.000	.839	.417	.766	.000	.000	.782	.750	.000	.589	.000	.632	.000	.000	.000	.000	.000	.946
Light Vehicles	0	458	9	0	467	3	191	0	0	194	14	0	30	0	44	0	0	0	0	0	705
% Light Vehicles	0	93.3	100	0	93.4	60.0	78.9	0	0	78.5	93.3	0	90.9	0	91.7	0	0	0	0	0	88.7
Heavy Vehicles	0	33	0	0	33	2	51	0	0	53	1	0	3	0	4	0	0	0	0	0	90
% Heavy Vehicles	0	6.7	0	0	6.6	40.0	21.1	0	0	21.5	6.7	0	9.1	0	8.3	0	0	0	0	0	11.3



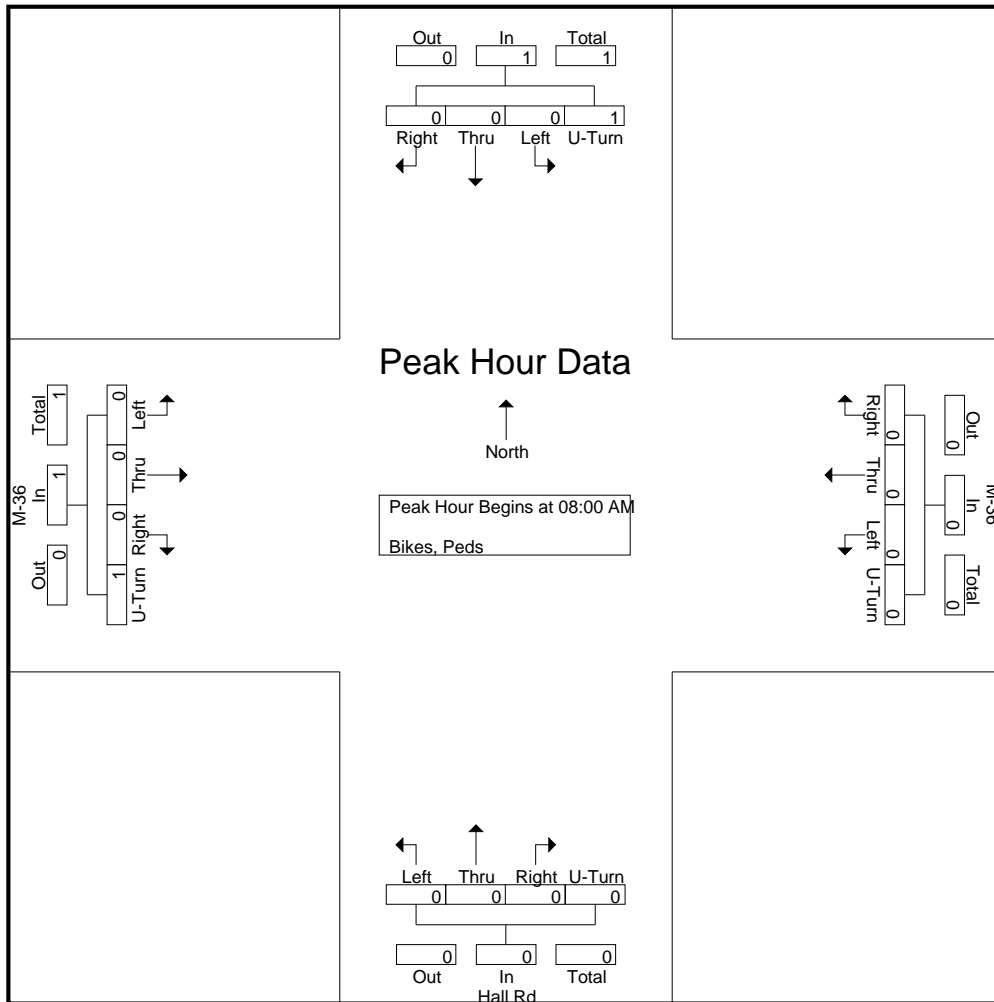


Groups Printed- Bikes, Peds

Start Time	M-36 Eastbound					M-36 Westbound					Hall Rd Northbound					Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. 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	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
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	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2
Total	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2
Grand Total	0	1	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	3
Apprch %	0	50	0	50		0	0	0	0		0	0	0	0		0	0	0	100		
Total %	0	33.3	0	33.3	66.7	0	0	0	0	0	0	0	0	0	0	0	0	0	33.3	33.3	



Start Time	M-36 Eastbound					M-36 Westbound					Hall Rd Northbound					Southbound					Int. Total	
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. 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	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	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	0
08:45 AM	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2
Total Volume	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1		2
% App. Total	0	0	0	100		0	0	0	0		0	0	0	0		0	0	0	100			
PHF	.000	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250		.250

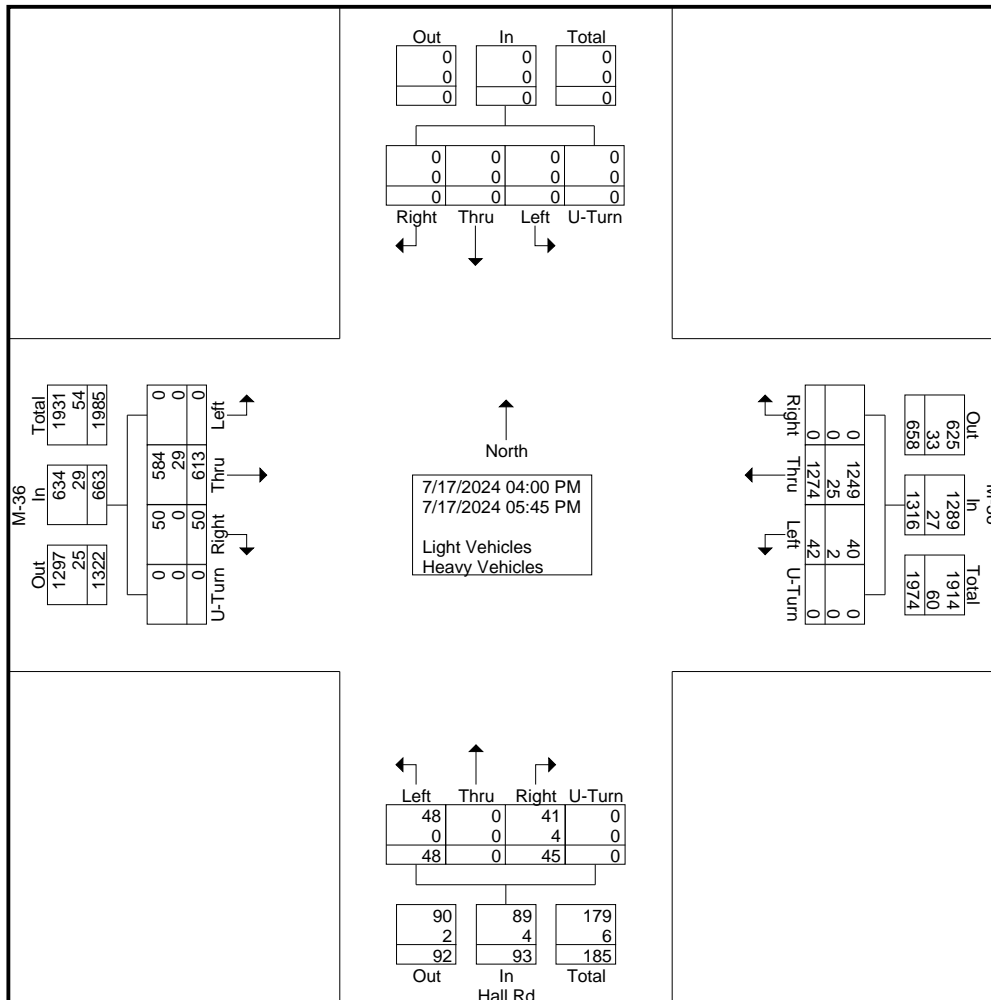




TRUE DATA TO IMPROVE MOBILITY

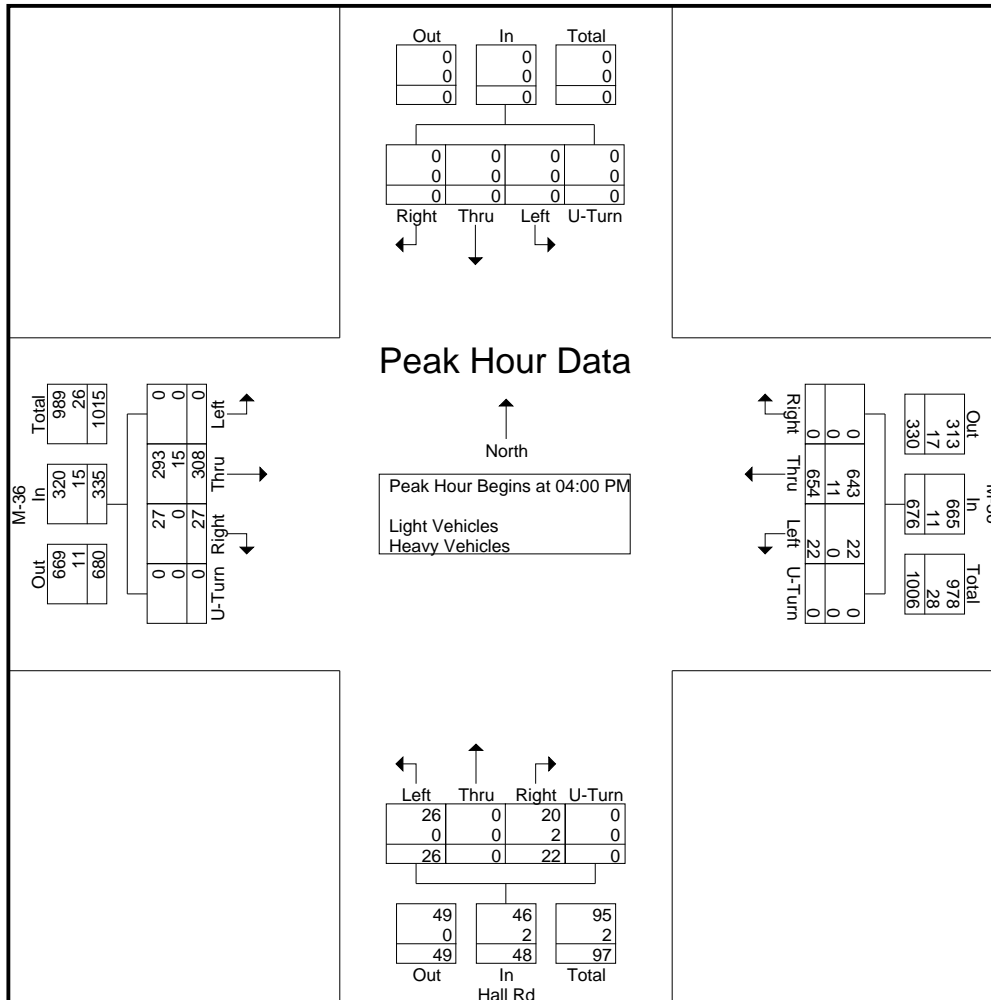
Groups Printed- Light Vehicles - Heavy Vehicles

Start Time	M-36 Eastbound					M-36 Westbound					Hall Rd Northbound					Southbound					Int. Total
	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	
04:00 PM	0	80	8	0	88	5	178	0	0	183	7	0	9	0	16	0	0	0	0	0	287
04:15 PM	0	92	5	0	97	10	142	0	0	152	7	0	5	0	12	0	0	0	0	0	261
04:30 PM	0	64	6	0	70	2	169	0	0	171	2	0	4	0	6	0	0	0	0	0	247
04:45 PM	0	72	8	0	80	5	165	0	0	170	10	0	4	0	14	0	0	0	0	0	264
Total	0	308	27	0	335	22	654	0	0	676	26	0	22	0	48	0	0	0	0	0	1059
05:00 PM	0	73	5	0	78	5	165	0	0	170	5	0	3	0	8	0	0	0	0	0	256
05:15 PM	0	82	5	0	87	1	152	0	0	153	8	0	7	0	15	0	0	0	0	0	255
05:30 PM	0	81	6	0	87	9	170	0	0	179	4	0	8	0	12	0	0	0	0	0	278
05:45 PM	0	69	7	0	76	5	133	0	0	138	5	0	5	0	10	0	0	0	0	0	224
Total	0	305	23	0	328	20	620	0	0	640	22	0	23	0	45	0	0	0	0	0	1013
Grand Total	0	613	50	0	663	42	1274	0	0	1316	48	0	45	0	93	0	0	0	0	0	2072
Apprch %	0	92.5	7.5	0		3.2	96.8	0	0		51.6	0	48.4	0		0	0	0	0		
Total %	0	29.6	2.4	0	32	2	61.5	0	0	63.5	2.3	0	2.2	0	4.5	0	0	0	0	0	
Light Vehicles	0	584	50	0	634	40	1249	0	0	1289	48	0	41	0	89	0	0	0	0	0	2012
% Light Vehicles	0	95.3	100	0	95.6	95.2	98	0	0	97.9	100	0	91.1	0	95.7	0	0	0	0	0	97.1
Heavy Vehicles	0	29	0	0	29	2	25	0	0	27	0	0	4	0	4	0	0	0	0	0	60
% Heavy Vehicles	0	4.7	0	0	4.4	4.8	2	0	0	2.1	0	0	8.9	0	4.3	0	0	0	0	0	2.9





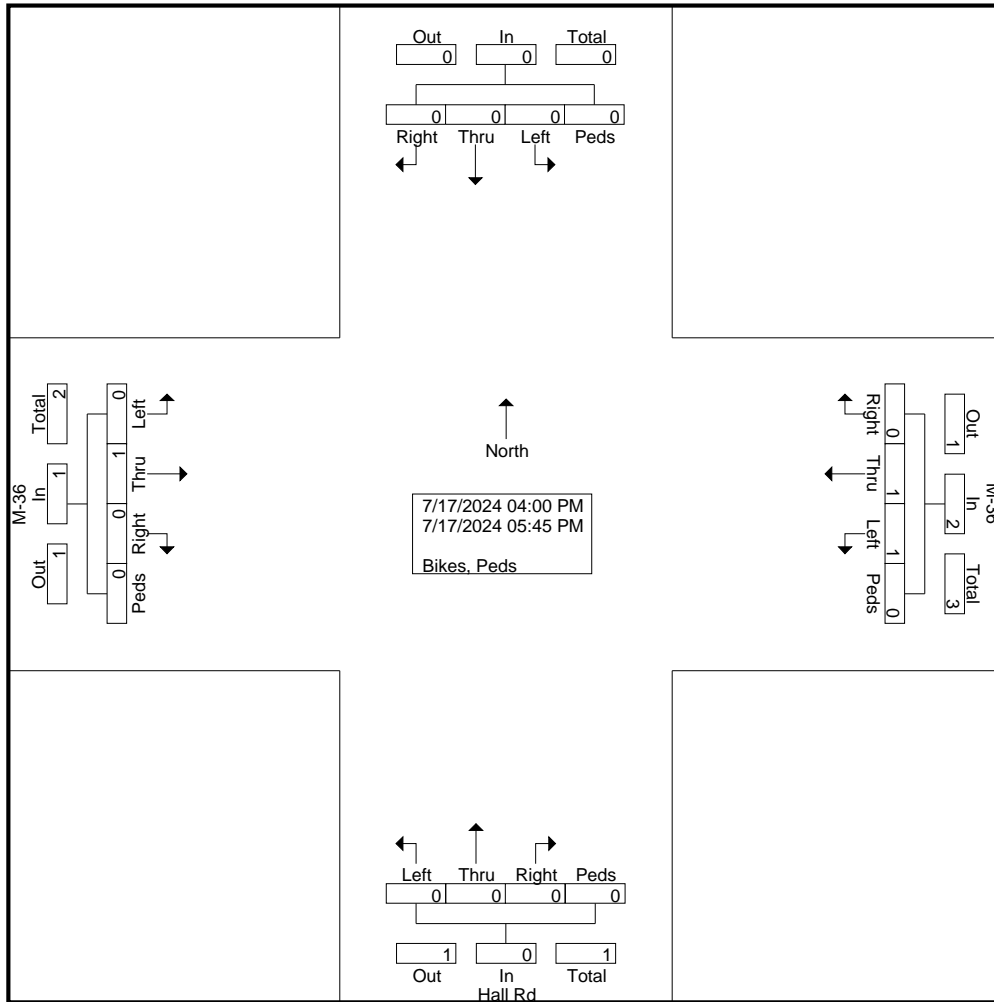
Start Time	M-36 Eastbound					M-36 Westbound					Hall Rd Northbound					Southbound					Int. Total
	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	Left	Thru	Right	U-Turn	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	80	8	0	88	5	178	0	0	183	7	0	9	0	16	0	0	0	0	0	287
04:15 PM	0	92	5	0	97	10	142	0	0	152	7	0	5	0	12	0	0	0	0	0	261
04:30 PM	0	64	6	0	70	2	169	0	0	171	2	0	4	0	6	0	0	0	0	0	247
04:45 PM	0	72	8	0	80	5	165	0	0	170	10	0	4	0	14	0	0	0	0	0	264
Total Volume	0	308	27	0	335	22	654	0	0	676	26	0	22	0	48	0	0	0	0	0	1059
% App. Total	0	91.9	8.1	0		3.3	96.7	0	0		54.2	0	45.8	0		0	0	0	0		
PHF	.000	.837	.844	.000	.863	.550	.919	.000	.000	.923	.650	.000	.611	.000	.750	.000	.000	.000	.000	.000	.922
Light Vehicles	0	293	27	0	320	22	643	0	0	665	26	0	20	0	46	0	0	0	0	0	1031
% Light Vehicles	0	95.1	100	0	95.5	100	98.3	0	0	98.4	100	0	90.9	0	95.8	0	0	0	0	0	97.4
Heavy Vehicles	0	15	0	0	15	0	11	0	0	11	0	0	2	0	2	0	0	0	0	0	28
% Heavy Vehicles	0	4.9	0	0	4.5	0	1.7	0	0	1.6	0	0	9.1	0	4.2	0	0	0	0	0	2.6





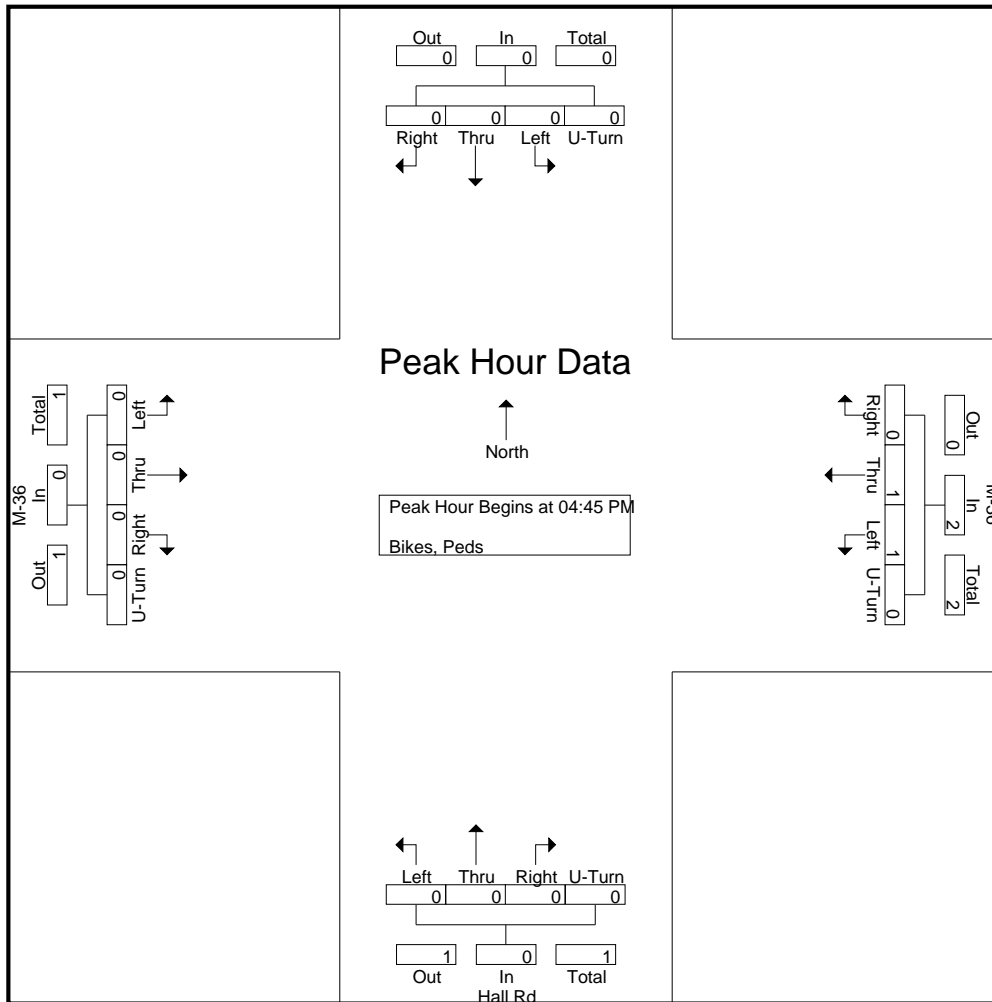
Groups Printed- Bikes, Peds

Start Time	M-36 Eastbound					M-36 Westbound					Hall Rd Northbound					Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
04:00 PM	0	1	0	0	1	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	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	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
05:00 PM	0	0	0	0	0	1	0	0	0	1	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	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
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	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	2
Grand Total	0	1	0	0	1	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	3
Apprch %	0	100	0	0		50	50	0	0		0	0	0	0		0	0	0	0		
Total %	0	33.3	0	0	33.3	33.3	33.3	0	0	66.7	0	0	0	0	0	0	0	0	0	0	





Start Time	M-36 Eastbound					M-36 Westbound					Hall Rd Northbound					Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. 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	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	0	0	1	0	0	0	1	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	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Total Volume	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	2
% App. Total	0	0	0	0	0	50	50	0	0		0	0	0	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.250	.250	.000	.000	.500	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.500



Search... 

Crash and Road Data

Road Segment Report

Hamburg Rd, (PR Number 932903)

From:	Hamburg Rd 0.000 BMP
To:	MI State Road 36 E 0.100 EMP
Jurisdiction:	County
FALINK ID:	5278
Community:	Hamburg Township
County:	Livingston
Functional Class:	5 - Major Collector
Direction:	2 Way
Length:	0.100 miles
Number of Lanes:	2
Posted Speed:	45 (source: TCO)
Route Classification:	Not a route
Annual Crash Average 2018-2022:	<u>0</u>
Traffic Volume (2022)*:	3,500 (Default AADT)
Pavement Type (2022):	Asphalt
Pavement Rating (2022):	Good

* AADT values are derived from Traffic Counts

Street View



Search... 

Crash and Road Data

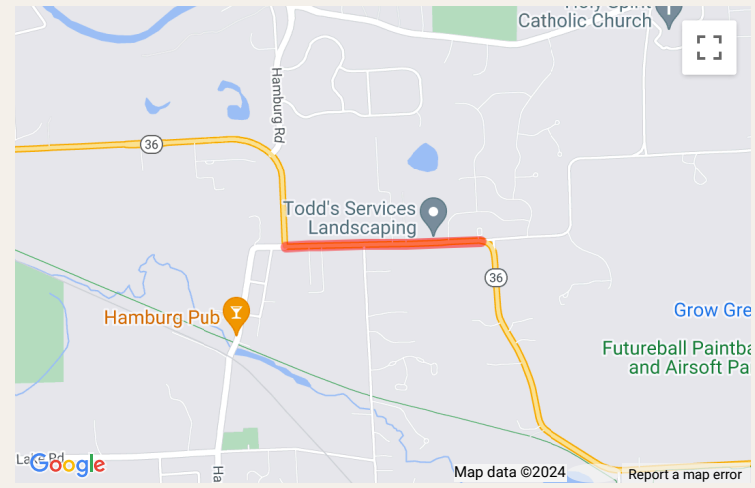
Road Segment Report

M 36, (PR Number 932903)

From:	MI State Road 36 E 0.100 BMP
To:	MI State Road 36 E 0.726 EMP
Jurisdiction:	State
FALINK ID:	5279
Community:	Green Oak Township , Hamburg Township
County:	Livingston
Functional Class:	4 - Minor Arterial
Direction:	2 Way
Length:	0.626 miles
Number of Lanes:	2
Posted Speed:	45 (source: TCO)
Route Classification:	M-36
Annual Crash Average 2018-2022:	0
Traffic Volume (2022)*:	9,300 (Default AADT)
Pavement Type (2022):	Asphalt
Pavement Rating (2022):	Poor

* AADT values are derived from **Traffic Counts**

Street View



[Home](#)
[Locate](#)
[Locate All](#)
[Email This](#)
 Auto-Locate:

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	<input type="text"/>	go
Location ID	47-0359	MPO ID	1353						
Type	SPOT	HPMS ID							
On NHS	No	On HPMS	No						
LRS ID	0932906	LRS Loc Pt.	1.392353						
SF Group	Local Road	Route Type							
AF Group	NoFactor	Route							
GF Group	Local Road	Active	Yes						
Class Dist Grp	NTL_7	Category							
Seas Clss Grp									
WIM Group									
QC Group	Default								
Funct'l Class	(7) Local Road or Street	Milepost							
Located On	Hall Rd								
Loc On Alias									
BETWEEN	Strawberry Lake Rd AND M 59								
More Detail									

STATION DATA

Directions: [2-WAY](#) [NB](#) [SB](#)

AADT								
Year	AADT	DHV-30	K %	D %	PA	BC	Src	
2023	592	52	9		562 (95%)	30 (5%)		
2022	972 ³		11		923 (95%)	49 (5%)	Grown from 2021	
2021	981 ³		11		829 (85%)	152 (15%)	Grown from 2020	
2020	874	93	11		788 (90%)	86 (10%)		

VOLUME COUNT			
	Date	Int	Total
	Tue 5/23/2023	60	601
	Wed 6/3/2020	60	874

VOLUME TREND	
Year	Annual Growth
2023	-39%
2022	-1%
2021	12%

CLASSIFICATION			
	Date	Int	Total
No Data			

NOTES/FILES		
	Note	Date

Search... 

Community Profiles

YOU ARE VIEWING DATA FOR:

Hamburg Township

10405 Merrill Rd
Hamburg, MI 48139-0157
<https://www.hamburg.mi.us/>



Census 2020 Population: 21,259
Area: 36 square miles

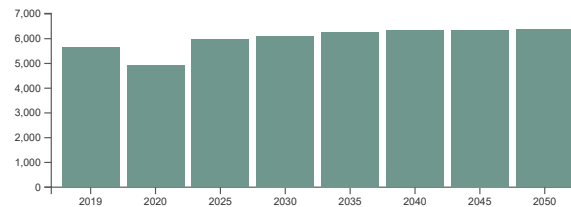
[VIEW COMMUNITY EXPLORER MAP](#)

[VIEW 2020 CENSUS MAP](#)

Economy & Jobs

Link to American Community Survey (ACS) Profiles: **Select a Year** **Economic
Historic Population and Employment by Minor Civil Division, Southeast Michigan**

Forecasted Jobs



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

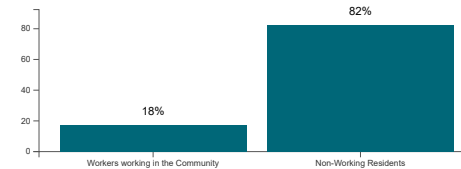
Forecasted Jobs By Industry Sector	2019	2020	2025	2030	2035	2040	2045	2050	Change 2019-2050	Pct Change 2019-2050
Natural Resources, Mining, & Construction	627	581	786	808	807	786	776	770	143	22.8%
Manufacturing	402	370	419	416	403	389	366	342	-60	-14.9%
Wholesale Trade	89	84	94	107	113	112	113	112	23	25.8%
Retail Trade	389	373	393	391	378	363	356	342	-47	-12.1%
Transportation, Warehousing, & Utilities	138	134	153	153	158	159	161	162	24	17.4%
Information & Financial Activities	892	745	864	886	918	930	943	959	67	7.5%
Professional and Technical Services & Corporate HQ	530	374	532	575	603	620	631	649	119	22.5%
Administrative, Support, & Waste Services	468	384	446	483	516	545	568	597	129	27.6%
Education Services	404	389	434	449	472	475	480	481	77	19.1%
Healthcare Services	340	312	459	470	491	501	503	510	170	50%
Leisure & Hospitality	672	548	689	713	747	769	769	765	93	13.8%
Other Services	502	427	476	477	486	499	506	511	9	1.8%
Public Administration	191	187	211	175	181	186	186	184	-7	-3.7%
Total Employment Numbers	5,644	4,908	5,956	6,103	6,273	6,334	6,358	6,384	740	13.1%

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	2,202
Non-Working Residents	10,365
Age 15 and under	3,893
Not in labor force	5,833
Unemployed	639
Daytime Population	12,567



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.

Search... 

Community Profiles

YOU ARE VIEWING DATA FOR:

Hamburg Township

10405 Merrill Rd
Hamburg, MI 48139-0157
<https://www.hamburg.mi.us/>



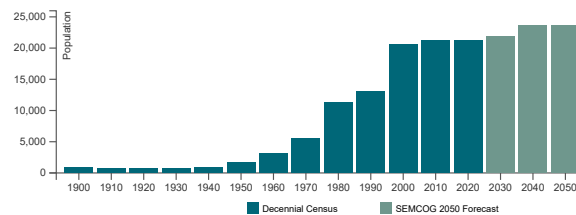
Census 2020 Population: 21,259
Area: 36 square miles

- [VIEW COMMUNITY EXPLORER MAP](#)
- [VIEW 2020 CENSUS MAP](#)

Population and Households

Link to American Community Survey (ACS) Profiles: [Select a Year](#) [Social | Demographic](#)
Population and Household Estimates for Southeast Michigan, 2023
Historic Population and Employment by Minor Civil Division, Southeast Michigan

Population Forecast



Population and Households

Population and Households	ACS 2020	Census 2010	Change 2010-2020	Pct Change 2010-2020	SEMCOG Jul 2023	SEMCOG 2050
Total Population	21,259	21,165	94	0.4%	21,229	23,616
Group Quarters Population	0	14	-14	-100.0%	12	69
Household Population	21,259	21,151	108	0.5%	21,217	23,547
Housing Units	8,926	8,668	258	3.0%	9,062	-
Households (Occupied Units)	8,257	7,860	397	5.1%	8,612	9,153
Residential Vacancy Rate	7.5%	9.3%	-1.8%	-	5.0%	-
Average Household Size	2.57	2.69	-0.12	-	2.46	2.57

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)	17	5
Births	150	166
Deaths	133	161
Net Migration (Movement In - Movement Out)	-8	73
Population Change (Natural Increase + Net Migration)	9	78

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

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 movement is a function of the number of vehicles in queue, the number of vehicles in the queue, and the number of vehicles in the queue.

When 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 Vehicles)

LEVEL OF SERVICE	AVERAGE CONTROL DELAY (sec/veh)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 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.

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 of 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

1: Hamburg Road & M-36 Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.4	0.0	0.4
Denied Del/Veh (s)	0.1	0.1	0.0	0.1	3.3	0.9	1.8
Total Delay (hr)	0.1	0.1	0.0	0.1	1.3	0.0	1.6
Total Del/Veh (s)	9.3	7.1	0.8	0.8	10.7	3.4	6.8

HCM 6th TWSC
2: Learning Lane/Church Drive & M-36

Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	506	0	0	292	0	0	0	0	0	0	0
Future Vol, veh/h	0	506	0	0	292	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	92	87	87	78	78	92	92	92	92	92	92	92
Heavy Vehicles, %	2	5	5	17	17	2	2	2	2	2	2	2
Mvmt Flow	0	582	0	0	374	0	0	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	374	0	0	582	0	0	956	956	582	956	956	374
Stage 1	-	-	-	-	-	-	582	582	-	374	374	-
Stage 2	-	-	-	-	-	-	374	374	-	582	582	-
Critical Hdwy	4.12	-	-	4.27	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.353	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1184	-	-	922	-	-	238	258	513	238	258	672
Stage 1	-	-	-	-	-	-	499	499	-	647	618	-
Stage 2	-	-	-	-	-	-	647	618	-	499	499	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1184	-	-	922	-	-	238	258	513	238	258	672
Mov Cap-2 Maneuver	-	-	-	-	-	-	238	258	-	238	258	-
Stage 1	-	-	-	-	-	-	499	499	-	647	618	-
Stage 2	-	-	-	-	-	-	647	618	-	499	499	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0			0			0		
HCM LOS							A			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1184	-	-	922	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-	-
HCM Control Delay (s)	0	0	-	-	0	-	-	0
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	-

Intersection						
Int Delay, s/veh	1.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	497	9	5	277	15	33
Future Vol, veh/h	497	9	5	277	15	33
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	78	78	63	63
Heavy Vehicles, %	7	7	22	22	8	8
Mvmt Flow	592	11	6	355	24	52

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	603	0	965 598
Stage 1	-	-	-	-	598 -
Stage 2	-	-	-	-	367 -
Critical Hdwy	-	-	4.32	-	6.48 6.28
Critical Hdwy Stg 1	-	-	-	-	5.48 -
Critical Hdwy Stg 2	-	-	-	-	5.48 -
Follow-up Hdwy	-	-	2.398	-	3.572 3.372
Pot Cap-1 Maneuver	-	-	884	-	276 491
Stage 1	-	-	-	-	538 -
Stage 2	-	-	-	-	688 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	884	-	274 491
Mov Cap-2 Maneuver	-	-	-	-	274 -
Stage 1	-	-	-	-	538 -
Stage 2	-	-	-	-	682 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	16.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	394	-	-	884	-
HCM Lane V/C Ratio	0.193	-	-	0.007	-
HCM Control Delay (s)	16.3	-	-	9.1	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.7	-	-	0	-

1: Hamburg Road & M-36 Performance by movement

Movement	EBL	EBT	WBT	WBR	SBL	SBR	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.3	0.0	0.3
Denied Del/Veh (s)	0.2	0.2	0.0	0.0	3.2	0.8	0.9
Total Delay (hr)	1.0	0.4	0.0	0.4	1.3	0.1	3.2
Total Del/Veh (s)	40.1	28.0	1.4	2.0	15.1	4.9	9.3

HCM 6th TWSC
2: Learning Lane/Church Drive & M-36

Intersection												
Int Delay, s/veh	0.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	359	0	0	710	0	0	0	0	1	0	3
Future Vol, veh/h	3	359	0	0	710	0	0	0	0	1	0	3
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	92	89	89	93	93	92	92	92	92	92	92	92
Heavy Vehicles, %	2	4	4	1	1	2	2	2	2	2	2	2
Mvmt Flow	3	403	0	0	763	0	0	0	0	1	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	763	0	0	403	0	0	1174	1172	403	1172	1172	763
Stage 1	-	-	-	-	-	-	409	409	-	763	763	-
Stage 2	-	-	-	-	-	-	765	763	-	409	409	-
Critical Hdwy	4.12	-	-	4.11	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.209	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	850	-	-	1161	-	-	169	192	647	169	192	404
Stage 1	-	-	-	-	-	-	619	596	-	397	413	-
Stage 2	-	-	-	-	-	-	396	413	-	619	596	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	850	-	-	1161	-	-	167	191	647	168	191	404
Mov Cap-2 Maneuver	-	-	-	-	-	-	167	191	-	168	191	-
Stage 1	-	-	-	-	-	-	616	593	-	395	413	-
Stage 2	-	-	-	-	-	-	393	413	-	616	593	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0			0			17.2		
HCM LOS							A			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	850	-	-	1161	-	-	299
HCM Lane V/C Ratio	-	0.004	-	-	-	-	-	0.015
HCM Control Delay (s)	0	9.3	0	-	0	-	-	17.2
HCM Lane LOS	A	A	A	-	A	-	-	C
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0

Intersection						
Int Delay, s/veh	1.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	333	27	22	684	26	22
Future Vol, veh/h	333	27	22	684	26	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	92	92	75	75
Heavy Vehicles, %	5	5	2	2	4	4
Mvmt Flow	387	31	24	743	35	29

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	418	0	1194
Stage 1	-	-	-	-	403
Stage 2	-	-	-	-	791
Critical Hdwy	-	-	4.12	-	6.44
Critical Hdwy Stg 1	-	-	-	-	5.44
Critical Hdwy Stg 2	-	-	-	-	5.44
Follow-up Hdwy	-	-	2.218	-	3.536
Pot Cap-1 Maneuver	-	-	1141	-	204
Stage 1	-	-	-	-	671
Stage 2	-	-	-	-	443
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1141	-	197
Mov Cap-2 Maneuver	-	-	-	-	197
Stage 1	-	-	-	-	671
Stage 2	-	-	-	-	427

Approach	EB	WB	NB
HCM Control Delay, s	0	0.3	21
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	289	-	-	1141	-
HCM Lane V/C Ratio	0.221	-	-	0.021	-
HCM Control Delay (s)	21	-	-	8.2	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.8	-	-	0.1	-

Intersection: 1: Hamburg Road & M-36

Movement	EB	SB	SB
Directions Served	LT	L	R
Maximum Queue (ft)	100	222	54
Average Queue (ft)	44	85	13
95th Queue (ft)	80	163	36
Link Distance (ft)	713		1264
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		1000	
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 2: Learning Lane/Church Drive & M-36

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)

Intersection: 3: Hall Road & M-36

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	30	66
Average Queue (ft)	2	26
95th Queue (ft)	14	53
Link Distance (ft)	695	515
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 0

Intersection: 1: Hamburg Road & M-36

Movement	EB	WB	SB	SB
Directions Served	LT	R	L	R
Maximum Queue (ft)	246	21	204	57
Average Queue (ft)	85	1	77	24
95th Queue (ft)	180	10	171	45
Link Distance (ft)	713			1264
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)		200	1000	
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: Learning Lane/Church Drive & M-36

Movement	EB	SB
Directions Served	LTR	LTR
Maximum Queue (ft)	30	31
Average Queue (ft)	2	4
95th Queue (ft)	16	21
Link Distance (ft)	575	296
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Hall Road & M-36

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	47	67
Average Queue (ft)	4	27
95th Queue (ft)	24	55
Link Distance (ft)	695	515
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Network Summary

Network wide Queuing Penalty: 0

Intersection	
Intersection Delay, s/veh	32.5
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕		↕	↕	
Traffic Vol, veh/h	47	44	3	8	39	259	3	12	21	472	13	27
Future Vol, veh/h	47	44	3	8	39	259	3	12	21	472	13	27
Peak Hour Factor	0.86	0.86	0.86	0.83	0.83	0.83	0.92	0.92	0.92	0.93	0.93	0.93
Heavy Vehicles, %	16	16	16	18	18	18	2	2	2	7	7	7
Mvmt Flow	55	51	3	10	47	312	3	13	23	508	14	29
Number of Lanes	0	1	0	0	1	1	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	1
HCM Control Delay	12.9	15.6	10.6	49.2
HCM LOS	B	C	B	E

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	8%	50%	17%	0%	100%	0%
Vol Thru, %	33%	47%	83%	0%	0%	32%
Vol Right, %	58%	3%	0%	100%	0%	68%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	36	94	47	259	472	40
LT Vol	3	47	8	0	472	0
Through Vol	12	44	39	0	0	13
RT Vol	21	3	0	259	0	27
Lane Flow Rate	39	109	57	312	508	43
Geometry Grp	6	6	7	7	7	7
Degree of Util (X)	0.076	0.232	0.112	0.547	0.947	0.068
Departure Headway (Hd)	6.996	7.647	7.108	6.31	6.715	5.731
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	515	472	501	568	538	622
Service Time	5.004	5.647	4.894	4.095	4.478	3.493
HCM Lane V/C Ratio	0.076	0.231	0.114	0.549	0.944	0.069
HCM Control Delay	10.6	12.9	10.8	16.5	52.6	8.9
HCM Lane LOS	B	B	B	C	F	A
HCM 95th-tile Q	0.2	0.9	0.4	3.3	12.1	0.2

HCM 6th TWSC
2: Learning Lane/Church Drive & M-36

Intersection												
Int Delay, s/veh	0											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	537	0	0	306	0	0	0	0	0	0	0
Future Vol, veh/h	0	537	0	0	306	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	92	87	87	78	78	92	92	92	92	92	92	92
Heavy Vehicles, %	2	5	5	17	17	2	2	2	2	2	2	2
Mvmt Flow	0	617	0	0	392	0	0	0	0	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	392	0	0	617	0	0	1009	1009	617	1009	1009	392
Stage 1	-	-	-	-	-	-	617	617	-	392	392	-
Stage 2	-	-	-	-	-	-	392	392	-	617	617	-
Critical Hdwy	4.12	-	-	4.27	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.353	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1167	-	-	894	-	-	219	240	490	219	240	657
Stage 1	-	-	-	-	-	-	477	481	-	633	606	-
Stage 2	-	-	-	-	-	-	633	606	-	477	481	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1167	-	-	894	-	-	219	240	490	219	240	657
Mov Cap-2 Maneuver	-	-	-	-	-	-	219	240	-	219	240	-
Stage 1	-	-	-	-	-	-	477	481	-	633	606	-
Stage 2	-	-	-	-	-	-	633	606	-	477	481	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0			0			0		
HCM LOS							A			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	1167	-	-	894	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-	-
HCM Control Delay (s)	0	0	-	-	0	-	-	0
HCM Lane LOS	A	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	-

Intersection						
Int Delay, s/veh	1.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	528	9	5	291	15	34
Future Vol, veh/h	528	9	5	291	15	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	78	78	63	63
Heavy Vehicles, %	7	7	22	22	8	8
Mvmt Flow	629	11	6	373	24	54

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	640	0	1020
Stage 1	-	-	-	-	635
Stage 2	-	-	-	-	385
Critical Hdwy	-	-	4.32	-	6.48
Critical Hdwy Stg 1	-	-	-	-	5.48
Critical Hdwy Stg 2	-	-	-	-	5.48
Follow-up Hdwy	-	-	2.398	-	3.572
Pot Cap-1 Maneuver	-	-	855	-	256
Stage 1	-	-	-	-	517
Stage 2	-	-	-	-	675
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	855	-	254
Mov Cap-2 Maneuver	-	-	-	-	254
Stage 1	-	-	-	-	517
Stage 2	-	-	-	-	669

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	17.2
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	372	-	-	855	-
HCM Lane V/C Ratio	0.209	-	-	0.007	-
HCM Control Delay (s)	17.2	-	-	9.2	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.8	-	-	0	-

Intersection	
Intersection Delay, s/veh	64.8
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕		↕	↕	
Traffic Vol, veh/h	84	51	2	18	60	667	3	14	6	318	10	77
Future Vol, veh/h	84	51	2	18	60	667	3	14	6	318	10	77
Peak Hour Factor	0.89	0.89	0.89	0.93	0.93	0.93	0.92	0.92	0.92	0.91	0.91	0.91
Heavy Vehicles, %	7	7	7	1	1	1	2	2	2	3	3	3
Mvmt Flow	94	57	2	19	65	717	3	15	7	349	11	85
Number of Lanes	0	1	0	0	1	1	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	1
HCM Control Delay	14.3	98.6	11.9	24.3
HCM LOS	B	F	B	C

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	13%	61%	23%	0%	100%	0%
Vol Thru, %	61%	37%	77%	0%	0%	11%
Vol Right, %	26%	1%	0%	100%	0%	89%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	23	137	78	667	318	87
LT Vol	3	84	18	0	318	0
Through Vol	14	51	60	0	0	10
RT Vol	6	2	0	667	0	77
Lane Flow Rate	25	154	84	717	349	96
Geometry Grp	6	6	7	7	7	7
Degree of Util (X)	0.055	0.318	0.154	1.156	0.717	0.169
Departure Headway (Hd)	8.413	7.731	6.631	5.802	7.845	6.701
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	428	468	543	631	465	538
Service Time	6.413	5.731	4.342	3.513	5.545	4.401
HCM Lane V/C Ratio	0.058	0.329	0.155	1.136	0.751	0.178
HCM Control Delay	11.9	14.3	10.5	108.9	28	10.8
HCM Lane LOS	B	B	B	F	D	B
HCM 95th-tile Q	0.2	1.4	0.5	23.5	5.6	0.6

HCM 6th TWSC
2: Learning Lane/Church Drive & M-36

Intersection												
Int Delay, s/veh	0.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	372	0	0	742	0	0	0	0	1	0	3
Future Vol, veh/h	3	372	0	0	742	0	0	0	0	1	0	3
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	92	89	89	93	93	92	92	92	92	92	92	92
Heavy Vehicles, %	2	4	4	1	1	2	2	2	2	2	2	2
Mvmt Flow	3	418	0	0	798	0	0	0	0	1	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	798	0	0	418	0	0	1224	1222	418	1222	1222	798
Stage 1	-	-	-	-	-	-	424	424	-	798	798	-
Stage 2	-	-	-	-	-	-	800	798	-	424	424	-
Critical Hdwy	4.12	-	-	4.11	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.209	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	824	-	-	1146	-	-	156	180	635	156	180	386
Stage 1	-	-	-	-	-	-	608	587	-	380	398	-
Stage 2	-	-	-	-	-	-	379	398	-	608	587	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	824	-	-	1146	-	-	154	179	635	155	179	386
Mov Cap-2 Maneuver	-	-	-	-	-	-	154	179	-	155	179	-
Stage 1	-	-	-	-	-	-	605	584	-	378	398	-
Stage 2	-	-	-	-	-	-	376	398	-	605	584	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0			0			18		
HCM LOS							A			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	-	824	-	-	1146	-	-	281
HCM Lane V/C Ratio	-	0.004	-	-	-	-	-	0.015
HCM Control Delay (s)	0	9.4	0	-	0	-	-	18
HCM Lane LOS	A	A	A	-	A	-	-	C
HCM 95th %tile Q(veh)	-	0	-	-	0	-	-	0

Intersection						
Int Delay, s/veh	1.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	345	28	22	715	27	22
Future Vol, veh/h	345	28	22	715	27	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	92	92	75	75
Heavy Vehicles, %	5	5	2	2	4	4
Mvmt Flow	401	33	24	777	36	29

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	434	0	1243 418
Stage 1	-	-	-	-	418 -
Stage 2	-	-	-	-	825 -
Critical Hdwy	-	-	4.12	-	6.44 6.24
Critical Hdwy Stg 1	-	-	-	-	5.44 -
Critical Hdwy Stg 2	-	-	-	-	5.44 -
Follow-up Hdwy	-	-	2.218	-	3.536 3.336
Pot Cap-1 Maneuver	-	-	1126	-	191 631
Stage 1	-	-	-	-	660 -
Stage 2	-	-	-	-	427 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1126	-	184 631
Mov Cap-2 Maneuver	-	-	-	-	184 -
Stage 1	-	-	-	-	660 -
Stage 2	-	-	-	-	411 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	22.5
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	270	-	-	1126	-
HCM Lane V/C Ratio	0.242	-	-	0.021	-
HCM Control Delay (s)	22.5	-	-	8.3	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.9	-	-	0.1	-

Intersection: 1: Driveway & Hamburg Road & M-36

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	LTR	L	TR
Maximum Queue (ft)	96	79	137	50	167	49
Average Queue (ft)	44	31	67	23	85	18
95th Queue (ft)	77	63	109	48	142	39
Link Distance (ft)	713	575		491	1264	1264
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			200			
Storage Blk Time (%)			0			
Queuing Penalty (veh)			0			

Intersection: 2: Learning Lane/Church Drive & M-36

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)

Intersection: 3: Hall Road & M-36

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	35	61
Average Queue (ft)	2	23
95th Queue (ft)	16	51
Link Distance (ft)	695	515
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 0

Intersection: 1: Driveway & Hamburg Road & M-36

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	LTR	L	TR
Maximum Queue (ft)	81	226	316	40	112	51
Average Queue (ft)	47	42	152	16	56	22
95th Queue (ft)	73	157	283	42	90	40
Link Distance (ft)	713	575		491	1264	1264
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			200			
Storage Blk Time (%)			10			
Queuing Penalty (veh)			8			

Intersection: 2: Learning Lane/Church Drive & M-36

Movement	EB	SB
Directions Served	LTR	LTR
Maximum Queue (ft)	49	31
Average Queue (ft)	3	4
95th Queue (ft)	24	22
Link Distance (ft)	575	296
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Hall Road & M-36

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	6	52	61
Average Queue (ft)	0	6	25
95th Queue (ft)	0	32	50
Link Distance (ft)	658	695	515
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 8

HCM 6th AWSC
1: Driveway & Hamburg Road & M-36

Intersection	
Intersection Delay, s/veh	36
Intersection LOS	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕		↕	↕	
Traffic Vol, veh/h	47	46	3	8	44	281	3	12	21	479	13	27
Future Vol, veh/h	47	46	3	8	44	281	3	12	21	479	13	27
Peak Hour Factor	0.86	0.86	0.86	0.83	0.83	0.83	0.92	0.92	0.92	0.93	0.93	0.93
Heavy Vehicles, %	16	16	16	18	18	18	2	2	2	7	7	7
Mvmt Flow	55	53	3	10	53	339	3	13	23	515	14	29
Number of Lanes	0	1	0	0	1	1	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	1
HCM Control Delay	13.2	17.2	10.8	55.8
HCM LOS	B	C	B	F

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	8%	49%	15%	0%	100%	0%
Vol Thru, %	33%	48%	85%	0%	0%	32%
Vol Right, %	58%	3%	0%	100%	0%	68%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	36	96	52	281	479	40
LT Vol	3	47	8	0	479	0
Through Vol	12	46	44	0	0	13
RT Vol	21	3	0	281	0	27
Lane Flow Rate	39	112	63	339	515	43
Geometry Grp	6	6	7	7	7	7
Degree of Util (X)	0.078	0.241	0.125	0.599	0.977	0.07
Departure Headway (Hd)	7.184	7.782	7.164	6.373	6.83	5.845
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	501	464	497	562	531	609
Service Time	5.191	5.784	4.961	4.17	4.598	3.612
HCM Lane V/C Ratio	0.078	0.241	0.127	0.603	0.97	0.071
HCM Control Delay	10.8	13.2	11	18.4	59.7	9.1
HCM Lane LOS	B	B	B	C	F	A
HCM 95th-tile Q	0.3	0.9	0.4	3.9	13.1	0.2

HCM 6th TWSC
2: Learning Lane/Church Drive & M-36

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	537	9	12	306	0	27	0	39	0	0	0
Future Vol, veh/h	0	537	9	12	306	0	27	0	39	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	92	87	87	78	78	92	92	92	92	92	92	92
Heavy Vehicles, %	2	5	5	17	17	2	2	2	2	2	2	2
Mvmt Flow	0	617	10	15	392	0	29	0	42	0	0	0

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	392	0	0	627	0	0	1044	1044	622	1065	1049	392
Stage 1	-	-	-	-	-	-	622	622	-	422	422	-
Stage 2	-	-	-	-	-	-	422	422	-	643	627	-
Critical Hdwy	4.12	-	-	4.27	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.353	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1167	-	-	886	-	-	207	229	487	200	227	657
Stage 1	-	-	-	-	-	-	474	479	-	609	588	-
Stage 2	-	-	-	-	-	-	609	588	-	462	476	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1167	-	-	886	-	-	203	224	487	180	222	657
Mov Cap-2 Maneuver	-	-	-	-	-	-	203	224	-	180	222	-
Stage 1	-	-	-	-	-	-	474	479	-	609	575	-
Stage 2	-	-	-	-	-	-	596	575	-	422	476	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0			0.3			20.1			0		
HCM LOS							C			A		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	310	1167	-	-	886	-	-	-
HCM Lane V/C Ratio	0.231	-	-	-	0.017	-	-	-
HCM Control Delay (s)	20.1	0	-	-	9.1	0	-	0
HCM Lane LOS	C	A	-	-	A	A	-	A
HCM 95th %tile Q(veh)	0.9	0	-	-	0.1	-	-	-

Intersection						
Int Delay, s/veh	1.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	566	10	5	303	15	34
Future Vol, veh/h	566	10	5	303	15	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	84	84	78	78	63	63
Heavy Vehicles, %	7	7	22	22	8	8
Mvmt Flow	674	12	6	388	24	54

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	686	0	1080 680
Stage 1	-	-	-	-	680 -
Stage 2	-	-	-	-	400 -
Critical Hdwy	-	-	4.32	-	6.48 6.28
Critical Hdwy Stg 1	-	-	-	-	5.48 -
Critical Hdwy Stg 2	-	-	-	-	5.48 -
Follow-up Hdwy	-	-	2.398	-	3.572 3.372
Pot Cap-1 Maneuver	-	-	821	-	235 441
Stage 1	-	-	-	-	492 -
Stage 2	-	-	-	-	664 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	821	-	233 441
Mov Cap-2 Maneuver	-	-	-	-	233 -
Stage 1	-	-	-	-	492 -
Stage 2	-	-	-	-	658 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	18.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	346	-	-	821	-
HCM Lane V/C Ratio	0.225	-	-	0.008	-
HCM Control Delay (s)	18.4	-	-	9.4	0
HCM Lane LOS	C	-	-	A	A
HCM 95th %tile Q(veh)	0.8	-	-	0	-

Intersection	
Intersection Delay, s/veh	74.5
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕		↕	↕	
Traffic Vol, veh/h	84	58	2	18	64	679	3	14	6	339	10	77
Future Vol, veh/h	84	58	2	18	64	679	3	14	6	339	10	77
Peak Hour Factor	0.89	0.89	0.89	0.93	0.93	0.93	0.92	0.92	0.92	0.91	0.91	0.91
Heavy Vehicles, %	7	7	7	1	1	1	2	2	2	3	3	3
Mvmt Flow	94	65	2	19	69	730	3	15	7	373	11	85
Number of Lanes	0	1	0	0	1	1	0	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	1	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	1	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	1
HCM Control Delay	14.9	114.6	12.1	28.3
HCM LOS	B	F	B	D

Lane	NBLn1	EBLn1	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	13%	58%	22%	0%	100%	0%
Vol Thru, %	61%	40%	78%	0%	0%	11%
Vol Right, %	26%	1%	0%	100%	0%	89%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	23	144	82	679	339	87
LT Vol	3	84	18	0	339	0
Through Vol	14	58	64	0	0	10
RT Vol	6	2	0	679	0	77
Lane Flow Rate	25	162	88	730	373	96
Geometry Grp	6	6	7	7	7	7
Degree of Util (X)	0.056	0.339	0.165	1.203	0.772	0.168
Departure Headway (Hd)	8.637	7.891	6.756	5.933	7.95	6.805
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	417	458	533	613	458	531
Service Time	6.637	5.891	4.465	3.641	5.65	4.505
HCM Lane V/C Ratio	0.06	0.354	0.165	1.191	0.814	0.181
HCM Control Delay	12.1	14.9	10.8	127.1	32.8	10.9
HCM Lane LOS	B	B	B	F	D	B
HCM 95th-tile Q	0.2	1.5	0.6	25.9	6.7	0.6

HCM 6th TWSC
2: Learning Lane/Church Drive & M-36

Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	3	372	28	41	742	0	16	0	25	1	0	3
Future Vol, veh/h	3	372	28	41	742	0	16	0	25	1	0	3
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	92	89	89	93	93	92	92	92	92	92	92	92
Heavy Vehicles, %	2	4	4	1	1	2	2	2	2	2	2	2
Mvmt Flow	3	418	31	44	798	0	17	0	27	1	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	798	0	0	449	0	0	1328	1326	434	1339	1341	798
Stage 1	-	-	-	-	-	-	440	440	-	886	886	-
Stage 2	-	-	-	-	-	-	888	886	-	453	455	-
Critical Hdwy	4.12	-	-	4.11	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.209	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	824	-	-	1117	-	-	132	156	622	130	152	386
Stage 1	-	-	-	-	-	-	596	578	-	339	363	-
Stage 2	-	-	-	-	-	-	338	363	-	586	569	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	824	-	-	1117	-	-	123	144	622	117	140	386
Mov Cap-2 Maneuver	-	-	-	-	-	-	123	144	-	117	140	-
Stage 1	-	-	-	-	-	-	593	575	-	337	337	-
Stage 2	-	-	-	-	-	-	311	337	-	558	566	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.4			23.3			20		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	241	824	-	-	1117	-	-	245
HCM Lane V/C Ratio	0.185	0.004	-	-	0.039	-	-	0.018
HCM Control Delay (s)	23.3	9.4	0	-	8.4	0	-	20
HCM Lane LOS	C	A	A	-	A	A	-	C
HCM 95th %tile Q(veh)	0.7	0	-	-	0.1	-	-	0.1

Intersection						
Int Delay, s/veh	1.4					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	368	30	22	753	30	22
Future Vol, veh/h	368	30	22	753	30	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	86	86	92	92	75	75
Heavy Vehicles, %	5	5	2	2	4	4
Mvmt Flow	428	35	24	818	40	29

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	463	0	1312 446
Stage 1	-	-	-	-	446 -
Stage 2	-	-	-	-	866 -
Critical Hdwy	-	-	4.12	-	6.44 6.24
Critical Hdwy Stg 1	-	-	-	-	5.44 -
Critical Hdwy Stg 2	-	-	-	-	5.44 -
Follow-up Hdwy	-	-	2.218	-	3.536 3.336
Pot Cap-1 Maneuver	-	-	1098	-	173 608
Stage 1	-	-	-	-	641 -
Stage 2	-	-	-	-	408 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1098	-	166 608
Mov Cap-2 Maneuver	-	-	-	-	166 -
Stage 1	-	-	-	-	641 -
Stage 2	-	-	-	-	392 -

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	26
HCM LOS			D

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	240	-	-	1098	-
HCM Lane V/C Ratio	0.289	-	-	0.022	-
HCM Control Delay (s)	26	-	-	8.4	0
HCM Lane LOS	D	-	-	A	A
HCM 95th %tile Q(veh)	1.2	-	-	0.1	-

Intersection: 1: Driveway & Hamburg Road & M-36

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	LTR	L	TR
Maximum Queue (ft)	95	73	130	43	224	48
Average Queue (ft)	45	32	68	23	89	18
95th Queue (ft)	77	65	107	47	161	38
Link Distance (ft)	713	575		491	1264	1264
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			200			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 2: Learning Lane/Church Drive & M-36

Movement	WB	NB
Directions Served	LTR	LTR
Maximum Queue (ft)	61	84
Average Queue (ft)	6	30
95th Queue (ft)	33	61
Link Distance (ft)	658	491
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 3: Hall Road & M-36

Movement	EB	WB	NB
Directions Served	TR	LT	LR
Maximum Queue (ft)	5	35	64
Average Queue (ft)	0	3	24
95th Queue (ft)	4	18	48
Link Distance (ft)	658	695	515
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)			
Storage Blk Time (%)			
Queuing Penalty (veh)			

Zone Summary

Zone wide Queuing Penalty: 0

Intersection: 1: Driveway & Hamburg Road & M-36

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	LTR	L	TR
Maximum Queue (ft)	92	135	316	39	123	54
Average Queue (ft)	47	35	145	18	61	23
95th Queue (ft)	78	92	267	43	101	42
Link Distance (ft)	713	575		491	1264	1264
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			200			
Storage Blk Time (%)			8			
Queuing Penalty (veh)			6			

Intersection: 2: Learning Lane/Church Drive & M-36

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	36	80	57	32
Average Queue (ft)	2	13	26	5
95th Queue (ft)	15	48	51	23
Link Distance (ft)	575	658	491	296
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 3: Hall Road & M-36

Movement	WB	NB
Directions Served	LT	LR
Maximum Queue (ft)	57	67
Average Queue (ft)	6	25
95th Queue (ft)	29	52
Link Distance (ft)	695	515
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 6

Intersection												
Int Delay, s/veh	1.4											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕			↕	
Traffic Vol, veh/h	0	537	9	12	306	0	27	0	39	0	0	0
Future Vol, veh/h	0	537	9	12	306	0	27	0	39	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	-	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	87	87	78	78	92	92	92	92	92	92	92
Heavy Vehicles, %	2	5	5	17	17	2	2	2	2	2	2	2
Mvmt Flow	0	617	10	15	392	0	29	0	42	0	0	0

Major/Minor	Major1		Major2		Minor1		Minor2					
Conflicting Flow All	392	0	0	627	0	0	1044	1044	622	1065	1049	392
Stage 1	-	-	-	-	-	-	622	622	-	422	422	-
Stage 2	-	-	-	-	-	-	422	422	-	643	627	-
Critical Hdwy	4.12	-	-	4.27	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.353	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	1167	-	-	886	-	-	207	229	487	200	227	657
Stage 1	-	-	-	-	-	-	474	479	-	609	588	-
Stage 2	-	-	-	-	-	-	609	588	-	462	476	-
Platoon blocked, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	1167	-	-	886	-	-	204	225	487	180	223	657
Mov Cap-2 Maneuver	-	-	-	-	-	-	204	225	-	180	223	-
Stage 1	-	-	-	-	-	-	474	479	-	609	578	-
Stage 2	-	-	-	-	-	-	599	578	-	422	476	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	0		0.3		20		0	
HCM LOS					C		A	

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	311	1167	-	-	886	-	-	-
HCM Lane V/C Ratio	0.231	-	-	-	0.017	-	-	-
HCM Control Delay (s)	20	0	-	-	9.1	-	-	0
HCM Lane LOS	C	A	-	-	A	-	-	A
HCM 95th %tile Q(veh)	0.9	0	-	-	0.1	-	-	-

Intersection												
Int Delay, s/veh	1.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕			↕			↕	
Traffic Vol, veh/h	3	372	28	41	742	0	16	0	25	1	0	3
Future Vol, veh/h	3	372	28	41	742	0	16	0	25	1	0	3
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	-	-	-	100	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	89	89	93	93	92	92	92	92	92	92	92
Heavy Vehicles, %	2	4	4	1	1	2	2	2	2	2	2	2
Mvmt Flow	3	418	31	44	798	0	17	0	27	1	0	3

Major/Minor	Major1			Major2			Minor1			Minor2		
Conflicting Flow All	798	0	0	449	0	0	1328	1326	434	1339	1341	798
Stage 1	-	-	-	-	-	-	440	440	-	886	886	-
Stage 2	-	-	-	-	-	-	888	886	-	453	455	-
Critical Hdwy	4.12	-	-	4.11	-	-	7.12	6.52	6.22	7.12	6.52	6.22
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.12	5.52	-
Follow-up Hdwy	2.218	-	-	2.209	-	-	3.518	4.018	3.318	3.518	4.018	3.318
Pot Cap-1 Maneuver	824	-	-	1117	-	-	132	156	622	130	152	386
Stage 1	-	-	-	-	-	-	596	578	-	339	363	-
Stage 2	-	-	-	-	-	-	338	363	-	586	569	-
Platoon blocked, %		-	-	-	-	-						
Mov Cap-1 Maneuver	824	-	-	1117	-	-	126	149	622	120	145	386
Mov Cap-2 Maneuver	-	-	-	-	-	-	126	149	-	120	145	-
Stage 1	-	-	-	-	-	-	593	575	-	337	349	-
Stage 2	-	-	-	-	-	-	322	349	-	558	566	-

Approach	EB			WB			NB			SB		
HCM Control Delay, s	0.1			0.4			22.9			19.8		
HCM LOS							C			C		

Minor Lane/Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	245	824	-	-	1117	-	-	248
HCM Lane V/C Ratio	0.182	0.004	-	-	0.039	-	-	0.018
HCM Control Delay (s)	22.9	9.4	0	-	8.4	-	-	19.8
HCM Lane LOS	C	A	A	-	A	-	-	C
HCM 95th %tile Q(veh)	0.7	0	-	-	0.1	-	-	0.1

Intersection: 2: Learning Lane/Church Drive & M-36

Movement	WB	NB
Directions Served	L	LTR
Maximum Queue (ft)	36	62
Average Queue (ft)	4	33
95th Queue (ft)	20	54
Link Distance (ft)		486
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)	100	
Storage Blk Time (%)		
Queuing Penalty (veh)		

Zone Summary

Zone wide Queuing Penalty: 0

Intersection: 2: Learning Lane/Church Drive & M-36

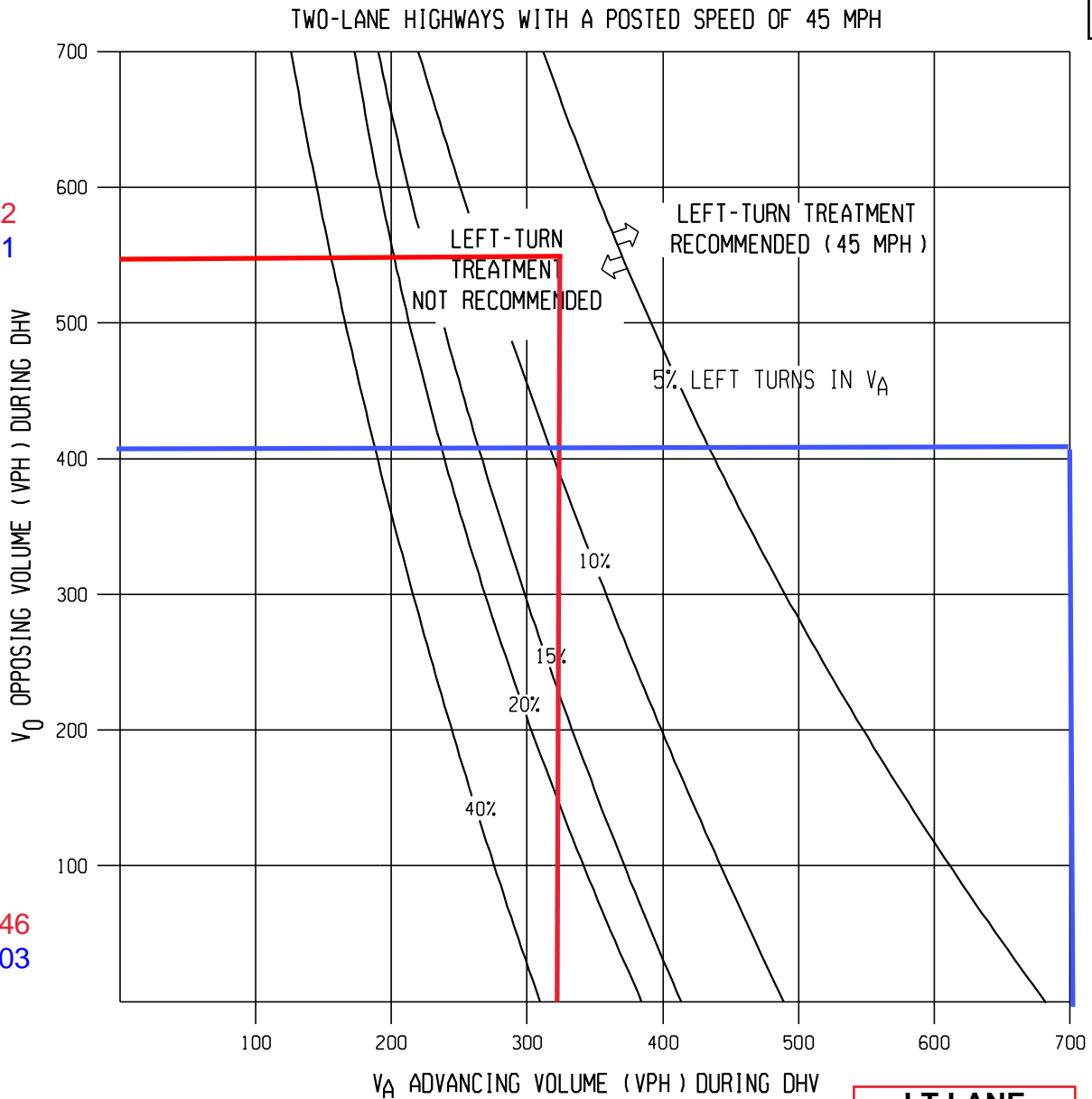
Movement	EB	WB	WB	NB	SB
Directions Served	LTR	L	TR	LTR	LTR
Maximum Queue (ft)	25	30	30	106	33
Average Queue (ft)	1	8	2	30	5
95th Queue (ft)	11	25	24	99	23
Link Distance (ft)	575		658	486	290
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		100			
Storage Blk Time (%)			0		
Queuing Penalty (veh)			0		

Zone Summary

Zone wide Queuing Penalty: 0

AM % Left in
 $V_a = 3.8\%$
 PM % Left in
 $V_a = 5.2\%$

AM Left-Turn = 12
 PM Left-Turn = 41



AM $V_0 = 546$
 PM $V_0 = 403$

AM $V_a = 318$
 PM $V_a = 783$

**LT LANE
 Recommended**

Instructions:

1. The family of curves represent the percentage of left turns in the advancing volume (V_A). The designer should locate the curve for the actual percentage of left turns. When this is not an even increment of 5, the designer should estimate where the curve lies.
2. Read V_A and V_0 into the chart and locate the intersection of the two volumes.
3. Note the location of the point in #2 relative to the line in #1. If the point is to the right of the line, then a left-turn lane is recommended. If the point is to the left of the line, then a left-turn is not recommended based on traffic volumes.

MDOT
 Michigan Department of Transportation

TRAFFIC AND SAFETY
 NOTE

DRAWN BY: MTS
 CHECKED BY: JAT
 FILE: K:\DGN\ts notes\Note605A tsn.dgn

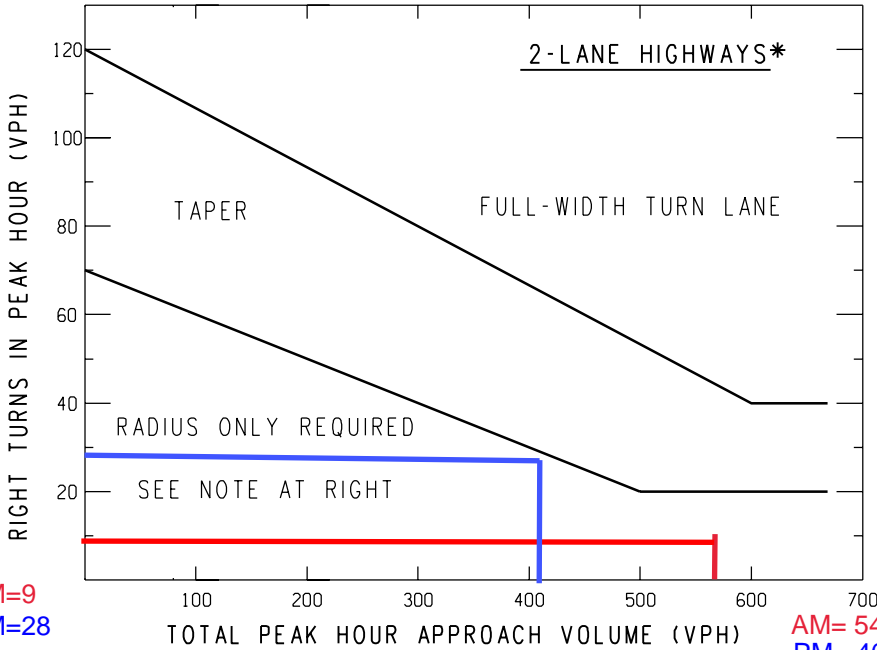
TRAFFIC VOLUME GUIDELINES
 FOR LEFT-TURN LANES AT
 UNSIGNALIZED INTERSECTIONS

08/05/2004
 PLAN DATE:

605A

SHEET 4 OF 139

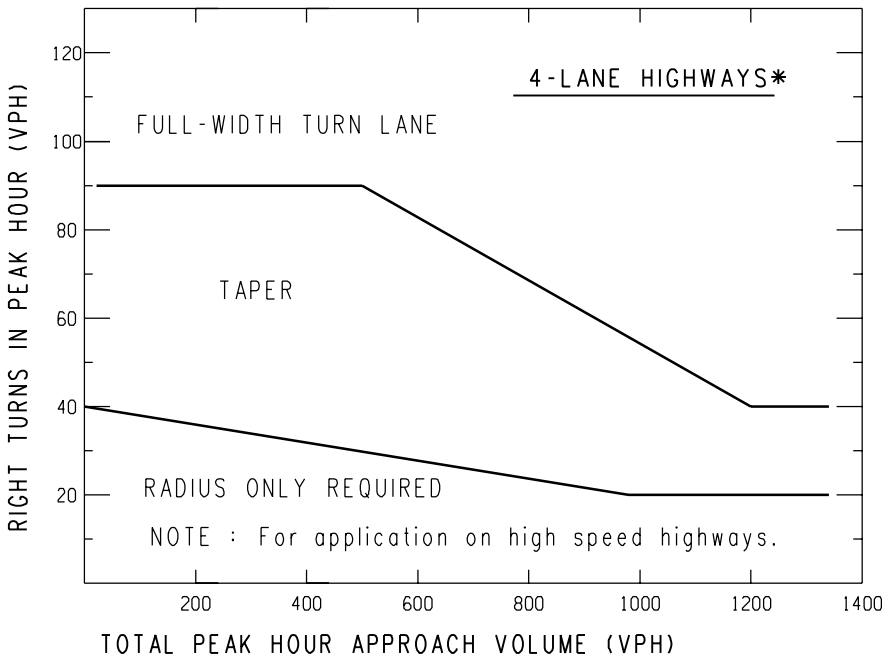
REV. 08/05/2004



NOTE:
For posted speeds at or under 45 mph, peak hour right turns greater than 40 vph, and total peak hour approach less than 300 vph, adjust right turn volumes.

Adjust peak hour right turns = Peak hour right turns - 20

RT LANE NOT Recommended



*If a center left-turn lane exists (i.e. 3 or 5 lane highway), subtract the number of left turns in approach volume from the total approach volume to get an adjusted total approach volume.

Sample Problem:

The Design Speed is 55 mph. The Peak Hour Approach Volume is 300 vph. The Number of Right Turns in the Peak Hour is 100 vph. Determine if a right turn lane is recommended.

Solution:

Figure indicates that the intersection of 300 vph and 100 vph is located above the upper trend line; thus, a right-turn lane may be recommended.

		TRAFFIC VOLUME GUIDELINES FOR RIGHT-TURN LANES AND TAPERS	
TRAFFIC AND SAFETY NOTE			
DRAWN BY: MTS	08/05/2004	604A	140
CHECKED BY: JAT	PLAN DATE:		
FILE: K:/DGN/ts notes/Note604A tsn.dgn		REV. 08/05/2004	

Sec. 36-434. - Cottage housing planned unit development (CHPUD); intent.

- (a) It is the intent of this section and sections 36-435 to 36-438 to offer an alternative to traditional single-family detached and attached housing developments through the use of planned unit development legislation as authorized by the Michigan Zoning Enabling Act, Public Act No. 110 of 2006, as amended for the purpose of:
- (1) Encouraging the construction of more affordable single-family residential detached or attached dwelling units which utilizing public sewer and public water systems;
 - (2) Facilitating the construction of affordable single-family residential detached or attached housing units on a smaller scale than conventional multifamily developments to accommodate higher density and lower cost dwelling units;
 - (3) Offering an alternative to multifamily residential developments in order to provide affordable housing for persons in a small scale, less dense neighborhood setting;
 - (4) Preserving the rural character and appearance of the Township through the construction of small scale environmentally sensitive developments on sites within the village center master plan area.
 - (5) Encouraging the clustering of detached or attached single-family dwelling units to promote the safety and security of the residents.
- (b) These regulations are intended to preserve a traditional rural character to the land use pattern in the Township through the creation of small residential nodes contrasting with open space and less intensive land uses. This section is not intended as a device for circumventing the zoning regulations of the Township, the standards set forth therein, nor the planning concepts upon which this chapter has been based.
- (c) These regulations are intended to result in a specific development substantially consistent with zoning ordinance standards yet allow for modifications from the general standards.

(Zoning Ord. 2020, § 14.3.1, 1-5-2021)

Sec. 36-435. - Definitions.

The following words, terms and phrases, when used in this article, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

CHPUD means a housing development which meets the unique needs of the residents through the provision of significant facilities and services specifically designed to meet the physical or social needs of such residents.

CHPUD lot means land occupied or to be occupied by CHPUD units and accessory buildings permitted herein, together with such open spaces as are required under this chapter and having its principal frontage upon a street.

CHPUD unit means a single-family residential dwelling unit with full facilities for residential self-sufficiency.

(Zoning Ord. 2020, § 14.3.2, 1-5-2021)

Sec. 36-436. - Zoning.

A CHPUD may be located in the following zoning districts: RB, VC and VR.

(Zoning Ord. 2020, § 14.3.3, 1-5-2021)

Sec. 36-437. - Development design standards.

CHPUD housing shall meet the following criteria:

- (1) *Public sewer and public water.* Public sewer and public water shall be provided.
- (2) *CHPUD size.* No fewer than four CHPUD units nor more than 20 CHPUD units shall be permitted per lot.
- (3) *Acreage and density requirements.* A CHPUD development may be approved upon any residentially zoned land with density as permitted below:

<i>District</i>	<i>Minimum Acreage</i>	<i>Minimum Density per CHPUD Unit</i>
RB	1 acre	7,500 square feet
VC	1 acre	4,100 square feet
VR	1 acre	5,450 square feet

- (4) *Unified control.* The CHPUD shall be initially under single ownership or control, so there is a single person, entity or condominium having proprietary responsibility for the development of the CHPUD as evidenced by a title company licensed to do business in the state. In the event, all or any portion of the development changes ownership or control prior to completion of the project, the terms and conditions of this planned unit development shall be binding on any successor owner of all or any portion of the property.
- (5) *Guarantee of open/common space.* At least 50 percent of the total site area shall be preserved as open space. This open space shall be held in common ownership by all residents of the CHPUD. This open space shall be utilized for recreation facilities such as lawns, gardens, plazas, common use buildings, pool areas, picnic areas, walking trails or other open space uses which provide residents the opportunity to enjoy the features of the site. The open space shall be configured to be integrated with the individual units and maximize the proximity of each housing unit to natural open space. The principle common open space area shall be centralized to the project and at least 50 percent of the CHPUD units shall have their main entries on the centralized common space area. A guarantee to the satisfaction of the Township Planning Commission that all open/common space portions of the development will be maintained in the manner approved shall be provided. Documents shall be presented that bind all successors and future owners in fee title to commitments made as a part of the proposal. This provision shall not prohibit a transfer of ownership or control, provided notice of such transfer is provided to the Township and the land uses continue as approved in the CHPUD plan.
- (6) *Area, height, bulk and layout regulations.*

Maximum CHPUD unit floor area:	1,200 square feet
Maximum building height:	2 stories
Distance between walls of buildings:	10 feet
Basement:	Optional
Shed:	Optional

Garage:	Optional	Item 3.
Covered parking:	Optional	
Minimum setbacks*:	15 feet from street or private road right-of-way, 10 feet from side and rear lot lines, 5 feet from common access drives	
Common access drives:	4 feet from all lot lines	

*The setbacks are from the overall CHPUD lot.

- (7) *Attached units.* No more than four units shall be attached in a single structure.
- (8) *Garages/carports.* If provided, garages can be attached or detached from the main structure. Garages may be linked so as to have common walls. Garages/carports may be on common owned property.
- (9) *Porches.* Each CHPUD unit shall have a front porch that is a minimum of six feet deep and 50 percent of the front elevation.
- (10) *Private outdoor space.* Each unit shall have no more than 2,000 square feet of private outdoor space. This space shall include any private outdoor parking areas, open porches, and yard space that is not open for common use.
- (11) *Common area.* Each CHPUD shall have a common area containing at least one common use structure such as a pool house, clubhouse, gazebo, deck, patio or terrace that shall be covered with a roof, of similar architectural style and design as the CHPUD units located on the lot, and a minimum of 100 square feet. Common use structures can be counted towards the common open space area.
- (12) *Storage sheds.* Any storage sheds shall be so designed as to have the same roof pitch and architectural style as the CHPUD units in the development. Storage sheds may be linked so as to have common walls; however, each shed must have its own private, lockable access door. The dimensions of any shed servicing a CHPUD unit shall conform to other size provisions of this chapter. Storage sheds may be located on commonly owned property.
- (13) *Water and sewer system service.* CHPUD developments are required to be serviced by public sewer and public water services.
- (14)

Roads. The CHPUD shall have paved access designed and constructed to AASHTO standards and shall provide adequate access for emergency vehicles.

Item 3.

- (15) *Parking requirements.* The parking standards for a CHPUD shall be two spaces per unit. Each parking space shall have a minimum size of 180 square feet (ten feet by 18 feet), may be located either on-site or within 100 feet of the site, may be on-street or off-street and may be within a garage or carport structure or unenclosed. If the applicant requests a reduction in the parking requirements the planning commission must make the findings that alternative transportation options have been provided to the future residence of the project.
- (16) *Construction drawings required.* Scaled floor plan and building elevation drawings shall be presented for each CHPUD unit within the CHPUD that has a different interior layout and square footage of living space.
- (17) *Sidewalks and access ramps.* All pedestrian circulation walkways and sidewalks shall be hard-surfaced with either asphalt, concrete or brick paving and be accessible to the handicapped according to the standards set forth in the Americans with Disabilities Act. Sidewalks and pathways shall be designed to connect the CHPUD units to the common areas on the lot and to connect with adjacent properties. Handicapped access ramps are exempt from the required setbacks.
- (18) *Interior design.* A minimum of ten percent or at least one, whichever is greater, of the CHPUD units shall meet the International Code Council (American National Standards Institute) Accessibility Standards for Type B units.
- (19) *Design compatibility.* The exterior of each CHPUD unit shall be compatible in terms of architectural design, materials and color with the residential structures in the immediate neighborhood within 300 feet of the development parcel or lot. However, all housing units shall be a minimum of 14 feet wide at their least horizontal dimension and attached to a permanent foundation. Accessory buildings for a CHPUD unit, such as detached garage, common room and shed structures, shall be architecturally compatible with the design and style of the CHPUD units. Compatibility of design shall be decided by the planning commission.
- (20) *Waiver of standards.* The planning commission is hereby empowered to waive site design standards and development area requirements if public health and safety are not compromised. The planning commission is further empowered to specify conditions in issuing any special use permits as may be required.

(Zoning Ord. 2020, § 14.3.4, 1-5-2021)

Sec. 36-438. - Project standards.

In considering any application for approval of a CHPUD site plan, the planning commission shall make their determinations on the basis of the standards for site plan approval set forth in article III of this chapter, as well as the following standards and requirements:

- (1) *Compliance with the CHPUD concept.* The overall design and land uses proposed in connection with a CHPUD shall be consistent with the intent of the CHPUD concept, as well as with the specific design standards set forth herein.
- (2) *Compatibility with adjacent uses.* The proposed CHPUD site plan shall set forth in detail, all specifications with respect to height, setbacks, density, parking, circulation, landscaping, views and other design features that exhibit due regard for the relationship of the development to surrounding properties, the character of the site, and the land uses. In determining whether this requirement has been met, consideration shall be given to:
 - a. The bulk, placement, and materials of construction of proposed structures.
 - b. Pedestrian and vehicular circulation.
 - c. The location and screening of vehicular use or parking areas.
 - d. The provision of landscaping and other site amenities.
- (3) *Protection of natural environment.* The proposed CHPUD shall be protective of the natural environment. It shall comply with all applicable environmental protection laws and regulations.
- (4) *Common area and unit maintenance.* The CHPUD shall include in the master deed, community bylaws or covenant provisions, as applicable for the maintenance of the common open space, including landscaping maintenance, snow removal and repairs to building exteriors, in a form approved by the Township Attorney.
- (5) *Compliance with applicable regulations.* The proposed CHPUD shall comply with all applicable federal, state and local regulations.

(Zoning Ord. 2020, § 14.3.5, 1-5-2021)

Sec. 36-429. Cottage Housing Opportunity Planned Unit Development; intent.

- (a) It is the intent of this section and sections 36-430 to 36-433 to offer an alternative to traditional single-family detached or attached housing developments through the use of planned unit development legislation as authorized by the Michigan Zoning Enabling Act, Public Act 110 of 2006, as amended for the purpose of:
- (1) Encouraging the construction of more attainable single-family residential detached or attached dwelling units utilizing public sewer and common water supply systems;
 - (3) Offering an alternative to multifamily residential developments in order to provide attainable housing in a small scale, less dense neighborhood setting;
 - (5) Encouraging the clustering of detached or attached single-family dwelling units to promote the safety and security of the residents.
- (b) This section is not intended as a device for circumventing the zoning regulations of the Township, the standards set forth therein, nor the planning concepts upon which this chapter has been based.
- (c) These regulations are intended to result in a specific development substantially consistent with zoning ordinance standards yet allow for modifications from the general standards.

(Zoning Ord. 2020, § 14.2.1, 1-5-2021)

Sec. 36-430. Definitions.

The following words, terms and phrases, when used in this article, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

Cottage Housing Opportunity community means land occupied or to be occupied by units and accessory buildings permitted herein, together with such open spaces as are required under this chapter and having its principal frontage upon a street.

Cottage Housing Opportunity *unit* means a single-family residential dwelling unit with full facilities for residential self-sufficiency in each individual dwelling unit.

(Zoning Ord. 2020, § 14.2.2, 1-5-2021)

Sec. 36-431. Zoning.

A Cottage Housing Opportunity community may be located in the following zoning districts: RA, RB, PPRF, NS, CS, VC, VR, or MD, or WFR provided the development does not have riparian rights (i.e., does not have shoreline along a lake or river).

(Zoning Ord. 2020, § 14.2.3, 1-5-2021)

Sec. 36-432. Development design standards.

Cottage Housing Opportunity community housing shall meet the following criteria:

- (1) *On-site public sewage disposal and common water supply.* On-site public sewer and common water must be approved by the Livingston County Health Department.
- (2) *Cottage Housing Opportunity community size.* No fewer than four units nor more than 20 units shall be permitted per community.

- (3) *Acreage and density requirements.* Cottage Housing Opportunity community development may be approved upon any residentially zoned land with density as permitted below:

<i>District</i>	<i>Minimum Acreage</i>	<i>Minimum Density determination for Cottage Housing Opportunity community.</i>
RA * (Special Use Permit)	2 acres	10,000 square feet
RB	2 acres	5,000 square feet
WFR * (Special Use Permit)	2 acres	10,000 square feet
CS	1 acre	5,000 square feet
PPRF	1 acre	5,000 square feet
VR	1 acre	5,000 square feet
VC	1 acre	5,000 square feet
MD	1 acre	5,000 square feet
NS	1 acre	5,000 square feet

- (4) *Unified control.* The Cottage Housing Opportunity community shall be initially under single ownership or control, so there is a single person, entity or condominium having proprietary responsibility for the development of the Cottage Housing Opportunity community as evidenced by a title company licensed to do business in Michigan. In the event, all or any portion of the development changes ownership or control prior to completion of the project, the terms and conditions of this Planned Unit Development shall be binding on any successor owner of all or any portion of the property.
- (25) *Guarantee of open/common space.* At least 15 percent of the total site area shall be reserved as open space. This open space shall be held in common ownership by all residents of the Cottage Housing Opportunity community. This open space shall be utilized for recreation facilities such as picnic areas, walking trails or other open space uses which provide residents the opportunity to enjoy the natural features of the site. The open space shall be configured to be integrated with the individual units and maximize the proximity of each housing unit to natural open space. If the open space is close and accessible for residents of all individual units, it need not be owned in common. A guarantee to the satisfaction of the Township Planning Commission that all open/common space portions of the development will be maintained in the manner approved shall be provided. Documents shall be presented that bind all successors and future owners in fee title to commitments made as a part of the proposal. This provision shall not prohibit a transfer of ownership or control, provided notice of such transfer is provided to the Township and the land uses continue as approved in the Cottage Housing Opportunity community plan.
- (6) *Area, height, bulk and layout regulations.*

Minimum unit floor area:	400 square feet
Maximum unit floor area:	980 square feet
Maximum building height:	1.5 story
Required roof pitch:	4:12 or greater
Minimum building width, any dimension:	14 feet
Distance between buildings:	10 feet
Handicap ramps:	May encroach into any setback space

Basement:	Optional
Shed:	Optional
Garage:	Optional
Covered parking:	Optional
Minimum setbacks:	10 feet from street or private road right-of-way 20 feet from shared/adjacent parcel lines

- (7) *Attached units.* No more than four units shall be attached in a single structure.
- (8) *Garages.* Detached garages can be located no more than 100 feet of walking distance from the unit which it serves.
- (9) *Porches.* Each unit shall have at least one covered porch.
- (10) *Common area.* Each Cottage Housing Opportunity community which contains five or more units shall have a common area.
- (11) *Storage sheds.* Any storage sheds shall be so designed as to have the same roof pitch and architectural style as the units in the development. Storage sheds may be linked so as to have common walls; however, each shed must have its own private, lockable access door. The dimensions of any shed servicing a unit shall conform to other size provisions of this chapter.
- (12) *Roads.* The Cottage Housing Opportunity community shall have paved access designed and constructed to AASHTO standards and shall provide adequate access for emergency vehicles.
- (13) *Parking requirements.* The parking standards for a community shall be two spaces per unit. Each parking space shall have a minimum size of 162 square feet (nine feet by 18 feet) and may be located on-site.
- (14) *Construction drawings required.* Scaled floor plan and building elevation drawings shall be presented for each unit within the community that has a different interior layout and square footage of living space.
- (15) *Sidewalks and access ramps.* All pedestrian circulation walkways and sidewalks shall be hard-surfaced with either asphalt, concrete or brick paving.
- (16) *Design compatibility.* The exterior of each unit shall be compatible in terms of architectural design, materials and color with the residential structures in the immediate neighborhood within 300 feet of the development parcel or lot. However, all housing units shall be a minimum of 14 feet wide at their least horizontal dimension and attached to a permanent foundation. The roof pitch of a unit shall be at least a 4:12 pitch. Accessory buildings for a unit, such as a detached garage and shed, shall also conform to the minimum roof pitch and be architecturally compatible with the design and style of the unit. Compatibility of design shall be decided by the planning commission.
- (17) *Waiver of standards.* The planning commission is hereby empowered to waive site design standards and development area requirements if public health and safety are not compromised. The planning commission is further empowered to specify conditions in issuing any special use permits as may be required.

(Zoning Ord. 2020, § 14.2.4, 1-5-2021)

Sec. 36-433. Project standards.

In considering any application for approval of an Cottage Housing Opportunity community site plan, the planning commission shall make their determinations on the basis of the standards for site plan approval set forth in article III of this chapter, as well as the following standards and requirements:

- (1) Compliance with the Cottage Housing Opportunity concept. The overall design and land uses proposed in connection with an Cottage Housing Opportunity community shall be consistent with the intent of the Cottage Housing Opportunity concept, as well as with the specific design standards set forth herein.
- (2) Compatibility with adjacent uses. The proposed Cottage Housing Opportunity community site plan shall set forth in detail, all specifications with respect to height, setbacks, density, parking, circulation, landscaping, views and other design features that exhibit due regard for the relationship of the development to surrounding properties, the character of the site, and the land uses. In determining whether this requirement has been met, consideration shall be given to:
 - a. The bulk, placement, and materials of construction of proposed structures.
 - b. Pedestrian and vehicular circulation.
 - c. The location and screening of vehicular use or parking areas.
 - d. The provision of landscaping and other site amenities.
- (3) Protection of natural environment. The proposed Cottage Housing Opportunity community shall be protective of the natural environment. It shall comply with all applicable environmental protection laws and regulations.
- (4) Common area and unit maintenance. The Cottage Housing Opportunity community shall include in the master deed, community bylaws or covenant provisions, as applicable for the maintenance of the common open space, including landscaping maintenance, snow removal and repairs to building exteriors, in a form approved by the Township Attorney.
- (5) Compliance with applicable regulations. The proposed Cottage Housing Opportunity community shall comply with all applicable federal, state and local regulations.
- (6) The planning commission may base its action on experience with and competition from similar developments in the area.

(Zoning Ord. 2020, § 14.2.5, 1-5-2021)

Sec. 36-482. Sign regulation enforcement.

- (a) *Signs on private property.* Signs in violation of the regulations will be enforced by the zoning administrator or designee utilizing Ordinance No. 71-A the civil infraction ordinance.
- (b) *Signs within the public or private right-of-way or on public land.* Signs in violation of the regulations will be removed by the zoning administrator or designee.
 - (1) First violation: Will be removed and held for ten days at the Township offices, after which the signs will be discarded.
 - (2) Second violation: The signs will be removed and will be discarded without a holding period.
 - (3) Signs in continual violation of the regulations may be enforced by the Code Enforcement Officer, zoning administrator Zoning Administrator, or designee, utilizing Ordinance No. 71-A Chapter 1, Article II, Section 1-45 – Sanctions for violations, in the Hamburg Township civil infractions Code of Ordinances. ordinance.
 - (4) Signs will be considered in the public right-of-way if they are within ten feet of a public street or if they are in violation of section 36-228.
 - (5) For purposes of assessing fines and penalties only, a violation under this section shall be classified a Class E municipal civil infraction.
 - (6) Signs for Park/Trail related events must be approved through the Park Use Application process.

(Zoning Ord. 2020, § 18.14, 1-5-2021)

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Park/Trail Use Application - Sign Policy/Procedure

The Hamburg Township park and recreation system affords residents and visitors with a higher quality of life standard. The benefits of a quality parks and recreation system include: Greater opportunities for a healthy lifestyle; Increased property values throughout the Township; Encouragement of economic development, which in turn, can further attract investment; Natural beauty; Environmental gains and benefits; Socializing and fun; and Sense of place and identity for the community. Hamburg Township parks afford all residents and visitors of Hamburg Township with the opportunity to participate and enjoy in the Township's parks and recreation facilities and to act as gathering spaces for community building.

This policy is included in the Parks and Recreation Policies and Procedures and is intended to allow specific signage associated with the approved use of Township owned/operated parklands. The allowed signage will help Hamburg Township to better meet the needs of the community and public use of the parkland systems. The signage will help to better inform people of upcoming events and direct people to the event.

All signage placed on Township owned/operated property, must first be approved through the Hamburg Township Parks and Recreation application process. Only signage relating to, and in support of, an approved event on Hamburg Township owned/operated park/trail property, qualifies for this addendum. Must be requested at time of application, or no later than 60 days prior to event. Any other requests must comply with [Hamburg Township Ordinance – Chapter 36, Article VII, Section 36-222.](#)

Signage Regulations for Park Use Applications:

In addition to directional signage allowed during an event in Hamburg Township Parks and/or Trails, signs announcing the approved event are only allowed with an approved Park Use Application:

- 1) Temporary freestanding signs:
 - a. On the Township owned property where the event is located:
 - i. One 32 square foot sign; and
 - ii. Four 6 square foot signs, with one side 4' max in length.
 - b. On the Township owned property at M-36 and Merrill Road (parcel 15-23-300-028):
 - i. One 32 square foot sign.
 - c. On other pre-approved events on Hamburg Township owned/operated park/trail property.
 - i. Provide site plan, size, and sign details in writing to the Park Coordinator during the Park Use Application approval process, no later than 60 days prior to event date.

- 2) Signage duration:
 - a. If the event is held on between 1-7 consecutive days the signs may be installed 7 days prior to the event and must be removed within 2 days after the last day of the event.
 - b. If the event is conducted over multiple weeks the signs allowed in section 1) a. ii. shall only be allowed the day of the event, all other signs allowed in section 1) may be installed 7 days prior to the event and must be removed within 2 days after the last day of the event.
 - c. If the signs are not removed as required by the code the Township may remove the signage and may issue violations as outlined in Hamburg Township Code of Ordinances.
- 3) Directional signs shall be approved administratively for approved Park Use Applications and must pertain to Township owned or operated Park/Trail property only.
- 4) All signs shall be outside of the road right-of-way and at least 10 feet from a paved roadway or driveway.
- 5) The Township shall be authorized to remove any unapproved signage or additional signage placed unrelated scheduled events. Violations or abuses of this rule may result in termination or denial of park use.
- 6) Any unapproved signage pertaining to an event that is not taking place on Township owned/operated Park/Trail property, will be removed and will be considered a Class E municipal civil infraction. Charges for violations or abuses of this rule can be found at: Hamburg Township Code of Ordinances, Chapter 1, Article II, Sec.1-45.

Sign Application Materials:

The following information shall be submitted with the parklands use permit application:

- 1) Description of the signs including a drawing showing the proposed signs and the sign dimensions; and
- 2) Map showing the location of the proposed signs.
- 3) Any signs planned for the Road-Right-Of-Way must be submitted to the jurisdiction that regulates and oversees those roads.

Livingston County Road Commission:

<https://livingstonroads.org/permit-office/>

State of Michigan (MDot):

<https://www.michigan.gov/mdot/business/permits/right-of-way-construction/governmental-signing>



10405 Merrill Road
 P.O. Box 157
 Hamburg, MI 48139
 (810) 231-1000
www.hamburg.mi.us

Supervisor Pat Hohl Clerk Mike Dolan Treasurer Jason Negri Trustees Bill Hahn, Patricia Hughes, Chuck Menzies, Cindy Michniewicz

BOARD OF TRUSTEES REGULAR MEETING

Tuesday, September 05, 2023 at 2:30 PM
Hamburg Township Hall Board Room

MINUTES

CALL TO ORDER

Supervisor Hohl called the meeting to order at 2:30 p.m.

PLEDGE TO THE FLAG

ROLL CALL OF THE BOARD

PRESENT

- Pat Hohl
- Mike Dolan
- Bill Hahn
- Chuck Menzies
- Cindy Michniewicz
- Jason Negri
- Patricia Hughes

CALL TO THE PUBLIC

A call was made with no response.

CONSENT AGENDA

Motion by Menzies, Second by Michniewicz, to approve the Consent Agenda as presented.

Voting Yea: Hohl, Dolan, Hahn, Menzies, Michniewicz, Negri, Hughes

1. Board of Trustees Regular Meeting Minutes - August 15, 2023
2. Board of Trustees Special Meeting Minutes - August 15, 2023
3. Approved MUC Minutes - July 12, 2023
4. Parks & Rec - Approved Minutes - June 2023
5. Senior Center - Monthly Report - August 2023

6. DPW Monthly Report - July 2023
7. Bills List - September 5, 2023
8. Invoice A2Z Mowing

APPROVAL OF THE AGENDA

Motion made by Negri, Seconded by Michniewicz, with the additional documents to be added to item #19 Hilltop Securities.

Voting Yea: Hohl, Dolan, Hahn, Menzies, Michniewicz, Negri, Hughes

UNFINISHED BUSINESS

9. SPA 23-001 Freedom River Final Site Plan

Motion made by Hughes, seconded by Hahn, to move the final site plan SPA 23-001 at 6716 Winans Lake Road with conditions 1 through 17 listed in the August 16, 2023 draft meeting minutes. The project does meet the site plan review standards A through L of Section 36-73(7) of the Zoning Ordinance as discussed at the July 6, 2023 Township Board meeting, at the August 16, 2023 Planning Commission meeting, and as presented in the staff report.

Voting Yea: Hohl, Dolan, Hahn, Menzies, Michniewicz, Negri, Hughes

10. Grant - TF#22-0107 - Project Agreement & Resolution - Bennett Park & Water Trail Access Improvements

Motion made by Michniewicz, Seconded by Negri, to move the Resolution to appropriate the funds necessary to complete the Bennett Park Renovations and Huron River Trail Access Project, in the amount of \$202,500 to match the grant authorized by the MDNR in the amount of \$300,000, and to authorize the Township Supervisor to execute the agreement which will be signed and returned to the MDNR by 10/6/23 along with the requested attachments.

Voting Yea: Hohl, Dolan, Hahn, Menzies, Michniewicz, Negri, Hughes

Motion made by Dolan, Seconded by Michniewicz, to move that Hamburg Township enters into the agreement with the Michigan Natural Resource Trust Fund Project Agreement as prepared in todays packet.

Voting Yea: Hohl, Dolan, Hahn, Menzies, Michniewicz, Negri, Hughes

11. Grant - Senior/Community Center Upgrade and Expansion - Resolution to Submit

Motion made by Dolan, Seconded by Menzies, to approve the two resolutions #230804 & #230805 both related to Community Center Upgrade Grants.

Voting Yea: Hohl, Dolan, Hahn, Menzies, Michniewicz, Negri, Hughes

12. Grant - Senior/Community Center Upgrade and Expansion Project - Authorization for Coordinator to Prepare and File

Motion made by Dolan, seconded by Menzies, to approve the two resolutions #230804 & #230805 both related to Community Center Upgrade Grants.

Voting Yea: Hohl, Dolan, Hahn, Menzies, Michniewicz, Negri, Hughes

13. Parks & Rec - Spicer Group Agreement - Prime Professional - Grant #TF22-0107

Motion made by Dolan, Seconded by Michniewicz, to contract with the Spicer Group to be our Prime Professional for the Bennet Park and Water Trail Access Improvement Grant in the amount not to exceed \$74,400.

Voting Yea: Hohl, Dolan, Hahn, Menzies, Michniewicz, Negri, Hughes

CURRENT BUSINESS

14. Over-the-Road-Banner Request - Freedom River - Fundraising Event

Motion made by Dolan, Seconded by Hahn, to move the Resolution #230807 and direct staff to facilitate a permit from the Livingston County Road Commission, on behalf of Freedom River, to place an event banner across Merrill Rd., from September 20, 2023 through October 30, 2023 announcing the Freedom River Halloween event scheduled for October 20, 2023.

Voting Yea: Hohl, Dolan, Hahn, Menzies, Michniewicz, Negri, Hughes

15. Purchase of Police Station Furnishings/Accessories

Motion made by Hohl, Seconded by Negri, to approve the requested purchases outlined in Director Duffany's memo Dated August 31, 2023 and that this approval here is given with the flexibility of 10% increase to be approved in writing by the Supervisor before the purchase is finalized.

Voting Yea: Hohl, Dolan, Hahn, Menzies, Negri, Hughes

Voting Nay: Michniewicz

16. Purchase of Fire Station Furnishings

Motion made by Dolan, Seconded by Menzies, to approve the purchase of the Fire Station 11 training room furnishings from Smart Business Source of Troy, MI, as outlined in their quote, in today's packet, for the total cost of \$39,470.00.

Voting Yea: Hohl, Dolan, Hahn, Menzies, Michniewicz, Negri, Hughes

17. ARPA Update

Motion made by Hohl, Seconded by Hughes, to receive and file with a note that there will be updates to this for the next Board Meeting.

Voting Yea: Hohl, Dolan, Hahn, Menzies, Michniewicz, Negri, Hughes

18. Township Hall Building Improvement

Motion made by Hohl, Seconded by Hughes, to table this agenda item to the first meeting in October. (October 3, 2023)

Voting Yea: Hohl, Dolan, Hahn, Menzies, Michniewicz, Negri, Hughes

19. Hilltop Securities – approval sought

Motion made by Negri, Seconded by Hahn, to move the Resolution in the packet that Hilltop Securities be designated depository of the Township and that the funds of the Township may be deposited subject to the rules and regulations of the fund and demand time or savings deposit account at the fund.

Voting Yea: Hohl, Dolan, Hahn, Menzies, Michniewicz, Negri

Voting Nay: Hughes

20. Resolution Approving Opting-In to the National Opioid Litigation Settlement with Walgreens

Motion by Negri, Seconded by Hohl, to move the Resolution for discussion purposes, amended to apply for the settlement and to put together a program to utilize this money.

Voting Yea: Hohl, Dolan, Hahn, Menzies, Michniewicz, Negri, Hughes

21. Restroom Project - Final Invoice

Motion made by Hohl, Seconded by Hughes, to approve the payment of Invoice to Ventage Construction in the amount of \$114,530 for the restroom upgrade to come out of General Fund - Building Reserves.

Voting Yea: Hohl, Dolan, Hahn, Menzies, Michniewicz, Negri, Hughes

22. Parks & Rec – Policy & Procedure Update – Park/Trail Use Sign Policy/Procedure

Motion made by Dolan, Seconded by Michniewicz, to authorize the updated Policies & Procedures for Parks and Recreation as published in today's packet.

Voting Yea: Hohl, Dolan, Hahn, Menzies, Michniewicz, Negri, Hughes

23. Parks & Rec - Spicer Group Agreement - Master Design Plan Concept Development

Motion made by Hohl, Seconded by Dolan, to table item #23, to be brought back at the discretion of the Clerk and the Parks Coordinator.

Voting Yea: Hohl, Dolan, Hahn, Menzies, Michniewicz, Negri, Hughes

24. ZTA 21-003 Permitted Use Tables

Motion made by Hohl, Seconded by Hahn, to approve ZTA 21-003 Permitted Use Tables, these ordinance amendments received prior recommendation and approval from the Planning Commission and The Livingston County Planning Commission.

Voting Yea: Hohl, Dolan, Hahn, Menzies, Michniewicz, Negri, Hughes

25. ZTA 22-001 Short Term Rental Ordinance

Motion made by Hohl, Seconded by Hughes, to approve ZTA 22-001 Short Term Rental Ordinance this received prior approval from the Board, Planning Commission and The Livingston County Planning Commission, and direct the Director of Planning and Zoning to coordinate this new ZTA with Municode and to appropriately publish in the local paper to allow for full enforcement of ZTA 22-001.

Voting Yea: Hohl, Dolan, Hahn, Menzies, Michniewicz, Negri, Hughes

CALL TO THE PUBLIC

A call was made with no response.

BOARD COMMENTS

ADJOURNMENT

Motion made by Negri, Seconded by Michniewicz, to adjourn.

Voting Yea: Hohl, Dolan, Hahn, Menzies, Michniewicz, Negri, Hughes

Meeting Adjourned at 3:53 pm

Respectfully submitted,



Courtney L. Paton
Recording Secretary



Mike Dolan
Township Clerk