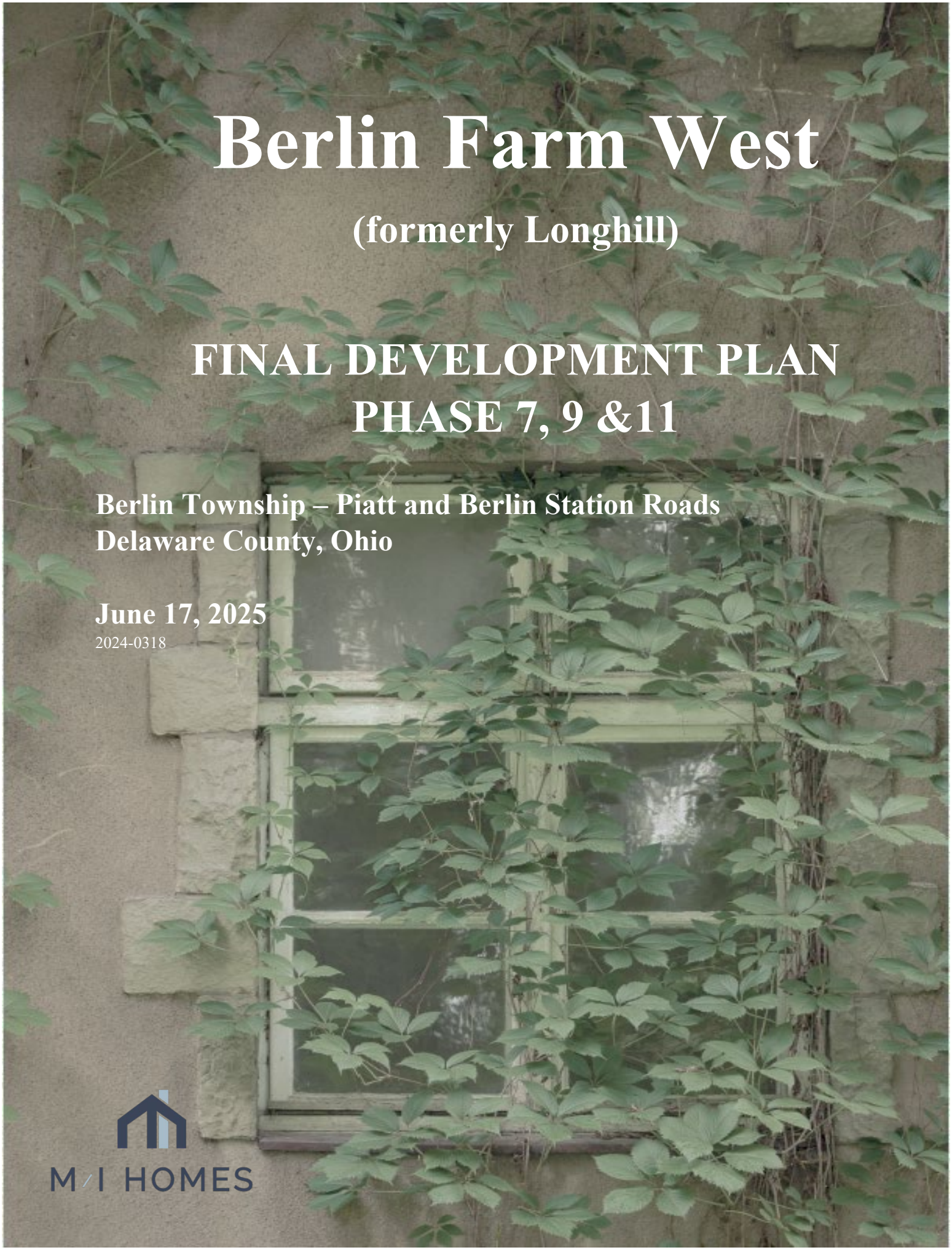


Berlin Farm West

(formerly Longhill)

FINAL DEVELOPMENT PLAN
PHASE 7, 9 &11

Berlin Township – Piatt and Berlin Station Roads
Delaware County, Ohio

June 17, 2025
2024-0318

M/I HOMES

TABLE OF CONTENTS

BERLIN FARM WEST – Phase 7, 9 & 11

EXHIBITS

www.berlintwp.us

BERLIN TWP. ZONING OFFICE
3271 CHESHIRE ROAD
DELAWARE, OH 43015
740.548.5217 – PHONE / 740.548.7458 – FAX

Date _____
BZC#_____
Fee: $_____Rec#_____
Hearing Date: _____

APPLICATION FOR FINAL DEVELOPMENT PLAN

Name of Owner: M/I Homes of Central Ohio

Mailing Address: 4131 Worth Avenue, Suite 260, Columbus Ohio 43219

Email Address: Mblock@mihomes.com

Business Telephone: 614-418-8502 Home Telephone: _____

Address of Property: Berlin Station Road, Delaware Ohio 43015

Parcel (s): 41823001002000, 41823001002004, 41823001002003, 41824001057000, 41824001057001 Acreage: 83.58 Present Zoning: R-3 / PRD

Range: 18 Twp: 4 Section: 2 Farm Lot No: 13 AND 15

Subdivision Name: Berlin Farm West Phases 7, 9 and 11

Proposed Plan: Develop 113 lots per approved plan for Phases 7, 9 and 11

The undersigned certifies that this application and the attachments thereto contain all information required by the Zoning Resolution and that all information contained herein is true and accurate and is submitted to induce the amendment of the Zoning Map. Applicant agrees to be bound by the provisions of the Zoning Resolution of Berlin Township, Delaware County, Ohio. Revised 02/12/15

Date: 6/16/25 **Agent/Applicant Signature:** MX

Agent/Applicant Address: 4131 Worth Ave. Columbus, OH 43219

Phone: 614-418-8502 **Fax:** _____

Email address: Mblock@mihomes.com

Date: 6/16/25 **Zoning Inspector Signature:** _____

INCOMPLETE APPLICATIONS WILL NOT BE PROCESSED

REQUIREMENTS FOR THE COMPLETE APPLICATION FOR HEARING BY THE BERLIN TOWNSHIP ZONING COMMISSION (BZC) FINAL DEVELOPMENT

Original completed application form, dated, and signed by the owner or lessee.

All fees **must** be paid in full when application is presented, and are non-refundable, **$700.00.**

A **certified** real estate tax mailing address list of current property owners within 200 feet of subject property obtained from **Delaware County Auditors Office, with mailing addresses and two sets of mailing labels, including applicant and/or applicant's representative.**

THESE ITEMS MUST BE PRESENTED WITH THE APPLICATION:

A survey plat signed by a registered Ohio Surveyor showing:

1. Legal Description of the property,
2. Plat Plan of the parcel to scale, including:
   - **a.)** Area of property including, streets, roadways and parking, and
   - **b.)** Placement of all existing & proposed buildings,
3. The lot number and/or street address
4. Topographical map

In addition, the survey plat and/or application must include the following as specified in the Berlin Township Zoning Resolution:

5. All setback and frontage dimensions, Article 24.
6. Architectural design criteria for all structures and criteria for proposed signs, with proposed control procedures, Article 25.
7. Landscape Plan, in accordance with the Berlin Township Zoning Resolution, Article 26.

Note: *Need text describing design features/standards.*

Other requirements to be submitted are as follows:

8. Location of schools, parks and other public facility sites, within one (1) mile,
9. Ability to post bond or an irrevocable letter of credit if the plan is approved assuring completion of public service facilities to be constructed within the project by the developer.
10. The proposed time schedule for development of the site including streets, buildings, utilities and other facilities,
11. If the proposed timetable for development includes developing the land in phases, all phases developed after the first, which in no event shall be less than five (5) acres or the whole tract (whichever is smaller), shall be fully described in

textual form in a manner calculated to give Township official's definitive guidelines for approval of future phases.

Include the following original letters if applicable:

Letter approving agent for owner if applicable
Letter from the Del-Co. Water Company attesting to water availability.
Letter from Gas Company attesting to gas availability (if applicable).
Letter from the Delaware County Sanitary Engineer attesting to sewer capability **or** Letter from the Delaware County Health Department attesting to septic feasibility.
Letter from Ohio Department of Transportation (O.D.O.T) or a registered engineer, addressing traffic issues.
Letter from Berlin Township Fire Chief addressing protective service issues they may have.
Letter from the Environmental Protection Agency (E.P.A).
Letter from the Delaware County Engineer. (should include county ditch/drainage plan).
All information concerning Model Homes, Signs, Landscaping, Lighting, and Parking, if applicable.
A drainage plan prepared by a registered engineer.

ALL TOWNSHIP DEVELOPMENT STANDARDS MUST BE ADDRESSED.
Refer to Article 24 of the Berlin Township Zoning Resolution.

PROVIDE AN ELECTRONIC COPY (CD) OF ALL DOCUMENTATION TO BE SUBMITTED.

TWELVE (12) COPIES OF ALL NECESSARY AND RELEVANT INFORMATION MUST BE SUBMITTED WITH THE APPLICATION.

TWELVE (12) COPIES OF ALL AMENDMENTS OR REVISIONS MUST BE SUBMITTED AND AT LEAST 7 DAYS BEFORE ANY TABLING HEARING.

APPLICATIONS WILL ONLY BE PROCESSED WHEN THEY ARE 100% COMPLETE.

A MINIMUM OF THREE SIGNS SHALL BE PROVIDED BY APPLICANT.

Submit any questions to:

David Loveless
Berlin Township
Zoning Inspector
Phone: 740.548.5217 ext. 103
Fax: 740.548.7458
zoninginspector@berlintwp.us

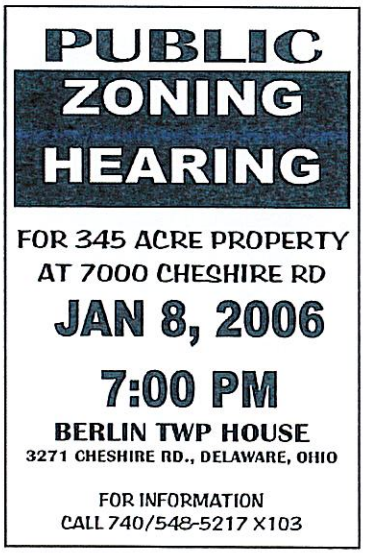
Revised 10/01/2019

Addendum to BZC Checklist – Signs:

For proposed amendments to the Zoning District Map and/or the Comprehensive Land Use Map the applicant shall provide (3) three signs conforming to the following:

(a) One sign shall be posted for each 500' of road frontage or at the discretion of the Zoning Inspector on the parcel in the area proposed in the amendment in a location visible from an adjacent street. One sign shall be posted on the corner of the township property located on the northwest corner of Lackey Old State and Cheshire Roads, and one sign shall be posted in front of the township hall.
(b) The signs shall be two (2) feet by three (3) feet with letters not less than two (2) inches in height notifying the public of the location of the upcoming hearing and the affected parcel as well as a contact number for additional information.
(c) The signs shall be posted continuously for at least fourteen (14) days prior to the date of the required public hearing and be removed within seven (7) days after board action.
(d) The signs shall be posted by the applicant with the direction of the zoning inspector or be given to the zoning inspector for posting.

Example:



Berlin Township
Fire Department
2708 Lackey Old State Road
Delaware, Ohio 43015
(740) 548-6031

Fire Chief Craig A. Hall
Lt. Steve Arnold, Fire Prevention

1) Entry into a subdivision/project development shall have 1 lane in and 2 lanes out. When required by Berlin Township FD there shall be at least 2 entry points into the subdivision/project development.

2) No Parking signage shall be on the Fire Hydrant side of the street. This signage shall meet the Delaware County Sheriff's office enforcement requirements.

3) There shall be a Fire Hydrant installed within the first 50' going into the project development.

4) After the first Fire Hydrant going into the project fire hydrants shall be installed every 300'- throughout the project development.

5) Any street stubs or ending point shall have a fire hydrant installed at the end point. If determined by Berlin Township FD a flash hydrant is acceptable to be installed in the project development however once the street extension takes place a fire hydrant shall be installed in place of the flush hydrant at the developer's cost.

6) The minimum water main size within any project development shall be at least 8" that shall flow a minimum 1000gpm. Actual water main size for the project development shall be determined at plan review by Berlin Township Fire Department.

7) Cul-de-sac shall meet the turning radius per the Orange Twp. FD attachment of 48'

8) Berlin Twp. FD shall have access to all green space. The width of the hard surface shall be a minimum 10'. Berlin Township FD will determine hard service requirements.

9) Model homes shall have an EXIT sign non-illuminated in the Office area and a 5# ABC Fire Extinguisher.

This is not an all-inclusive list

Berlin Farm West PRD (Formerly Longhill PRD)

Introduction and Summary.

The property that is the subject of this text consists of 278.81± acres that are located to the northwest of the intersection of Piatt Road and Berlin Station Road. It is to the west of and adjacent to a planned future northward extension of Piatt Road to be undertaken by Delaware County. In 2019, a zoning application and preliminary development plan were approved to create the Longhill PRD. M/I Homes of Central Ohio, LLC seeks to amend the approved preliminary development plan such that the Longhill PRD will be renamed as Berlin Farm West to reflect the continuation of a master plan that includes the Berlin Farm PRD that is to be developed by M/I Homes to the east of this zoning district and which was previously approved by Berlin Township. Berlin Farm West will be subject to the standards set forth in this text, and will be developed in accordance with the site plan which accompanies this application as Exhibit G-1. This residential community will consist of 434 single-family homes among 109.4+/- acres of open space. This is a reduction of 48 units (roughly 10% of permitted density) as compared to the previously approved preliminary development plan.

The development standards contained within this text and the plans that accompany it are intended to govern the proposed development and replace and supersede the previously approved text and preliminary development plan for the Longhill PRD. This Berlin West PRD is already zoned into the R-3, Residential District High Density base zoning district under the Zoning Resolution of Berlin Township (the "Zoning Resolution"). In the event of a conflict between the standards in this text and those found within the Zoning Resolution, the standards in this text shall govern. To the extent that a development standard is not contained herein, then the provisions of the Zoning Resolution shall govern with respect to that standard including, but not necessarily limited to, those contained in Article 9 of the Zoning Resolution and pertaining to the R-3 zoning district.

This PRD shall include two subareas, namely Subarea A and Subarea B. Subarea A will be known as Aberdeen at Berlin Farm and consists of 104.6+/- acres. Subarea B will be known as Longhill at Berlin Farm and includes 174.25+/- acres.

ARTICLE 11 PLANNED RESIDENTIAL DISTRICT (PRD)

SECTION 11.01: PURPOSE: SEE SECTION 5.055

SECTION 11.02: INITIAL DISCUSSIONS

The applicant is encouraged to engage in informal consultations with the Zoning Inspector, Zoning Commission and the Delaware County Regional Planning Commission prior to formal submission of a development plan and application to amend the zoning map.

No statement by officials of the Township or County made prior to formal submission of a development plan and application to the Zoning Commission under 11.10 shall be binding. Any and/or all such informal consultations may be subject to Ohio's open meeting laws (ORC §121.22) and may be required to be held in an open public meeting.

In addition to any other procedures set out in this Resolution, all applications for amendments to the zoning map to rezone lands to this PRD district shall follow the procedures set forth in Article 11 herein.

SECTION 11.03: LOCATION OF PLANNED RESIDENTIAL (OPEN SPACE) DEVELOPMENTS

Planned Residential Development zoning may be overlaid on FR-1, R-2, R-3, R-4, and TPUD zones pursuant to a zoning map amendment approved by the township. The net density of the underlying zoning shall be used to determine the number of units allowed. All other standards shall be as defined in Article 11.

SECTION 11.04: PERMITTED USES

A.) Single Family detached residential dwelling units in FR-1 and R-2, R-3, and R-4 PRDs;

Response: Applicant proposes R-3 single family detached residential dwelling units (434 lots in total). Subarea A shall contain 165 lots and Subarea B shall contain 269 lots.

B.) Single family dwellings in R-2, R-3, and R-4 PRDs, or multi-family buildings (including condominiums separated by vertical firewalls) in TPUD PRDs.

Response: No single family attached dwellings are proposed.

C.) Common Area: upon approval of the final development plan by the township, the following uses and improvements may be permitted in the common area:

1. **Outdoor sports (active recreation) and recreational activities.**

2. **Accessory service buildings and structures incidental and pertinent to the uses set forth in Section 11.04(C)(1) above, where said accessory service buildings and structures are necessary to the pursuit of a permitted recreational use on the premise.**

Response: Applicant proposes ±109.4 acres of open space that generally will be used for open space, recreation, and leisure trail, consisting of 39.2% of the total site acreage. The centrally-located 9.0+/- acres of open space will contain a silo, clubhouse, and other amenities which will have a rural character, as well as an outdoor pool. The open space consisting of 17.0+/- acres found in the southeastern portion of the zoning district will provide for community gardens and leisure trails, as will a portion of the 61.0+/- acres of open space that is located in the northwestern portion of the zoning district. These amenities will provide for agricultural opportunities for residents. A dog park is also planned in the open space within the northwestern portion of the property. See Exhibit "I-2 Open Space Plan". All open spaces will be owned and managed by a forced and funded Homeowners' Association.

D.) Natural Area: restricted to passive recreational uses such as fishing, swimming, hiking, canoeing, and such other recreation that does not alter any of the natural features of the area. Agriculture may also be used as natural open space, provided it does not permit hog operations, poultry barn, and fur bearing farms or feed lots. Accessory buildings should be discouraged in the natural area.

Response: Areas located outside of those described as having specific amenities in the immediately preceding response will be passive open spaces with leisure trails in many locations. Grading is permitted within these areas to accommodate retention ponds, utilities and other improvements shown on the accompanying plans. Within the open space along the western and southern frontages, no improvements are permitted except for leisure trails and sidewalks.

SECTION 11.05: ACCESSORY USES

A. Non-residential uses of a religious, cultural, educational or recreational nature or character to the extent that they are designed and intended to serve the residents of the Planned Residential District. Said facilities may be designed to serve adjoining neighborhoods or residents if they are located in such proximity to major thoroughfares as to permit access without burdening residential streets.

Response: No divergence.

B. Schools, if they occupy a lot of not less than 1 acre, with adequate area for indoor and outdoor recreation, and additional setbacks as may be necessary to avoid disruption to adjacent residences.

Response: No divergence.

C. Adult Family Homes as provided for and defined in ORC Chapter 3722.

Response: No divergence.

D. Child Day Care provided in the provider's permanent residence for six or fewer children, who are not members of the immediate resident family, provided the day care is accessory to the use of the dwelling as a residence.

Response: No divergence.

E. Temporary structures such as manufactured or mobile homes, or mobile offices, and temporary buildings of a non-residential character may be used incidental to construction work on the premises or on adjacent public projects or during a period while the permanent dwelling is being constructed. The user of said structure shall obtain a permit for such temporary use, which permit shall be valid for six (6) months and may be renewed not more than twice for a total combined period of time under all issued permits not exceeding eighteen (18) months. Renewal of the permit shall be at the discretion of the Zoning Inspector on finding of reasonable progress toward completion of the permanent structure or project. The Zoning Inspector may require provisions for sanitary waste disposal, solid waste disposal, and water supply, as he/she deems necessary. The fees for such permit and renewals thereof shall be established by the Board of Township Trustees. Said temporary structure shall be removed not later than ten (10) days after expiration of said permit.

Response: Up to 5 model homes shall be provided in accordance with Exhibits "H-1 Phasing Plan and Model Home Location" and "C-5 Model Home Enlargements and Signage." Downcast lighting shall be required when parking areas next to model homes are illuminated. Notwithstanding anything to the contrary in the Zoning Resolution, prior to the approval of a final plat by Delaware County the developer may commence construction of one of these model homes. Construction of one model home may occur in advance of, or in conjunction with, installation of infrastructure for the subdivision.

F. Conducting of casual sale of goods in what are commonly referred to as garage sales or yard sales provided that such sales shall not be conducted on more than six (6) days in any calendar year or more than three (3) consecutive days. The sale and parking area shall be outside of the right-of-way and shall not interfere with traffic on adjacent thoroughfares. Any signage must be consistent with Article 22.

Response: This development shall adhere to this requirement.

G. Limited home occupation, as prescribed in Section 24.15 of this resolution.

Response: Limited home occupation uses will be in accordance with Section 24.15.

H. Licensed Family Homes as provided for in ORC §5123.19. All such facilities shall possess all approvals and/or licenses as required by state or local agencies.

Response: Licensed Family Home uses will not be included in this development.

SECTION 11.06: CONDITIONAL USES

A) Model Homes in Subdivisions, the same being defined as residential type structures used as sales offices by builders/developers and to display the builder's/developer's product. The same may be furnished within, since its purpose is to display to prospective buyer the builder's/developer's features (such as exterior siding treatment, roofing materials, interior trim, moldings, floor coverings, etc.), in the

environment of a completed home. Model homes may be staffed by the builder's/developer's sales force. Model homes shall be subject to the following restrictions:

1. **Lighting: All exterior lighting, except for security lighting, must be down-lighting, so that no light shall be cast onto adjoining residential properties. All off-street parking areas must be illuminated. All exterior lighting, except for security lighting, shall be extinguished at the closing time of the model home.**

Response: No divergence.

2. **Parking: All model homes shall provide off-street paved parking for the public. Such off-street paved parking shall be located as directed by the Board of Zoning Appeals. The number of required parking spaces shall be six (6) per model home. The driveway of the model home may be utilized for not more than two (2) parking spaces.**

Response: No divergence.

3. **Screening and Trash Receptacles: Landscape drawing shall be required and show adequate landscaping and screening from adjoining residential lots, together with the clear marking of the boundaries of the model home lot. Trash receptacles shall be provided around the model home for use by visitors to the home.**

Response: Landscaping for model homes is consistent with the overall landscape and provides adequate landscaping and screening from adjoining lots. Locations of trash receptacles will be identified in the building permit application for each model home.

4. **Termination of Use: The use of model homes within a residential subdivision, or within any single phase of a multi-phase subdivision, shall terminate after five (5) years from its opening date, or when building permits have been issued for ninety percent (90%) of the lots, whichever comes first.**

Response: No divergence.

5. **Model Home Signs: Model home signs may be approved by the Board of Zoning Appeals provided the following conditions are met:**

   a. **the sign shall not exceed 16 (sixteen) square feet per side with 32 (thirty two) square feet maximum total display area;**

Response: No divergence. Applicant's proposed signage, as shown in accompanying exhibit, complies with the display area requirements.

   b. **the overall height of the sign shall be no more than four (4) feet above grade.**

Response: No divergence.

   c. **model home sign shall be located on the same lot as the model home.**

Response: No divergence.

6. **If sign information is not presented at the time the development is submitted and approved, the applicant will apply for a conditional use permit to the Board of Zoning Appeals, which will rule on additional sign conditions.**

Response: Sign information is being provided at this time for review and approval.

SECTION 11.07: PROHIBITED USES

A. Uses not specifically authorized by the express terms of this Article of the Zoning Resolution shall not be permitted.

Response: No divergence. Development will be subject to such prohibited uses.

B. Outdoor storage of inoperable, unlicensed, or unused vehicles or trailers, for a period exceeding fourteen (14) days is prohibited. Said vehicles if stored on the premises shall be enclosed within a building so as not to be visible from any adjoining property or public road.

Response: No divergence. Development will be subject to outdoor storage restrictions.

C. No trailer of any type, no boats, no motor homes, nor equipment of any type shall be parked in front of the building line on any parcel within this district for more than twenty-four (24) hours in any ten (10) day period. If a dwelling is located on said lot, the building line shall be considered to be the front wall of the dwelling even if said dwelling is located behind the minimum building line established by this code or the restrictions on the plat or subdivision.

Response: No divergence.

D. No motor home, mobile home or camper of any type may be occupied by a guest of the resident/owner for more than fourteen (14) days per calendar year and only one (1) occupied motor home or camper is permitted at any time.

Response: No divergence.

E. Except as specifically permitted in Section 11.01(G) or approved in the approved development plan, no manufactured/mobile home shall be placed or occupied in this district. This provision does not apply to permanently-sited manufactured homes.

Response: No divergence.

F. No trash, debris, unused property, or discarded materials which create an eyesore, hazard, or nuisance to the neighborhood or general public shall be permitted to accumulate on any lot or portion thereof.

Response: No divergence.

G. In subdivided areas that meet the requirements of section 711.131 of the Ohio Revised Code, the keeping of livestock and poultry is prohibited.

Response: No divergence.

H. Boat or vehicle storage yards of facilities within common open space areas are prohibited.

Response: No divergence.

SECTION 11.08: DESIGN FEATURES REQUIRED OF A PRD

The development plan shall incorporate the following standards:

A. Open space shall be distributed throughout the development as part of a unified open space system, which shall serve to unify the development visually and functionally, and buffer surrounding land uses;

Response: No divergence. As shown in Exhibit "I-2 Open Space Plan", the open space has been distributed throughout the development, is visually and functionally harmonious with the development, and provides buffers to surrounding land. Applicant proposes ±109.4 acres of open space that generally will be used for open space, recreation, and leisure trails, consisting of 39.4% of the total site acreage. The centrally-located 9.0+/- acres of open space will contain a silo, clubhouse, and other amenities which will have a rural character, as well as an outdoor pool. The open space consisting of 17.0+/- acres found in the southeastern portion of the zoning district will provide for community gardens and leisure trails, as will a portion of the 61.0+/- acres of open space that is located in the northwestern portion of the zoning district. These amenities will provide for agricultural opportunities for residents. A dog park is also planned in the open space within the northwestern portion of the property. See Exhibit I-2 Open Space Plan.

B. The zoning commission may require walkways to connect all dwelling areas with open space and to interconnect the open spaces;

Response: No divergence. Applicant has provided for walkways and interconnected open spaces, as shown in Exhibit I-5.

C. Moderate to thick coverage by trees and natural undergrowth is desirable to most intended functions of the open space. Where such foliage exists naturally, it should be retained where practicable. Where adequate foliage does not exist, the Zoning Commission may require establishment of such tree cover or other foliage as may be necessary to achieve the purpose of the open space and the buffer of adjacent uses;

Response: No divergence. Applicant has incorporated existing foliage into the open space as shown in the accompanying plans.

D. Scenic areas and views shall be preserved to the maximum extent practicable, including views from the adjacent road;

Response: No divergence. Applicant has strategically placed open spaces along the perimeters of the site and centrally within the zoning district. See accompanying plans.

E. Open spaces may be used for the natural disposal of storm water drainage. No features should be designed which are likely to cause erosion or flooding of the proposed or existing houses;

Response: No divergence. Open spaces have been utilized throughout the site plan for the natural disposal of storm water drainage, as shown on Exhibit G-1. Ponds with headwalls and end walls that are exposed to view shall be treated with real or synthetic stone to resemble stone walls. All stone shall extend to or below the grade of earth so that any exposure due to low water conditions only has exposed stone, not concrete. Additionally, all ponds shall have a fountain or fountains depending on the size of each and what is reasonably necessary. Fountains shall have a spray pattern of 10' height minimum.

F. Minimum overall tract size for a PRD is 20 acres, unless adjacent to a neighborhood of comparable density or design, in which case the Zoning Commission may permit the tract size to be reduced to 10 acres;

Response: No divergence. Applicant meets and exceeds the 20-acre minimum for a PRD, as this development consists of ±278.81 gross acres.

G. Improvements within the PRD shall conform to the subdivision standards for Delaware County Ohio;

Response: No divergence. Applicant's design will conform to county's subdivision standards, unless otherwise specified in this application or otherwise approved by Delaware County.

H. Wetlands, steep (over 20%) slopes, forests, 100 year floodplains, ravines and noted wildlife habitat are to be preserved to the greatest extent possible;

Response: No divergence.

I. The permitted density shall not be exceeded.

Response: No divergence. The Longhill PRD zoning permits 482 lots, while this amended PRD provides for 434 lots.

J. The required percent of open space shall be provided. The percent of open space required varies according to the zoning district overlaid;

1. FR-1: 40% (of gross tract area) open space

2. R-2, R-3 and R-4: 20% (of gross tract area) open space

In calculating open space, the areas of fee simple lots conveyed to homeowners shall not be included. Unbuildable areas, (defined as jurisdictional wetlands, floodplains, slopes greater than 20%, utility rights-of-way and existing bodies of water) may count for up to 50% of the required open space. That portion of land dedicated to public purpose that remains either open and unbuilt upon by any structure (including parking) or which houses a recreational facility approved by the Zoning Commission on the Development Plan may count toward the open space requirement.

Response: No divergence. Applicant meets and exceeds this requirement by proposing 109.4+/- acres of open space, which amounts to approximately 39.2% of the gross tract area.

L. No residential dwelling structures shall be constructed within the 100-year floodplain of any stream or river.

Response: No divergence.

M. In FR-1 zones, water supply and sanitary sewage disposal shall be as approved by the Delaware County Board of Health and/or the Ohio EPA. Feasibility shall be indicated by the appropriate agency at the time of the preliminary plan. In the R-2, R-3 and/or R-4 zones, centralized water supply and sanitary sewage disposal systems shall be provided, subject to Delaware County Sanitary Engineer, Board of Health, and/or Ohio Environmental Protection Agency approval. Feasibility of water supply and wastewater disposal systems shall be indicated by the appropriate agencies at the time of the preliminary plan.

Response: No divergence. Applicant has obtained verifications that public water supply and wastewater disposal systems are available with capacity to serve this project.

N. The project architect shall give due regard to the footprints, building orientation, massing, roof shape, pitch and exterior materials to blend with other traditional or historic architecture in the community or with the site. All residential roofs must be a minimum of 5:12 pitch, or as approved by plan. Permanently sited manufactured housing must have a minimum pitch of 3:12.

Response: No divergence. See Architectural Elevations in Exhibits K and L. The architectural characteristics to be constructed in this zoning district are to be reflective of said exhibits. These exhibits are intended to be used as a guide in terms of defining the styles and designs of homes. A number of home designs will be used to meet market demand and to provide diversity in terms of home sizes and exterior appearances and finishes, subject to the requirements of this text. The same home design shall not be constructed on lots that are adjacent to or directly across the street from one another

and one on either side of the house across the street. A lot shall be deemed to be directly across the street from any other lot that is located in whole or in part between two imaginary straight-line extensions of the side lot lines for the first lot which extend to the opposite site of the public right-of-way on which the first lot has frontage. Front loaded garages shall not extend greater than 4 feet from the primary front façade of a home or front porch. Garage doors shall correspond to the architectural style of the house.

For illustrative purposes only, the diversity standard laid out above shall be applied as:	**XXX** **XOX**

O. Residential lots shall be fenced for safety if they abut agriculture.

Response: No divergence.

P. Sidewalks or paths shall be provided. Sidewalks shall be separated from the paved street surface by at least five feet (5') of landscaped or grassed green strip. Deciduous, broad leaf street trees (i.e., maple, oak, sycamore, chestnut, and sweet gum) shall be planted (or saved) at the rate of one per 60 feet of frontage on both sides of the street. Trees must be at least a 2.5 inch caliper at planting. Trees may not be placed in the 5' green strip between the street and sidewalk. Trees shall be placed in the front lawn of the residences.

Response: No divergence.

Q. Setbacks, front, side and rear: as defined in the underlying zoning district.

Response:

R-3 District Requirements	*Applicant's Proposal*
Building Setback: Per Section 24.05, as approved in the Development Plan.	*No divergence. The minimum building setback shall be 30 feet from the right-of-way line, provided that stoops, steps, and porches shall be permitted to encroach a maximum of five (5) feet within the front yard setback line.*
Side Yard Setback: 12.5 ft. minimum to any side lot line.	*A divergence is requested. Each lot will provide a minimum of 12.5 ft. side yard on each side of the lot and therefore meet the requirements of the Zoning Resolution, but Applicant requests a divergence to permit side yard encroachments such as eaves (up to 12"), overhangs (up to 12"), bay windows (up to 3'), egress wells (up to 3'), and fences (fences shall not be forward of the back rear corner of the house most closely to the right-of-way). Air conditioning units shall only be permitted to be located along the rear façade of each home. For purposes of clarity, notwithstanding anything in this provision to the contrary, in no event shall there be less than 9.5' between the side lot line and any encroachment.*
Rear Yard Setback: 25 ft. minimum for principal buildings.	*No divergence, provided that patios shall be permitted to encroach a maximum of 10 feet into the required rear yard setbacks.*

R. Minimum lot size: as defined in the underlying zoning district.

Response:

R-3 District Requirements	*Applicant's Proposal*
10,890 square feet	*No divergence. Each lot within Subarea A will have a minimum lot area of 11,250 square feet, and Subarea B will have a minimum lot area of 12,000 square feet..*

S. Minimum lot width: as defined in the underlying zoning district.

Response: A divergence is requested. R-3 zoning district, Section 9.06(B) of the Zoning Resolution calls for minimum continuous lot frontage of 80 feet. The Applicant requests that in Subarea A a minimum lot width of 80 feet will be permitted at the minimum building setback line for each lot, and in Subarea B a minimum lot width of 75 feet will be permitted at the minimum building setback line, both to accommodate various conditions for lots located within street curvatures. The divergence is reasonable and consistent with the spirit and intent of the zoning requirement.

T. Detached garages with one-hour fire rated construction may be constructed within ten (10) feet of the lot line provided the garage is located to the rear of the house, and that the garage does not abut an adjacent residence.

Response: No divergence.

U. Street layouts should relate to natural topography, and be designed to provide open space views to as many homes as possible.

Response: No divergence. Street layouts relate to natural topography and seek to maximize open space views to as many homes as possible.

V. Attached garages shall be setback at least 12 feet from the front building line of the house, if on street parking is not provided.

Response: No divergence. On-street parking is being provided. Two or three attached car garages will be provided for each lot within the development. All lots within Subarea A will include side-loaded garages (which is 165 lots or over 38% of the total lots in the subdivision). Side-loaded garages shall be permitted but not required in Subarea B.

W. Porches: A covered porch or portico across some portion of the front of the house is a recommended structural design element.

Response: No divergence.

X. Street lighting, if provided, must be of white light, with light standards of traditional or Victorian design (no modern gooseneck lamps or yellow lighting). Maximum height of standards is 16 feet.

Response: No divergence.

Y. Building Height Limits: No buildings in this district shall exceed thirty-five (35) feet in height measured from the elevation of the threshold plate at the front door to the highest point of the roof. Chimneys, barns, silos, grain handling conveyors, church spires, domes, flag poles, and elevator shafts are exempted from the height regulation and may be erected to any safe height, not to exceed one-hundred (100) feet in height. No windmills, antennas, or towers shall be constructed to a height greater than the distance from the center of the base thereof to the nearest property line of said tract and not to exceed one hundred (100) feet in height.

Response: No divergence. Applicant's proposal meets the building height limits.

Z. Building Dimensions: (Floor space requirements): Each detached single family dwelling hereafter erected in this district shall have a living area not less than one-thousand (1000) square feet or eight-hundred (800) square feet of ground floor living area, if the residence is multi-story. All such living areas shall be exclusive of basements, porches, or garages.

All attached single-family structures constructed within this district shall contain the following minimum living area:

1. One (1) bedroom unit: 800 square feet

2. Two (2) bedroom unit: 900 square feet

3. Three or more bedroom units: 1000 square feet

Response: No divergence. Applicant's proposal meets these requirements.

AA) Landscaping: All yards, front, side and rear, shall be landscaped, and all organized open spaces or non-residential use areas shall be landscaped and shall meet the requirements of Article 26, unless a

variation from these standards is specifically approved as part of the final development plan. A landscape plan showing the caliper, height, numbers, name, and placement of all material, prepared by a licensed landscape architect shall be approved as a part of the final development plan.

Response: Landscaping to be provided in accordance with approved final development plans. Individual lots shall include landscaping in the front, rear, and side yards, with the selection of plantings to be determined by individual home buyers.

BB.) Parking: Off-street parking shall be provided, at the time of construction of the main structure or building, with adequate provisions for ingress and egress according to the development plan. In preparing and approving the parking plan, the provisions of Article 24 of this Resolution, when appropriate, shall be incorporated.

Response: Off-street parking will be provided in garages. In addition, each home shall provide for a minimum of 2 automobiles to park on the driveway.

CC.) Signs: Except as provided under the provisions of this Article for home occupations or as controlled by Article 25 (Signs) of this Resolution and except as permitted by the Board of Zoning Appeals incidental to Conditional Uses, no signs shall be permitted in this district except a "For Sale" or "For Rent or Lease" sign advertising the tract on which the said sign is located. Such sign shall not exceed six (6) square feet in area on each side.

Response: A divergence is requested. Applicant requests a divergence to permit all signage as shown and detailed in accompanying exhibit.

DD.) The owner or developer of a subdivision or similar area, upon the conditions and for the time period established by the Zoning Commission, may erect one (1) sign not exceeding thirty-two (32) square feet in area per side advertising said subdivision, development or tract for sale.

Response: Applicant will erect such sign in accordance with the conditions and for the time period established by the Zoning Commission.

EE.) Exterior Lighting: All exterior lighting shall meet the lighting requirements of Article 24 of this zoning resolution, unless a variation from these standards is specifically approved as part of the final development plan.

Response: A divergence is requested to accommodate development signs, which will provide down lighting directed toward the sign in a manner that does not interfere with driver visibility on adjacent streets.

FF.) Other required provisions as stated in this ordinance. The Berlin Township Zoning Commission and/or Board of Trustees may impose special additional conditions relating to the development with regard to type and extent of public improvements to be installed, landscaping, development, improvement and maintenance of common open space, and any other pertinent development characteristics.

Response: Delaware County plans to build a roundabout at the intersection of Berlin Station Road and Piatt Road and extend Piatt Road to the north. When requested by the County, the Developer will dedicate right-of-way for the required improvement.

In addition, clustered mailbox units shall be located in the major open space areas in 2-3 locations in the community so that all residents are not required to go to a single location to retrieve their mail and parking shall be available at each location. Access to all CBUs shall be constructed in compliance with ADA accessibility standards. All CBUs shall be maintained by the HOA and be plumb.

Miscellaneous Commitments:

1. Developer shall communicate and cooperate with Delaware County on pedestrian access to and from the subdivision and Berlin Station Road.

2. Buffering shall be installed pursuant to the Preliminary Landscape Plan submitted herewith and shall be supplemented as engineering requires.

3. North street stub will be constructed to the property line to County standards provided Delaware County supports such extension and construction.

4. “No mow” where used in this PRD shall mean mowing or bushhogging 1-4 times per year and the HOA spraying for weeds at the same frequency.

5. Paths located along Rolson Piatt Road and Berlin Station Road shall be 10’. All other paths shall be 8’.

6. HOA will be turned from the developer to the homeowners at no later than 85% of the homes in the subdivision being transferred to third party homeowners.

SACKETT FARM LLC
2826 CURVE RD
DELAWARE OH 43015

CONSOLIDATED ELECTRIC COOPERATIVE INC
5255 STATE ROUTE 95
MOUNT GILEAD OH 43338

SCHRAER SCOTT D & MARY B
1146 DALE FORD RD
DELAWARE OH 43015

SOF PROPERTIES LLC
3046 CURVE RD
DELAWARE OH 43015

SWINGLE BRENDA L TRUSTEE
1158 DALE FORD RD
DELAWARE OH 43015

TORRES DUSTIN & GRETCHEN
1164 DALE FORD RD
DELAWARE OH 43015

CLARK ASHLEY C & ANDREW C
1176 DALE FORD RD
DELAWARE OH 43015

MCMASTER JUSTIN M
3046 CURVE RD
DELAWARE OH 43015

FINCON BERLIN LTD
203 OLENTANGY CROSSING
DELAWARE OH 43015

LANE JOHN DANIEL & JENNIFER A
12755 E STATE ROUTE 37
SUNBURY OH 43074

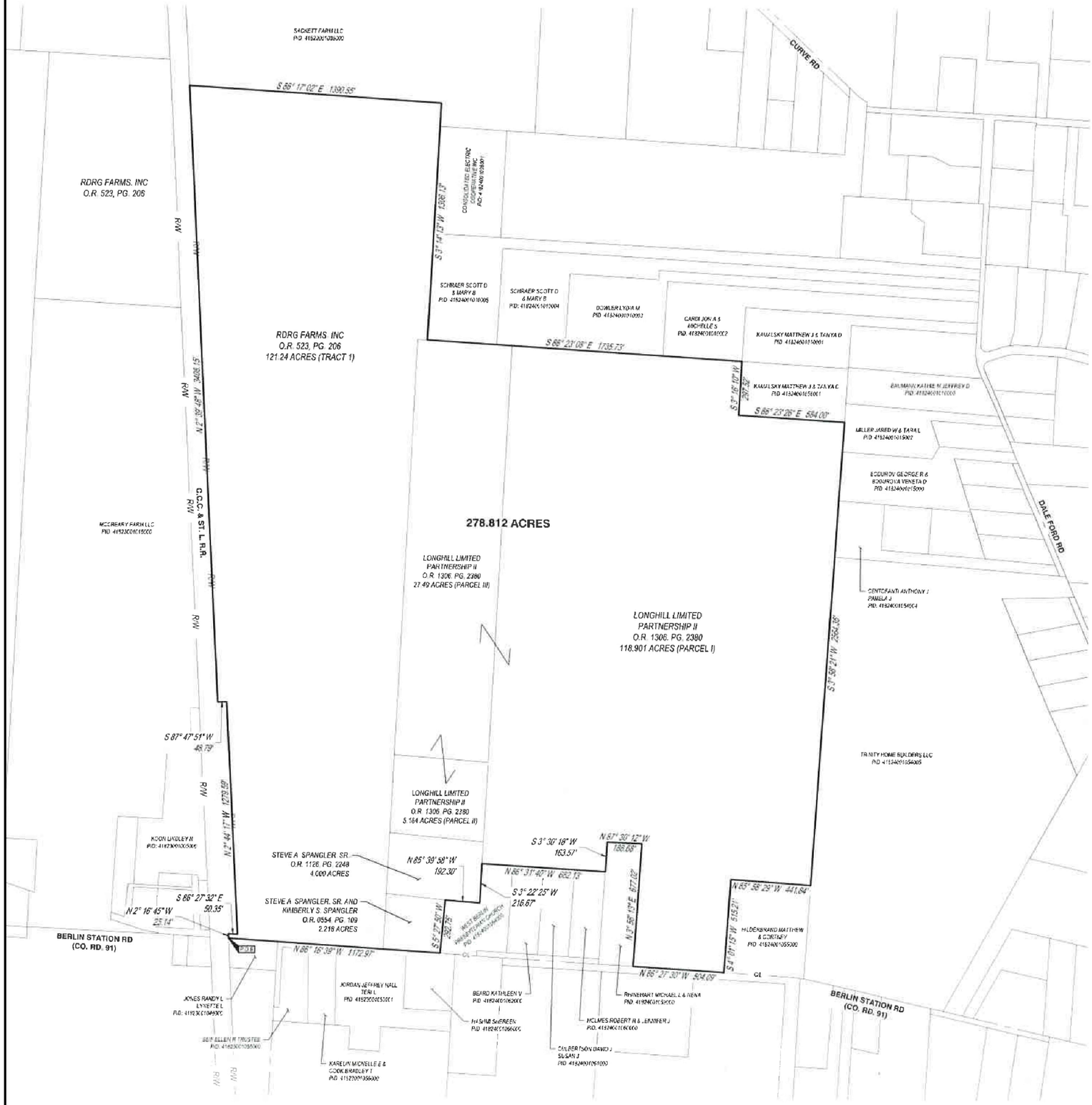
BERLIN FARM HOMEOWNERS ASSOCIATION
PO BOX 395
GROVE CITY OH 43123

LONGHILL LMTD PARTNERSHIP II
4050 LYON DR
COLUMBUS OH 43220

BERLIN MANOR HOMEOWNERS ASSOCIATION
PO BOX 651
LEWIS CENTER OH 43035

ZONING EXHIBIT OF 278.812 ACRES

STATE OF OHIO, COUNTY OF DELAWARE, TOWNSHIP OF BERLIN,
FARM LOT 13 & 15, RANGE 18, TOWNSHIP 4, SECTION 2,
UNITED STATES MILITARY LANDS



THIS EXHIBIT WAS PREPARED FROM EXISTING RECORDS AND IS FOR ZONING PURPOSES ONLY.

STATE OF OHIO
JEFFREY A. MILLER
7211
REGISTERED PROFESSIONAL SURVEYOR

2-20-19

JEFFREY A. MILLER
OHIO P.S. #7211

DATE

PLAN HAS BEEN MODIFIED BY EMH&T
FEBRUARY 14, 2022

BERLIN STATION

ZONING EXHIBIT

BERLIN STATION ROAD
TOWNSHIP OF BERLIN — DELAWARE COUNTY, OH

SCALE: 1"=300'	DATE: FEBRUARY 2019
DESIGN: N/A	JOB NO: 755988
DRAWN: ALB	SHEET NO: 1 OF 1
CHECKED JAM	

CESO
WWW.CESOINC.COM

REVISIONS

MARK	DATE	DESCRIPTION

Date: February 26, 2019
Job No. 18096

BERLIN TOWNSHIP, OHIO
PRELIMINARY DEVELOPMENT PLAN
FOR
BERLIN FARM WEST

BOUNDARY MAP

EDGE
PLANNING • LANDSCAPE ARCHITECTURE • URBAN DESIGN
330 WEST SPRING STREET, SUITE 350
COLUMBUS, OHIO 43215
614-486-3343

SHEET
EXHIBIT
A-1

ZONING DESCRIPTION
278.812 Acres

Situated in the State of Ohio, County of Delaware, Township of Berlin, Farm lots 13 and 15, Range 18, Township 4, Section 2, United States Military Lands, and being all out of that 118.901 acre, 27.49 acre and 5.164 acre tracts as conveyed to Longhill Limited Partnership II, of record in Official Record 1306, page 2380, a 121.24 acre tract as conveyed to RDRG Farms, Inc. of record in Official Record 523 page 206, a 4.000 acre tract (tract 1) as conveyed to Steve A. Spangler SR. of record in Official Record 1126 page, 2248, and 2.218 acres as conveyed to Steve A. Spangler and Kimberly S. Spangler of record in Official Record 554, page 109, all deed references refer to the records of the Recorder's Office Delaware County and described as follows:

Beginning at the intersection of the center line of Berlin Station Road with the Easterly Right of Way line of the existing Railroad and the southwesterly corner of the above referenced parcels;

Thence with the perimeter of the above reference parcels the following courses:

North 02°16'45" West a distance of 25.14 feet to a corner thereof;

South 86°27'32" East a distance of 50.35 feet to a corner thereof;

North 02°44'17" West a distance of 1,279.59 feet to a corner thereof;

South 87°47'51" West a distance of 48.79 feet to a corner thereof;

North 02°39'48" West a distance of 3,408.15 feet to a corner thereof;

South 86°17'02" East a distance of 1,390.55 feet to a corner thereof;

South 03°14'13" West a distance of 1,306.13 feet to a corner thereof;

South 86°23'08" East a distance of 1,735.73 feet to a corner thereof;

South 03°16'10" West a distance of 297.52 feet to a corner thereof;

South 86°23'26" East a distance of 584.00 feet to a corner thereof;

South 03°58'21" West a distance of 2,564.35 feet to a corner thereof;

North 85°58'29" West a distance of 441.84 feet to a corner thereof;

South 04°01'15" West a distance of 515.21 feet to a corner thereof in said center line;

North 86°27'30" West with said center line a distance of 504.09 feet to a corner thereof;

North 03°58'13" East a distance of 677.02 feet to a corner thereof;

North 87°30'12" West a distance of 188.68 feet; to a corner thereof;

South 03°30'18" West a distance of 163.57 feet; to a corner thereof;

North 86°31'40" West a distance of 682.13 feet to a corner thereof;

South 03°22'25" West a distance of 216.67 feet to a corner thereof;

North 85°39'58" West a distance of 192.30 feet to a corner thereof;

South 05°27'50" West a distance of 292.75 feet to a corner thereof in said centerline;

North 86°16'39" West with said center line a distance of 1,172.97 feet to the TRUE PLACE OF BEGINNING and containing 278.812 acres, more or less.

This description was prepared from existing records and is for zoning purposes only.

CESO, Inc.

2-20-19

Jeffrey A. Miller, PS
Registered Surveyor No. 7211

STATE OF OHIO
JEFFREY A. MILLER
7211
REGISTERED
PROFESSIONAL SURVEYOR

CESO

755908-SURV-278.812 acres Zoning desc.docx
11/9/2018

PLAN HAS BEEN MODIFIED BY EMH&T
FEBRUARY 14, 2022

Date February 26, 2019
Job No. 18096

BERLIN TOWNSHIP, OHIO
PRELIMINARY DEVELOPMENT PLAN
FOR
BERLIN FARM WEST

LEGAL DESCRIPTION

EDGE
PLANNING • LANDSCAPE ARCHITECTURE • URBAN DESIGN
330 WEST SPRING STREET, SUITE 350
COLUMBUS, OHIO 43215
614-486-3343

REVISIONS

MARK	DATE	DESCRIPTION

SHEET
EXHIBIT
A-2

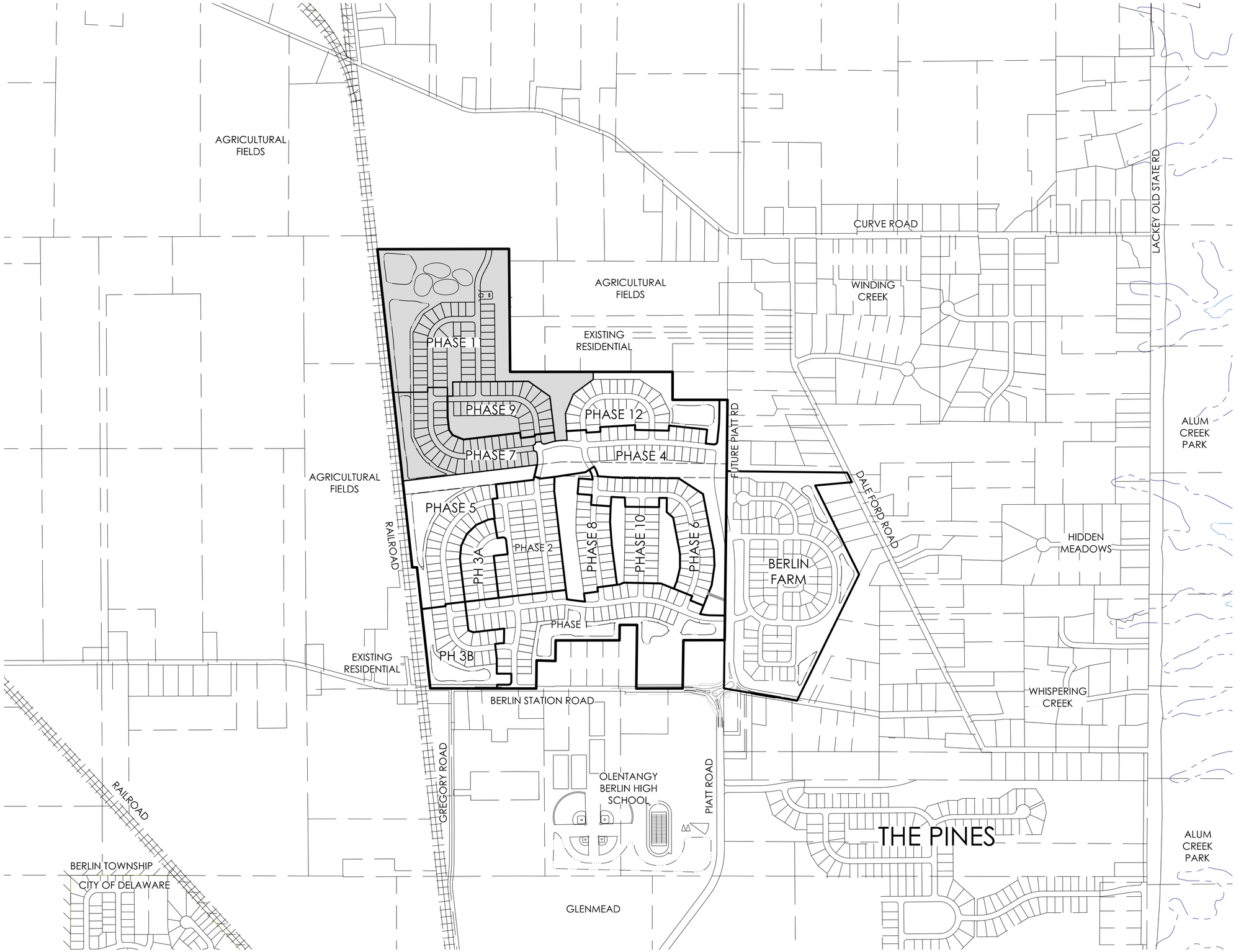


EXHIBIT "B-1"

DATE: JUNE 17, 2025
REVISED:
REVISED:
REVISED:
REVISED:
REVISED:
REVISED:

PREPARED BY:
EMHT
Evans, Mechwart, Hambleton & Tilton, Inc.
Engineers • Surveyors • Planners • Scientists
5500 New Albany Road, Columbus, OH 43054
Phone 614.775.4500 Fax Phone 866.775.5646
emht.com

PREPARED FOR:
M/I HOMES
mihomes.com
4131 WORTH AVENUE, SUITE 310
COLUMBUS, OHIO 43219

REGIONAL CONTEXT MAP

FINAL DEVELOPMENT PLAN
BERLIN FARMS WEST
PHASE SECTION 7, 9 & 11
BERLIN TOWNSHIP, DELAWARE COUNTY, OHIO

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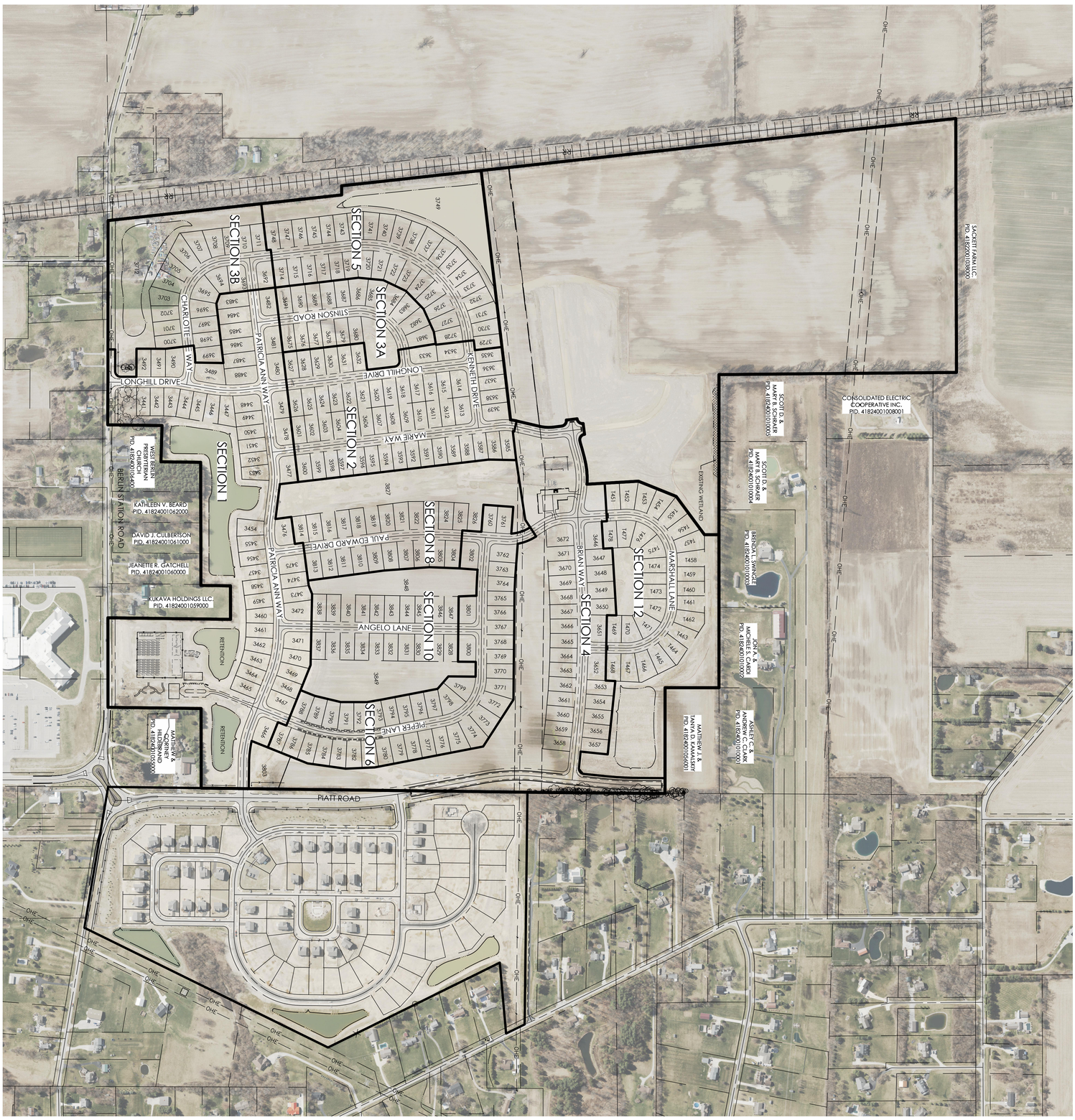

EXHIBIT "C-1"

GRAPHIC SCALE
0 150 300 600
1 inch = 300 feet

FINAL DEVELOPMENT PLAN

BERLIN FARMS WEST
PHASE SECTION 7, 9 & 11

BERLIN TOWNSHIP, DELAWARE COUNTY, OHIO

EXISTING CONDITIONS PLAN

PREPARED FOR:

M/I HOMES
mihomes.com
4131 WORTH AVENUE, SUITE 310
COLUMBUS, OHIO 43219

PREPARED BY:

EMH&T
Evans, Mechwart, Hambleton & Tilton, Inc.
Engineers • Surveyors • Planners • Scientists
5500 New Albany Road, Columbus, OH 43054
Phone: 614.775.4500 Toll Free: 888.775.3648
emht.com

DATE:	JUNE 17, 2025
REVISED:	
REVISED:	
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REVISED:	

EXHIBIT "D-1"

GRAPHIC SCALE
0 125 250 500
1 inch = 250' feet

FINAL DEVELOPMENT PLAN

BERLIN FARMS WEST
PHASE SECTION 7, 9 & 11

BERLIN TOWNSHIP, DELAWARE COUNTY, OHIO

ILLUSTRATIVE SITE PLAN

PREPARED FOR:
M/I HOMES
mihomes.com
4131 WORTH AVENUE, SUITE 310
COLUMBUS, OHIO 43219

PREPARED BY:
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Evans, Mechwart, Hambleton & Tilton, Inc.
Engineers • Surveyors • Planners • Scientists
5500 New Albany Road, Columbus, OH 43054
Phone: 614.775.4500 Toll Free: 888.775.3648
emht.com

DATE:	JUNE 17, 2025
REVISED:	
REVISED:	
REVISED:	
REVISED:	
REVISED:	

SACKETT FARM LLC.
PID. 41822001038000

CONSOLIDATED ELECTRIC COOPERATIVE INC.
PID. 41824001008001

SCOTT D. & MARY B. SCHRAER
PID. 41824001010005

SCOTT D. & MARY B. SCHRAER
PID. 41824001010004

BRENDA L. SWINGLE
PID. 41824001010003

JON A. & MICHELE S. CARDI
PID. 41824001010002

ASHLEY C. & ANDREW C. CLARK
PID. 41824001010001

MATTHEW J. & TANYA D. KAMALSKIY
PID. 41824001056001

DALEFORD ROAD

RESERVE "N"
±20.32 ACRES

RESERVE "O"
±11.93 ACRES

RESERVE "K"
±5.37 ACRES

RESERVE "L"
±4.00 ACRES

RES. "M"
±1.81 AC

RESERVE "P"

RESERVE "F"

RESERVE "E"

RESERVE "J"

SUBAREA "A"

SUBAREA "B"

BERLIN WAY

BRIAN WAY

PARCOT DRIVE

MARSHALL LANE

KENNETH DRIVE

LONGHILL DRIVE

STINSON ROAD

MARIE WAY

PAUL EDWARD DRIVE

ANGELO LANE

PIEPER LANE

PATRICIA ANN WAY

CHARLOTTE WAY

FUTURE PIATT ROAD

PIATT ROAD

BERLIN STATION ROAD

RETENTION

SECTION 1

SECTION 2

SECTION 3A

SECTION 3B

SECTION 4

SECTION 5

SECTION 6

SECTION 7

SECTION 8

SECTION 9

SECTION 10

SECTION 11

SECTION 12

WEST BERLIN PRESBYTERIAN CHURCH
PID. 41824001064000

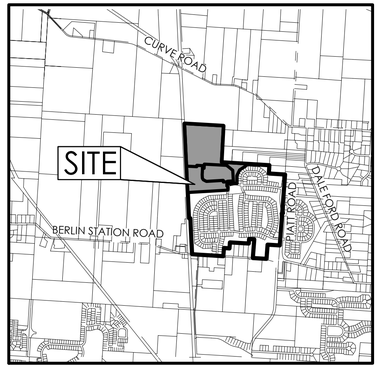
KATHLEEN V. BEARD
PID. 41824001062000

DAVID J. CULBERTSON
PID. 41824001061000

JEANETTE R. GATCHELL
PID. 41824001060000

KUKAVA HOLDINGS LLC.
PID. 41824001059000

MATTHEW & CORTNEY HILDEBRAND
PID. 41824001055000



LOCATION MAP

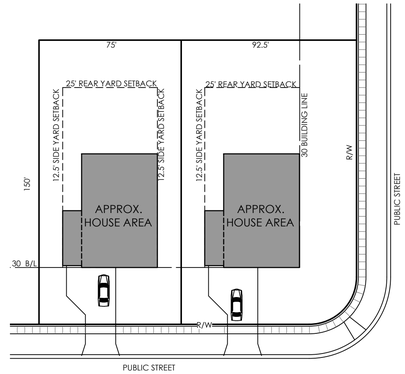
SITE STATISTICS:

TOTAL ACREAGE:	±83.58 ACRES
EXISTING ZONING:	R-3 PRD
TOTAL NUMBER OF LOTS:	113 LOTS
SECTION 7:	41 LOTS
SECTION 9:	28 LOTS
SECTION 11:	44 LOTS
OPEN SPACE:	±43.43 ACRES
SECTION 7:	±5.37 ACRES
SECTION 9:	±4.00 ACRES
SECTION 11:	±34.06 ACRES

DESIGN STANDARDS:

SUBAREA "B"; WINDROW (LOTS T294 - T334 & T379 - T450)

MINIMUM LOT FRONTAGE (BUILDING LINE):	75 FEET
MINIMUM LOT AREA:	11,250 SQUARE FEET
MINIMUM FRONT YARD SETBACK:	30 FEET (BUILDING LINE)
MINIMUM SIDE YARD SETBACK:	12.5 FEET (TOTAL 25 FEET)
MINIMUM REAR YARD SETBACK:	25 FEET
MAXIMUM BUILDING HEIGHT:	35 FEET



WINDROW
SUB-AREA "B"
(75' X ±150')

NOT TO SCALE

GRAPHIC SCALE

0 125' 250' 500'

1 inch = 250' feet

EXHIBIT "E-1"

JUNE 17, 2025

DATE:
REVISED:
REVISED:
REVISED:
REVISED:
REVISED:
REVISED:

PREPARED BY:

EMHT
Evans, Mechwart, Hambleton & Tilton, Inc.
Engineers • Surveyors • Planners • Scientists
5500 New Albany Road, Columbus, OH 43054
Phone: 614.775.4500 Fax: 614.775.4800
emht.com

PREPARED FOR:

M/I HOMES
mihomes.com
4131 WORTH AVENUE, SUITE 310
COLUMBUS, OHIO 43219

FINAL DEVELOPMENT PLAN

BERLIN FARMS WEST
PHASE SECTION 7, 9 & 11

BERLIN TOWNSHIP, DELAWARE COUNTY, OHIO

OVERALL SITE PLAN

J:\2024\0318\Dwg\04Sheets\FDP\E-1 Overall Site Plan.dwg, Last Saved By: sahara, 6/12/2025 4:13 PM

PHASE 11

PHASE 9

PHASE 7

PHASE 5

PHASE 12

PHASE 4

RESERVE "N"
±20.32 ACRES

RESERVE "M"
±1.81 ACRES

RESERVE "O"
±11.93 ACRES

RESERVE "L"
±4.00 ACRES

RESERVE "K"
±5.37 ACRES

BRIAN WAY

BERLIN WAY

PARCOTT DRIVE

MARSHALL LANE

KENNETH DRIVE

PAUL EDWARD DRIVE

8' WIDE ASPHALT PATH

RETENTION

RAIL ROAD

30' BUILDING LINE

SCOTT D. SCHRAER AND
MARY B. SCHRAER
8.834 AC. (DEED)
O.R. 1407, P. 2650

SCOTT D. &
MARY B. SCHRAER
PID. 41824001010004

BRENDA L. SWINGLE
PID. 41824001010003

M/I HOMES OF CENTRAL
OHIO, LLC
40.039 AC. (DEED)
O.R. 2038 P. 2620

BERLIN FARM WEST
SECTION 4
O.R. 2121, P. 2434

S86°25'18"E 883.03'

S86°42'19"W 1437.87'

N02°40'50"W 948.27'

S03°34'42"W 80.00'

S57°07'17"W 262.50'

S25°32'44"W 224.69'

S00°11'22"W 284.21'

S03°17'41"E 60.00'

S77°40'53"W 55.10'
Δ=4°50'07"
R=220.00'
Arc=18.57'
ChB=S80°05'57"W
ChD=18.56'

Δ=94°11'19"
R=30.00'
Arc=49.32'
ChB=N50°23'20"W
ChD=43.95'

Δ=18°26'12"
R=530.00'
Arc=170.54'
ChB=S86°53'59"W
ChD=169.81'

S03°17'41"E 44.70'

Δ=20°00'56"
R=220.00'
Arc=76.85'
ChB=S06°42'43"W
ChD=76.46'

Δ=90°00'00"
R=30.00'
Arc=47.12'
ChB=S48°17'41"E
ChD=42.43'

Δ=90°00'00"
R=30.00'
Arc=47.12'
ChB=S41°42'19"W
ChD=42.43'

S86°42'19"W
60.00'

GRAPHIC SCALE
0 50 100 200
1 inch = 100 feet

EXHIBIT "E-2"

DATE: JUNE 17, 2025
REVISED:
REVISED:
REVISED:
REVISED:
REVISED:
REVISED:

PREPARED BY:
EMHT
Evans, Mechwart, Hambleton & Tilton, Inc.
Engineers • Surveyors • Planners • Scientists
5500 New Albany Road, Columbus, OH 43054
Phone: 614.775.4500 Fax: 614.775.4800
emht.com

PREPARED FOR:
M/I HOMES
mihomes.com
4131 WORTH AVENUE, SUITE 310
COLUMBUS, OHIO 43219

SITE PLAN
ENLARGEMENTS-1

FINAL DEVELOPMENT PLAN
BERLIN FARMS WEST
PHASE SECTION 7, 9 & 11
BERLIN TOWNSHIP, DELAWARE COUNTY, OHIO

J:\2024\0318\Dwg\04Sheets\FDP\E-2 Site Plan Enlargements-1.dwg, Last Saved By: sohara, 6/12/2025 9:32 AM

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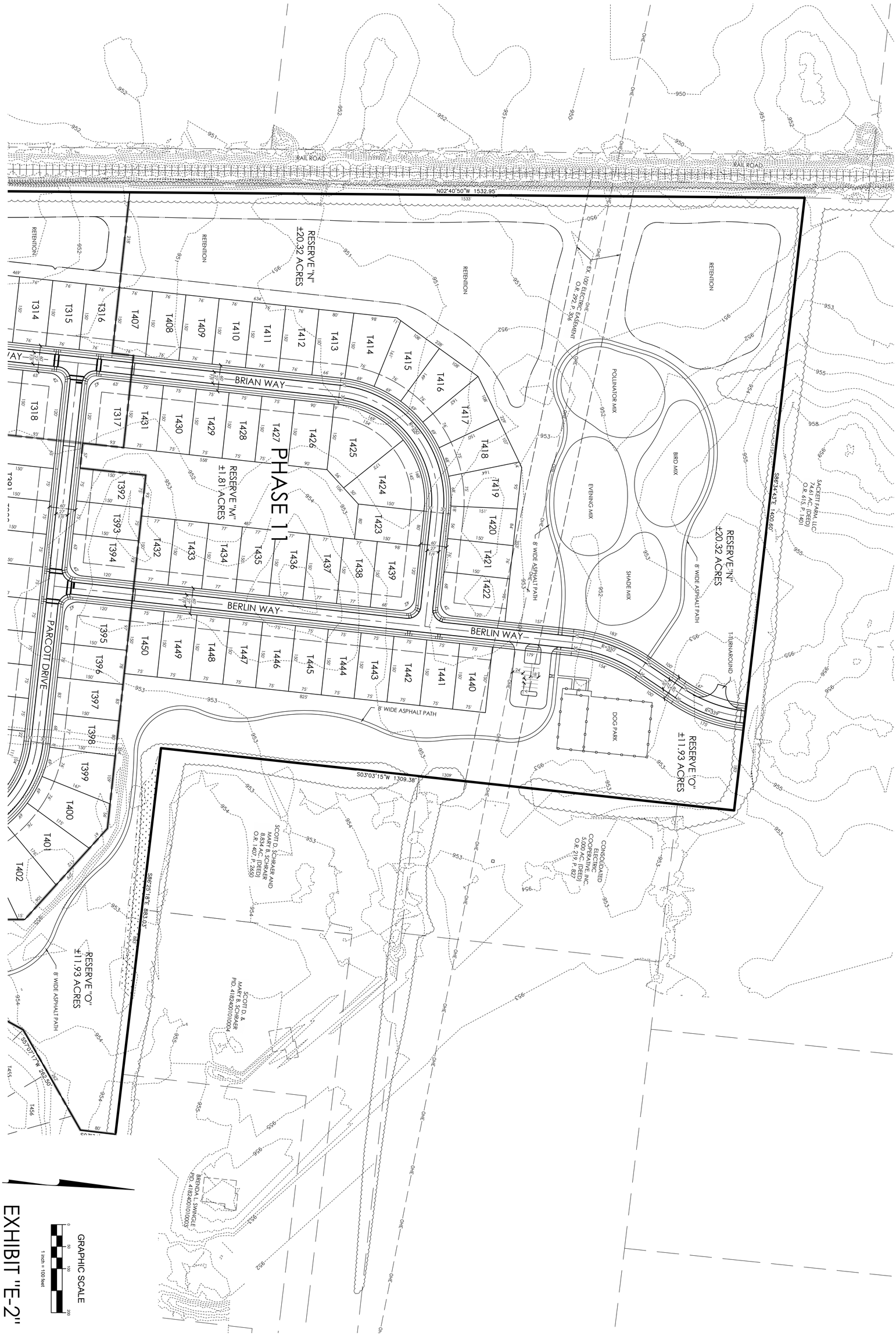

EXHIBIT "E-2"

GRAPHIC SCALE
0 50 100 200
1 inch = 100 feet

FINAL DEVELOPMENT PLAN

BERLIN FARMS WEST

PHASE SECTION 7, 9 & 11

BERLIN TOWNSHIP, DELAWARE COUNTY, OHIO

SITE PLAN ENLARGEMENTS-2

PREPARED FOR:

M/I HOMES
mihomes.com
4131 WORTH AVENUE, SUITE 310
COLUMBUS, OHIO 43219

PREPARED BY:

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emht.com

DATE:	JUNE 17, 2025
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REVISED:	

PHASE 11

PHASE 9

PHASE 7

PHASE 5

PHASE 12

PHASE 4

RESERVE "N"
±20.32 ACRES

RESERVE "M"
±1.81 ACRES

RESERVE "L"
±4.00 ACRES

RESERVE "K"
±5.37 ACRES

RESERVE "O"
±11.93 ACRES

BRIAN WAY

BERLIN WAY

PARCOTT DRIVE

MARSHALL

8' WIDE ASPHALT PATH

POOL

RETENTION

T292 T293 T294 T295 T296 T297 T298 T299 T300 T301 T302 T303 T304 T305 T306 T307 T308 T309 T310 T311 T312 T313 T314 T315 T316 T317 T318 T319 T320 T321 T322 T323 T324 T325 T326 T327 T328 T329 T330 T331 T332 T333 T334 T379 T380 T381 T382 T383 T384 T385 T386 T387 T388 T389 T390 T391 T392 T393 T394 T395 T396 T397 T398 T399 T400 T401 T402 T403 T404 T405 T406 T407 T408 T409 T410 T411 T412 T426 T427 T428 T429 T430 T431 T432 T433 T434 T435 T436 T437 T445 T446 T447 T448 T449 T450

LEGEND

Storm Sewer	Storm Manhole, Catch Basin, Curb Inlet
Sanitary Sewer	Sanitary Manhole
Water Line	Fire Hydrant
Ex. Storm Sewer	Ex. St
Ex. Sanitary Sewer	Ex. Sa
Ex. Water Line	Ex. WM

GRAPHIC SCALE
0 40' 80' 160'
1 inch = 80' feet

EXHIBIT "F-1"

DATE: JUNE 17, 2025
REVISED:
REVISED:
REVISED:
REVISED:
REVISED:
REVISED:

PREPARED BY:
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UTILITY PLAN-1

FINAL DEVELOPMENT PLAN
BERLIN FARMS WEST
PHASE SECTION 7, 9 & 11
BERLIN TOWNSHIP, DELAWARE COUNTY, OHIO

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LEGEND

- Storm Sewer — Storm Manhole, Catch Basin, Curb Inlet (St)
- Sanitary Sewer — Sanitary Manhole (Sa)
- Water Line — Fire Hydrant (WM)
- Ex. Storm Sewer (Ex. St)
- Ex. Sanitary Sewer (Ex. Sa)
- Ex. Water Line (Ex. WM)

RESERVE "N"
±20.32 ACRES

RESERVE "O"
±11.93 ACRES

RESERVE "M"
±1.81 ACRES

PHASE 11

BERLIN WAY

BRIAN WAY

PARCOTT DRIVE

T-TURNAROUND

RETENTION

BIRD MIX

POLLINATOR MIX

SHADE MIX

EVENING MIX

DOG PARK

8' WIDE ASPHALT PATH

EX. 100' ELECTRIC EASEMENT
O.R. 292, P. 306

T317 T318 T319 T320
T391 T390 T389 T388 T387 T386 T385 T384 T383 T382
T392 T393 T394 T395 T396 T397 T398 T399 T400 T401 T402 T403
T407 T408 T409 T410 T411 T412 T413 T414 T415 T416 T417 T418 T419 T420 T421 T422
T423 T424 T425 T426 T427 T428 T429 T430 T431
T432 T433 T434 T435 T436 T437 T438 T439
T440 T441 T442 T443 T444 T445 T446 T447 T448 T449 T450

GRAPHIC SCALE
0 40' 80' 160'
1 inch = 80' feet

EXHIBIT "F-1"

DATE:	JUNE 17, 2025
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REVISED:	
REVISED:	
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REVISED:	
REVISED:	

PREPARED BY:

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UTILITY PLAN-2

FINAL DEVELOPMENT PLAN
BERLIN FARMS WEST
PHASE SECTION 7, 9 & 11
BERLIN TOWNSHIP, DELAWARE COUNTY, OHIO

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Longhill
Traffic Impact Study

Prepared For:

Kimley-Horn & Associates, Inc.

Prepared By:

1900 Crown Park Court, Suite E
Columbus, OH 43235
(614) 914-5543

February 2019

REV. 2
11/2019

SSI Project #: 745301

Longhill
Traffic Impact Study

Prepared For:

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Telephone: (614) 914-5543
e-mail: tstanhope@smartservices-inc.com

Under the direction of:

Registered Engineer No. E-64507, Ohio

11-22-2019
Date

February 2019

REV. 2
11/2019

TABLE OF CONTENTS

BACKGROUND

Longhill Limited Partnership II is proposing to develop a site with approximately 482 single family lots. The site is located on the north side of Berlin Station Road between Gregory Road and the Proposed Piatt Road Extension. Figure 1 shows the location of the site. There are two accesses proposed on Berlin Station Road (the east access is emergency only) and two on the Piatt Road extension. Figure 2 shows the proposed site layout. The Delaware County Engineer's Office (DCEO) is the permitting agency for the accesses. Preliminary analysis indicates that the trips generated by the site will exceed the 100 peak hour trip threshold for a Traffic Impact Study (TIS) as identified in the DCEO's *TIS Standards*.

The trips generated by the site will exceed the 100-peak hour trip threshold for a Traffic Impact Study (TIS) as identified in the DCEO's *TIS Standards*. The Delaware County Engineer's Office (DCEO) is the reviewing agency for the traffic study. Smart Services, Inc. (SSI) has been retained by the developer to perform the TIS. A pre-meeting for the study was held October 30, 2018 at the Delaware County Engineers Office (DCEO). The scope of the TIS was discussed at this meeting and a memo of understanding (MOU) dated 2/19/2019 was submitted to the DCEO. The submitted MOU is in the Appendix.

Two previous versions of the traffic study dated 3/01/2019 and 10/9/2019 were submitted to the Delaware County Engineer's Office (DCEO). Comments were received from the DCEO in an emails dated 4/22/2019 and 11/04/2019. The comments are in the Appendix. This revision incorporates the DCEO comments.

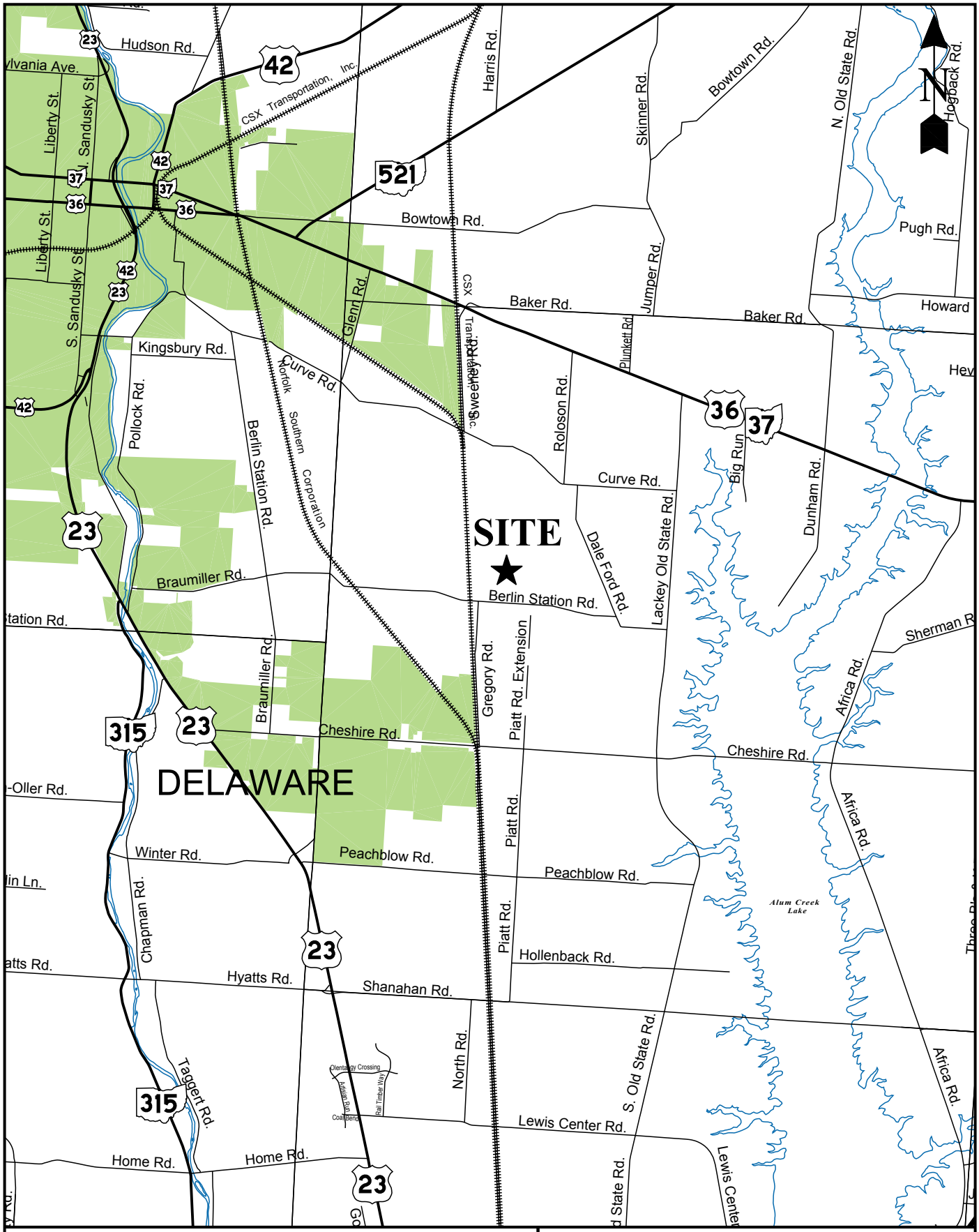
EXISTING CONDITIONS

The existing intersection at Berlin Station Road & Piatt Road is controlled by a "stop" sign on Piatt Road. This intersection is planned to be a single lane roundabout built by others and analyzed as such in this traffic study. The intersection of Berlin Station Road & Dale Ford Road is controlled by a "stop" sign on the Dale Ford Road north approach. Table 1 shows the speed limit and classification of each roadway in the study area.

Street	Speed Limit	Design Speed	Delaware County Thoroughfare Plan Classification
Berlin Station Road	45 MPH	45 MPH	Major Collector
Piatt Road (Extension)	45 MPH	45 MPH	Major Collector

TABLE 1 – Summary of Roadway Designations

There was no data collection as part of the project. 2019 and 2039 volume plates contained in the draft *Berlin Station Road Traffic Analysis* performed by Jobes Henderson are the basis of background traffic for the study.



LONGHILL
TRAFFIC IMPACT STUDY

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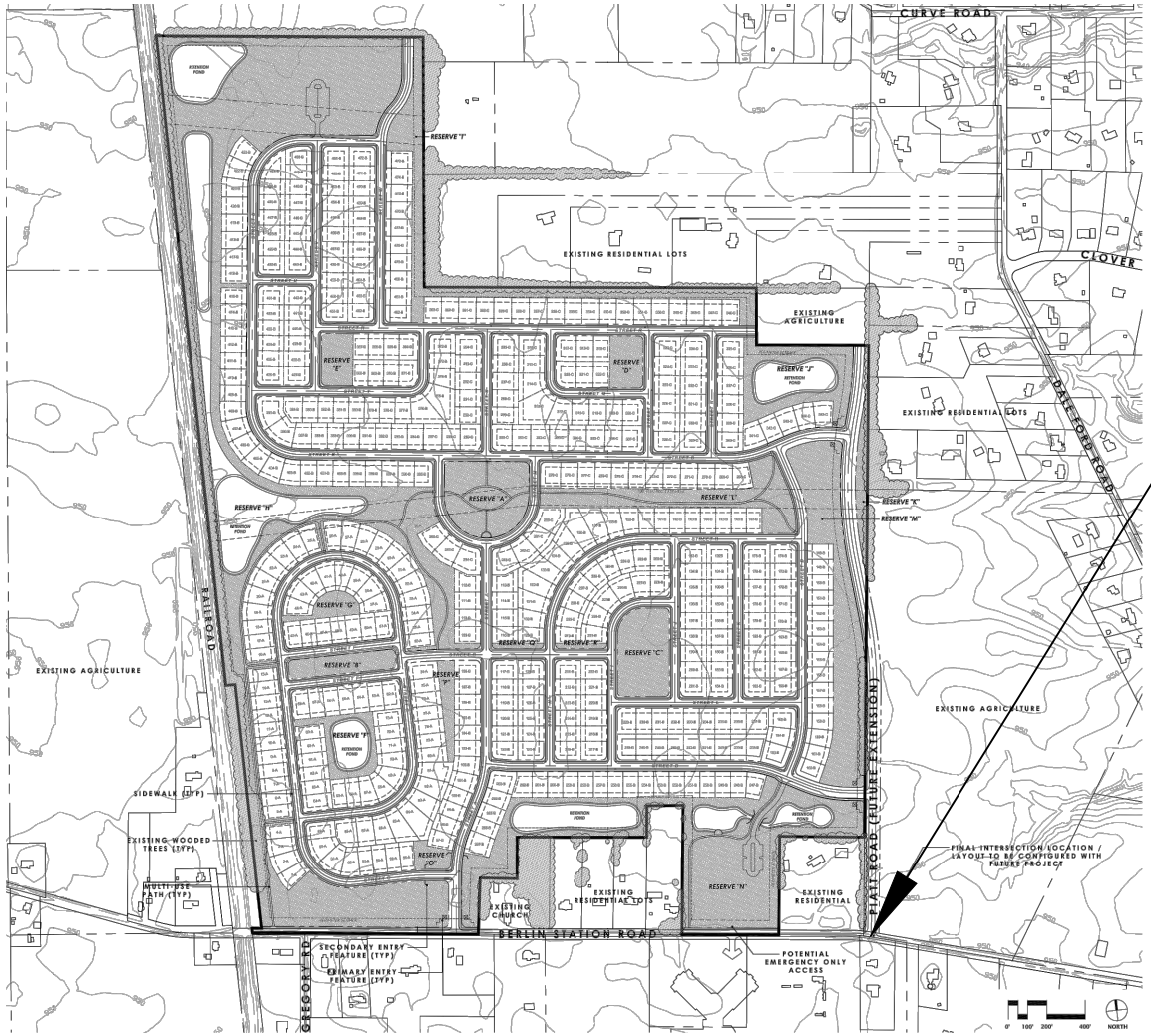
FIGURE 1

SITE LOCATION



The intersection of Berlin Station Road & Piatt Road is planned to be a single lane roundabout constructed by others.

0' 500' 1000' 2000'

SCALE

FIGURE 2

SITE LAYOUT

LONGHILL TRAFFIC IMPACT STUDY

REV. 1
10/2019

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SMART SERVICES, INC.

PROJECTED SITE TRAFFIC

Trip Generation

The site traffic was computed using *Trip Generation, 10th Edition*, published by the Institute of Transportation Engineers (ITE). The land use that represents the development on the site is "Single Family Detached Housing" (ITE Code #210). Table 2 shows a summary of the trip generation calculations.

Trip Distribution

The distribution of traffic was assumed to be the same as the 2039 PM Peak Background traffic coming toward the site (into the study area). Since the AM school peak coincides with the AM Street Peak, the distribution was based on the PM Peak so it would not be skewed by the school traffic. The resulting distribution is as follows (the volume basis is in parenthesis):

- 3% to/from the north on Dale Ford Road (23/898)
- 35% to/from the south on Dale Ford Road (316/898)
- 39% to/from the south on Piatt Road (352/898)
- 23% to/from the west on Berlin State Road (207/898)

Traffic Study Subarea	Land Use	Time of Day	Data Set from: *Trip Generation Manual, 10th Edition* (Unless noted Otherwise)	Regression Equation from: *Trip Generation Manual 10th Edition*	Total Trips	Total Primary Trips	Entering		Exiting	
							%	Total Trips	%	Total Trips
2	Single-Family Detached Housing (ITE Code #210) Ind. Variable (X) = 116 Dwelling Units	Daily	Weekday	ln(T)=0.92ln(X)+2.71	1192	1192	50%	596	50%	596
		AM Peak	Peak Hour of Adj. Street Traffic, One Hour between 7 & 9 AM	T=0.71(X)+4.80	87	87	25%	22	75%	65
		PM Peak	Peak Hour of Adj. Street Traffic, One Hour between 4 & 6 PM	ln(T)=0.96ln(X)+0.20	117	117	63%	74	37%	43
TOTALS		**Daily**			**1192**	**1192**		**596**		**596**
		AM Peak			**87**	**87**		**22**		**65**
		PM Peak			**117**	**117**		**74**		**43**

Longhill Traffic Impact Study - 2/2019

TABLE 3 - TRINITY HOME BUILDERS SITE TRIP GENERATION SUMMARY

2019 & 2039 TRAFFIC

Background Growth

The results of the trip generation calculations indicate that the site will generate just over 400 trip ends. The *TIS Standards* require a 20-year design horizon for trip ends greater than 400. Opening day will be 2019, therefore the design year will be 2039. 2019 and 2039 volume plates contained in the draft *Berlin Station Road Traffic Analysis* performed by Jobes Henderson are the basis of background traffic for the study. It is noted that the Jobes Henderson Study did not have PM Peak 'Build' plates. Presumably this is because in the afternoon the school peak occurs before the street peak. Therefore, the background traffic for this study is the AM Peak 'Build' and PM Peak 'No Build' of the *Berlin Station Road Traffic Analysis*. **At DCEO's direction, the 2039 volumes on the east leg of Berlin Station Road at Piatt Road were balanced with the volumes on the west leg of the intersection of Berlin Station Road at Dale Ford Road by reducing proportionally the volumes at Piatt Road.** There is still an imbalance to the east (volumes at Greogry lower) but there is a school access between. Therefore, no further adjustment was made since the higher volumes would be conservative and would not affect the results of the roundabout capacity analysis.

Trinity Home Builders, LLC (2039 Additional Background)

Traffic from the undeveloped 62.662-acre site to the east owned by Trinity Home Builders was estimated in the study. The property information from the Delaware County GIS is in the Appendix.

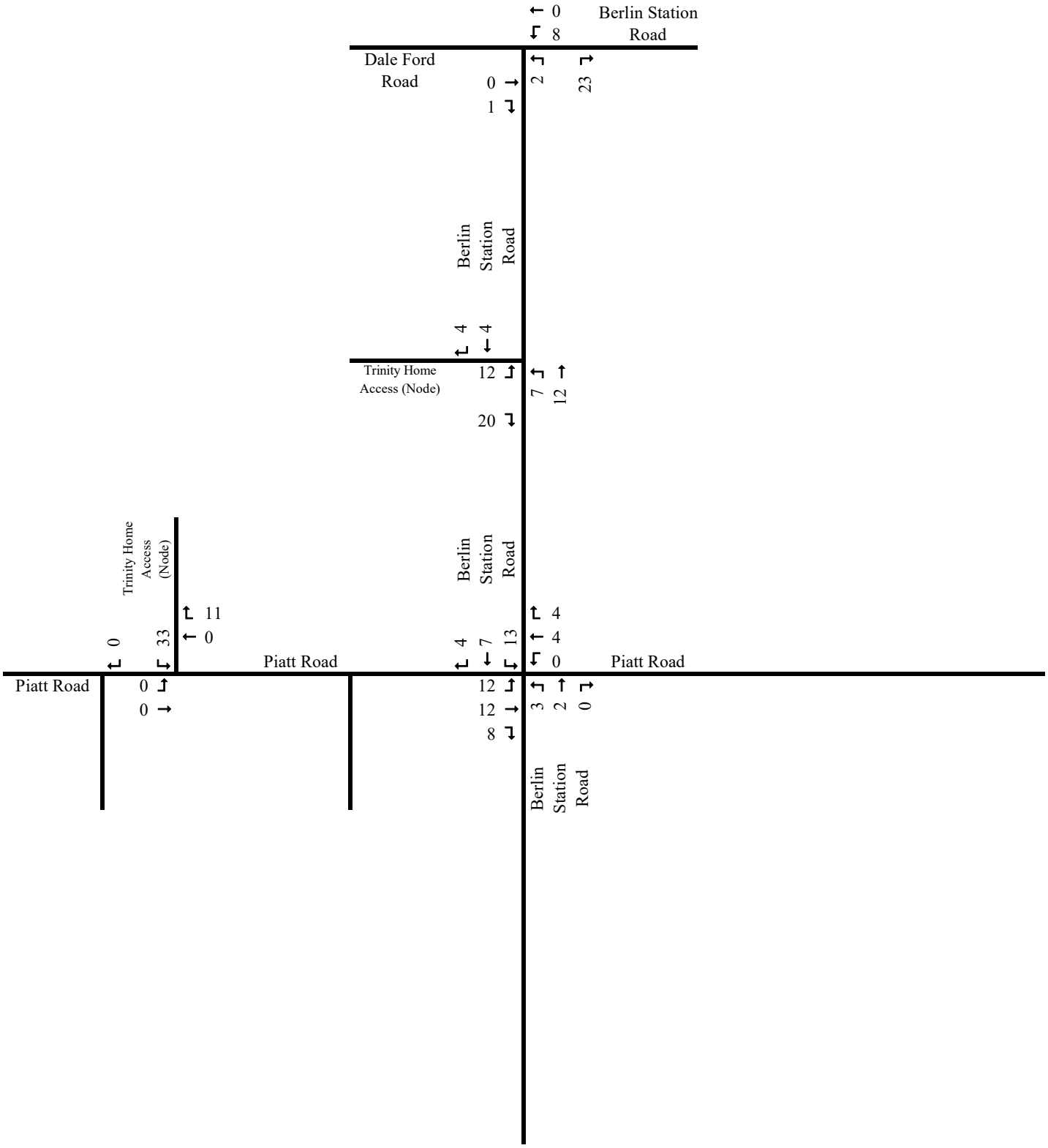
Per the MOU, the estimation was to assume the same density as the development site. Since the proposed density was 1.85 dwelling units per acre, the Trinity Home Builders site is expected to have 116 units. *Trip Generation, 10th Edition* was used to estimate the traffic generated by the Trinity Homes site. The land use that represents the Trinity Homes site is "Single Family Detached Housing" (ITE Code #210). Table 3 shows the trip generation. The traffic was applied to the network with the same distribution as the development site. Figure 3 and 4 show the AM and PM Peak traffic from the Trinity Home Builders site applied to the street network.

Traffic Exhibits

Figures 5 and 6 show the components of the 2019 traffic. Figures 7 and 8 show the components of the 2039 traffic. Figure 9 shows the daily site traffic generated at each access. To assist with the review, exhibits showing the 2019 and 2039 'No Build' volumes have been provided in the Appendix.

Traffic Study Subarea	Land Use	Time of Day	Data Set from: *Trip Generation Manual, 10th Edition* (Unless noted Otherwise)	Overide with Average	Regression Equation from: *Trip Generation Manual 10th Edition*	Total Trips	Entering		Exiting	
							%	Total Trips	%	Total Trips
1	Single-Family Detached Housing (ITE Code #210)	Daily	Weekday	☐	ln(T)=0.92ln(X)+2.71	4419	50%	2210	50%	2209
		AM Peak	Peak Hour of Adj. Street Traffic, One Hour between 7 & 9 AM	☐	T=0.71(X)+4.80	347	25%	87	75%	260
	Ind. Variable (X) = 482 Dwelling Units	PM Peak	Peak Hour of Adj. Street Traffic, One Hour between 4 & 6 PM	☐	ln(T)=0.96ln(X)+0.20	460	63%	290	37%	170
TOTALS		**Daily**		☐		**4419**		**2210**		**2209**
		AM Peak				**347**		**87**		**260**
		PM Peak				**460**		**290**		**170**

TABLE 2 - SITE TRIP GENERATION SUMMARY



LONGHILL
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FIGURE 3
TRINITY HOME BUILDERS SITE TRAFFIC - AM PEAK

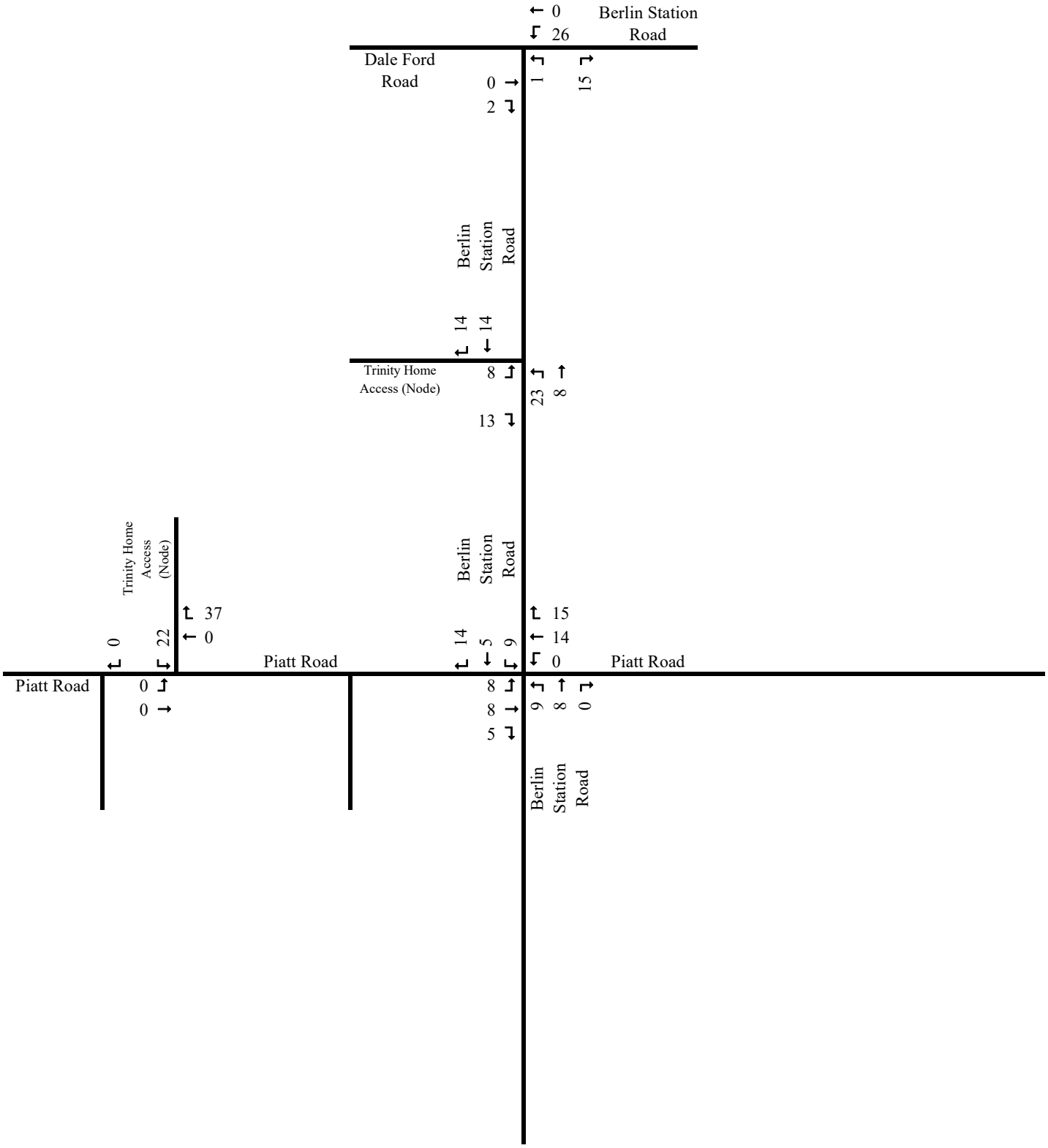

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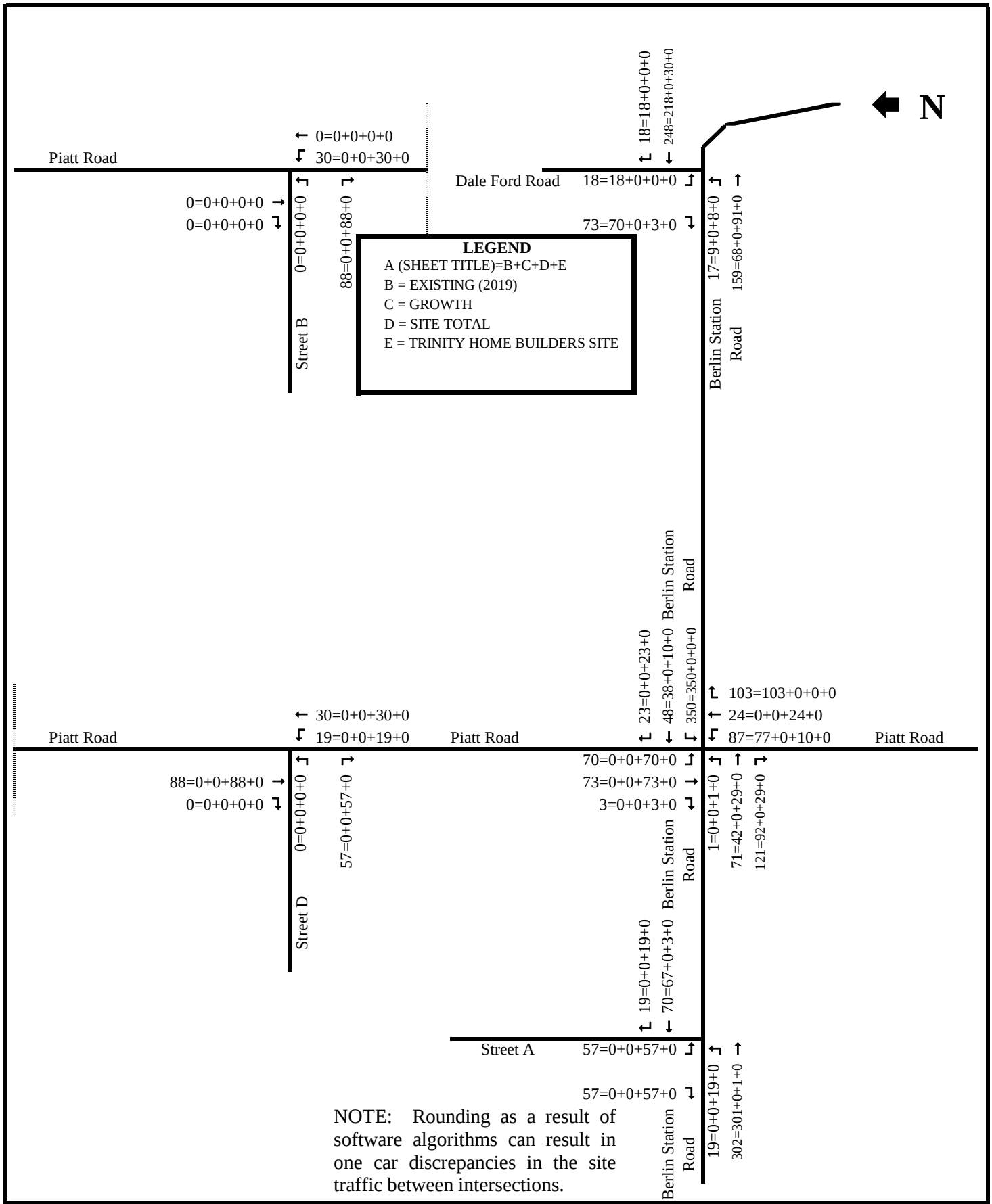
FIGURE 4
TRINITY HOME BUILDERS SITE TRAFFIC - PM PEAK



NOTE: Rounding as a result of software algorithms can result in one car discrepancies in the site traffic between intersections.

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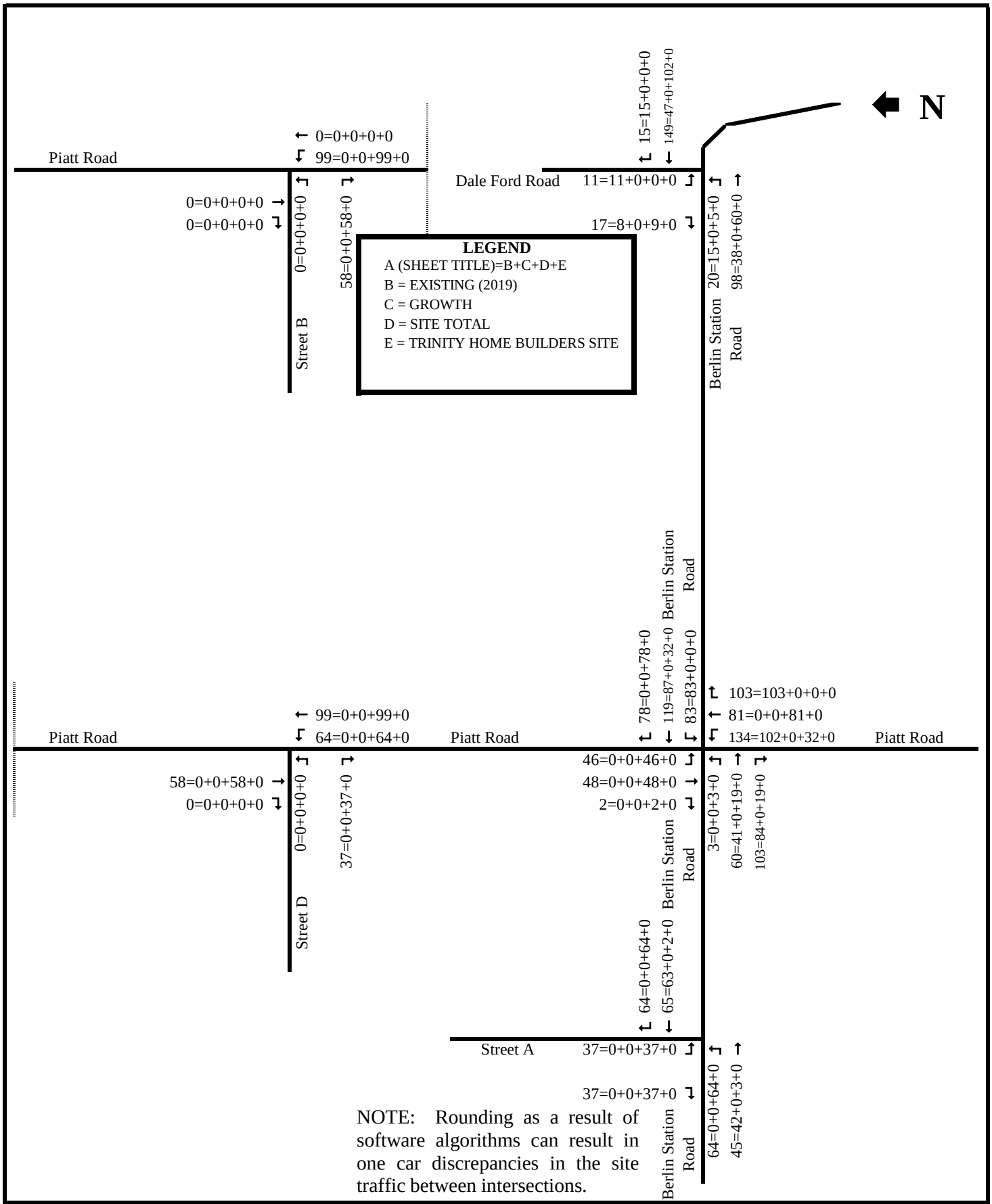
FIGURE 5

2019 'BUILD' - AM PEAK



NOTE: Rounding as a result of software algorithms can result in one car discrepancies in the site traffic between intersections.

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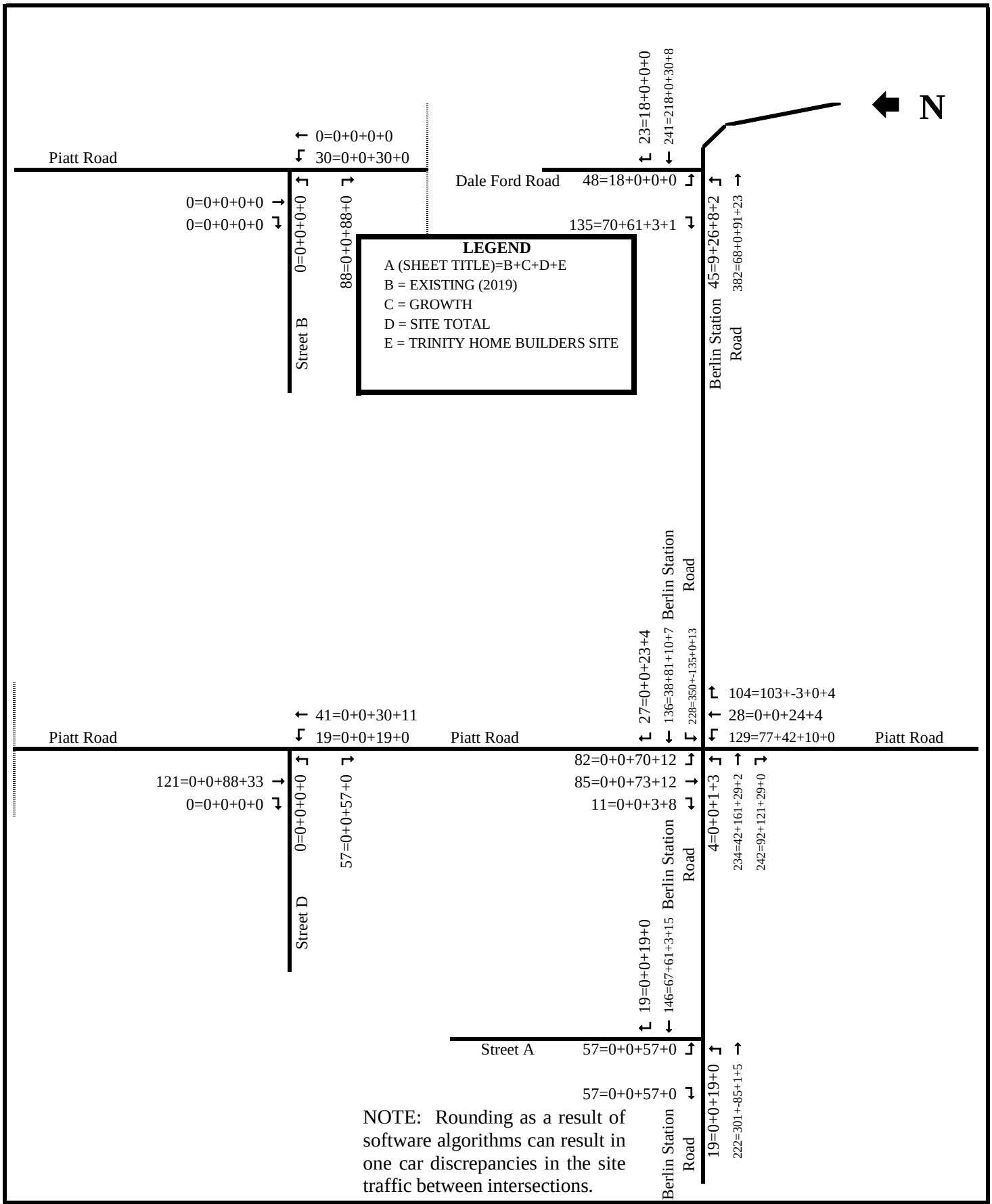
FIGURE 6

2019 'BUILD' - PM PEAK



NOTE: Rounding as a result of software algorithms can result in one car discrepancies in the site traffic between intersections.

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TRAFFIC IMPACT STUDY
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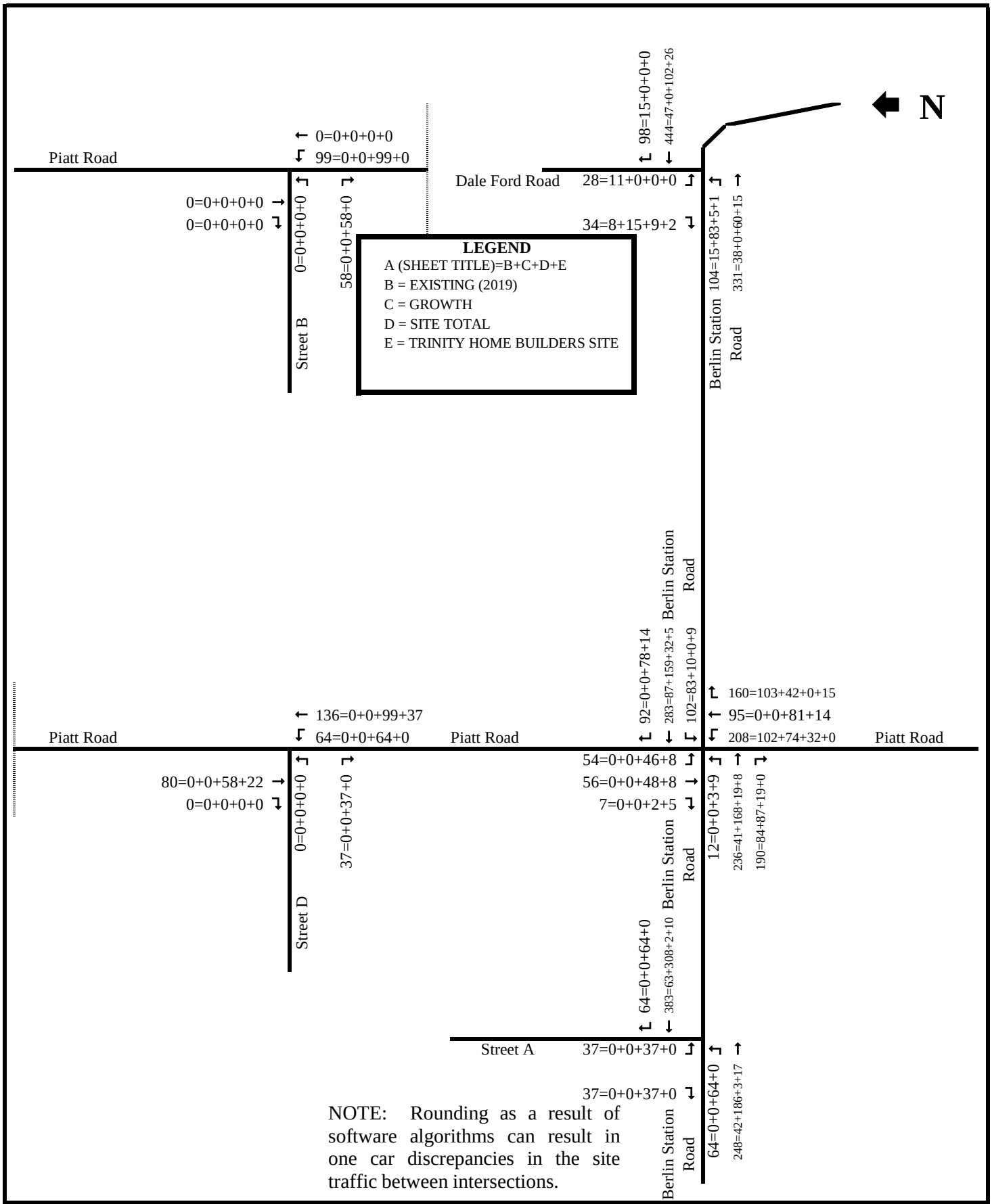
FIGURE 7

2039 'BUILD' W/ TRINITY HOME BUILDERS SITE - AM PEAK



NOTE: Rounding as a result of software algorithms can result in one car discrepancies in the site traffic between intersections.

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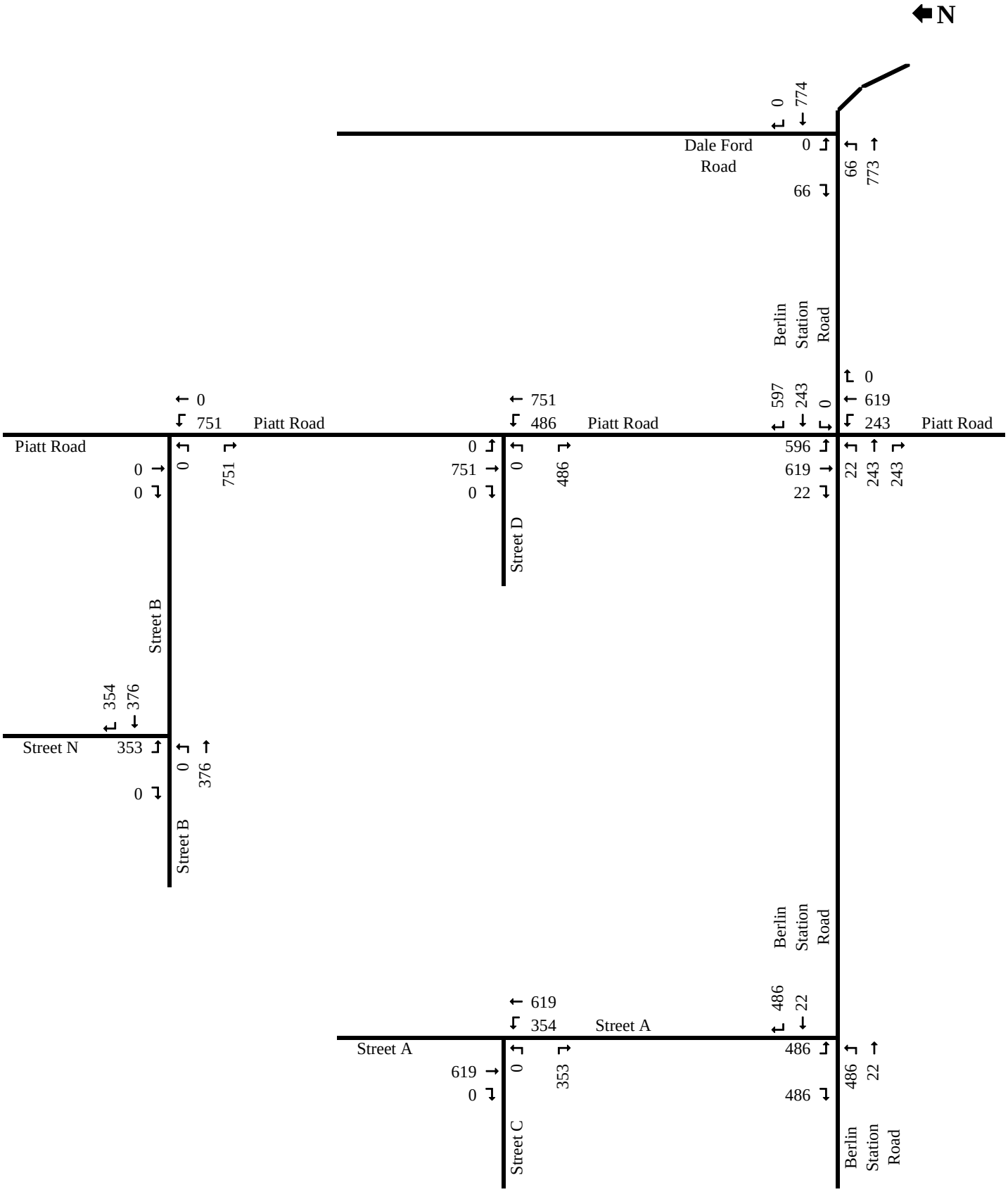
FIGURE 8

2039 'BUILD' W/ TRINITY HOME BUILDERS SITE - PM PEAK



LONGHILL
TRAFFIC IMPACT STUDY
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FIGURE 9

SITE GENERATED TRAFFIC - DAILY

TRAFFIC ANALYSES

Turn Lane Warrant Analysis

Left Turn Lanes – According to the *TIS Standards*, the criteria for whether a left turn lane is required for Major Collectors with posted speed limits over 40 MPH, is if there are more than 10 left turning vehicles during the peak hour for full build-out of the development. Table 4 shows a summary of the results of the left turn lane warrants.

Right Turn Lanes - Per the *TIS Standards*, the procedure for determining whether a right turn lane is required is according to the procedures found in the *ODOT L&D Manual* which is referenced from the *SHAMM*. Table 4 also shows a summary of the results of the right turn lane warrants. The graphs from the *ODOT L&D Manual* are in the Appendix.

INTERSECTION	DIRECTION	CRITICAL PEAK HOUR	2019 'BUILD'	2039 'BUILD'
Berlin Station Road & Street A	EB LT	AM Peak	**Warranted >10 EB LT**	**Warranted >10 EB LT**
		PM Peak		
	WB RT	AM Peak	Not Warranted	Not Warranted
		PM Peak	Not Warranted	**Warranted**
Piatt Road & Street D	NB LT	AM Peak	**Warranted >10 NB LT**	**Warranted >10 NB LT**
		PM Peak		
	SB RT	AM Peak	Not Warranted (No Traffic)	Not Warranted (No Traffic)
		PM Peak	Not Warranted (No Traffic)	Not Warranted (No Traffic)
Piatt Road & Street B	NB LT	AM Peak	**Warranted >10 NB LT**	**Warranted >10 NB LT**
		PM Peak		
	SB RT	AM Peak	Not Warranted (No Traffic)	Not Warranted (No Traffic)
		PM Peak	Not Warranted (No Traffic)	Not Warranted (No Traffic)

TABLE 4 – Summary of Turn Lane Warrant Analyses

Unsignalized (TWSC) Capacity Analyses

Unsignalized capacity analyses were performed at the off-site unsignalized intersections within the study area. In the analysis, delays are computed which correspond to a Level of Service (LOS) "A" through "F". Typically, Level of Service (LOS) "D" or above is considered an acceptable LOS. For a Two-Way Stop condition, the unsignalized capacity analysis gives LOS results for vehicles that must wait for gaps to make their maneuver. In this case, it would be the left turns from the major street and the minor street movements. All other movements are free flowing, so they don't encounter delay. Since driver expectations are different for various types of traffic control, there are different LOS criteria for unsignalized intersections versus signalized intersections. The LOS criteria for both two-way stop control and all-way stop control is shown in Table 5.

LEVEL OF SERVICE	**DELAY RANGE (seconds/vehicle)**
A	< 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Source: *Highway Capacity Manual 2010*

TABLE 5- Level of Service Criteria for Unsignalized Intersections

The following comprises the background of the analysis:

- *HCS V7* was used to perform the analysis.
- The following default values and guidance were applied per the ODOT *L&D Manual:*
  - The HCM 2010 default values for Intersection Peak Hour Factor were used:
    - If the analysis period is 0.25 h and hourly data are used:
      - Total entering volume >= 1,000 veh/h: 0.92
      - Total entering volume <= 1,000 veh/h: 0.90
- A 3% heavy vehicle percentage was assumed

The results are shown in Table 6. The results are discussed in the Conclusions section. The *HCS 7* reports are in the Appendix.

Intersection	Time	Year	Delay (Level of Service)			
			Main Street		Minor Street	
			Eastbound Left	Westbound Left	Northbound All	Southbound All
Berlin Station Road & Dale Ford Road	AM Peak	2019 'No Build' Traffic	7.8 (A)			10.5 (B)
		2019 'Build' Traffic	7.9 (A)			11.1 (B)
		2039 'No Build' Traffic W/ Trinity Home Builders Site	7.8 (A)			13.0 (B)
		2039 'Build' Traffic W/ Trinity Home Builders Site	8.0 (A)			14.9 (B)
	PM Peak	2019 'No Build' Traffic	7.4 (A)			9.1 (A)
		2019 'Build' Traffic	7.6 (A)			9.9 (A)
		2039 'No Build' Traffic W/ Trinity Home Builders Site	8.7 (A)			17.0 (C)
		2039 'Build' Traffic W/ Trinity Home Builders Site	9.1 (A)			20.5 (C)

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TABLE 6 - Unsignalized Capacity Summary - (2-Way-Stop, East-West Major Street)

Roundabout Capacity Analyses

Roundabout capacity analyses were performed at the intersection of Berlin Station Road & Piatt Road. In the capacity analyses, delays are computed which correspond to a Level of Service (LOS) "A" through "F". The LOS criteria for roundabouts are shown in Table 7.

LEVEL OF SERVICE	DELAY RANGE (seconds/vehicle)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Source: *Highway Capacity Manual 2010*

TABLE 7 - Level of Service Criteria for Roundabouts

The following comprises the background of the signalized capacity analysis:

- *HCS 7* was used to perform the analysis.
- The following default values and guidance were applied per the ODOT *L&D Manual:*
  - The HCM 2010 default values for Intersection Peak Hour Factor were used:
    - If the analysis period is 0.25 h and hourly data are used:
      - Total entering volume >= 1,000 veh/h: 0.92
      - Total entering volume <= 1,000 veh/h: 0.90
- A 2% heavy vehicle percentage was assumed in the analysis.

A summary of the results is shown in Table 8. The *HCS* reports are in the Appendix. The results are discussed in the Conclusions section.

Turn Lane Length Analysis

Turn lane lengths for the warranted turn lanes per the analyses were calculated. The calculations were performed per Section 400 of the *ODOT L&D Manual*. The posted speed limit was used as the speed in the calculations. Table 9 shows a summary of the results. The calculations are in the Appendix.

LOCATION	2019 'BUILD' *ODOT L&D Manual*	2039 'BUILD' *ODOT L&D Manual*
Berlin Station Road & Street A - EB Left Turn	175'	175'
Berlin Station Road & Street A - WB Right Turn	NA	175'
Piatt Road & Street D – NB Left Turn	175'	175'
Piatt Road & Street B – NB Left Turn	225'	225'

TABLE 9 – Turn Lane Length Results (includes 50' diverging taper)

Internal ADT

The daily site traffic shown in Figure 9, page 13, indicates that Street A and Street B exceeds 1500 ADT at the minor collector intersection. The Street A segment that exceeds 1500 ADT would extend from Berlin Station Road to Street C. The Street B segment that exceeds 1500 ADT extends from Piatt Road to Street N.

Based on the projected ADT of 7,200 on Piatt Road north of Cheshire Road, the Delaware County Engineer's Office anticipates an ADT in the range of 5,000-6000 on Piatt Road north of Berlin Station when the street connection is made.

Intersection	Time	Year	Delay (Level of Service)				
			Intersection	Eastbound	Westbound	Northbound	Southbound
Berlin Station Road & Piatt Road	AM Peak	2019 'No Build' Traffic	5.6 (A)	5.7 (A)	6.3 (A)	4.1 (A)	4.6 (A)
		2019 'Build' Traffic	6.8 (A)	8.1 (A)	7.1 (A)	5.1 (A)	7.1 (A)
		2039 'No Build' Traffic W/ Trinity Home Builders Site	7.2 (A)	8.8 (A)	6.3 (A)	5.7 (A)	5.0 (A)
		2039 'Build' Traffic W/ Trinity Home Builders Site	9.6 (A)	13.7 (B)	7.1 (A)	7.1 (A)	7.6 (A)
	PM Peak	2019 'No Build' Traffic	4.2 (A)	3.9 (A)	4.4 (A)	4.3 (A)	3.7 (A)
		2019 'Build' Traffic	5.8 (A)	4.8 (A)	6.4 (A)	5.9 (A)	5.1 (A)
		2039 'No Build' Traffic W/ Trinity Home Builders Site	7.1 (A)	6.7 (A)	7.2 (A)	7.4 (A)	5.2 (A)
		2039 'Build' Traffic W/ Trinity Home Builders Site	10.0 (A)	8.5 (A)	11.3 (B)	10.6 (B)	7.4 (A)

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TABLE 8 - Unsignalized Capacity Summary - (Roundabout)

CONCLUSIONS

2019 and 2039 'No Build' and 'Build' volumes were developed for use in turn lane warrant analyses, signalized capacity analyses and turn lane length analyses. The following is a summary of the conclusions for each analysis condition:

2019 'No Build'

- Berlin Station Road & Piatt Road
  - The intersection and all approaches operate at an acceptable LOS.
- Berlin Station Road & Dale Ford Road
  - The impeded movements operate at an acceptable LOS.

2019 'Build'

- Olentangy Berlin High School Pedestrian Access
  - The Delaware County Engineer's Office will require a Rectangular Rapid Flash Beacon (RRFB) across Berlin Station Road to facilitate pedestrian access from the Longhill development to Olentangy Berlin High School. Details will be finalized prior to plan approval.
- Berlin Station Road & Piatt Road
  - Same as No Build: The intersection and all approaches operate at an acceptable LOS.
- Berlin Station Road & Dale Ford Road
  - Same as No Build: The impeded movements operate at an acceptable LOS.
- Berlin Station Road & Street A
  - An eastbound left turn lane is warranted. The length of the lane is 175 feet which includes the 50-foot diverging taper. Due to there being a planned CIP project in the area, the developer requests consideration of a fee in lieu of constructing this turn lane. This fee is in addition to the developer's contribution to the Piatt Road extension.
  - A westbound right turn lane is not warranted.
  - The projected ADT on the Site Access leg is greater than 1500 vehicles. The segment that exceeds 1500 ADT would extend from Berlin Station Road to Street C.
- Piatt Road & Street D
  - A northbound left turn lane is warranted. The length of the lane is 175 feet which includes the 50-foot diverging taper. An agreement has been made on this developer's contribution to the Piatt Road extension so this is included in that contribution.
  - A southbound right turn lane is not warranted.
  - The projected ADT on the Site Access leg is less than 1500 vehicles.
- Piatt Road & Street B
  - A northbound left turn lane is warranted. The length of the lane is 225 feet which includes the 50-foot diverging taper. An agreement has been made on this developer's contribution to the Piatt Road extension so this is included in that contribution.
  - A southbound right turn lane is not warranted.
  - The projected ADT on the Site Access leg is greater than 1500 vehicles. The segment that exceeds 1500 ADT would extend from Piatt Road to Street N.

2039 'No Build'

- Berlin Station Road & Piatt Road
  - The intersection and all approaches operate at an acceptable LOS.
  - Based on the projected 2038 ADT of 7,200 on Piatt Road north of Cheshire Road, the Delaware County Engineer's Office anticipates an ADT in the range of 5,000-6000 on Piatt Road north of Berlin Station when the street connection is made.
- Berlin Station Road & Dale Ford Road
  - The impeded movements operate at an acceptable LOS.

2039 'Build'

- Olentangy Berlin High School Pedestrian Access
  - The Delaware County Engineer's Office will require a Rectangular Rapid Flash Beacon (RRFB) across Berlin Station Road to facilitate pedestrian access from the Longhill development to Olentangy Berlin High School. Details will be finalized prior to plan approval.
- Berlin Station Road & Piatt Road
  - Same as 'No Build': The intersection and all approaches operate at an acceptable LOS.
- Berlin Station Road & Dale Ford Road
  - Same as No Build: The impeded movements operate at an acceptable LOS.
- Berlin Station Road & Street A
  - An eastbound left turn lane is warranted. The length of the lane is 175 feet which includes the 50-foot diverging taper. Due to there being a planned CIP project in the area, the developer requests consideration of a fee in lieu of constructing this turn lane. This fee is in addition to the developer's contribution to the Piatt Road extension.
  - A westbound right turn lane is warranted. The length of the lane is 175 feet which includes the 50-foot diverging taper. Due to there being a planned CIP project in the area, the developer requests consideration of a fee in lieu of constructing this turn lane. This fee is in addition to the developer's contribution to the Piatt Road extension.
  - The projected ADT on the Site Access leg is greater than 1500 vehicles. The segment that exceeds 1500 ADT would extend from Berlin Station Road to Street C.
- Piatt Road & Street D
  - A northbound left turn lane is warranted. The length of the lane is 175 feet which includes the 50-foot diverging taper. An agreement has been made on this developer's contribution to the Piatt Road extension so this is included in that contribution.
  - A southbound right turn lane is not warranted.
  - The projected ADT on the Site Access leg is less than 1500 vehicles.
- Piatt Road & Street B
  - A northbound left turn lane is warranted. The length of the lane is 225 feet which includes the 50-foot diverging taper. An agreement has been made on this developer's contribution to the Piatt Road extension so this is included in that contribution.
  - A southbound right turn lane is not warranted.

- ○The projected ADT on the Site Access leg is greater than 1500 vehicles. The segment that exceeds 1500 ADT would extend from Piatt Road to Street N.

- ●Piatt Road north of Berlin Station Road
  - ○Based on the projected 2038 ADT of 7,200 on Piatt Road north of Cheshire Road, the Delaware County Engineer's Office anticipates an ADT in the range of 5,000-6000 on Piatt Road north of Berlin Station when Piatt Road is connected to Roloson Road.
  - ○The developer is working with the DCEO and other developers in the area on actual construction of the extension of Piatt Road. Details will be finalized prior to plan approval.

APPENDIX

From: Love, Michael
To: Todd Stanhope
Cc: Piccin, John
Subject: Longhill TIS
Date: Monday, November 04, 2019 10:50:15 AM
Attachments: image003.png

Todd

I missed something important in the early stages of this TIS. Table 1 is incorrect. Berlin Station Road and Piatt Rd extension are both major collectors (they are shown as minor collectors)

We will need the report adjusted to reflect this.

This changes the Piatt Rd extension to a three lane section. We have already come to an agreement on the developer's contribution regarding the extension of Piatt Rd, so it shouldn't impact the conclusions/recommendations in the TIS.

Note that the developer will still be responsible for the fee-in-lieu of for the EB left turn lane on Berlin Station Rd @ Street A

If you have any questions, please call

Michael Love P.E., PTOE
Traffic Engineer
Delaware County Engineer's Office
a: 50 Channing St., Delaware, OH 43015
p: (740) 833-2428
e: mlove@co.delaware.oh.us
w: www.delawarecountyengineer.org

4/22/2019 MAL
Address review comments and resubmit for approval

Longhill
Traffic Impact Study

Prepared For:

Kimley-Horn & Associates, Inc.

Prepared By:

SMART SERVICES, INC.

1900 Crown Park Court, Suite E
Columbus, OH 43235
(614) 914-5543

February 2019

SSI Project #: 745301

BACKGROUND

Longhill Limited Partnership II is proposing to develop a site with approximately 492 single family lots. The site is located on the north side of Berlin Station Road between Gregory Road and the Proposed Piatt Road Extension. Figure 1 shows the location of the site. There are two accesses proposed on Berlin Station Road (the east access is emergency only) and two on the Piatt Road extension. Figure 2 shows the proposed site layout. The Delaware County Engineer's Office (DCEO) is the permitting agency for the accesses. Preliminary analysis indicates that the trips generated by the site will exceed the 100 peak hour trip threshold for a Traffic Impact Study (TIS) as identified in the DCEO's *TIS Standards*.

The trips generated by the site will exceed the 100-peak hour trip threshold for a Traffic Impact Study (TIS) as identified in the DCEO's *TIS Standards*. The Delaware County Engineer's Office (DCEO) is the reviewing agency for the traffic study. Smart Services, Inc. (SSI) has been retained by the developer to perform the TIS. A pre-meeting for the study was held October 30, 2018 at the Delaware County Engineers Office (DCEO). The scope of the TIS was discussed at this meeting and a memo of understanding (MOU) dated 2/19/2019 was submitted to the DCEO. The submitted MOU is in the Appendix.

EXISTING CONDITIONS

The existing intersection at Berlin Station Road & Piatt Road is controlled by a "stop" sign on Piatt Road. The intersection of Berlin Station Road & Dale Ford Road is controlled by a "stop" sign on the Dale Ford Road north approach. Table 1 shows the speed limit and classification of each roadway in the study area.

Street	Speed Limit	Design Speed	Delaware County Thoroughfare Plan Classification
Berlin Station Road	45 MPH	45 MPH	Minor Collector
Piatt Road (Extension)	45 MPH	45 MPH	Minor Collector

TABLE 1 – Summary of Roadway Designations

There was no data collection as part of the project. 2019 and 2039 volume plates contained in the draft *Berlin Station Road Traffic Analysis* performed by Jobes Henderson are the basis of background traffic for the study.

Assume single lane roundabout at Berlin Station/Piatt as the E+C condition. Show as "by others" in all exhibits

Is this the current site plan? A RI-RO will not be permitted opposite the school entrance

Show roundabout at the intersection of Berlin Station & Piatt Road "by others"

SCALE

FIGURE 2

SITE LAYOUT

LONGHILL TRAFFIC IMPACT STUDY

2/2019

PREPARED BY:

SMART SERVICES, INC.

Roundabout Capacity Analyses

Roundabout capacity analyses were performed at the intersection of Berlin Station Road & Piatt Road. In the capacity analyses, delays are computed which correspond to a Level of Service (LOS) "A" through "F". The LOS criteria for roundabouts are shown in Table 7.

LEVEL OF SERVICE	DELAY RANGE (seconds/vehicle)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

Source: *Highway Capacity Manual 2010*

TABLE 7 - Level of Service Criteria for Roundabouts

The following comprises the background of the signalized capacity analysis:

- *HCS 7 V7.7* was used to perform the analysis.
- The following default values and guidance were applied per the ODOT *L&D Manual:*
  - The HCM 2010 default values for Intersection Peak Hour Factor were used:
    - If the analysis period is 0.25 h and hourly data are used:
      - Total entering volume >= 1,000 veh/h: 0.92
      - Total entering volume <= 1,000 veh/h: 0.90
- A 2% heavy vehicle percentage was assumed in the analysis.

A summary of the results is shown in Table 8. The *HCS* reports are in the Appendix. The results are discussed in the Conclusions section.

Turn Lane Length Analysis

Turn lane lengths for the warranted turn lanes per the analyses were calculated. The calculations were performed per Section 400 of the *ODOT L&D Manual*. The posted speed limit was used as the speed in the calculations. Table 9 shows a summary of the results. The calculations are in the Appendix.

LOCATION	2019 'BUILD' *ODOT L&D Manual*	2039 'BUILD' *ODOT L&D Manual*
Berlin Station Road & Street A - EB Left Turn	175'	175'
Berlin Station Road & Street A - WB Right Turn	NA	175'

TABLE 9 – Turn Lane Length Results (includes 50' diverging taper)

Internal ADT

The daily site traffic shown in Figure 9, page 13, indicates that Street A and Street B exceeds 1500 ADT at the minor collector intersection. The Street A segment that exceeds 1500 ADT would extend from Berlin Station Road to Street C. The Street B segment that exceeds 1500 ADT extends from Piatt Road to Street N.

Provide ADT on the Piatt Rd extension (assume connection Roloson Rd). This will result in Piatt extension being 3 lanes upto Curve Rd.

Intersection	Time	Year	Delay (Level of Service)				
			Intersection	Eastbound	Westbound	Northbound	Southbound
Berlin Station Road & Piatt Road	AM Peak	2019 'No Build' Traffic	5.6 (A)	5.7 (A)	6.3 (A)	4.1 (A)	0.0 (A)
		2019 'Build' Traffic	6.9 (A)	8.1 (A)	7.1 (A)	5.1 (A)	7.1 (A)
		2039 'No Build' Traffic W/ Trinity Home Builders Site	11.9 (B)	15.7 (C)	11.4 (B)	6.6 (A)	7.4 (A)
		2039 'Build' Traffic W/ Trinity Home Builders Site	18.9 (C)	33.8 (D)	13.5 (B)	8.3 (A)	12.5 (B)
	PM Peak	2019 'No Build' Traffic	4.2 (A)	3.9 (A)	4.4 (A)	4.3 (A)	0.0 (A)
		2019 'Build' Traffic	5.8 (A)	4.8 (A)	6.5 (A)	5.9 (A)	5.1 (A)
		2039 'No Build' Traffic W/ Trinity Home Builders Site	13.0 (B)	8.8 (A)	17.9 (C)	8.5 (A)	8.4 (A)
		2039 'Build' Traffic W/ Trinity Home Builders Site	31.4 (D)	11.6 (B)	55.4 (F)	12.8 (B)	13.3 (B)
		2039 'Build' Traffic W/ Trinity Home Builders Site & WB RT Lane	16.7 (C)	11.6 (B)	22.2 (C)	12.8 (B)	13.3 (B)

Longhill Traffic Impact Study - 2/2019

TABLE 8 - Unsignalized Capacity Summary - (Roundabout)

Add paragraph discussing how students/pedestrians will access the high school from this development. (will there be a RRFB at Reserve "M"?)

2039 'Build'

- Berlin Station Road & Piatt Road
  - The intersection and all approaches operate at an acceptable LOS with the exception of the westbound approach that operates at LOS F. The addition of a westbound right turn lane would allow this approach to operate at an acceptable LOS.

- Berlin Station Road & Dale Ford Road
  - Same as No Build: The impeded movements operate at an acceptable LOS.

- Berlin Station Road & Street A
  - An eastbound left turn lane is warranted. The length of the lane is 175 feet which includes the 50-foot diverging taper.
  - A westbound right turn lane is warranted. The length of the lane is 175 feet which includes the 50-foot diverging taper.
  - The projected ADT on the Site Access leg is greater than 1500 vehicles. The segment that exceeds 1500 ADT would extend from Berlin Station Road to Street C.
- Piatt Road & Street D
  - A northbound left turn lane is not warranted.
  - A southbound right turn lane is not warranted.
  - The projected ADT on the Site Access leg is less than 1500 vehicles.

- Piatt Road & Street B
  - A northbound left turn lane is not warranted.
  - A southbound right turn lane is not warranted.
  - The projected ADT on the Site Access leg is greater than 1500 vehicles. The segment that exceeds 1500 ADT would extend from Piatt Road to Street N.

Since DCEO has a CIP project in the area, if the developer wishes to participate in this CIP project in lieu of constructing the warranted turn lanes on Berlin Station, he may request this option. The agreed cost can be included in this traffic study or under separate agreement.

Add paragraph stating the developer is working with DCEO and other developers in the area on actual construction of the extension of Piatt Rd. Details will be finalized prior to plan approval.

SMART SERVICES, INC.
Surveying ◆ Environmental ◆ Traffic ◆ CA/CM
An Ohio DBE/EDGE Certified Firm

February 19, 2019

Mr. Michael A. Love, PE
Delaware County Engineer's Office
50 Channing Street
Delaware, OH 43015

Re: Longhill Traffic Study
Berlin Township, Delaware County, Ohio

Dear Mike:

Please consider this letter as a Memo of Understanding (MOU) for the subject traffic impact study. The subject site is proposed to be developed with approximately 492 single family lots. The site is located on the north side of Berlin Station Road between Gregory Road and the Proposed Piatt Road Extension. There are two accesses proposed on Berlin Station Road (the east access is emergency only) and two on the Piatt Road extension. The Delaware County Engineer's Office (DCEO) is the permitting agency for the accesses. Preliminary analysis indicates that the trips generated by the site will exceed the 100 peak hour trip threshold for a Traffic Impact Study (TIS) as identified in the DCEO's *TIS Standards*.

An initial meeting was held with the Delaware County Engineer's Office (DCEO) on October 30, 2018. The following is the scope of the study discussed which includes some follow up information:

- The study area will be all site accesses and the intersections of Berlin Station Road & Piatt Road and Berlin Station Road & Dale Ford Road.
- The table below includes information for study area roads:

Street	Speed Limit	Design Speed	Delaware County Thoroughfare Plan Classification
Berlin Station Road	45 MPH	45 MPH	Minor Collector
Piatt Road (Extension)	45 MPH	45 MPH	Minor Collector

- No new data is needed for the project. Traffic plates contained in the draft *Berlin Station Road Traffic Analysis* performed by Jobes Henderson will be the basis of background traffic for the study.
- Trip Generation - Site traffic will be computed using *Trip Generation Manual, 10th Edition* published by ITE.
- The distribution of traffic will be assumed to be the same general distribution that was used in the study for the Homewood Corporation property on the northeast corner of Berlin Station Road & Piatt Road.
- Design Year Traffic Development – The results of the preliminary trip generation indicate

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February 19, 2019

Mr. Michael A. Love, PE
Delaware County Engineer's Office
50 Channing Street
Delaware, OH 43015

Re: Longhill Traffic Study
Berlin Township, Delaware County, Ohio

Dear Mike:

Please consider this letter as a Memo of Understanding (MOU) for the subject traffic impact study. The subject site is proposed to be developed with approximately 492 single family lots. The site is located on the north side of Berlin Station Road between Gregory Road and the Proposed Piatt Road Extension. There are two accesses proposed on Berlin Station Road (the east access is emergency only) and two on the Piatt Road extension. The Delaware County Engineer's Office (DCEO) is the permitting agency for the accesses. Preliminary analysis indicates that the trips generated by the site will exceed the 100 peak hour trip threshold for a Traffic Impact Study (TIS) as identified in the DCEO's *TIS Standards*.

An initial meeting was held with the Delaware County Engineer's Office (DCEO) on October 30, 2018. The following is the scope of the study discussed which includes some follow up information:

- The study area will be all site accesses and the intersections of Berlin Station Road & Piatt Road and Berlin Station Road & Dale Ford Road.
- The table below includes information for study area roads:

Street	Speed Limit	Design Speed	Delaware County Thoroughfare Plan Classification
Berlin Station Road	45 MPH	45 MPH	Minor Collector
Piatt Road (Extension)	45 MPH	45 MPH	Minor Collector

- No new data is needed for the project. Traffic plates contained in the draft *Berlin Station Road Traffic Analysis* performed by Jobes Henderson will be the basis of background traffic for the study.
- Trip Generation - Site traffic will be computed using *Trip Generation Manual, 10th Edition* published by ITE.
- The distribution of traffic will be assumed to be the same general distribution that was used in the study for the Homewood Corporation property on the northeast corner of Berlin Station Road & Piatt Road.
- Design Year Traffic Development – The results of the preliminary trip generation indicate

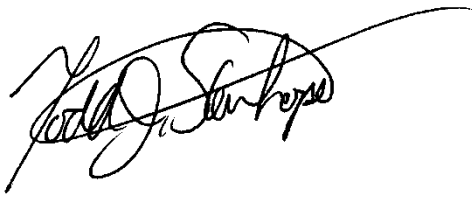
that the site will generate just over 400 trips. Therefore, the *TIS Standards* require a 20-year design horizon. Opening day will be 2019, therefore the design year will be 2039.

- The Piatt Road extension north of Berlin Station Road will be built when the Homewood Corporation property to the east develops. **Since part of this extension to the north is on property not controlled by the developer, an agreement with the Homewood Corporation will have to be reached prior to the access being granted.** The traffic study will assume this agreement will be in place. The background traffic on the Piatt Road extension will include the Homewood Corporation property on the northeast corner of Berlin Station Road & Piatt Road but at the same density as the proposed site.
- Analyses
  - Capacity analyses will be performed on the off-site intersections.
  - Turn lane warrant analyses will be performed per the *DCEO Standards* at all site accesses to public streets.
  - The length of any warranted turn lanes will be calculated using the method in Section 400 of the *ODOT L&D Manual* and the speed limit of the road.
- All necessary public improvements associated with the development, including any off-site improvements, shall be constructed with the first phase of construction, except as agreed upon by the Delaware County Engineer.

If this MOU is acceptable to you, please indicate your approval in the space provided below. If not, please let us know what items need to be changed.

If you have any questions, please contact me. Thank you!

Sincerely,
SMART SERVICES, INC.



Todd J. Stanhope, PE, PTOE
Director of Traffic Engineering

Submitted: One electronic copy (PDF format) via e-mail

cc: J. Piccin – Delaware County Engineer's Office
M. Reeves – Kimley Horn

Delaware County Engineers Office

Approved:_____ Date:_____

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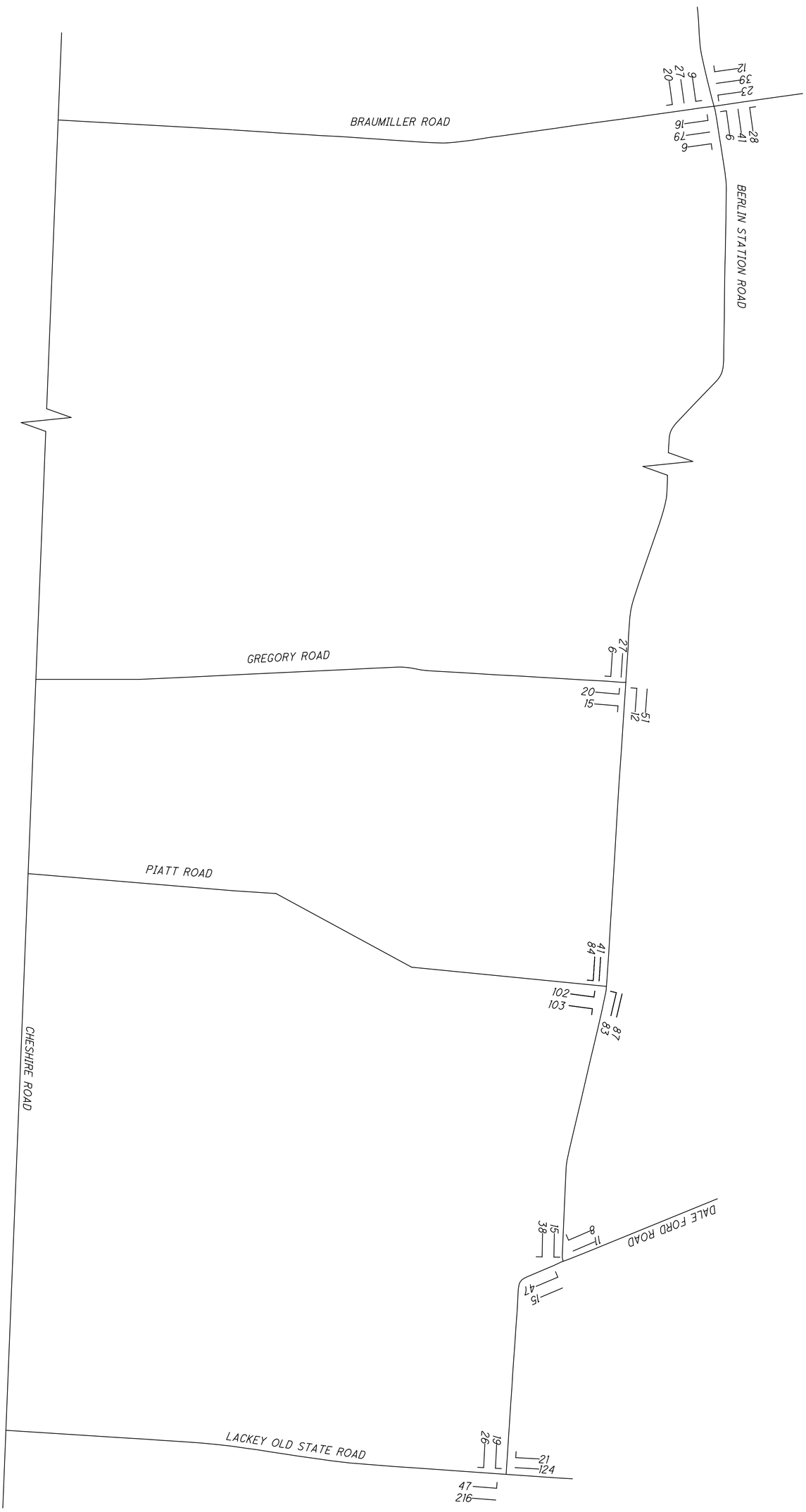

5 of 10	2019 PM BACKGROUND	BERLIN STATION ROAD DELAWARE COUNTY	CALCULATED SJD / CHECKED SJD	N

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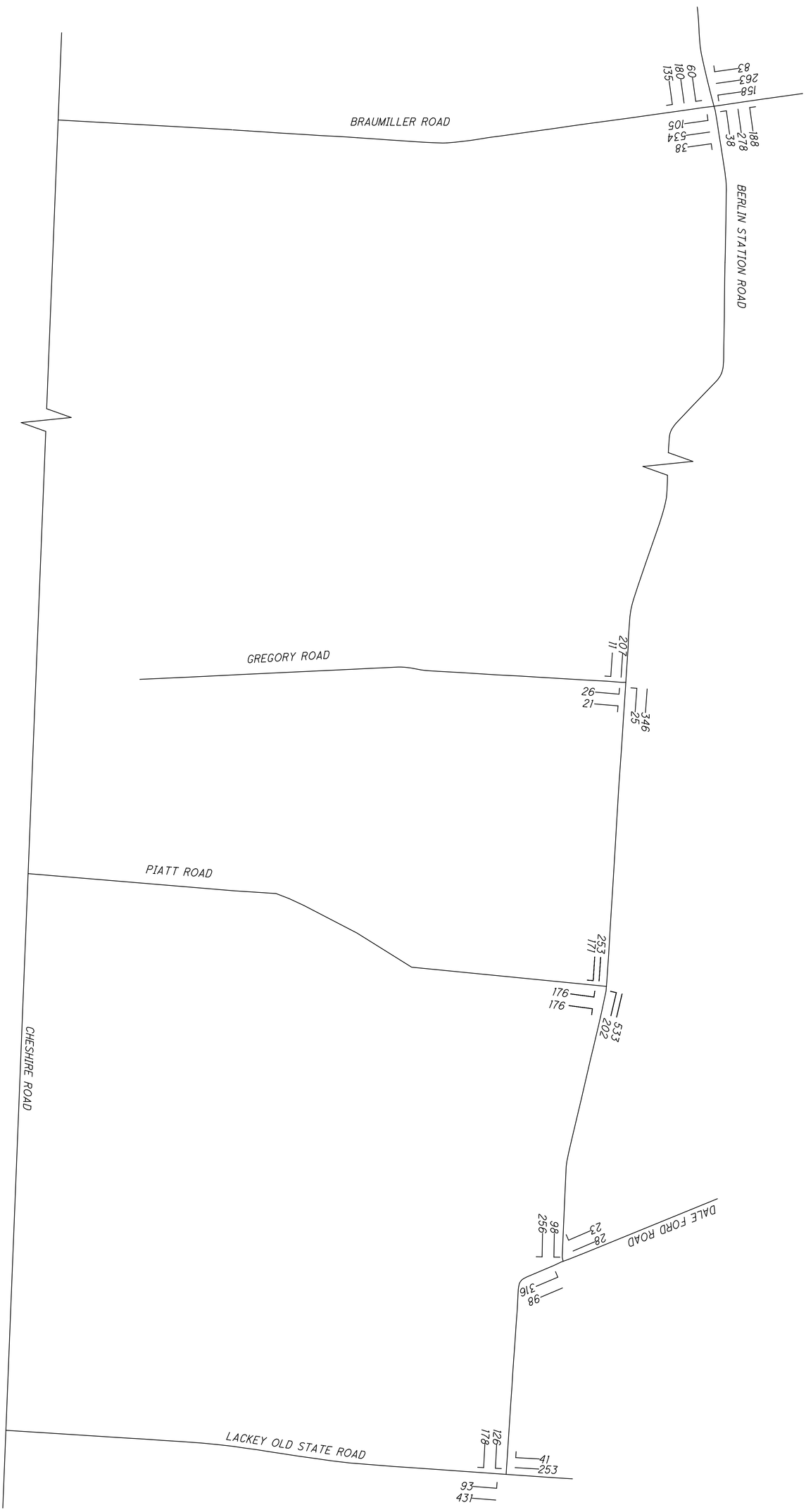

10 / 9	2039 PM BACKGROUND	BERLIN STATION ROAD DELAWARE COUNTY	CALCULATED SJD / CHECKED SJD	N

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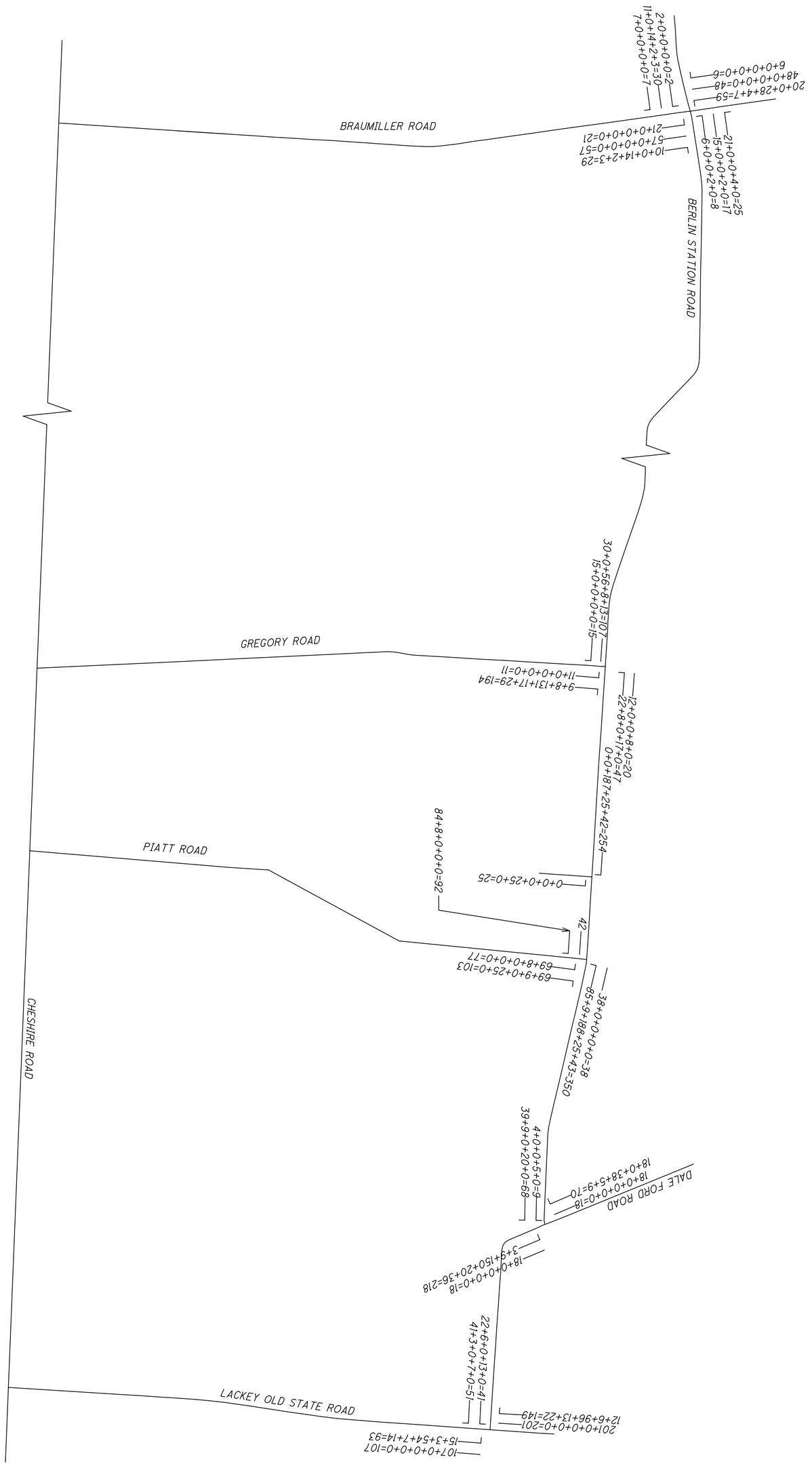
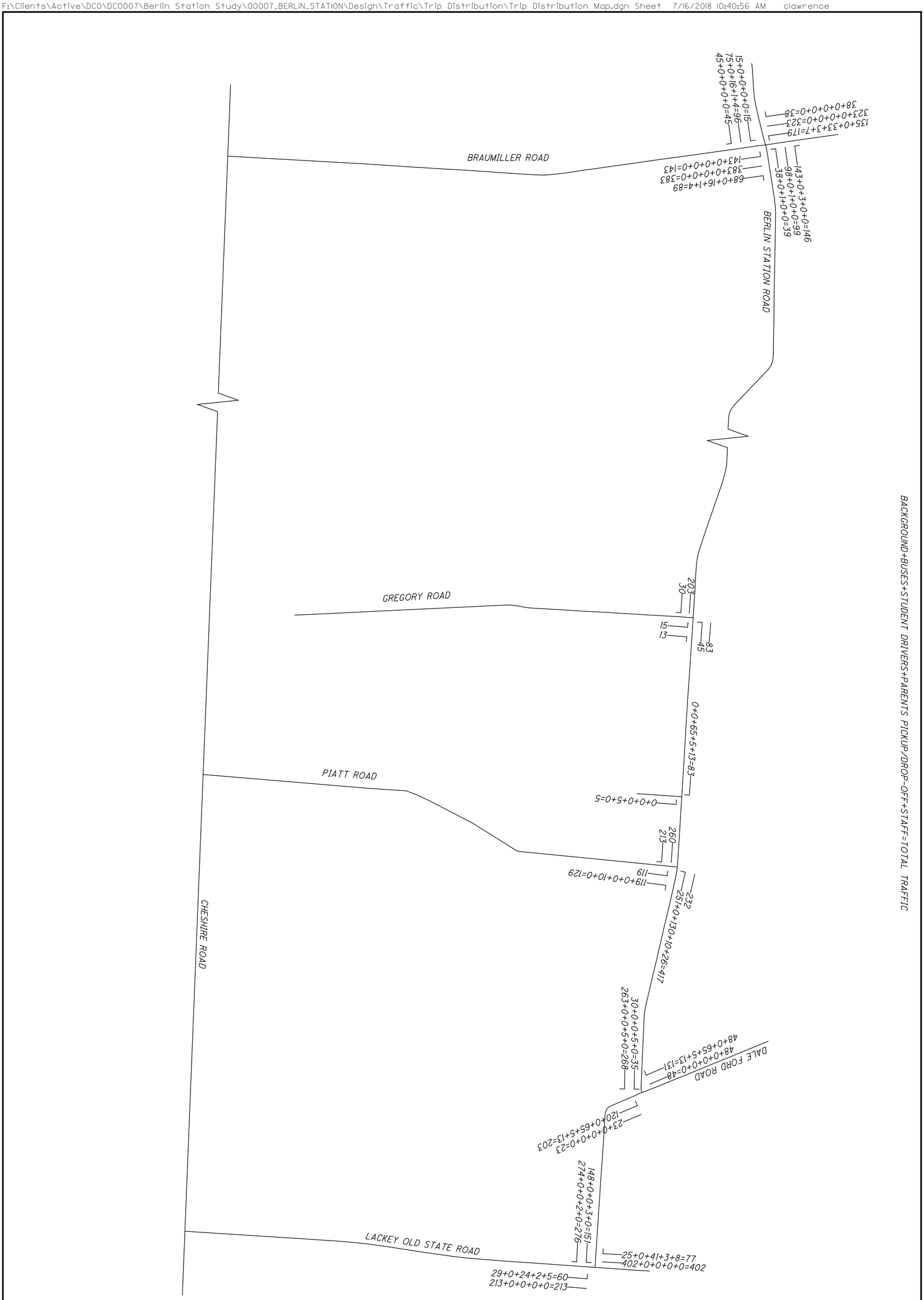


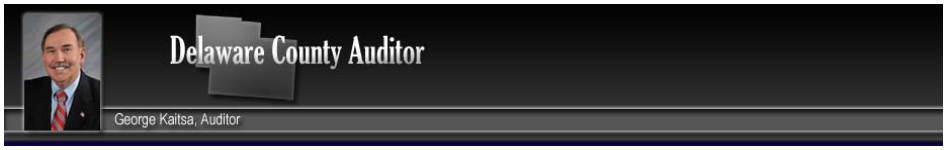
BACKGROUND+BUSES+STUDENT DRIVERS+PARENTS PICKUP/DROP-OFF+STAFF=TOTAL TRAFFIC

7/10	**2019 AM TOTAL TRAFFIC**	**BERLIN STATION ROAD DELAWARE COUNTY**	CALCULATED SJD / CHECKED SJD	N



BACKGROUND+BUSES+STUDENT DRIVERS+PARENTS PICKUP/DROP-OFF+STAFF=TOTAL TRAFFIC

8 / 10	**2039 AM TOTAL TRAFFIC**	**BERLIN STATION ROAD DELAWARE COUNTY**	CALCULATED SJD / CHECKED SJD	N



Property Report for 418-240-01-054-005

Property Information

Parcel Number:	41824001054005
Owner(s)	TRINITY HOME BUILDERS LLC
Address	BERLIN STATION RD
Tax Dist	5
School	2104 OLENTANGY
Use Code:	100
Acres:	62.662
Description	
LANDS 18 4 2 7	
Property Address	
BERLIN STATION RD DELAWARE	

Current Value

Land	Impr	Total
783300	0	783300

Current Tax

Due	Paid	Balance
3079.48	1539.74	1539.74

Assessment Information

Board of Revision:	N	Homestead/Disability:	N
Owner Occ Credit:	N	Divided Property:	N
New Construction:	N	Foreclosure:	N
Other Assessments:	N	Front Ft.:	N

Land

Land Type	Acres	Square Ft.	Actual Frontage	Eff. Frontage	No. Units	Value

Land

Land Type	Acres	Square Ft.	Actual Frontage	Eff. Frontage	No. Units	Value
A1-Primary Site	62.662	0	0	0	0	783280

CAUV Land

Land Type	Acres	Soil Type	Acres	Adj. Rate	Value
A0	0.376	PWA-PEWAMO SILTY CLAY	0.376	0	0
A0	0.125	BOB-BLOUNT SILT LOAM	0.125	0	0
A5	20.552	BOB-BLOUNT SILT LOAM	20.552	1990	40900
A5	14.538	BOA-BLOUNT SILT LOAM	14.538	2280	33150
A5	10.339	GWB-GLYNWOOD SILT LOAM	10.339	1325	13700
A5	13.41	PWA-PEWAMO SILTY CLAY	13.41	3190	42780
A8	0.376	BOA-BLOUNT SILT LOAM	0.376	545	200
A8	1.379	BOB-BLOUNT SILT LOAM	1.379	365	500
A8	1.065	GWB-GLYNWOOD SILT LOAM	1.065	395	420
A8	0.439	PWA-PEWAMO SILTY CLAY	0.439	1405	620
A9	0.063	GWB-GLYNWOOD SILT LOAM	0.063	0	0

Transfer History

Date	Amount	To	Type	Conveyance
6/10/2009	0	TRINITY HOME BUILDERS LLC	Change Owner	0
11/15/2006	0	TRINITY HOME BUILDERS INC	Split Property	0
5/4/2004	790691	TRINITY HOME BUILDERS INC	Change Owner	0
5/4/2004	0	DAVIDSON BRUCE M	Split Property	0

Value History

Year	Land	Improvement	Total	Reason
2017	783300	0	783300	Reappraisal, Update or Annual Equalization
2014	877300	0	877300	Reappraisal, Update or Annual Equalization
2011	783300	0	783300	Reappraisal, Update or Annual Equalization
2008	877300	0	877300	Reappraisal, Update or Annual Equalization
2007	783300	0	783300	Miscellaneous
2006	783300	0	783300	CAUV Loss or Recoupment
2005	790700	0	790700	Reappraisal, Update or Annual Equalization
2004	790700	0	790700	Changes by Board of Revision, Tax Appeals, Courts

Tax Detail Information

Full Rate: 106.13 Effective Rate 72.820006

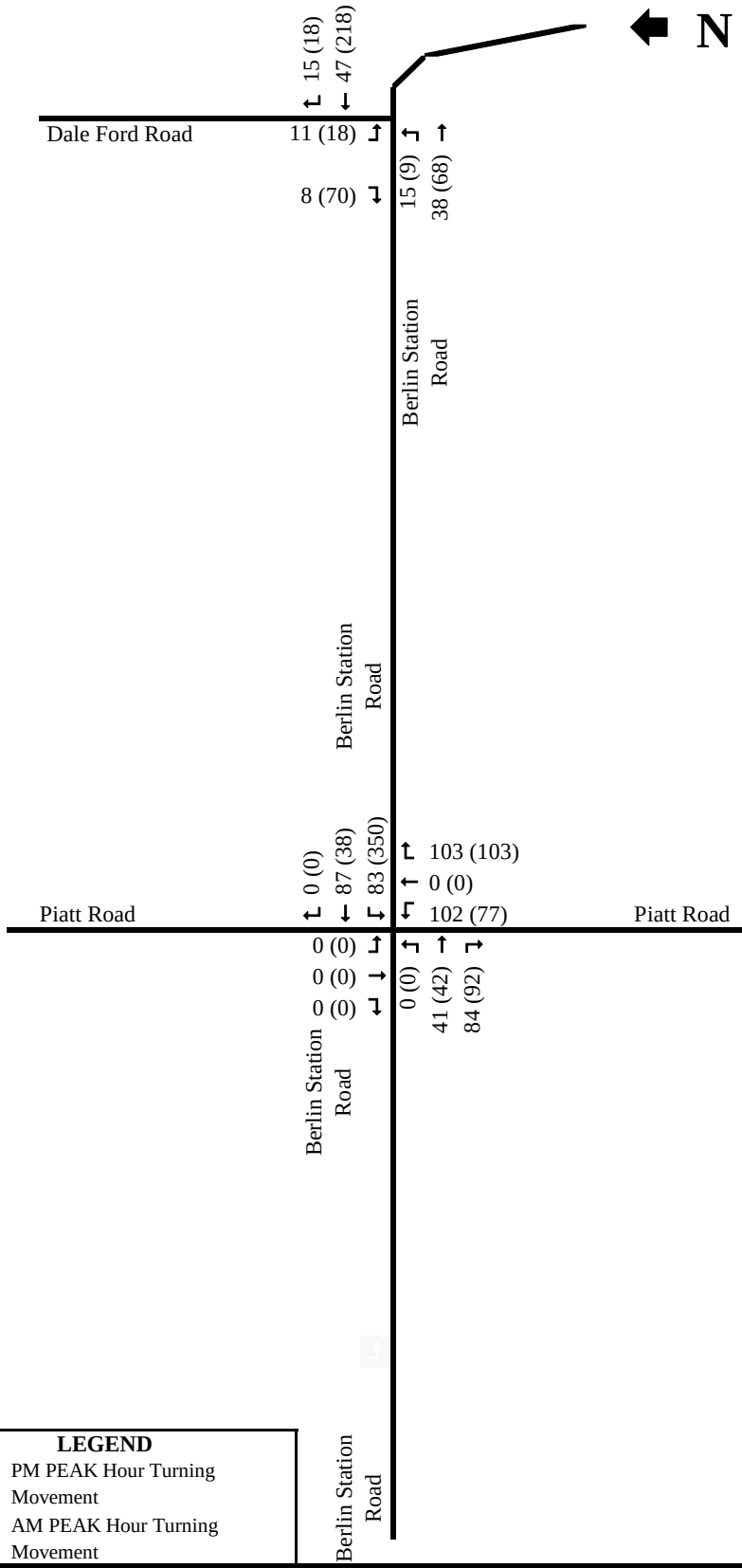
Annual Tax: $3079.48

	Prior		1st Half		2nd Half	
	Chg	Adj	Chg	Adj	Chg	Adj
Orig Tax	$0.00	$0.00	$2456.38	$0.00	$2456.38	$0.00
Reduction			$770.96	$0.00	$770.96	$0.00
Subtotal	$0.00		$1685.42		$1685.42	
10% Rollback			$145.68	$0.00	$145.68	$0.00
Own Occ Cred			$0.00	$0.00	$0.00	$0.00
Homestead			$0.00	$0.00	$0.00	$0.00
CR			$0.00	$0.00	$0.00	$0.00
NET	$0.00		$1539.74		$1539.74	
Penalty/Int	$0.00		$0.00	$0.00	$0.00	$0.00
RE Chg	$0.00		$0.00		$1539.74	
RE Paid	$0.00		$1539.74		$0.00	
SPA Chg	$0.00		$0.00		$0.00	
SPA Paid	$0.00		$0.00		$0.00	
Total Owed	$0.00		$1539.74		$1539.74	
Total Paid	$0.00		$1539.74		$0.00	

Tax Detail Information

Balance Due	$0.00	$0.00	$1539.74

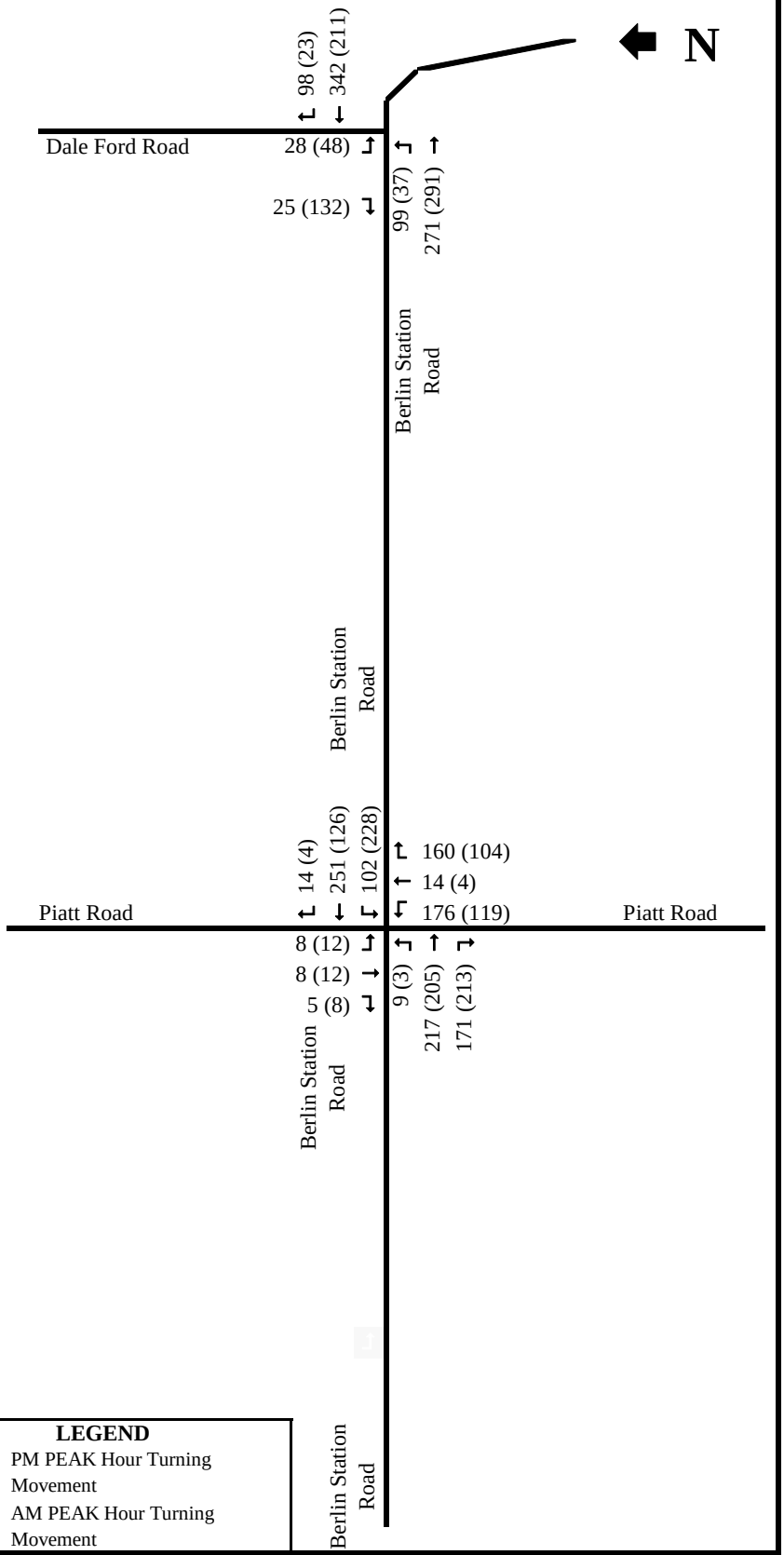
Eff. Rate	Amount	Type
53.732566	$2,238.57	OLENTANGY LSD
2.258938	$94.11	DELAWARE AREA CAREER CENTER
0.545659	$22.73	DELAWARE COUNTY HEALTH DEPT.
0.822729	$34.27	PRESERVATION PARK DISTRICT
0.872457	$36.35	DELAWARE CO. DISTRICT LIBRARY
1.05	$43.74	BERLIN TWP
6.231405	$259.60	BERLIN TWP
5.876038	$244.81	DELAWARE COUNTY
0.874862	$36.45	DELAWARE-MORROW MENTAL HEALTH
0.555352	$23.13	DELAWARE COUNTY 9-1-1 DISTRICT



LONGHILL
TRAFFIC IMPACT STUDY
PREPARED BY: SMART SERVICES, INC. 2/2019

APPENDIX EXHIBIT

2019 'NO BUILD' TRAFFIC



LONGHILL
TRAFFIC IMPACT STUDY
PREPARED BY: SMART SERVICES, INC. REV. 1 10/2019

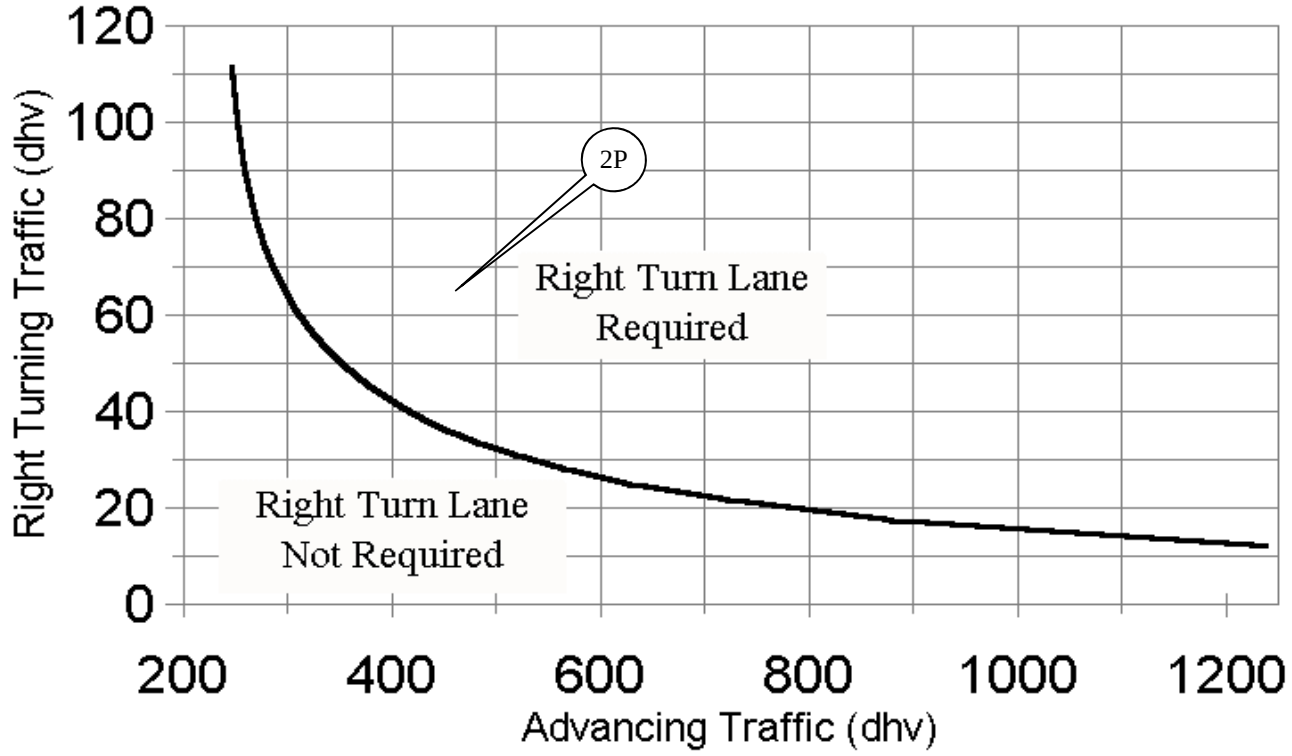
APPENDIX EXHIBIT

2039 'NO BUILD' TRAFFIC W/ TRINITY HOME BUILDERS SITE

2-Lane Highway Right Turn Lane Warrant

> 40 mph or 70 kph Posted Speed

Note: Only the volumes within the chart were plotted.



WARRANT SUMMARY

ID	INTERSECTION [MOVEMENT] - VOLUME SET	AM PEAK (A)	PM PEAK (P)		RESULT
1	Berlin Station Road & Street A [WB RT] - 2019 'BUILD'	(89,19)	(129,64)		NOT MET
2	**Berlin Station Road & Street A [WB RT] - 2039 'BUILD' W/ TRINITY HOME BUILDERS SITE**	(165,19)	**(447,64)**		**MET**

LONGHILL
TRAFFIC IMPACT STUDY
PREPARED BY: SMART SERVICES, INC. REV. 1 10/2019

APPENDIX

2 LANE HIGHWAY RIGHT TURN LANE WARRANT (> 40 MPH)

HCS7 Two-Way Stop-Control Report

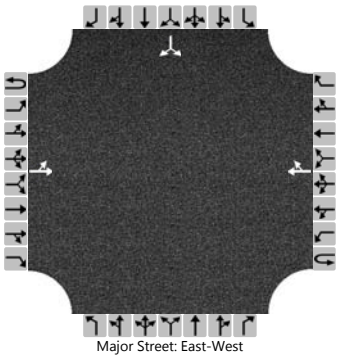
General Information

Analyst	BCK
Agency/Co.	Smart Services, Inc.
Date Performed	2/27/2019
Analysis Year	2019
Time Analyzed	AM Peak
Intersection Orientation	East-West
Project Description	2019 No Build - AM Peak

Site Information

Intersection	Berlin Sta Rd & Dale Ford
Jurisdiction	DCEO
East/West Street	Berlin Station Road
North/South Street	Dale Ford Road
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		9	68				218	18						18		70
Percent Heavy Vehicles (%)		3												3		3
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage																

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.43		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.53		3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		10													96	
Capacity, c (veh/h)		1303													756	
v/c Ratio		0.01													0.13	
95% Queue Length, Q_{95} (veh)		0.0													0.4	
Control Delay (s/veh)		7.8													10.5	
Level of Service (LOS)		A													B	
Approach Delay (s/veh)	1.0												10.5			
Approach LOS													B			

HCS7 Two-Way Stop-Control Report

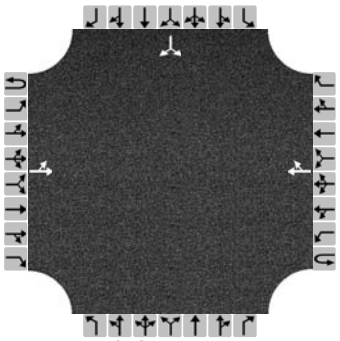
General Information

Analyst	BCK
Agency/Co.	Smart Services, Inc.
Date Performed	2/27/2019
Analysis Year	2019
Time Analyzed	PM Peak
Intersection Orientation	East-West
Project Description	2019 No Build - PM Peak

Site Information

Intersection	Berlin Sta Rd & Dale Ford
Jurisdiction	DCEO
East/West Street	Berlin Station Road
North/South Street	Dale Ford Road
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		15	38				47	15						11		8
Percent Heavy Vehicles (%)		3												3		3
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.43		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.53		3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		16													21	
Capacity, c (veh/h)		1528													908	
v/c Ratio		0.01													0.02	
95% Queue Length, Q_{95} (veh)		0.0													0.1	
Control Delay (s/veh)		7.4													9.1	
Level of Service (LOS)		A													A	
Approach Delay (s/veh)		2.1												9.1		
Approach LOS														A		

HCS7 Two-Way Stop-Control Report

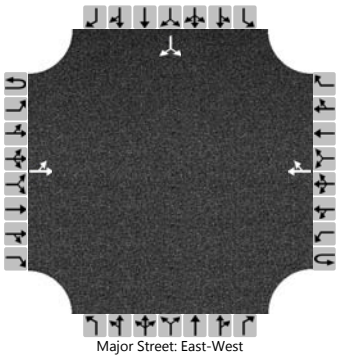
General Information

Analyst	BCK
Agency/Co.	Smart Services, Inc.
Date Performed	2/27/2019
Analysis Year	2019
Time Analyzed	AM Peak
Intersection Orientation	East-West
Project Description	2019 Build - AM Peak

Site Information

Intersection	Berlin Sta Rd & Dale Ford
Jurisdiction	DCEO
East/West Street	Berlin Station Road
North/South Street	Dale Ford Road
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		17	161				249	18						18		73
Percent Heavy Vehicles (%)		3												3		3
Proportion Time Blocked																
Percent Grade (%)													0			
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.43		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.53		3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		19													101	
Capacity, c (veh/h)		1259													689	
v/c Ratio		0.02													0.15	
95% Queue Length, Q_{95} (veh)		0.0													0.5	
Control Delay (s/veh)		7.9													11.1	
Level of Service (LOS)		A													B	
Approach Delay (s/veh)	0.9												11.1			
Approach LOS													B			

HCS7 Two-Way Stop-Control Report

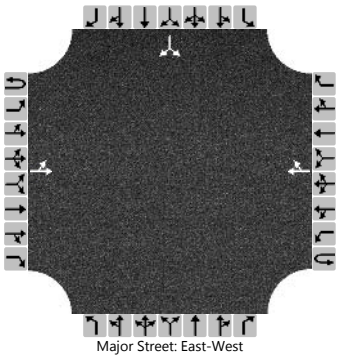
General Information

Analyst	BCK
Agency/Co.	Smart Services, Inc.
Date Performed	10/8/2019
Analysis Year	2019
Time Analyzed	PM Peak
Intersection Orientation	East-West
Project Description	2019 Build - PM Peak

Site Information

Intersection	Berlin Sta Rd & Dale Ford
Jurisdiction	DCEO
East/West Street	Berlin Station Road
North/South Street	Dale Ford Road
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		20	98				149	15						11		17
Percent Heavy Vehicles (%)		3												3		3
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage																

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.43		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.53		3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		22													31	
Capacity, c (veh/h)		1387													768	
v/c Ratio		0.02													0.04	
95% Queue Length, Q_{95} (veh)		0.0													0.1	
Control Delay (s/veh)		7.6													9.9	
Level of Service (LOS)		A													A	
Approach Delay (s/veh)		1.4												9.9		
Approach LOS														A		

HCS7 Two-Way Stop-Control Report

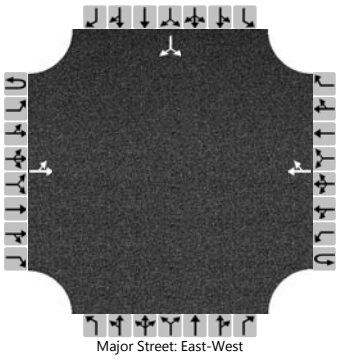
General Information

Analyst	BCK
Agency/Co.	Smart Services, Inc.
Date Performed	2/27/2019
Analysis Year	2039
Time Analyzed	AM Peak
Intersection Orientation	East-West
Project Description	2039 No Build - AM Peak

Site Information

Intersection	Berlin Sta Rd & Dale Ford
Jurisdiction	DCEO
East/West Street	Berlin Station Road
North/South Street	Dale Ford Road
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		37	291				211	23						48		132
Percent Heavy Vehicles (%)		3												3		3
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage																

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.43		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.53		3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		40													196	
Capacity, c (veh/h)		1305													643	
v/c Ratio		0.03													0.30	
95% Queue Length, Q_{95} (veh)		0.1													1.3	
Control Delay (s/veh)		7.8													13.0	
Level of Service (LOS)		A													B	
Approach Delay (s/veh)		1.1												13.0		
Approach LOS														B		

HCS7 Two-Way Stop-Control Report

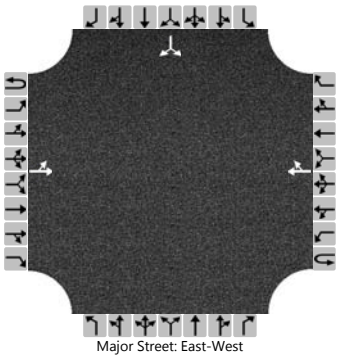
General Information

Analyst	BCK
Agency/Co.	Smart Services, Inc.
Date Performed	2/27/2019
Analysis Year	2039
Time Analyzed	PM Peak
Intersection Orientation	East-West
Project Description	2039 No Build - PM Peak

Site Information

Intersection	Berlin Sta Rd & Dale Ford
Jurisdiction	DCEO
East/West Street	Berlin Station Road
North/South Street	Dale Ford Road
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		99	271				342	98						28		25
Percent Heavy Vehicles (%)		3												3		3
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage																

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.43		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.53		3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		108													58	
Capacity, c (veh/h)		1079													358	
v/c Ratio		0.10													0.16	
95% Queue Length, Q_{95} (veh)		0.3													0.6	
Control Delay (s/veh)		8.7													17.0	
Level of Service (LOS)		A													C	
Approach Delay (s/veh)		3.1												17.0		
Approach LOS														C		

HCS7 Two-Way Stop-Control Report

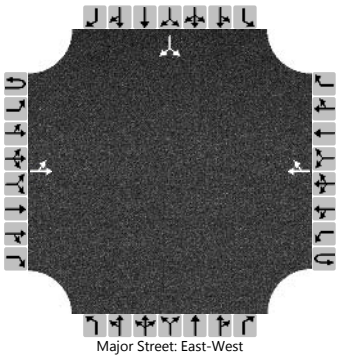
General Information

Analyst	BCK
Agency/Co.	Smart Services, Inc.
Date Performed	10/08/2019
Analysis Year	2039
Time Analyzed	AM Peak
Intersection Orientation	East-West
Project Description	2039 Build - AM Peak

Site Information

Intersection	Berlin Sta Rd & Dale Ford
Jurisdiction	DCEO
East/West Street	Berlin Station Road
North/South Street	Dale Ford Road
Peak Hour Factor	0.90
Analysis Time Period (hrs)	0.25

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		45	382				241	23						48		135
Percent Heavy Vehicles (%)		3												3		3
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage			Undivided													

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.43		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.53		3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		50													203	
Capacity, c (veh/h)		1263													566	
v/c Ratio		0.04													0.36	
95% Queue Length, Q_{95} (veh)		0.1													1.6	
Control Delay (s/veh)		8.0													14.9	
Level of Service (LOS)		A													B	
Approach Delay (s/veh)		1.2												14.9		
Approach LOS														B		

HCS7 Two-Way Stop-Control Report

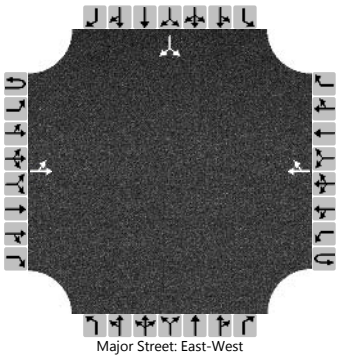
General Information

Analyst	BCK
Agency/Co.	Smart Services, Inc.
Date Performed	10/08/2019
Analysis Year	2039
Time Analyzed	PM Peak
Intersection Orientation	East-West
Project Description	2039 Build - PM Peak

Site Information

Intersection	Berlin Sta Rd & Dale Ford
Jurisdiction	DCEO
East/West Street	Berlin Station Road
North/South Street	Dale Ford Road
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: East-West

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority	1U	1	2	3	4U	4	5	6		7	8	9		10	11	12
Number of Lanes	0	0	1	0	0	0	1	0		0	0	0		0	1	0
Configuration		LT						TR							LR	
Volume (veh/h)		104	331				444	98						28		34
Percent Heavy Vehicles (%)		3												3		3
Proportion Time Blocked																
Percent Grade (%)														0		
Right Turn Channelized																
Median Type | Storage																

Critical and Follow-up Headways

Base Critical Headway (sec)		4.1												7.1		6.2
Critical Headway (sec)		4.13												6.43		6.23
Base Follow-Up Headway (sec)		2.2												3.5		3.3
Follow-Up Headway (sec)		2.23												3.53		3.33

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		113													67	
Capacity, c (veh/h)		981													300	
v/c Ratio		0.12													0.22	
95% Queue Length, Q_{95} (veh)		0.4													0.8	
Control Delay (s/veh)		9.1													20.5	
Level of Service (LOS)		A													C	
Approach Delay (s/veh)		3.2												20.5		
Approach LOS														C		

HCS7 Roundabouts Report

General Information

Analyst	BCK
Agency or Co.	Smart Services, Inc.
Date Performed	10/08/2019
Analysis Year	2019
Time Analyzed	AM Peak
Project Description	2019 No Build - AM Peak

Site Information

Intersection	Berlin Sta Rd & Piatt Rd
E/W Street Name	Berlin Station Road
N/S Street Name	Piatt Road
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.90
Jurisdiction	DCEO

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	0	42	92	0	350	38	0	0	77	0	103	0	0	0	0
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (v_{PCE}), pc/h	0	0	48	105	0	401	43	0	0	88	0	118	0	0	0	0
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway (s)		2.6087			2.6087			2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		153			444			206			0	
Entry Volume, veh/h		149			431			200			0	
Circulating Flow (v_c), pc/h	401			88			48			532		
Exiting Flow (v_{ex}), pc/h	166			131			0			506		
Capacity (c_{pce}), pc/h		917			1262			1314			802	
Capacity (c), veh/h		890			1225			1276			779	
v/c Ratio (x)		0.17			0.35			0.16			0.00	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		5.7			6.3			4.1			4.6	
Lane LOS		A			A			A			A	
95% Queue, veh		0.6			1.6			0.6			0.0	
Approach Delay, s/veh	5.7			6.3			4.1					
Approach LOS	A			A			A					
Intersection Delay, s/veh | LOS	5.6						A					

HCS7 Roundabouts Report

General Information

Analyst	BCK
Agency or Co.	Smart Services, Inc.
Date Performed	10/08/2019
Analysis Year	2019
Time Analyzed	PM Peak
Project Description	2019 No Build - PM Peak

Site Information

Intersection	Berlin Sta Rd & Piatt Rd
E/W Street Name	Berlin Station Road
N/S Street Name	Piatt Road
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.90
Jurisdiction	DCEO

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	0	41	84	0	83	87	0	0	102	0	103	0	0	0	0
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (v_{PCE}), pc/h	0	0	47	96	0	95	100	0	0	117	0	118	0	0	0	0
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway (s)		2.6087			2.6087			2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		143			195			235			0	
Entry Volume, veh/h		139			189			228			0	
Circulating Flow (v_c), pc/h	95			117			47			312		
Exiting Flow (v_{ex}), pc/h	165			217			0			191		
Capacity (c_{pce}), pc/h		1253			1225			1315			1004	
Capacity (c), veh/h		1216			1189			1277			975	
v/c Ratio (x)		0.11			0.16			0.18			0.00	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		3.9			4.4			4.3			3.7	
Lane LOS		A			A			A			A	
95% Queue, veh		0.4			0.6			0.6			0.0	
Approach Delay, s/veh	3.9			4.4			4.3					
Approach LOS	A			A			A					
Intersection Delay, s/veh | LOS	4.2						A					

HCS7 Roundabouts Report

General Information

Analyst	BCK
Agency or Co.	Smart Services, Inc.
Date Performed	10/08/2019
Analysis Year	2019
Time Analyzed	AM Peak
Project Description	2019 Build - AM Peak

Site Information

Intersection	Berlin Sta Rd & Piatt Rd
E/W Street Name	Berlin Station Road
N/S Street Name	Piatt Road
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.90
Jurisdiction	DCEO

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	1	71	121	0	350	48	23	0	87	24	103	0	70	73	3
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (v_{PCE}), pc/h	0	1	81	138	0	401	55	26	0	100	27	118	0	80	84	3
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway (s)		2.6087			2.6087			2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		220			482			245			167	
Entry Volume, veh/h		214			468			238			162	
Circulating Flow (v_c), pc/h	565			128			162			556		
Exiting Flow (v_{ex}), pc/h	279			158			54			623		
Capacity (c_{pce}), pc/h		776			1211			1170			783	
Capacity (c), veh/h		753			1176			1136			760	
v/c Ratio (x)		0.28			0.40			0.21			0.21	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		8.1			7.1			5.1			7.1	
Lane LOS		A			A			A			A	
95% Queue, veh		1.2			1.9			0.8			0.8	
Approach Delay, s/veh	8.1			7.1			5.1			7.1		
Approach LOS	A			A			A			A		
Intersection Delay, s/veh | LOS	6.8						A					

HCS7 Roundabouts Report

General Information

Analyst	BCK
Agency or Co.	Smart Services, Inc.
Date Performed	10/08/2019
Analysis Year	2019
Time Analyzed	PM Peak
Project Description	2019 Build - PM Peak

Site Information

Intersection	Berlin Sta Rd & Piatt Rd
E/W Street Name	Berlin Station Road
N/S Street Name	Piatt Road
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.90
Jurisdiction	DCEO

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	3	60	103	0	83	119	78	0	134	81	103	0	46	48	2
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (v_{PCE}), pc/h	0	3	69	118	0	95	136	89	0	153	93	118	0	53	55	2
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway (s)		2.6087			2.6087			2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		190			320			364			110	
Entry Volume, veh/h		184			311			353			107	
Circulating Flow (v_c), pc/h	203			249			125			384		
Exiting Flow (v_{ex}), pc/h	240			291			185			268		
Capacity (c_{pce}), pc/h		1122			1070			1215			933	
Capacity (c), veh/h		1089			1039			1179			906	
v/c Ratio (x)		0.17			0.30			0.30			0.12	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		4.8			6.4			5.9			5.1	
Lane LOS		A			A			A			A	
95% Queue, veh		0.6			1.3			1.3			0.4	
Approach Delay, s/veh	4.8			6.4			5.9			5.1		
Approach LOS	A			A			A			A		
Intersection Delay, s/veh | LOS	5.8						A					

HCS7 Roundabouts Report

General Information

Analyst	BCK
Agency or Co.	Smart Services, Inc.
Date Performed	10/08/2019
Analysis Year	2039
Time Analyzed	AM Peak
Project Description	2039 No Build - AM Peak

Site Information

Intersection	Berlin Sta Rd & Piatt Rd
E/W Street Name	Berlin Station Road
N/S Street Name	Piatt Road
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.92
Jurisdiction	DCEO

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	3	205	213	0	228	126	4	0	119	4	104	0	12	12	8
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (v_{PCE}), pc/h	0	3	230	238	0	255	141	4	0	133	4	116	0	13	13	9
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway (s)		2.6087			2.6087			2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		471			400			253			35	
Entry Volume, veh/h		457			388			246			34	
Circulating Flow (v_c), pc/h	281			140			246			529		
Exiting Flow (v_{ex}), pc/h	359			283			11			506		
Capacity (c_{pce}), pc/h		1036			1196			1074			805	
Capacity (c), veh/h		1006			1162			1042			781	
v/c Ratio (x)		0.45			0.33			0.24			0.04	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		8.8			6.3			5.7			5.0	
Lane LOS		A			A			A			A	
95% Queue, veh		2.4			1.5			0.9			0.1	
Approach Delay, s/veh	8.8			6.3			5.7			5.0		
Approach LOS	A			A			A			A		
Intersection Delay, s/veh | LOS	7.2						A					

HCS7 Roundabouts Report

General Information

Analyst	BCK
Agency or Co.	Smart Services, Inc.
Date Performed	10/08/2019
Analysis Year	2039
Time Analyzed	PM Peak
Project Description	2039 No Build - PM Peak

Site Information

Intersection	Berlin Sta Rd & Piatt Rd
E/W Street Name	Berlin Station Road
N/S Street Name	Piatt Road
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.92
Jurisdiction	DCEO

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	9	217	171	0	102	251	14	0	176	14	160	0	8	8	5
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (v_{PCE}), pc/h	0	10	243	191	0	114	281	16	0	197	16	179	0	9	9	6
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway (s)		2.6087			2.6087			2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		444			411			392			24	
Entry Volume, veh/h		431			399			381			23	
Circulating Flow (v_c), pc/h	132			223			262			592		
Exiting Flow (v_{ex}), pc/h	431			484			42			314		
Capacity (c_{pce}), pc/h		1206			1099			1056			754	
Capacity (c), veh/h		1171			1067			1026			732	
v/c Ratio (x)		0.37			0.37			0.37			0.03	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		6.7			7.2			7.4			5.2	
Lane LOS		A			A			A			A	
95% Queue, veh		1.7			1.8			1.7			0.1	
Approach Delay, s/veh	6.7			7.2			7.4			5.2		
Approach LOS	A			A			A			A		
Intersection Delay, s/veh | LOS	7.1						A					

HCS7 Roundabouts Report

General Information

Analyst	BCK
Agency or Co.	Smart Services, Inc.
Date Performed	10/08/2019
Analysis Year	2039
Time Analyzed	AM Peak
Project Description	2039 Build - AM Peak

Site Information

Intersection	Berlin Sta Rd & Piatt Rd
E/W Street Name	Berlin Station Road
N/S Street Name	Piatt Road
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.92
Jurisdiction	DCEO

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	4	234	242	0	228	136	27	0	129	28	104	0	82	85	11
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (v_{PCE}), pc/h	0	4	262	271	0	255	152	30	0	144	31	116	0	92	95	12
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway (s)		2.6087			2.6087			2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		537			437			291			199	
Entry Volume, veh/h		521			424			283			193	
Circulating Flow (v_c), pc/h	442			179			358			551		
Exiting Flow (v_{ex}), pc/h	470			308			65			621		
Capacity (c_{pce}), pc/h		879			1150			958			787	
Capacity (c), veh/h		854			1116			930			764	
v/c Ratio (x)		0.61			0.38			0.30			0.25	

Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		13.7			7.1			7.1			7.6	
Lane LOS		B			A			A			A	
95% Queue, veh		4.3			1.8			1.3			1.0	
Approach Delay, s/veh	13.7			7.1			7.1			7.6		
Approach LOS	B			A			A			A		
Intersection Delay, s/veh | LOS	9.6						A					

HCS7 Roundabouts Report

General Information

Analyst	TJS
Agency or Co.	Smart Services, Inc.
Date Performed	10/08/2019
Analysis Year	2039
Time Analyzed	PM Peak
Project Description	2039 Build - PM Peak

Site Information

Intersection	Berlin Sta Rd & Piatt Rd
E/W Street Name	Berlin Station Road
N/S Street Name	Piatt Road
Analysis Time Period (hrs)	0.25
Peak Hour Factor	0.92
Jurisdiction	DCEO

Volume Adjustments and Site Characteristics

Approach	EB				WB				NB				SB			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Number of Lanes (N)	0	0	1	0	0	0	1	0	0	0	1	0	0	0	1	0
Lane Assignment			LTR				LTR				LTR				LTR	
Volume (V), veh/h	0	12	236	190	0	102	283	92	0	208	95	160	0	54	56	7
Percent Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Flow Rate (v_{PCE}), pc/h	0	13	264	213	0	114	317	103	0	233	106	179	0	60	63	8
Right-Turn Bypass	None				None				None				None			
Conflicting Lanes	1				1				1				1			
Pedestrians Crossing, p/h	0				0				0				0			

Critical and Follow-Up Headway Adjustment

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Critical Headway (s)		4.9763			4.9763			4.9763			4.9763	
Follow-Up Headway (s)		2.6087			2.6087			2.6087			2.6087	

Flow Computations, Capacity and v/c Ratios

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Entry Flow (v_e), pc/h		490			534			518			131	
Entry Volume, veh/h		476			518			503			127	
Circulating Flow (v_c), pc/h	237			352			337			664		
Exiting Flow (v_{ex}), pc/h	503			558			222			390		
Capacity (c_{pce}), pc/h		1084			964			979			701	
Capacity (c), veh/h		1052			936			950			681	
v/c Ratio (x)		0.45			0.55			0.53			0.19	

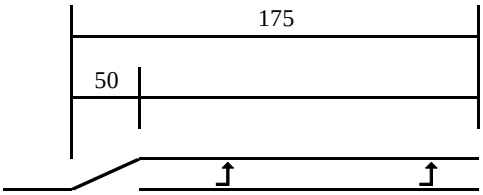
Delay and Level of Service

Approach	EB			WB			NB			SB		
Lane	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass	Left	Right	Bypass
Lane Control Delay (d), s/veh		8.5			11.3			10.6			7.4	
Lane LOS		A			B			B			A	
95% Queue, veh		2.4			3.5			3.2			0.7	
Approach Delay, s/veh	8.5			11.3			10.6			7.4		
Approach LOS	A			B			B			A		
Intersection Delay, s/veh | LOS	10.0						A					

(1) BERLIN STATION ROAD & STREET A - EB LT - 2019 'BUILD'

Critical Analysis Period: PM PEAK

Type =	Unsignalized Through Road				
Speed =	45	MPH	Storage Length (Adj) =	50	feet
Cycle Length =	60	seconds	Deceleration/Div. Taper =	125	feet
Turning Volume =	64	VPH	Turn Lane Length =	175	feet
# of Turning Lanes =	1				
Advancing Volume =	109	VPH			
Turning % (>10% HIGH) =	58.7%	HIGH			
Design Condition =	C				
Vehicles per Cycle =	1.1				
Storage Length (Calc) =	50	feet			

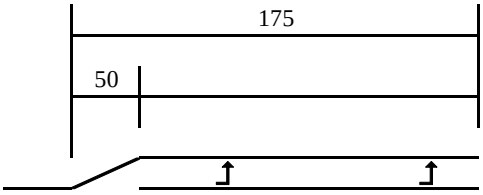


Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

(2) BERLIN STATION ROAD & STREET A - EB LT - 2039 'BUILD' W/ TRINITY HOME BUILDERS SITE

Critical Analysis Period: PM PEAK

Type =	Unsignalized Through Road				
Speed =	45	MPH	Storage Length (Adj) =	50	feet
Cycle Length =	60	seconds	Deceleration/Div. Taper =	125	feet
Turning Volume =	64	VPH	Turn Lane Length =	175	feet
# of Turning Lanes =	1				
Advancing Volume =	312	VPH			
Turning % (>10% HIGH) =	20.5%	HIGH			
Design Condition =	C				
Vehicles per Cycle =	1.1				
Storage Length (Calc) =	50	feet			

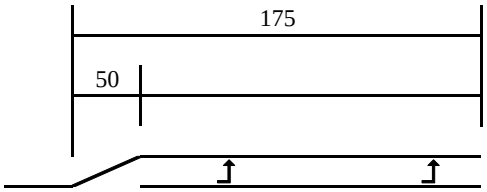


Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

(3) STREET D & PIATT ROAD - NB LT - 2019 'BUILD'

Critical Analysis Period: PM PEAK

Type =	Unsignalized Through Road				
Speed =	45	MPH	Storage Length (Adj) =	50	feet
Cycle Length =	60	seconds	Deceleration/Div. Taper =	125	feet
Turning Volume =	64	VPH	Turn Lane Length =	175	feet
# of Turning Lanes =	1				
Advancing Volume =	163	VPH			
Turning % (>10% HIGH) =	39.3%	HIGH			
Design Condition =	C				
Vehicles per Cycle =	1.1				
Storage Length (Calc) =	50	feet			

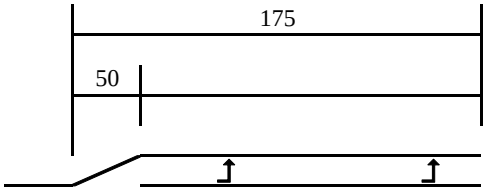


Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

(4) STREET D & PIATT ROAD - NB LT - 2039 'BUILD' W/ TRINITY HOME BUILDERS SITE

Critical Analysis Period: PM PEAK

Type =	Unsignalized Through Road				
Speed =	45	MPH	Storage Length (Adj) =	50	feet
Cycle Length =	60	seconds	Deceleration/Div. Taper =	125	feet
Turning Volume =	64	VPH	Turn Lane Length =	175	feet
# of Turning Lanes =	1				
Advancing Volume =	200	VPH			
Turning % (>10% HIGH) =	32.0%	HIGH			
Design Condition =	C				
Vehicles per Cycle =	1.1				
Storage Length (Calc) =	50	feet			

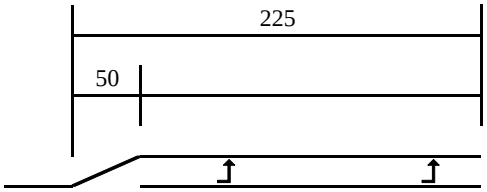


Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

(5) STREET B & PIATT ROAD - NB LT - 2019 'BUILD'

Critical Analysis Period: PM PEAK

Type =	Unsignalized Through Road				
Speed =	45	MPH	Storage Length (Adj) =	100	feet
Cycle Length =	60	seconds	Deceleration/Div. Taper =	125	feet
Turning Volume =	99	VPH	Turn Lane Length =	225	feet
# of Turning Lanes =	1				
Advancing Volume =	99	VPH			
Turning % (>10% HIGH) =	100.0%	HIGH			
Design Condition =	C				
Vehicles per Cycle =	1.7				
Storage Length (Calc) =	100	feet			

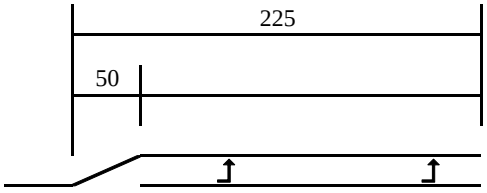


Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

(6) STREET B & PIATT ROAD - NB LT - 2039 'BUILD' W/ TRINITY HOME BUILDERS SITE

Critical Analysis Period: PM PEAK

Type =	Unsignalized Through Road				
Speed =	45	MPH	Storage Length (Adj) =	100	feet
Cycle Length =	60	seconds	Deceleration/Div. Taper =	125	feet
Turning Volume =	99	VPH	Turn Lane Length =	225	feet
# of Turning Lanes =	1				
Advancing Volume =	99	VPH			
Turning % (>10% HIGH) =	100.0%	HIGH			
Design Condition =	C				
Vehicles per Cycle =	1.7				
Storage Length (Calc) =	100	feet			



Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.

LONGHILL
TRAFFIC IMPACT STUDY

PREPARED BY: SMART SERVICES, INC. REV. 2 11/2019

LEFT TURN LANE CALCULATIONS

(2) BERLIN STATION ROAD & STREET A - WB RT - 2039 'BUILD' W/ TRINITY HOME BUILDERS SITE

Critical Analysis Period: PM Peak

Type =	Unsignalized Through Road				
Speed =	45	MPH	Storage Length (Adj) =	50	feet
Cycle Length =	60	seconds	Deceleration/Div. Taper =	125	feet
Turning Volume =	64	VPH	Turn Lane Length =	175	feet
# of Turning Lanes =	1				
Advancing Volume =	447	VPH			
Turning % (>10% HIGH) =	14.3%	HIGH			
Design Condition =	C				
Vehicles per Cycle =	1.07				
Storage Length (Calc) =	50	feet			

Calculations based on 401-7E in ODOT L&D Manual. All dimensions are in feet.