AGENDA
CITY PLANNING COMMISSION

City Hall - Council Chambers
6131 Taylorsville Road
May 14, 2024
6:00 P.M.

1. Call Meeting To Order

2. Roll Call

3. Opening Remarks By The Chair and Commissioners

4. Citizens Comments

5. Swearing of Witnesses

6. Pending Business

   A. None

7. New Business

   A. DETAILED DEVELOPMENT PLAN - The applicant, BUC-EE'S HUBER HEIGHTS, LLC, is requesting approval of a Detailed Development Plan to facilitate the construction of a Buc-ee's travel center comprised of a 74,000 sq ft convenience store with 120 fueling pumps. Property is located at 8000 State Route 235 (DDP 24-09).

8. Additional Business

A. None

9. Approval of Minutes

A. Without objection the minutes of the April 9, 2024, Planning Commission meeting are approved.

10. Reports and Calendar Review

11. Upcoming Meetings

A. June 11, 2024
July 9, 2024

12. Adjournment

AI-10059 **7. A.**

Planning Commission

Meeting Date: 05/14/2024

DETAILED DEVELOPMENT PLAN - The applicant, BUC-EE'S HUBER HEIGHTS, LLC, is requesting approval of a Detailed Development Plan for a proposed Buc-ee's.

Information

Agenda Title

DETAILED DEVELOPMENT PLAN - The applicant, BUC-EE'S HUBER HEIGHTS, LLC, is requesting approval of a Detailed Development Plan to facilitate the construction of a Buc-ee's travel center comprised of a 74,000 sq ft convenience store with 120 fueling pumps. Property is located at 8000 State Route 235 (DDP 24-09).

Purpose and Background

Attachments

Staff Report
Decision Record
Drawings
Elevations
Traffic Study
Photometrics Plan
Landscape Plan
Land Title Survey
Signage Plan
Drainage Report
Fire Assessment

Memorandum

Staff Report for Meeting of May 14, 2024

To: Huber Heights City Planning Commission

From: Aaron K. Sorrell, City Planner

Date: May 9, 2024

Subject: DDP 24-09 Detailed Development Plan – 8000 SR 235.
Application dated April 23, 2024

Department of Planning and Zoning City of Huber Heights

APPLICANT/OWNER:	Buc-ee's Huber Heights, LLC – Applicant / Owner
DEVELOPMENT NAME:	Buc-ee's Huber Heights
ADDRESS/LOCATION:	8000 St. Route 235
ZONING/ACREAGE:	PC – Planned Commercial / 38.96 Acres
EXISTING LAND USE:	Vacant / Agricultural
ZONING ADJACENT LAND:	North: I-1 East: Agricultural use (Clark County) West: I-1 & PC South: Highway use (I-70)
REQUEST:	The applicant requests approval of a detailed development plan to facilitate the construction of a Buc-ee's travel center comprised of a 74,000 SF convenience store with 120 fueling pumps.
ORIGINAL APPROVAL:	BDP approved October 23, 2023
APPLICABLE HHCC:	Chapter 1171, 1176, 1181, 1182, 1189
CORRESPONDENCE:	In Favor – None received In Opposition – None received.

STAFF ANALYSIS AND RECOMMENDATION:

Overview:
The applicant seeks to construct a new 74,000 SF Buc-ee's travel center on approximately 39 acres at the northeast corner of the I-70 and SR-235. In addition to the convenience store, the proposed site plan illustrates 120 fueling pumps, 24 Tesla charging stations and 699 parking spaces.

At the May 14th meeting, Buc-ee's is seeking approval of the detailed development plan including building signs. The pylon sign included in the application will be considered at a later date. This allows Buc-ee's to field verify the minimum height necessary for the pylon sign to be visible to motorists and not obstructed by trees along I-70.

Site History
The Planning Commission voted to recommend approval of the rezoning and basic development plan on September 12, 2023. The Huber Heights City Council approved the rezoning and basic development plan on October 23, 2023.

Site Characteristics
Two minor site constraints have influenced the site layout. First, a 15-inch sanitary sewer line bisects the site and runs to the Clark County treatment plant. The city is extending a new sanitary sewer line south to connect to the City of Fairborn's treatment plant. Once that connection is made, the 15-inch line bisecting the site can be abandoned. The City and Buc-ee's have been coordinating the location and construction of the new lift station, which will be near the front entrance. Construction of the lift station began in May.

Secondly, there is a Miami Conservancy District (MCD) retarding basin easement on the southern end of the site. These easements are common in the retarding basins behind each dam and control how buildings are constructed and how fill dirt is managed on-site. Simply put, the dams are designed to store a specific volume of water during major rain events, and the MCD does not want that volume reduced. The applicant has been working to obtain the necessary permits, and MCD has informed City staff those permits should be issued in the coming weeks.

Applicable Zoning Regulations
The applicable zoning chapters include 1171 General Provisions, 1176 Planned Commercial District, and 1181 General Provisions. The relevant sections are cited and discussed below:

1171.09 - Detailed development plan.
The detailed development plan shall conform substantially to the basic development plan. If desired by the developer, it may be submitted in stages with each stage reflecting a portion of the approved basic plan which is proposed to be recorded and developed;

provided however, that such portion conforms to all requirements of this chapter and other applicable ordinances. The requirement procedure for approval of a detailed development plan shall be:

(a) The detailed plan and supporting data shall be filed with the City. The Planning Commission shall determine that such plan is in conformity with these regulations and in agreement with the approved basic plan.

(b) After review of the detailed plan and supporting data, the Commission shall approve or disapprove the plan submitted by the developer. Disapproval of the detailed plan shall be based on its failure to comply with the basic development plan and current applicable codes, standards and regulations.

The staff analysis addresses the elements of the Detailed Development Plan and standards for approval.

Staff Analysis

The approved BDP Ordinance has the following conditions:

1. The applicant shall assess the health of the existing trees along the site's perimeter that will be incorporated into the landscaping plan. Healthy trees shall be identified and incorporated into the landscaping plan as appropriate, subject to approval as part of the Detailed Development Plan. The applicant shall also develop a plan to protect key trees during construction, subject to staff approval.
2. The applicant shall work with staff to determine the final street tree placement during the Detailed Development Plan phase.
3. Signs shall conform with Chapter 1189, unless otherwise approved in the Detailed Development Plan by the Planning Commission.
4. Permitted uses shall be those listed as permitted uses in Section 1176.01, except the following are prohibited:
    - Vehicle sales, rental, or service
    - Sweepstakes Cafes
    - Short-term lenders (pay-day lenders, loans against auto titles, etc.)
    - Dry cleaners
    - Outdoor sales and storage, unless approved by the Planning Commission

Conformance with Zoning Regulations

Conformance with the approved conditions of the BDP:

The applicant shall assess the health of the existing trees along the site's perimeter that will be incorporated into the landscaping plan. Healthy trees shall be identified and incorporated into the landscaping plan as appropriate, subject to approval as part of the Detailed Development Plan. The applicant shall also develop a plan to protect key trees during construction, subject to staff approval.

The applicant's landscaping plan illustrates the required tree survey by size and species. Along the perimeter of the site, approximately 75% of the existing trees will remain and are incorporated into the landscape plan. The site grading for the new retention ponds and front entrance necessitates removal of the remaining perimeter trees.

The applicant shall work with staff to determine the final street tree placement during the Detailed Development Plan phase.

Staff is pleased with the proposed landscaping plan and tree layout along SR-235. Staff has requested the applicant either add additional trees along SR-235 north of the main entrance or redistribute the trees closer to the roadway to fill in the current void along the slope from SR-235 to the parking area.

Signs shall conform with Chapter 1189, unless otherwise approved in the Detailed Development Plan by the Planning Commission.

Signs will be discussed in more detail later in this report.

Permitted uses shall be those listed as permitted uses in Section 1176.01, except the following are prohibited:

- **Vehicle sales, rental or service**
- **Sweepstakes Cafes**
- **Short-term lenders (pay-day lenders, loans against auto titles, etc.)**
- **Dry cleaners**
- **Outdoor sales and storage, unless approved by the Planning Commission**

These use restrictions were memorialized in the rezoning ordinance. The applicant is requesting outdoor sales along the perimeter wall of the store, which is illustrated on the site plan (sheet c-04).

Overall, the site plan within this DDP application is largely consistent with the BDP site plan approved by the City Council.

- The Buc-ee's store size remains the same at 74,000 S.F.
- Building elevations and wall signs are consistent with what was illustrated during the BDP discussions.
- The parking count remains at 699.
- All required setbacks are met.

The applicant has moved the site (building and parking) slightly to the south, to accommodate grading requirements. The new site plan illustrates reconfigured south retention pond and a third pond on the north side of the site.

Conformance With Other Zoning Requirements:

Lighting
The overall lighting plan conforms to the zoning code requirements for average illumination of the parking areas and light trespass restrictions. All fixtures are full cutoff fixtures.

The lighting plan indicates the parking lot lights are 30-feet tall. The Planning Commission has the discretion to set maximum lighting height under the zoning code. Since this site is not adjacent to any residential homes or apartments, and the highway lighting pole on the southwest edge of the site is nearly 100' tall, staff is comfortable with 30-foot parking lot lights.

Parking
The applicant proposes 699 parking spaces, more than the approximately 600 required by the zoning code. Stall dimensions are 10' x 20', as required. The 699 spaces include 11 RV/bus spaces, and 24 EV charging spaces.

Landscaping and Screening
Street trees: There is approximately 1,200 feet of frontage along SR-235, which requires 30 street trees. The plans indicate approximately 29 trees. Staff have requested additional trees or better distribution of trees along SR-235, north of the main entrance.

Parking lot landscaping: The landscaping plan meets and, in most cases, exceeds the zoning code requirements. Perimeter parking landscaping is met through a combination of trees and open space (buffer yards, retention pond). There are approximately 33 perimeter trees. This is in addition to the over 400 existing trees that will remain on site.

Interior parking lot landscaping: Interior parking lot landscaping includes a mixture of low plants and shrubs, along with a mixture of pin oak, black gum, honey locust, and hophornbeam (birch family) trees. All parking lot islands contain a tree with various ground plantings. Additionally, most parking stalls meet the requirement that there be two trees within 60 feet of the stall.

Service Structures
The trash compactors and generator are screens by solid fences.

Commercial Building Design Standards
The proposed building complies with the commercial building design standards outlined in the zoning code. The exterior is 100% masonry (a mixture of stucco and synthetic stone). The combination of smooth EIFS stucco, synthetic stone, decorative star medallions, and entrances break up the façade. There are no blank walls on the building.

Signage
Since this is a Planned Commercial District, the Planning Commission has great latitude in approving signage.

Building Signs: The applicant is proposing three wall signs each approximately 285 SF. (logo and text combined) for a total of approximately 855 SF. It is the staff's professional opinion that wall sign size should be allocated as a ratio of sign area to building wall length, so signs are proportional to building size, and they don't appear too large or too small. Many communities have a ratio of 1 to 2 sf per linear foot of the building wall. The North Heights Plaza shopping center PUD allows 2 SF per linear foot.

In this case, the Buc-ee's signs are well below 2 SF / linear foot. The proposed sign ratios are:

Main entrance (west wall):	0.7 SF / linear foot
North wall:	1.1 SF / linear foot
South wall:	1.1 SF / linear foot

Staff recommends approval of the building wall signs as submitted.

Fuel Canopy Signs: There are two fuel canopies, each with three logo signs, each 50.24 SF. The proposed logo ratios are:

Canopy ends:	0.8 SF / linear foot
Canopy 1 sides:	0.08 SF / linear foot
Canopy 2 sides:	0.11 SF / linear foot

Other Considerations
Traffic Improvements
The Buc-ee's team, ODOT and the City have been working over the past months to address the additional traffic that will be generated by the proposed development. Based on the traffic study and ODOT recommendations, the following improvements will be constructed as part of this project:

SR-235 and Access A (main entrance):

- Construct a northbound right-turn lane at the SR-235 and Access A intersection.

SR-235 and Center Point 70 Boulevard/ Access B:

- Construct a channelized 375- foot northbound-right turn lane at the SR-235 and Center Point 70 Boulevard/ Access B intersection. The northbound right-turn lane is unsignalized and will be a free movement.
- Construct a southbound left turn lane at the SR-235 and Center Point 70 Boulevard/ Access B intersection. The recommended length of this turn lane is 200-feet including a 50-foot diverging taper. A 3-lane roadway section with center lane two-way left-turn lane (TWLT) will be constructed between Center Point 70 Boulevard Coca Cola Boulevard along SR-235.

- Construct an additional northbound thru-lane and receiving lane, north of Center Point 70/ Access B. The easternmost northbound thru-lane will merge into a single-lane north of Center Point 70.
- Modify signal timing and phasing at the SR-235 and Center Point 70 Boulevard/ Access B intersection.
- Extend the Northbound left-turn lane to 475-feet at the SR-235 and Center Point 70 Boulevard/ Access B intersection.
- Construct an eastbound right-turn lane at the SR-235 and Center Point 70 Boulevard/ Access B intersection. The recommended length of this turn-lane is 450-feet including a 50-foot diverging taper.
- Convert the southbound right-turn lane into a southbound thru-right-turn lane at the SR-235 and Center Point 70 Boulevard/ Access B intersection.

SR-235 and Coca Cola Boulevard:

- Update traffic signal timings at the SR-235 and Coca Cola Boulevard intersection.

I-70 Westbound to SR-235 Northbound Off-Ramp Intersection:

- Construct a signalized intersection at the I-70 Westbound to Northbound SR-235 Off-Ramp and Northbound SR-235 intersection.
- Construct an additional lane on I-70 Westbound Exit Ramp to form a two-lane ramp from the exit ramp gore to the proposed I-70 Westbound Ramp to northbound SR-235 ramp and SR-235 signalized intersection.
- Construct an additional northbound thru-lane at the proposed I-70 Westbound to Northbound SR235 Off-Ramp and Northbound SR-235 intersection. The additional northbound thru-lane will be 200 feet long including a 50-foot diverging taper.

SR-235 Corridor:

- Extend the existing 12-foot median along SR-235 to terminate 150-feet north of SR-235 and Artz Road/ Access A. A center two-way left-turn lane (TWLT) will be constructed that begins at the median and drops into a northbound left-turn lane at the SR-235 and Center Point 70/ Access B intersection.
- Restripe SR-235 Southbound from Artz Road to I-70 Westbound on-ramp.
- Widen SR-235 north of Center Point 70 Boulevard to two lanes each way for 450' from Center Point 70 Boulevard.

Based on these improvements, City staff and ODOT are comfortable that traffic flow will be maintained and manageable during normal operating days. It is important to note that traffic volumes will likely be higher in the months immediately after opening and during high-volume holidays.

Staff Analysis

The DDP application significantly conforms with the Basic Development Plan ordinance approved by the City Council. Additionally, the DDP generally conforms to all relevant zoning regulations, including landscaping, lighting, parking, and architectural standards.

The applicant has accommodated City and ODOT requests, particularly as it relates to traffic improvements.

Additional Comments:

Fire: See attached. The comments have been forwarded to the applicant.

City Engineer: Fire water lines shall be in a 10' public easement.

STAFF RECOMMENDATION

Staff feels the proposal meets the standards outlined in Section 1171.09. Staff recommends approval of the Detailed Development Plan submitted on April 23, 2024, with the following conditions:

1. The applicant shall comply with all Fire Department conditions.
2. Fire water lines shall be in a 10' public easement.
3. Additional street trees shall be provided or located along SR 235, north of the main entrance, subject to staff approval.
4. The pylon sign shall be considered at a future Planning Commission meeting and is excluded from approval of the sign package submitted with this application dated April 23, 2024.

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Planning Commission Action

The Planning Commission may take the following actions with a motion:

1) Approve the Detailed Development Plan with or without conditions.
2) Deny the Detailed Development Plan (the Commission should state the specific reasons for denial); or
3) Table the application.

Planning Commission Decision Record

WHEREAS, on April 23, 2024, the applicant, Buc-ee's Huber Heights, LLC, requested approval of a Detailed Development Plan to facilitate the construction of a Buc-ee's travel center comprised of a 74,000 SF convenience store with 120 fueling pumps. Property is located at 8000 State Route 235, further identified as Parcel Numbers P70 03903 0006, P70 03903 0052, and P70 03903 0048 of the Montgomery County Auditor's Map (Case DDP 24-09), and;

WHEREAS, on May 14, 2024, the Planning Commission did meet and fully discuss the details of the request.

NOW, THEREFORE, BE IT RESOLVED that the Planning Commission hereby recommended approval of the request.

moved to approve the request by the applicant, Buc-ee's Huber Heights, LLC, for approval of a Detailed Development Plan. Property is located at 8000 State Route 235 (Case DDP 24-09), in accordance with the recommendation of Staff's Memorandum dated May 9, 2024, with the following conditions:

1. The applicant shall comply with all Fire Department conditions.
2. Fire water lines shall be in a 10' public easement.
3. Additional street trees shall be provided or located along SR 235, north of the main entrance, subject to staff approval.
4. The pylon sign shall be considered at a future Planning Commission meeting and is excluded from approval of the sign package submitted with this application dated April 23, 2024.

Seconded by. Roll call showed: YEAS: NAYS: Motion to recommend approval carried.

_____ _____

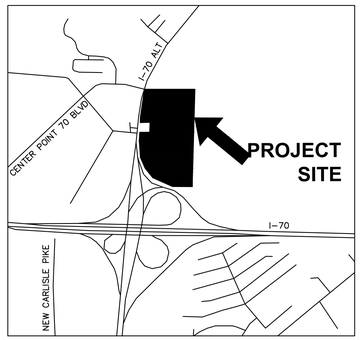
Terry Walton, Chair Date
Planning Commission

DETAILED DEVELOPMENT PLAN

BUC-EE'S HUBER HEIGHTS

BUC-EE'S

8000 STATE ROUTE 235
HUBER HEIGHTS, OH 45424



VICINITY MAP
N.T.S.

PROJECT TEAM

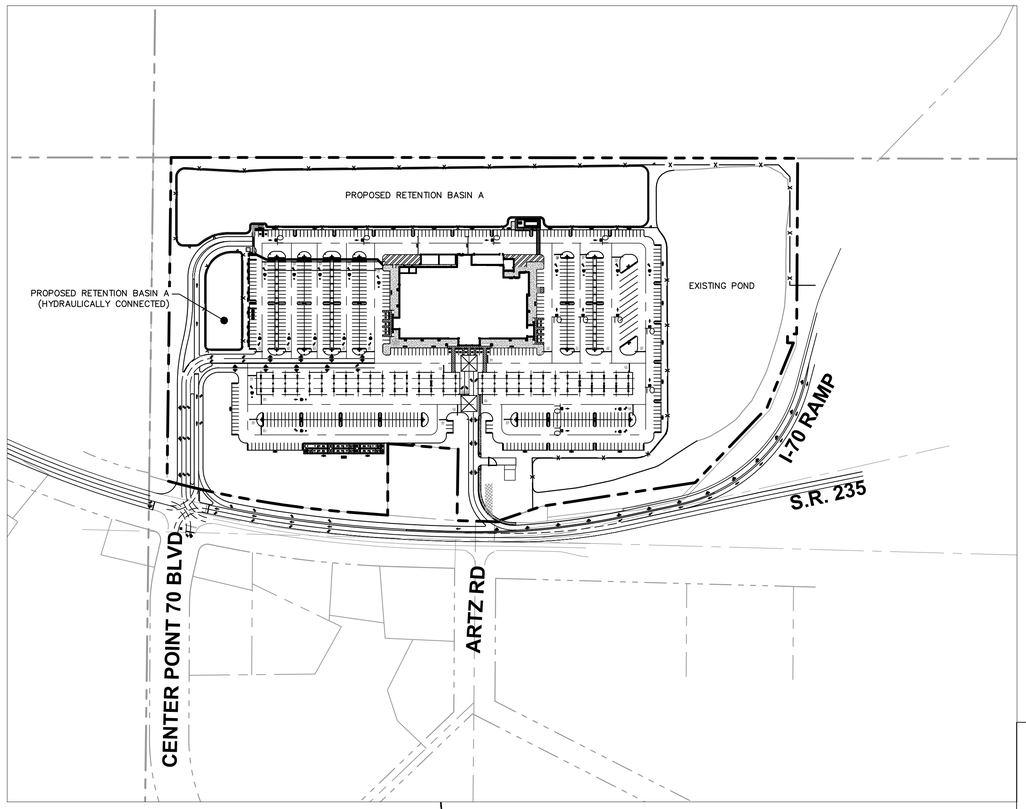
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CONTACT: AARON PARRA



INDEX MAP
SCALE: 1"=200'

ALL EXISTING INTERIOR LOT LINES TO THE BUC-EE'S DEVELOPMENT ARE NOT SHOWN AS THEY WILL BE REMOVED AND PARCELS COMBINED AT CLOSING.

Sheet List Table

Sheet Number	Sheet Title

C-01	COVER SHEET
C-02	GENERAL NOTES
C-03	EXISTING CONDITIONS AND DEMOLITION PLAN
C-04	SITE PLAN
C-05A	PAVEMENT AND GEOMETRY PLAN
C-05B	PAVEMENT AND GEOMETRY PLAN
C-05C	PAVEMENT AND GEOMETRY PLAN
C-05D	PAVEMENT AND GEOMETRY PLAN
C-05E	PAVEMENT AND GEOMETRY PLAN
C-05F	PAVEMENT AND GEOMETRY PLAN
C-06A	PAVEMENT JOINT PLAN
C-06B	PAVEMENT JOINT PLAN
C-07	EROSION CONTROL PHASE 1
C-08	EROSION CONTROL PHASE 2
C-10A	EROSION CONTROL NOTES AND DETAILS
C-10B	EROSION CONTROL NOTES AND DETAILS
C-11	OVERALL GRADING AND DRAINAGE PLAN
C-11A	GRADING AND DRAINAGE PLAN
C-11B	GRADING AND DRAINAGE PLAN
C-11C	GRADING AND DRAINAGE PLAN
C-11D	GRADING AND DRAINAGE PLAN
C-11E	GRADING AND DRAINAGE PLAN
C-11F	GRADING AND DRAINAGE PLAN
C-11G	SITE GRADING DETAILS
C-11H	SITE GRADING DETAILS
C-11J	SITE GRADING DETAILS
C-12A	DRAINAGE STRUCTURE TABLE
C-12B	DRAINAGE STRUCTURE TABLE
C-12C	STORMWATER PROFILES
C-12D	STORMWATER PROFILES
C-12E	STORMWATER PROFILES
C-12F	STORMWATER PROFILES
C-12G	STORMWATER PROFILES
C-12H	STORMWATER PROFILES
C-12I	STORMWATER PROFILES
C-13	OVERALL UTILITY PLAN
C-13A	UTILITY PLAN
C-13B	UTILITY PLAN
C-13C	UTILITY PLAN
C-13D	UTILITY PLAN
C-13E	UTILITY PLAN
C-13F	UTILITY PLAN
C-13G	SANITARY PROFILES
C-13H	SANITARY PROFILES
C-14A	SITE DETAILS
C-14B	SITE DETAILS
C-14C	SITE DETAILS
C-14D	SITE DETAILS
C-14E	SITE DETAILS
C-14F	SITE DETAILS
C-14G	SITE DETAILS
C-14H	BASIN DETAIL
C-14I	MCD CONSERVATION AREA EARTHWORK EXHIBIT

PROFESSIONAL ENGINEER'S CERTIFICATION

I, ISABELLA CULLITON, A LICENSED PROFESSIONAL ENGINEER OF OHIO HEREBY CERTIFY THAT THIS SUBMISSION, PERTAINING ONLY TO THE CIVIL SHEETS LISTED ABOVE, WAS PREPARED ON BEHALF OF BUC-EE'S LTD. BY KIMLEY-HORN AND ASSOCIATES, INC. UNDER MY PERSONAL DIRECTION. THIS TECHNICAL SUBMISSION IS INTENDED TO BE USED AS AN INTEGRAL PART OF AND IN CONJUNCTION WITH THE PROJECT SPECIFICATIONS AND CONTRACT DOCUMENTS.

DATED THIS 22ND DAY OF APRIL, A.D., 2024.

OHIO LICENSED PROFESSIONAL ENGINEER E-87985
MY LICENSE EXPIRES ON DECEMBER 31, 2025

STATE OF OHIO
ISABELLA CULLITON
E-87985
PROFESSIONAL ENGINEER

No.	REVISIONS	DATE	BY

Kimley»Horn

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7965 N. HIGH STREET, COLUMBUS, OH 43235
PHONE: 614-846-0559
WWW.KIMLEY-HORN.COM

SCALE: AS NOTED | DESIGNED BY: IC | DRAWN BY: MAN | CHECKED BY: AJS

NOT FOR CONSTRUCTION

BUC-EE'S

BUC-EE'S #71
HUBER HEIGHTS, OH

8000 STATE ROUTE 235
HUBER HEIGHTS, OH 45424

COVER SHEET

ORIGINAL ISSUE: 04/22/2024
KHA PROJECT NO. 190255000
SHEET NUMBER
C-01

Drawing name: K:\CLB_LDEV\190255000_Buc-ees_Huberheights_DWG Design\CAD\PlanSheets\Development Plan\COVER SHEET.dwg C-01 COVER SHEET Apr 22, 2024 9:39am by: drew.gilmour
This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

GENERAL NOTES

1. EXISTING SITE TOPOGRAPHY, UTILITIES, RIGHT-OF-WAY AND HORIZONTAL CONTROL SHOWN ON THE DRAWINGS WERE OBTAINED FROM A SURVEY PREPARED BY:

   CESO, INC.
   SEAN T. BROOKS
   3601 RIGBY ROAD, SUITE 300
   DAYTON, OH 45342
   TEL: 937-435-8584
   CONTACT: BROOKS@CESOINC.COM

   COPIES OF THE SURVEY ARE AVAILABLE FROM THE ENGINEER. SITE CONDITIONS MAY HAVE CHANGED SINCE THE SURVEY WAS PREPARED. CONTRACTORS TO VISIT SITE TO FAMILIARIZE THEMSELVES WITH THE CURRENT CONDITIONS.

2. COPIES OF SOILS INVESTIGATION REPORTS MAY BE OBTAINED FROM THE OWNER. ANY BRACING, SHEETING OR SPECIAL CONSTRUCTION METHODS DEEMED NECESSARY BY THE CONTRACTOR IN ORDER TO INSTALL THE PROPOSED IMPROVEMENTS SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE PROJECT. ANY ADDITIONAL SOILS DATA NEEDED TO CONFIRM THE CONTRACTOR'S OPINIONS OF THE SUBSOIL CONDITIONS SHALL BE DONE AT THE CONTRACTOR'S EXPENSE. THE CONTRACTOR SHALL OBTAIN THE OWNER'S WRITTEN AUTHORIZATION TO ACCESS THE SITE TO CONDUCT A SUPPLEMENTAL SOILS INVESTIGATION.

3. KIMLEY-HORN SHALL HAVE NO LIABILITY WHATSOEVER FOR ANY COSTS ARISING OUT OF THE CLIENT'S DECISION TO OBTAIN BIDS, ORDER MATERIALS, OR PROCEED WITH CONSTRUCTION BEFORE KIMLEY-HORN HAS ISSUED FINAL, FULLY-APPROVED PLANS AND SPECIFICATIONS. THE CLIENT ACKNOWLEDGES THAT ALL PRELIMINARY PLANS ARE SUBJECT TO SUBSEQUENT REVISIONS UNTIL PLANS ARE FULLY APPROVED AND ALL PERMITS OBTAINED.

4. THE CONTRACTOR SHALL PHOTOGRAPH THE WORK AREA PRIOR TO CONSTRUCTION FOR THE PURPOSE OF DOCUMENTING EXISTING CONDITIONS.

5. EXCEPT WHERE MODIFIED BY THE CONTRACT DOCUMENTS, ALL PROPOSED WORK SHALL BE IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS WHICH ARE HEREBY MADE A PART HEREOF:

   A. REGULATIONS, STANDARDS AND GENERAL REQUIREMENTS SET FORTH BY THE CITY OF HUBER HEIGHTS, UNLESS OTHERWISE NOTED ON THE PLANS.

   B. THE NATIONAL ELECTRIC CODE.

   C. ALL APPLICABLE PROVISIONS OF THE OCCUPATIONAL SAFETY AND HEALTH ACT ARE HEREIN INCORPORATED BY REFERENCE.

6. STANDARD SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS, AND RECURRING SPECIAL PROVISIONS, CONSTRUCTION PLANS, AND SUBSEQUENT DETAILS ARE ALL TO BE CONSIDERED AS PART OF THE CONTRACT. INCIDENTAL ITEMS OR ACCESSORIES NECESSARY TO COMPLETE THE CONTRACTOR'S WORK MAY NOT BE SPECIFICALLY NOTED, BUT ARE CONSIDERED A PART OF THE CONTRACTOR'S CONTRACT.

6. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT ALL ITEMS REQUIRED FOR CONSTRUCTION OF THE PROJECT, AS SHOWN ON THE PLANS, ARE INCLUDED IN THE CONTRACT. ANY ITEM NOT SPECIFICALLY INCLUDED IN THE CONTRACT, BUT SHOWN ON THE PLANS, SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY IN THE EVENT OF A DISCREPANCY WITH THE PLANS AND QUANTITIES.

7. THE CONTRACTOR IS RESPONSIBLE FOR HAVING A SET OF "APPROVED" ENGINEERING PLANS WITH THE LATEST REVISION DATE ON THE JOB SITE PRIOR TO THE START OF CONSTRUCTION AND THERE ARE ANY DISCREPANCIES WITH WHAT IS SHOWN ON THE CONSTRUCTION PLANS, HE MUST IMMEDIATELY REPORT THEM TO THE SURVEYOR OR ENGINEER BEFORE DOING ANY WORK. OTHERWISE, THE CONTRACTOR ASSUMES FULL RESPONSIBILITY. IN THE EVENT OF DISAGREEMENT BETWEEN THE CONSTRUCTION PLANS, SPECIFICATIONS, AND/OR SPECIAL DETAILS, THE CONTRACTOR SHALL SECURE WRITTEN INSTRUCTION FROM THE ENGINEER PRIOR TO PROCEEDING WITH ANY PART OF THE WORK AFFECTED BY SUCH DISCREPANCIES. FAILING TO SECURE SUCH INSTRUCTION, THE CONTRACTOR WILL BE CONSIDERED TO HAVE PROCEEDED AT THE CONTRACTOR'S OWN RISK AND EXPENSE. IN THE EVENT OF ANY DOUBT OR QUESTIONS ARISING WITH RESPECT TO THE TRUE MEANING OF THE CONSTRUCTION PLANS OR SPECIFICATIONS, THE DECISION OF THE ENGINEER SHALL BE FINAL AND CONCLUSIVE.

8. THE CONTRACTOR SHALL SUBSCRIBE TO ALL GOVERNING REGULATIONS AND SHALL OBTAIN ALL NECESSARY PUBLIC AGENCY PERMITS PRIOR TO STARTING WORK. THE CONTRACTOR, BY USING THESE PLANS FOR THEIR WORK, AGREE TO HOLD HARMLESS KIMLEY-HORN AND ASSOCIATES, INC, CITY OF HUBER HEIGHTS, THEIR EMPLOYEES AND AGENTS AND THE OWNER FROM AND AGAINST ANY AND ALL LIABILITY, CLAIMS, DAMAGES, AND THE COST OF DEFENSE ARISING OUT OF CONTRACTOR(S) PERFORMANCE OF THE WORK DESCRIBED HEREIN.

9. THE ENGINEER AND OWNER ARE NOT RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES, TIME OF PERFORMANCE, PROGRAMS OR FOR ANY SAFETY PRECAUTIONS USED BY THE CONTRACTOR. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR EXECUTION OF THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND SPECIFICATIONS.

10. CONSTRUCTION MATERIALS AND/OR EQUIPMENT MAY NOT BE STORED IN THE RIGHT-OF-WAY, AS DIRECTED BY THE OWNER.

11. EASEMENTS FOR THE EXISTING UTILITIES, BOTH PUBLIC AND PRIVATE, AND UTILITIES WITHIN PUBLIC RIGHT-OF-WAYS ARE SHOWN ON THE PLANS ACCORDING TO AVAILABLE RECORDS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF THESE UTILITY LINES AND THEIR PROTECTION FROM DAMAGE DUE TO CONSTRUCTION OPERATIONS. IF EXISTING UTILITY LINES OF ANY NATURE ARE ENCOUNTERED WHICH CONFLICT WITH LOCATIONS OF THE NEW CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE ENGINEER SO THAT THE CONFLICT MAY BE RESOLVED.

12. OWNER SHALL OBTAIN EASEMENTS AND APPROVAL OF PERMITS NECESSARY TO FACILITATE CONSTRUCTION OF THE PROPOSED UTILITIES. THE CONTRACTOR, HOWEVER, SHALL FURNISH ALL REQUIRED BONDS AND EVIDENCE OF INSURANCE NECESSARY TO SECURE THESE PERMITS AND EASEMENTS.

13. THE CONTRACTOR SHALL PRESERVE ALL CONSTRUCTION STAKES UNTIL THEY ARE NO LONGER NEEDED. ANY STAKES DESTROYED OR DISTURBED BY THE CONTRACTOR PRIOR TO THEIR USE SHALL BE RESET BY THE SURVEYOR AT THE CONTRACTOR'S EXPENSE.

14. NOTIFICATION OF COMMENCING CONSTRUCTION:

   14.A. THE CONTRACTOR SHALL NOTIFY AFFECTED GOVERNMENTAL AGENCIES IN WRITING AT LEAST THREE FULL WORKING DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION. IN ADDITION, THE CONTRACTOR SHALL NOTIFY, AS NECESSARY, ALL TESTING AGENCIES, THE CITY OF HUBER HEIGHTS, AND THE OWNER SUFFICIENTLY IN ADVANCE OF CONSTRUCTION.

   14.B. FAILURE OF THE CONTRACTOR TO ALLOW PROPER NOTIFICATION TIME WHICH RESULTS IN THE TESTING COMPANIES TO BE UNABLE TO VISIT THE SITE AND PERFORM TESTING WILL CAUSE THE CONTRACTOR TO SUSPEND THE OPERATION TO BE TESTED UNTIL THE TESTING AGENCY CAN SCHEDULE TESTING OPERATIONS. COST OF SUSPENSION OF WORK SHALL BE BORNE BY THE CONTRACTOR.

15. ALL CONTRACTORS SHALL KEEP ACCESS AVAILABLE AT ALL TIMES FOR ALL EMERGENCY TRAFFIC, AS DIRECTED BY THE ENGINEER.

16. ANY EXISTING SIGNS, LIGHT STANDARDS, AND UTILITY POLES THAT INTERFERE WITH CONSTRUCTION OPERATIONS AND ARE NOT NOTED ON THE PLANS FOR DISPOSAL SHALL BE REMOVED AND RESET BY THE CONTRACTOR AT THE CONTRACTOR'S OWN EXPENSE, AS DIRECTED BY THE ENGINEER. ANY DAMAGE TO THESE ITEMS SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT THE CONTRACTOR'S OWN EXPENSE TO THE SATISFACTION OF THE OWNER. ANY SIGNS NOT REQUIRED TO BE RESET SHALL BE DELIVERED TO THE RESPECTIVE OWNERS.

17. ALL TREES TO BE SAVED SHALL BE IDENTIFIED PRIOR TO CONSTRUCTION AND SHALL BE PROTECTED. THE RIGHT-OF-WAY LINE AND LIMITS OF THE CONTRACTOR'S OPERATIONS SHALL BE CLEARLY DEFINED THROUGHOUT THE CONSTRUCTION PERIOD. ALL TREES NOTED TO REMAIN SHALL BE PROTECTED FROM DAMAGE TO TRUNKS, BRANCHES AND ROOTS. NO EXCAVATING, FILLING OR GRADING IS TO BE DONE INSIDE THE DRIP LINE OF TREES UNLESS OTHERWISE INDICATED.

18. LIMB PRUNING SHALL BE PERFORMED UNDER THE SUPERVISION OF AN APPROVED LANDSCAPE ARCHITECT, FORESTER, OR ARBORIST AND SHALL BE UNDERTAKEN IN A TIMELY FASHION SO AS NOT TO INTERFERE WITH CONSTRUCTION. ALL LIMBS, BRANCHES, AND OTHER DEBRIS RESULTING FROM THE CONTRACTOR'S WORK SHALL BE DISPOSED OF OFF-SITE BY THE CONTRACTOR AT THE CONTRACTOR'S OWN EXPENSE. ALL CUTS OVER ONE (1) INCH IN DIAMETER SHALL BE PAINTED WITH AN APPROVED TREE PAINT.

19. ALL EXISTING PAVEMENT OR CONCRETE TO BE REMOVED SHALL BE SAWCUT ALONG LIMITS OF PROPOSED REMOVAL BEFORE COMMENCEMENT OF PAVEMENT REMOVAL.

20. ALL EXISTING UTILITIES OR IMPROVEMENTS, INCLUDING WALKS, CURBS, PAVEMENT, AND PARKWAYS DAMAGED OR REMOVED DURING CONSTRUCTION SHALL BE PROMPTLY RESTORED TO THEIR RESPECTIVE ORIGINAL CONDITION. THE CONTRACTOR'S WORK SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT UNLESS A PAY ITEM IS LISTED ON THE BID LIST.

21. REMOVAL OF SPECIFIED ITEMS, INCLUDING BUT NOT LIMITED TO, PAVEMENT, SIDEWALK, CURB, CURB AND GUTTER, CULVERTS, ETC., SHALL BE DISPOSED OF OFF-SITE BY THE CONTRACTOR AT THE CONTRACTOR'S OWN EXPENSE. THE CONTRACTOR IS RESPONSIBLE FOR ANY PERMITS REQUIRED FOR SUCH DISPOSAL.

22. THE CONTRACTOR SHALL COLLECT AND REMOVE ALL CONSTRUCTION DEBRIS, EXCESS MATERIALS, TRASH, OIL AND GREASE RESIDUE, MACHINERY, TOOLS, AND OTHER MISCELLANEOUS ITEMS WHICH WERE NOT PRESENT PRIOR TO PROJECT COMMENCEMENT AT NO ADDITIONAL EXPENSE TO THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ACQUIRING ANY AND ALL PERMITS NECESSARY FOR THE HAULING AND DISPOSAL REQUIRED FOR CLEANUP, AS DIRECTED BY THE ENGINEER OR OWNER. BURNING ON THE SITE IS NOT PERMITTED.

23. NO UNDERGROUND WORK WITHIN THE PUBLIC RIGHT-OF-WAY SHALL BE COVERED UNTIL IT HAS BEEN APPROVED BY THE CITY OF HUBER HEIGHTS. APPROVAL TO PROCEED MUST BE OBTAINED FROM THE CITY OF HUBER HEIGHTS PRIOR TO INSTALLING PAVEMENT BASE, BINDER, AND SURFACE, AND PRIOR TO POURING ANY CONCRETE AFTER FORMS HAVE BEEN SET, AS NECESSARY.

24. WHERE SHOWN ON THE PLANS OR DIRECTED BY THE ENGINEER, EXISTING DRAINAGE STRUCTURES AND PIPE SHALL BE CLEANED OF DEBRIS AND PATCHED AS NECESSARY TO ASSURE INTEGRITY OF THE STRUCTURE. THE CONTRACTOR'S WORK SHALL NOT BE PAID FOR SEPARATELY, BUT SHALL BE MERGED INTO THE CONTRACT UNIT PRICE EACH FOR STRUCTURES AND CONTRACT UNIT PRICE PER LINEAL FOOT FOR STORM SEWERS, WHICH SHALL BE PAYMENT IN FULL FOR CLEANING, PATCHING, REMOVAL, AND DISPOSAL OF DEBRIS AND DIRT. DRAINAGE STRUCTURES AND STORM SEWERS CONSTRUCTED AS PART OF THE CONTRACTOR'S PROJECT SHALL BE MAINTAINED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE. NO EXTRA PAYMENT WILL BE MADE FOR CLEANING STRUCTURES OR STORM SEWERS CONSTRUCTED AS PART OF THE CONTRACTOR'S PROJECT.

25. THE CONTRACTOR SHALL BE RESPONSIBLE FOR HAVING THE UTILITY COMPANIES LOCATE THEIR FACILITIES IN THE FIELD PRIOR TO CONSTRUCTION AND SHALL ALSO BE RESPONSIBLE FOR THE MAINTENANCE AND PRESERVATION OF THESE FACILITIES. THE ENGINEER DOES NOT WARRANT THE LOCATION OF ANY EXISTING UTILITIES SHOWN ON THE PLANS. THE CONTRACTOR SHALL CALL 811 (1-800-362-2764) AND THE CITY OF HUBER HEIGHTS FOR UTILITY LOCATIONS.

   THE GENERAL CONTRACTOR SHALL COORDINATE WITH UTILITY COMPANIES TO PROVIDE CABLE TV, PHONE, ELECTRIC, GAS AND IRRIGATION SERVICES. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING SITE LAYOUTS FOR THESE UTILITIES AND SHALL COORDINATE AND PROVIDE CONDUIT CROSSINGS AS REQUIRED. THIS COORDINATION SHALL BE CONSIDERED INCIDENTAL TO GENERAL CONTRACTOR AGREEMENT WITH THE OWNER.

26. CONTRACTOR IS TO VERIFY ALL EXISTING STRUCTURES AND FACILITIES AT ALL PROPOSED UTILITY CONNECTION LOCATIONS AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL AND STARTING WORK.

27. ANY FIELD TILES ENCOUNTERED SHALL BE INSPECTED BY THE ENGINEER. THE DRAIN TILE SHALL BE CONNECTED TO THE STORM SEWER SYSTEM AND A RECORD KEPT BY THE CONTRACTOR OF THE LOCATIONS AND TURNED OVER TO THE ENGINEER UPON COMPLETION OF THE PROJECT. THE COST OF THE CONTRACTOR'S WORK SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT, AND NO ADDITIONAL COMPENSATION SHALL BE ALLOWED.

28. ALL FRAMES AND LIDS FOR STORM AND SANITARY SEWERS, VALVE VAULT COVERS, FIRE HYDRANTS, AND B-BOXES ARE TO BE ADJUSTED TO MEET FINISHED GRADE. THE CONTRACTOR'S ADJUSTMENT IS TO BE MADE BY THE SEWER AND WATER CONTRACTOR, AND THE COST IS TO BE CONSIDERED INCIDENTAL. THESE ADJUSTMENTS TO FINISHED GRADE WILL NOT ALLEVIATE THE CONTRACTOR FROM ANY ADDITIONAL ADJUSTMENTS AS REQUIRED BY THE CITY OF HUBER HEIGHTS UPON FINAL INSPECTION OF THE PROJECT.

29. HYDRANTS SHALL NOT BE FLUSHED DIRECTLY ONTO THE ROAD SUBGRADES. WHENEVER POSSIBLE, HOSES SHALL BE USED TO DIRECT THE WATER INTO LOT AREAS OR THE STORM SEWER SYSTEM, IF AVAILABLE. DAMAGE TO THE ROAD SUBGRADE OR LOT GRADING DUE TO EXCESSIVE WATER SATURATION AND/OR EROSION FROM HYDRANT FLUSHING, OR FROM LEAKS IN THE WATER DISTRIBUTION SYSTEM, WILL BE REPAIRED BY THE CONTRACTOR FLUSHING OR USING THE HYDRANT AT THE CONTRACTOR'S OWN EXPENSE. LEAKS IN THE WATER DISTRIBUTION SYSTEM SHALL BE THE RESPONSIBILITY OF THE WATER MAIN CONTRACTOR AND SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

30. TRENCH BACKFILL WILL BE REQUIRED TO THE FULL DEPTH ABOVE SEWERS AND WATERMAIN WITHIN TWO (2) FEET HORIZONTAL OF PROPOSED OR EXISTING PAVEMENT.

31. IF SOFT, SPONGY, OR OTHER UNSUITABLE SOILS WITH UNCONFINED COMPRESSIVE STRENGTH LESS THAN 0.5 TSF ARE ENCOUNTERED AT THE BOTTOM OF THE TRENCH, ALL SUCH MATERIAL SHALL BE REMOVED AND REPLACED WITH WELL-COMPACTED, GRANULAR BEDDING MATERIAL AS DIRECTED BY THE GEOTECHNICAL REPORT. IF ROCK IS ENCOUNTERED, IT SHALL BE REMOVED TO AT LEAST SIX (6) INCHES BELOW THE BOTTOM OF THE PIPE TO ALLOW FOR PROPER THICKNESS OF BEDDING. ANY LOCATIONS OF TWO (2) FEET OR LESS SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT. DEPTHS GREATER THAN TWO (2) FEET SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO PROCEEDING.

32. THE TRENCHES FOR PIPE INSTALLATION SHALL BE KEPT DRY AT ALL TIMES DURING PIPE PLACEMENT, APPROPRIATE EQUIPTION TO MAINTAIN THE DRY CONDITION SHALL BE PROVIDED BY THE CONTRACTOR, AND THE COST OF SUCH SHALL BE INCIDENTAL TO THE UNIT PRICE BID FOR THE ITEM. PLANS FOR THE SITE DEWATERING, IF EMPLOYED, SHALL BE SUBMITTED TO AND APPROVED BY THE OWNER PRIOR TO IMPLEMENTATION. NO ADDITIONAL COMPENSATION SHALL BE MADE FOR DEWATERING DURING CONSTRUCTION UNLESS APPROVED IN WRITING BY THE OWNER.

33. AFTER THE STORM SEWER SYSTEM HAS BEEN CONSTRUCTED, THE CONTRACTOR SHALL PLACE PROPER INLET PROTECTION EROSION CONTROL AT LOCATIONS INDICATED BY THE ENGINEER. THE PURPOSE OF THE INLET PROTECTION WILL BE TO MINIMIZE THE AMOUNT OF SILTATION THAT NORMALLY WOULD ENTER THE STORM SEWER SYSTEM FROM ADJACENT AND/OR UPSTREAM DRAINAGE AREAS.

34. AT THE CLOSE OF EACH WORKING DAY AND AT THE CONCLUSION OF CONSTRUCTION OPERATIONS, ALL DRAINAGE STRUCTURES AND FLOW LINES SHALL BE FREE FROM DIRT AND DEBRIS.

35. EROSION CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH OEPA REGULATIONS AND OHIO LCNH STANDARDS FOR SOIL EROSION AND SEDIMENTATION CONTROL AND SHALL BE MAINTAINED BY THE CONTRACTOR AND REMAIN IN PLACE UNTIL A SUITABLE GROWTH OF GRASS, ACCEPTABLE TO THE ENGINEER, HAS DEVELOPED.

36. THE CONTRACTOR SHALL CONFORM TO ALL EROSION CONTROL REQUIREMENTS AS SET FORTH BY THE OHIO ENVIRONMENTAL PROTECTION AGENCY THROUGH THE OEPA GENERAL PERMIT PROGRAM REQUIREMENTS AND CITY OF HUBER HEIGHTSJ. THE CONTRACTOR SHALL INSTALL AND MAINTAIN ALL EROSION CONTROL MEASURES AS INDICATED ON THE EROSION CONTROL DRAWINGS AND SPECIFICATIONS. THE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTING THE PROVISIONS INDICATED IN THE EROSION CONTROL PLAN AT A MINIMUM, INCLUDING EROSION CONTROL MEASURES AND INSPECTION FREQUENCY, AS REQUIRED BY THE NPDES GENERAL PERMIT PROGRAM REQUIREMENTS.

37. THE PAVEMENT SHALL BE KEPT FREE OF MUD AND DEBRIS AT ALL TIMES. IT MAY BE NECESSARY TO KEEP A SWEEPER ON-SITE AT ALL TIMES.

38. ALL DISTURBED AREAS OF THE RIGHT-OF-WAY SHALL BE FULLY RESTORED TO PRE-CONSTRUCTION CONDITIONS WITH A MINIMUM OF FOUR (4) INCHES OF TOPSOIL, SEEDING, AND MULCH.

39. ALL PROPOSED GRADES SHOWN ON PLANS ARE FINISHED SURFACE ELEVATIONS, UNLESS NOTED OTHERWISE.

40. ALL TESTING SHALL BE THE RESPONSIBILITY AND EXPENSE OF THE CONTRACTOR. IF REQUESTED BY THE CITY OF HUBER HEIGHTS ENGINEER, COPIES OF ALL TEST RESULTS SHALL BE PROVIDED TO THE ENGINEER FOR REVIEW AND APPROVAL.

41. PROVIDE SMOOTH VERTICAL CURVES THROUGH HIGH AND LOW POINTS INDICATED BY SPOT ELEVATIONS. PROVIDE UNIFORM SLOPES BETWEEN NEW AND EXISTING GRADES. AVOID RIDGES AND DEPRESSIONS.

42. WHEN REQUIRED, THE CONTRACTOR SHALL NOTIFY THE OWNER WHEN RECORD DRAWINGS CAN BE PREPARED. RECORD DRAWINGS SHALL INDICATE THE FINAL LOCATION AND LAYOUT OF ALL IMPROVEMENTS, INCLUDING VERIFICATION OF ALL CONCRETE PADS, INVERT, RIM, AND SPOT GRADE ELEVATIONS, AND INCORPORATE ALL FIELD DESIGN CHANGES APPROVED BY THE OWNER.

43. BEFORE ACCEPTANCE, ALL WORK SHALL BE INSPECTED BY THE CITY OF HUBER HEIGHTS, AS REQUIRED. CONTRACTOR TO CONFIRM INSPECTIONS REQUIRED AND AS-BUILTS REQUIRED PRIOR TO STARTING WORK.

EARTHWORK NOTES

1. GENERAL

   1.1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO UNDERSTAND THE SOIL AND GROUNDWATER CONDITIONS AT THE SITE.

   1.2. ANY QUANTITIES IN THE BID PROPOSAL ARE INTENDED AS A GUIDE FOR THE CONTRACTOR'S USE IN DETERMINING THE SCOPE OF THE COMPLETED PROJECT. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ALL MATERIAL QUANTITIES AND BE KNOWLEDGEABLE OF ALL SITE CONDITIONS.

   1.3. THE CONTRACTOR WILL NOTE THAT THE ELEVATIONS SHOWN ON THE CONSTRUCTION PLANS ARE FINISHED GRADE AND THAT PAVEMENT THICKNESS, TOPSOIL, ETC., MUST BE ACCOUNTED FOR.

   1.4. THE CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE DURING CONSTRUCTION AND PREVENT STORMWATER FROM RUNNING BY THE STANDING PROPERTIES OR ELEVATED AREAS. THE FAILURE TO PROVIDE PROPER DRAINAGE WILL NEGATE ANY POSSIBLE ADDED COMPENSATION REQUESTED DUE TO DELAYS OR UNSUITABLE MATERIALS CREATED AS A RESULT THEREOF. FINAL GRADES SHALL BE PROTECTED AGAINST DAMAGE FROM EROSION, SEDIMENTATION, AND TRAFFIC.

   1.5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPLEMENTATION OF THE SOIL EROSION AND SEDIMENTATION CONTROL MEASURES. THE INITIAL ESTABLISHMENT OF EROSION CONTROL PROCEDURES AND THE PLACEMENT OF SILT AND FILTER FENCING, ETC., TO PROTECT ADJACENT PROPERTY, WETLANDS, ETC., SHALL OCCUR BEFORE GRADING BEGINS.

   1.6. PRIOR TO COMMENCEMENT OF GRADING ACTIVITIES, THE CONTRACTOR SHALL ERECT A CONSTRUCTION FENCE AROUND ANY TREE DESIGNATED TO BE PRESERVED. SAID FENCE SHALL BE PLACED IN A CIRCLE CENTERED AROUND THE TREE, THE DIAMETER OF WHICH SHALL BE SUCH THAT THE ENTIRE DRIP ZONE (EXTENT OF THE FURTHEST EXTENDING BRANCHES) SHALL BE WITHIN THE FENCE LIMITS. THE EXISTING GRADE WITHIN THE FENCED AREA SHALL NOT BE DISTURBED.

2. TOPSOIL EXCAVATION INCLUDES:

   2.1. EXCAVATION OF TOPSOIL AND OTHER STRUCTURALLY UNSUITABLE MATERIALS WITHIN THOSE AREAS THAT WILL REQUIRE EARTH EXCAVATION OR COMPACTED EARTH FILL MATERIAL. EXISTING VEGETATION SHALL BE REMOVED PRIOR TO STRIPPING TOPSOIL OR FILLING AREAS.

   2.2. PLACEMENT OF EXCAVATED MATERIAL IN OWNER-DESIGNATED AREAS FOR FUTURE USE WITHIN AREAS TO BE LANDSCAPED AND THOSE AREAS NOT REQUIRING STRUCTURAL FILL MATERIAL. PROVIDE NECESSARY EROSION CONTROL MEASURES FOR STOCKPILE.

   2.3. TOPSOIL STOCKPILED FOR RESPREAD SHALL BE FREE OF CLODS, STONES, TRASH, AND LARGE ORGANIC MATERIALS SUCH AS BRANCHES, BRUSH, STUMPS, ETC. ALL TOPSOIL SHALL CONFORM WITH LANDSCAPE ARCHITECT SPECIFICATIONS.

   2.4. TOPSOIL RESPREAD SHALL INCLUDE HAULING AND SPREADING FOUR (4) INCHES OF TOPSOIL DIRECTLY OVER AREAS TO BE LANDSCAPED WHERE SHOWN ON THE PLANS OR AS DIRECTED BY THE OWNER.

   2.5. 92% OF STANDARD PROCTOR MAXIMUM DRY DENSITY COMPACTION IS REQUIRED IN NON-STRUCTURAL FILL AREAS.

3. EARTH EXCAVATION INCLUDES:

   3.1. EXCAVATION OF SUBSURFACE MATERIALS WHICH ARE SUITABLE FOR USE AS STRUCTURAL FILL. THE EXCAVATION SHALL BE TO WITHIN A TOLERANCE OF 0.1 FEET OF THE PLAN SUBGRADE ELEVATIONS WHILE MAINTAINING PROPER DRAINAGE. THE TOLERANCE WITHIN PAVEMENT AREAS SHALL BE SUCH THAT THE EARTH MATERIALS SHALL "BALANCE" DURING THE FINE GRADING OPERATION.

   3.2. PLACEMENT OF SUITABLE MATERIALS SHALL BE WITHIN THOSE AREAS REQUIRING STRUCTURAL FILL IN ORDER TO ACHIEVE THE PLAN SUBGRADE ELEVATIONS TO WITHIN A TOLERANCE OF 0.1 FEET. THE FILL MATERIALS SHALL BE PLACED IN LOOSE LIFTS THAT SHALL NOT EXCEED EIGHT (8) INCHES IN THICKNESS, AND THE WATER CONTENT SHALL BE ADJUSTED IN ORDER TO ACHIEVE REQUIRED COMPACTION.

   3.3. STRUCTURAL FILL MATERIAL MAY BE PLACED WITHIN THOSE PORTIONS OF THE SITE NOT REQUIRING STRUCTURAL FILL, WITHIN SIX (6) INCHES OF THE PLAN FINISHED GRADE ELEVATION. IN AREAS REQUIRING STRUCTURAL FILL, HOWEVER, THIS MATERIAL SHALL NOT BE PLACED OVER TOPSOIL OR OTHER UNSUITABLE MATERIALS UNLESS SPECIFICALLY DIRECTED BY A SOILS ENGINEER WITH THE CONCURRENCE OF THE OWNER.

   3.4. COMPACTION OF SUITABLE MATERIALS SHALL BE TO AT LEAST 95% OF THE STANDARD PROCTOR DRY DENSITY WITHIN PROPOSED PAVEMENT AREAS, SIDEWALK, ETC. COMPACTION FOR PROPOSED BUILDING PAD AREAS TO BE PER THE GEOTECHNICAL REPORT, AND CONTRACTOR TO CONFIRM ANY SITE SPECIFIC REQUIREMENTS IN THE GEOTECH REPORT.

4. UNSUITABLE MATERIAL: UNSUITABLE MATERIALS SHALL BE CONSIDERED MATERIAL THAT IS NOT SUITABLE FOR THE SUPPORT OF PAVEMENT AND BUILDING CONSTRUCTION, AND IS ENCOUNTERED BELOW NORMAL TOPSOIL DEPTHS AND THE PROPOSED SUBGRADE ELEVATION. THE DECISION TO REMOVE SAID MATERIAL AND TO WHAT EXTENT SHALL BE MADE BY THE ENGINEER WITH THE CONCURRENCE OF THE OWNER.

5. MISCELLANEOUS. THE CONTRACTOR SHALL:

   5.1. SPREAD AND COMPACT UNIFORMLY TO THE DEGREE SPECIFIED ALL EXCESS TRENCH SPOIL AFTER COMPLETION OF THE UNDERGROUND IMPROVEMENTS.

   5.2. SCARIFY, DISC, AERATE, AND COMPACT, TO THE DEGREE SPECIFIED, THE UPPER TWELVE (12) INCHES OF THE SUITABLE SUBGRADE MATERIAL IN ALL AREAS THAT MAY BE SOFT DUE TO EXCESS MOISTURE CONTENT. THIS APPLIES TO CUT AREAS AS WELL AS FILL AREAS.

   5.3. PROVIDE WATER TO ADD TO DRY MATERIAL IN ORDER TO ADJUST THE MOISTURE CONTENT FOR THE PURPOSE OF ACHIEVING THE SPECIFIED COMPACTION.

6. TESTING AND FINAL ACCEPTANCE

   6.1. THE CONTRACTOR SHALL PROVIDE AS A MINIMUM A FULLY LOADED SIX-WHEEL TANDEM AXLE TRUCK FOR PROOF ROLLING THE PAVEMENT SUBGRADE PRIOR TO THE PLACEMENT OF THE CURB AND GUTTER AND THE BASE MATERIAL. THIS SHALL BE WITNESSED BY THE ENGINEER AND THE OWNER. (SEE PAVING SPECIFICATION.)

   6.2. ANY UNSUITABLE AREA ENCOUNTERED AS A RESULT OF PROOF ROLLING SHALL BE REMOVED AND REPLACED WITH SUITABLE MATERIAL OR OTHERWISE CORRECTED AND APPROVED BY THE GEOTECHNICAL ENGINEER.

PAVING NOTES

1. GENERAL

   1.1. PAVING WORK INCLUDES FINAL SUBGRADE SHAPING, PREPARATION, AND COMPACTION; PLACEMENT OF SUBBASE OR BASE COURSE MATERIALS; BITUMINOUS BINDER AND/OR SURFACE COURSES; FORMING, FINISHING, AND CURING CONCRETE PAVEMENT, CURBS, AND WALKS; AND FINAL CLEAN-UP AND ALL RELATED WORK.

   1.2. COMPACTION REQUIREMENTS [REFERENCE ASTM D-1557 (STANDARD PROCTOR)]: SUBGRADE = 95%; SUBBASE = 95%; AGGREGATE BASE COURSE = 98%; BITUMINOUS COURSES = 98% OF MAXIMUM DENSITY. CONTRACTOR TO REFER TO GEOTECHNICAL REPORT TO CONFIRM ANY SITE SPECIFIC REQUIREMENTS FOR COMPACTION AND SUBGRADE PREPARATION.

   1.3. IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO PROVIDE PROPER BARRICADING WARNING DEVICES, AND THE SAFE MANAGEMENT OF TRAFFIC WITHIN THE AREA OF CONSTRUCTION. ALL SUCH DEVICES AND THEIR INSTALLATION SHALL CONFORM TO THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), LATEST EDITION, AND IN ACCORDANCE WITH THE CITY OF HUBER HEIGHTS CODE.

2. SUBGRADE PREPARATION

   2.1. EARTHWORK FOR PROPOSED PAVEMENT SUBGRADE SHALL BE FINISHED TO WITHIN 0.1 FOOT, PLUS OR MINUS, OF PLAN ELEVATION. THE CONTRACTOR SHALL CONFIRM THAT THE SUBGRADE HAS BEEN PROPERLY PREPARED AND THAT THE FINISHED TOP SUBGRADE ELEVATION HAS BEEN GRADED WITHIN TOLERANCES ALLOWED IN THESE SPECIFICATIONS, UNLESS THE CONTRACTOR ADVISES THE ENGINEER IN WRITING PRIOR TO FINE GRADING FOR BASE COURSE CONSTRUCTION. IT IS UNDERSTOOD THAT THE CONTRACTOR HAS APPROVED AND ACCEPTS THE RESPONSIBILITY FOR THE SUBGRADE.

   2.2. PRIOR TO THE PLACEMENT OF THE BASE COURSE, THE SUBGRADE MUST BE PROOF-ROLLED AND INSPECTED FOR UNSUITABLE MATERIALS AND/OR EXCESSIVE MOVEMENT. IF UNSUITABLE SUBGRADE IS ENCOUNTERED, IT SHALL BE CORRECTED. THIS MAY INCLUDE ONE OR MORE OF THE FOLLOWING METHODS:

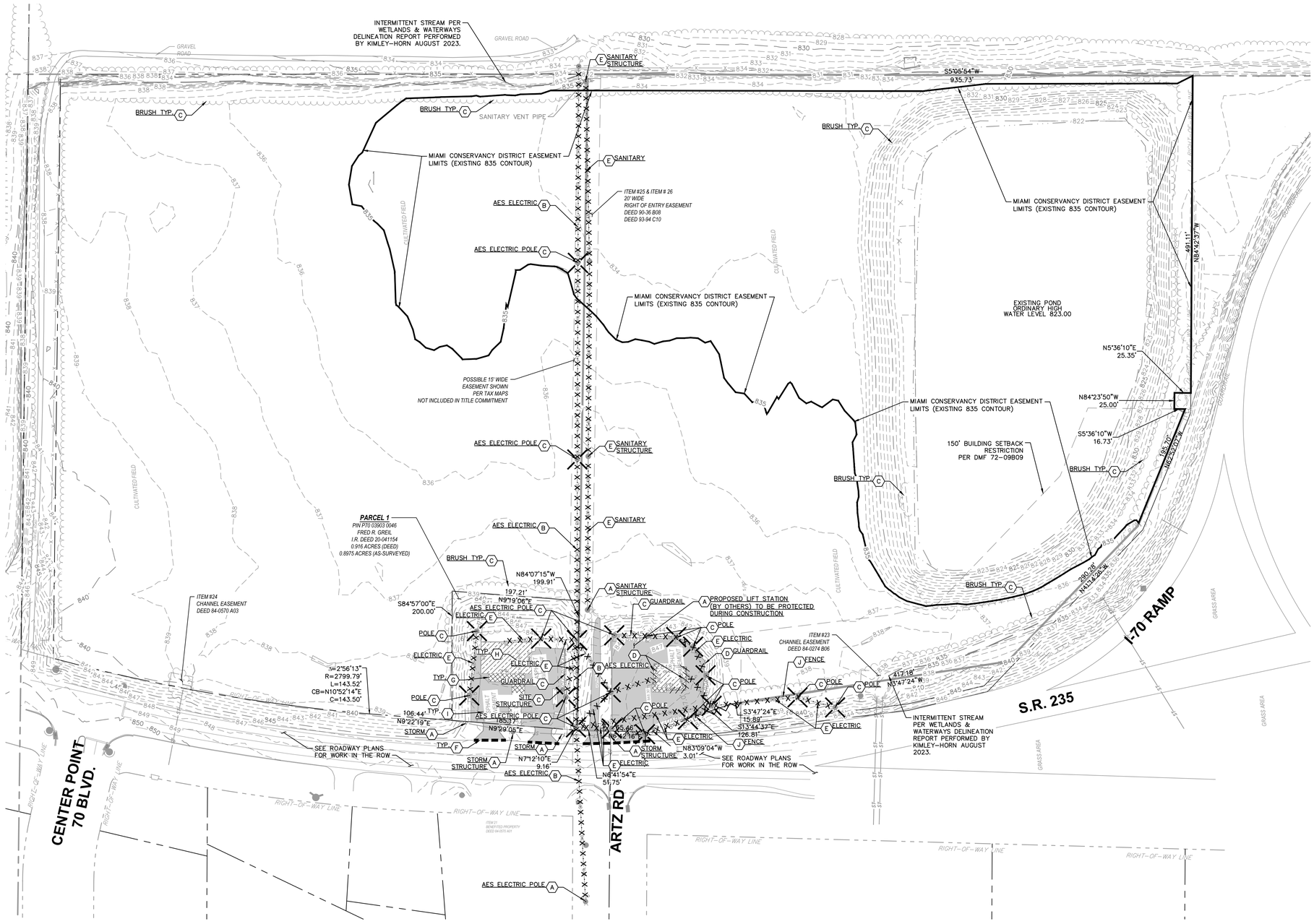
      2.2.1. SCARIFY, DISC, AND AERATE.

      2.2.2. REMOVE AND REPLACE WITH STRUCTURAL CLAY FILL.

      2.2.3. REMOVE AND REPLACE WITH GRANULAR MATERIAL.

      2.2.4. USE OF GEOTEXTILE FABRIC.

      MAXIMUM DEFLECTION ALLOWED IN ISOLATED AREAS MAY BE ONE-QUARTER (1/4) INCH TO ONE-HALF (1/2) INCH IF NO DEFLECTION OCCURS O



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NORTH

GRAPHIC SCALE IN FEET
0 40 80 160

DEMOLITION LEGEND

- (A) ITEM TO REMAIN, PROTECT DURING CONSTRUCTION
- (B) ITEM TO BE RELOCATED
- (C) ITEM TO BE REMOVED
- (D) CURB REMOVAL
- (E) UTILITY REMOVAL
- (F) SAWCUT LINE
- (G) CONCRETE REMOVAL
- (H) BUILDING REMOVAL
- (I) ASPHALT REMOVAL
- (J) FENCE REMOVAL

DEMOLITION NOTES

1. CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVAL OF THE EXISTING STRUCTURES, RELATED UTILITIES, PAVING, AND ANY OTHER EXISTING IMPROVEMENTS AS NOTED.
2. CONTRACTOR IS TO REMOVE AND DISPOSE OF ALL DEBRIS, RUBBISH AND OTHER MATERIALS RESULTING FROM PREVIOUS AND CURRENT DEMOLITION OPERATIONS. DISPOSAL WILL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND/OR FEDERAL REGULATIONS GOVERNING SUCH OPERATIONS.
3. THE GENERAL CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO AVOID PROPERTY DAMAGE TO ADJACENT PROPERTIES DURING THE CONSTRUCTION PHASES OF THIS PROJECT. THE CONTRACTOR WILL BE HELD SOLELY RESPONSIBLE FOR ANY DAMAGES TO THE ADJACENT PROPERTIES OCCURRING DURING THE CONSTRUCTION PHASES OF THIS PROJECT. CONTRACTOR SHALL NOT DEMOLISH ANYTHING OUTSIDE THE OWNERS LEASE/PROPERTY LINE UNLESS SPECIFICALLY MENTIONED ON THIS SHEET.
4. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED UPON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES.
5. IF DEMOLITION OR CONSTRUCTION ON SITE WILL INTERFERE WITH THE ADJACENT PROPERTY OWNER'S TRAFFIC FLOW, THE CONTRACTOR SHALL COORDINATE WITH ADJACENT PROPERTY OWNER, TO MINIMIZE THE IMPACT ON TRAFFIC FLOW. TEMPORARY RE-ROUTING OF TRAFFIC IS TO BE ACCOMPLISHED BY USING ODOT APPROVED TRAFFIC BARRICADES, BARRELS, AND/OR CONES. TEMPORARY SIGNAGE AND FLAGMEN MAY BE ALSO NECESSARY.
6. QUANTITIES DEPICTED ON THIS SHEET SHALL SERVE AS A GUIDE ONLY. CONTRACTOR TO VERIFY ALL DEMOLITION QUANTITIES.
7. REFER TO GEOTECHNICAL REPORT PROVIDED BY OTHERS FOR ALL SUBSURFACE INFORMATION.
8. CONTRACTOR SHALL BEGIN CONSTRUCTION OF ANY LIGHT POLE BASES FOR RELOCATED LIGHT FIXTURES AND RELOCATION OF ELECTRICAL SYSTEM AS SOON AS DEMOLITION BEGINS. CONTRACTOR SHALL BE AWARE THAT INTERRUPTION OF POWER TO ANY LIGHT POLES OR SIGNS SHALL NOT EXCEED 24 HOURS.
9. EROSION CONTROL MUST BE ESTABLISHED PRIOR TO ANY WORK ON SITE INCLUDING DEMOLITION.
10. THE EXTENT OF SITE DEMOLITION WORK IS AS SHOWN ON THE CONTRACT DOCUMENTS AND AS SPECIFIED HEREIN.
11. CONTRACTOR MUST RECEIVE APPROVAL FROM CIVIL ENGINEER AND GEOTECHNICAL ENGINEER FOR THE MATERIAL TYPE AND USE IF CONTRACTOR DESIRES TO REUSE DEMOLISHED SITE PAVEMENT AS STRUCTURAL FILL.
12. EXISTING UTILITIES, WHICH DO NOT SERVICE STRUCTURES BEING DEMOLISHED, ARE TO BE KEPT IN SERVICE AND PROTECTED AGAINST DAMAGE DURING DEMOLITION OPERATIONS. CONTRACTOR SHALL ARRANGE FOR SHUT-OFF OF UTILITIES SERVING STRUCTURES TO BE DEMOLISHED. CONTRACTOR IS RESPONSIBLE FOR TURNING OFF, DISCONNECTING, AND SEALING INDICATED UTILITIES BEFORE STARTING DEMOLITION OPERATIONS. EXISTING UTILITIES TO BE ABANDONED ARE TO BE CAPPED AT BOTH ENDS AND FILLED WITH FA-1 OR APPROVED EQUAL. ALL UNDERGROUND UTILITIES TO BE REMOVED ARE TO BE BACKFILLED WITH ENGINEERED FILL OR SELECT EXCAVATED MATERIAL, AS APPROVED BY THE GEOTECHNICAL ENGINEER, TO 95% OF MODIFIED PROCTOR DENSITY WITHIN PAVED AREAS AND TO 90% OF MODIFIED PROCTOR DENSITY FOR GREEN SPACE AREAS, IN ACCORDANCE WITH THE EARTHWORK SPECIFICATIONS. ALL PRIVATE UTILITIES (ELECTRIC, CABLE, TELEPHONE, FIBER OPTIC, GAS) SHALL BE REMOVED AND RELOCATED PER THE UTILITY OWNER AND THE LOCAL MUNICIPALITY'S REQUIREMENTS.
13. UNDERGROUND UTILITIES SHOWN ARE BASED ON ATLASES AND AVAILABLE INFORMATION PRESENTED AT THE TIME OF SURVEY. CONTRACTOR SHOULD CALL 'OUPS' (1-800-362-2764) TO COORDINATE FIELD LOCATIONS OF EXISTING UNDERGROUND UTILITIES BEFORE ORDERING MATERIALS OR COMMENCING CONSTRUCTION. NOTIFY ENGINEER OF ANY DISCREPANCIES IMMEDIATELY. CONTRACTOR SHALL LOCATE AND PROTECT EXISTING UNDERGROUND AND OVERHEAD UTILITIES DURING CONSTRUCTION. UTILITY PROTECTION SHALL BE COORDINATED WITH THE RESPECTIVE UTILITY OWNER AND AS DIRECTED BY THE GOVERNING MUNICIPALITY. DAMAGED CABLES/CONDUITS SHALL BE REPLACED IMMEDIATELY. ALL EXISTING STRUCTURES TO REMAIN SHALL BE PROTECTED THROUGHOUT THE CONSTRUCTION PROCESS. ALL DAMAGED STRUCTURES SHALL BE REPLACED IN-KIND AND THEIR REPLACEMENT COST SHALL BE CONSIDERED INCIDENTAL TO THE CONTRACT. PROPER NOTIFICATION TO THE OWNERS OF THE EXISTING UTILITIES SHALL BE MADE AT LEAST 48 HOURS BEFORE CONSTRUCTION COMMENCES.
14. USE WATER SPRINKLING, TEMPORARY ENCLOSURES, AND OTHER SUITABLE METHODS TO LIMIT DUST AND DIRT RISING AND SCATTERING IN THE AIR TO THE LOWEST LEVEL. COMPLY WITH ALL GOVERNING REGULATIONS PERTAINING TO ENVIRONMENTAL PROTECTION. SEE EROSION CONTROL SHEETS FOR FURTHER EROSION CONTROL REQUIREMENTS.
15. COMPLETELY FILL BELOW-GRADE AREAS AND VOIDS RESULTING FROM DEMOLITION OF STRUCTURES TO THE FINAL LINES AND GRADES SHOWN ON THE CONTRACT DOCUMENTS. BACKFILL MATERIAL SHALL BE ODOT APPROVED CRUSHED LIMESTONE OR APPROVED EQUAL. USE SATISFACTORY SOIL MATERIALS CONSISTING OF STONE, GRAVEL AND SAND, FREE FROM DEBRIS, TRASH, FROZEN MATERIALS, ROOTS AND OTHER ORGANIC MATTER. PRIOR TO PLACEMENT OF FILL MATERIALS, ENSURE THAT AREAS TO BE FILLED ARE FREE OF STANDING WATER, FROST, FROZEN MATERIAL, TRASH AND DEBRIS. PLACE FILL MATERIALS IN HORIZONTAL LAYERS NOT EXCEEDING 9" IN LOOSE DEPTH. COMPACT EACH LAYER AT OPTIMUM MOISTURE CONTENT OF FILL MATERIAL TO 95% OF MODIFIED PROCTOR DENSITY UNLESS SUBSEQUENT EXCAVATION FOR NEW WORK IS REQUIRED.
16. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL EXISTING SITE LIGHTING AND CONDUIT ROUTINGS AND FOR ASSURING THAT THE CIRCUITRY OF THE SITE LIGHTING TO REMAIN IS MAINTAINED AND THAT DEMOLITION DOES NOT IMPACT SITE LIGHTING OF THE REMAINDER OF THE DEVELOPMENT.

No.	REVISIONS	DATE	BY

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BUC-EE'S

EXISTING CONDITIONS AND DEMOLITION PLAN

BUC-EE'S #71
HUBER HEIGHTS, OH
8000 STATE ROUTE 235
HUBER HEIGHTS, OH 45424

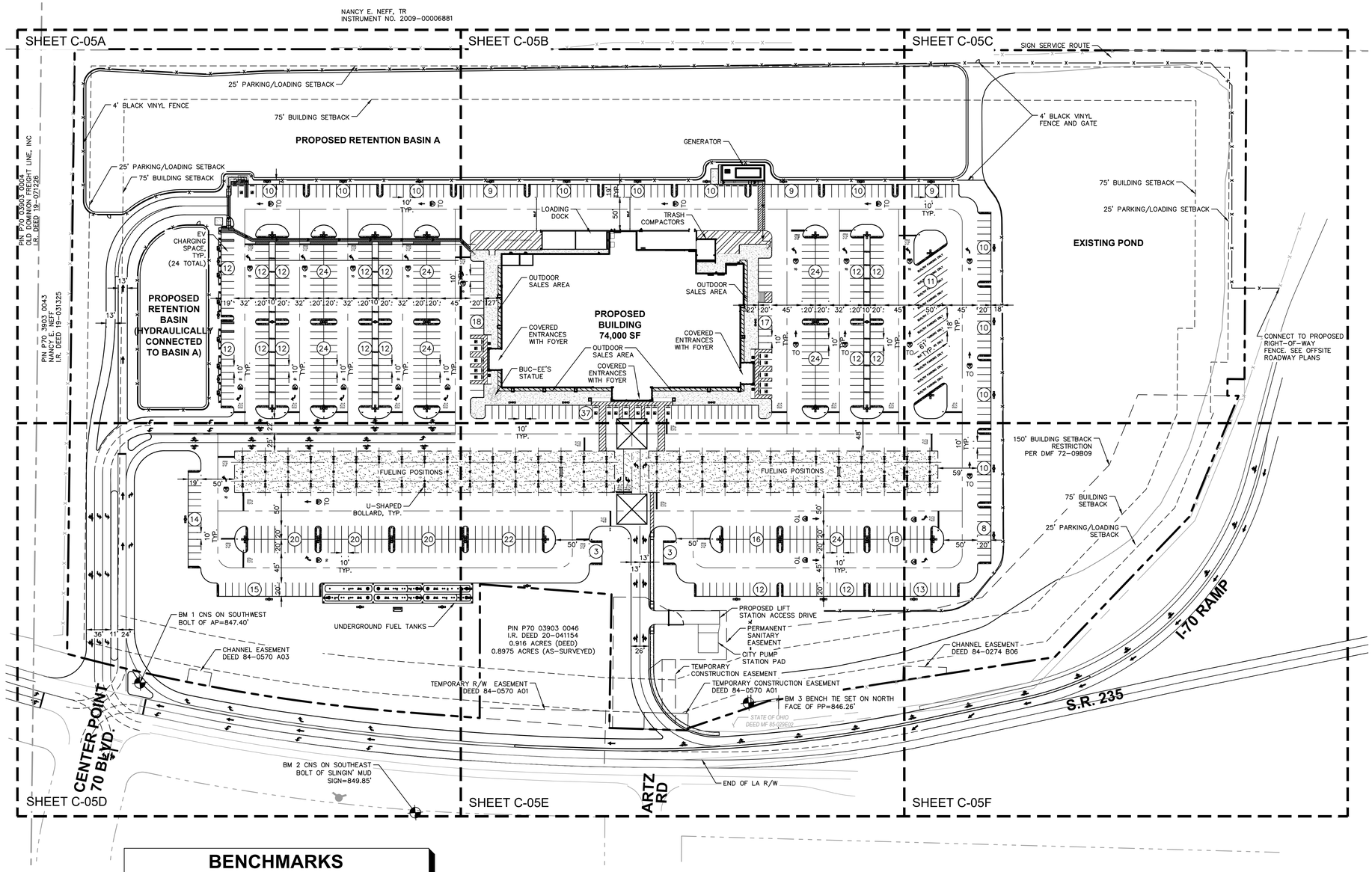
ORIGINAL ISSUE: 04/22/2024
KHA PROJECT NO. 190255000
SHEET NUMBER
C-03

Drawing name: K:\CLB_LDC\190255000_Buc-ees_HuberHeights_OH\2 Design\CAD\PlanSheets\Development Plan\EXISTING CONDITIONS PLAN.dwg C-03 EXISTING CONDITIONS AND DEMOLITION PLAN Apr 22, 2024 9:39am by: drewglhnour
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0 40 80 160



BENCHMARKS

SITE BENCHMARKS:
(LOCATIONS SHOWN ON SURVEY)

SBM #1 X-CUT ON THE SOUTHWEST ANCHOR BOLT ON THE TRAFFIC POLE LOCATED ON THE SOUTHEAST CORNER OF THE INTERSECTION OF CENTER POINT 70 BOULEVARD & S.R. 235.
ELEVATION=847.40 (NAVD88)

SBM #2 X-CUT ON THE SOUTHEAST ANCHOR BOLT FOR THE SLINGIN MUDD SIGN LOCATED ON THE WEST SIDE OF S.R. 235 APPROXIMATELY 350 FEET NORTH OF ARTZ ROAD.
ELEVATION=849.88 (NAVD88)

SBM #3 SPIKE SET IN THE NORTH FACE OF A POWER POLE LOCATED 53± FEET SOUTHWEST OF THE BUILDING LOCATED AT 8000 S.R. 235.
ELEVATION=846.31 (NAVD88)

SITE INFORMATION

SITE ADDRESS:	8000 STATE ROUTE 235 HUBER HEIGHTS,OH 45424
PARCEL ID:	P70 03903 0048 (HUBER HEIGHTS, OH) P70 03903 0052 (HUBER HEIGHTS, OH) P70 03903 0006 (HUBER HEIGHTS, OH)
ZONING:	PLANNED COMMERCIAL (PC) ORDINANCE NO. 2023-O-2615
PARCEL AREA:	±38.96 ACRES
TRAVEL CENTER BUILDING AREA:	74,000 SF
MINIMUM YARD REQUIREMENTS AND FRONT, SIDE, REAR	BUILDING SETBACKS: 25 FEET FOR PARKING/LOADING 75 FEET FOR BUILDING
IMPERVIOUS SURFACE RATIO:	NONE SPECIFIED PER CODE
MAXIMUM BUILDING HEIGHT:	THE HEIGHT OF ANY STRUCTURE IN THE CITY OF HUBER HEIGHTS SHALL COMPLY WITH THE FEDERAL AVIATION ADMINISTRATION (FAA), DAYTON INTERNATIONAL AIRPORT OR WRIGHT PATTERSON AIR FORCE BASE HEIGHT OR ABATEMENT REQUIREMENTS.
REQUIRED PARKING:	AUTOMOBILE FILLING STATION AND AUTO REPAIR/BODY SHOP REQUIRE 2 SPACES FOR EACH SERVICE BAY, PLUS 1 SPACE FOR EACH EMPLOYEE ON THE LARGEST SHIFT, AND ALSO 1 SPACE FOR EACH SERVICE VEHICLE; WITH A MINIMUM OF 6 SPACES, PLUS 1 SPACE FOR EVERY 125 SQUARE FEET OF RETAIL FLOOR AREA. = 6 SPACES + (74,000 SF/125) = 6 + 592 = 598 SPACES
PROVIDED PARKING	
PERIMETER PARKING STALLS:	211 (10'x20' AND 10x20')
INTERIOR PARKING STALLS:	433 (10'x20')
TESLA CHARGING STALLS:	20 (20'x19')
ADA TESLA CHARGING STALLS:	4
ADA ACCESSIBLE STALLS:	20
RV/BUS PARKING STALLS:	11 (50'x15')
TOTAL PARKING STALLS:	699
REQUIRED LOADING:	NO AREA REQUIREMENTS SPECIFIED PER CODE

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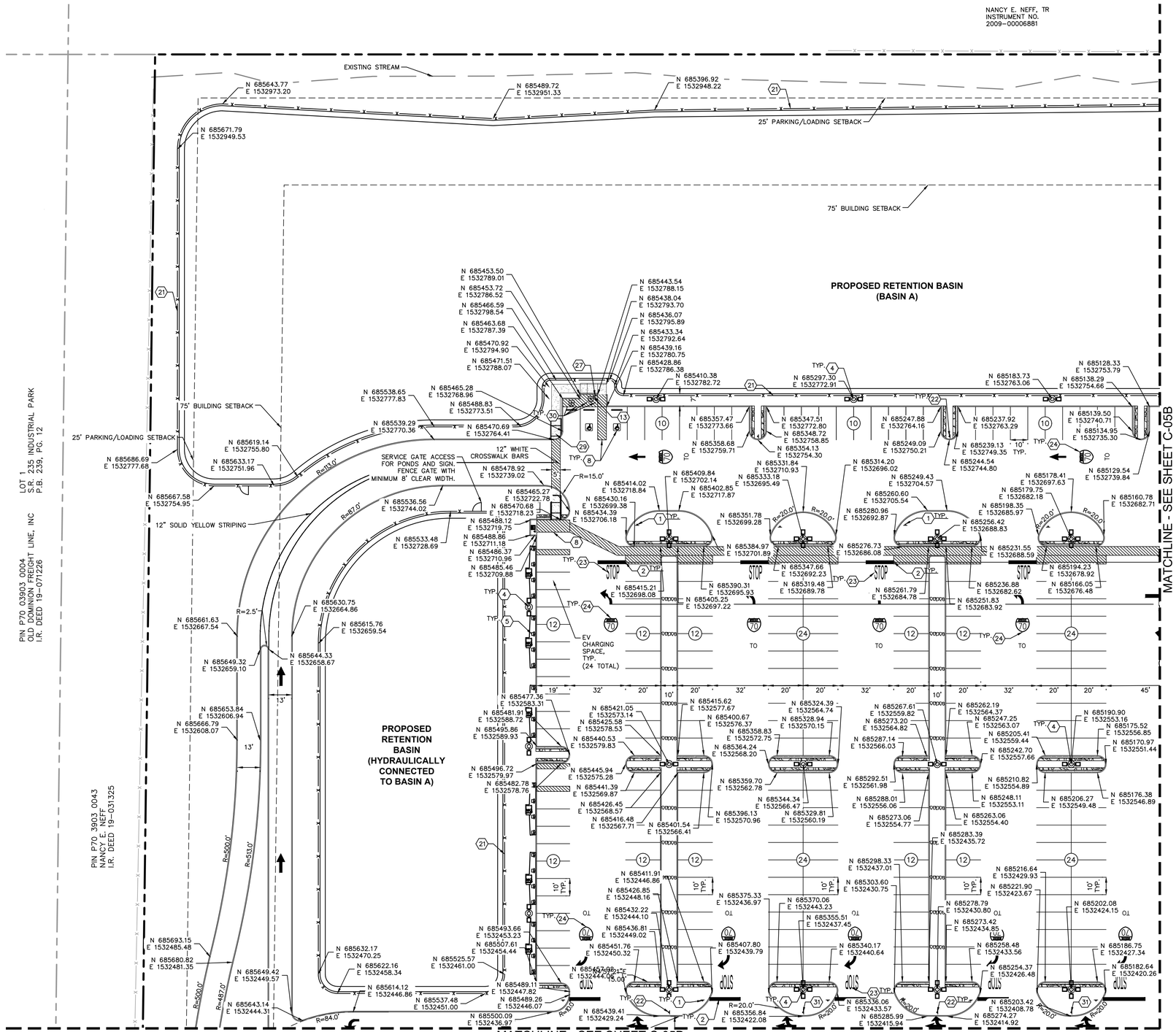
BUC-EE'S

SITE PLAN

BUC-EE'S #71
HUBER HEIGHTS, OH
8000 STATE ROUTE 235
HUBER HEIGHTS, OH 45424

ORIGINAL ISSUE: 04/22/2024
KHA PROJECT NO. 190255000
SHEET NUMBER
C-04

Drawing name: K:\CLB_LDC\190255000_Buc-ees_HuberHeights_OH\2 Design\CAD\PlanSheets\Development Plan\SITE PLAN.dwg C-04 SITE PLAN Apr 22, 2024 9:39am by: drew.gilmour
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NORTH

GRAPHIC SCALE IN FEET
0 15 30 60

PAVING AND CURB LEGEND

- FUEL CANOPY CONCRETE PAVEMENT WITH 6 MIL PLASTIC BARRIER
- ASPHALT PAVEMENT
- CONCRETE SIDEWALK
- SETBACK LINE
- PROPERTY LINE
- EASEMENT LINE

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31. LANE ASSIGNMENT SIGN (R3-6)

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BUC-EE'S

BUC-EE'S #71
HUBER HEIGHTS, OH

8000 STATE ROUTE 235
HUBER HEIGHTS, OH 45424

PAVEMENT AND GEOMETRY PLAN

ORIGINAL ISSUE: 04/22/2024
KHA PROJECT NO. 190255000
SHEET NUMBER
C-05A

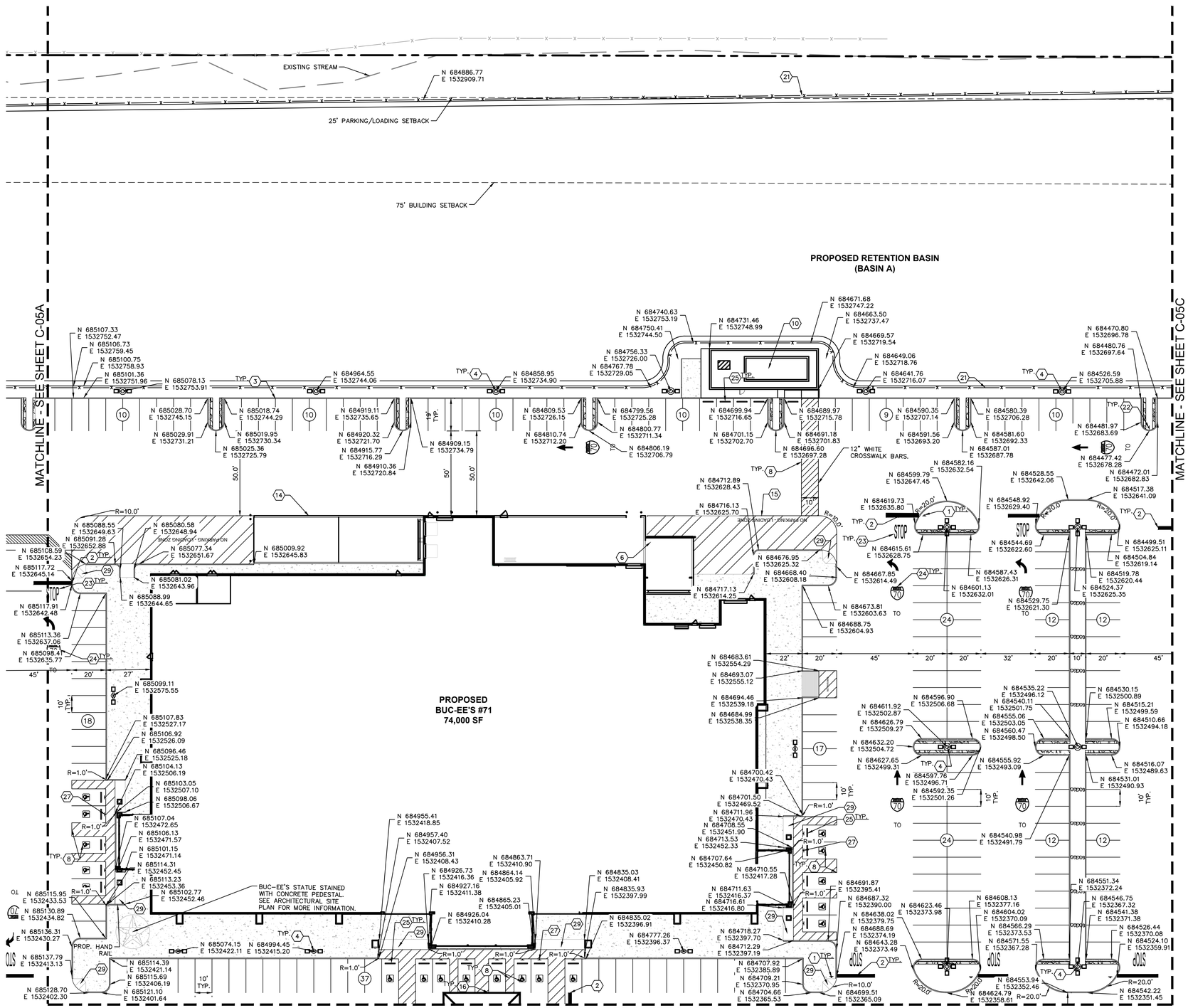
Drawing name: K:\CLB_LDEV\190255000_Buc-ees_HuberHeights_DIV\2 Design\CAD\PlanSheets\Development Plan\PAVEMENT AND GEOMETRY PLAN.dwg C-05A PAVEMENT AND GEOMETRY PLAN Apr 22, 2024 9:38am by drew.dilmour
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NORTH

GRAPHIC SCALE IN FEET
0 15 30 60



PAVING AND CURB LEGEND

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BUC-EE'S #71
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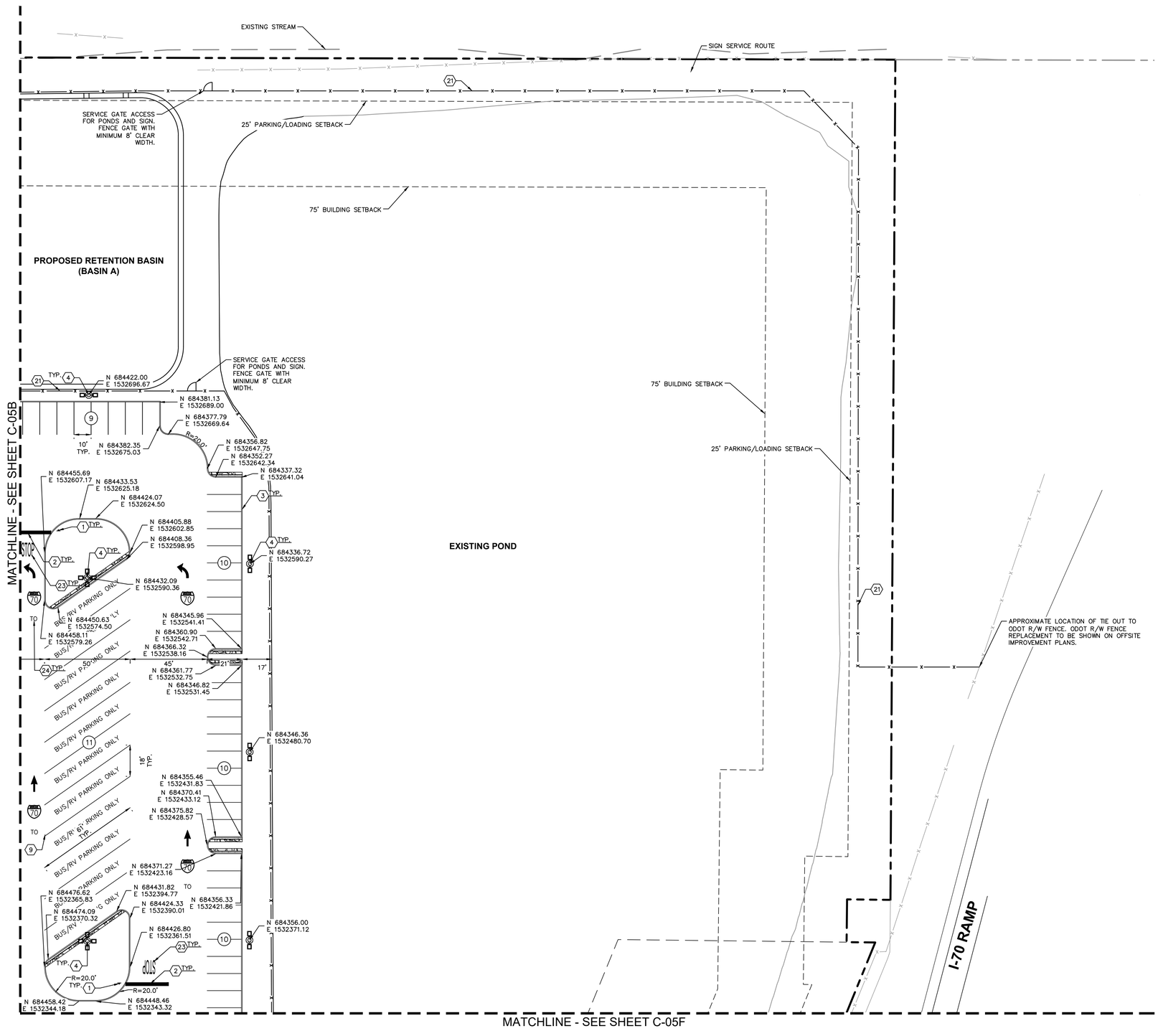
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PAVEMENT AND GEOMETRY PLAN

ORIGINAL ISSUE:
04/22/2024

KHA PROJECT NO.
190255000

SHEET NUMBER
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0 15 30 60

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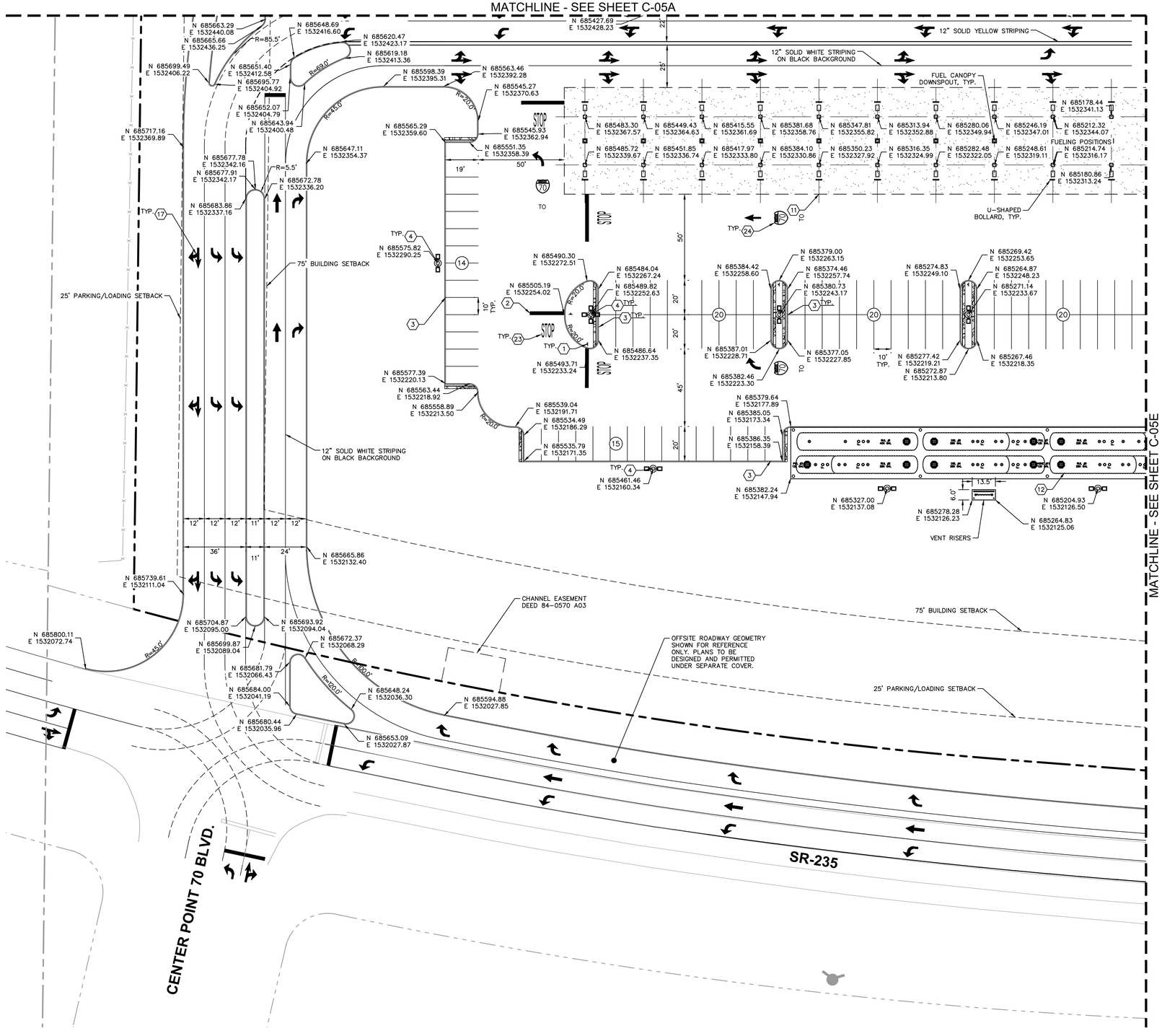
BUC-EE'S

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PAVEMENT AND GEOMETRY PLAN

ORIGINAL ISSUE: 04/22/2024
KHA PROJECT NO. 190255000
SHEET NUMBER
C-05C

Drawing name: K:\CLB_LDEV\190255000_Buc-ees_HuberHeights_OH\2 Design\CAD\PlanSheets\Development Plan\PAVEMENT AND GEOMETRY PLAN.dwg C-05C PAVEMENT AND GEOMETRY PLAN Apr 22, 2024 9:40am by: drew.dilmour
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9. ALL SITE RAMPS SHALL HAVE CONCRETE COLOR ADMIXTURE SCOFFIELD CHROMIX C-11, DESERT SAND.
10. ALL STEEL PENETRATION OF CONCRETE TO BE WRAPPED WITH 2" EXPANSION FOAM FOR THE FULL DEPTH OF CONCRETE AND SEALED WITH DOW-88.
11. ALL INTERIOR PARKING SPACES ARE 10' X 20'
12. SEE PLANS FOR PERIMETER PARKING DIMENSIONS.

KEY NOTES

1. 30" X 30" STOP SIGN (R1-1), TYP.
2. 24" WIDE STOP BAR, TYP.
3. STANDARD CURB, TYP.
4. LIGHT POLE, TYP.
5. EV CHARGING STATION, TYP.
6. TRASH COMPACTOR
7. CONCRETE SIDEWALK, TYP.
8. ACCESSIBLE PAVEMENT MARKINGS, TYP.
9. BUS/RV PARKING, TYP.
10. REMOTE GENERATOR
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20. W4-4ALP "TRAFFIC FROM LEFT DOES NOT STOP" SIGN AND "DON'T BLOCK THE BOX" SIGN MOUNTED BELOW THE R1-1 "STOP" SIGN
21. 4' BLACK VINYL FENCE
22. IH-70 SIGN WITH ARROW
23. "STOP" PAVEMENT MARKING
24. INTERSTATE 70 SHIELD PAVEMENT MARKING
25. WHEEL STOP
26. "DO NOT ENTER" SIGN (R5-1)
27. "VAN ACCESSIBLE" SIGN (R7-8P)
28. "NO RIGHT TURN" SIGN (R3-1)
29. ADA RAMP
30. BOLLARD, TYP.
31. LANE ASSIGNMENT SIGN (R3-6)

No.	REVISIONS	DATE	BY

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CHECKED BY: AJS

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BUC-EE'S

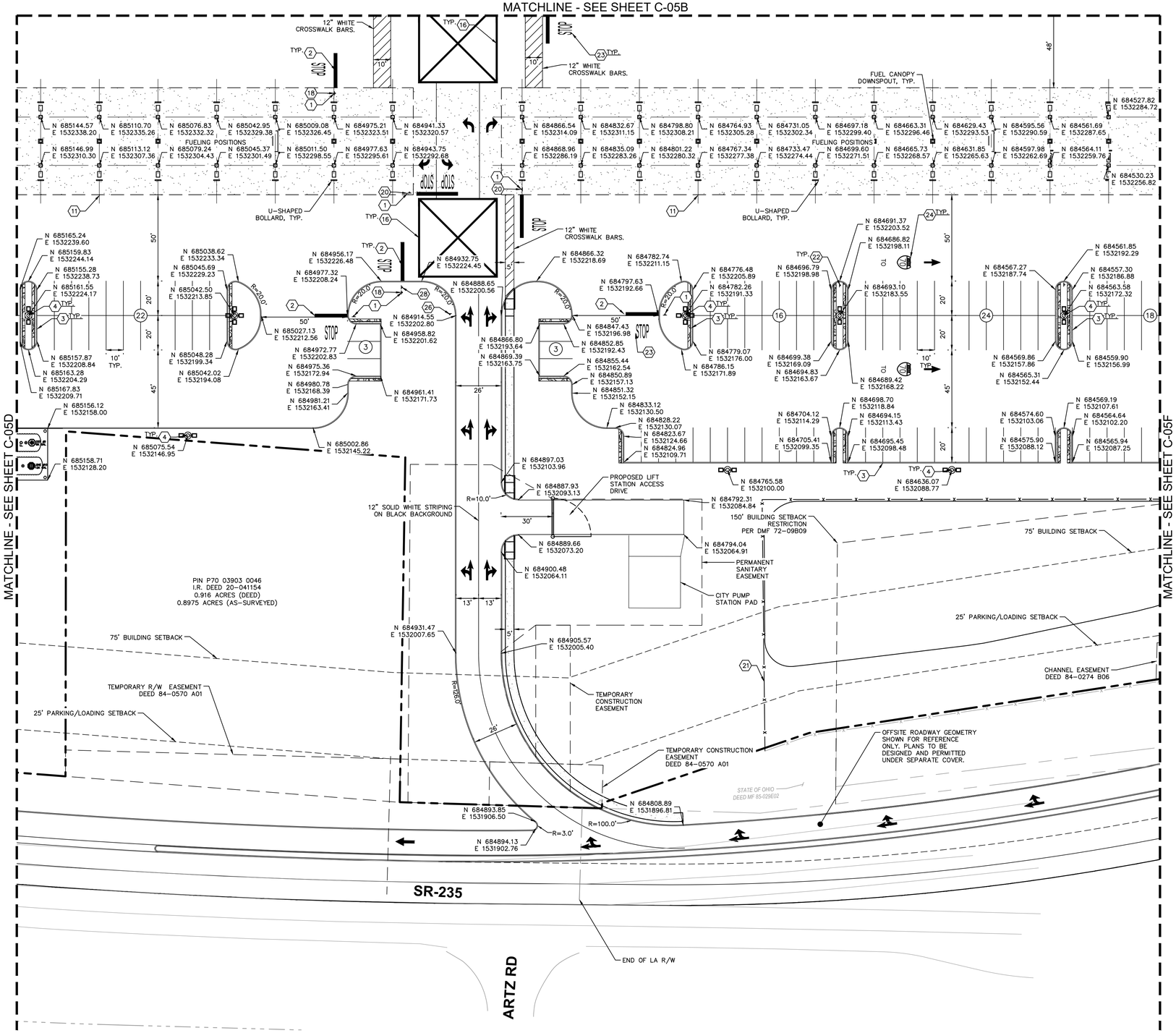
BUC-EE'S #71
HUBER HEIGHTS, OH
8000 STATE ROUTE 235
HUBER HEIGHTS, OH 45424

PAVEMENT AND GEOMETRY PLAN

ORIGINAL ISSUE: 04/22/2024
KHA PROJECT NO. 190255000
SHEET NUMBER
C-05D

Drawing name: K:\CLB_LDE\V\190255000_Buc-ees_Huberheights_OH\2 Design\CAD\PlanSheets\Development Plan\PAVEMENT AND GEOMETRY PLAN.dwg C-05D PAVEMENT AND GEOMETRY PLAN Apr 22, 2024 9:40am by drew.dilmour
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NORTH

GRAPHIC SCALE IN FEET
0 15 30 60

PAVING AND CURB LEGEND

- FUEL CANOPY CONCRETE PAVEMENT WITH 6 MIL PLASTIC BARRIER
- ASPHALT PAVEMENT
- CONCRETE SIDEWALK
- SETBACK LINE
- PROPERTY LINE
- EASEMENT LINE

GENERAL NOTES

1. ALL DIMENSIONS REFER TO THE FACE OF CURB UNLESS OTHERWISE NOTED.
2. BUILDING DIMENSIONS ARE TO THE OUTSIDE FACE OF BUILDING UNLESS OTHERWISE NOTED.
3. REFER TO ARCHITECTURAL AND STRUCTURAL PLANS TO VERIFY ALL BUILDING DIMENSIONS.
4. RADII ADJACENT TO PARKING STALL AND NOT DIMENSIONED ON THIS PLAN SHALL BE 5-FEET, TYPICAL.
5. DIRECTIONAL SIGNAGE TO BE LOCATED 2-FEET BEYOND BACK OF CURB, TYPICAL.
6. REFER TO ARCHITECTURAL PLANS FOR SIGN DETAILS. SEE MEP PLANS FOR SITE ELECTRICAL DRAWINGS.
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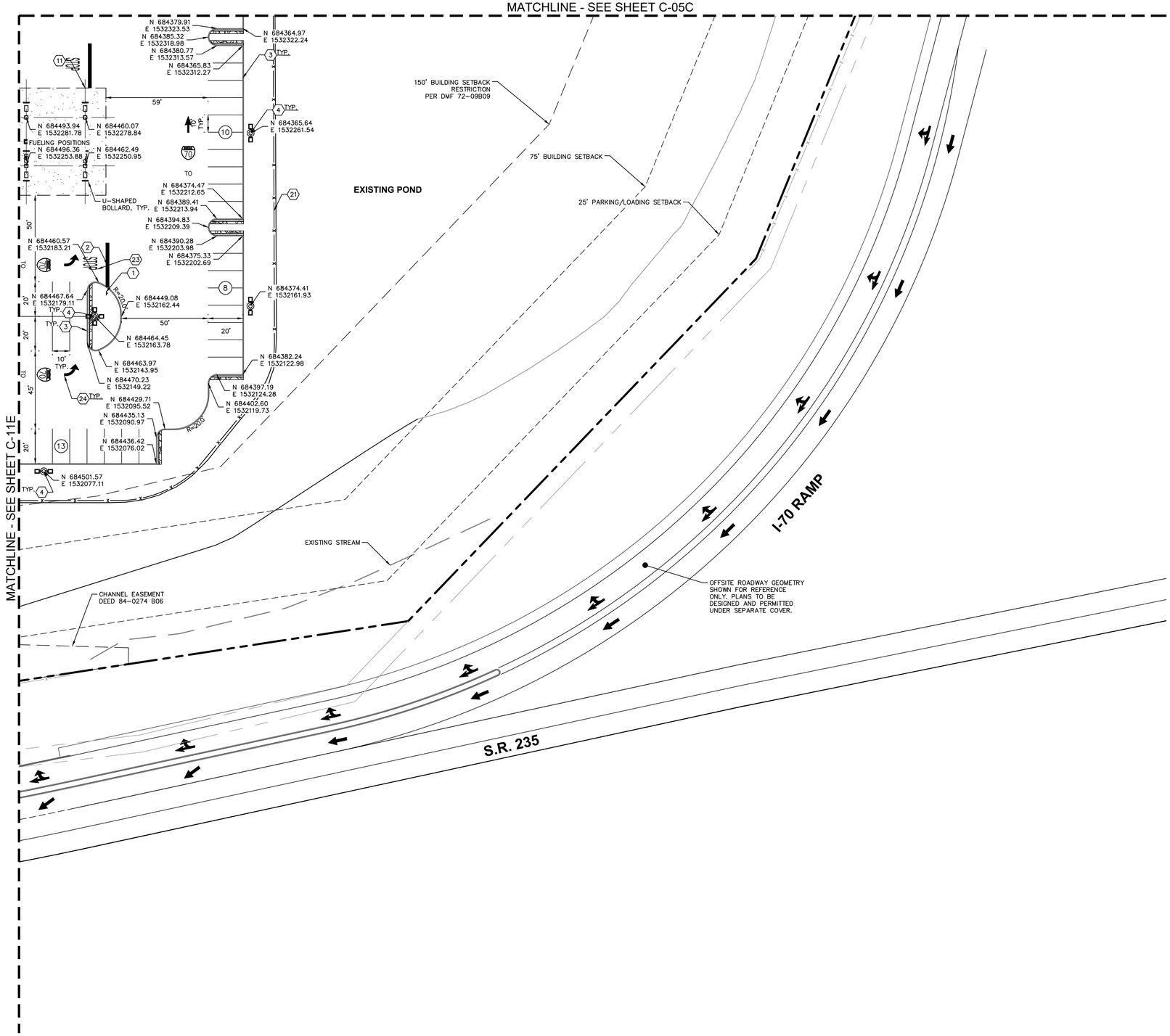
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BUC-EE'S

BUC-EE'S #71
HUBER HEIGHTS, OH
8000 STATE ROUTE 235
HUBER HEIGHTS, OH 45424

PAVEMENT AND GEOMETRY PLAN

ORIGINAL ISSUE: 04/22/2024
KHA PROJECT NO. 190255000
SHEET NUMBER
C-05E



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NORTH

GRAPHIC SCALE IN FEET
0 15 30 60

PAVING AND CURB LEGEND

- FUEL CANOPY CONCRETE PAVEMENT WITH 6 MIL PLASTIC BARRIER
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31. LANE ASSIGNMENT SIGN (R3-6)

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BUC-EE'S

PAVEMENT AND GEOMETRY PLAN

BUC-EE'S #71
HUBER HEIGHTS, OH
8000 STATE ROUTE 235
HUBER HEIGHTS, OH 45424

ORIGINAL ISSUE: 04/22/2024
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SHEET NUMBER
C-05F

Drawing name: K:\CLB_LDEV\190255000_Buc-ees_Huberheights_OH\2 Design\CAD\PlanSheets\Development Plan\PAVEMENT AND GEOMETRY PLAN.dwg C-05F PAVEMENT AND GEOMETRY PLAN Apr 22, 2024 9:40am by: drew.gilmour
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PROPOSED RETENTION BASIN (BASIN A)

PROPOSED RETENTION BASIN (HYDRAULICALLY CONNECTED TO BASIN A)

PROPOSED BUILDING 74,000 SF

11.3' (TYP.)

12.0' (TYP.)

7.7' 12.0' 12.0' 11.3'

CONTROL JOINT

INLET APRON (TYP.)

ISOLATION JOINT BETWEEN BUILDINGS AND PAVEMENTS (TYP.)

ISOLATION JOINT AT TOE OF RAMP

ISOLATION JOINT AT FOC

50.0'

7.3'

8.9'

5.8'

EXPANSION JOINT

BOLLARDS AND COLUMN PENETRATIONS TO BE WRAPPED WITH 1" EXPANSION FOAM AND SEALED WITH DOW888

8.4' 8.6' 14.0' 14.0' 8.6' 8.4'

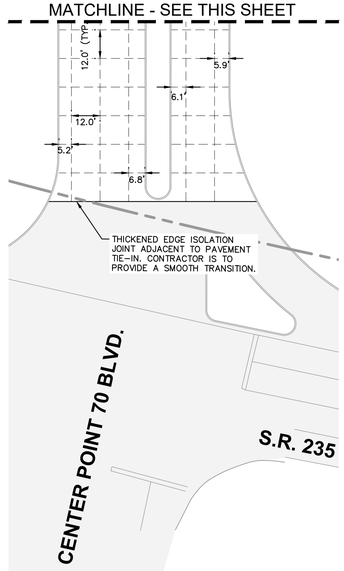
9.0'

11.0'

MATCHLINE - SEE SHEET C-05B

MATCHLINE - SEE THIS SHEET

MATCHLINE - SEE THIS SHEET



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NORTH

GRAPHIC SCALE IN FEET
0 15 30 60

PAVING AND CURB LEGEND

- FUEL CANOPY CONCRETE PAVEMENT WITH 6 MIL PLASTIC BARRIER
- ASPHALT PAVEMENT
- CONCRETE SIDEWALK
- CONSTRUCTION JOINT

GENERAL NOTES

1. JOINT SPACING VARIES; SPACING IS AS SHOWN.
2. DOW888 JOINT SEALANT TO BE USED AT TILT WALL PENETRATIONS THROUGH PAVEMENT.
3. BOLLARDS AND COLUMN PAVEMENT PENETRATIONS TO BE WRAPPED WITH 1" EXPANSION FOAM AND SEALED WITH DOW888.

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BUC-EE'S

PAVEMENT JOINT PLAN

BUC-EE'S #71
HUBER HEIGHTS, OH

8000 STATE ROUTE 235
HUBER HEIGHTS, OH 45424

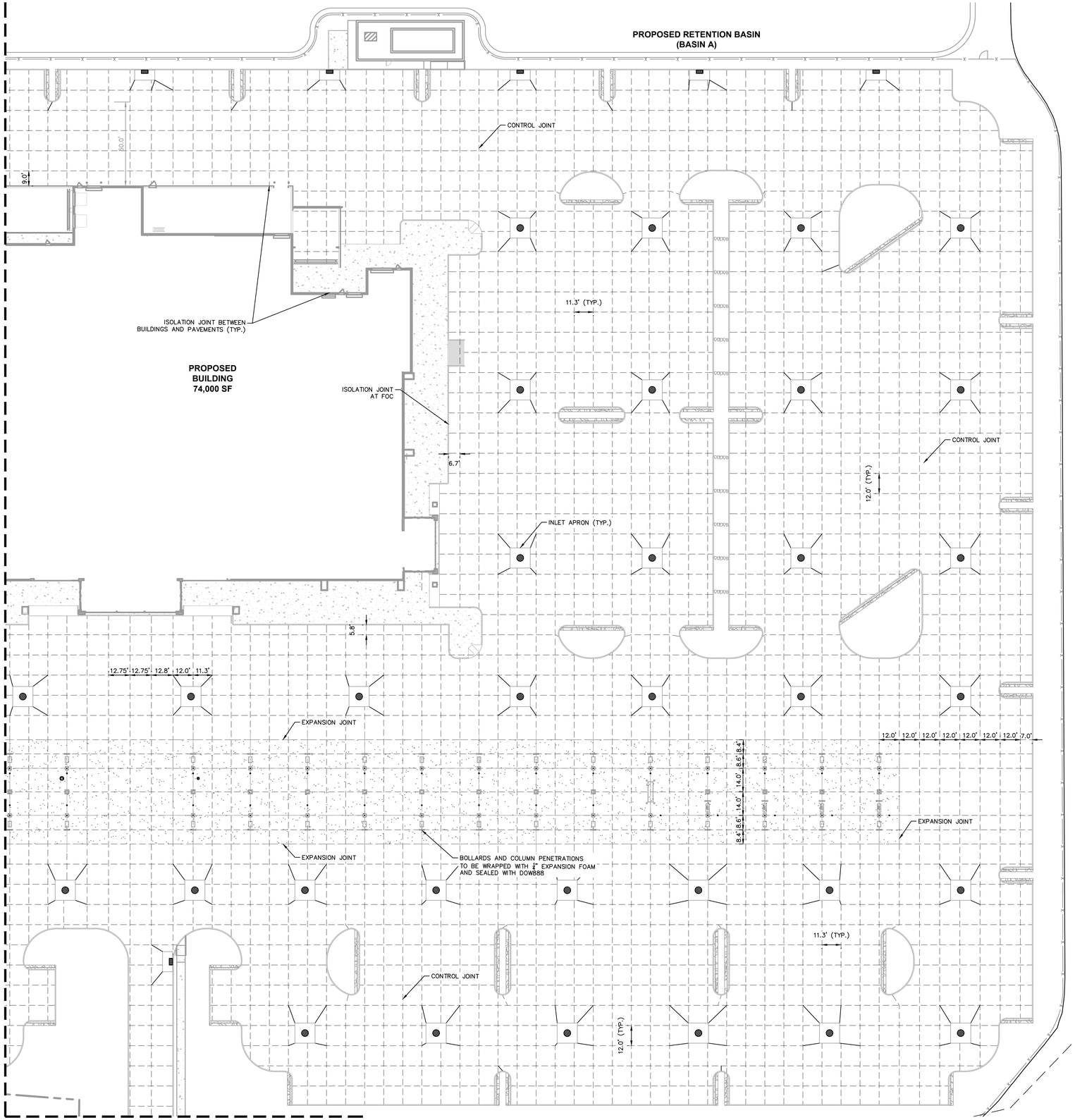
ORIGINAL ISSUE: 04/22/2024

KHA PROJECT NO. 190255000

SHEET NUMBER

C-06A

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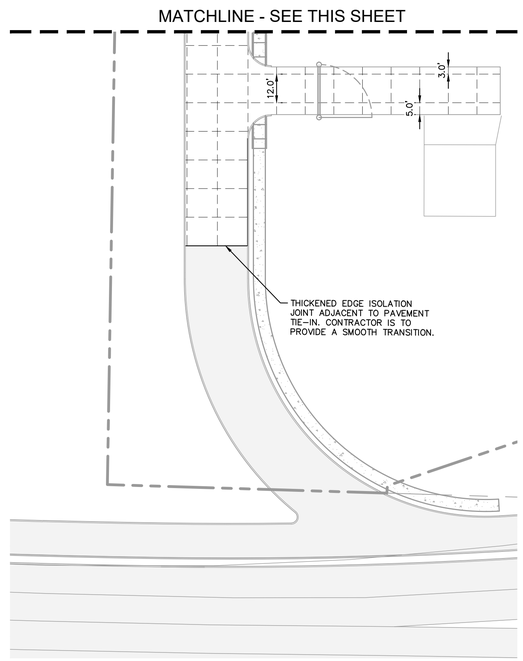
GRAPHIC SCALE IN FEET
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BUC-EE'S

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PAVEMENT JOINT PLAN

ORIGINAL ISSUE: 04/22/2024
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C-06B

WARNING: CONTRACTOR TO VERIFY PRESENCE AND EXACT LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION.

NORTH

GRAPHIC SCALE IN FEET
0 40 80 160

INTERMITTENT STREAM PER WETLANDS & WATERWAYS DELINEATION REPORT PERFORMED BY KIMLEY-HORN AUGUST 2023.

DOUBLE SILT FENCE ALONG THE INTERMITTENT STREAM

20-FT WIDE OVERFLOW WEIR AT 833.00. SEE DETAIL SHEET C-14H

D1
RIM: 831.44
INV IN: 829.65

D2
RIM: 833.70
INV OUT: 830.00
INV OUT: 828.00

D3
RIM: 829.79
INV IN: 828.00

20 LF OF 18" RCP @ 0.00%

181 LF OF 18" RCP @ 0.19%

SANITARY VENT PIPE

PROPOSED RETENTION BASIN A
NWSE: 830.00
TOP: 833.70
BOTTOM: 825.00
100-YR HWL: 832.49

INSTALL SKIMMER ON C-10B FOR DURATION OF CONSTRUCTION

D93
RIM: 831.79
INV OUT: 830.00

D94
RIM: 831.79
INV IN: 830.00

81 LF OF 36" RCP @ 0.00%

CONTRACTOR TO REGRADE AS NEEDED TO ENSURE POSITIVE DRAINAGE TO SEDIMENT BASIN

HYDRAULICALLY CONNECTED SEDIMENT BASIN A
SEDIMENT VOLUME REQUIRED = 40,320 CF
SEDIMENT VOLUME PROVIDED = 861,391 CF
DEWATER VOLUME REQUIRED = 72,576 CF
DEWATER VOLUME PROVIDED = 311,228 CF

EXISTING POND
ORDINARY HIGH
WATER LEVEL 823.00

BUILDING MATERIALS AND PRODUCT LOCATION. CONTRACTOR TO FIELD ADJUST AS TO NOT INTERFERE WITH CONSTRUCTION ACTIVITIES, EROSION PREVENTION INSTALLATIONS, OR INSTALLED MATERIAL AND PRODUCTS.

DOUBLE SILT FENCE ALONG THE INTERMITTENT STREAM

INTERMITTENT STREAM PER WETLANDS & WATERWAYS DELINEATION REPORT PERFORMED BY KIMLEY-HORN AUGUST 2023.

CENTER POINT 70 BLVD.

ARTZ RD

S.R. 235

I-70 RAMP

EROSION CONTROL LEGEND

- CE — CONSTRUCTION ENTRANCE (SEE EROSION CONTROL DETAILS)
- SF — SILT FENCE (SEE EROSION CONTROL DETAILS)
- LD — LIMITS OF DISTURBANCE
- CW — CONCRETE WASHOUT (SEE EROSION CONTROL DETAILS) (TO BE DETERMINED BY CONTRACTOR)
- RR — RIP RAP (SEE DETAILS)
- IP — INLET PROTECTION (SEE EROSION CONTROL DETAILS)
- DD — DIVERSION DITCH (SEE EROSION CONTROL DETAILS)
- XXX — EXISTING CONTOURS
- XXX — PROPOSED CONTOURS

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BUC-EE'S

BUC-EE'S #71
HUBER HEIGHTS, OH

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EROSION CONTROL PHASE 1

ORIGINAL ISSUE: 04/22/2024

KHA PROJECT NO. 190255000

SHEET NUMBER

C-07

Drawing name: K:\CLB_LDEV\190255000_Buc-ees_HuberHeights_OH\2 Design\CAD\PlanSheets\Development Plan\EROSION CONTROL PHASE 1.dwg C-07 EROSION CONTROL PHASE 1 Apr 22, 2024 8:41am by: drew.gilmour
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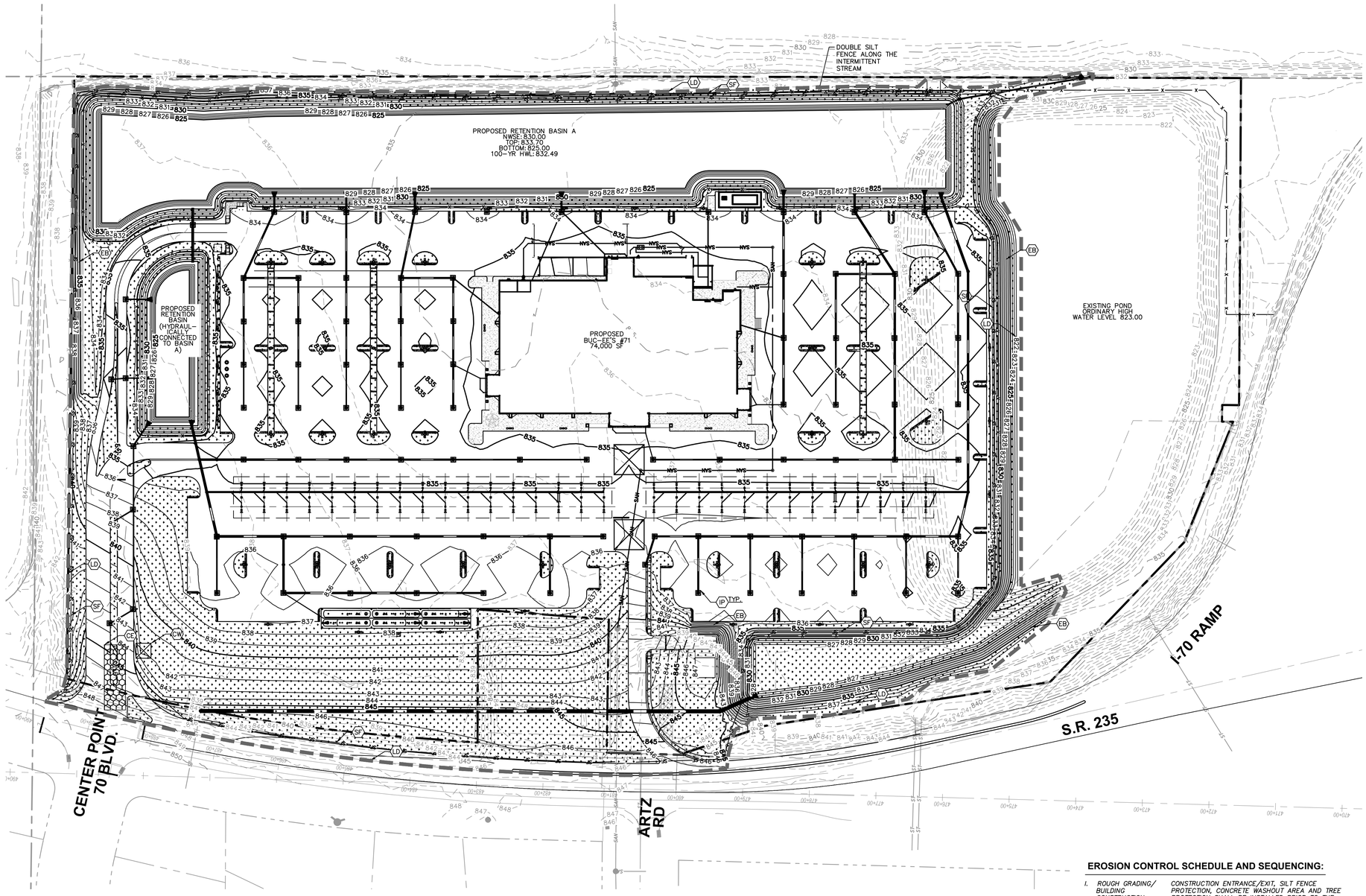
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- XXX — PROPOSED CONTOURS
- EB — TEMPORARY EROSION CONTROL BLANKET (SEE EROSION CONTROL DETAILS)

WARNING: CONTRACTOR TO VERIFY PRESENCE AND EXACT LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION.

NORTH

GRAPHIC SCALE IN FEET
0 40 80 160



EROSION CONTROL SCHEDULE AND SEQUENCING:

I.	*ROUGH GRADING/ BUILDING CONSTRUCTION*	*CONSTRUCTION ENTRANCE/EXIT, SILT FENCE PROTECTION, CONCRETE WASHOUT AREA AND TREE PROTECTION SHALL BE INSTALLED PRIOR TO THE INITIATION OF ROUGH GRADING, AS NEEDED. TEMPORARY EROSION CONTROL MEASURES TO BE INSTALLED UPON COMPLETION OF ROUGH GRADING AND AS NECESSARY THROUGHOUT CONSTRUCTION.*
II.	*UTILITY INSTALLATION*	*ALL PRIOR EROSION CONTROL MEASURES INSTALLED ABOVE TO BE MAINTAINED AS NECESSARY DURING UTILITY INSTALLATION. STORM STRUCTURE INLET PROTECTION SHALL BE INSTALLED AS STORM DRAINAGE SYSTEM IS CONSTRUCTED.*
III.	*PAVING*	*ALL PRIOR EROSION CONTROL MEASURES INSTALLED ABOVE TO BE MAINTAINED AS NECESSARY DURING PAVING AND THROUGHOUT THE REMAINDER OF THE PROJECT.*
IV.	*FINAL GRADING/SOIL STABILIZATION/ LANDSCAPING*	*ALL TEMPORARY EROSION CONTROL MEASURES TO BE REMOVED AT THE CONCLUSION OF THE PROJECT AS DIRECTED BY THE LOCAL MUNICIPALITY.*

EROSION CONTROL NOTES

1. CONSTRUCTION ENTRANCE SHALL BE LOCATED SO AS TO PROVIDE THE LEAST AMOUNT OF DISTURBANCE TO THE FLOW OF TRAFFIC IN AND OUT OF THE SITE. ADDITIONALLY, CONSTRUCTION ENTRANCE SHALL BE LOCATED TO COINCIDE WITH THE PHASING OF THE PAVEMENT REPLACEMENT.
2. POST CONSTRUCTION STORM WATER POLLUTION CONTROL MEASURES INCLUDE STABILIZATION BY PERMANENT PAVING, DRAINAGE SYSTEM STRUCTURE, OR LANDSCAPING.
3. TEMPORARY AND PERMANENT STABILIZATION PRACTICES AND BMP'S SHALL BE INSTALLED AT THE EARLIEST POSSIBLE TIME DURING THE CONSTRUCTION SEQUENCE. AS AN EXAMPLE, PERIMETER SILT FENCE SHALL BE INSTALLED BEFORE COMMENCEMENT OF ANY GRADING ACTIVITIES. OTHER BMP'S SHALL BE INSTALLED AS SOON AS PRACTICABLE AND SHALL BE MAINTAINED UNTIL FINAL SITE STABILIZATION IS ATTAINED. CONTRACTOR SHALL ALSO REFERENCE CIVIL AND LANDSCAPE PLANS SINCE PERMANENT STABILIZATION IS PROVIDED BY LANDSCAPING, THE BUILDING(S), AND SITE PAVING.
4. BMP'S HAVE BEEN LOCATED AS INDICATED ON THIS PLAN IN ACCORDANCE WITH GENERALLY ACCEPTED ENGINEERING PRACTICES IN ORDER TO MINIMIZE SEDIMENT TRANSFER. FOR EXAMPLE: SILT FENCES LOCATED AT TOE OF SLOPE AND INLET PROTECTION FOR INLETS RECEIVING SEDIMENT FROM SITE RUN-OFF.
5. THE PLACEMENT OF EROSION/SEDIMENTATION CONTROLS SHALL BE IN ACCORDANCE WITH THE APPROVED EROSION AND SEDIMENTATION CONTROL PLAN.
6. ANY MAJOR VARIATION IN MATERIALS OR LOCATIONS OF CONTROLS OR FENCES FROM THOSE SHOWN ON THE APPROVED PLANS WILL REQUIRE A REVISION AND MUST BE APPROVED BY THE REVIEWING ENGINEER, ENVIRONMENTAL SPECIALIST, OR ARBORIST AS APPROPRIATE. MAJOR REVISIONS MUST BE APPROVED BY THE PLANNING AND DEVELOPMENT DEPARTMENT AND THE DRAINAGE UTILITY DEPARTMENT. MINOR CHANGES OR ADDITIONAL CONTROL MEASURES TO BE MADE AS FIELD REVISIONS TO THE EROSION AND SEDIMENTATION CONTROL PLAN MAY BE REQUIRED BY THE ENVIRONMENTAL INSPECTOR DURING THE COURSE OF CONSTRUCTION TO CORRECT CONTROL INADEQUACIES AT NO ADDITIONAL COST TO THE OWNER.
7. CONTRACTOR SHALL PLACE EROSION CONTROL BLANKET (NORTH AMERICAN GREEN S150BN OR APPROVED EQUAL) ON ALL SITE AREAS WITH SLOPES GREATER THAN 4:1, AND IN THE BOTTOM AND SIDE SLOPES OF ALL SWALES.
8. PRIOR TO FINAL ACCEPTANCE, HAUL ROADS AND WATERWAY CROSSINGS CONSTRUCTED FOR TEMPORARY CONTRACTOR ACCESS MUST BE REMOVED, ACCUMULATED SEDIMENT REMOVED FROM THE WATERWAY AND THE AREA RESTORED TO THE ORIGINAL GRADE AND REVEGETATED. ALL LAND CLEARING SHALL BE DISPOSED OF IN APPROVED SPOIL DISPOSAL SITES.
9. PERMANENT, FINAL PLANT COVERING OR STRUCTURES SHALL BE INSTALLED PRIOR TO FINAL ACCEPTANCE.
10. ALL CONTROL DEVICES THAT FUNCTION SIMILARLY TO SILT FENCE OR FIBER ROLLS MUST BE REPAIRED, REPLACED OR SUPPLEMENTED WITH EFFECTIVE CONTROLS WHEN THEY BECOME NONFUNCTIONAL OR THE SEDIMENT REACHES ONE-THIRD THE HEIGHT OF THE DEVICE. THESE REPAIRS MUST BE MADE WITHIN 24 HOURS OF THE RAINFALL EVENT OR AS SOON AS FIELD CONDITIONS ALLOW ACCESS.
11. ALL SEDIMENT DELTAS AND DEPOSITS MUST BE REMOVED FROM SURFACE WATERS, DRAINAGE WAYS, CATCH BASINS AND OTHER DRAINAGE SYSTEMS. ALL AREAS WHERE SEDIMENT REMOVAL RESULTED IN EXPOSED SOIL MUST BE RESTABILIZED. THE REMOVAL AND STABILIZATION MUST TAKE PLACE IMMEDIATELY, BUT NO MORE THAN 7 DAYS AFTER THE RAINFALL EVENT UNLESS PRECLUDED BY LEGAL, REGULATORY OR PHYSICAL ACCESS CONSTRAINTS. ALL REASONABLE EFFORTS MUST BE USED TO OBTAIN ACCESS. ONCE ACCESS IS OBTAINED, REMOVAL AND STABILIZATION MUST TAKE PLACE IMMEDIATELY, BUT NO MORE THAN 7 DAYS LATER. CONTRACTOR IS RESPONSIBLE FOR CONTACTING ALL APPROPRIATE AUTHORITIES AND RECEIVING THE APPLICABLE PERMITS PRIOR TO CONDUCTING ANY WORK.
12. ACCUMULATIONS OF TRACKED AND DEPOSITED SEDIMENT MUST BE REMOVED FROM OFF-SITE PAVED SURFACES WITHIN 24 HOURS OR SOONER IF REQUIRED. SEDIMENT TRACKING MUST BE MINIMIZED BY THE APPROPRIATE MANAGEMENT PRACTICE, LIKE A DEDICATED SITE EXIT WITH AN AGGREGATE SURFACE OR DESIGNATED OFFSITE PARKING AREA. CONTRACTOR IS RESPONSIBLE FOR STREET SWEEPING AND/OR SCRAPING IF YOUR PRACTICES ARE NOT ADEQUATE TO PREVENT SEDIMENT FROM BEING TRACKED FROM THE SITE.
13. SURFACE WATERS, DRAINAGE DITCHES AND CONVEYANCE SYSTEMS MUST BE INSPECTED FOR SEDIMENT DEPOSITS.
14. THE CONTRACTOR SHALL INSTALL AND MAINTAIN ALL EROSION CONTROL MEASURES AS INDICATED ON THIS SHEET IN ACCORDANCE WITH THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) PREPARED BY KIMLEY-HORN AND ASSOCIATES, INC. THE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTING THE PROVISIONS INDICATED IN THE SWPPP, INCLUDING EROSION CONTROL MEASURES AND INSPECTION FREQUENCY, AS REQUIRED BY THE OEPA REQUIREMENTS.
15. PUMPING SEDIMENT LADEN WATER INTO ANY STORMWATER FACILITY THAT IS NOT DESIGNATED TO BE A SEDIMENT TRAP, DRAINAGEWAY, OR OFFSITE AREA EITHER DIRECTLY OR INDIRECTLY WITHOUT FILTRATION IS PROHIBITED.
16. SOIL STOCKPILES SHALL NOT BE LOCATED IN A DRAINAGEWAY. FLOOD PLAIN AREA OR A DESIGNATED BUFFER, UNLESS OTHERWISE APPROVED, UNDER SPECIFIC CONDITIONS TO BE ESTABLISHED BY THE DIRECTOR OR ADMINISTRATOR.
17. STOCKPILES TO REMAIN IN PLACE FOR MORE THAN THREE DAYS SHALL BE PROVIDED WITH SESC MEASURES. MATERIAL IS TO BE HAULED OFF IMMEDIATELY AND LEGALLY IF NO STOCKPILE IS TO REMAIN IN PLACE.
18. ALL TEMPORARY SESC MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL STABILIZATION IS ACHIEVED.TRAPPED SEDIMENT AND OTHER DISTURBED SOILS RESULTING FROM TEMPORARY MEASURES SHALL BE PROPERLY DISPOSED OF PRIOR TO PERMANENT STABILIZATION.
19. WATER REMOVED FROM TRAPS, BASINS, AND OTHER WATER HOLDING DEPRESSIONS OR EXCAVATIONS MUST FIRST PASS THROUGH A SEDIMENT CONTROL AND/OR FILTRATION DEVICE. WHEN DEWATERING DEVICES ARE USED, DISCHARGE LOCATIONS SHALL BE PROTECTED FROM EROSION.
20. SITE STABILIZATION REQUIREMENTS ARE AS FOLLOWS:
    - 20.1. WHERE THE INITIATION OF STABILIZATION MEASURE BY THE 7TH DAY AFTER CONSTRUCTION ACTIVITY TEMPORARILY OR PERMANENTLY CEASES ON A PORTION OF THE SITE IS PRECLUDED BY SNOW COVER, STABILIZATION MEASURE SHALL BE INITIATED AS SOON AS PRACTICABLE.
    - 20.2. WHERE CONSTRUCTION ACTIVITY WILL RESUME ON A PORTION OF THE SITE WITHIN 14 DAYS FROM WHEN ACTIVITIES CEASED, (E.G. THE TOTAL TIME PERIOD THAT CONSTRUCTION ACTIVITY IS TEMPORARILY CEASED IS LESS THAN 14 DAYS) THEN STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF THE SITE BY THE 7TH DAY AFTER CONSTRUCTION ACTIVITY TEMPORARILY CEASED.

No.	REVISIONS	DATE	BY

Kimley»Horn
© 2023 KIMLEY-HORN AND ASSOCIATES, INC.
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SCALE: AS NOTED
DESIGNED BY: IC
DRAWN BY: MAN
CHECKED BY: AJS

NOT FOR CONSTRUCTION

BUC-EE'S

BUC-EE'S #71
HUBER HEIGHTS, OH

EROSION CONTROL PHASE 2

8000 STATE ROUTE 235
HUBER HEIGHTS, OH 45424

ORIGINAL ISSUE: 04/22/2024
KHA PROJECT NO. 190255000
SHEET NUMBER
C-08

Drawing name: K:\CLB_LDE\V\190255000_Buc-ees_Huberheights_OH\2 Design\CAD\PlanSheets\Development Plan\EROSION CONTROL NOTES AND DETAILS.dwg C-08 EROSION CONTROL PHASE 2 Apr 22, 2024 9:41am by: drew.gilmour
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Drawing name: K:\CLB_LDEV\190255000_Buc-ees_HuberHeights_OH\2 Design\CAD\PlanSheets\Development Plan\EROSION CONTROL NOTES AND DETAILS Apr 22, 2024 8:42am by: drew.gilmour
C-10A EROSION CONTROL NOTES AND DETAILS.dwg
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ISABELLA CULLITON, P.E.
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DEVELOPER: SCOTT RATCLIFF, P.E.
2500 NORTH HWY-288
ANGLETON, TX 77515
(979) 529-2704
SCOTT.RATCLIFF@BUC-EES.COM

SITE AREA: THE SITE IS APPROXIMATELY 38.96 ACRES OF WHICH 31.95 ACRES WILL BE DISTURBED BY CONSTRUCTION ACTIVITIES.

PROJECT DESCRIPTION: THE PROPOSED SITE WILL CONSIST OF DEMOLITION OF EXISTING BUILDINGS AND REMOVAL OF SURROUNDING PARKING LOT AND ASSOCIATED UTILITIES. THE PROPOSED SITE WILL CONSIST OF A CONVENIENCE STORE, GAS CANOPY, ASSOCIATED PARKING, STORMWATER ADDITIONS, UTILITIES, RETENTION BASIN, AND LANDSCAPING.

SOIL TYPE: ELDEAN SILT LOAM, 0 TO 2 PERCENT SLOPES
MIAMIAN SILT LOAM, 6 TO 12 PERCENT SLOPES, ERODED
UDORTHENTS
TIPPECANOE SILT LOAM, 0 TO 2 PERCENT SLOPES
WESTLAND SILTY CLAY LOAM, SOUTHERN OHIO TILL PLAIN, 0 TO 2 PERCENT SLOPES

DISTANCE TO WATER: 1 MILE EAST OF SITE (MUD CREEK)

RECEIVING STREAM: MUD CREEK

ADJACENT AREAS: THE SITE IS BORDERED TO THE NORTH BY A GRAVEL ACCESS DRIVE LEADING TO THE EASTERN PARCEL AND A NEW OLD DOMINION FREIGHT LINE FACILITY. THE EAST OF THE SITE IS BORDERED BY UNDEVELOPED LAND AND A LARGE DETENTION POND. THE SOUTH OF THE SITE IS BORDERED BY A LARGE POND AND THE I-70 HIGHWAY RAMP AND ROW. THE WEST IS BORDERED BY OH-235 ROW.

EROSION AND SEDIMENT CONTROL MEASURES: PERIMETER SILT FENCE/FILTER SOCKS AND STORM SEWER INLET PROTECTION WILL BE USED TO ASSIST WITH THE MANAGEMENT OF CONSTRUCTION SITE STORMWATER RUNOFF.

PERMANENT STABILIZATION: THE SITE WILL BE STABILIZED BY THE USE OF SEEDING OR SODDING IN OVERLOT AREAS.

MAINTENANCE: ALL EROSION CONTROL DEVICES ARE TO BE INSPECTED BY THE CONSTRUCTION SUPERINTENDENT DAILY AND AFTER SIGNIFICANT RAINFALLS. ANY DAMAGED FACILITIES ARE TO BE REPLACED/REPAIRED IMMEDIATELY AS MAY BE NECESSARY.

CONSTRUCTION SEQUENCE:

1. INSTALL PERIMETER EROSION AND SEDIMENT CONTROL.
2. CLEAR AND GRUB AS NECESSARY FOR THE INSTALLATION OF EROSION AND SEDIMENT CONTROL DEVICES.
3. INSTALL INLET PROTECTION AND OTHER INLET CONTROL DEVICES AS STORM SEWERS ARE COMPILED.
4. FINE GRADING, PAVEMENT & CURB INSTALLATION.
5. PERMANENTLY STABILIZE/SEED AND MULCH OR SOD DISTURBED AREAS PER SPECIFICATIONS.
6. REMOVE REMAINING EROSION AND SEDIMENT CONTROL DEVICES.

SCHEDULE: THE CONTRACTOR SHALL PROVIDE A SCHEDULE OF OPERATIONS TO THE OWNER. SEDIMENTATION AND EROSION CONTROL FEATURES SHALL BE PLACED IN ACCORDANCE WITH THIS SCHEDULE.

EROSION AND SEDIMENT CONTROL NOTES

THE LIMITS OF SEEDING AND MULCHING ARE AS SHOWN WITHIN THE PLAN AS INDICATED BY THE LIMITS OF DISTURBANCE. ALL AREAS NOT DESIGNATED TO BE SEEDED SHALL REMAIN UNDER NATURAL GROUND COVER. THOSE AREAS DISTURBED OUTSIDE THE SEEDING LIMITS SHALL BE SEEDED AND MULCHED AT THE CONTRACTOR'S EXPENSE.

TEMPORARY SEEDING: ANY DISTURBED AREAS WITHIN 50 FEET OF A SURFACE WATER OF THE STATE AND NOT AT FINAL GRADE SHALL BE STABILIZED WITHIN TWO DAYS OF THE MOST RECENT DISTURBANCE IF THE AREA WILL REMAIN IDLE FOR MORE THAN 14 DAYS. ANY DISTURBED AREAS THAT WILL BE DORMANT FOR MORE THAN 14 DAYS BUT LESS THAN ONE YEAR, AND NOT WITHIN 50 FEET OF A SURFACE WATER OF THE STATE SHALL BE STABILIZED WITHIN SEVEN DAYS OF THE MOST RECENT DISTURBANCE WITHIN THE AREA. FOR RESIDENTIAL SUBDIVISIONS, DISTURBED AREAS MUST BE STABILIZED AT LEAST SEVEN DAYS PRIOR TO TRANSFER OF PERMIT COVERAGE FOR THE INDIVIDUAL LOT(S). DISTURBED AREAS THAT WILL BE IDLE OVER WINTER MUST BE STABILIZED PRIOR TO THE ONSET OF WINTER WEATHER.

MARCH 1 TO AUGUST 15
SEED: OATS 2 LBS./1,000 SQ. FT.
FERTILIZER: (12: 12: 12) 25 LBS./1,000 SQ. FT.
MULCH: (STRAW OR HAY) 2 TONS /ACRE

AUGUST 15 TO NOVEMBER 1
SEED: ANNUAL RYE 2 LBS./1,000 SQ. FT.
FERTILIZER: (12:12:12) 25 LBS./1,000 SQ. FT.
MULCH: (STRAW OR HAY) 2 TONS/ACRE

NOVEMBER 1 TO MARCH 1
MULCH (ONLY): (STRAW OR HAY)2 TONS/ACRE

PERMANENT SEEDING: ANY AREAS THAT WILL LIE DORMANT FOR ONE YEAR OR MORE MUST BE STABILIZED WITHIN SEVEN DAYS OF THE MOST RECENT DISTURBANCE. ANY AREAS WITHIN 50 FEET OF A SURFACE WATER OF THE STATE AND AT FINAL GRADE MUST BE STABILIZED WITHIN TWO DAYS OF REACHING FINAL GRADE. OTHER AREAS AT FINAL GRADE MUST BE STABILIZED WITHIN SEVEN DAYS OF REACHING FINAL GRADE WITHIN THAT AREA.

RATES OF APPLICATION OF ITEM 659:
SEED: 4 LBS/1000 SQ. FT.
FERTILIZER: (12:12:12) 20 LBS/1000 SQ. FT.
MULCH: STRAW (HAY) 2 TONS/ACRE (3 TONS/ACRE)

STABILIZATION TYPE	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
PERMANENT SEEDING			A			*	*					
DORMANT SEEDING	B										B	
TEMPORARY SEEDING			C				D					
SODDING			E **									
MULCHING	F											

A KENTUCKY BLUEGRASS 90 LBS/ACRE MIXED WITH PERENNIAL RYEGRASS 30 LBS/ACRE
B KENTUCKY BLUEGRASS 135 LBS/ACRE MIXED WITH PERENNIAL RYEGRASS 45 LBS/ACRE + 2 TONS STRAW MULCH/ACRE
C SPRING OATS 100 LBS/ACRE
D WHEAT OR CEREAL RYE 150 LBS/ACRE
E SOD
F STRAW MULCH 2 TONS/ACRE
* WATERING NEEDED DURING JUNE AND JULY
** WATERING NEEDED FOR 2 TO 3 WEEKS AFTER APPLYING SOD

SEEDING CHART

PROHIBITED CONSTRUCTION ACTIVITIES
THE CONTRACTOR SHALL NOT USE CONSTRUCTION PROCEEDINGS, ACTIVITIES OR OPERATIONS THAT MAY UNNECESSARILY IMPACT THE NATURAL ENVIRONMENT OR THE PUBLIC HEALTH AND SAFETY. PROHIBITED CONSTRUCTION PROCEEDINGS, ACTIVITIES, OR OPERATIONS INCLUDE BUT NOT LIMITED TO:

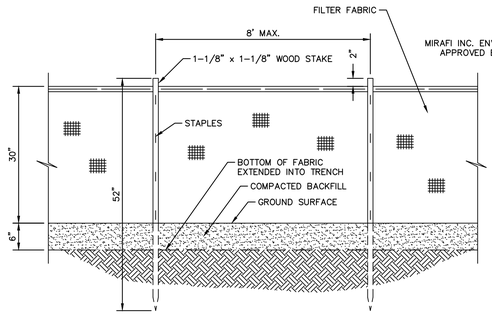
1. DISPOSING OF EXCESS OR UNSUITABLE EXCAVATED MATERIAL IN WETLANDS OR FLOODPLAIN, EVEN WITH THE PERMISSION OF THE PROPERTY OWNER.
2. INDISCRIMINATE, ARBITRARY, OR CAPRICIOUS OPERATION OF EQUIPMENT IN ANY STREAM CORRIDORS, ANY WETLANDS, ANY SURFACE WATERS, OR OUTSIDE THE EASEMENT LIMITS
3. PUMPING OF SEDIMENT-LADEN WATER FROM TRENCHES OR OTHER EXCAVATIONS INTO ANY SURFACE WATERS, ANY STREAM CORRIDORS, ANY WETLANDS OR STORM DRAINS.
4. DISCHARGING POLLUTANTS SUCH AS CHEMICAL, FUEL, LUBRICANTS, BITUMINOUS MATERIALS, RAW SEWERAGE, AND OTHER HARMFUL WASTE INTO OR ALONGSIDE OF RIVERS, STREAMS IMPOUNDMENTS OR INTO NATURAL OR MAN-MADE CHANNELS LEADING THERETO.
5. PERMANENT OR UNSPECIFIED ALTERATIONS OF THE CONSTRUCTED AREA.
6. DAMAGING VEGETATION OUTSIDE OF THE CONSTRUCTION AREA.
7. DISPOSAL OR TREES, BRUSH AND OTHER DEBRIS IN ANY STREAM CORRIDORS, ANY WETLANDS, ANY SUBSURFACE WATERS, OR AT UNSPECIFIED LOCATIONS.
8. OPEN BURNING OF PROJECT DEBRIS WITHOUT A PERMIT.
9. STORING CONSTRUCTION EQUIPMENT AND VEHICLES AND/OR STOCKPILING CONSTRUCTION MATERIALS ON PROPERTY, PUBLIC OR PRIVATE, NOT PREVIOUSLY SPECIFIED BY THE CITY ENGINEER FOR SAID PURPOSE.

SEDIMENT FENCE
THIS SEDIMENT BARRIER UTILIZES STANDARD STRENGTH OR EXTRA STRENGTH SYNTHETIC FILTER FABRICS. IT IS DESIGNED FOR SITUATIONS IN WHICH ONLY SHEET OR OVERLAND FLOWS ARE EXPECTED. MATERIAL PROPERTIES ARE LISTED IN THE PROVIDED TABLE.

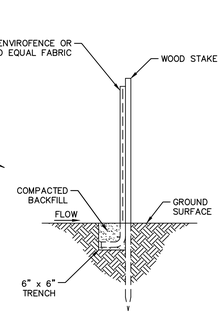
1. SILT FENCE SHALL BE CONSTRUCTED BEFORE UPSLOPE LAND DISTURBANCE BEGINS.
2. ALL SILT FENCE SHALL BE PLACED AS CLOSE TO THE CONTOUR AS POSSIBLE SO THAT WATER WILL NOT CONCENTRATE AT LOW POINTS IN THE FENCE AND SO THAT SMALL SWALES OR DEPRESSIONS WHICH MAY CARRY SMALL CONCENTRATED FLOWS TO THE SILT FENCE ARE DISSIPATED ALONG ITS LENGTH.
3. ENDS OF THE SILT FENCES SHALL BE BROUGHT UPSLOPE SLIGHTLY SO THAT WATER PONDED BY THE SILT FENCE WILL BE PREVENTED FROM FLOWING AROUND THE ENDS.
4. SILT FENCE SHALL BE PLACED ON THE FLATTEST AREA AVAILABLE.
5. WHERE POSSIBLE, VEGETATION SHALL BE PRESERVED FOR 5 FEET (OR AS MUCH AS POSSIBLE) UPSLOPE FROM THE SILT FENCE. IF VEGETATION IS REMOVED, IT SHALL BE REESTABLISHED WITHIN 7 DAYS FROM THE INSTALLATION OF THE SILT FENCE.
6. THE HEIGHT OF THE SILT FENCE SHALL BE A MINIMUM OF 16 INCHES ABOVE THE ORIGINAL GROUND SURFACE.
7. THE SILT FENCE SHALL BE PLACED IN AN EXCAVATED OR SLICED TRENCH CUT A MINIMUM OF 6 INCHES DEEP. THE TRENCH SHALL BE MADE WITH A TRENCHER, CABLE LAYING MACHINE, SLICING MACHINE, OR OTHER SUITABLE DEVICE THAT WILL ENSURE AN ADEQUATELY UNIFORM TRENCH DEPTH.
8. THE SILT FENCE SHALL BE PLACED WITH THE STAKES ON THE DOWNSLOPE SIDE OF THE GEOTEXTILE AND SO THAT 8 INCHES OF GEOTEXTILE MUST BE BELOW THE GROUND SURFACE. EXCESS MATERIAL SHALL LAY ON THE BOTTOM OF THE 6 INCH DEEP TRENCH. THE TRENCH SHALL BE BACKFILLED AND COMPACTED ON BOTH SIDES OF THE FABRIC.
9. SEAMS BETWEEN SECTION OF SILT FENCE SHALL BE SPLICED TOGETHER ONLY AT A SUPPORT POST WITH A MINIMUM 6 INCHES OVERLAP PRIOR TO DRIVING INTO THE GROUND. (SEE DETAILS)
10. MAINTENANCE - SILT FENCE SHALL ALLOW RUNOFF TO PASS ONLY AS DIFFUSE FLOW THROUGH THE GEOTEXTILE. IF RUNOFF OVERTOPS THE SILT FENCE, FLOWS UNDER OR AROUND THE ENDS, OR IN ANY OTHER WAY BECOMES A CONCENTRATED FLOW DISCHARGE, ONE OF THE FOLLOWING SHALL BE PERFORMED, AS APPROPRIATE: 1) THE LAYOUT OF THE SILT FENCE SHALL BE CHANGED, 2) ACCUMULATED SEDIMENT SHALL BE REMOVED, OR 3) OTHER PRACTICES SHALL BE INSTALLED. SILT FENCE SHALL BE INSPECTED AFTER EACH RAINFALL AND AT LEAST DAILY TO ENSURE ITS PROPER LOCATION AND EFFECTIVENESS. IF DAMAGED, THE SILT FENCE SHALL BE REPAIRED IMMEDIATELY.

CRITERIA FOR SILT FENCE MATERIALS:
1. FENCE POSTS - THE LENGTH SHALL BE A MINIMUM OF 32 INCHES LONG. WOOD POSTS WILL BE 2-BY-2 INCH NOMINAL DIMENSIONED HARDWOOD OF SOUND QUALITY. THEY SHALL BE FREE OF KNOTS, SPLITS AND OTHER VISIBLE IMPERFECTIONS THAT WILL WEAKEN THE POSTS. THE MAXIMUM SPACING BETWEEN POSTS SHALL BE 10 FT. POSTS SHALL BE DRIVEN A MINIMUM 16 INCHES INTO THE GROUND, WHERE POSSIBLE. IF NOT POSSIBLE, THE POSTS SHALL BE ADEQUATELY SECURED TO PREVENT OVERTURNING OF THE FENCE DUE TO SEDIMENT/WATER LOADING.
2. SEDIMENT FENCE FABRIC SHALL BE ODOT, TYPE C GEOTEXTILE FABRIC OR THE EQUIVALENT TO THE PROPERTIES IN THE TABLE BELOW.

FABRIC PROPERTIES	VALUES	TEST METHOD
MINIMUM TENSILE STRENGTH	120 LBS (535 N)	ASTM D 4632
MINIMUM ELONGATION AT 60 LBS	50%	ASTM D 4632
MINIMUM PUNCTURE STRENGTH	50 LBS (220 N)	ASTM D 4833
MINIMUM TEAR STRENGTH	40 LBS (180 N)	ASTM D 4533
APPARENT OPENING SIZE	< OR = 0.84 MM	ASTM D 4751
MINIMUM PERMITTIVITY	1X10-2 SEC.$^{-1}$	ASTM D 4491
UV EXPOSURE STRENGTH RETENTION	70%	ASTM G 4355



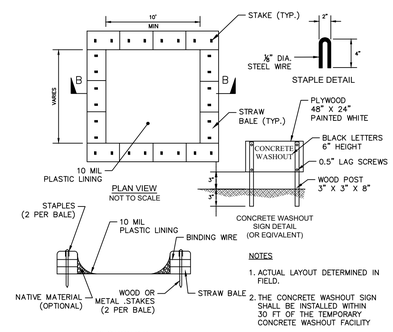
FRONT VIEW



SIDE VIEW

SEDIMENTATION/SILT FENCE

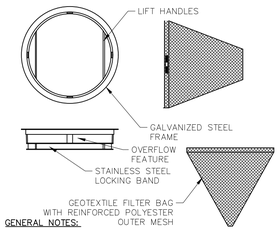
N.T.S.



NOTES
1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FT OF THE TEMPORARY CONCRETE WASHOUT FACILITY

CONCRETE WASHOUT

N.T.S.



GENERAL NOTES:

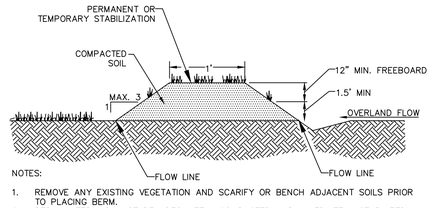
ALL PRODUCTS MANUFACTURED BY INLET AND PIPE PROTECTION, INC OR APPROVED EQUAL.

NOTE: INLET FILTERS ARE SLIGHTLY SMALLER THAN THE INLET GRATE SIZES. WHEN IDENTIFYING OR SPECIFYING FILTERS/CASTINGS PLEASE REFER TO THE DIAMETER "D" OR WIDTH "W" AND HEIGHT "H" OF FILTER FRAMES OR CASTING GRATES. YOU MAY ALSO REFER TO OUR CASTING CROSS REFERENCE GUIDE FOR ODOT STANDARDS

NOTE: ROUND AND SQUARE INLET FILTERS AVAILABLE FOR MOST NEENAH AND EAST JORDAN BEEHIVE, ROLL CURB AND CURB BOX FRAME TYPES

INLET PROTECTION

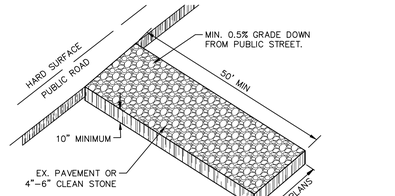
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NOTES:
1. REMOVE ANY EXISTING VEGETATION AND SCARIFY OR BENCH ADJACENT SOILS PRIOR TO PLACING BERM.
2. BERM MATERIALS MUST BE ADEQUATELY COMPACTED AND IMMEDIATELY STABILIZED.
3. DIVERSION BERMS MUST BE IMMEDIATELY STABILIZED TO PREVENT EROSION AND TRANSPORT OF SEDIMENT.
4. LINE FLOW LINE WITH FILTER FABRIC.

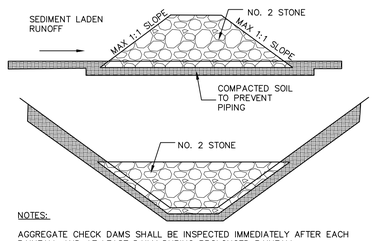
TEMPORARY DIVERSION DIKE

N.T.S.



CONSTRUCTION ENTRANCE

N.T.S.



NOTES:

AGGREGATE CHECK DAMS SHALL BE INSPECTED IMMEDIATELY AFTER EACH RAINFALL AND AT LEAST DAILY DURING PROLONGED RAINFALL

CLOSE ATTENTION SHALL BE PAID TO REPAIR OF DAMAGED CHECK DAMS, END RUNS AND UNDERCUTTING BENEATH DAMS.

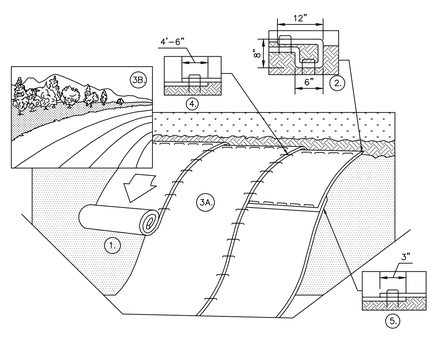
NECESSARY REPAIRS TO CHECK DAMS SHALL BE ACCOMPLISHED PROMPTLY.

SEDIMENT DEPOSITS SHOULD BE REMOVED AFTER EACH RAINFALL. THEY MUST BE REMOVED WHEN THE LEVEL OF DEPOSITION REACHES APPROXIMATELY ONE-HALF THE HEIGHT OF THE BARRIER.

ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE AGGREGATE IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND SEEDED

ROCK CHECK DAM

NTS



1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED.

2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF BLANKET EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH AS SHOWN IN DETAIL. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE BLANKET.

3. ROLL THE BLANKETS (3A.) DOWN OR (3B.) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS PER MANUFACTURES RECOMMENDATION.

4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH MINIMUM 6" OVERLAP. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE SEAM STITCH ON THE PREVIOUSLY INSTALLED BLANKET.

5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE BLANKET WIDTH.

7. PLACE STAPLES/STAKES PER MANUFACTURER'S RECOMMENDATION FOR THE APPROPRIATE SLOPE BEING APPLIED.

NOTES:
1. IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.

2. FOLLOW EROSION CONTROL TECHNOLOGY COUNCIL SPECIFICATION FOR PRODUCT SELECTION.

EROSION CONTROL BLANKET (SLOPE INSTALLATION)

NTS

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BUC-EE'S

EROSION CONTROL NOTES AND DETAILS

BUC-EE'S #71
HUBER HEIGHTS, OH

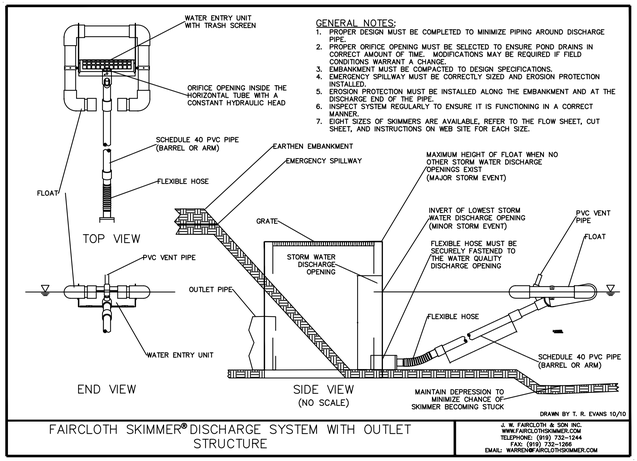
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ORIGINAL ISSUE: 04/22/2024

KHA PROJECT NO. 190255000

SHEET NUMBER

C-10A



SKIMMER DISCHARGE SYSTEM DETAIL

N.T.S.

TEMPORARY SEDIMENT BASIN A SCHEDULE									
CONTROL STRUCTURE									
LOCATION	TRIBUTARY ACREAGE	DISTURBED ACREAGE	REQUIRED BASIN DEWATERING VOLUME (1,800 CF/ACRE)	PROVIDED BASIN DEWATERING VOLUME	REQUIRED SEDIMENT STORAGE VOLUME (1,000 CF/DISTURBED AC)	PROVIDED SEDIMENT STORAGE VOLUME	DEWATERING VOLUME DRAWDOWN (HR)	SEDIMENT RISER	HEIGHT
A	40.32	40.32	72,576	311,228	40,320	861,391	48	3.5	3.5
BMP WATER QUALITY STRUCTURE NOTICE									
NOTE: THE EXTENDED WET DETENTION BASIN AND ASSOCIATED WATER QUALITY STRUCTURE ARE STORMWATER QUALITY BMP'S AND ARE AN INTEGRAL PART OF THE PRIVATE STORM SEWER SYSTEM DEPICTED IN THESE DRAWINGS. RESPONSIBILITY AND ASSURANCE OF PERIODIC MAINTENANCE AND THE CONTINUOUS FUNCTIONALITY OF THE STORMWATER QUALITY DEVISE IS PERPETUAL; BEGINNING WITH THE OWNER AT THE TIME OF INSTALLATION AND CONTINUING TO ALL FUTURE OWNER AT THE TIME OF INSTALLATION AND CONTINUING TO ALL FUTURE OWNERS OF SAID PRIVATE STORM SEWER SYSTEMS.									

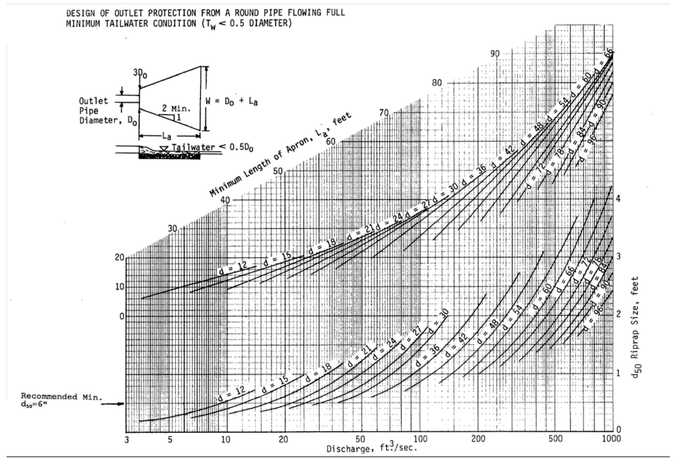
NOTE: SHOP DRAWING FOR STRUCTURE TO BE REVIEWED AND APPROVED BY CIVIL ENGINEER

NOTE: ALL EROSION AND SEDIMENT CONTROL PRACTICES ARE SUBJECT TO FIELD MODIFICATIONS AT THE DISCRETION OF THE CITY OF HUBER HEIGHTS AND/OR THE OHIO E.P.A.

NOTE: ONCE SEDIMENT OCCUPIES 50% OF THE SEDIMENT STORAGE ZONE AND PRIOR TO CONVERSION TO A POST-CONSTRUCTION BMP THE SEDIMENT STORAGE ZONE NEEDS CLEANED OUT.

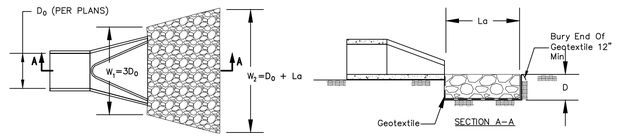
SKIMMER SPECIFICATIONS			
	SKIMMER SIZE (IN.)	SKIMMER ORIFICE DIAMETER (IN.)	SKIMMER PIPE LENGTH, L (FT.)
BASIN A	6	2.5	2.12

BASIN A DETAILS

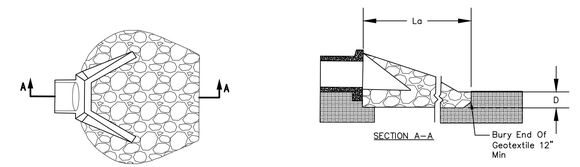


Rip Rap Sizing					
Description	Pipe Size, D_o	Design Flow Rate, Q_{10}	Apron Length, L_a	Apron Width at HW, W_1	Apron Width Downstream, W_2
ID	in	cfs	ft	ft	ft
D1	18	7.18	10	4.5	11.25
D6	24	5.72	13	6	15
D16	24	3.29	13	6	15
D22	30	8.15	16	7.5	18.5
D32	36	32.20	20	9	23
D58	12	0.65	6	3	7
D60	12	1.03	6	3	7
D63	18	8.62	9	4.05	10.5
D73	24	9.60	13	6	15
D74	30	5.85	16	7.5	18.5
D79	30	13.93	16	7.5	18.5
D94	36	16.45	20	9	23
D117	60	147.0	33	15	38
D121	30	3.74	16	7.5	18.5

Pipe Outlet To Flat Area
No Well-Defined Channel



Pipe Outlet To
Well-Defined Channel

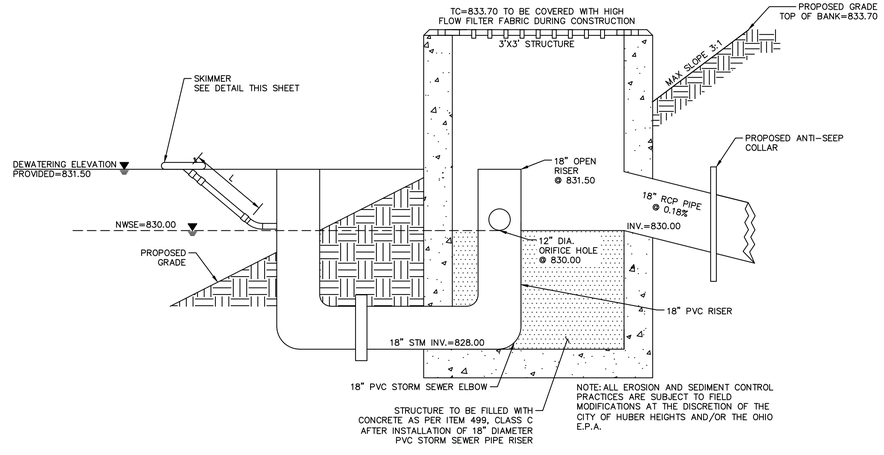


PLAN

NOTES:
1. STONE SHALL BE HARD, ANGULAR, AND HIGHLY WEATHER-RESISTANT RIPRAP STONE AT A THICKNESS OF 12 IN. MINIMUM OR TWO TIMES THE STONE DIAMETER, WHICHEVER IS GREATER.
2. GEOTEXTILE (NON-WOVEN) MINIMUM CRITERIA:
   WEIGHT OF GEOTEXTILE (OZ/SQ.YD.)_____6
   TENSILE STRENGTH (LB) ASTM D 4632_____180
   ELONGATION AT FAILURE (%) ASTM D 4632_____≥ 50
   PUNCTURE (LB) ASTM D 4833_____80
   ULTRAVIOLET LIGHT (% RESIDUAL TENSILE STRENGTH) ASTM D 4355___MIN 70
   APPARENT OPENING SIZE (AOS) ASTM D 4751_____MAX 40 SIEVE
   PERMITTIVITY SEC-^{1} ASTM D 4491_____MIN 0.70
3. ANY GEOTEXTILE SPLICES SHALL OVERLAP A MINIMUM OF 18 INCHES, WITH UPSTREAM OR UPSLOPE GEOTEXTILE OVERLAPPING THE ABUTTING DOWNSLOPE GEOTEXTILE.
4. APRON WIDTH W_1 SHALL BE 3 TIMES THE CULVERT PIPE DIAMETER. APRON WIDTH W_2 SHALL BE THE DIAMETER OF THE PIPE PLUS THE APRON LENGTH.
5. LA IS THE LENGTH OF THE RIPRAP APRON.
6. D SHOULD BE 1.5 TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESS THAN 6"

RIP RAP DETAIL OUTLET PROTECTION

N.T.S.



TEMPORARY SEDIMENT SKIMMER AND RISER DETAIL FOR STRUCTURE D2 DURING CONSTRUCTION (BASIN A)

NOT TO SCALE

No.	REVISIONS	DATE	BY

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BUC-EE'S

EROSION CONTROL NOTES AND DETAILS

BUC-EE'S #71
HUBER HEIGHTS, OH

8000 STATE ROUTE 235
HUBER HEIGHTS, OH 45424

ORIGINAL ISSUE: 04/22/2024

KHA PROJECT NO. 190255000

SHEET NUMBER

C-10B

Drawing name: K:\CLB_LDC\190255000_Buc-ees_HuberHeights_OH\2 Design\CAD\PlanSheets\Development Plan\EROSION CONTROL NOTES AND DETAILS.dwg C-10B EROSION CONTROL NOTES AND DETAILS Apr 22, 2024 9:42am by: drew.gilmour
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WARNING: CONTRACTOR TO VERIFY PRESENCE AND EXACT LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION.

SHEET C-11A

SHEET C-11B

SHEET C-11C

SHEET C-11D

SHEET C-11E

SHEET C-11F

PROPOSED RETENTION BASIN A
NWSE:830.00
TOP:833.70
BOTTOM:825.00
100-YR HWL:832.49

PROPOSED RETENTION BASIN HYDRAULICALLY CONNECTED TO BASIN A

PROPOSED BUILDING 74,000 SF FFE=836.00

EXISTING POND ORDINARY HIGH WATER LEVEL 823.00

CEMETERY POINT BLVD

ART Z RD

I-70 RAMP

S.R. 235

GRADING LEGEND

FL = FLOW LINE	XXX	PROPOSED CONTOUR
TC = TOP OF CURB	XXX	EXISTING CONTOUR
ME = MATCH ELEVATION	RIDGE	RIDGE LINE
R = RIM ELEVATION	X.XX%	SLOPE AND FLOW DIRECTION
EG = EXISTING GRADE		DRAINAGE SWALE
FG = FINISHED GRADE		100-YEAR OVERLAND FLOW ROUTING

GRADING NOTES

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7. WHEN NATURAL FLOW OF DRAINAGE IS AWAY FROM CURB, CONTRACTOR TO INSTALL REVERSE GUTTER PITCH.
8. MATCH EXISTING ELEVATIONS AT THE PROPERTY LIMITS. UNLESS SHOWN OTHERWISE.

No.	REVISIONS	DATE	BY

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BUC-EE'S

OVERALL GRADING AND DRAINAGE PLAN

BUC-EE'S #71
HUBER HEIGHTS, OH
8000 STATE ROUTE 235
HUBER HEIGHTS, OH 45424

ORIGINAL ISSUE: 04/22/2024
KHA PROJECT NO. 190255000
SHEET NUMBER
C-11

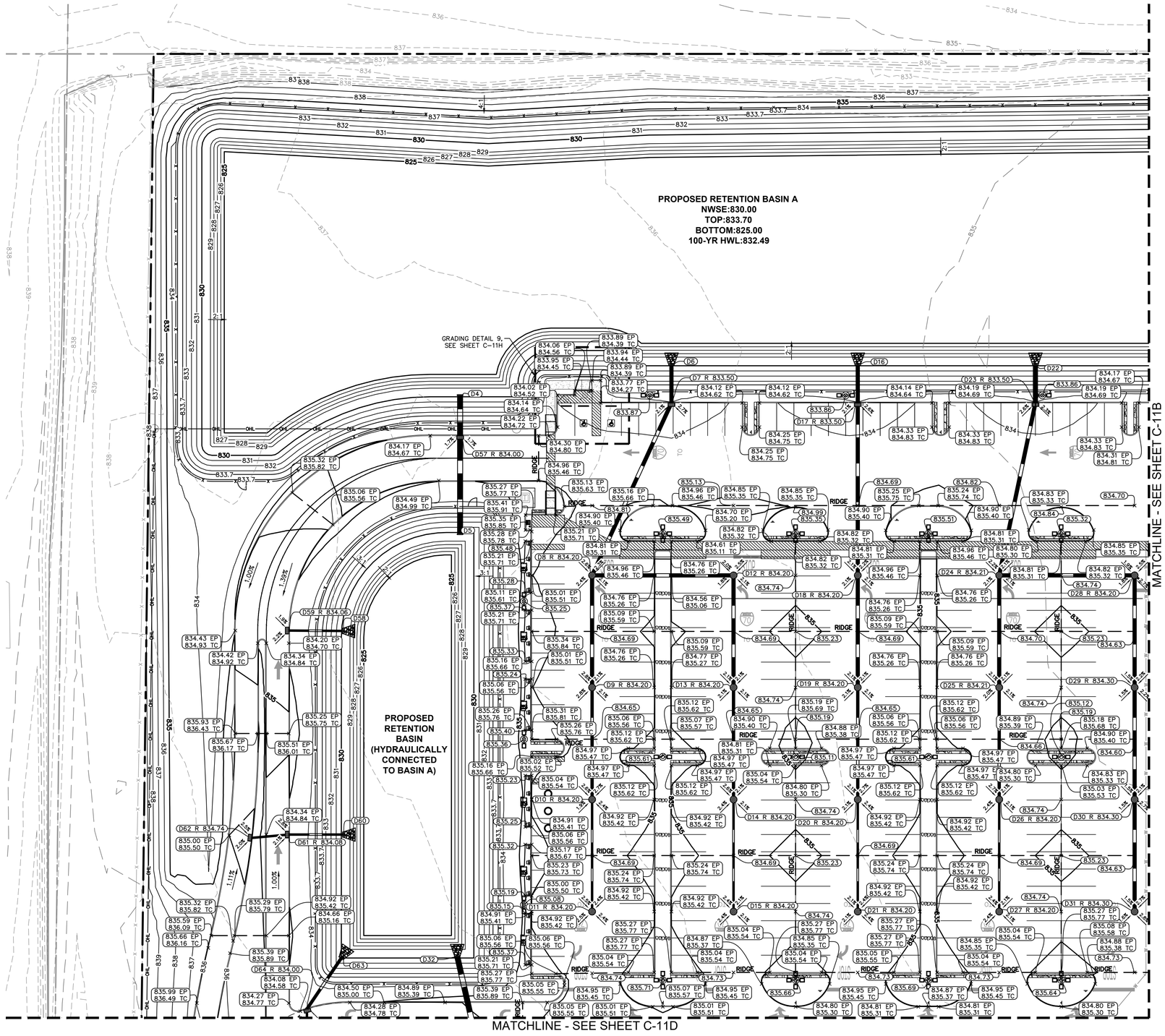
Drawing name: K:\CLB_LDE\190255000_Buc-ees_HuberHeights_CIV\2 Design\CAD\PlanSheets\Development Plan\OVERALL GRADING AND DRAINAGE PLAN.dwg C-11 OVERALL GRADING AND DRAINAGE PLAN Apr 22, 2024 9:42am by: drew.gilmour
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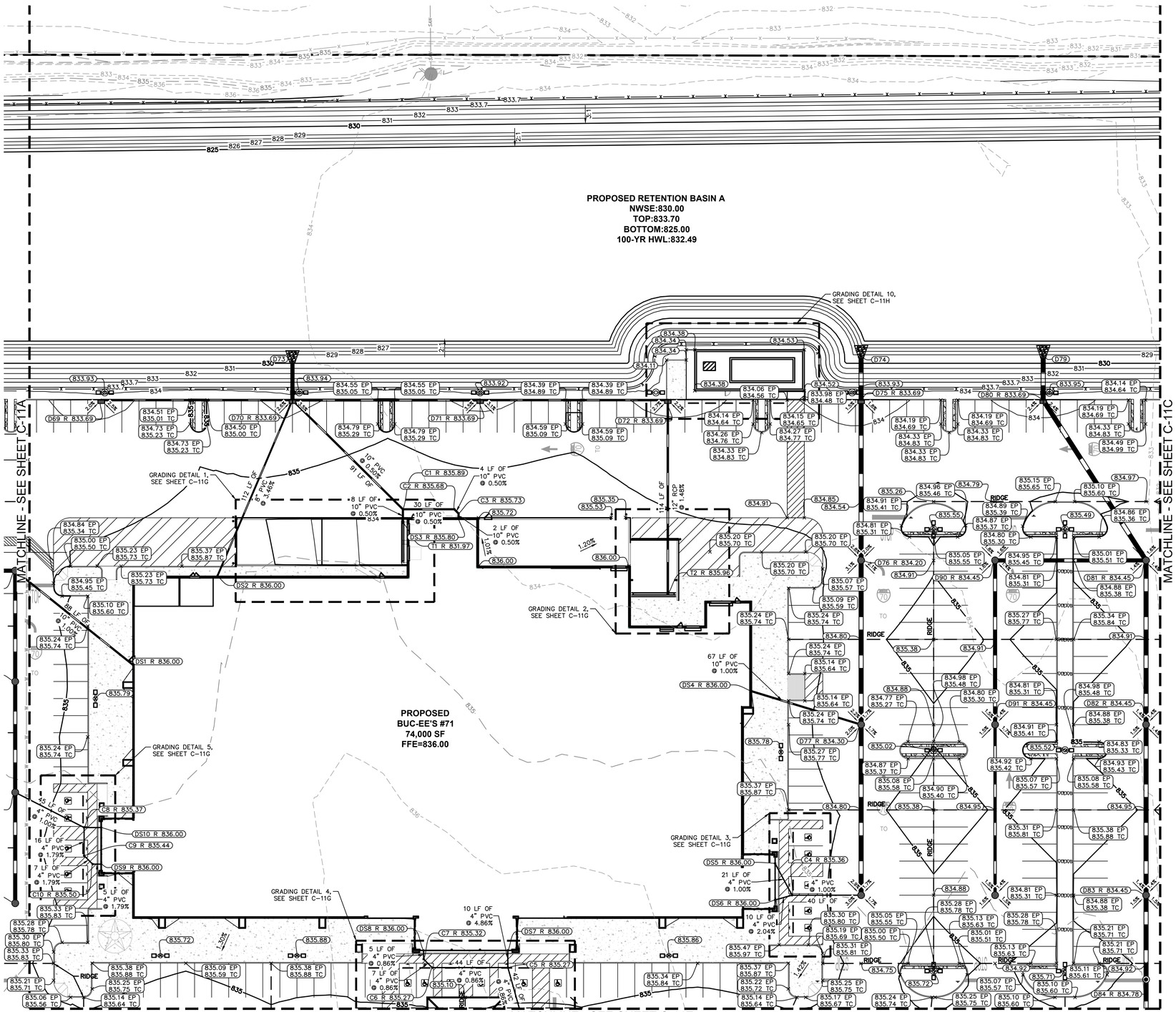
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BUC-EE'S

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ORIGINAL ISSUE:
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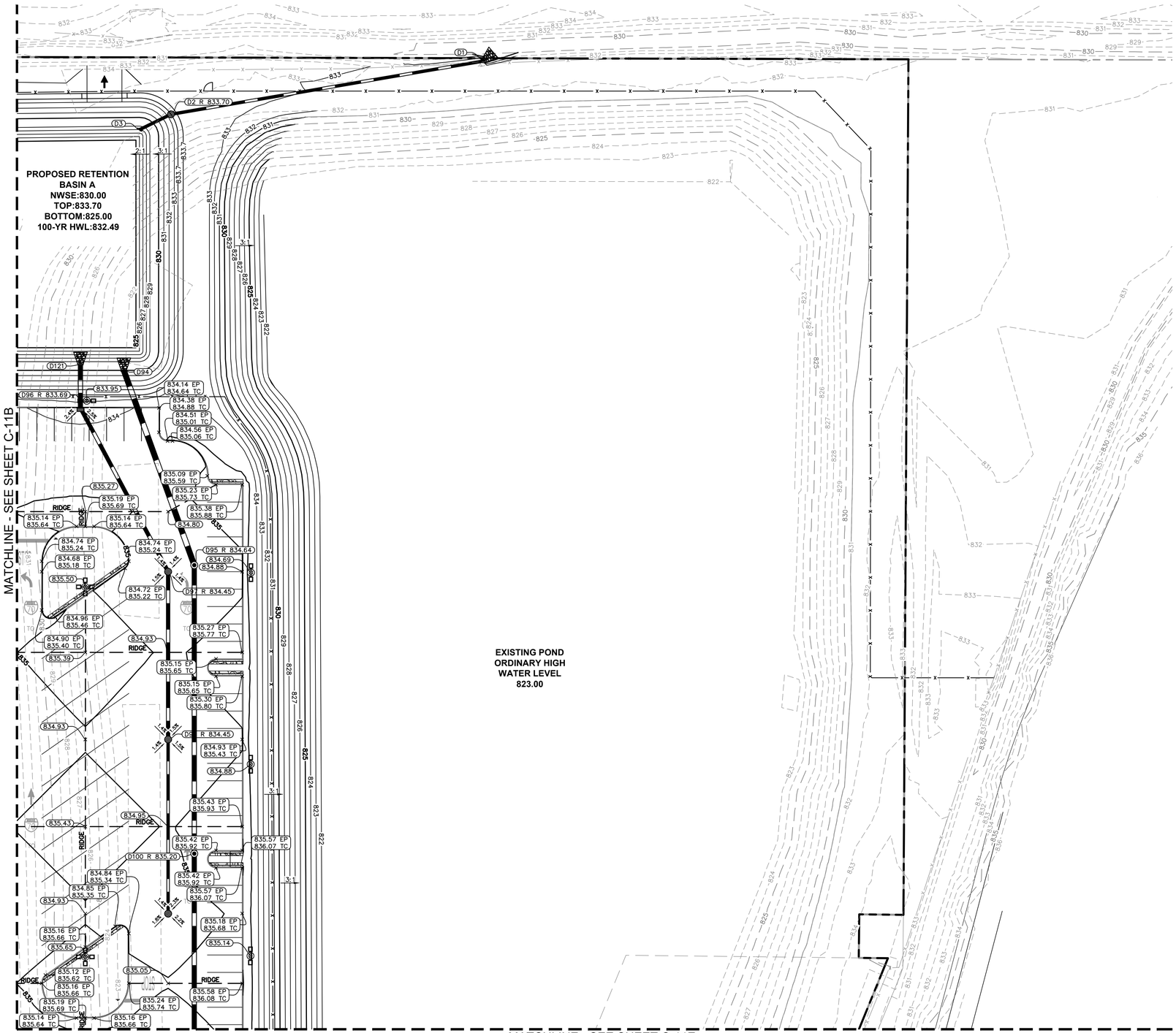
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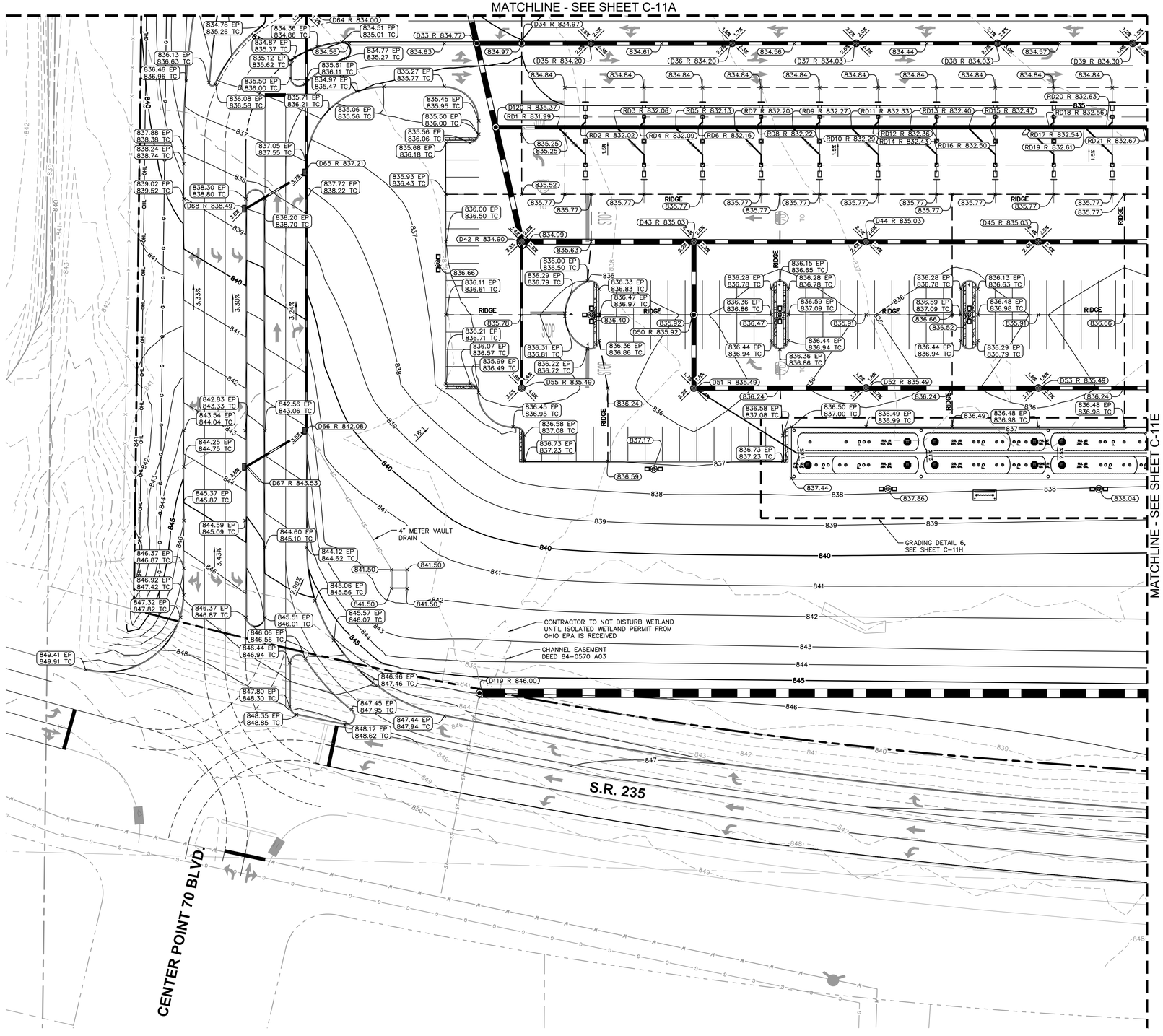
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BUC-EE'S

GRADING AND DRAINAGE PLAN

BUC-EE'S #71
HUBER HEIGHTS, OH
8000 STATE ROUTE 235
HUBER HEIGHTS, OH 45424

ORIGINAL ISSUE: 04/22/2024
KHA PROJECT NO. 190255000
SHEET NUMBER
C-11C



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GRAPHIC SCALE IN FEET
0 15 30 60

GRADING LEGEND

FL = FLOW LINE	XXX	PROPOSED CONTOUR	PROPOSED CONTOUR
TC = TOP OF CURB	XXX	EXISTING CONTOUR	EXISTING CONTOUR
ME = MATCH ELEVATION	RIDGE	RIDGE LINE	RIDGE LINE
R = RIM ELEVATION	X.XX%	SLOPE ARROW AND DIRECTION	SLOPE ARROW AND DIRECTION
EG = EXISTING GRADE		DRAINAGE SWALE	DRAINAGE SWALE
FG = FINISHED GRADE		100-YEAR OVERLAND FLOW ROUTING	100-YEAR OVERLAND FLOW ROUTING

GRADING NOTES

1. CONTRACTOR TO VERIFY ALL EXISTING TOPOGRAPHY AND STRUCTURES ON THE SITE AND IMMEDIATELY NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO STARTING WORK.
2. ALL PAVEMENT SPOT GRADE ELEVATIONS AND RIM ELEVATIONS WITHIN OR ALONG CURB AND GUTTER REFER TO FLOW LINE ELEVATIONS UNLESS OTHERWISE NOTED.
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4. NO EARTHEN SLOPE SHALL BE GREATER THAN 3:1, UNLESS OTHERWISE NOTED.
5. MAXIMUM SLOPE IN ACCESSIBLE PARKING SPACES AND LOADING ZONES SHALL NOT EXCEED 2.0% IN ALL DIRECTIONS.
6. MAXIMUM RUNNING SLOPE SHALL NOT EXCEED 5% AND CROSS SLOPE SHALL NOT EXCEED 2% ON ALL SIDEWALKS AND ACCESSIBLE ROUTES.
7. WHEN NATURAL FLOW OF DRAINAGE IS AWAY FROM CURB, CONTRACTOR TO INSTALL REVERSE GUTTER PITCH.
8. MATCH EXISTING ELEVATIONS AT THE PROPERTY LIMITS. UNLESS SHOWN OTHERWISE.

No.	REVISIONS	DATE	BY

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GRADING AND DRAINAGE PLAN

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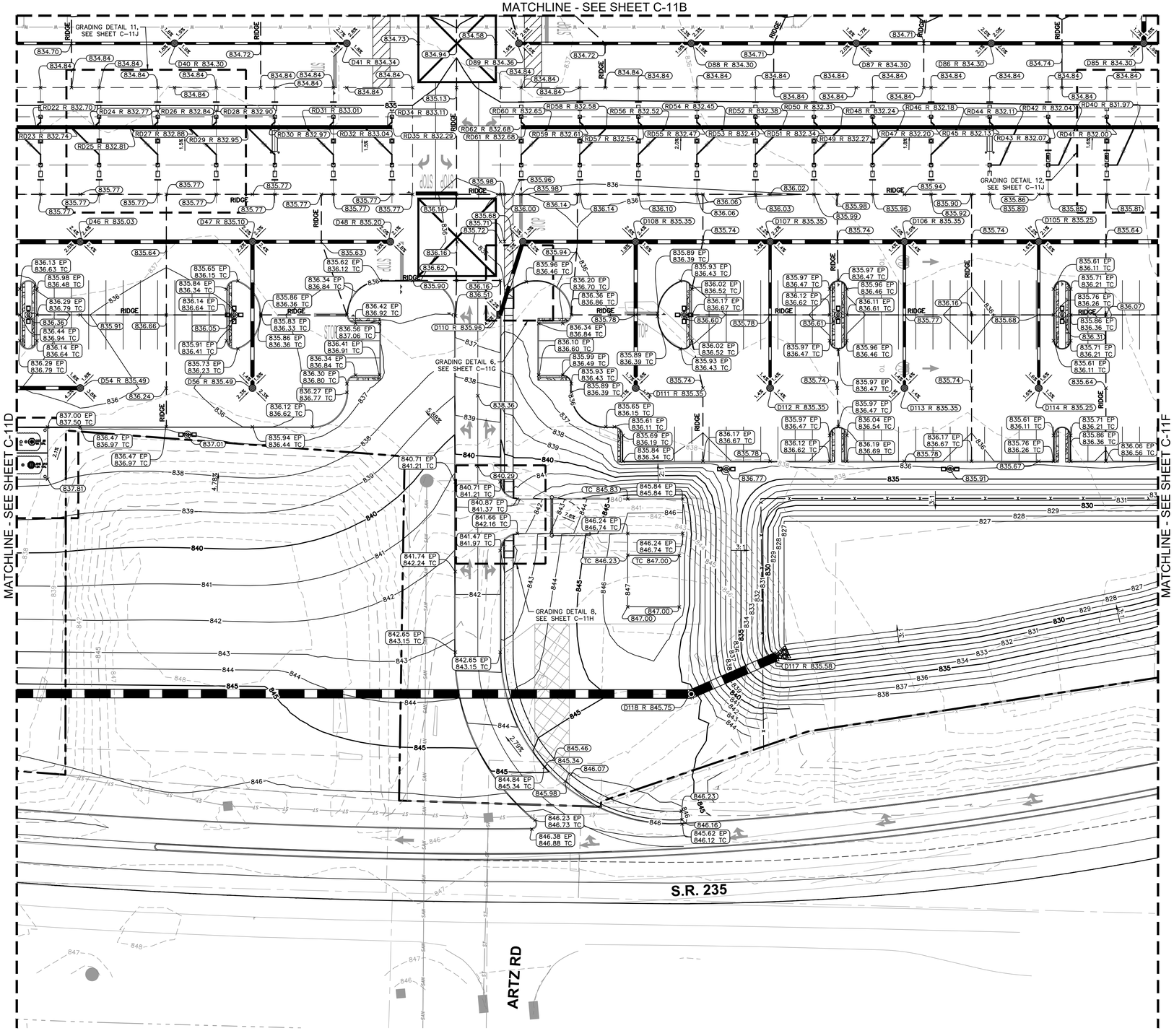
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SHEET NUMBER

C-11D

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C-11D GRADING AND DRAINAGE PLAN DETAIL
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0 15 30 60

GRADING LEGEND

FL = FLOW LINE	XXX	PROPOSED CONTOUR
TC = TOP OF CURB	XXX	EXISTING CONTOUR
ME = MATCH ELEVATION	RIDGE	RIDGE LINE
R = RIM ELEVATION	X.XX%	SLOPE AND FLOW DIRECTION
EG = EXISTING GRADE		DRAINAGE SWALE
FG = FINISHED GRADE		100-YEAR OVERLAND FLOW ROUTING

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CHECKED BY: AJS

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BUC-EE'S

GRADING AND DRAINAGE PLAN

BUC-EE'S #71
HUBER HEIGHTS, OH
8000 STATE ROUTE 235
HUBER HEIGHTS, OH 45424

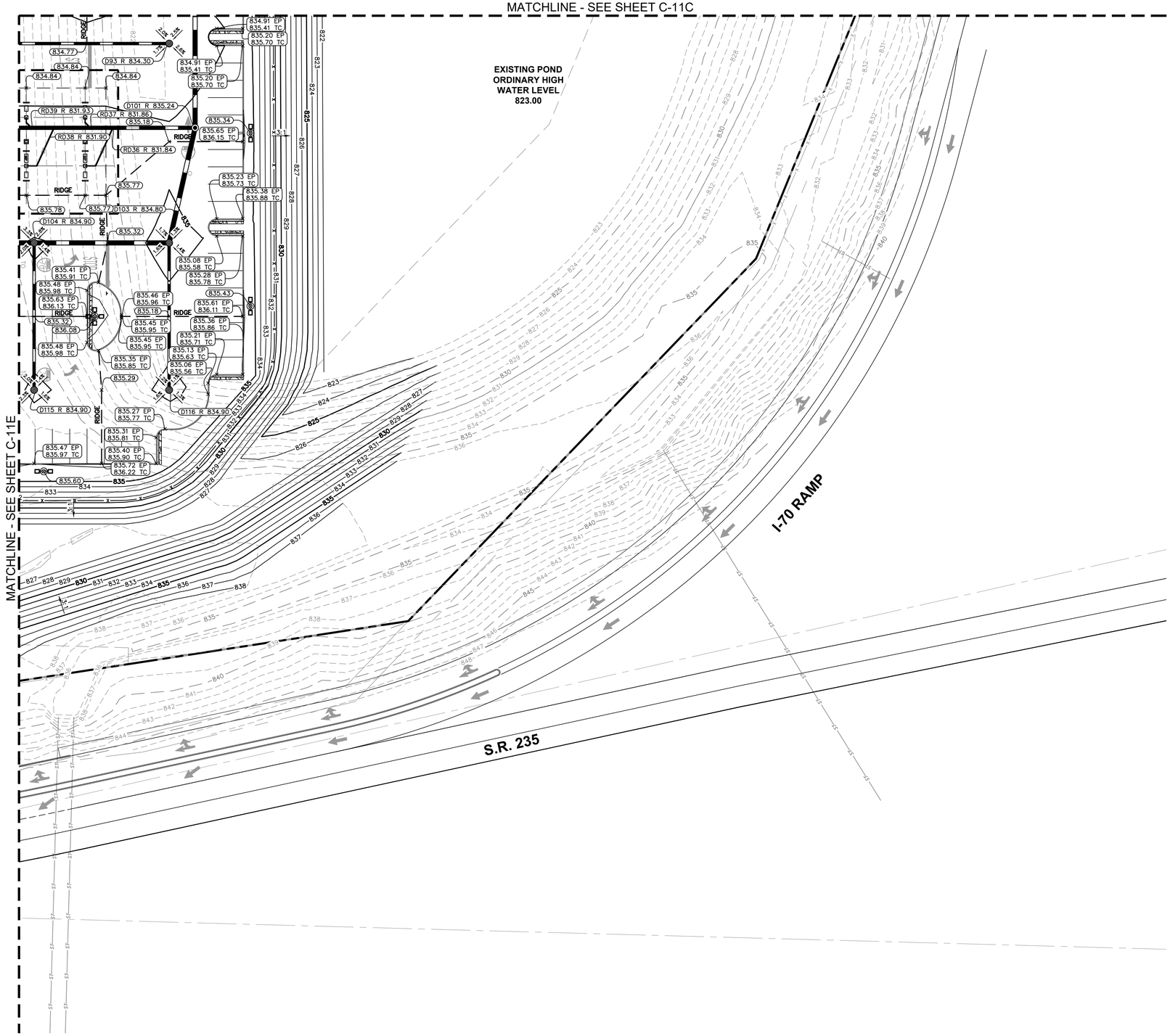
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04/22/2024

KHA PROJECT NO.
190255000

SHEET NUMBER
C-11E

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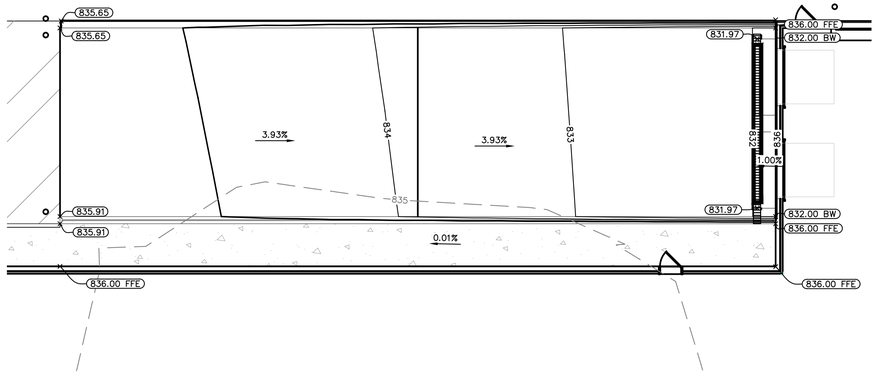
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BUC-EE'S

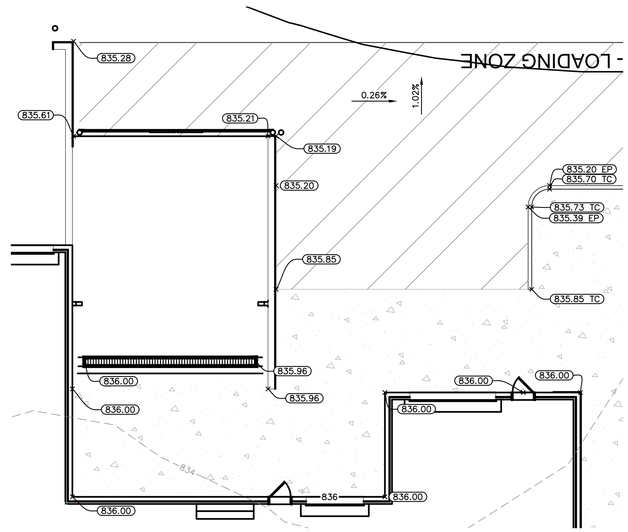
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GRADING AND DRAINAGE PLAN

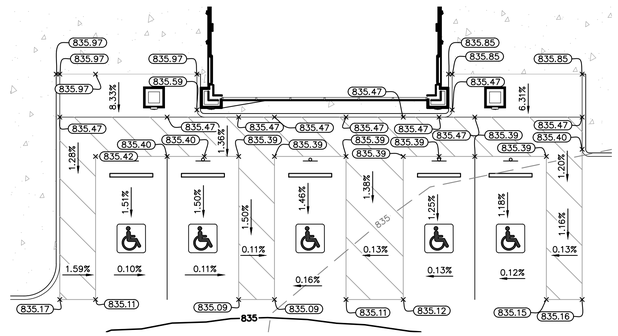
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KHA PROJECT NO. 190255000
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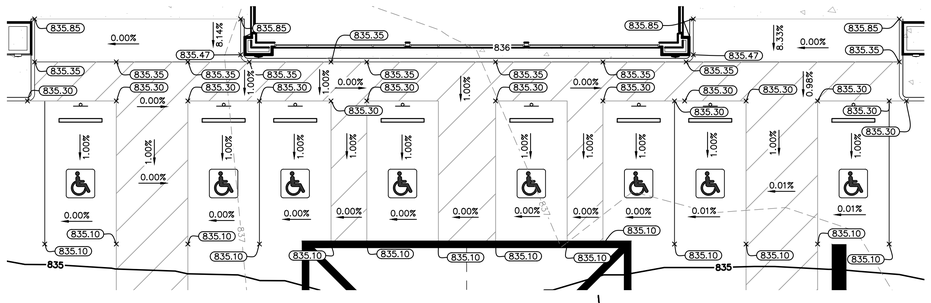
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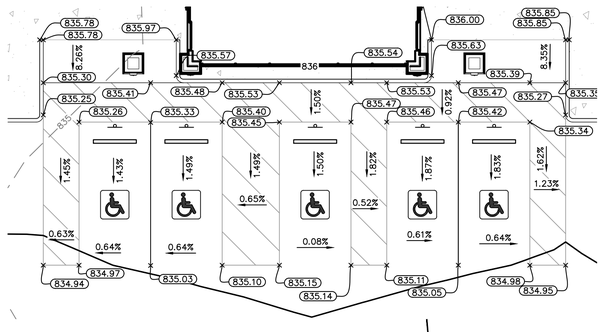
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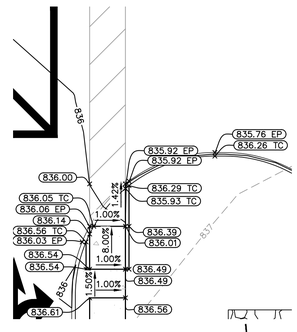
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1"=10'



GRADING DETAIL 4
1"=10'



GRADING DETAIL 5
1"=10'



GRADING DETAIL 6
1"=10'

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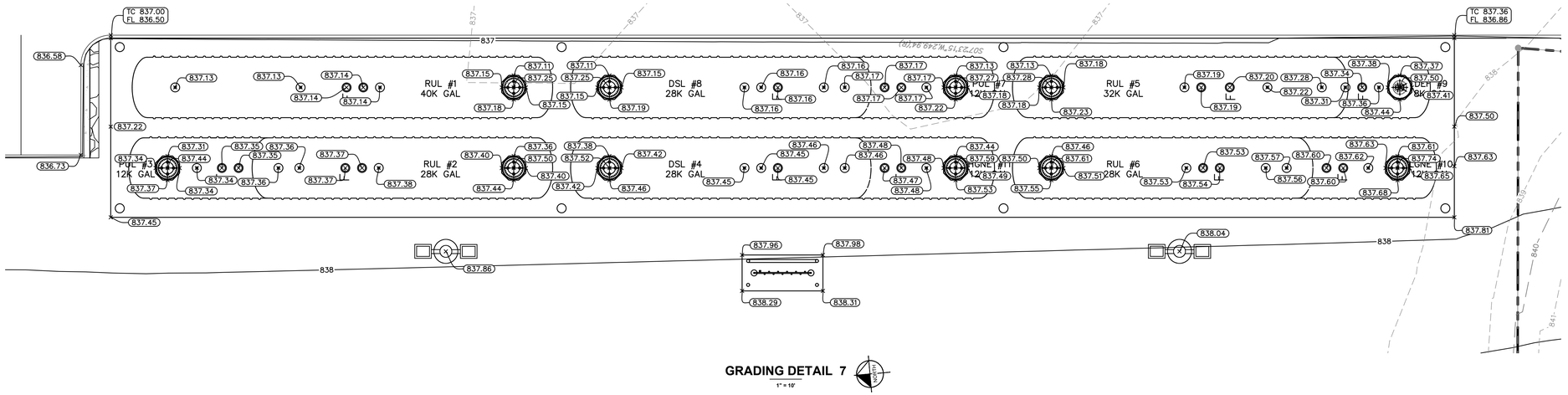
BUC-EE'S

SITE GRADING DETAILS

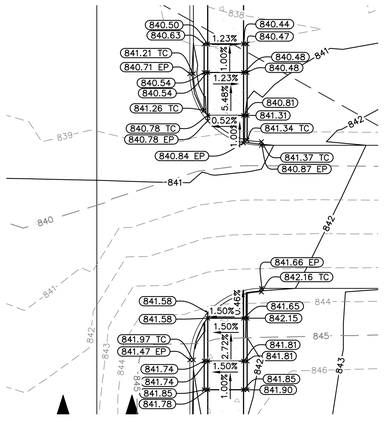
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HUBER HEIGHTS, OH

8000 STATE ROUTE 235
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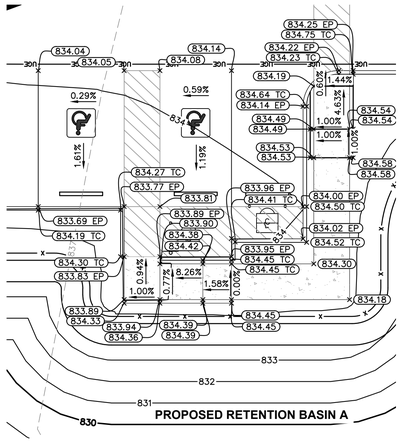
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KHA PROJECT NO. 190255000
SHEET NUMBER
C-11G



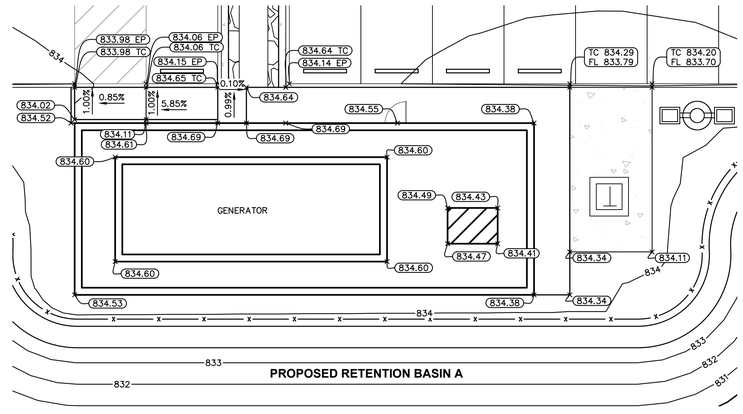
GRADING DETAIL 7
1" = 10'



GRADING DETAIL 8
1" = 10'



GRADING DETAIL 9
1" = 10'



GRADING DETAIL 10
1" = 10'

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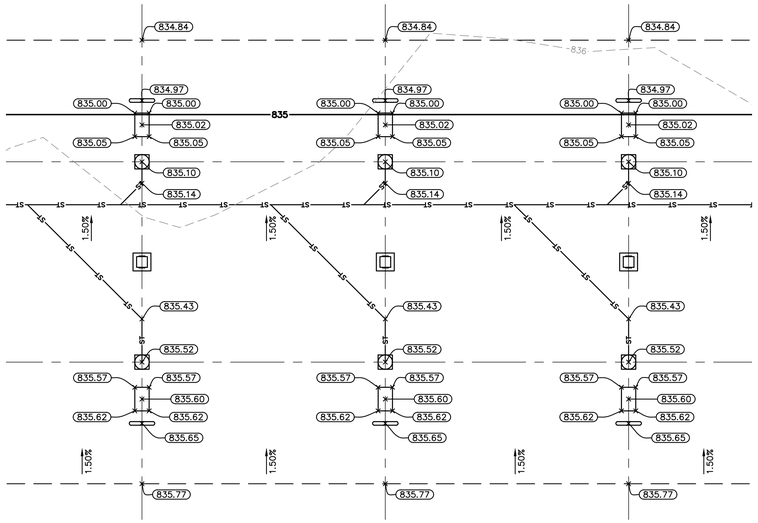
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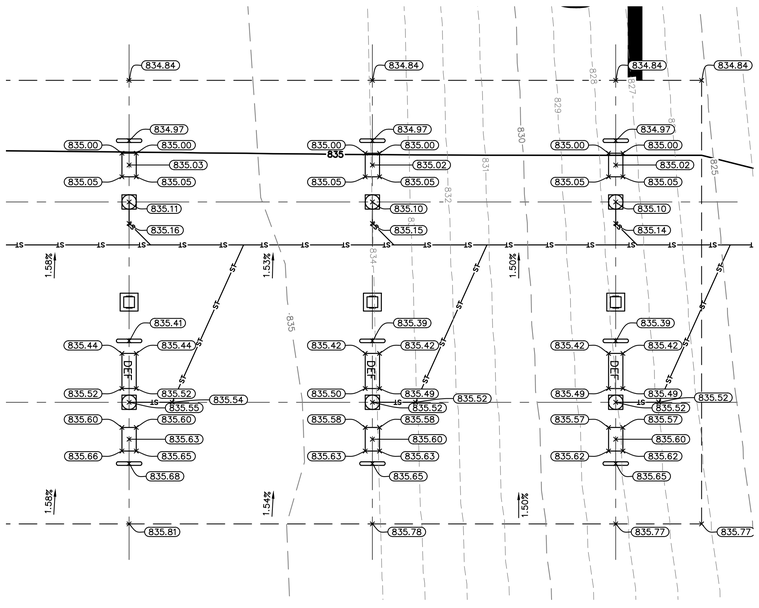
SHEET NUMBER

C-11H

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GRADING DETAIL 11 - CANOPY 1
TYPICAL PUMP GRADING
1" = 10'



DETAIL 12 - CANOPY 1
TYPICAL DEF PUMP GRADING
1" = 10'

Drawing name: K:\OLB_LDC\190255000_Buc-ees_HuberHeights_OH\2 Design\CAD\PlanSheets\Development Plan\GRADING DETAILS.dwg C-11J Apr 22, 2024 9:46am by: drew.gilmour
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SITE GRADING DETAILS

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SHEET NUMBER
C-11J

DRAINAGE STRUCTURE TABLE

NAME	RIM	INVERTS	NORTHING	EASTING	DESCRIPTION
C1	835.89	IN 830.56 (W) 10" IN 830.57 (S) 10" OUT 830.57 (NE) 10"	684909.97	1532670.62	CLEANOUT
C2	835.68	IN 830.72 (SW) 10" OUT 830.72 (N) 10"	684879.96	1532668.02	CLEANOUT
C3	835.73	IN 830.73 (W) 10" OUT 830.73 (NE) 10"	684877.69	1532665.31	6" CLEANOUT
C4	835.36	IN 833.79 (N) 4" IN 833.79 (NE) 4" OUT 833.79 (S) 4"	684702.26	1532425.47	CLEANOUT
C5	835.27	IN 831.51 (N) 4" IN 831.51 (E) 4" OUT 831.51 (W) 4"	684871.89	1532397.61	CLEANOUT
C6	835.27	IN 831.90 (NE) 4" OUT 831.90 (S) 4"	684916.07	1532401.37	CLEANOUT
C7	835.32	IN 831.96 (E) 4" OUT 831.96 (SW) 4"	684920.63	1532406.78	6" CLEANOUT
C8	835.37	IN 830.99 (S) 4" IN 830.99 (W) 4" OUT 830.99 (NE) 4"	685112.22	1532500.83	CLEANOUT
C9	835.44	IN 831.28 (SW) 4" OUT 831.28 (E) 4"	685113.64	1532484.42	CLEANOUT
C10	835.50	IN 831.41 (S) 4" OUT 831.41 (NE) 4"	685109.09	1532479.01	6" CLEANOUT
D1	831.44	IN 829.65 (N) 18"	684178.80	1532871.28	ODOT HW-1.1
D2	833.70	OUT 830.00 (S) 18" OUT 828.00 (N) 18"	684359.68	1532856.35	OUTLET CONTROL STRUCTURE MODIFIED ODOT CB-2-3
D3	829.79	IN 828.00 (S) 18"	684378.35	1532849.14	ODOT HW-1.1
D4	833.42	OUT 830.00 (W) 36"	685519.99	1532792.37	ODOT HW-1.1
D5	833.42	IN 830.00 (E) 36"	685526.96	1532711.97	ODOT HW-1.1
D6	833.42	IN 830.00 (W) 24"	685396.42	1532799.05	ODOT HW-1.1
D7	833.50	IN 830.04 (NW) 24" OUT 830.04 (E) 24"	685398.32	1532777.20	ODOT CB-3A
D8	834.20	IN 830.26 (W) 24" IN 830.26 (S) 24" OUT 830.26 (SE) 24"	685452.78	1532681.55	ODOT CB-2-3
D9	834.20	IN 830.39 (W) 18" OUT 830.39 (E) 24"	685458.40	1532616.79	ODOT CB-2-3
D10	834.20	IN 830.59 (W) 12" OUT 830.59 (E) 18"	685464.01	1532552.04	ODOT CB-2-2B
D11	834.20	OUT 830.91 (E) 12"	685469.63	1532487.28	ODOT CB-2-2B
D12	834.20	IN 830.43 (W) 24" OUT 830.43 (N) 24"	685371.09	1532674.47	ODOT CB-2-3
D13	834.20	IN 830.56 (W) 18" OUT 830.56 (E) 24"	685376.71	1532609.71	ODOT CB-2-3
D14	834.20	IN 830.75 (W) 12" OUT 830.75 (E) 18"	685382.32	1532544.95	ODOT CB-2-2B
D15	834.20	OUT 831.08 (E) 12"	685387.94	1532480.20	ODOT CB-2-2B
D16	832.33	IN 830.00 (W) 24"	685288.83	1532789.72	ODOT HW-1.1
D17	833.50	IN 830.04 (W) 24" OUT 830.04 (E) 24"	685290.72	1532767.87	ODOT CB-3A
D18	834.20	IN 830.24 (W) 24" OUT 830.24 (E) 24"	685299.36	1532668.25	ODOT CB-2-3
D19	834.20	IN 830.37 (W) 18" OUT 830.37 (E) 24"	685304.97	1532603.49	ODOT CB-2-3
D20	834.20	IN 830.57 (W) 12" OUT 830.57 (E) 18"	685310.59	1532538.73	ODOT CB-2-2B

DRAINAGE STRUCTURE TABLE

NAME	RIM	INVERTS	NORTHING	EASTING	DESCRIPTION
D21	834.20	OUT 830.89 (E) 12"	685316.20	1532473.98	ODOT CB-2-2B
D22	832.38	IN 829.50 (W) 30"	685186.21	1532780.82	ODOT HW-1.1
D23	833.50	IN 829.54 (W) 24" OUT 829.54 (E) 30"	685188.11	1532758.98	ODOT MH-3
D24	834.21	IN 829.75 (W) 24" IN 829.75 (S) 24" OUT 829.75 (E) 24"	685217.67	1532661.16	ODOT CB-2-3
D25	834.21	IN 829.88 (W) 18" OUT 829.88 (E) 24"	685223.28	1532596.41	ODOT CB-2-3
D26	834.20	IN 830.07 (W) 12" OUT 830.07 (E) 18"	685228.90	1532531.65	ODOT CB-2-2B
D27	834.20	OUT 830.40 (E) 12"	685234.51	1532466.89	ODOT CB-2-2B
D28	834.20	IN 829.90 (W) 24" IN 833.12 (SW) 10" OUT 829.90 (N) 24"	685139.46	1532654.38	ODOT CB-2-3
D29	834.30	IN 830.04 (W) 24" OUT 830.04 (E) 24"	685145.07	1532589.63	ODOT CB-2-3
D30	834.30	IN 830.16 (W) 24" IN 830.54 (SW) 4" OUT 830.16 (E) 24"	685150.69	1532524.87	ODOT CB-2-3
D31	834.30	OUT 830.30 (E) 24"	685156.30	1532460.11	ODOT CB-2-3
D32	832.92	IN 829.50 (W) 36"	685549.76	1532468.06	ODOT HW-1.1
D33	834.77	IN 829.66 (W) 36" IN 829.66 (S) 30" OUT 829.66 (E) 36"	685542.57	1532415.56	ODOT MH-3
D34	834.97	IN 829.71 (S) 30" OUT 829.71 (N) 30"	685516.47	1532413.30	6-FT FIRST DEFENSE HIGH CAPACITY HYDROINTERNATIONAL OIL WATER SEPARATOR
D35	834.20	IN 829.79 (S) 30" OUT 829.79 (N) 30"	685476.35	1532409.82	ODOT CB-2-3
D36	834.20	IN 829.96 (S) 24" OUT 829.96 (N) 30"	685394.65	1532402.74	ODOT CB-2-3
D37	834.03	IN 830.10 (S) 24" OUT 830.10 (N) 24"	685322.92	1532396.52	ODOT CB-2-3
D38	834.03	IN 830.26 (S) 24" OUT 830.26 (N) 24"	685241.23	1532389.43	ODOT CB-2-3
D39	834.30	IN 830.42 (S) 18" OUT 830.42 (N) 24"	685163.02	1532382.65	ODOT CB-2-3
D40	834.30	IN 830.72 (S) 15" OUT 830.72 (N) 18"	685063.40	1532374.01	ODOT CB-2-2B
D41	834.34	OUT 831.22 (N) 15"	684963.77	1532365.37	ODOT CB-2-2B
D42	834.90	IN 829.90 (S) 36" IN 831.47 (W) 15" OUT 829.90 (E) 36"	685526.43	1532298.52	ODOT CB-2-4
D43	835.03	IN 830.10 (S) 30" IN 830.54 (W) 30" OUT 830.10 (N) 36"	685426.80	1532289.88	ODOT CB-2-4
D44	835.03	IN 830.30 (S) 30" OUT 830.30 (N) 30"	685327.17	1532281.24	ODOT CB-2-3
D45	835.03	IN 830.50 (S) 30" OUT 830.50 (N) 30"	685227.55	1532272.60	ODOT CB-2-3
D46	835.03	IN 830.70 (S) 27" OUT 830.70 (N) 30"	685127.92	1532263.96	ODOT CB-2-3
D47	835.10	IN 830.90 (W) 24" IN 830.90 (S) 24" OUT 830.90 (N) 27"	685028.30	1532255.32	ODOT CB-2-3
D48	835.20	OUT 831.06 (N) 24"	684948.59	1532248.41	ODOT CB-2-3
D51	835.49	IN 830.75 (S) 30" IN 830.76 (SW) 4" OUT 830.75 (E) 30"	685434.14	1532205.20	ODOT CB-2-3
D52	835.49	IN 831.00 (S) 30" OUT 831.00 (N) 30"	685334.52	1532196.56	ODOT CB-2-3

DRAINAGE STRUCTURE TABLE

NAME	RIM	INVERTS	NORTHING	EASTING	DESCRIPTION
D53	835.49	IN 831.25 (S) 24" OUT 831.25 (N) 30"	685234.89	1532187.92	ODOT CB-2-3
D54	835.49	OUT 831.50 (N) 24"	685135.26	1532179.28	ODOT CB-2-3
D55	835.49	OUT 832.32 (E) 15"	685533.77	1532213.84	ODOT CB-2-2B
D56	835.49	OUT 831.75 (E) 24"	685035.64	1532170.64	ODOT CB-2-3
D57	834.00	IN 830.00 (E) 36" OUT 830.00 (W) 36"	685522.03	1532768.86	ODOT MH-3
D58	831.25	IN 830.00 (N) 12"	685599.68	1532661.95	ODOT HW-1.1
D59	834.06	OUT 830.62 (S) 12"	685630.75	1532664.86	ODOT CB NO. 3A
D60	831.25	IN 830.00 (N) 12"	685609.63	1532544.27	ODOT HW-1.1
D61	834.08	IN 830.63 (N) 12" OUT 830.63 (S) 12"	685640.97	1532546.99	ODOT CB-3A
D62	834.74	OUT 831.06 (S) 12"	685662.65	1532546.91	ODOT CB-3A
D63	831.79	IN 830.00 (NW) 18"	685616.78	1532473.03	ODOT HW-1.1
D64	834.00	IN 830.86 (W) 12" OUT 830.36 (SE) 18"	685639.23	1532445.26	ODOT CB-3A
D65	837.21	IN 833.26 (W) 12" IN 833.68 (NW) 12" OUT 833.26 (E) 12"	685647.54	1532349.38	ODOT CB-3A
D66	842.08	IN 837.01 (NW) 12" OUT 837.01 (E) 12"	685660.50	1532199.95	ODOT CB-3A
D67	843.53	OUT 838.04 (SE) 12"	685697.32	1532182.06	ODOT CB-3A
D68	838.49	OUT 834.78 (SE) 12"	685684.35	1532331.51	ODOT CB-3A
D69	833.69	OUT 830.62 (S) 12"	685080.60	1532749.65	ODOT CB-3A
D70	833.69	IN 830.11 (N) 12" IN 830.11 (S) 15" IN 830.11 (NW) 8" IN 830.11 (SW) 10" OUT 830.11 (E) 24"	684968.93	1532739.97	ODOT CB-3A
D71	833.69	IN 830.66 (S) 12" OUT 830.66 (N) 15"	684859.34	1532730.47	ODOT CB-3A
D72	833.69	IN 831.21 (W) 12" OUT 831.21 (N) 12"	684749.75	1532720.96	ODOT CB-3A
D73	832.33	IN 830.00 (W) 24"	684967.03	1532761.82	ODOT HW-1.1
D74	832.38	IN 829.50 (W) 30"	684634.73	1532736.01	ODOT HW-1.1
D75	833.69	IN 829.55 (W) 30" OUT 829.55 (E) 30"	684636.88	1532711.18	ODOT MH-3
D76	834.20	IN 829.74 (W) 30" OUT 829.74 (E) 30"	684645.00	1532617.53	ODOT CB-2-3
D77	834.30	IN 829.93 (W) 30" IN 833.33 (N) 10" OUT 829.93 (E) 30"	684653.32	1532521.61	ODOT CB-2-3
D78	834.30	IN 833.38 (N) 4" OUT 830.13 (E) 30"	684661.96	1532421.98	ODOT CB-2-3
D79	832.38	IN 829.50 (W) 30"	684528.42	1532726.79	ODOT HW-1.1
D80	833.69	IN 829.55 (SW) 30" OUT 829.55 (E) 30"	684530.57	1532701.96	ODOT MH-3
D81	834.45	IN 829.77 (W) 30" IN 829.77 (N) 24" OUT 829.77 (NE) 30"	684478.63	1532603.11	ODOT CB-2-3
D82	834.45	IN 829.97 (W) 30" OUT 829.97 (E) 30"	684486.94	1532507.18	ODOT CB-2-3

DRAINAGE STRUCTURE TABLE

NAME	RIM	INVERTS	NORTHING	EASTING	DESCRIPTION
D83	834.45	IN 830.17 (W) 30" OUT 830.17 (E) 30"	684495.58	1532407.55	ODOT CB-2-3
D84	834.78	IN 830.26 (W) 30" OUT 830.26 (E) 30"	684499.85	1532358.34	6-FT FIRST DEFENSE HIGH CAPACITY HYDROINTERNATIONAL OIL WATER SEPARATOR
D85	834.30	IN 830.33 (N) 24" IN 830.33 (S) 18" OUT 830.33 (E) 30"	684502.71	1532325.40	ODOT CB-2-3
D86	834.30	IN 830.51 (N) 24" OUT 830.51 (S) 24"	684590.88	1532333.04	ODOT CB-2-3
D87	834.30	IN 830.66 (N) 24" OUT 830.66 (S) 24"	684669.08	1532339.82	ODOT CB-2-3
D88	834.30	IN 830.86 (N) 18" OUT 830.86 (S) 24"	684764.52	1532348.10	ODOT CB-2-3
D89	834.36	IN 831.16 (E) 4" OUT 831.16 (S) 18"	684864.14	1532356.74	ODOT CB-2-2B
D90	834.45	IN 829.95 (W) 24" OUT 829.95 (S) 24"	684566.80	1532610.75	ODOT CB-2-3
D91	834.45	IN 830.14 (W) 18" OUT 830.14 (E) 24"	684575.11	1532514.83	ODOT CB-2-3
D92	834.45	OUT 830.44 (E) 18"	684583.75	1532415.20	ODOT CB-2-2B
D93	834.30	OUT 830.81 (N) 18"	684408.06	1532317.19	ODOT CB-2-2B
D94	832.92	IN 829.50 (W) 36"	684399.33	1532712.26	ODOT HW-1.1
D95	834.64	IN 829.74 (W) 30" OUT 829.74 (E) 36"	684368.71	1532597.35	ODOT MH-3
D96	833.69	IN 830.05 (SW) 24" OUT 830.05 (E) 30"	684425.97	1532692.89	ODOT MH-3
D97	834.45	IN 830.26 (W) 24" OUT 830.26 (NE) 24"	684383.98	1532594.90	ODOT CB-2-3
D98	834.45	IN 830.46 (W) 18" OUT 830.46 (E) 24"	684392.30	1532498.97	ODOT CB-2-3
D99	834.45	OUT 830.66 (E) 18"	684400.94	1532399.35	ODOT CB-2-2B
D100	835.20	IN 830.07 (W) 30" OUT 830.07 (E) 30"	684383.02	1532432.36	ODOT MH-3
D101	835.24	IN 830.40 (W) 30" IN 830.40 (N) 24" OUT 830.40 (E) 30"	684397.33	1532267.38	ODOT MH-3
D103	834.80	IN 830.54 (N) 30" IN 830.54 (W) 18" OUT 830.54 (E) 30"	684418.02	1532202.41	ODOT CB-2-3
D104	834.90	IN 830.69 (N) 30" IN 830.69 (W) 18" OUT 830.69 (S) 30"	684495.72	1532209.14	ODOT CB-2-3
D105	835.25	IN 830.85 (N) 30" IN 830.85 (W) 18" OUT 830.85 (S) 30"	684573.43	1532215.88	ODOT CB-2-3
D106	835.35	IN 831.00 (N) 30" IN 831.00 (W) 18" OUT 831.00 (S) 30"	684651.14	1532222.62	ODOT CB-2-3
D107	835.35	IN 831.16 (N) 30" IN 831.16 (W) 18" OUT 831.16 (S) 30"	684728.85	1532229.36	ODOT CB-2-3
D108	835.35	IN 831.32 (W) 24" IN 831.32 (N) 24" OUT 831.32 (S) 30"	684806.56	1532236.10	ODOT CB-2-3
D109	835.63	IN 831.64 (W) 24" OUT 831.64 (S) 24"	684871.81	1532241.75	ODOT CB-2-3
D110	835.96	OUT 831.87 (E) 24"	684888.65	1532200.56	ODOT CB-2-3
D111	835.35	OUT 831.49 (E) 24"	684813.90	1532151.41	ODOT CB-2-2B
D112	835.35	OUT 832.01 (E) 18"	684736.19	1532144.68	ODOT CB-2-2B
D113	835.35	OUT 831.86 (E) 18"	684658.48	1532137.94	ODOT CB-2-2B

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BUC-EE'S

DRAINAGE STRUCTURE TABLE

BUC-EE'S #71
HUBER HEIGHTS, OH

8000 STATE ROUTE 235
HUBER HEIGHTS, OH 45424

ORIGINAL ISSUE: 04/22/2024
KHA PROJECT NO. 190255000
SHEET NUMBER
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Drawing name: K:\CLB_LDEV\190255000_Buc-ees_HuberHeights_OH\2 Design\CAD\PlanSheets\Development Plan\DRAINAGE STRUCTURE TABLE.dwg C-12A DRAINAGE STRUCTURE TABLE by: drew.gilmour Apr 22, 2024 9:47am
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DRAINAGE STRUCTURE TABLE					
NAME	RIM	INVERTS	NORTHING	EASTING	DESCRIPTION
D114	835.25	OUT 831.70 (E) 18"	684580.78	1532131.20	ODOT CB-2-2B
D115	834.90	OUT 831.54 (E) 18"	684503.07	1532124.46	ODOT CB-2-2B
D116	834.90	OUT 831.39 (E) 18"	684425.36	1532117.72	ODOT CB-2-2B
D117	835.58	IN 830.00 (N) 60"	684745.61	1531989.12	ODOT HW-1.1
D118	845.75	IN 830.54 (N) 60" OUT 830.54 (S) 60"	684797.14	1531971.59	ODOT MH-3 [90" BASE ID]
D119	846.00	OUT 838.33 (S) 60"	685573.51	1532039.45	ODOT MH-3 [90" BASE ID]
D120	835.37	IN 829.76 (W) 36" IN 829.76 (S) 24" OUT 829.76 (E) 36"	685535.75	1532366.09	ODOT MH-3
D121	832.88	IN 830.00 (W) 30"	684423.81	1532717.72	ODOT HW-1.1
DS1	836.00	OUT 834.00 (NE) 10"	685075.49	1532593.42	ROOF DRAIN CONNECTION
DS2	836.00	OUT 834.00 (SE) 8"	685021.72	1532640.89	ROOF DRAIN CONNECTION
DS3	835.80	OUT 830.75 (E) 10"	684877.90	1532662.82	ROOF DRAIN CONNECTION
DS4	836.00	OUT 834.00 (S) 10"	684715.60	1532546.68	ROOF DRAIN CONNECTION
DS5	836.00	OUT 834.00 (SW) 4"	684710.61	1532444.92	ROOF DRAIN CONNECTION
DS6	836.00	OUT 834.00 (S) 4"	684712.46	1532423.53	ROOF DRAIN CONNECTION
DS7	836.00	OUT 832.00 (W) 4"	684871.04	1532407.57	ROOF DRAIN CONNECTION
DS8	836.00	OUT 832.00 (W) 4"	684920.21	1532411.76	ROOF DRAIN CONNECTION
DS9	836.00	OUT 831.50 (N) 4"	685104.11	1532478.58	ROOF DRAIN CONNECTION
DS10	836.00	OUT 831.50 (N) 4"	685102.25	1532499.97	ROOF DRAIN CONNECTION
RD1	831.99	IN 829.83 (S) 24" IN 829.83 (SW) 6" OUT 829.83 (N) 24"	685499.76	1532362.97	24"X6" WYE
RD2	832.02	IN 829.86 (S) 24" IN 829.86 (SE) 6" OUT 829.86 (N) 24"	685486.81	1532361.85	24"X6" WYE
RD3	832.06	IN 829.90 (S) 24" IN 829.90 (SW) 6" OUT 829.90 (N) 24"	685465.89	1532360.04	24"X6" WYE
RD4	832.09	IN 829.93 (S) 24" IN 829.92 (SE) 6" OUT 829.93 (N) 24"	685452.94	1532358.91	24"X6" WYE
RD5	832.13	IN 829.97 (S) 24" IN 829.97 (SW) 6" OUT 829.97 (N) 24"	685432.02	1532357.10	24"X6" WYE
RD6	832.16	IN 829.99 (S) 24" IN 829.99 (SE) 6" OUT 829.99 (N) 24"	685419.06	1532355.98	24"X6" WYE
RD7	832.20	IN 830.04 (S) 24" IN 830.04 (SW) 6" OUT 830.04 (N) 24"	685397.80	1532354.13	24"X6" WYE
RD8	832.22	IN 830.06 (S) 24" IN 830.06 (SE) 6" OUT 830.06 (N) 24"	685385.19	1532353.04	24"X6" WYE
RD9	832.27	IN 830.10 (S) 24" IN 830.10 (SW) 6" OUT 830.10 (N) 24"	685364.27	1532351.22	24"X6" WYE
RD10	832.29	IN 830.13 (S) 24" IN 830.13 (SE) 6" OUT 830.13 (N) 24"	685351.32	1532350.10	24"X6" WYE
RD11	832.33	IN 830.17 (S) 24" IN 830.17 (SW) 6" OUT 830.17 (N) 24"	685330.40	1532348.29	24"X6" WYE
RD12	832.36	IN 830.20 (S) 24" IN 830.20 (SE) 6" OUT 830.20 (N) 24"	685317.44	1532347.16	24"X6" WYE

DRAINAGE STRUCTURE TABLE					
NAME	RIM	INVERTS	NORTHING	EASTING	DESCRIPTION
RD13	832.40	IN 830.24 (S) 24" IN 830.24 (SW) 6" OUT 830.24 (N) 24"	685296.52	1532345.35	24"X6" WYE
RD14	832.43	IN 830.27 (S) 24" IN 830.26 (SE) 6" OUT 830.27 (N) 24"	685283.57	1532344.23	24"X6" WYE
RD15	832.47	IN 830.31 (S) 24" IN 831.06 (SW) 6" OUT 830.31 (N) 24"	685262.65	1532342.41	24"X6" WYE
RD16	832.50	IN 830.33 (S) 24" IN 830.33 (SE) 6" OUT 830.33 (N) 24"	685249.70	1532341.29	24"X6" WYE
RD17	832.54	IN 830.38 (S) 24" IN 831.12 (SW) 6" OUT 830.38 (N) 24"	685228.78	1532339.48	24"X6" WYE
RD18	832.56	IN 830.40 (S) 24" IN 830.40 (SE) 6" OUT 830.40 (N) 24"	685215.83	1532338.35	24"X6" WYE
RD19	832.61	IN 830.44 (S) 24" IN 830.44 (SW) 6" OUT 830.44 (N) 24"	685194.91	1532336.54	24"X6" WYE
RD20	832.63	IN 830.47 (S) 24" IN 830.47 (SE) 6" OUT 830.47 (N) 24"	685181.95	1532335.42	24"X6" WYE
RD21	832.67	IN 830.51 (S) 24" IN 830.51 (SW) 6" OUT 830.51 (N) 24"	685161.03	1532333.60	24"X6" WYE
RD22	832.70	IN 830.54 (S) 24" IN 830.54 (SE) 6" OUT 830.54 (N) 24"	685148.08	1532332.48	24"X6" WYE
RD23	832.74	IN 830.58 (S) 24" IN 830.58 (SW) 6" OUT 830.58 (N) 24"	685127.16	1532330.66	24"X6" WYE
RD24	832.77	IN 830.61 (S) 24" IN 830.60 (SE) 6" OUT 830.61 (N) 24"	685114.21	1532329.54	24"X6" WYE
RD25	832.81	IN 830.65 (S) 24" IN 830.65 (SW) 6" OUT 830.65 (N) 24"	685093.29	1532327.73	24"X6" WYE
RD26	832.84	IN 830.67 (S) 24" IN 830.67 (SE) 6" OUT 830.67 (N) 24"	685080.33	1532326.60	24"X6" WYE
RD27	832.88	IN 830.72 (S) 24" IN 830.72 (SW) 6" OUT 830.72 (N) 24"	685059.41	1532324.79	24"X6" WYE
RD28	832.90	IN 830.74 (S) 24" IN 830.74 (SE) 6" OUT 830.74 (N) 24"	685046.46	1532323.67	24"X6" WYE
RD29	832.95	IN 830.78 (S) 24" IN 830.78 (SW) 6" OUT 830.78 (N) 24"	685025.54	1532321.85	24"X6" WYE
RD30	832.97	IN 830.81 (S) 24" IN 830.81 (SE) 6" OUT 830.81 (N) 24"	685012.59	1532320.73	24"X6" WYE
RD31	833.01	IN 830.85 (S) 24" IN 830.85 (SW) 6" OUT 830.85 (N) 24"	684991.67	1532318.92	24"X6" WYE
RD32	833.04	IN 830.88 (S) 24" IN 830.88 (SE) 6" OUT 830.88 (N) 24"	684978.72	1532317.79	24"X6" WYE
RD33	833.08	IN 830.92 (S) 24" IN 830.92 (SW) 6" OUT 830.92 (N) 24"	684957.80	1532315.98	24"X6" WYE
RD34	833.11	IN 830.95 (S) 24" IN 830.94 (SE) 6" OUT 830.95 (N) 24"	684944.84	1532314.85	24"X6" WYE
RD35	832.29	OUT 830.95 (N) 24"	684941.85	1532314.60	CLEANOUT
RD36	831.84	IN 830.49 (N) 24" IN 830.50 (NW) 6" OUT 830.49 (S) 24"	684444.65	1532271.48	24"X6" WYE
RD37	831.86	IN 830.52 (N) 24" IN 830.52 (NE) 6" OUT 830.52 (S) 24"	684457.60	1532272.61	24"X6" WYE
RD38	831.90	IN 830.56 (N) 24" IN 830.56 (NW) 6" OUT 830.56 (S) 24"	684478.52	1532274.42	24"X6" WYE
RD39	831.93	IN 830.59 (N) 24" IN 830.59 (NE) 6" OUT 830.59 (S) 24"	684491.47	1532275.54	24"X6" WYE
RD40	831.97	IN 830.63 (N) 24" IN 830.63 (NW) 6" OUT 830.63 (S) 24"	684512.39	1532277.36	24"X6" WYE
RD41	832.00	IN 830.66 (N) 24" IN 830.66 (NE) 6" OUT 830.66 (S) 24"	684525.34	1532278.48	24"X6" WYE
RD42	832.04	IN 830.70 (N) 24" IN 830.70 (NW) 6" OUT 830.70 (S) 24"	684546.26	1532280.29	24"X6" WYE

DRAINAGE STRUCTURE TABLE					
NAME	RIM	INVERTS	NORTHING	EASTING	DESCRIPTION
RD43	832.07	IN 830.72 (N) 24" IN 830.72 (NE) 6" OUT 830.72 (S) 24"	684559.22	1532281.42	24"X6" WYE
RD44	832.11	IN 830.77 (N) 24" IN 830.77 (NW) 6" OUT 830.77 (S) 24"	684580.14	1532283.23	24"X6" WYE
RD45	832.13	IN 830.79 (N) 24" IN 830.79 (NE) 6" OUT 830.79 (S) 24"	684593.09	1532284.35	24"X6" WYE
RD46	832.18	IN 830.83 (N) 24" IN 830.84 (NW) 6" OUT 830.83 (S) 24"	684614.01	1532286.17	24"X6" WYE
RD47	832.20	IN 830.86 (N) 24" IN 830.86 (NE) 6" OUT 830.86 (S) 24"	684626.96	1532287.29	24"X6" WYE
RD48	832.24	IN 830.90 (N) 24" IN 830.90 (NW) 6" OUT 830.90 (S) 24"	684647.88	1532289.11	24"X6" WYE
RD49	832.27	IN 830.93 (N) 24" IN 830.93 (NE) 6" OUT 830.93 (S) 24"	684660.83	1532290.23	24"X6" WYE
RD50	832.31	IN 830.97 (N) 24" IN 830.97 (NW) 6" OUT 830.97 (S) 24"	684681.76	1532292.04	24"X6" WYE
RD51	832.34	IN 831.00 (N) 24" IN 831.00 (NE) 6" OUT 831.00 (S) 24"	684694.71	1532293.17	24"X6" WYE
RD52	832.38	IN 831.04 (N) 24" IN 831.04 (NW) 6" OUT 831.04 (S) 24"	684715.63	1532294.98	24"X6" WYE
RD53	832.41	IN 831.06 (N) 24" IN 831.06 (NE) 6" OUT 831.06 (S) 24"	684728.58	1532296.10	24"X6" WYE
RD54	832.45	IN 831.11 (N) 24" IN 831.11 (NW) 6" OUT 831.11 (S) 24"	684749.50	1532297.92	24"X6" WYE
RD55	832.47	IN 831.13 (N) 24" IN 831.13 (NE) 6" OUT 831.13 (S) 24"	684762.45	1532299.04	24"X6" WYE
RD56	832.52	IN 831.17 (N) 24" IN 831.18 (NW) 6" OUT 831.17 (S) 24"	684783.37	1532300.85	24"X6" WYE
RD57	832.54	IN 831.20 (N) 24" IN 831.20 (NE) 6" OUT 831.20 (S) 24"	684796.33	1532301.98	24"X6" WYE
RD58	832.58	IN 831.24 (N) 24" IN 831.24 (NW) 6" OUT 831.24 (S) 24"	684817.25	1532303.79	24"X6" WYE
RD59	832.61	IN 831.27 (N) 24" IN 831.27 (NE) 6" OUT 831.27 (S) 24"	684830.20	1532304.91	24"X6" WYE
RD60	832.65	IN 831.31 (N) 24" IN 831.31 (NW) 6" OUT 831.31 (S) 24"	684851.12	1532306.73	24"X6" WYE
RD61	832.68	IN 831.34 (N) 24" IN 831.34 (NE) 6" OUT 831.34 (S) 24"	684864.07	1532307.85	24"X6" WYE
RD62	832.68	OUT 831.34 (S) 24"	684867.06	1532308.11	CLEANOUT
T1	831.97	OUT 830.60 (E) 10"	684910.65	1532662.81	DOCK TRENCH DRAIN
T2	835.96	OUT 832.89 (E) 12"	684759.56	1532607.76	DOCK TRENCH DRAIN

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BUC-EE'S

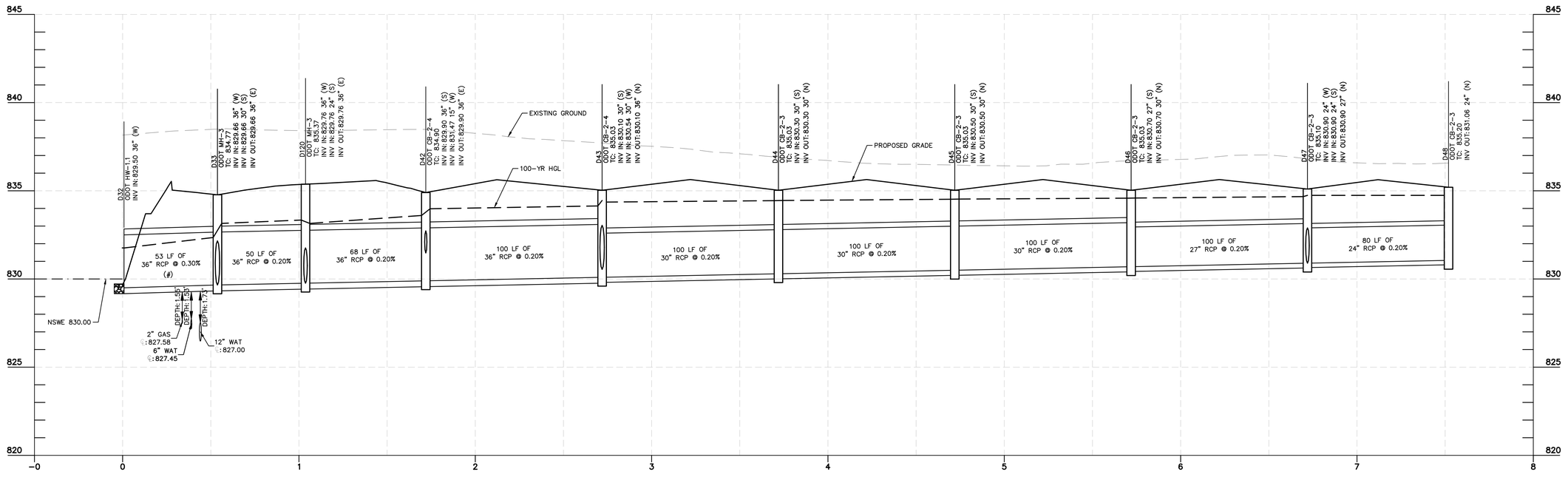
DRAINAGE STRUCTURE TABLE

BUC-EE'S #71
HUBER HEIGHTS, OH
8000 STATE ROUTE 235
HUBER HEIGHTS, OH 45424

ORIGINAL ISSUE: 04/22/2024
KHA PROJECT NO. 190255000
SHEET NUMBER
C-12B

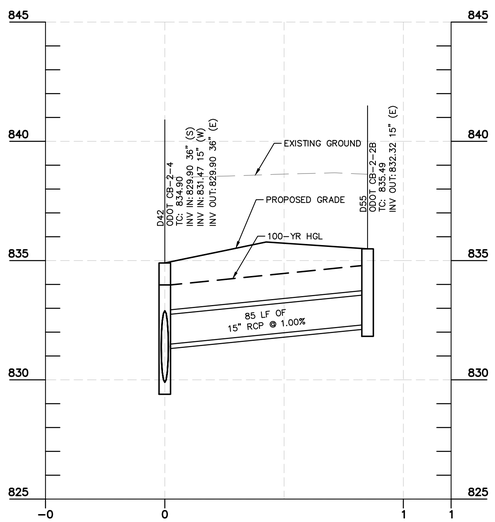
Drawing name: K:\CIB_JDEV\190255000_Buc-ees_HuberHeights_OH\2 Design\CAD\PlanSheets\Development Plan\DRAINAGE STRUCTURE TABLE.dwg C-12B DRAINAGE STRUCTURE TABLE Apr 22, 2024 9:47am by: drew.gilmour
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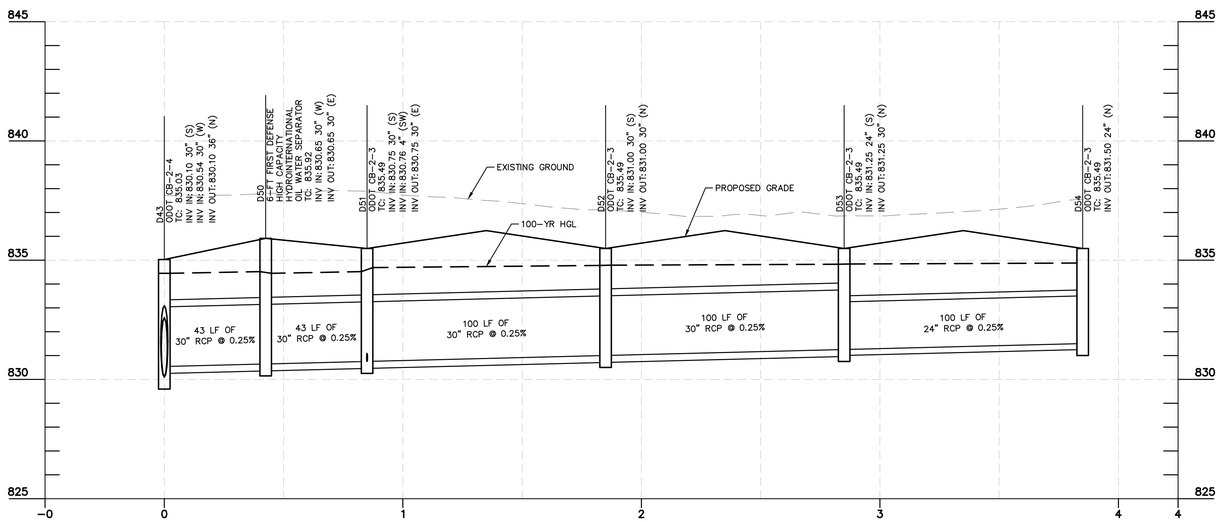
STORM SEWER D32-D48 PROFILE

HORIZ SCALE: 1"=30'
VERT SCALE: 1"=3'



STORM SEWER D42-D55 PROFILE

HORIZ SCALE: 1"=30'
VERT SCALE: 1"=3'



STORM SEWER D43-D54 PROFILE

HORIZ SCALE: 1"=30'
VERT SCALE: 1"=3'

NOTES

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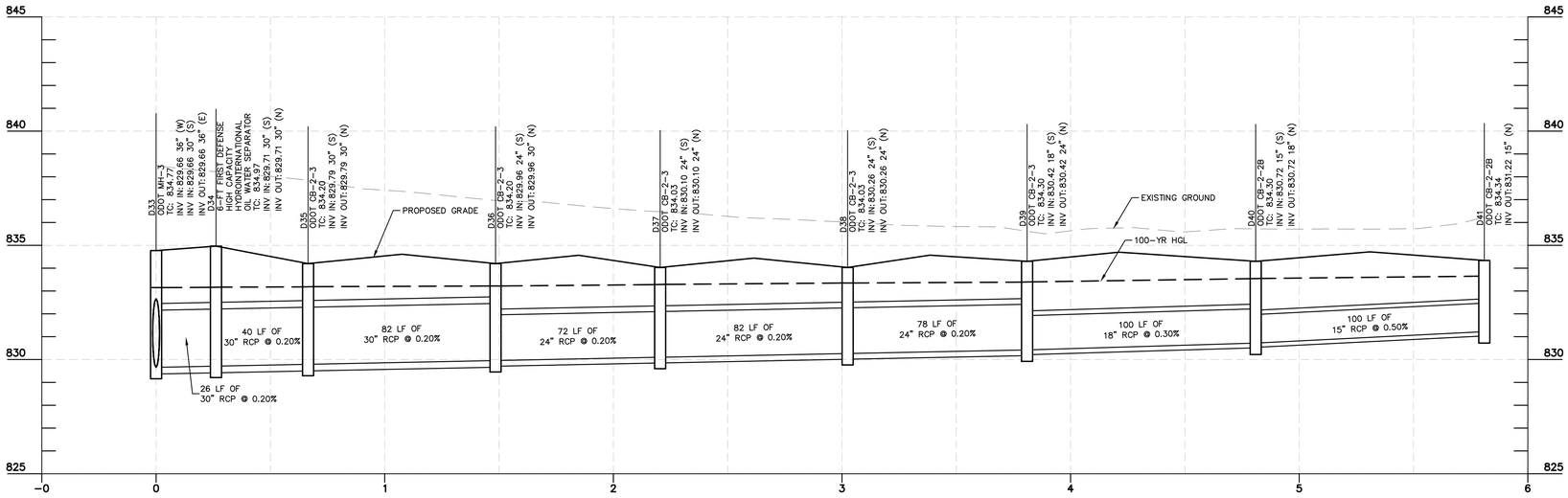
BUC-EE'S

STORMWATER PROFILES

BUC-EE'S #71
HUBER HEIGHTS, OH

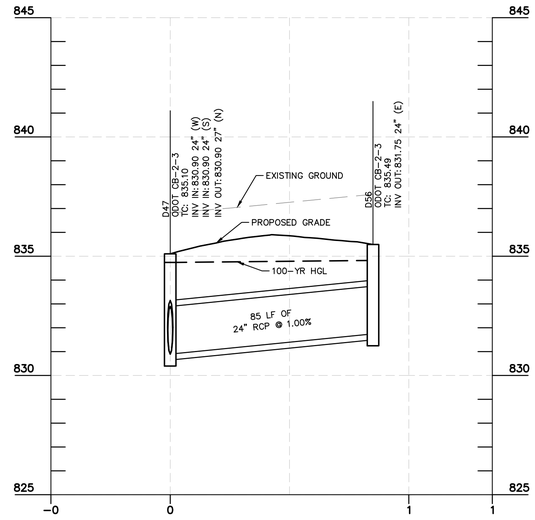
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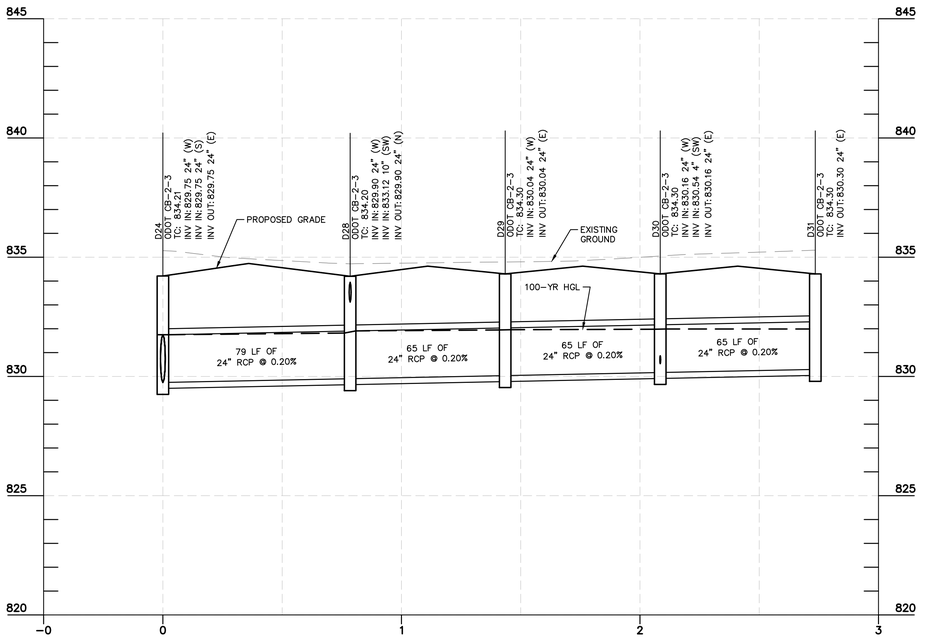
STORM SEWER D33-D41 PROFILE

HORIZ SCALE: 1"=30'
VERT SCALE: 1"=3'



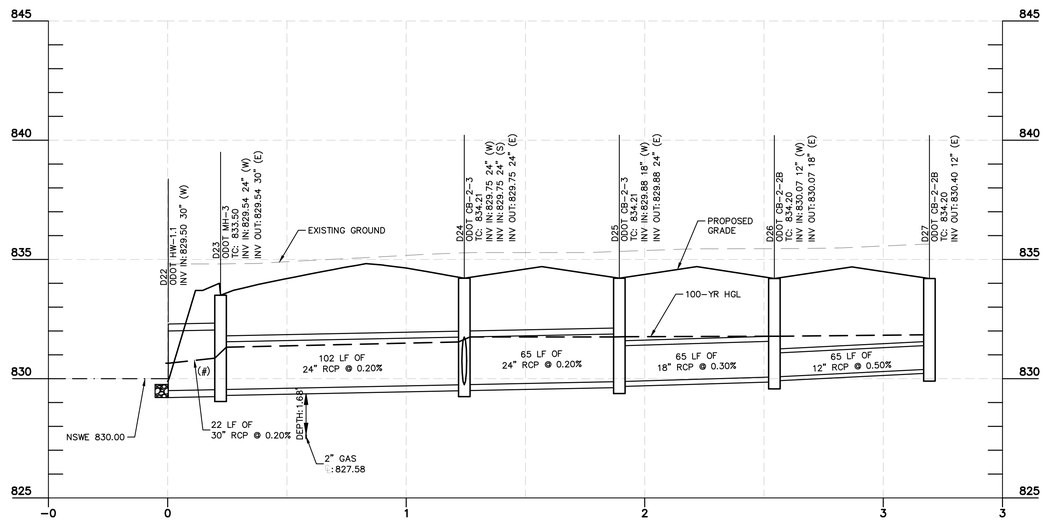
STORM SEWER D47-D56 PROFILE

HORIZ SCALE: 1"=30'
VERT SCALE: 1"=3'



STORM SEWER D24-D31 PROFILE

HORIZ SCALE: 1"=30'
VERT SCALE: 1"=3'



STORM SEWER D22-D27 PROFILE

HORIZ SCALE: 1"=30'
VERT SCALE: 1"=3'

NOTES

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BUC-EE'S

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HUBER HEIGHTS, OH 45424

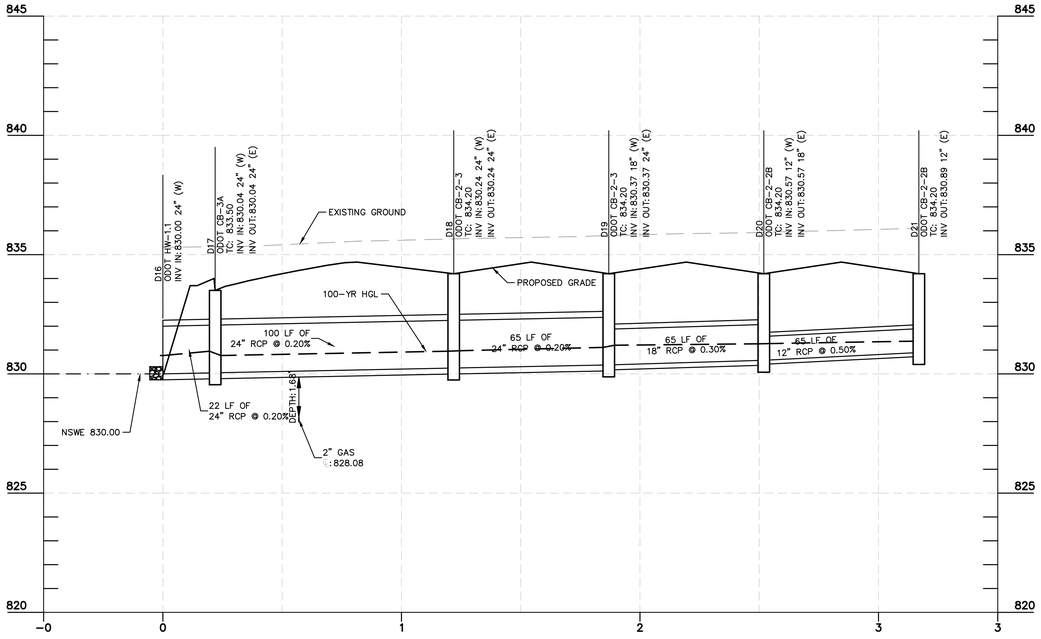
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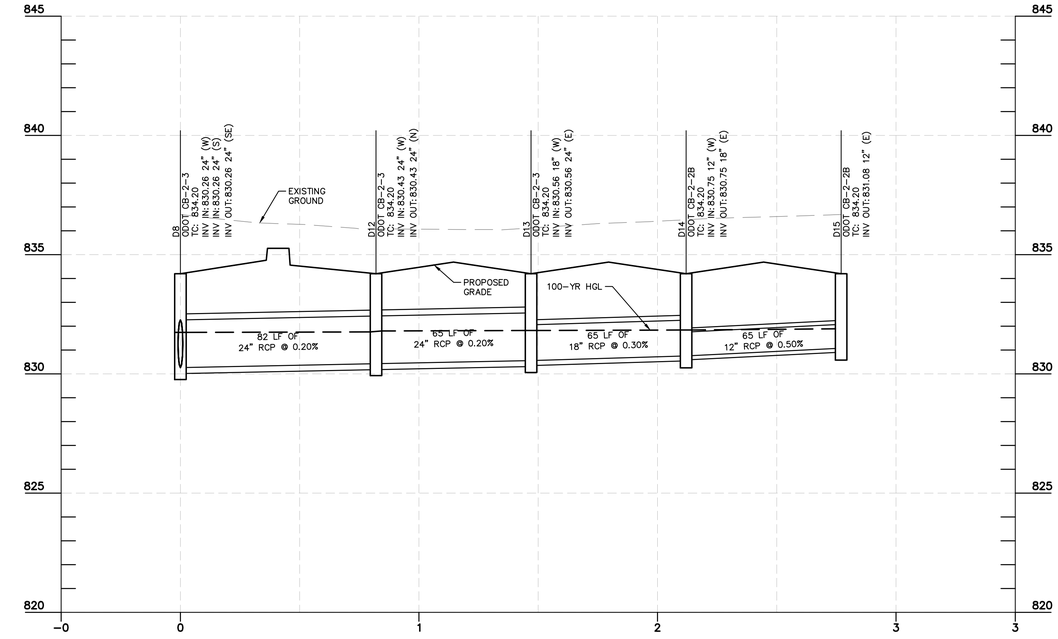
C-12D

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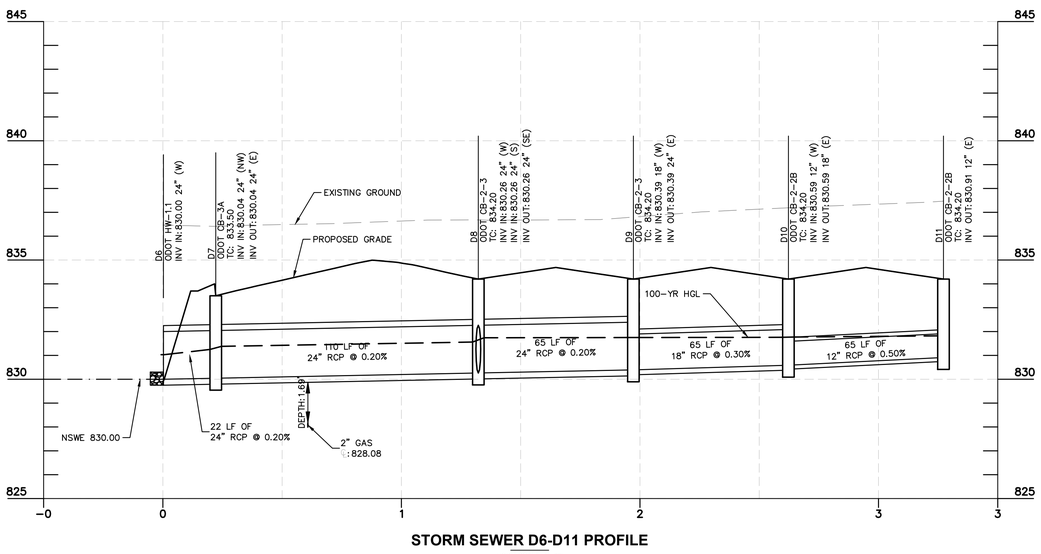
STORM SEWER D16-D21 PROFILE

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VERT SCALE: 1"=3'



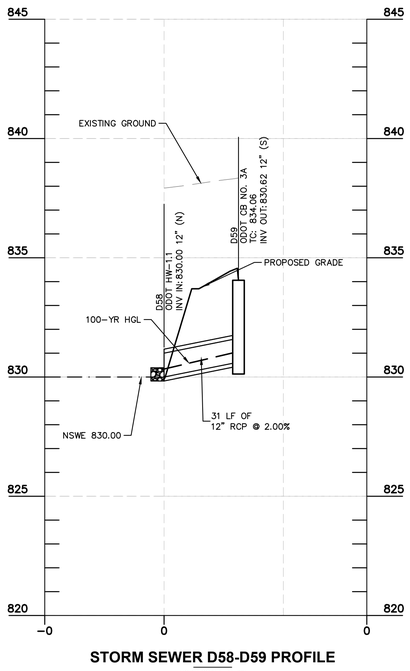
STORM SEWER D8-D15 PROFILE

HORIZ SCALE: 1"=30'
VERT SCALE: 1"=3'



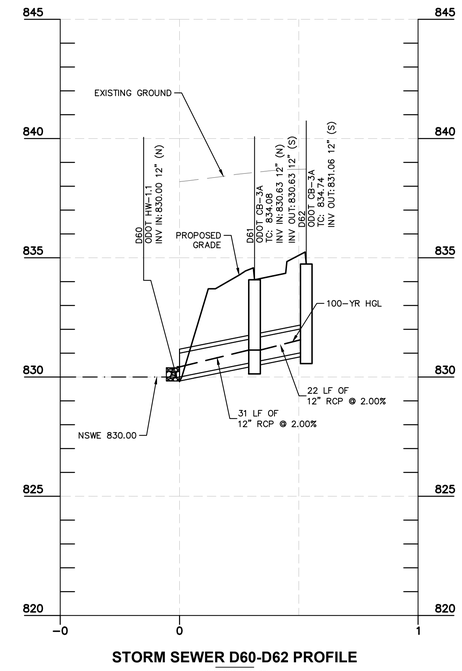
STORM SEWER D6-D11 PROFILE

HORIZ SCALE: 1"=30'
VERT SCALE: 1"=3'



STORM SEWER D58-D59 PROFILE

HORIZ SCALE: 1"=30'
VERT SCALE: 1"=3'



STORM SEWER D60-D62 PROFILE

HORIZ SCALE: 1"=30'
VERT SCALE: 1"=3'

NOTES

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BUC-EE'S

STORMWATER PROFILES

BUC-EE'S #71
HUBER HEIGHTS, OH

8000 STATE ROUTE 235
HUBER HEIGHTS, OH 45424

ORIGINAL ISSUE:
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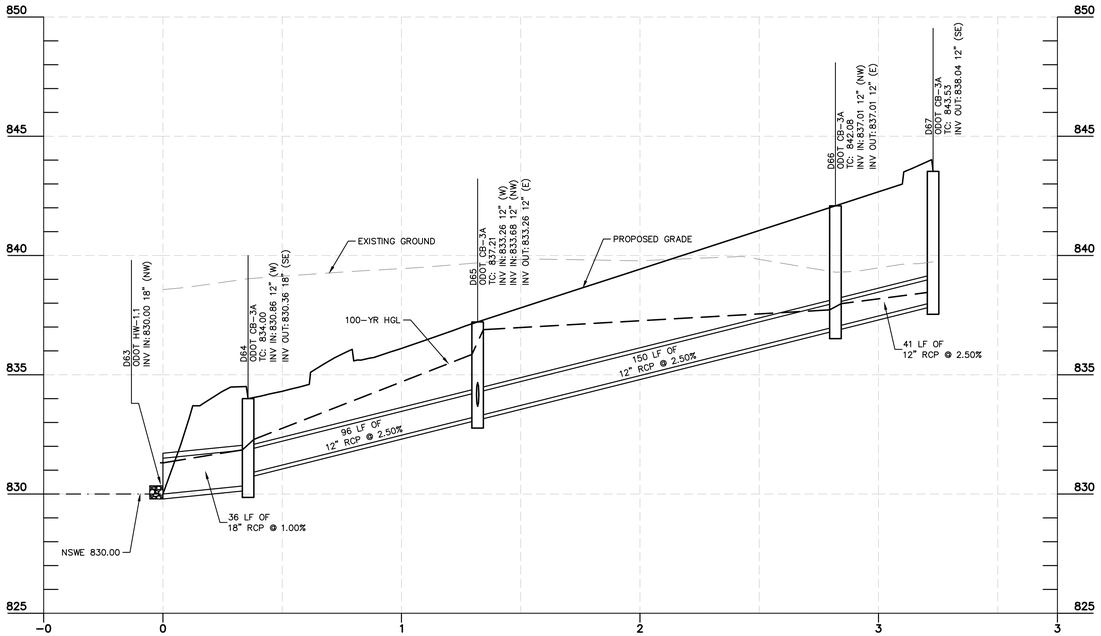
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190255000

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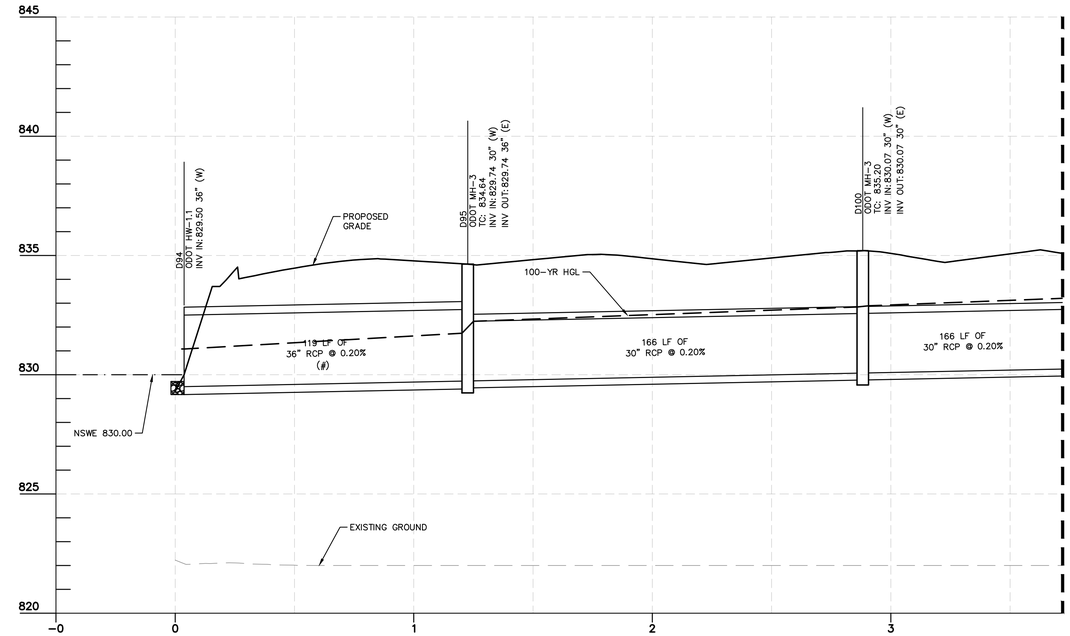
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STORM SEWER D63-D67 PROFILE

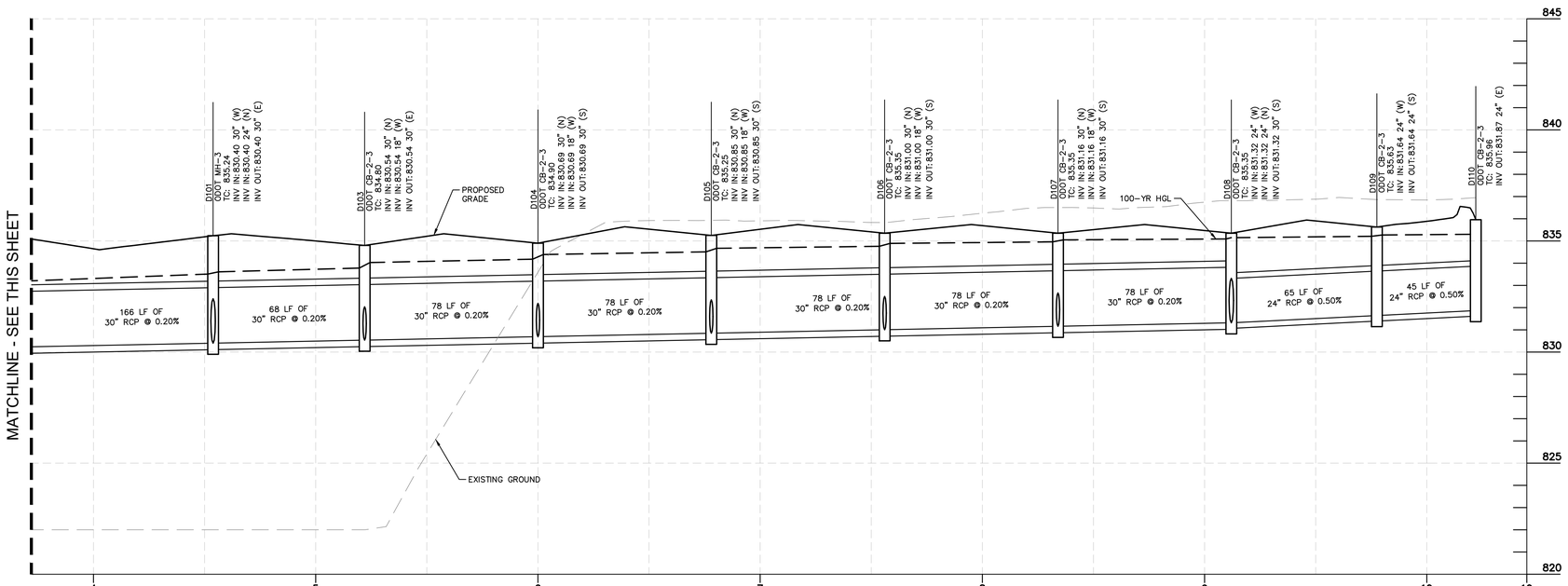
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VERT SCALE: 1"=3'



STORM SEWER D94-D110 PROFILE

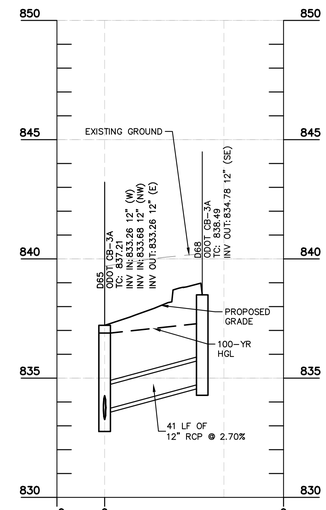
HORIZ SCALE: 1"=30'
VERT SCALE: 1"=3'

MATCHLINE - SEE THIS SHEET



STORM SEWER D9-D110 PROFILE

HORIZ SCALE: 1"=30'
VERT SCALE: 1"=3'



STORM SEWER D65-D68 PROFILE

HORIZ SCALE: 1"=30'
VERT SCALE: 1"=3'

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BUC-EE'S

STORMWATER PROFILES

BUC-EE'S #71
HUBER HEIGHTS, OH

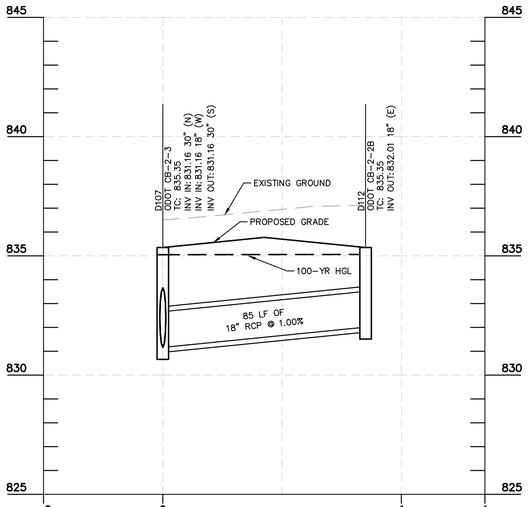
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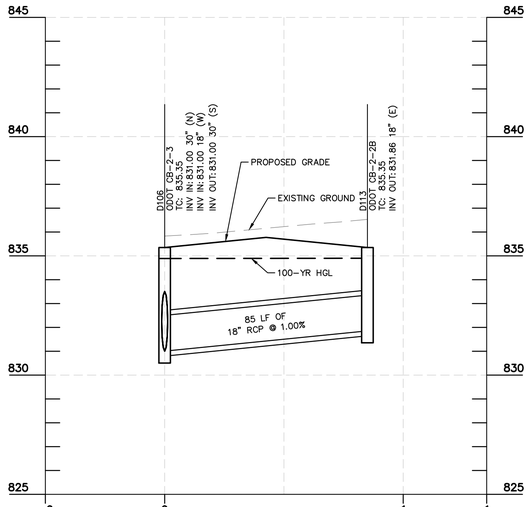
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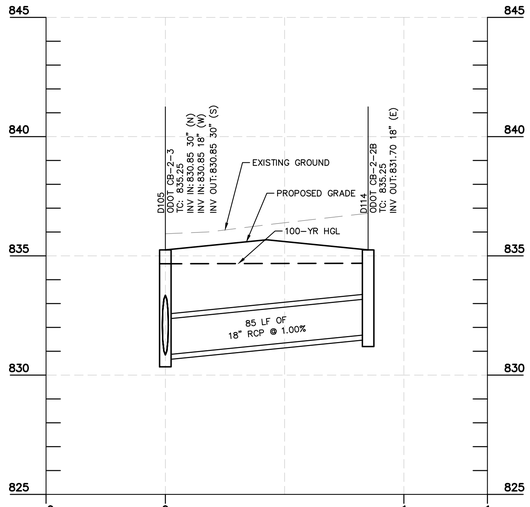
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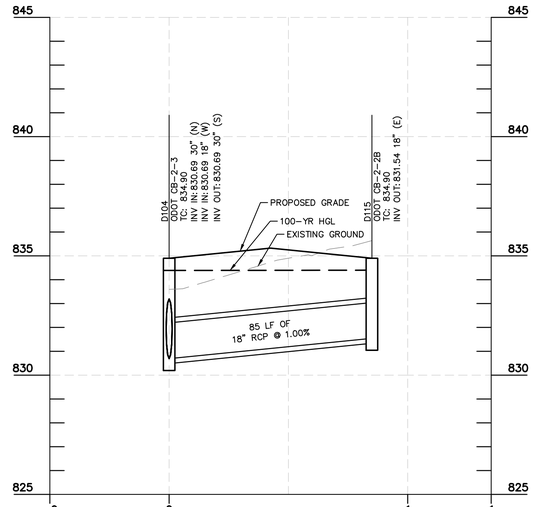
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VERT SCALE: 1"=3'



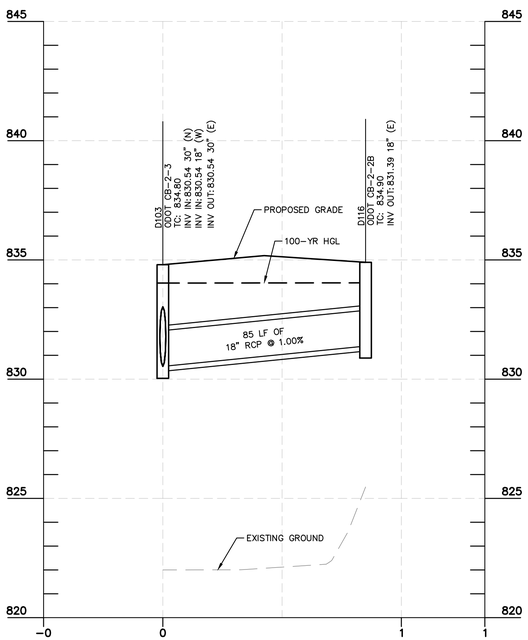
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VERT SCALE: 1"=3'



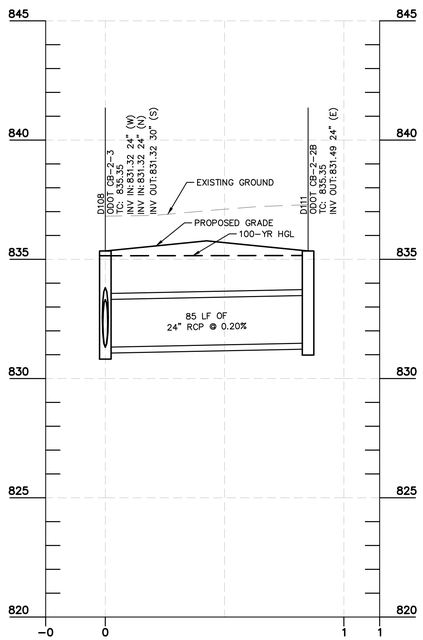
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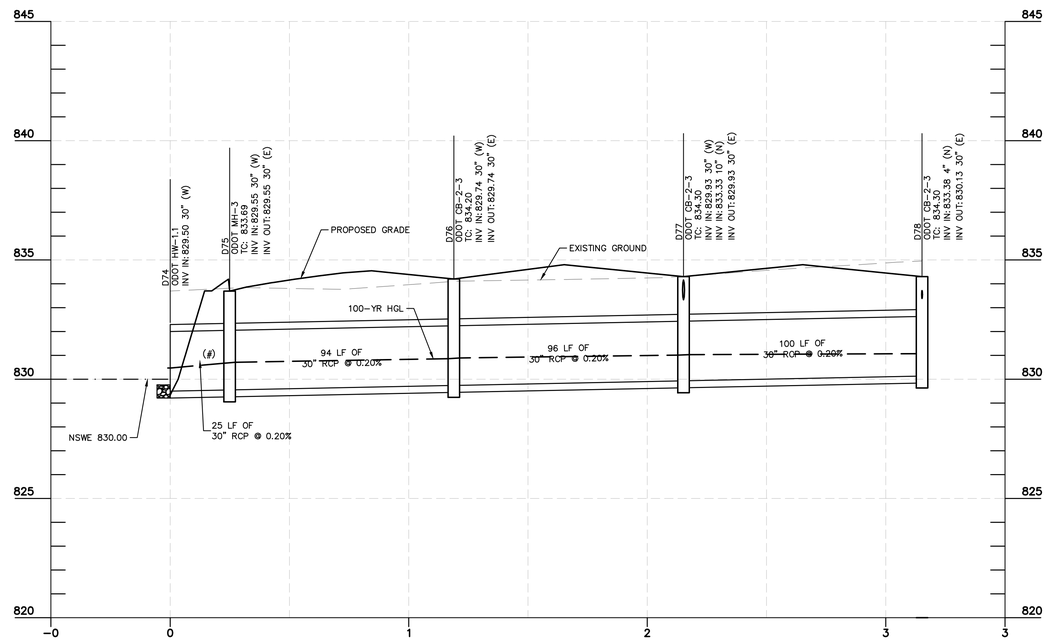
STORM SEWER D103-D116 PROFILE

HORIZ SCALE: 1"=30'
VERT SCALE: 1"=3'



STORM SEWER D108-D111 PROFILE

HORIZ SCALE: 1"=30'
VERT SCALE: 1"=3'



STORM SEWER D74-D78 PROFILE

HORIZ SCALE: 1"=30'
VERT SCALE: 1"=3'

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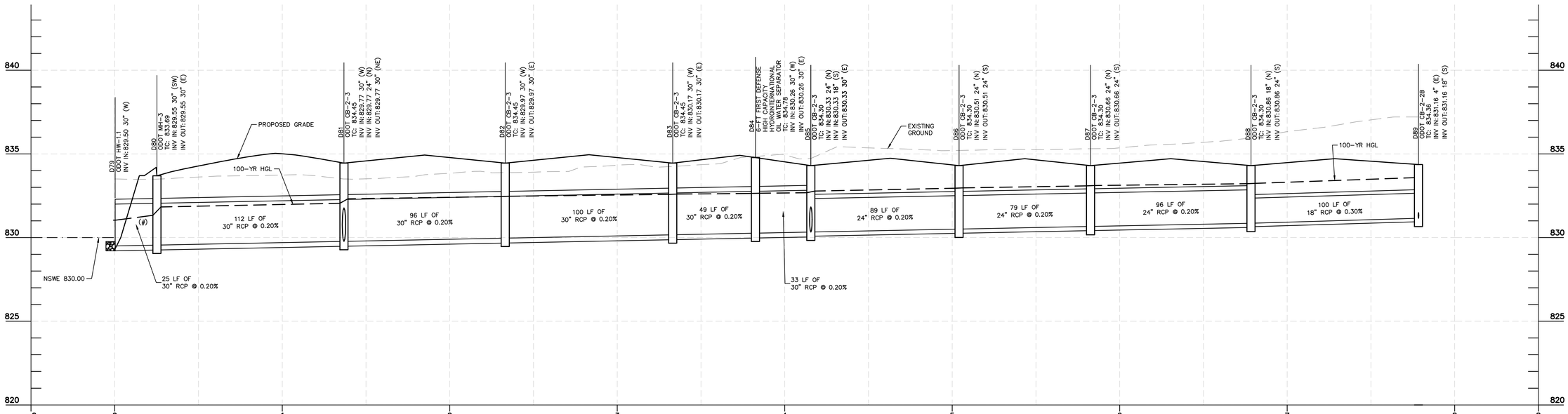
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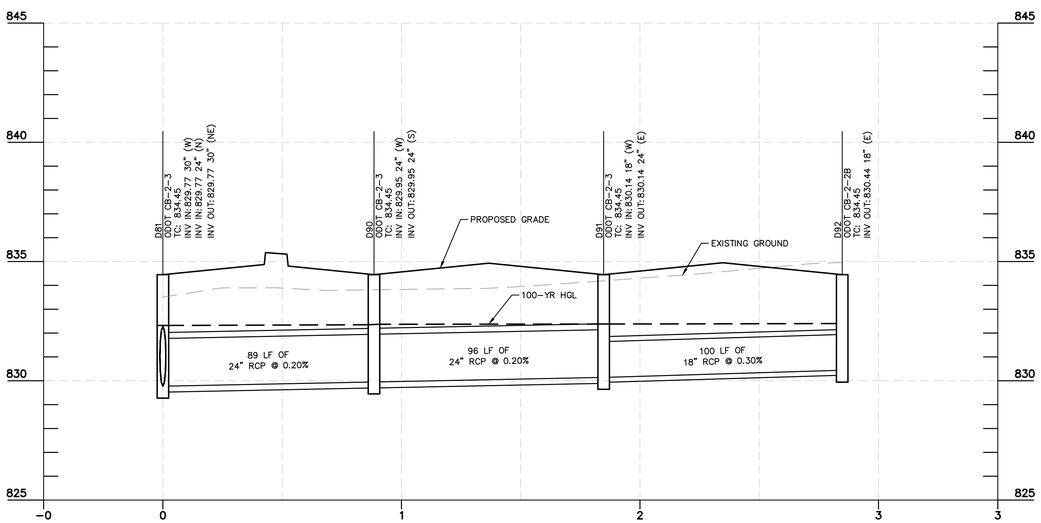
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Drawing name: K:\CLB_LSEV\190255000_Buc-ees_HuberHeights_DVL2 Design\CAD\PlanSheets\Development Plan\STORMWATER PROFILES.dwg C-12H STORMWATER PROFILES Apr 22, 2024 9:49am by: drew.gilmour
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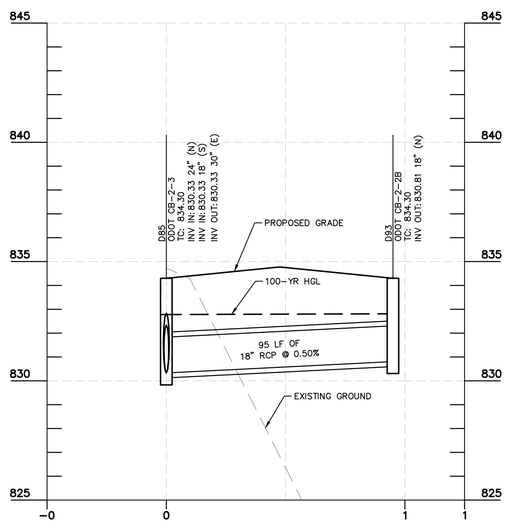
STORM SEWER D79-D89 PROFILE

HORIZ SCALE: 1"=30'
VERT SCALE: 1"=3'



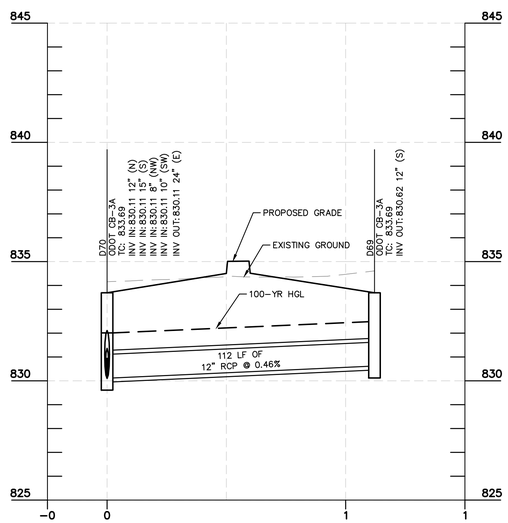
STORM SEWER D81-D92 PROFILE

HORIZ SCALE: 1"=30'
VERT SCALE: 1"=3'



STORM SEWER D85-D93 PROFILE

HORIZ SCALE: 1"=30'
VERT SCALE: 1"=3'



STORM SEWER D70-D69 PROFILE

HORIZ SCALE: 1"=30'
VERT SCALE: 1"=3'

NOTES

(#) USE GASKET JOINTS STRUCTURE TO STRUCTURE

Ohio Utilities Protection Service
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before you dig

WARNING: CONTRACTOR TO VERIFY PRESENCE AND EXACT LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION.

No.	REVISIONS	DATE	BY

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DRAWN BY: MAN
CHECKED BY: AJS

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BUC-EE'S

STORMWATER PROFILES

BUC-EE'S #71
HUBER HEIGHTS, OH

8000 STATE ROUTE 235
HUBER HEIGHTS, OH 45424

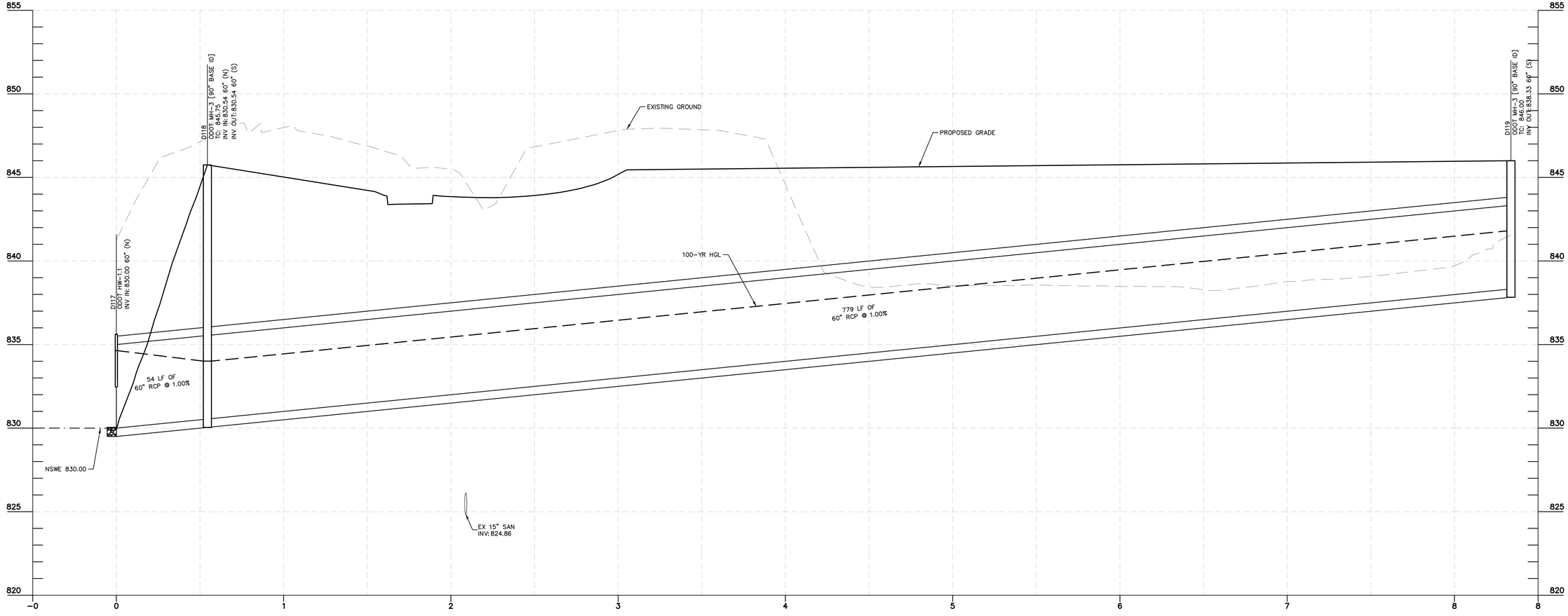
ORIGINAL ISSUE:
04/22/2024

KHA PROJECT NO.
190255000

SHEET NUMBER

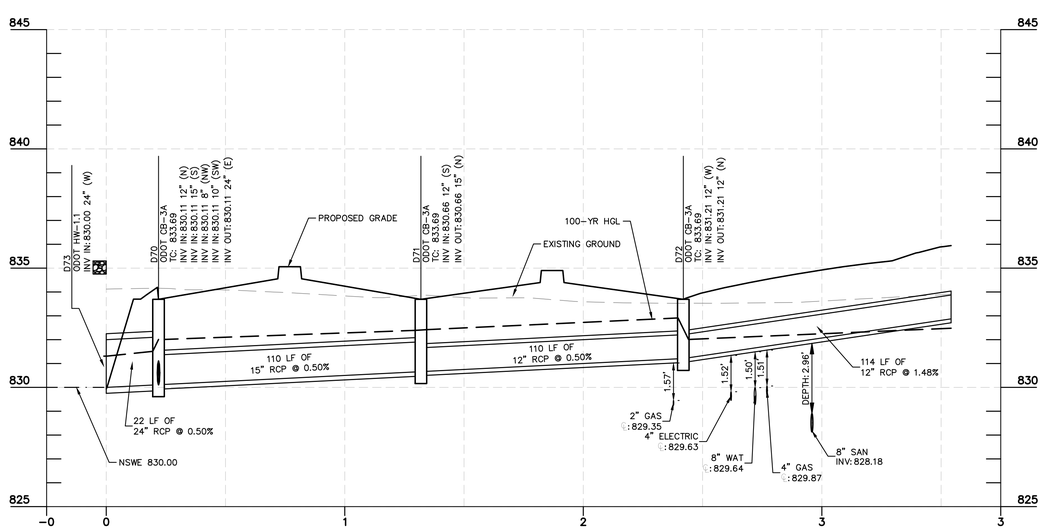
C-12H

Drawing name: K:\CLB_LDEV\190255000_Buc-ees_HuberHeights_DWG Design\CAD\PlanSheets\Development Plan\STORMWATER PROFILES.dwg C-12I STORMWATER PROFILES Apr 22, 2024 9:49am by: drewglimour
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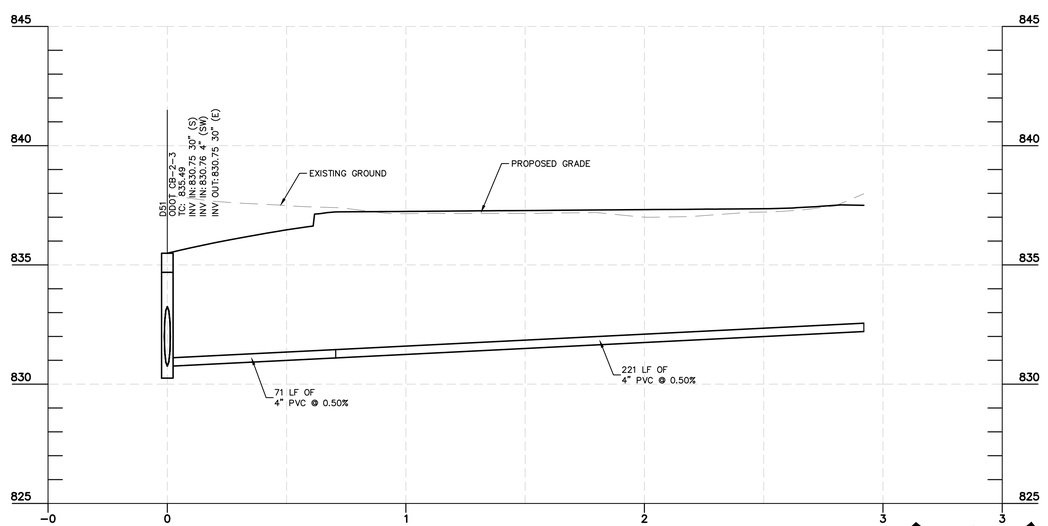
STORM SEWER D115-D117 PROFILE

HORIZ SCALE: 1"=30'
VERT SCALE: 1"=3'



STORM SEWER D73-T2 PROFILE

HORIZ SCALE: 1"=30'
VERT SCALE: 1"=3'



STORM SEWER D51-D122 PROFILE

HORIZ SCALE: 1"=30'
VERT SCALE: 1"=3'

NOTES

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BUC-EE'S

STORMWATER PROFILES

BUC-EE'S #71
HUBER HEIGHTS, OH

8000 STATE ROUTE 235
HUBER HEIGHTS, OH 45424

ORIGINAL ISSUE:
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UTILITY LEGEND

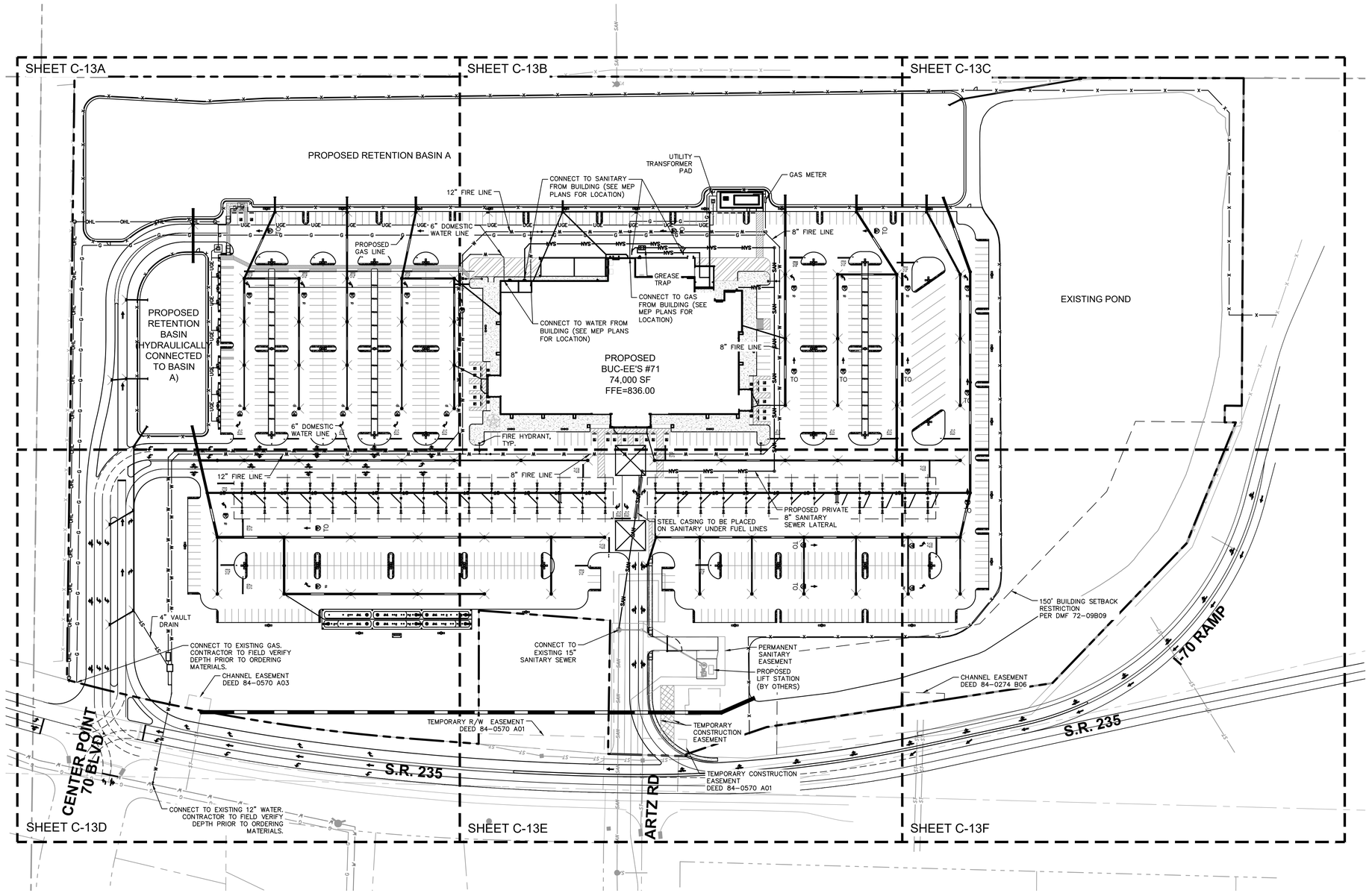
- EX. HYDRANT
- EX. WATER VALVE
- EX. SANITARY SEWER LINE
- EX. SANITARY SEWER MANHOLE
- EX. STORM DRAIN LINE
- EX. STORM MANHOLE
- EX. STORM STRUCTURE/INLET
- EX. OVERHEAD POWER LINE
- EX. POWER POLE
- EX. WATER LINE
- EX. GAS LINE
- EX. UNDERGROUND POWER LINE
- PROPOSED OVERHEAD ELECTRIC LINE
- PROPOSED UNDERGROUND ELECTRIC LINE
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- PROPOSED SANITARY SEWER LINE
- PROPOSED ROOF DRAIN
- PROPOSED STORM SEWER LINE
- PROPOSED OPEN LID STORM STRUCTURE (PAVEMENT USE NEENAH R-2540) (GRASS USE NEENAH R-4340-B BEEHIVE)
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- PROPOSED POWER PLOT
- PROPOSED SANITARY MANHOLE
- PROPOSED STORM/SANITARY CLEANOUT
- PROPOSED 12" FIRE WATER LINE
- PROPOSED 6" DOMESTIC WATER LINE
- PROPOSED FIRE HYDRANT
- 4" UNDERDRAIN

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NORTH

GRAPHIC SCALE IN FEET
0 40 80 160

WARNING: CONTRACTOR TO VERIFY PRESENCE AND EXACT LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION.



UTILITY NOTES

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16. STORMWATER FACILITIES MUST BE FUNCTIONAL BEFORE BUILDING CONSTRUCTION BEGINS.

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CHECKED BY: AJS

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BUC-EE'S

OVERALL UTILITY PLAN

BUC-EE'S #71
HUBER HEIGHTS, OH
8000 STATE ROUTE 235
HUBER HEIGHTS, OH 45424

ORIGINAL ISSUE: 04/22/2024
KHA PROJECT NO. 190255000
SHEET NUMBER
C-13

Drawing name: K:\CLB_LBE\190255000_Buc-ees_HuberHeights_OH\2 Design\CAD\PlanSheets\Development Plan\OVERALL UTILITY PLAN.dwg C-13 OVERALL UTILITY PLAN Apr 22, 2024, 9:49am by drew.dilmour
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UTILITY LEGEND

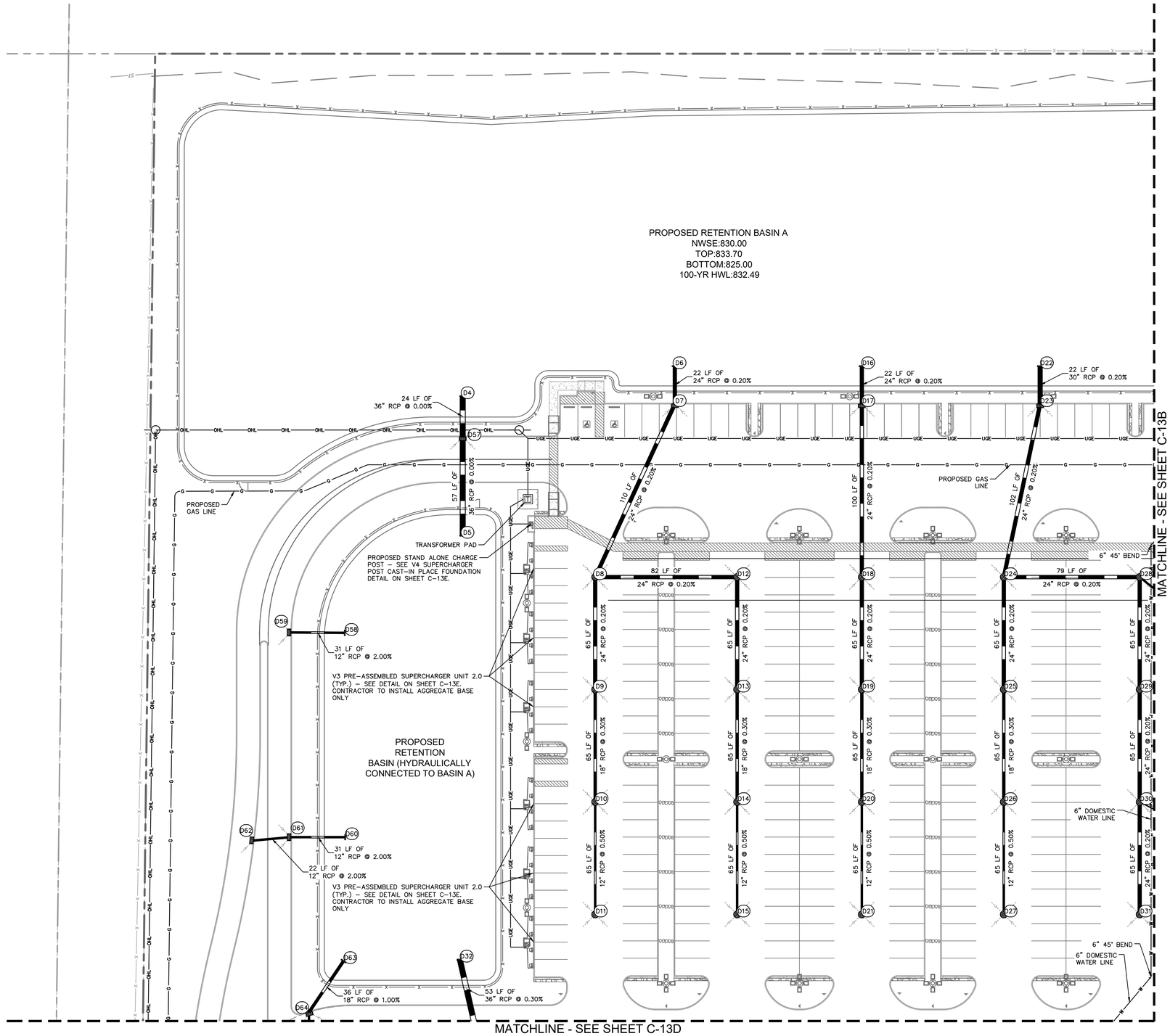
EX. HYDRANT	EX. STORM STRUCTURE/INLET	PROPOSED OVERHEAD ELECTRIC LINE	PROPOSED OPEN LID STORM STRUCTURE (PAVEMENT USE NEENAH R-2540) (GRASS USE NEENAH R-4340-B BEEHIVE)	PROPOSED SANITARY MANHOLE
EX. WATER VALVE	EX. OVERHEAD POWER LINE	PROPOSED UNDERGROUND ELECTRIC LINE	PROPOSED CLOSED LID STORM STRUCTURE (PAVEMENT USE NEENAH R-1772) (GRASS USE NEENAH R-1786)	PROPOSED STORM/SANITARY CLEANOUT
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EX. SANITARY SEWER MANHOLE	EX. WATER LINE	PROPOSED SANITARY SEWER LINE		PROPOSED 6" DOMESTIC WATER LINE
EX. STORM DRAIN LINE	EX. GAS LINE	PROPOSED ROOF DRAIN	PROPOSED OPEN LID CURB STRUCTURE (NEENAH R-3281-A)	PROPOSED FIRE HYDRANT
EX. STORM MANHOLE	EX. UNDERGROUND POWER LINE	PROPOSED STORM SEWER LINE	PROPOSED POWER PLS	4" UNDERDRAIN

Ohio Utilities Protection Service
Call 811
before you dig

NORTH

GRAPHIC SCALE IN FEET
0 15 30 60

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BUC-EE'S

UTILITY PLAN

BUC-EE'S #71
HUBER HEIGHTS, OH
8000 STATE ROUTE 235
HUBER HEIGHTS, OH 45424

ORIGINAL ISSUE: 04/22/2024
KHA PROJECT NO. 190255000
SHEET NUMBER
C-13A

Drawing name: K:\CLB_LDEV\190255000_Buc-ees_HuberHeights_OH\2 Design\CAD\PlanSheets\Development Plan\UTILITY PLAN.dwg C-13A UTILITY PLAN Apr 22, 2024 9:50am by: drew.gilmour
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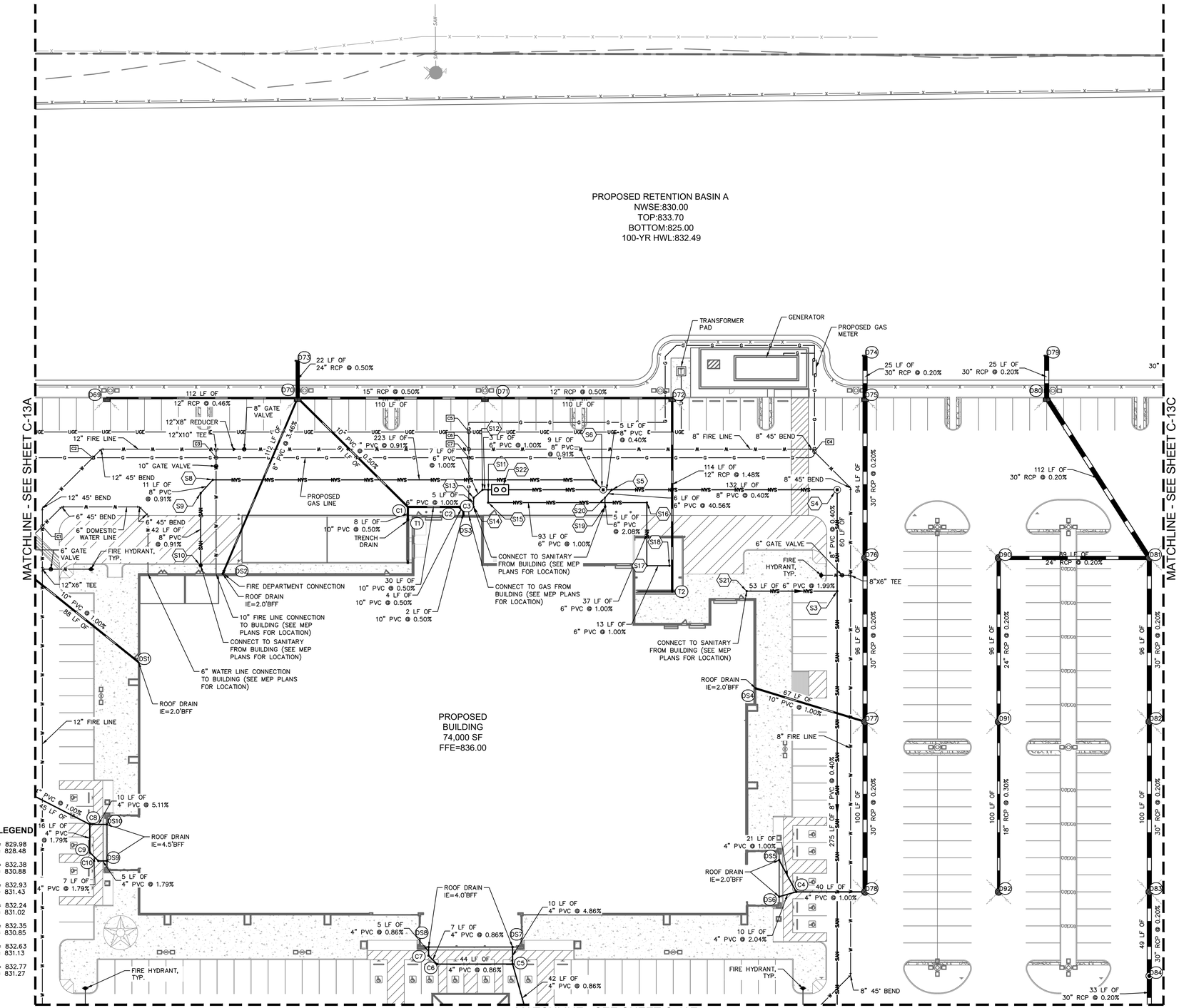
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NORTH

GRAPHIC SCALE IN FEET
0 15 30 60

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UTILITY CROSSING LEGEND

C1	12" WATR	B/P =	829.98
	6" WATR	T/P =	828.48
C2	4" GAS	B/P =	832.38
	12" WATR	T/P =	830.88
C3	4" GAS	B/P =	832.93
	12" WATR	T/P =	831.43
C4	4" GAS	B/P =	832.24
	8" WATR	T/P =	831.02
C5	2" GAS	B/P =	832.35
	4" ELEC	T/P =	830.85
C6	2" GAS	B/P =	832.63
	8" WATR	T/P =	831.13
C7	2" GAS	B/P =	832.77
	4" GAS	T/P =	831.27

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SANITARY STRUCTURE TABLE	
STRUCTURE NAME:	DETAILS:
S3	CLEANOUT RIM: 834.85 INV IN: 827.46 (E) INV IN: 827.46 (N) INV OUT: 827.46 (W)
S4	SANITARY MH TYPE A RIM: 834.55 INV IN: 827.79 (N) INV OUT: 827.69 (W)
S5	CLEANOUT RIM: 835.24 INV IN: 828.32 (N) INV IN: 828.32 (NW) INV OUT: 828.32 (S)
S6	SANITARY MH TYPE A RIM: 835.33 INV IN: 828.45 (N) INV IN: 828.34 (NE) INV OUT: 828.34 (S)
S7	CLEANOUT RIM: 835.30 INV IN: 828.42 (N) INV OUT: 828.42 (SW)
S8	CLEANOUT RIM: 835.07 INV IN: 830.44 (NW) INV OUT: 830.44 (S)
S9	CLEANOUT RIM: 835.09 INV IN: 830.54 (W) INV OUT: 830.54 (SE)
S10	BUILDING CONNECTION RIM: 835.91 INV OUT: 830.92 (E)
S11	6" CLEANOUT RIM: 835.36 INV IN: 829.29 (W) INV IN: 829.29 (N) INV OUT: 829.29 (S)
S12	CLEANOUT RIM: 835.37 INV IN: 829.33 (NW) INV OUT: 829.33 (S)

SANITARY STRUCTURE TABLE	
STRUCTURE NAME:	DETAILS:
S13	CLEANOUT RIM: 835.50 INV IN: 829.40 (W) INV OUT: 829.40 (SE)
S14	BUILDING CONNECTION RIM: 835.64 INV OUT: 829.45 (E)
S15	6" CLEANOUT RIM: 835.55 INV IN: 829.37 (S) INV OUT: 829.37 (E)
S16	6" CLEANOUT RIM: 835.09 INV IN: 830.30 (W) INV OUT: 830.30 (N)
S17	6" CLEANOUT RIM: 835.87 INV IN: 830.67 (S) INV OUT: 830.67 (E)
S18	6" CLEANOUT RIM: 835.67 INV OUT: 830.80 (N)
S19	BUILDING CONNECTION RIM: 835.54 INV OUT: 830.92 (E)
S20	6" CLEANOUT RIM: 835.42 INV IN: 830.81 (W) INV OUT: 830.81 (SE)
S22	GREASE TRAP RIM: 835.37 INV IN: 829.22 (N) INV OUT: 829.06 (S)

No.	REVISIONS	DATE	BY

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7965 N. HIGH STREET, COLUMBUS, OH 43235
PHONE: 614-540-6949
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SCALE: AS NOTED
DESIGNED BY: IC
DRAWN BY: MAN
CHECKED BY: AJS

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BUC-EE'S

BUC-EE'S #71
HUBER HEIGHTS, OH

8000 STATE ROUTE 235
HUBER HEIGHTS, OH 45424

UTILITY PLAN

ORIGINAL ISSUE: 04/22/2024
KHA PROJECT NO. 190255000
SHEET NUMBER
C-13B

Drawing name: K:\CLB_LDEV\190255000_Buc-ees_HuberHeights_DN\2 Design\CAD\PlanSheets\Development Plan\UTILITY PLAN.dwg C-13B UTILITY PLAN Apr 22, 2024 9:50am by: drew.gilmour
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UTILITY LEGEND

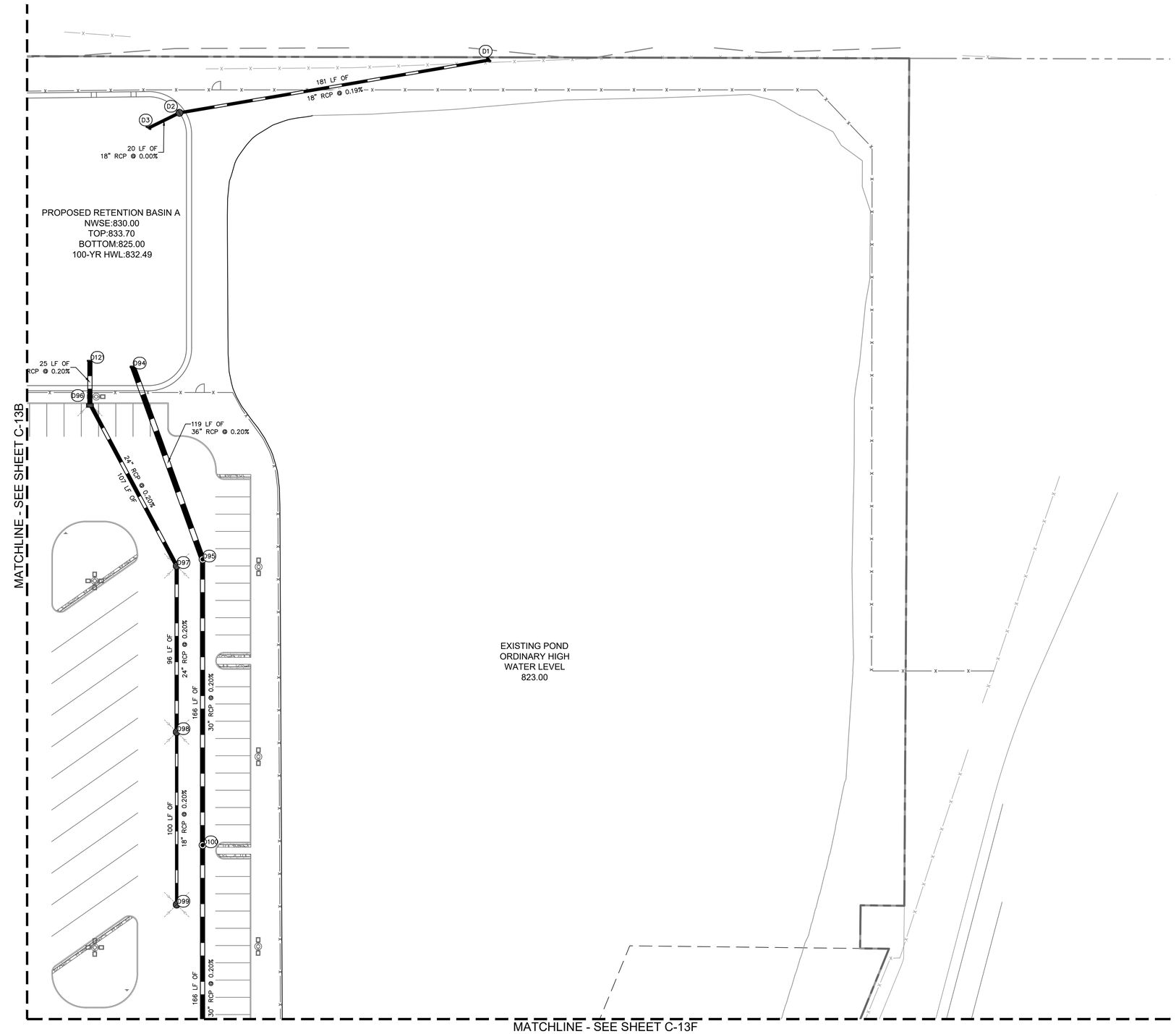
EX. HYDRANT	EX. STORM STRUCTURE/INLET	PROPOSED OVERHEAD ELECTRIC LINE	PROPOSED OPEN LID STORM STRUCTURE (PAVEMENT USE NEENAH R-2540) (GRASS USE NEENAH R-4340-B BEEHIVE)	PROPOSED SANITARY MANHOLE
EX. WATER VALVE	EX. OVERHEAD POWER LINE	PROPOSED UNDERGROUND ELECTRIC LINE	PROPOSED CLOSED LID STORM STRUCTURE (PAVEMENT USE NEENAH R-1772) (GRASS USE NEENAH R-1786)	PROPOSED STORM/SANITARY CLEANOUT
EX. SANITARY SEWER LINE	EX. POWER POLE	GAS LINE (BY GAS COMPANY)		PROPOSED 12" FIRE WATER LINE
EX. SANITARY SEWER MANHOLE	EX. WATER LINE	PROPOSED SANITARY SEWER LINE	PROPOSED OPEN LID CURB STRUCTURE (NEENAH R-3281-A)	PROPOSED 6" DOMESTIC WATER LINE
EX. STORM DRAIN LINE	EX. GAS LINE	PROPOSED ROOF DRAIN		PROPOSED FIRE HYDRANT
EX. STORM MANHOLE	EX. UNDERGROUND POWER LINE	PROPOSED STORM SEWER LINE	PROPOSED POWER POLE	4" UNDERDRAIN

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NORTH

GRAPHIC SCALE IN FEET
0 15 30 60

WARNING: CONTRACTOR TO VERIFY PRESENCE AND EXACT LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION.



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BUC-EE'S

UTILITY PLAN

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HUBER HEIGHTS, OH

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ORIGINAL ISSUE: 04/22/2024

KHA PROJECT NO. 190255000

SHEET NUMBER

C-13C

Drawing name: K:\CLB_JDEV\190255000_Buc-ees_HuberHeights_DAV\2 Design\CAD\PlanSheets\Development Plan\UTILITY PLAN.dwg C-13C UTILITY PLAN Apr 22, 2024 9:50am by: drewgilmour
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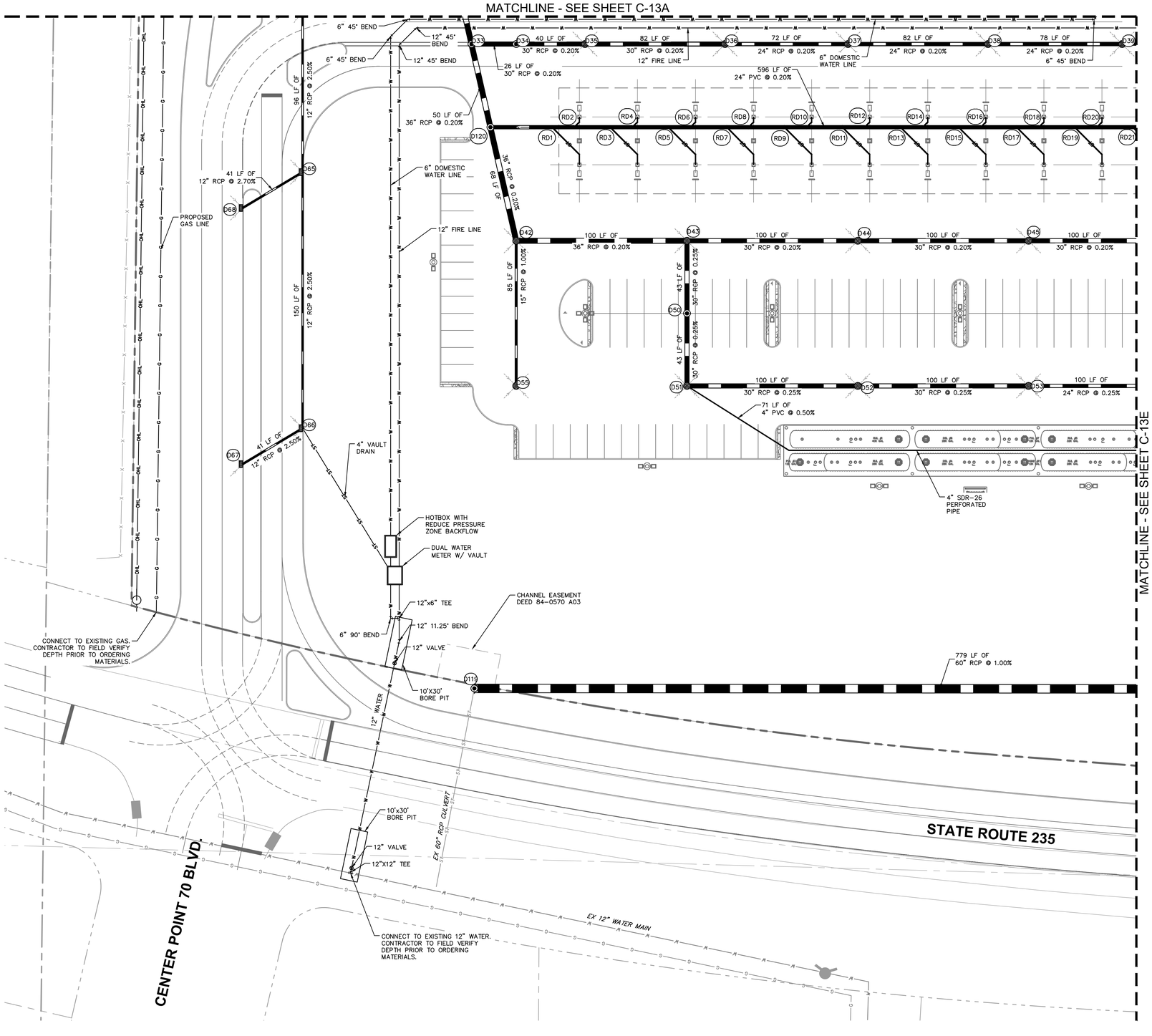
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EX. STORM MANHOLE	EX. UNDERGROUND POWER LINE	PROPOSED STORM SEWER LINE	PROPOSED POWER POLE	4" UNDERDRAIN

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BUC-EE'S

UTILITY PLAN

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HUBER HEIGHTS, OH

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HUBER HEIGHTS, OH 45424

ORIGINAL ISSUE: 04/22/2024

KHA PROJECT NO. 190255000

SHEET NUMBER

C-13D

Drawing name: K:\CLB_LDEV\190255000_Buc-ees_HuberHeights_OH\2 Design\CAD\PlanSheets\Development Plan\UTILITY PLAN.dwg C-13D UTILITY PLAN Apr 22, 2024 9:50am by: drew.gilmour
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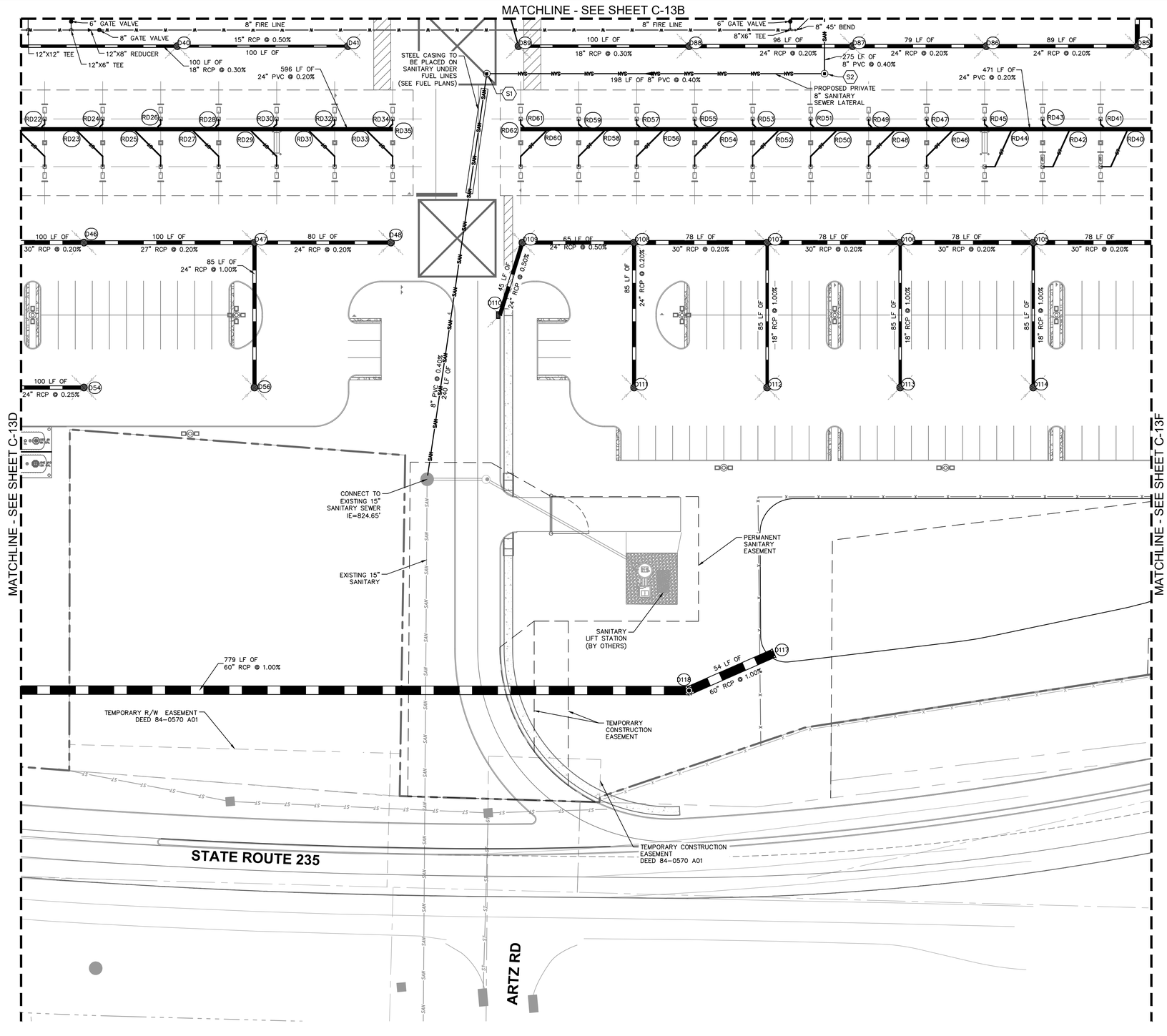
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0 15 30 60

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SANITARY STRUCTURE TABLE	
STRUCTURE NAME:	DETAILS:
EX1	MH RIM: 840.31 INV IN: 824.61 (E)
S1	SANITARY MH TYPE A RIM: 834.83 INV IN: 825.56 (S) INV OUT: 825.56 (W)
S2	SANITARY MH TYPE A RIM: 834.69 INV IN: 826.35 (E) INV OUT: 826.35 (N)

No.	REVISIONS	DATE	BY

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Drawing name: K:\CIB_JDEV\190255000_Buc-ees_HuberHeights_OH\2 Design\CAD\PlanSheets\Development Plan\UTILITY PLAN.dwg C-13E UTILITY PLAN Apr 22, 2024 9:50am by: drewgilmour
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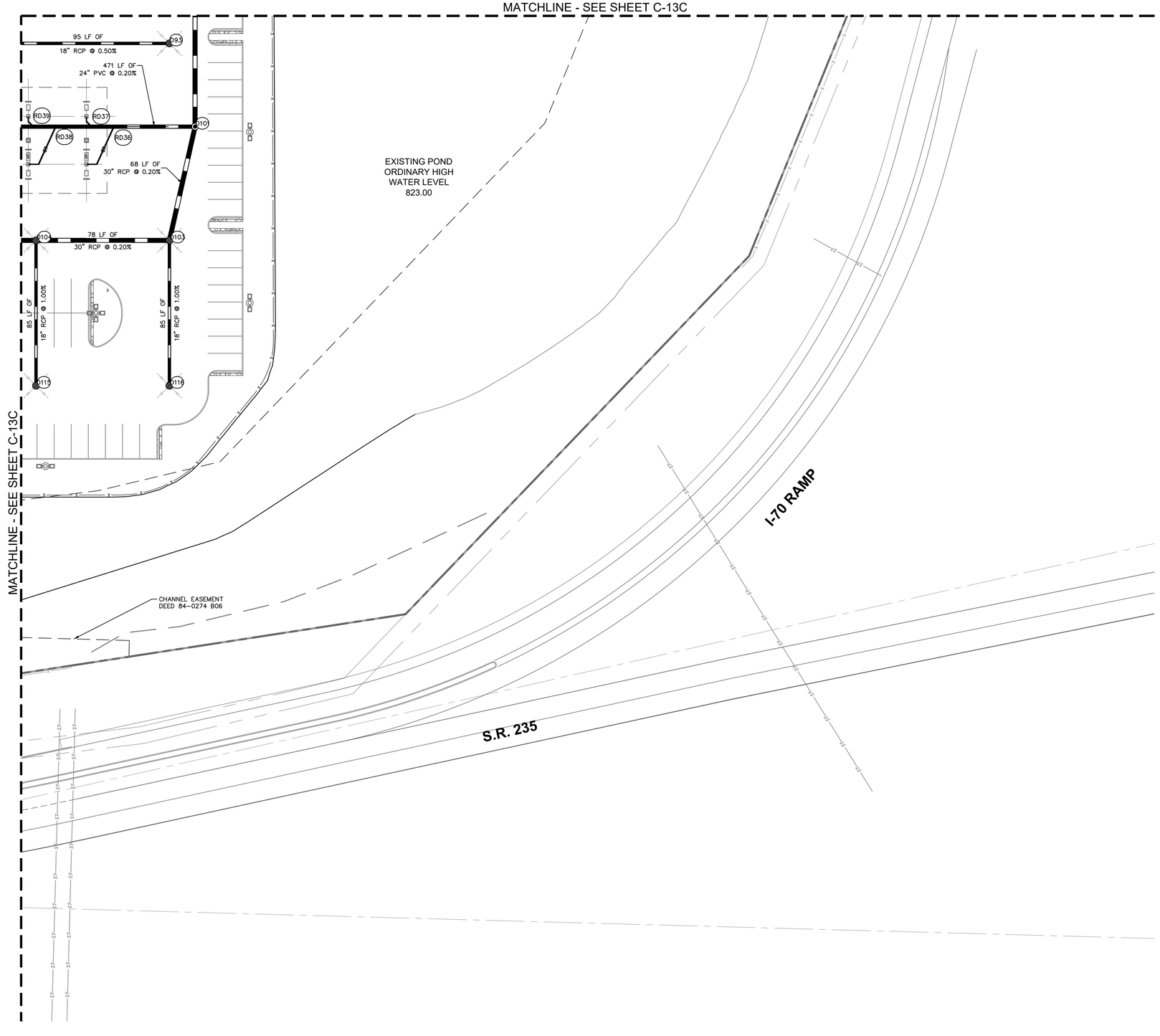
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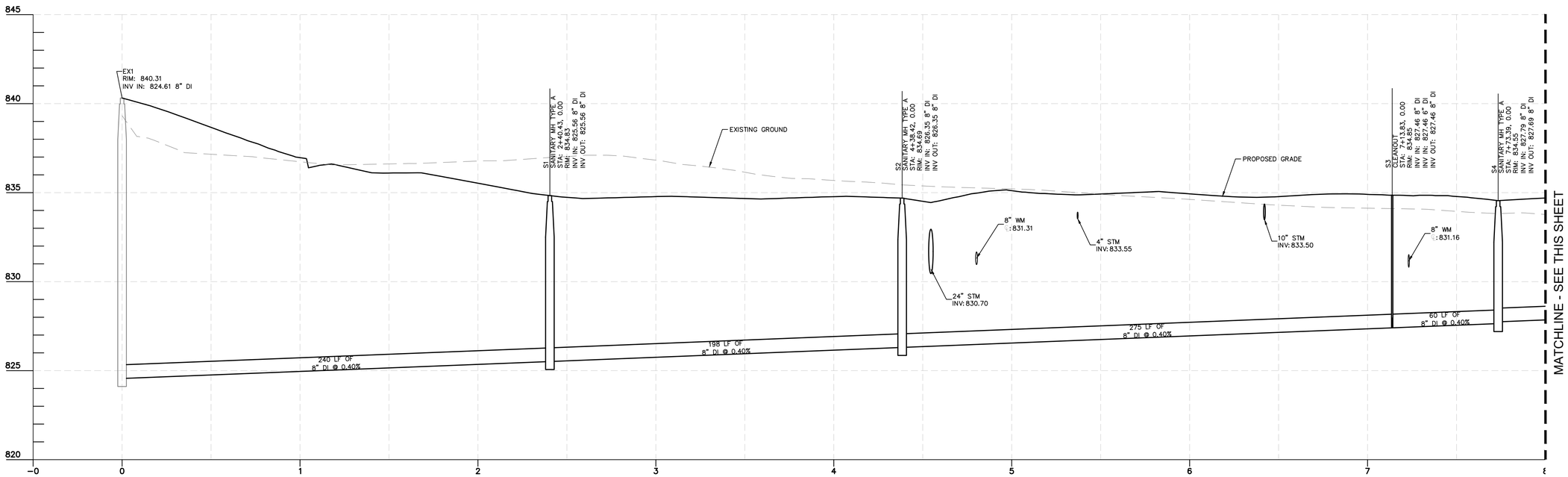
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C-13F

Drawing name: K:\CLB_LDEV\190255000_Buc-ees_HuberHeights_OH\2 Design\CAD\PlanSheets\Development Plan\UTILITY PLAN.dwg C-13F UTILITY PLAN Apr 22, 2024 9:50am by: drew.gilmour
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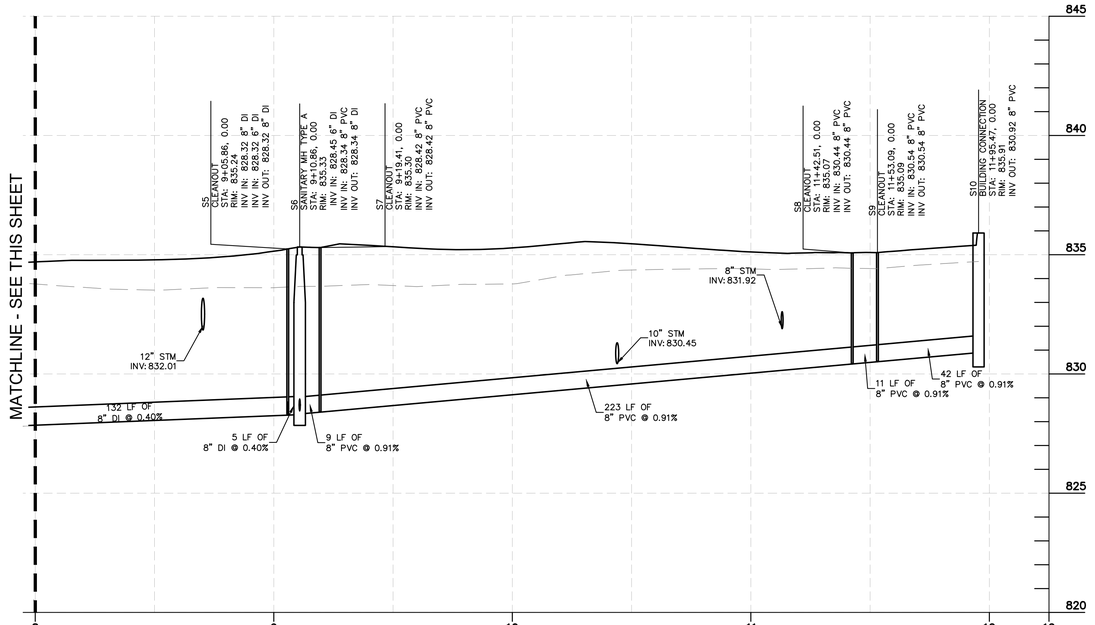
Drawing name: K:\CLB_LSEV\190255000_Buc-ees_HuberHeights_DVL2 Design\CAD\PlanSheets\Development Plan\SANITARY PROFILES.dwg SANITARY PROFILES Apr 22, 2024 - 9:51am by: drew.gilmour
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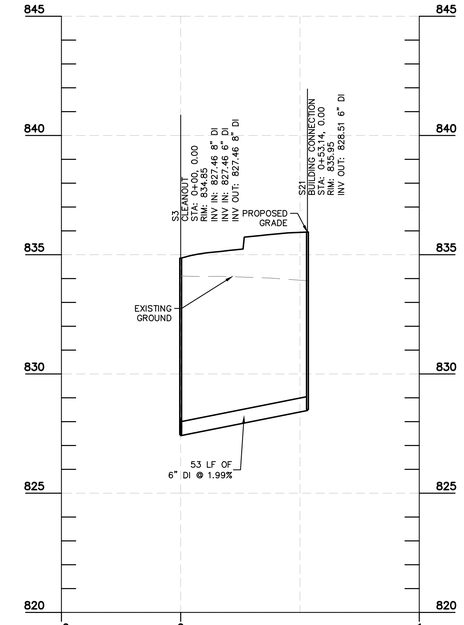
SANITARY EX1-S10 PROFILE

HORIZ SCALE: 1"=30'
VERT SCALE: 1"=3'



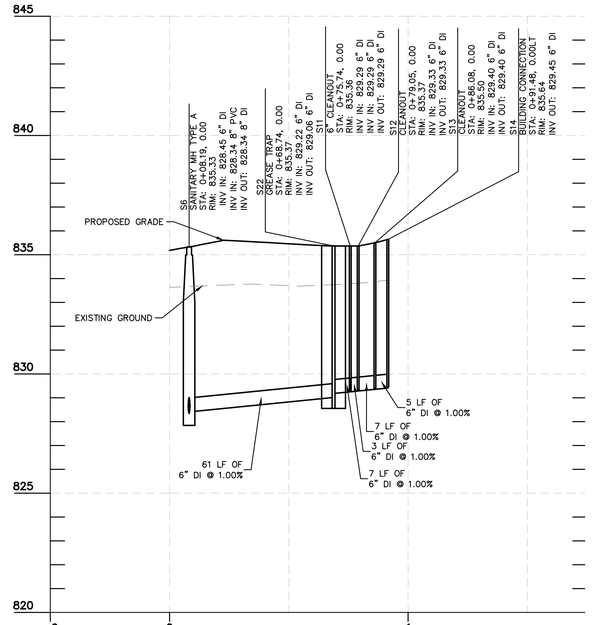
SANITARY EX1-S10 PROFILE

HORIZ SCALE: 1"=30'
VERT SCALE: 1"=3'



SANITARY S3-S21 PROFILE

HORIZ SCALE: 1"=30'
VERT SCALE: 1"=3'



SANITARY S6-S14 PROFILE

HORIZ SCALE: 1"=30'
VERT SCALE: 1"=3'

Ohio Utilities Protection Service
Call 811
before you dig

WARNING: CONTRACTOR TO VERIFY PRESENCE AND EXACT LOCATION OF ALL UTILITIES PRIOR TO CONSTRUCTION.

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DRAWN BY: MAN
CHECKED BY: AJS

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BUC-EE'S

SANITARY PROFILES

BUC-EE'S #71
HUBER HEIGHTS, OH

8000 STATE ROUTE 235
HUBER HEIGHTS, OH 45424

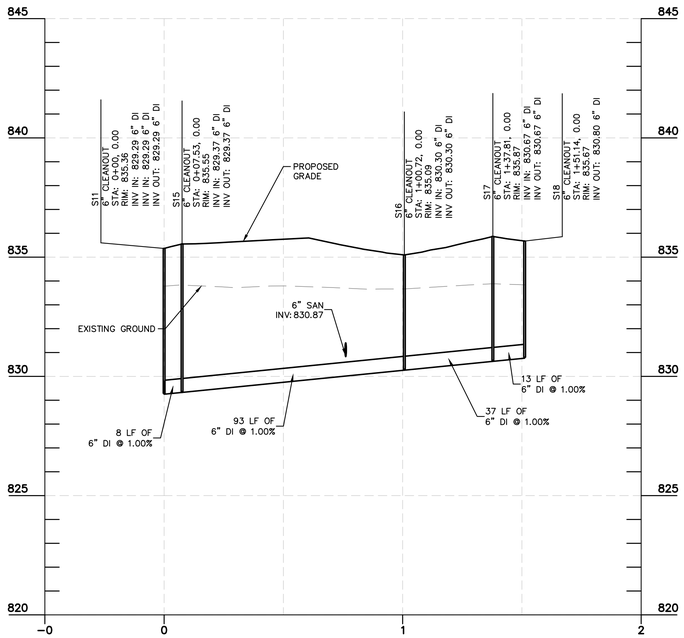
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190255000

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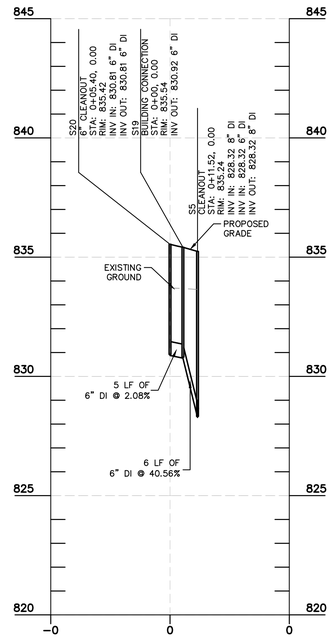
C-13G

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SANITARY S11-S18 PROFILE

HORIZ SCALE: 1"=30'
VERT SCALE: 1"=3'



SANITARY S19-S5 PROFILE

HORIZ SCALE: 1"=30'
VERT SCALE: 1"=3'

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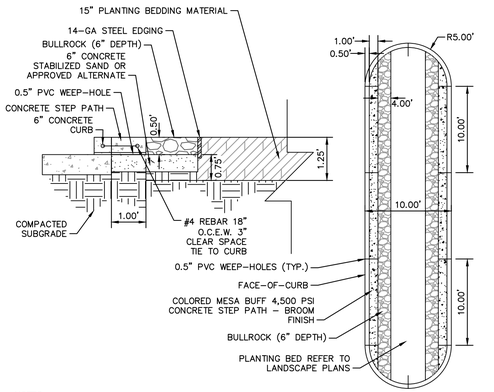
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BUC-EE'S

SANITARY PROFILES

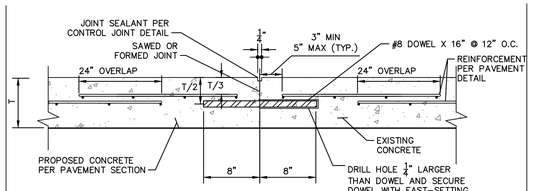
BUC-EE'S #71
HUBER HEIGHTS, OH
8000 STATE ROUTE 235
HUBER HEIGHTS, OH 45424

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KHA PROJECT NO. 190255000
SHEET NUMBER
C-13H



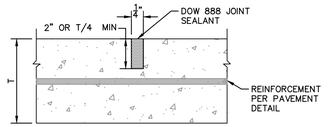
NOTES:
1) 12" COLORED CONCRETE STEP PATH SHALL BE DOWELED INTO EXISTING CURB AT 18" ON CENTER.
2) COLORED CONCRETE STEP PATH TO BE REINFORCED WITH #4 REBAR PLACED 18" ON CENTER EACH WAY.
3) COLORED CONCRETE TINT TO BE APPROVED BY BUC-EE'S PRIOR TO PLACEMENT.
4) PVC WEEP-HOLE PIPING IS TO BE CUT FLUSH WITH FACE-OF-CURB.
5) WEEP-HOLES SHALL NOT BE PLACED AT JOINT LOCATIONS.
6) PLANTING BED SHALL BE SLOPED TO CURB AT 1% MINIMUM SLOPE OR AS SPECIFIED ON THE GRADING PLAN
7) ADDITIONAL WEEP HOLES TO BE PLACED AT LOW POINTS WITHIN THE LANDSCAPE ISLAND CURBING. CONTRACTOR TO FIELD VERIFY THE LOCATION OF THE LOW POINTS WITHIN THE LANDSCAPE ISLANDS.

1 LANDSCAPE ISLAND
SCALE: NOT TO SCALE

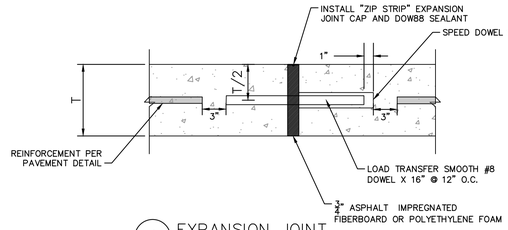


NOTE:
1. CONTRACTORS OPTION TO PROVIDE AN ALTERNATIVE OF CONTINUOUS STEEL IN LIEU OF UTILIZING A DOWELED CONSTRUCTION JOINT. IF USED, CONTRACTOR MUST VERIFY 36" OF CONTINUOUS REBAR ADJACENT TO CONSTRUCTION JOINT PRIOR TO SPLICING.

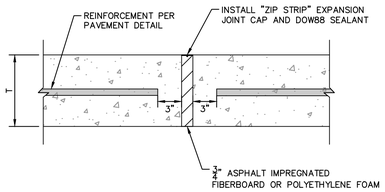
2 CONSTRUCTION JOINT
SCALE: NOT TO SCALE



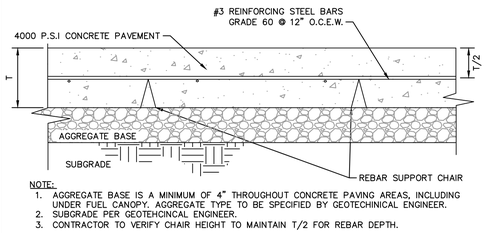
3 CONTROL JOINT DETAIL
SCALE: NOT TO SCALE



4 EXPANSION JOINT
SCALE: NOT TO SCALE

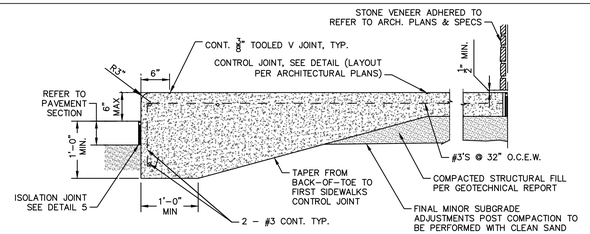


5 ISOLATION JOINT
SCALE: NOT TO SCALE



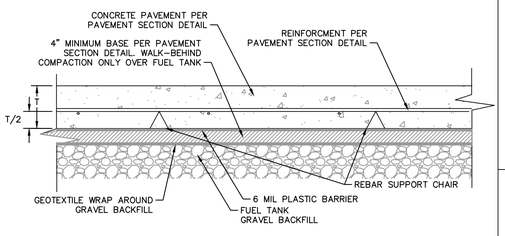
NOTE:
1. AGGREGATE BASE IS A MINIMUM OF 4" THROUGHOUT CONCRETE PAVING AREAS, INCLUDING UNDER FUEL CANOPY. AGGREGATE TYPE TO BE SPECIFIED BY GEOTECHNICAL ENGINEER.
2. SUBGRADE PER GEOTECHNICAL ENGINEER.
3. CONTRACTOR TO VERIFY CHAIR HEIGHT TO MAINTAIN T/2 FOR REBAR DEPTH.

6 PAVEMENT SECTION
SCALE: NOT TO SCALE



7 SIDEWALK EDGE DETAIL
SCALE: NOT TO SCALE

8A TANK PIT PAVEMENT SECTION (BEHIND CURB)
SCALE: NOT TO SCALE



8B TANK PIT PAVEMENT SECTION (IN DRIVE AREA)
SCALE: NOT TO SCALE

NOTE:
1. PLACE ISOLATION JOINT SEALANT FLUSH OR SLIGHTLY BELOW THE TOP OF PAVEMENT
2. DETAIL TO BE USED ADJACENT TO IDF CABINETS AND SIDEWALK EDGE DETAIL

9 PAVEMENT SECTION AGAINST STRUCTURE
SCALE: NOT TO SCALE

10 INLET APRON DETAIL
SCALE: NOT TO SCALE

11 INLET APRON GRADE BEAM DETAIL
SCALE: NOT TO SCALE

GEOTECHNICAL INFORMATION
(PER REPORT BY TERRACON DATED 3/15/2024)

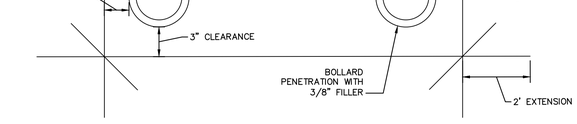
PAVEMENT SECTION THICKNESS, T = XX"

PAVEMENT REINFORCEMENT, # X @ 12" OCEW

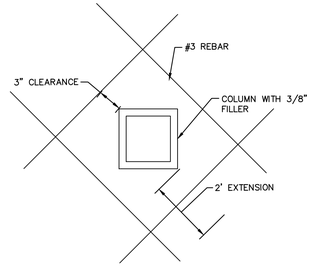
PAVEMENT PSI = 4,000 PSI

AGGREGATE BASE THICKNESS = 4"

AGGREGATE BASE MATERIAL = ODOT ITEM 304 CRUSHED LIMESTONE



U-BOLLARD AND FUEL DISPENSER PENETRATION



COLUMN PENETRATION

12 FUEL CANOPY PENETRATIONS
SCALE: NOT TO SCALE

Drawing name: K:\CLB_LDEV\190255000_Buc-ees_HuberHeights_OH\2 Design\CAD\PlanSheets\Development Plan\SITE DETAILS.dwg C-14A SITE DETAILS Apr 22, 2024 9:51am by drew.gilmour
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DRAWN BY: MAN
CHECKED BY: AJS

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BUC-EE'S

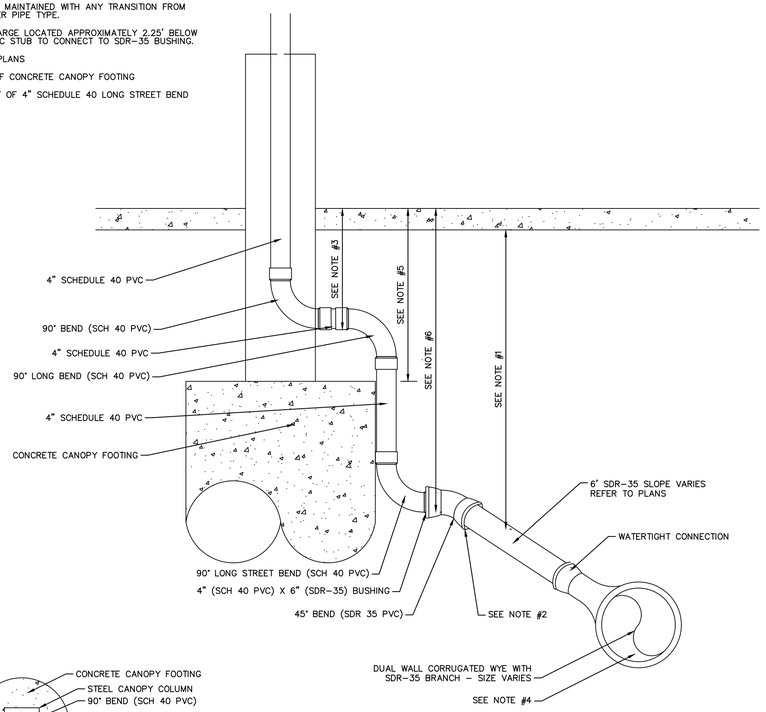
BUC-EE'S #71
HUBER HEIGHTS, OH
8000 STATE ROUTE 235
HUBER HEIGHTS, OH 45424

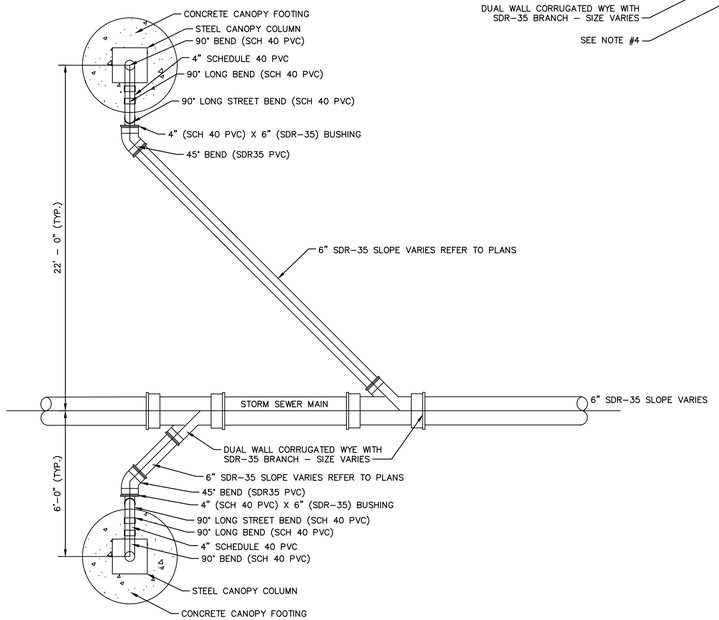
SITE DETAILS

ORIGINAL ISSUE: 04/22/2024
KHA PROJECT NO. 190255000
SHEET NUMBER
C-14A

NOTE:

1) BACKFILL PER CANOPY BACKFILL PROFILE.
2) A WATERTIGHT CONNECTION SHALL BE MAINTAINED WITH ANY TRANSITION FROM SCHEDULE 40 PVC PIPE TO ANY OTHER PIPE TYPE.
3) CANOPY 4" SCHEDULE 40 PVC DISCHARGE LOCATED APPROXIMATELY 2.25' BELOW FINISHED GRADE, 4" SCHEDULE 40 PVC STUB TO CONNECT TO SDR-35 BUSHING.
4) STORM SEWER MAIN PIPE SIZES PER PLANS
5) 3.0' FROM FINISHED GRADE TO TOP OF CONCRETE CANOPY FOOTING
6) 4.0' FROM FINISHED GRADE TO INVERT OF 4" SCHEDULE 40 LONG STREET BEND

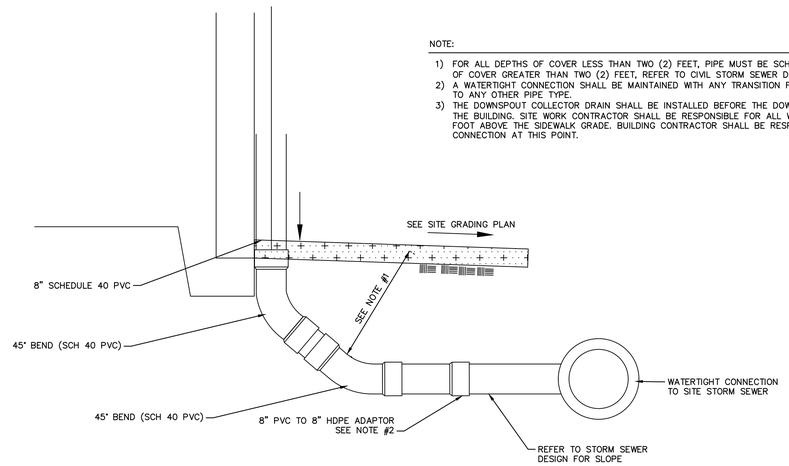




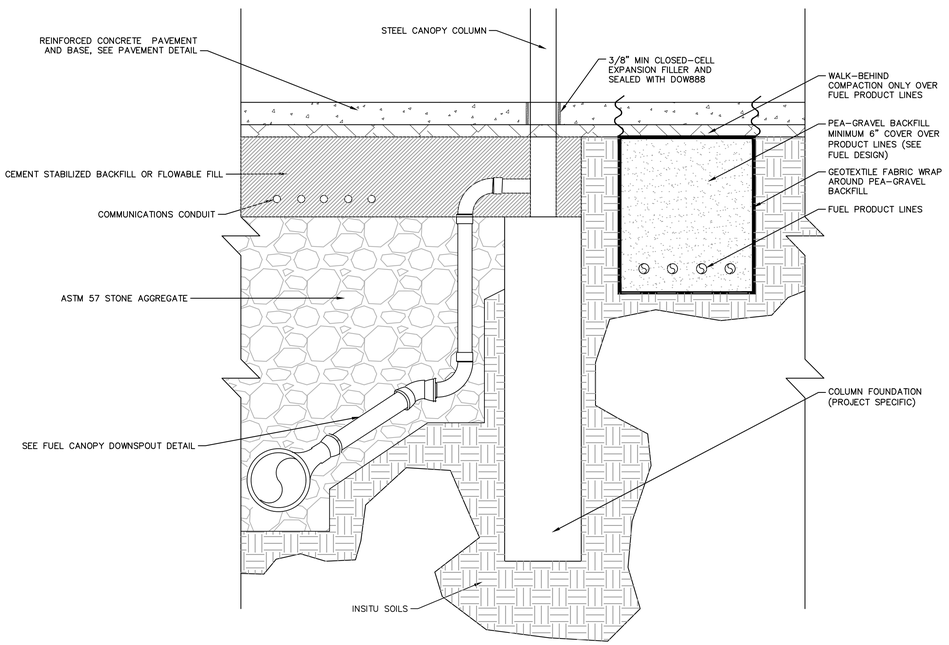
13 FUEL CANOPY DOWNSPOUT CONNECTION
SCALE: NOT TO SCALE

NOTE:

1) FOR ALL DEPTHS OF COVER LESS THAN TWO (2) FEET, PIPE MUST BE SCHEDULE 40 PVC. FOR DEPTHS OF COVER GREATER THAN TWO (2) FEET, REFER TO CIVIL STORM SEWER DESIGN SHEETS.
2) A WATERTIGHT CONNECTION SHALL BE MAINTAINED WITH ANY TRANSITION FROM SCHEDULE 40 PVC PIPE TO ANY OTHER PIPE TYPE.
3) THE DOWNSPOUT COLLECTOR DRAIN SHALL BE INSTALLED BEFORE THE DOWNSPOUTS ARE INSTALLED ON THE BUILDING. SITE WORK CONTRACTOR SHALL BE RESPONSIBLE FOR ALL WORK TO A STUB ONE (1) FOOT ABOVE THE SIDEWALK GRADE. BUILDING CONTRACTOR SHALL BE RESPONSIBLE FOR THE CONNECTION AT THIS POINT.



14 BUILDING DOWNSPOUT CONNECTION
SCALE: NOT TO SCALE



15A TYPICAL CANOPY BACKFILL PROFILE (DRY INSITU SOILS)
SCALE: NOT TO SCALE

Drawing name: K:\CAB_LEX\190255000_Buc-ees_Huberheights_OH\2 Design\CAD\PlanSheets\Development Plan\SITE DETAILS.dwg C-14B SITE DETAILS Apr 22, 2024 9:51am byr drew.gilmour
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DRAWN BY: MAN
CHECKED BY: AJS

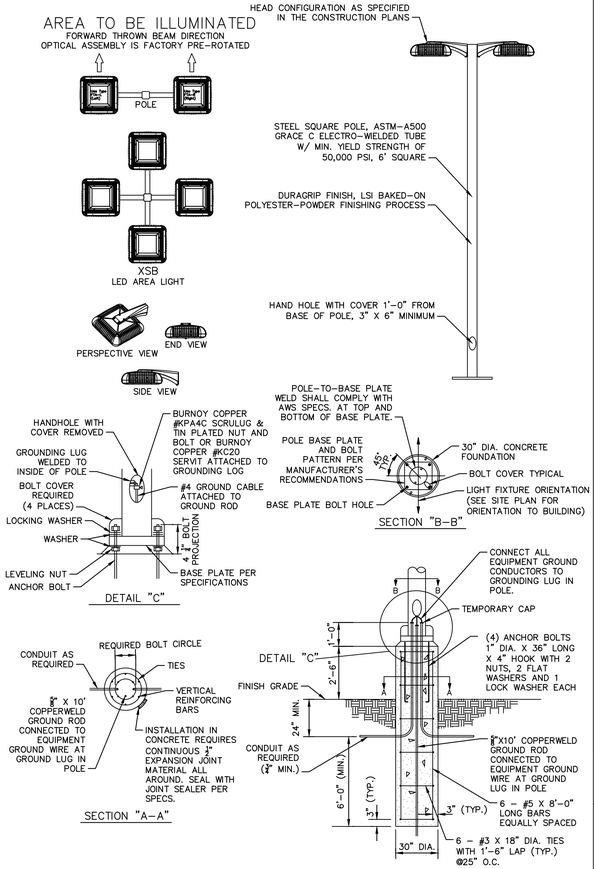
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BUC-EE'S

SITE DETAILS

BUC-EE'S #71
HUBER HEIGHTS, OH
8000 STATE ROUTE 235
HUBER HEIGHTS, OH 45424

ORIGINAL ISSUE: 04/22/2024
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SHEET NUMBER
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DETAIL "C"

SECTION "B-B"

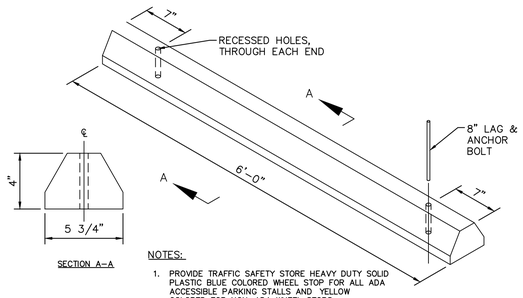
SECTION "A-A"

VERTICAL AND HORIZONTAL BARS SHALL BE FIELD TIED. WELDING NOT PERMITTED. SUPPORT REINFORCEMENT IN IT'S PROPER LOCATION FROM THE FORMWORK DURING CONCRETE OPERATION.

NOTES:

1. 3500 P.S.I. MIN. 28 DAY COMPRESSIVE STRENGTH CONC. WITH GRADE 60 REINF. STEEL.
2. IF WATER IS PRESENT IN HOLE, REMOVE BEFORE POURING CONCRETE.
3. FOUNDATION EXCAVATION SHALL BE BY 30" AUGER IN UNDISTURBED OR PROPERLY COMPACTED FILL PER SPECIFICATIONS.
4. FOUNDATION SHALL HAVE A MINIMUM ALLOWABLE END BEARING OF 2000 PSF.
5. FOUNDATION HAS BEEN DESIGNED FOR A COHESIVE SOIL BASED ON A MINIMUM COHESIVEVALUE OF 1000 PSF.
6. FOUNDATION HAS BEEN DESIGNED FOR A GRANULAR SOIL BASED ON A MINIMUM LATERAL SOIL PRESSURE OF 1000 PSF, UTILIZING AASHTO FIGURE 1.8.2C(4) OF "EMBEDMENT OF POSTS WITH OVERTURNING LOADS".
7. DETAIL FOR 30' POLE

16 PARKING LOT LIGHTING FIXTURE AND POLE FOUNDATION
SCALE: NOT TO SCALE



SECTION A-A

NOTES:

1. PROVIDE TRAFFIC SAFETY STORE HEAVY DUTY SOLID PLASTIC BLUE COLORED WHEEL STOP FOR ALL ADA ACCESSIBLE PARKING STALLS AND YELLOW COLORED FOR NON-ADA WHEEL STOPS

20 WHEEL STOP DETAIL
SCALE: NOT TO SCALE

H&C® SHARKGRIP® SLIP-RESISTANT ADDITIVE



PRODUCT DESCRIPTION

H&C® SHARKGRIP® Slip-Resistant Additive is a micronized polymer for addition to H&C coatings for slip resistance, fine texturing, and gloss reduction. Due to its low oil absorption and high solvent resistance, it will stir easily into most oil-based and latex-based paints and other coatings with minimal effect on the coating's viscosity. Its low density allows it to stay well suspended in thin materials such as stains.

FEATURES & BENEFITS

- Add to latex-based and oil-based coatings, stains and sealers
- Spherical-shaped particles provide easier cleanibility and are smooth to the touch
- Improves slip-resistance on concrete surfaces
- Does not effect the color the top coat

RECOMMENDED USES

H&C® SHARKGRIP® Slip-Resistant Additive is formulated for use on concrete and masonry surfaces including inclinded Surfaces, Driveways, Garages, Steps, Patios and Pool Decks.

JOBSITE TEST SECTION

Due to the wide variety of substrates, preparation methods, application methods and environments, it is important to test the product in an inconspicuous spot for adhesion and compatibility prior to full-scale application.

LIMITATIONS

H&C® SHARKGRIP® Slip-Resistant Additive will increase the coefficient of friction on the coated surface, but due to its small particle size, the coating that this is added to should be considered **slip-resistant but not non-skid.**
Not for use with wood stains.

INSTRUCTIONS

Add contents of one 3.2 oz container into one gallon of H&C® Concrete Stain or Sealer. H&C® SHARKGRIP® Slip-Resistant Additive should be mixed into the final topcoat. Mix well and apply with a roller.

***Refer to Stain or Sealer label and data page for detailed product guidelines.**

PHYSICAL PROPERTIES

Physical Properties and Characteristics		
Property	Test Method	Value
Melting Point	ASTM D127	330-335°F

ORDERING INFORMATION

Clear	Part Number/SMIS
3.2 OZ	50.155004-16/ 6507-12276
16 OZ	50.155005-20/ 6507-12284
19 lb.	50.155008-99/ 6507-12292

TECHNICAL SERVICES

The information and recommendations set forth in this product data sheet are based on tests conducted by or on behalf of H&C Products Group and The Sherwin-Williams® Company. Such information and recommendations set forth herein are subject to change and pertain to the product offered at the time of publication. Consult your H&C or Sherwin-Williams representative to obtain the most recent product data sheet.

For technical assistance, call 1-800-867-8246 or visit www.hcconcrete.com.

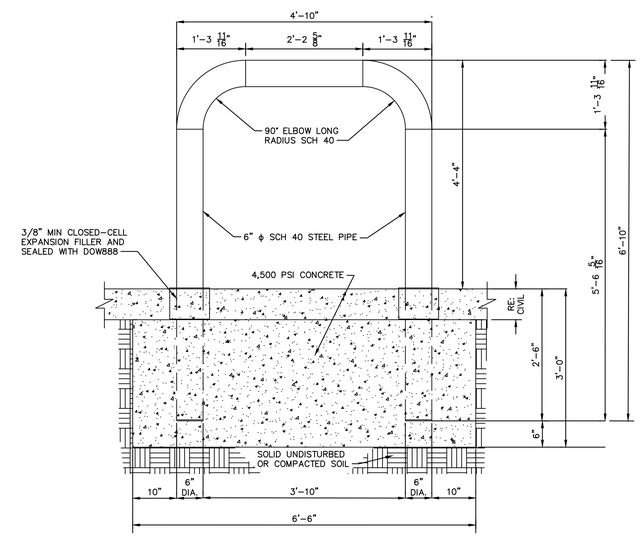
CAUTION

CAUTIONS Use only with adequate ventilation. To avoid overexposure, open windows and doors or use other means to ensure fresh air entry during application and drying. If you experience eye watering, headaches, or dizziness, increase fresh air, or wear respiratory protection (NIOSH approved) or leave the area.
FIRST AID: In case of eye contact, flush thoroughly with large amounts of water. Get medical attention if irritation persists. If swallowed, call Poison Control Center, hospital emergency room or physician immediately. **DO NOT TAKE INTERNALLY.**
KEEP OUT OF THE REACH OF CHILDREN.

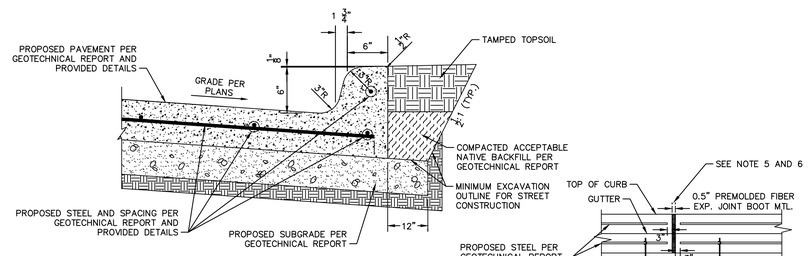
LIMITED WARRANTY

Seller's and manufacturer's only obligations shall be to replace such quantity of product proved to be defective. Neither seller nor manufacturer shall be liable for any injury, loss or damage, direct or consequential, arising from the applicator's inability to use the product for his/her intended use. The user assumes all risk and liability.

17 SHARKGRIP SLIP-RESISTANT ADDITIVE
SCALE: NOT TO SCALE



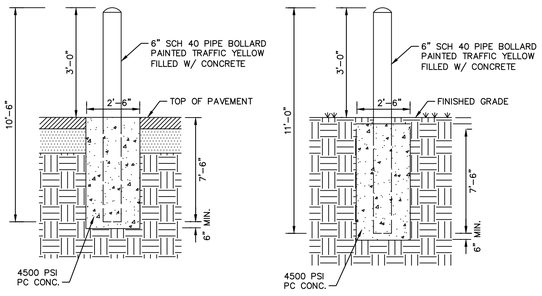
21 FUEL DISPENSER SINGLE BOLLARD
SCALE: NOT TO SCALE



NOTES:

1. BUC-EE'S APPROVAL REQUIRED FOR USE OF CURB MULE WITH DIMENSIONS THAT VARY FROM DETAIL.
2. MATCH PAVEMENT SAWED JOINTS FOR SAWED JOINTS IN CURB.
3. EXPANSION CURB JOINT BOOT AT CURB RADIUS MIDPOINTS.
4. EXPANSION CURB JOINT BOOT AT ALL PAVEMENT CONTROL JOINT LOCATIONS IN CURB.
5. ALL EXPANSION JOINTS SHALL BE PER EXPANSION JOINT DETAIL.
6. CONTRACTOR SHALL CUT AND REMOVE STEEL REINFORCEMENT AT LOCATIONS OF BOOT AND EXPANSION JOINTS IN CURB. LEAVE 3" SEPARATION FROM EDGE OF JOINT TO CUT STEEL.

18 MONOLITHIC CURB DETAIL
SCALE: NOT TO SCALE

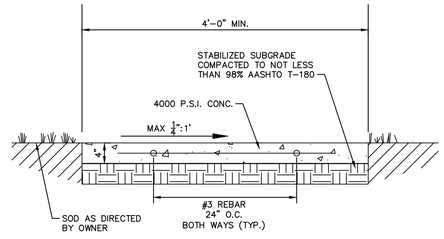


PIPE BOLLARD IN PAVEMENT
NOT TO SCALE

PIPE BOLLARD UNPAVED AREAS
NOT TO SCALE

22 PIPE BOLLARDS
SCALE: NOT TO SCALE

ALL BOLLARDS ARE TO BE PAINTED "TRAFFIC YELLOW" EXCEPT THOSE LOCATED UNDER FUEL CANOPY. BOLLARDS LOCATED UNDER FUEL CANOPY ARE TO BE PAINTED "TOWNHALL TAN"



NOTE:

1. ALL SIDEWALK JOINTS TO BE 3/4" TOOLED V JOINTS WITH LONGITUDINAL JOINTING TO MATCH SIDEWALK WIDTH.
2. THIS DETAIL IS NOT FOR BUILDING OR PUBLIC SIDEWALK.

23 ONSITE SIDEWALK
SCALE: NOT TO SCALE

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WWW.KIMLEY-HORN.COM

SCALE: AS NOTED
DESIGNED BY: IC
DRAWN BY: MAN
CHECKED BY: AJS

NOT FOR CONSTRUCTION

BUC-EE'S

BUC-EE'S #71
HUBER HEIGHTS, OH

8000 STATE ROUTE 235
HUBER HEIGHTS, OH 45424

SITE DETAILS

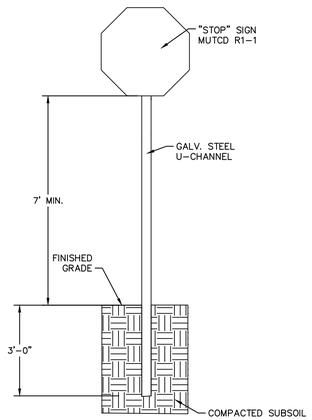
ORIGINAL ISSUE: 04/22/2024

KHA PROJECT NO. 190255000

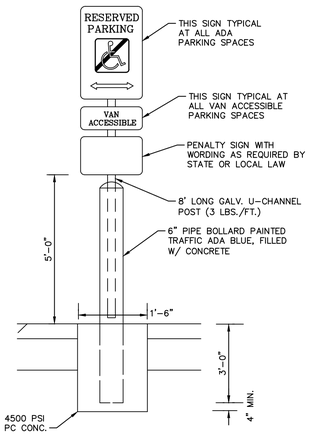
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C-14C

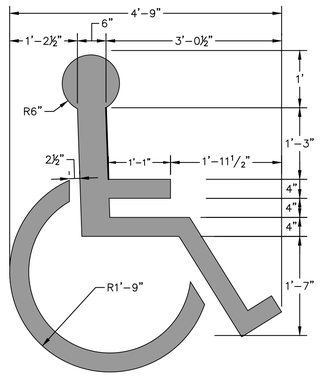
Drawing name: K:\CLB_LDEV\190255000_Buc-ees_HuberHeights_OH\2 Design\CAD\PlanSheets\Development Plan\SITE DETAILS.dwg C-14C SITE DETAILS Apr 22, 2024 9:51am by: drew.gilmour
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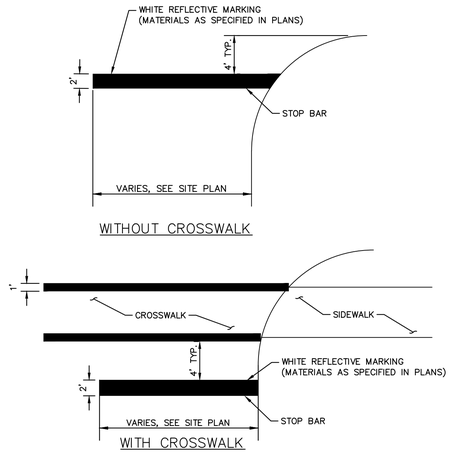
24 STOP SIGN
SCALE: NOT TO SCALE



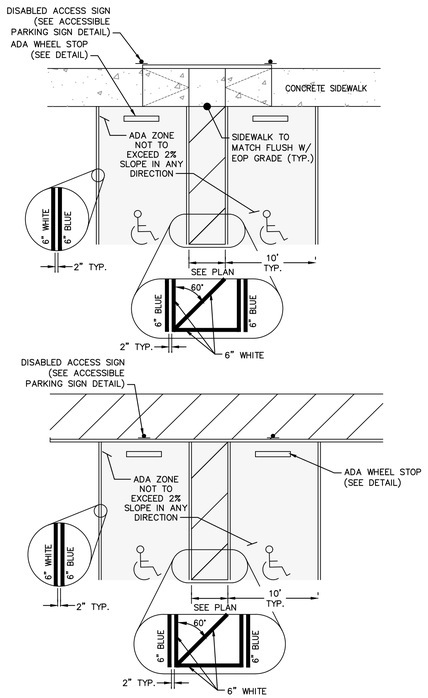
25 ADA PARKING SPACE SIGN
SCALE: NOT TO SCALE



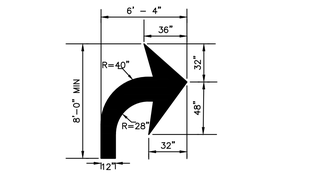
26 ADA PARKING SPACE SYMBOL
SCALE: NOT TO SCALE



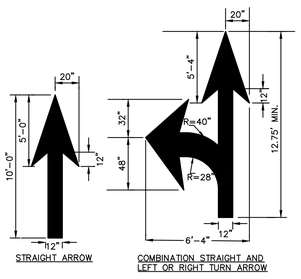
27 STOP BAR
SCALE: NOT TO SCALE



28 ADA PARKING DETAIL
SCALE: NOT TO SCALE

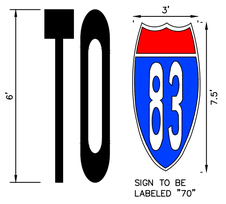


RIGHT OR LEFT TURN ARROW

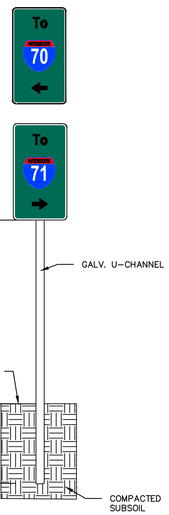


STRAIGHT ARROW
COMBINATION STRAIGHT AND
LEFT OR RIGHT TURN ARROW

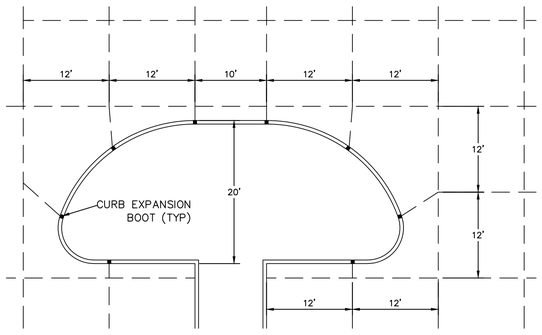
29 PAVEMENT ARROWS
SCALE: NOT TO SCALE

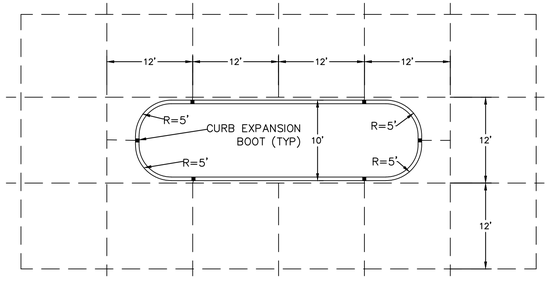


30 "TO INTERSTATE" MARKINGS
SCALE: NOT TO SCALE

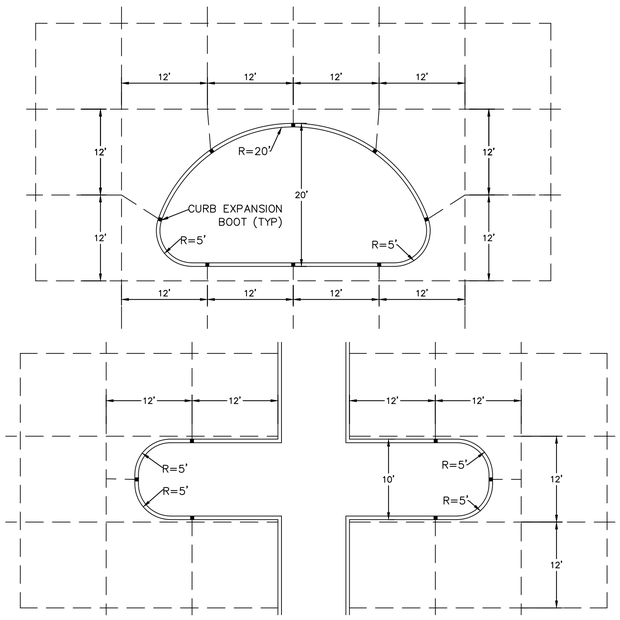


31 "TO INTERSTATE" SIGN
SCALE: NOT TO SCALE





32 CURB BOOT AND JOINT DETAIL (TYP)
SCALE: NOT TO SCALE



NOTE:
1. SOME ADJUSTMENTS FOR BOOT LOCATIONS WILL BE MADE FROM TYPICAL AS NEEDED FOR ALIGNMENT WITH JOINTING PLAN

No.	REVISIONS	DATE	BY

Kimley»Horn

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SCALE: AS NOTED
DESIGNED BY: IC
DRAWN BY: MAN
CHECKED BY: AJS

NOT FOR CONSTRUCTION

BUC-EE'S

BUC-EE'S #71
HUBER HEIGHTS, OH

8000 STATE ROUTE 235
HUBER HEIGHTS, OH 45424

SITE DETAILS

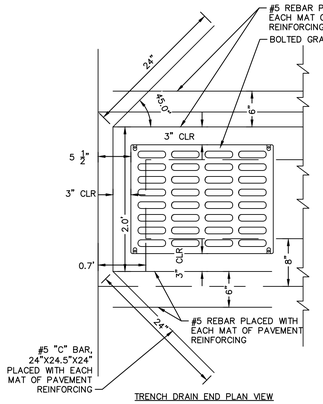
ORIGINAL ISSUE:
04/22/2024

KHA PROJECT NO.
190255000

SHEET NUMBER

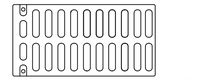
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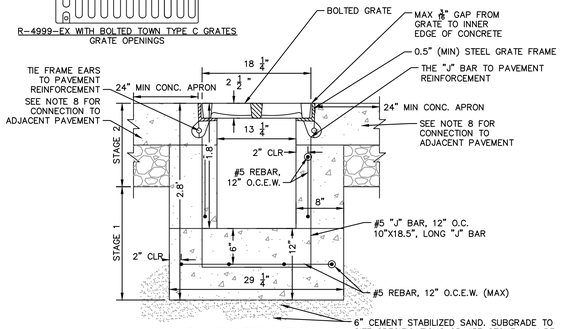


NOTES:
1) ALL LONGITUDINAL TRENCH DRAIN FRAME PIECES ARE TO BE OF CONTINUOUS CONSTRUCTION.
2) THE OVERALL GRATE FRAME IS REQUIRED TO ENCIRCLE THE SPECIFIED NUMBER OF TRENCH GRATES ON ALL SIDES AS ONE FABRICATED PIECE.
3) WELDING REQUIRED FOR SPLICING OF THE FRAME AND FABRICATION OF THE END CAPS MUST BE PERFORMED IN ACCORDANCE WITH SPECIFICATION SECTION 05-5000 METAL FABRICATION.
4) ANY REQUIRED SPLICING OF THE STEEL FRAME REQUIRES THAT THE BOLTED TRENCH GRATE BRIDGE THE SPLICE JOINT.
5) ALL GRATES MUST BE BOLT SECURED AT ALL CORNERS.
6) FRAME AND GRATE BOLT ALIGNMENT MUST BE FIELD ASSEMBLED PRIOR TO PLACEMENT AND CASTING IN CONCRETE.
7) ALL STEEL FRAME EARS ARE TO BE TIED TO PAVEMENT REINFORCEMENT.
8) MINIMUM 24" CONCRETE TO EACH SIDE OF TRENCH DRAIN. INSTALL EXPANSION JOINT (SEE DETAIL) AT CONNECTION TO CONCRETE PAVEMENT.

TRENCH DRAIN END PLAN VIEW

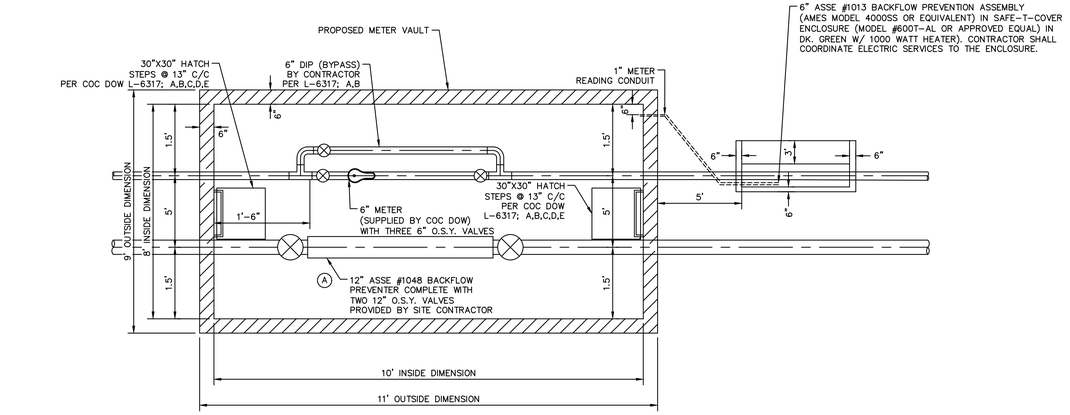


R-4999-EX WITH BOLTED TOWN TYPE C GRATES
GRATE OPENINGS



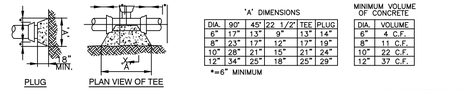
HEAVY DUTY TRENCH GRATE

33 HEAVY DUTY TRENCH GRATE
SCALE: NOT TO SCALE



(A) 1. 12" ASSE #1048 BACKFLOW PREVENTER SHALL INCLUDE A DETECTOR METER THAT MEASURES IN CUBIC FEET, IS AWWA C-700 APPROVED AND IS ITEM 100W (TOWER) EQUIPPED.
2. FIRE PROTECTION SYSTEM USES WATER ONLY. THE SITE DOES NOT HAVE ACCESS TO AN AUXILIARY WATER SYSTEM, AND THE SYSTEM IS NOT SUBJECT TO CHEMICAL ADDITIVES

34 METER VAULT DETAIL – PLAN VIEW
SCALE: NOT TO SCALE



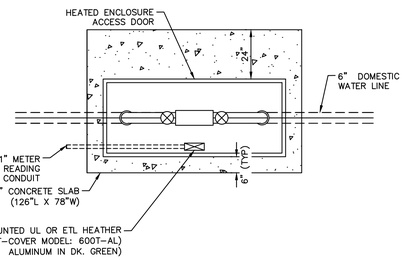
'A' DIMENSIONS					
DIA.	90°	45°	22 1/2°	TEE	PLUG
6"	17"	13"	9"	13"	14"
8"	23"	17"	12"	17"	19"
10"	28"	21"	15"	21"	24"
12"	34"	25"	18"	25"	29"

*=6" MINIMUM

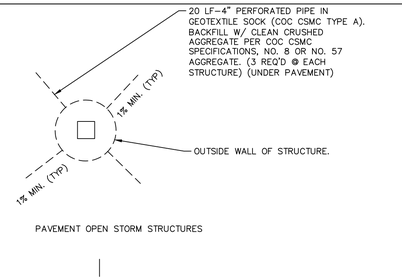
MINIMUM VOLUME OF CONCRETE	
DIA.	VOLUME
6"	4 C.F.
8"	11 C.F.
10"	22 C.F.
12"	37 C.F.

NOTES:
1. CONCRETE, CONCRETE MATERIAL, FORMING, PLACING, FURNISHING, AND CURING FOR THRUST BLOCKS SHALL CONFORM TO THE REQUIREMENTS SET FORTH IN THE SPECIFICATIONS. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE", ACI 318, LATEST EDITION.
2. ALL CONCRETE REINFORCING BARS SHALL HAVE A MINIMUM YIELD STRENGTH OF 60,000 PSI, AND SHALL CONFORM TO THE CURRENT ASTM DESIGNATION A615, "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT". MUST BE INCREASED PROPORTIONALLY.
3. TABLES ARE BASED ON ALLOWABLE EARTH PRESSURE OF 2,500 PSF. IF SOILS ENCOUNTERED AT THE TIME OF EXCAVATION DEMONSTRATE LOWER ALLOWABLE BEARING PRESSURE, THE AREA OF THE BLOCK MUST BE INCREASED PROPORTIONALLY.
4. TABLES APPLY TO PRESSURE IN THE PIPE OF NOT MORE THAN 150 PSI.
5. CONCRETE TO BE 3,500 PSI CONCRETE.
6. ALL THRUST BLOCKS TO BE CARRIED TO UNDISTURBED EARTH.

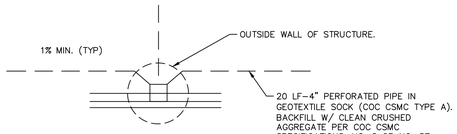
36 THRUST BLOCK DETAIL
SCALE: NOT TO SCALE



35 HOTBOX DETAIL – PLAN VIEW
SCALE: NOT TO SCALE



PAVEMENT OPEN STORM STRUCTURES

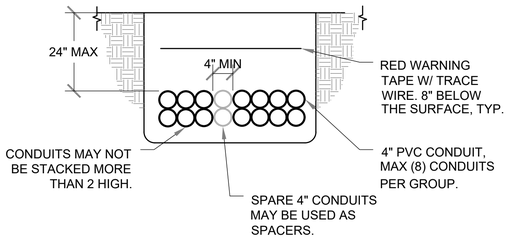


CURB OPEN STRUCTURES

NOTE: WHERE THE DISTANCE FROM THE TOP OF STORM PIPE TO RIM ELEVATIONS EXCEED 4', INSTALL UNDERDRAIN INVERT AT 3' BELOW RIM ELEVATION. IN AREAS WHERE THE DISTANCE FROM THE TOP OF STORM PIPE TO RIM ELEVATIONS ARE LESS THAN 4', INSTALL UNDERDRAIN AT AN ELEVATION AT THE STRUCTURE THAT IS AT THE OUTFLOW PIPE ELEVATION.

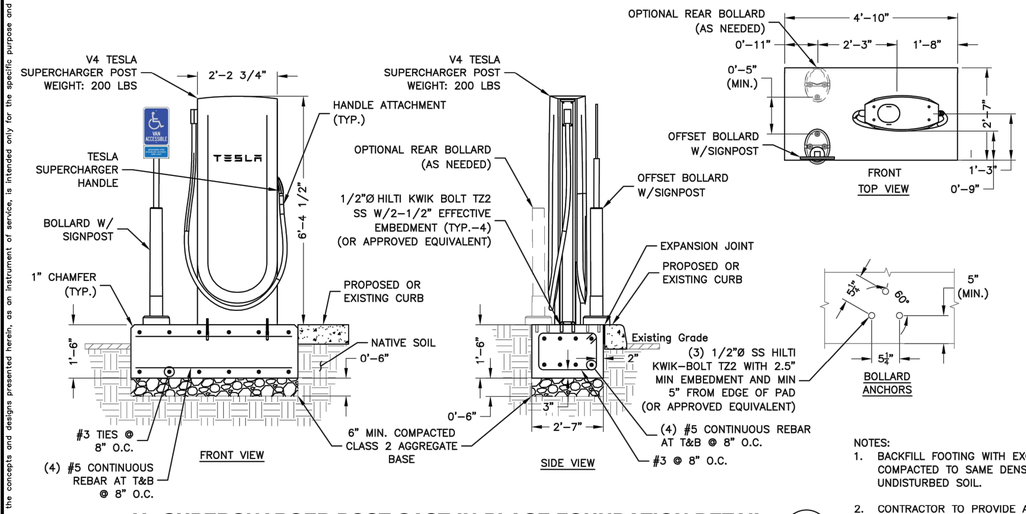
FINGER DRAIN DETAIL AT STORM STRUCTURES
N.T.S.

MAX RHO 90 BACKFILL



AC-SPR

C.5 "AC-PSU" CIRCUIT TRENCH – MAX RHO 90
SCALE: NOT TO SCALE

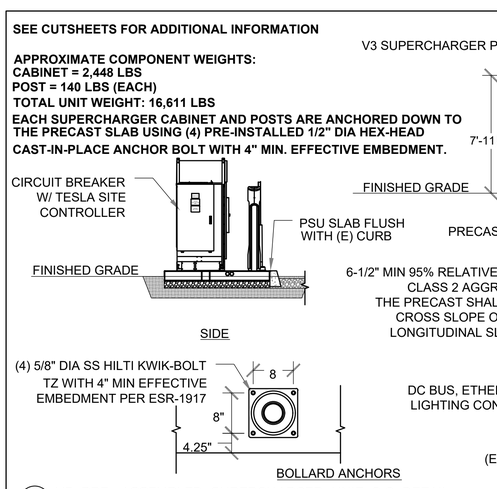


NOTES:
1. BACKFILL FOOTING WITH EXCAVATED SOIL COMPACTED TO SAME DENSITY AS UNDISTURBED SOIL.
2. CONTRACTOR TO PROVIDE A MINIMUM OF 6" OF COMPACTED CRUSHED STONE FOR CAPILLARY BREAK AND CONSTRUCTION CONTROL UNDER ALL CONCRETE SLABS.
3. CONTRACTOR SHALL IDENTIFY POOR DRAINING SOILS AND PROVIDE ADDITIONAL COMPACTED, WELL GRADED COURSE-GRAINED SOIL BACKFILL TO FROST DEPTH. CONTRACTOR TO NOTIFY TESLA CM AND ENGINEER.

V4 SUPERCHARGER POST CAST-IN-PLACE FOUNDATION DETAIL 2
SCALE: N.T.S.

SEE CUTSHEETS FOR ADDITIONAL INFORMATION

APPROXIMATE COMPONENT WEIGHTS:
CABINET = 2,448 LBS
POST = 140 LBS (EACH)
TOTAL UNIT WEIGHT: 16,611 LBS
EACH SUPERCHARGER CABINET AND POSTS ARE ANCHORED DOWN TO THE PRECAST SLAB USING (4) PRE-INSTALLED 1/2" DIA HEX-HEAD CAST-IN-PLACE ANCHOR BOLT WITH 4" MIN. EFFECTIVE EMBEDMENT.



C.7 V3 PRE-ASSEMBLED SUPERCHARGER UNIT 2.0 DETAIL
SCALE: NOT TO SCALE

No.	REVISIONS	DATE	BY

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COLUMBUS, OH 43235
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DESIGNED BY: IC
DRAWN BY: MAN
CHECKED BY: AJS

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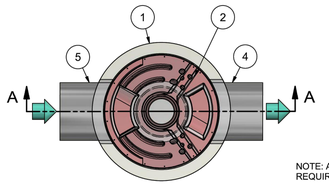
BUC-EE'S

BUC-EE'S #71
HUBER HEIGHTS, OH
8000 STATE ROUTE 235
HUBER HEIGHTS, OH 45424

SITE DETAILS

ORIGINAL ISSUE: 04/22/2024
KHA PROJECT NO. 190255000
SHEET NUMBER
C-14E

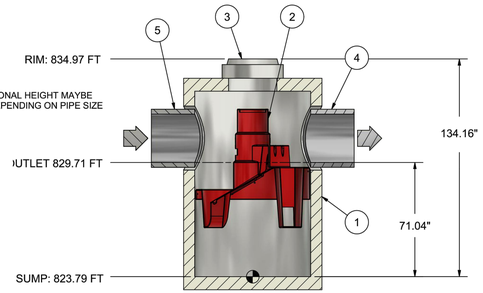
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PLAN VIEW

HYDRO FRAME AND COVER (INCLUDED)

GRADE RINGS BY OTHERS AS REQUIRED



SECTION A-A

PRODUCT SPECIFICATION:
1. PEAK HYDRAULIC FLOW: 32.004 cfs
2. MIN SEDIMENT STORAGE CAPACITY: 1.6 yd3
3. OIL STORAGE CAPACITY: 496.12 gal
4. MAXIMUM INLET/OUTLET PIPE DIAMETERS: 30 in. (750 mm)
5. THE TREATMENT SYSTEM SHALL USE AN INDUCED VORTEX TO SEPARATE POLLUTANTS FROM STORMWATER RUNOFF.

GENERAL NOTES:
1. General Arrangement drawings only. Contact Hydro International for site specific drawings.
2. The diameter of the inlet and outlet pipes may be no more than 30".
3. Multiple inlet pipes possible (refer to project plan).
4. Inlet/outlet pipe angle can vary to align with drainage network (refer to project plan.s)
5. Peak flow rate and minimum height limited by available cover and pipe diameter.
6. Larger sediment storage capacity may be provided with a deeper sump depth.

PARTS LIST		
ITEM	DESCRIPTION	SIZE (in)
1	I.D. PRECAST MANHOLE	72
2	INTERNAL COMPONENTS (PRE-INSTALLED)	
3	FRAME AND COVER (ROUND)	30
4	OUTLET PIPE (BY OTHERS)	30
5	INLET PIPE (BY OTHERS)	30

ANY WARRANTY GIVEN BY HYDRO INTERNATIONAL WILL APPLY ONLY TO THOSE ITEMS SUPPLIED BY IT. ACCORDINGLY HYDRO INTERNATIONAL CANNOT ACCEPT ANY RESPONSIBILITY FOR ANY STRUCTURE, PLANT, OR EQUIPMENT, (OR THE PERFORMANCE THERE OF) DESIGNED, BUILT, MANUFACTURED, OR SUPPLIED BY ANY THIRD PARTY. HYDRO INTERNATIONAL HAVE A POLICY OF CONTINUOUS DEVELOPMENT AND RESERVE THE RIGHT TO AMEND THE SPECIFICATION. HYDRO INTERNATIONAL CANNOT ACCEPT LIABILITY FOR PERFORMANCE OF ITS EQUIPMENT, (OR ANY PART THEREOF), IF THE EQUIPMENT IS SUBJECT TO CONDITIONS OUTSIDE ANY DESIGN SPECIFICATION. HYDRO INTERNATIONAL OWNS THE COPYRIGHT OF THIS DRAWING, WHICH IS SUPPLIED IN CONFIDENCE. IT MUST NOT BE USED FOR ANY PURPOSE OTHER THAN THAT FOR WHICH IT IS SUPPLIED AND MUST NOT BE REPRODUCED, IN WHOLE OR IN PART, WITHOUT PRIOR PERMISSION IN WRITING FROM HYDRO INTERNATIONAL.

PROJECTION

IF IN DOUBT ASK

COMMENTS:
1. MANHOLE WALL AND SLAB THICKNESSES ARE NOT TO SCALE.

2. CONTRACTOR TO CONFIRM RIM, PIPE INVERTS, PIPE DIA. AND PIPE ORIENTATION PRIOR TO RELEASE OF UNIT TO FABRICATION.

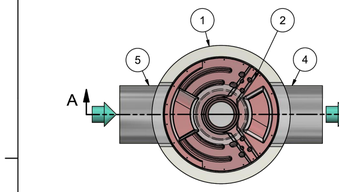
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DRAWN BY: ER CHECKED BY: APPROVED BY
Title: 6 FT FIRST DEFENSE® HIGH CAPACITY
Site: Buc-ee's Huber Heights #71
Structure No: D34

Hydro International, A CRH COMPANY, hydro-int.com, HYDRO INTERNATIONAL

WEIGHT: N/A MATERIAL:
REFERENCE NUMBER: 24_12_0649
DRAWING NO.:
SHEET SIZE: B SHEET: 1 OF 1 Rev: -

isabella.culliton@kimley

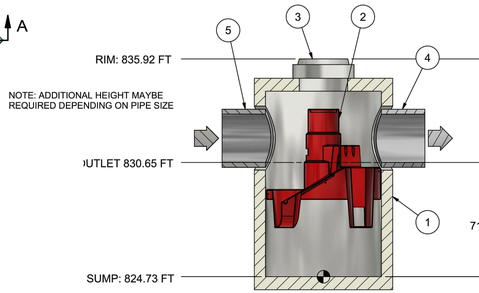
37 D34 OIL WATER SEPARATOR DETAIL
SCALE: NOT TO SCALE



PLAN VIEW

HYDRO FRAME AND COVER (INCLUDED)

GRADE RINGS BY OTHERS AS REQUIRED



SECTION A-A

PRODUCT SPECIFICATION:
1. PEAK HYDRAULIC FLOW: 32.004 cfs
2. MIN SEDIMENT STORAGE CAPACITY: 1.6 yd3
3. OIL STORAGE CAPACITY: 496.12 gal
4. MAXIMUM INLET/OUTLET PIPE DIAMETERS: 30 in. (750 mm)
5. THE TREATMENT SYSTEM SHALL USE AN INDUCED VORTEX TO SEPARATE POLLUTANTS FROM STORMWATER RUNOFF.

GENERAL NOTES:
1. General Arrangement drawings only. Contact Hydro International for site specific drawings.
2. The diameter of the inlet and outlet pipes may be no more than 30".
3. Multiple inlet pipes possible (refer to project plan).
4. Inlet/outlet pipe angle can vary to align with drainage network (refer to project plan.s)
5. Peak flow rate and minimum height limited by available cover and pipe diameter.
6. Larger sediment storage capacity may be provided with a deeper sump depth.

PARTS LIST		
ITEM	DESCRIPTION	SIZE (in)
1	I.D. PRECAST MANHOLE	72
2	INTERNAL COMPONENTS (PRE-INSTALLED)	
3	FRAME AND COVER (ROUND)	30
4	OUTLET PIPE (BY OTHERS)	30
5	INLET PIPE (BY OTHERS)	30

ANY WARRANTY GIVEN BY HYDRO INTERNATIONAL WILL APPLY ONLY TO THOSE ITEMS SUPPLIED BY IT. ACCORDINGLY HYDRO INTERNATIONAL CANNOT ACCEPT ANY RESPONSIBILITY FOR ANY STRUCTURE, PLANT, OR EQUIPMENT, (OR THE PERFORMANCE THERE OF) DESIGNED, BUILT, MANUFACTURED, OR SUPPLIED BY ANY THIRD PARTY. HYDRO INTERNATIONAL HAVE A POLICY OF CONTINUOUS DEVELOPMENT AND RESERVE THE RIGHT TO AMEND THE SPECIFICATION. HYDRO INTERNATIONAL CANNOT ACCEPT LIABILITY FOR PERFORMANCE OF ITS EQUIPMENT, (OR ANY PART THEREOF), IF THE EQUIPMENT IS SUBJECT TO CONDITIONS OUTSIDE ANY DESIGN SPECIFICATION. HYDRO INTERNATIONAL OWNS THE COPYRIGHT OF THIS DRAWING, WHICH IS SUPPLIED IN CONFIDENCE. IT MUST NOT BE USED FOR ANY PURPOSE OTHER THAN THAT FOR WHICH IT IS SUPPLIED AND MUST NOT BE REPRODUCED, IN WHOLE OR IN PART, WITHOUT PRIOR PERMISSION IN WRITING FROM HYDRO INTERNATIONAL.

PROJECTION

IF IN DOUBT ASK

COMMENTS:
1. MANHOLE WALL AND SLAB THICKNESSES ARE NOT TO SCALE.

2. CONTRACTOR TO CONFIRM RIM, PIPE INVERTS, PIPE DIA. AND PIPE ORIENTATION PRIOR TO RELEASE OF UNIT TO FABRICATION.

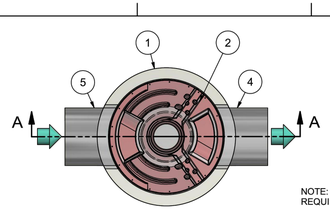
DATE: 3/15/2024 SCALE: NTS
DRAWN BY: ER CHECKED BY: APPROVED BY
Title: 6 FT FIRST DEFENSE® HIGH CAPACITY
Site: Buc-ee's Huber Heights
Structure No: D50

Hydro International, A CRH COMPANY, hydro-int.com, HYDRO INTERNATIONAL

WEIGHT: N/A MATERIAL:
REFERENCE NUMBER: 24_12_0649
DRAWING NO.:
SHEET SIZE: B SHEET: 1 OF 1 Rev: -

isabella.culliton@kimley

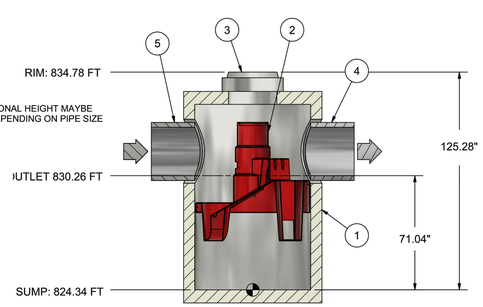
38 D50 OIL WATER SEPARATOR DETAIL
SCALE: NOT TO SCALE



PLAN VIEW

HYDRO FRAME AND COVER (INCLUDED)

GRADE RINGS BY OTHERS AS REQUIRED



SECTION A-A

PRODUCT SPECIFICATION:
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2. MIN SEDIMENT STORAGE CAPACITY: 1.6 yd3
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PROJECTION

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DATE: 2/29/2024 SCALE: NTS
DRAWN BY: ER CHECKED BY: APPROVED BY
Title: 6 FT FIRST DEFENSE® HIGH CAPACITY
Site: Buc-ee's Huber Heights #71
Structure No: D84

Hydro International, A CRH COMPANY, hydro-int.com, HYDRO INTERNATIONAL

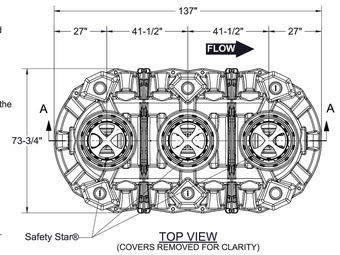
WEIGHT: N/A MATERIAL:
REFERENCE NUMBER: 24_12_0649
DRAWING NO.:
SHEET SIZE: B SHEET: 1 OF 1 Rev: -

isabella.culliton@kimley

39 D84 OIL WATER SEPARATOR DETAIL
SCALE: NOT TO SCALE

SPECIFICATIONS

Notes:
1. 6" plain end inlet/outlet
2. Unit weight - w/ cast iron covers: 1,290 lbs. (for wet weight add 12,525 lbs.)
3. Maximum operating temperature: 150° F continuous
4. Capacities - Liquid: 1,500 gal.;
   Grease: 10,061 lbs. (1,379 gal.) @100GPM
   Grease: 9,446 lbs. (1,294 gal.) @200GPM
   Solids: 318 gal.
5. Satisfies Miami DERM 99% efficiency requirements; retaining the following capacities at 99% efficiency:
   9,897 lbs. (1,356 gal.) @100GPM
   8,093 lbs. (1,109 gal.) @200GPM
6. For gravity drainage applications only.
7. Do not use for pressure applications.
8. Cover placement allows full access to tank for proper maintenance.
9. Vent not required unless per local code.
10. Engineered inlet and outlet diffusers with inspection ports are removable to inspect / clean piping.
11. Integral air relief / Anti-siphon / Sampling access.
12. Adjustable cover adapters provide up to 4" of additional height.
13. Designed for below-grade, above-grade, indoor or outdoor installations.
14. Safety Star®, access restrictor built into each cover adapter, prevents accidental entry to tanks (450 lb rating).



TOP VIEW
(COVERS REMOVED FOR CLARITY)



ISOMETRIC VIEW

ENGINEER SPECIFICATION GUIDE

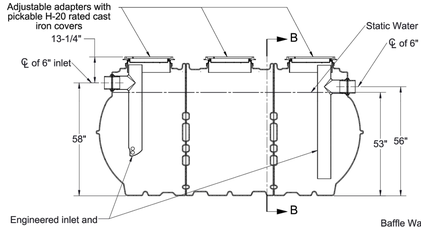
Schier Great Basin™ grease interceptor model # GB-1500 shall be lifetime guaranteed and made in USA of seamless, molded polyethylene with minimum 7/16" uniform wall thickness. Interceptor shall be furnished for above or below-grade installation with adjustable cover adapter and Safety Star® access restrictor built into each cover adapter. Interceptor shall be certified to ASME A112.14.3 (Type D) and CSA B481.1 as well as certified to IAPMO/ANSI Z1001-2021. Interceptor flow rate shall be 100 GPM or 200 GPM. Interceptor grease capacity shall be 10,061 lbs. Cover shall provide water/gas-tight seal and have minimum 16,000 lbs. load capacity.

CERTIFIED PERFORMANCE

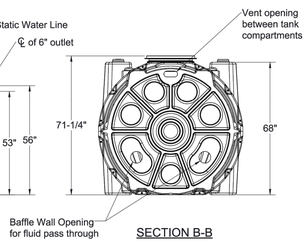
Great Basin™ hydromechanical grease interceptors are third party performance-tested and listed by IAPMO to ASME #A112.14.3 and CSA B481.1 grease interceptor standards and greatly exceed requirements for grease separation and storage. They are compliant to the Uniform Plumbing Code and the International Plumbing Code.

Type D certification does not require a flow control

MIAMI-DADE COUNTY — Satisfies Miami DERM 99% efficiency requirements. Product labels are permanently attached to inside and outside of unit for easy viewing.



SECTION A-A



SECTION B-B

SPECIFICATION SHEET

MODEL NUMBER: GB-1500

PART NUMBER: 4085-001-01

DESCRIPTION: GB-1500 GREASE INTERCEPTOR 100 GPM / 200 GPM 6" PLAIN INLET/OUTLET, H-20 CAST IRON COVER

PROPRIETARY AND CONFIDENTIAL
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF SCHIER PRODUCTS. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF SCHIER PRODUCTS IS PROHIBITED.

DWG BY: T.ASAY | DATE: 12/13/2022 | REV: B | ECO: 012623CS

UPC ® UPC C ®

SCHIER
6455 Woodland Dr
Shawnee, KS 66218
Tel: 913-951-3300
Fax: 913-951-3399
schierproducts.com

40 GREASE INTERCEPTOR DETAIL
SCALE: NOT TO SCALE

No.	REVISIONS	DATE	BY

Kimley»Horn

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COLUMBUS, OH 43235
PHONE: 614-846-0599
WWW.KIMLEY-HORN.COM

SCALE: AS NOTED
DESIGNED BY: IC
DRAWN BY: MAN
CHECKED BY: AJS

NOT FOR CONSTRUCTION

BUC-EE'S

BUC-EE'S #71
HUBER HEIGHTS, OH

8000 STATE ROUTE 235
HUBER HEIGHTS, OH 45424

SITE DETAILS

ORIGINAL ISSUE: 04/22/2024
KHA PROJECT NO. 190255000
SHEET NUMBER
C-14F

Drawing name: K:\CLB_LDC\190255000_Buc-ees_HuberHeights_OH\2 Design\CAD\PlanSheets\Development Plan\SITE DETAILS.dwg C-14F SITE DETAILS Apr 22, 2024 9:51am by: drew.gilmour
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EXHIBIT C

MONTGOMERY COUNTY

STORM SEWERS
MINIMUM AND MAXIMUM COVER OVER SEWERS

SIZE	ASTM SPEC. NO.				
	C-76 CL. 1 (FT.)	C-76 CL. 2 (FT.)	C-76 CL. 3 (FT.)	C-76 CL. 4 (FT.)	C-76 CL. 5 (FT.)
12"		4-8	3-14	2-30	2-40
15"		3.5-8	3-14	2-30	2-40
18"		3.5-8	3-13	2-30	2-40
21"		3.5-9	2.5-15	2-30	2-40
24"		3-10	2.5-16	2-30	1.5-40
27"		3-10	2.5-17	2-30	1.5-40
30"		3-11	2.5-17	1.5-30	1.5-40
36"		2.5-11	2.0-17	1.5-30	1.0-40
42"		2.5-10	2.0-15	1.0-30	1.0-40
48"		2.5-10	2.0-15	1.0-30	1.0-40
54"		2.0-10	1.5-15	1.0-30	1.0-40
60"	2.5-8	2.0-11	1.5-15	1.0-30	1.0-40
66"	2.5-8	2.0-11	1.0-16	1.0-30	1.0-40
72"	2.0-8	1.5-11	1.0-16	1.0-30	1.0-40
78"	2.0-9	1.5-11	1.0-17	1.0-30	1.0-40
84"	2.0-9	1.5-11	1.0-17	1.0-30	1.0-40
90"	2.0-9	1.5-12	1.0-17	1.0-30	1.0-40
96"	1.5-9	1.0-12	1.0-17	1.0-30	1.0-40
102"	1.5-9	1.0-12	1.0-17	1.0-30	1.0-40

Drawing name: K:\OLB_LDEV\190255000_Buc-ees_HuberHeights_OH\2 Design\CAD\PlanSheets\Development Plan\SITE DETAILS.dwg C-14G SITE DETAILS Apr 22, 2024 9:52am by drew.gilmour
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DESIGNED BY: IC
DRAWN BY: MAN
CHECKED BY: AJS

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BUC-EE'S

BUC-EE'S #71
HUBER HEIGHTS, OH
8000 STATE ROUTE 235
HUBER HEIGHTS, OH 45424

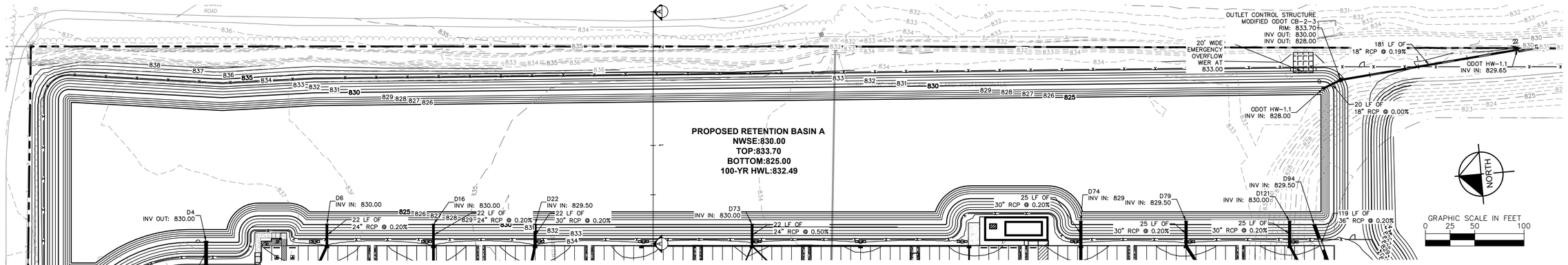
SITE DETAILS

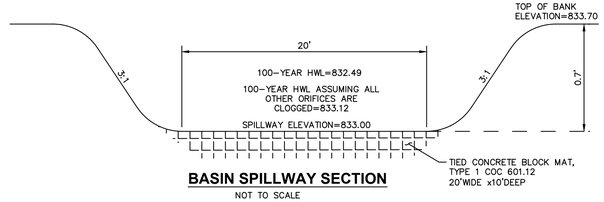
ORIGINAL ISSUE:
04/22/2024

KHA PROJECT NO.
190255000

SHEET NUMBER

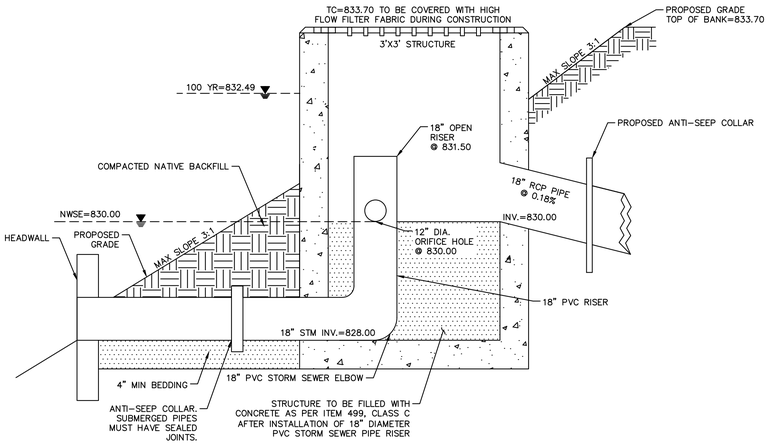
C-14G





BASIN SPILLWAY SECTION

NOT TO SCALE



PROPOSED EXTENDED WET DETENTION BASIN OUTLET DETAIL FOR STRUCTURE D2

NOT TO SCALE

LEGEND

- XXX — PROPOSED CONTOUR
- XXX — EXISTING CONTOUR
- PROPOSED STORM SEWER LINE
- PROPOSED OPEN LID STORM STRUCTURE
- PROPOSED CLOSED LID STORM STRUCTURE
- PROPOSED OPEN LID CURB STRUCTURE

WATER QUALITY VOLUME

SUBWATERSHED DRAINAGE AREA = 40.32 AC

SUBWATERSHED IMPERVIOUS AREA = 40.32 AC

Rv = 0.05 + 0.009 * i = 0.95

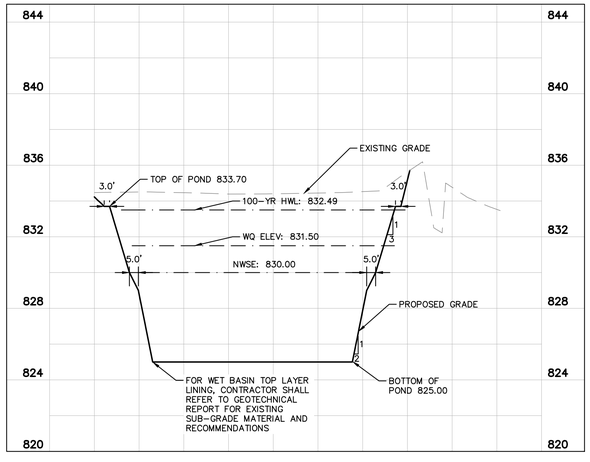
WQv = Rv * P * A

WQv REQUIRED = 0.95 * 0.90" * 12.79 AC /12 = 2.87 AC-FT

WQv PROVIDED = 7.13 AC-FT @ 831.50

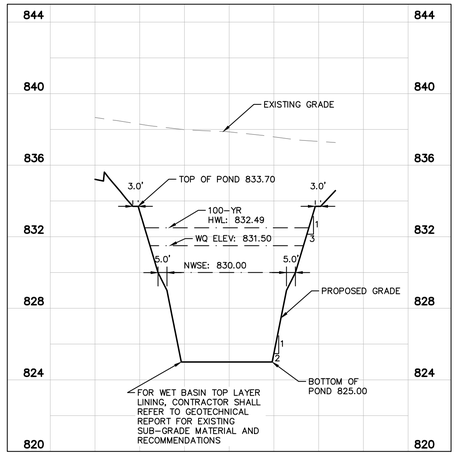
Storm Event (YR)	Pre-Developed Watershed A Peak Flow Rates (CFS) [A]	Pre-Developed Watershed A.1 (Offsite Pass-Thru) (CFS) [B]	Allowable Post-Developed Release Rates (CFS) [A]+[B]	Proposed Release Rates (CFS)	Proposed Basin A Elevation
1	20.41	2.65	23.06	2.96	831.13
2	25.80	3.18	23.59	3.32	831.27
5	39.28	4.45	24.86	4.44	831.60
10	49.44	5.38	25.79	5.65	831.80
25	62.01	6.49	26.90	6.01	832.09
50	70.55	7.24	77.79	6.56	832.27
100	81.37	8.18	89.55	7.19	832.49

BASIN A RELEASE RATES



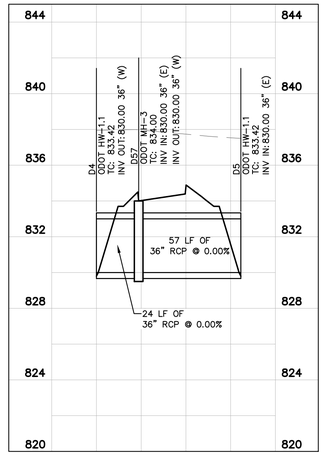
POND A SECTION A-A

H: 1"=50', V: 1"=5'



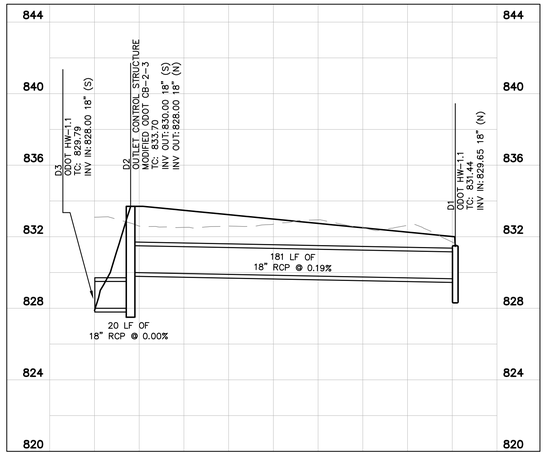
POND A SECTION B-B

H: 1"=50', V: 1"=5'



STORM SEWER D174-RD97 PROFILE

HORIZ SCALE: 1"=30'
VERT SCALE: 1"=3'



STORM SEWER D174-RD97 PROFILE

HORIZ SCALE: 1"=30'
VERT SCALE: 1"=3'

NOT FOR CONSTRUCTION

BUC-EE'S #71
HUBER HEIGHTS, OH

8000 STATE ROUTE 235
HUBER HEIGHTS, OH 45424

BASIN DETAIL

ORIGINAL ISSUE: 04/22/2024

KHA PROJECT NO. 190255000

SHEET NUMBER C-14H

Kimley»Horn

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SCALE: AS NOTED | DESIGNED BY: IC | DRAWN BY: MAN | CHECKED BY: AJS

No.	REVISIONS	DATE	BY

Drawing name: K:\CLB_LBR\190255000_Buc-ees_HuberHeights_OH\2 Design\CAD\PlanSheets\Development Plan\BASIN DETAIL.dwg C-14F BASIN DETAIL Apr 22, 2024 9:52am by: drew.gilmour
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PROPOSED SURFACE vs 835 OUTSIDE EXISTING 835 CONTOUR (AREAS 2 & 3)			
Number	Minimum Elevation	Maximum Elevation	Color
1	-10.000	0.000	
2	0.000	3.000	

	VOLUME (CY)
AREA 1	26,349 (FILL)
AREA 2	20,350 (CUT)
AREA 3	7,717 (CUT)
NET	1,718 (CUT)

EXISTING SURFACE VS PROPOSED SURFACE WITHIN EXISTING 835 CONTOUR (AREA 1)			
Number	Minimum Elevation	Maximum Elevation	Color
1	-9.000	-6.000	
2	-6.000	-3.000	
3	-3.000	0.000	
4	0.000	3.000	
5	3.000	6.000	
6	6.000	9.000	
7	9.000	12.000	
8	12.000	15.000	

NORTH

GRAPHIC SCALE IN FEET
0 40 80 160

BASIN A NWSE 830.00

BASIN A NWSE 830.00

BASIN A NWSE 830.00

MIAMI CONSERVANCY DISTRICT EASEMENT LIMITS (EXISTING 835 CONTOUR)

MIAMI CONSERVANCY DISTRICT EASEMENT LIMITS (EXISTING 835 CONTOUR)

MIAMI CONSERVANCY DISTRICT EASEMENT LIMITS (EXISTING 835 CONTOUR)

MIAMI CONSERVANCY DISTRICT EASEMENT LIMITS (EXISTING 835 CONTOUR)

AREA 1: EXISTING SURFACE VS PROPOSED SURFACE WITHIN EXISTING 835 CONTOUR (26,349 CY FILL)

AREA 2: PROPOSED SURFACE vs 835 OUTSIDE EXISTING 835 CONTOUR (20,350 CY CUT)

AREA 3: PROPOSED SURFACE vs 835 OUTSIDE EXISTING 835 CONTOUR (7,717 CY CUT)

PROPOSED BUILDING FFE 836.00

EXISTING POND ORDINARY HIGH WATER LEVEL 823.00

EXISTING POND

GRAVEL ROAD

GRAVEL ROAD

CENTER POINT 70 BLVD

ARTZ RD

S.R. 235

I-70 RAMP

INTERSTATE 70 WESTBOUND OFF RAMP

CENTERLINE OF NORTHBOUND STATE ROUTE 235

GRASS AREA

GRASS AREA

RIGHT-OF-WAY LINE

RIGHT-OF-WAY LINE

RIGHT-OF-WAY LINE

RIGHT-OF-WAY LINE

RIGHT-OF-WAY LINE

ARTZ ROAD
LE WIDTH PUBLIC RIGHT-OF-WAY

ORIGINAL CENTERLINE OF STATE ROUTE 69 (NEW CARLISE PIKE)

SURVEY 2003-215

ITEM 21
BENEFITED PROPERTY
DEED 84-007I A01

OAK TREE

SAN

SAN

Drawing name: K:\CLE_LDE\V\190255000_Buc-ees_Huberheights_OH\2 Design\CAD\PrintSheets\Development Plan\PROPOSED MCD EASEMENT EXHIBIT.dwg Layout1 Apr 22, 2024 9:52am by: drew.gilmour

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No.	REVISIONS	DATE	BY

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PHONE: 614-459-2939
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CHECKED BY: AJS

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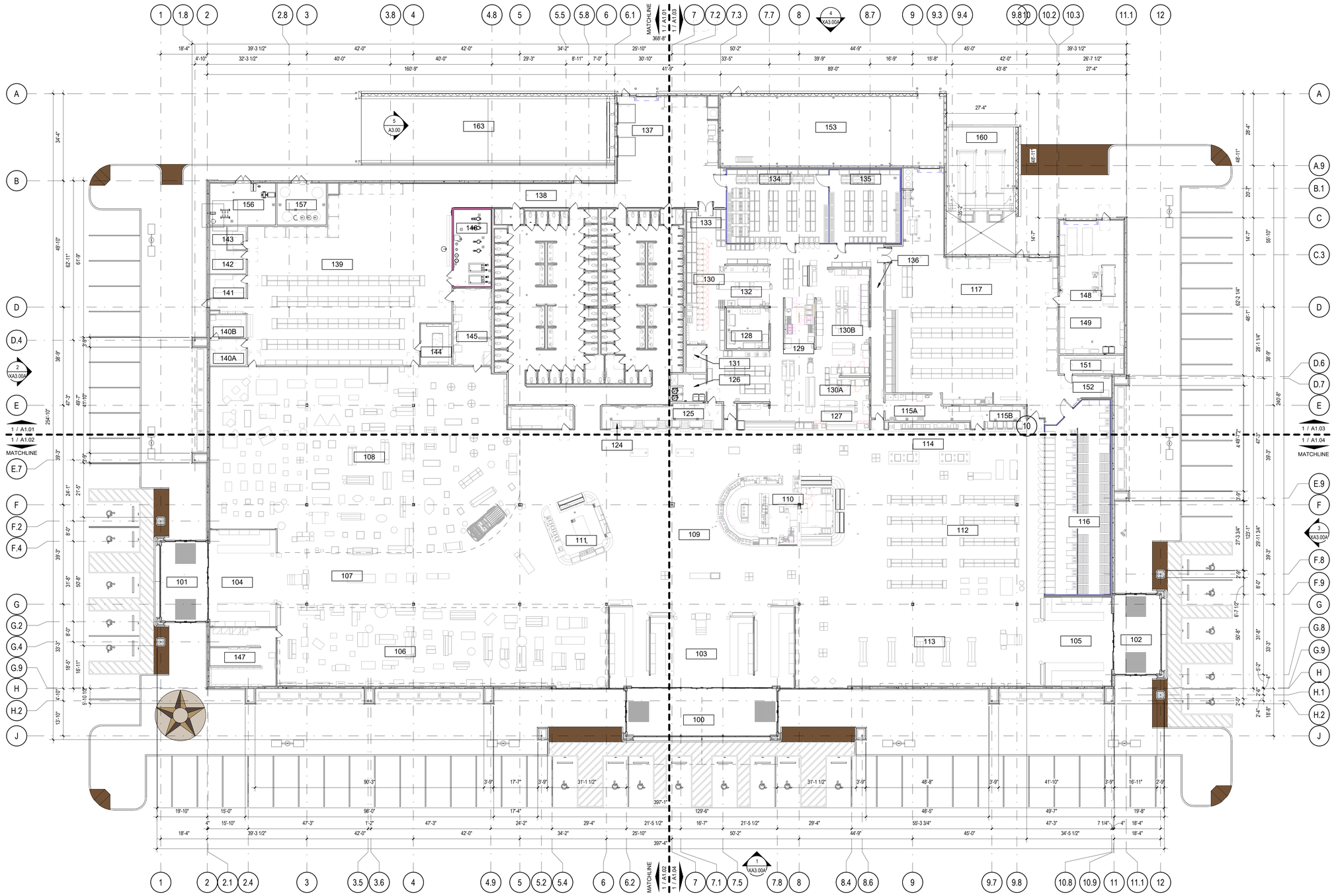
BUC-EE'S

MCD CONSERVATION AREA EARTHWORK EXHIBIT

BUC-EE'S #71
HUBER HEIGHTS, OH

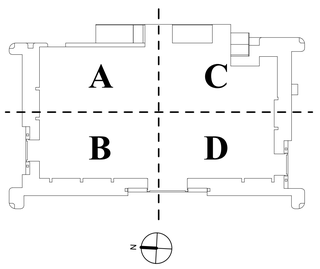
8000 STATE ROUTE 235
HUBER HEIGHTS, OH 45424

ORIGINAL ISSUE: 04/22/2024
KHA PROJECT NO. 190255000
SHEET NUMBER
C-14I



1 FLOOR PLAN - OVERALL 1/16" = 1'-0"

KEY PLAN



ROOM NAME INDEX

NUMBER	ROOM NAME
100	VESTIBULE 1
101	VESTIBULE 2
102	VESTIBULE 3
103	CASHIERS 1
104	CASHIERS 2
105	CASHIERS 3
106	GIFT SALES 1
107	GIFT SALES RUNWAY
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111	SWEET STREET
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113	SPECIALTY FOODS SALES
114	COFFEE AREA
115A	COFFEE SUPPLY ROOM
115B	ICEE STORAGE ROOM
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117	CONVENIENCE WAREHOUSE
118	RESTROOM HALLWAY
119	FUDGE & NUT STORAGE
120	WOMEN'S RESTROOM
121	WOMEN'S MOP ROOM
122	MEN'S RESTROOM
123	MEN'S MOP ROOM
124	FOUNTAIN

NUMBER	ROOM NAME
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126	KITCHEN MOP ROOM
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NUMBER	ROOM NAME
148	ICE ROOM
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157	FILTER ROOM
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GENERAL NOTES

1. EXTERIOR DIMENSIONS ARE TO CENTERLINE OF COLUMNS OR FACE OF STOREFRONT.
2. DIMENSIONS ARE TO FACE OF SLAB, FACE OF TILT-WALL, FACE OF CMU WALL, FACE OF STUD AT INTERIOR AND EXTERIOR WALLS, UNLESS OTHERWISE NOTED.
3. SIDEWALKS AT DOORS SHALL BE FLUSH WITH FINISHED FLOOR ELEVATION.
4. SLOPE ALL EXIT CONC. PADS & WALKS TO DRAIN AWAY FROM BUILDING RE: CIVIL
5. THE CONTRACTOR AND ALL SUB-CONTRACTORS SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO PERFORMING ANY WORK AND SHALL NOTIFY THE ARCHITECT IMMEDIATELY OF ANY CONDITIONS THAT MAY EXIST THAT ARE NOT COVERED ON THESE PLANS.
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11. PROVIDE DOUBLE STUDS, BLOCKING, BRACING AND STEEL BACK-UP. PLATES REQUIRED TO SUPPORT EQUIPMENT, MISCELLANEOUS ITEMS, E.G. CASEWORK, CABINETS, GRAB BARS, TOILET ACCESSORIES, FIXTURES, SIGNS, HAND RAILING, ETC. TYPICAL.
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15. DO NOT SCALE DRAWINGS.

BUC-EE'S

A DEVELOPMENT OF

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LAWRENCE S. LEVINSON, A.I.A.

7800 Washington Ave., Suite 600
main: 713.600.3600
Houston, TX 77007
www.laarc.com

ISSUE/REVISION LOG:

No.	DESCRIPTION	DATE

STATE OF OHIO · LAWRENCE S. LEVINSON · 9912268 · REGISTERED ARCHITECT

04/05/2024

LAWRENCE S. LEVINSON, AIA: LIC.# 9912268
EXP. DATE: 12/31/2025

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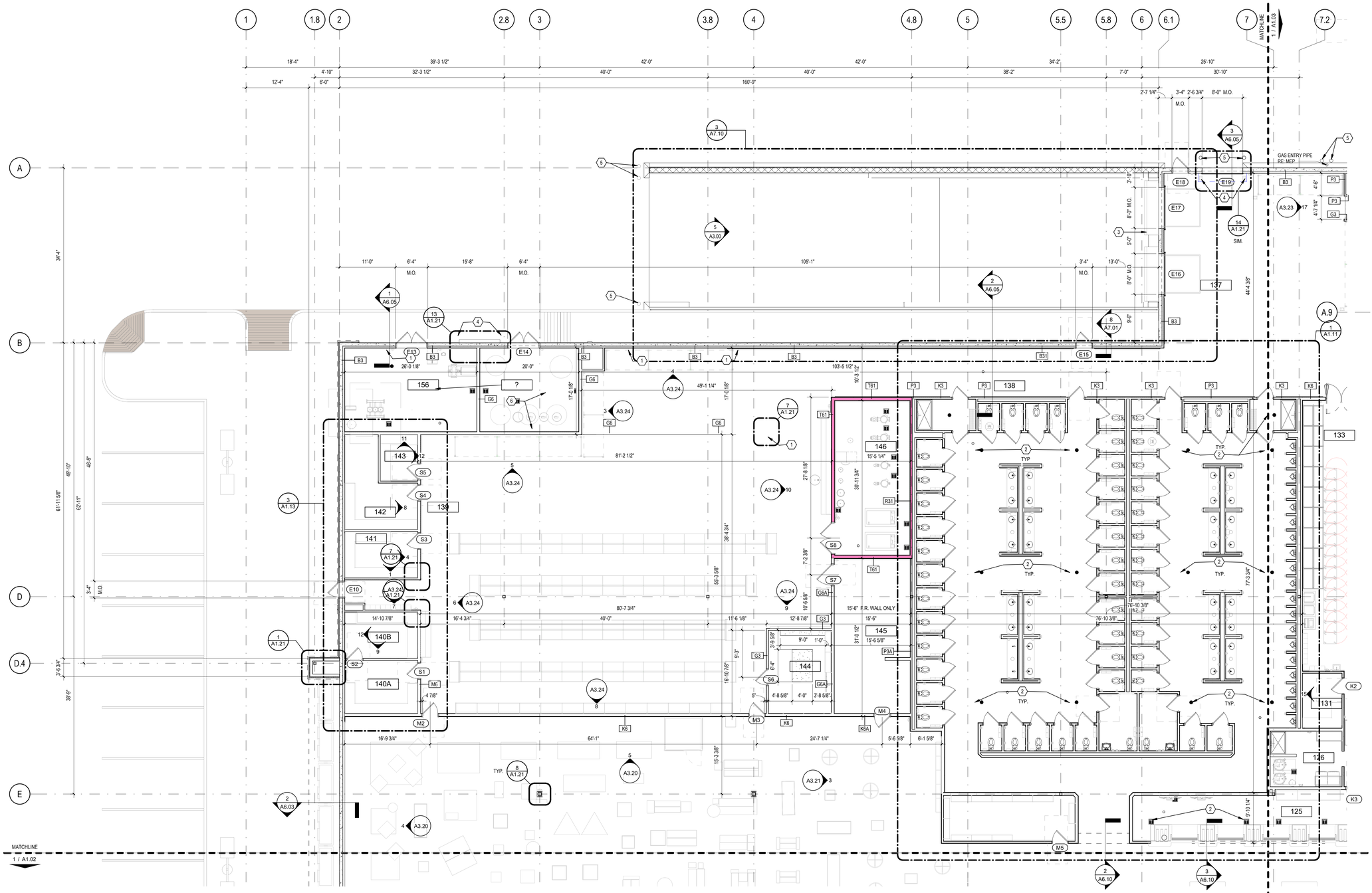
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FLOOR PLAN OVERALL

LAARC PROJECT NUMBER: 2024-100.000

HUBER HEIGHTS, OHIO

Autodesk Docs://71-Buc-ee's Huber Hts-OH (R)/BUC-EES_HUBER HEIGHTS OH_ARCH.rvt



1 FLOOR PLAN - AREA A

1/8" = 1'-0"

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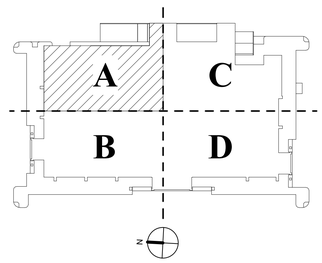
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- CONCRETE TILT-WALL CONSTRUCTION RE: STRUCT.
- WALL PARTITION AS SCHEDULED
- SCHEDULED FURRING PARTITION ON CONCRETE TILT-WALL CONSTRUCTION
- INSULATED COOLER/FREEZER WALL PANELS (TOWNHALL TAN)
- NOMINAL 8" CONCRETE MASONRY UNIT CONSTRUCTION RE: STRUCT.
- ALUMINUM & GLASS STOREFRONT
- U.L. FIRE RATED WALL ASSEMBLY
- STEEL COLUMNS RE: STRUCT.
- COLUMN GRID INDICATOR

KEYED NOTES

1. FIRE SPRINKLER RISER
2. FLOOR DRAINS & SINKS. RE: PLUMBING
3. TRENCH DRAINS RE: CIVIL
4. CONCRETE FILLED STEEL PIPE BOLLARD W/ STEEL BASE PLATE - RE: 12 / A1.21
5. CONCRETE FILLED STEEL PIPE BOLLARD. RE: CIVIL BOLLARD DETAIL
6. 6x6x3/8 STEEL ANGLE PALLET STOPS W/ VERTICAL REINFORCMENT. PAINT SAFETY YELLOW.

KEY PLAN



BUC-EE'S

A DEVELOPMENT OF

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Montgomery County, Ohio

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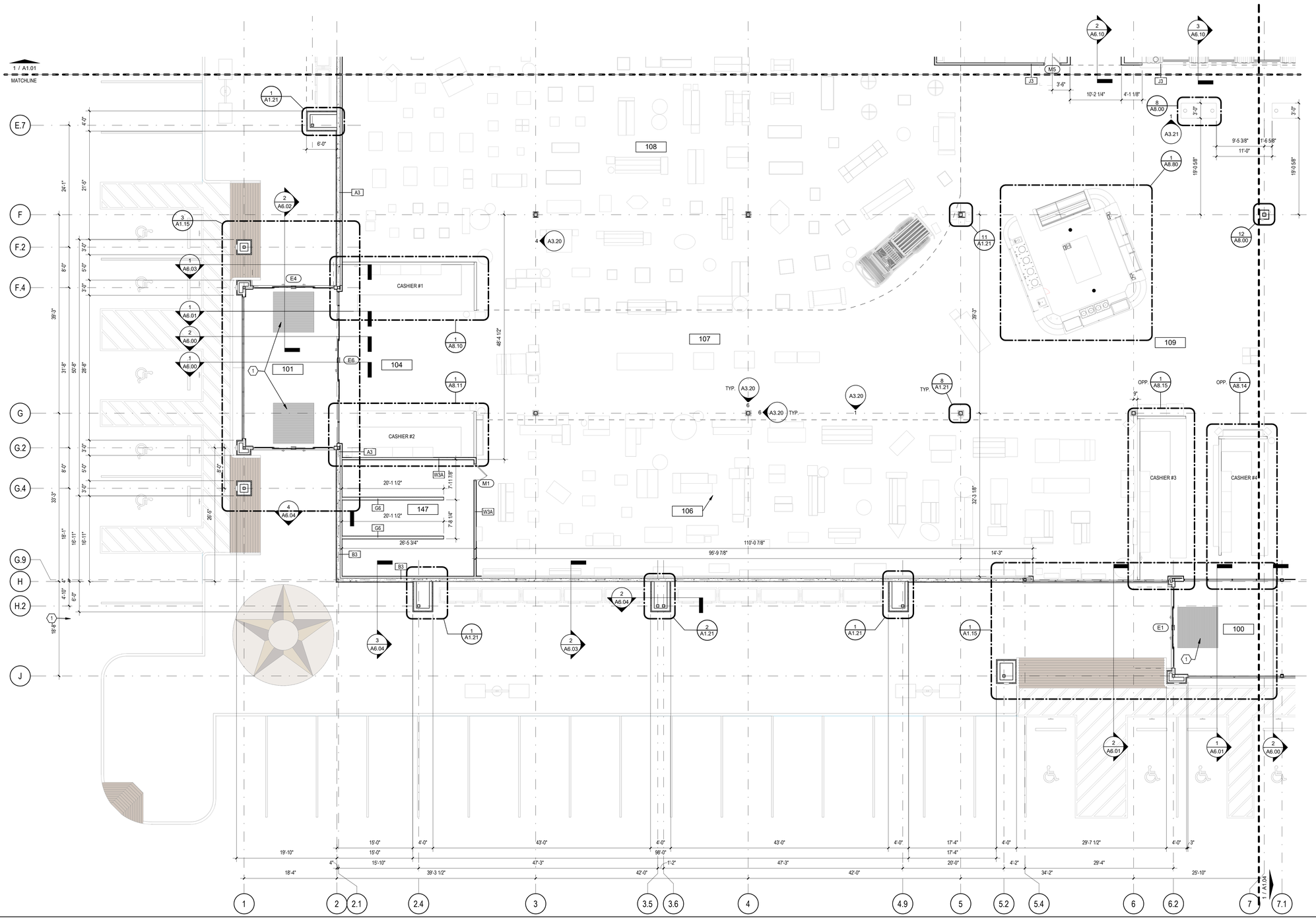
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FLOOR PLAN AREA A

LAARC PROJECT NUMBER: 2024-100.000

HUBER HEIGHTS, OHIO

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1 FLOOR PLAN - AREA B

1/8" = 1'-0"

ROOM NAME INDEX

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101	VESTIBULE 2
102	VESTIBULE 3
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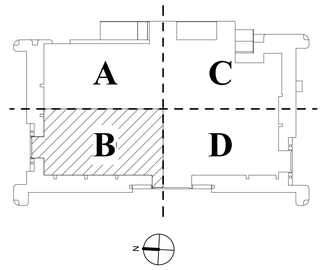
PLAN LEGEND

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- SCHEDULED FURRING PARTITION ON CONCRETE TILT-WALL CONSTRUCTION
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- ALUMINUM & GLASS STOREFRONT
- STEEL COLUMNS RE: STRUCT.

KEYED NOTES

1. RECESSED WALK-OFF MAT. RE: 13 / A7.01
2. FLOOR DRAINS & SINKS. RE: PLUMBING

KEY PLAN



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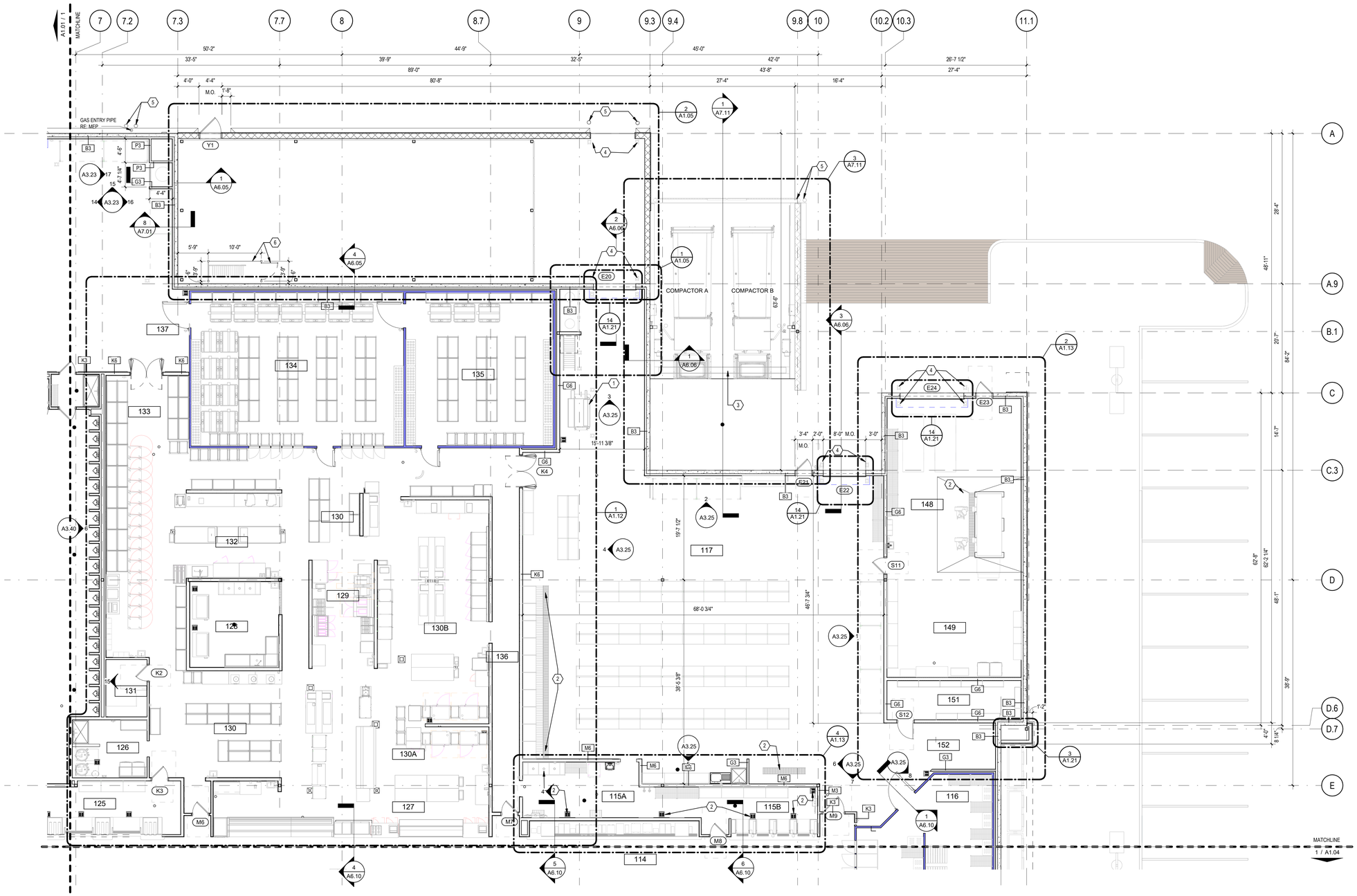
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FLOOR PLAN AREA B

LAARC PROJECT NUMBER: 2024-100.000

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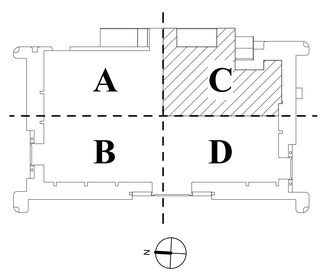
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- NOMINAL 8" CONCRETE MASONRY UNIT CONSTRUCTION RE: STRUCT.
- ALUMINUM & GLASS STOREFRONT
- U.L. FIRE RATED WALL ASSEMBLY
- STEEL COLUMNS RE: STRUCT.
- (x) COLUMN GRID INDICATOR

KEYED NOTES

1. BALER AS SCHEDULED
2. TRENCH DRAINS RE: PLUMBING
3. TRENCH DRAINS RE: CIVIL
4. CONCRETE FILLED STEEL PIPE BOLLARD W/ STEEL BASE PLATE - RE: 12 / A1.21
5. CONCRETE FILLED STEEL PIPE BOLLARD. RE: CIVIL BOLLARD DETAIL
6. CHAIN LINK FENCE & GATE. RE: 11 / A3.02, 12 / A3.02 & 13 / A3.02

KEY PLAN



BUC-EE'S

A DEVELOPMENT OF

Buc-ee's Huber Heights, LLC
Montgomery County, Ohio

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74K - R - 2024 - Q2

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Houston, TX 77007
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ISSUE/REVISION LOG:

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04/05/2024

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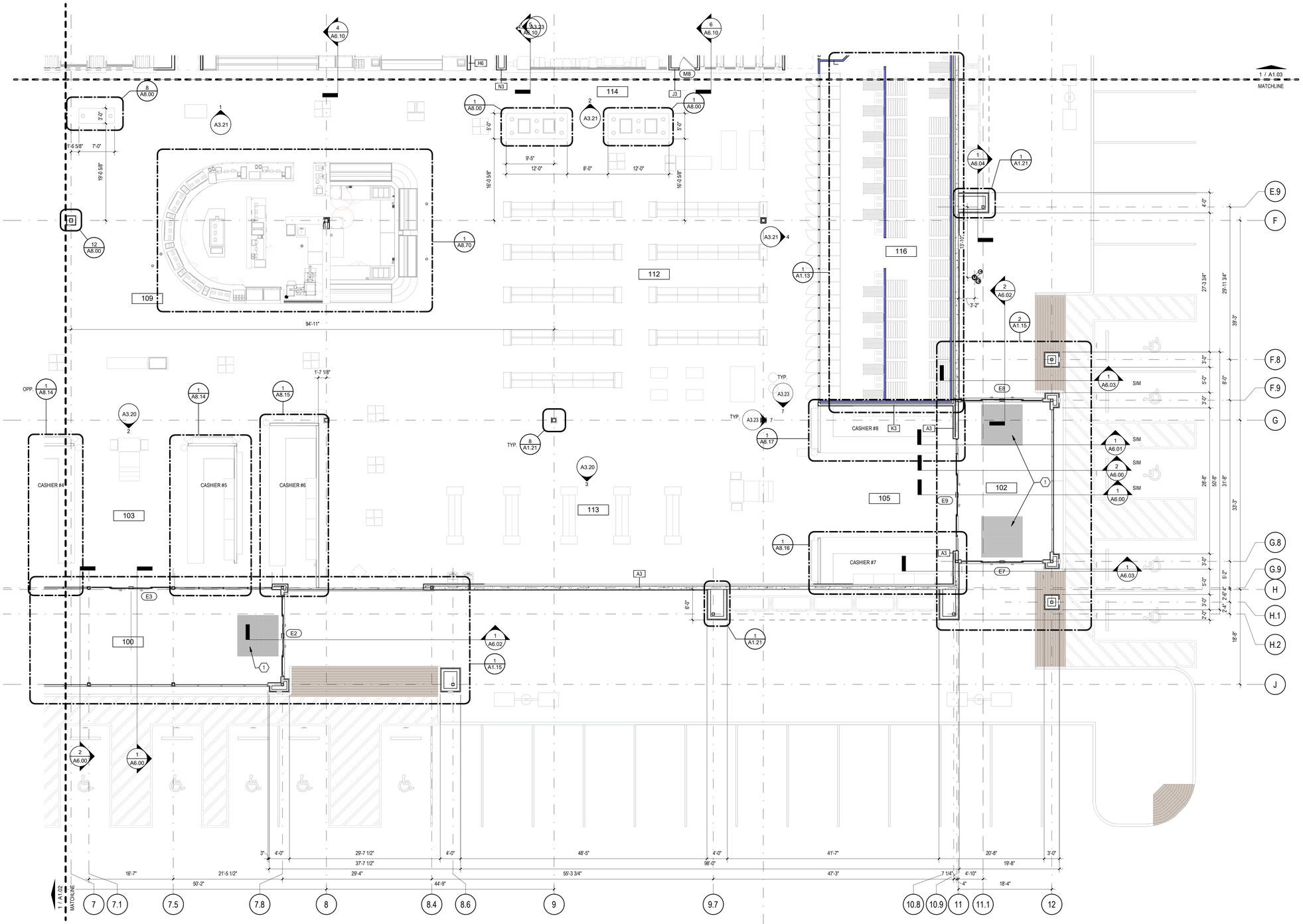
A1.03

FLOOR PLAN AREA C

LAARC PROJECT NUMBER: 2024-100.000

HUBER HEIGHTS, OHIO

Autodesk Docs://71-Buc-ee's Huber Hts-OH (R)/BUC-EES_HUBER HEIGHTS OH_ARCH.rvt



1 FLOOR PLAN - AREA D 1/8" = 1'-0"

ROOM NAME INDEX

NUMBER	ROOM NAME
100	VESTIBULE 1
101	VESTIBULE 2
102	VESTIBULE 3
103	CASHIERS 1
104	CASHIERS 2
105	CASHIERS 3
106	GIFT SALES 1
107	GIFT SALES RUNWAY
108	GIFT SALES 2
109	SALES
110	TEXAS ROUND UP
111	SWEET STREET
112	CONVENIENCE STORE SALES
113	SPECIALTY FOODS SALES
114	COFFEE AREA
115A	COFFEE SUPPLY ROOM
115B	ICEE STORAGE ROOM
116	BEVERAGE COOLER
117	CONVENIENCE WAREHOUSE
118	RESTROOM HALLWAY
119	FUDGE & NUT STORAGE
120	WOMEN'S RESTROOM
121	WOMEN'S MOP ROOM
122	MEN'S RESTROOM
123	MEN'S MOP ROOM
124	FOUNTAIN

NUMBER	ROOM NAME
125	FOUNTAIN STORAGE ROOM
126	KITCHEN MOP ROOM
127	VENDING COUNTER
128	WARE WASH
129	FRY STATION
130	KITCHEN
130A	BAKERY
130B	TRU PREP
131	DELI MANAGER
132	PRODUCE PREP
133	KITCHEN RECEIVING
134	WALK-IN COOLER
135	WALK-IN FREEZER
136	KITCHEN HALLWAY
137	TRUCK DOCK RECEIVING
138	WAREHOUSE HALLWAY
139	MERCHANDISE STORAGE
140A	STORE MANAGER
140B	ADMIN. CLERK
141	ONBOARDING OFFICE
142	MERCHANDISE MANAGER
143	D.M. OFFICE
144	IT ROOM
145	ELECTRICAL ROOM
146	CHILLER PUMP ROOM
147	FUEL ALLEY

NUMBER	ROOM NAME
148	ICE ROOM
149	TOOL ROOM
151	CIGARETTE STORAGE
152	ELECTRICAL ALCOVE
153	BALE STORAGE
154	CHILLER YARD ENCLOSURE
156	PUMP ROOM
157	FILTER ROOM
160	COMPACTOR ENCLOSURE
161	GENERATOR ENCLOSURE
162	EQUIPMENT MEZZANINE
163	TRUCK DOCK

GENERAL NOTES

1. EXTERIOR DIMENSIONS ARE TO CENTERLINE OF COLUMNS OR FACE OF STOREFRONT.
2. DIMENSIONS ARE TO FACE OF SLAB, FACE OF TILT-WALL, FACE OF CMU WALL, FACE OF STUD AT INTERIOR AND EXTERIOR WALLS, UNLESS OTHERWISE NOTED.
3. SIDEWALKS AT DOORS SHALL BE FLUSH WITH FINISHED FLOOR ELEVATION.
4. SLOPE ALL EXT CONC. PADS & WALKS TO DRAIN AWAY FROM BUILDING RE: CIVIL.
5. THE CONTRACTOR AND ALL SUB-CONTRACTORS SHALL VERIFY ALL EXISTING CONDITIONS PRIOR TO PERFORMING ANY WORK AND SHALL NOTIFY THE ARCHITECT IMMEDIATELY OF ANY CONDITIONS THAT MAY EXIST THAT ARE NOT COVERED ON THESE PLANS.
6. THE CONTRACTOR AND ALL SUB-CONTRACTORS SHALL NOT DAMAGE ANY INSTRUMENTS OR EQUIPMENT DURING THE COURSE OF THIS PROJECT.
7. THE CONTRACTOR AND ALL SUB-CONTRACTORS SHALL RETURN ANY INSTRUMENTS OR EQUIPMENT THAT ARRIVES DAMAGED.
8. SEAL ALL PENETRATIONS THROUGH FIRE RATED ASSEMBLIES W/ U.L. FIRE RATED ASSEMBLIES FOR TYPE OF PENETRATION AND CONSTRUCTION.
9. METAL STUD FRAMING SHALL BE 18 GA. @ 16" O.C. UNLESS NOTED OTHERWISE. RE: STRUCTURAL FOR DETAILS.
10. BUILDING HEIGHTS AND ELEVATIONS SHALL BE MEASURED FROM FINISH FLOOR.
11. PROVIDE DOUBLE STUDS, BLOCKING, BRACING AND STEEL BACK-UP PLATES REQUIRED TO SUPPORT EQUIPMENT. MISCELLANEOUS ITEMS, E.G. CASEWORK, CABINETS, GRAB BARS, TOILET ACCESSORIES, FIXTURES, SIGNS, HAND RAILING, ETC. TYPICAL ALL SYMBOLS, ABBREVIATIONS, AND NOTES MARKED "TYPICAL" OR "TYP." SHALL APPLY IN ALL SIMILAR CIRCUMSTANCES.
12. EXTERIOR FINISHES SHALL BE PLUMB AND ALIGNED AS INDICATED ON THE BUILDING ELEVATIONS.
13. EXTERIOR WOOD BLOCKING AND NAILERS SHALL BE PRESSURE TREATED.
14. DO NOT SCALE DRAWINGS.

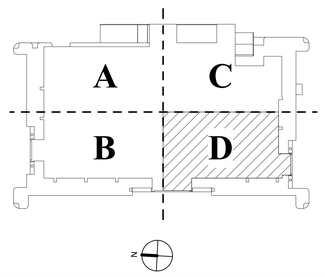
PLAN LEGEND

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- ALUMINUM & GLASS STOREFRONT
- STEEL COLUMNS RE: STRUCT.

KEYED NOTES

1 RECESSED WALK-OFF MAT. RE: 13 / A7.01

KEY PLAN



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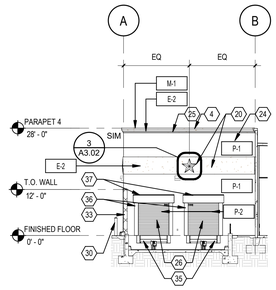
A1.04

FLOOR PLAN AREA D

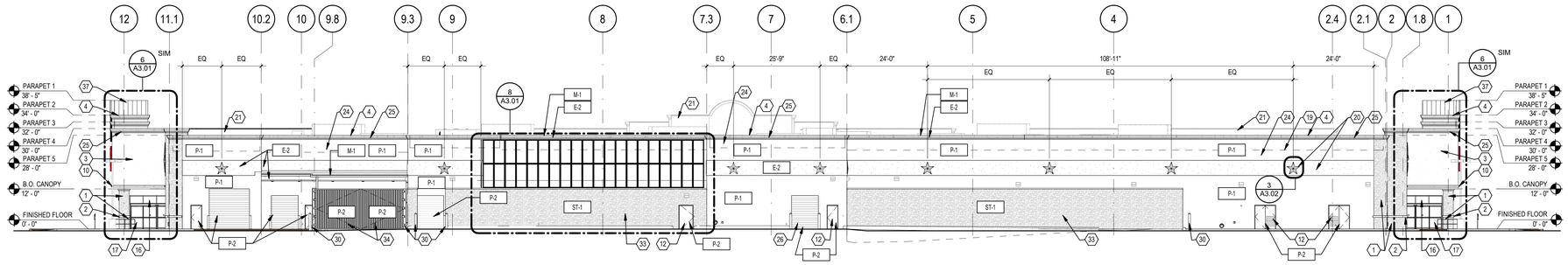
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HUBER HEIGHTS, OHIO

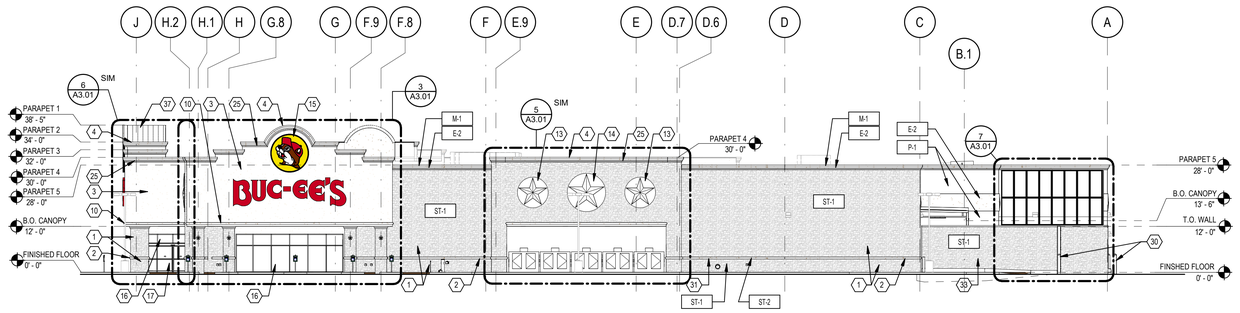
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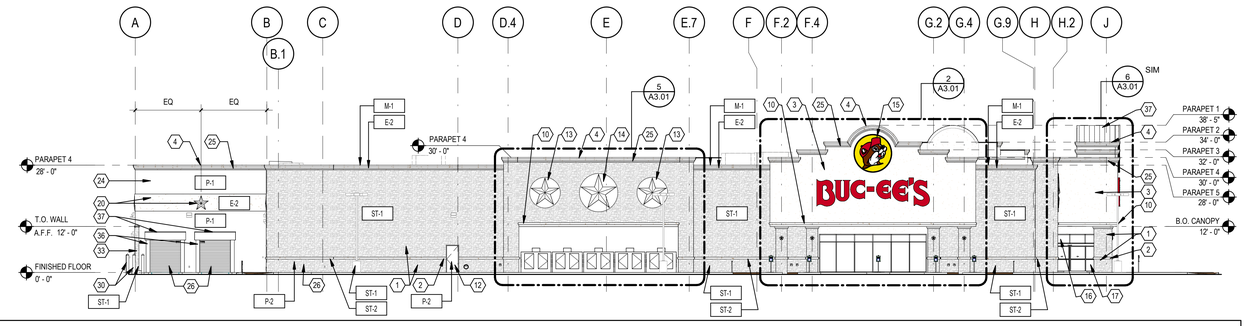
5 | EXT. ELEV. - LOADING DOCK | 1/16" = 1'-0"



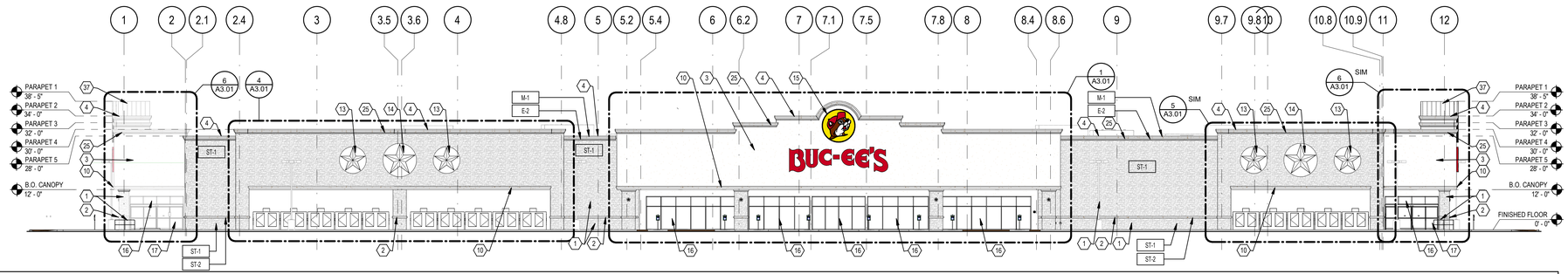
4 | EXTERIOR ELEVATION - EAST | 1/16" = 1'-0"



3 | EXTERIOR ELEVATION - SOUTH | 1/16" = 1'-0"



2 | EXTERIOR ELEVATION - NORTH | 1/16" = 1'-0"



1 | EXTERIOR ELEVATION - WEST | 1/16" = 1'-0"

ELEVATION - KEYED NOTES

1. SYNTHETIC STONE
2. 6" BULLNOSE
3. 1 1/2" EIFS MECHANICALLY FASTENED OVER SHEATHING AND FRAMING. RE: TRUCTURAL DWG'S.
4. PRE-FINISH METAL TRIM CAP.
5. SECURITY CAMERA'S BY SECURITY CONSULTANT
6. GASOLINE DISPENSER BY FUEL SYSTEM CONTRACTOR
7. 6" DIAMETER HORSESHOE PIPE GUARD BOLLARDS. TYPICAL.
8. 8' DIA. BUC-EE'S SIGN BY SIGN CONTRACTOR. PROVIDE ELECTRICAL POWER TO THE SIGNS. RE: ELECTRICAL DWG'S
9. TRASH CANS BY OWNER
10. 6" EIFS BULLNOSE.
11. RE: FUEL CANOPY DWGS. FOR HSS2"X12" STEEL CANOPY COLUMNS (NOT SHOWN)
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24. ARCHITECTURAL HIGH PERFORMANCE COATING.
25. EIFS CORNICE
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36. DOCK SEALS
37. METAL HOOD
37. STANDING SEAM METAL ROOF.
38. 1'-0" DIAMETER PRESHAPED STAR MEDALLION.
39. MECHANCIAL EQUIPMENT SCREEN PANEL. RE: 1 / A3.03
40. STEEL STRUCTURE FOR MECHANCIAL EQUIPMENT PLATFORM. RE: STRUCTURAL
41. TERMINATE EIFS BAND BEHIND EQUIPMENT SCREEN.

NOT ALL NOTES ARE USED ON THIS SHEET

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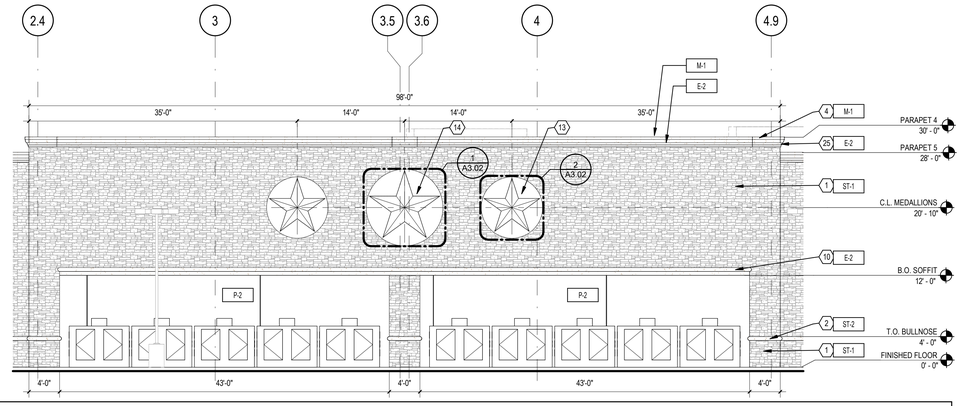
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EXTERIOR ELEVATIONS

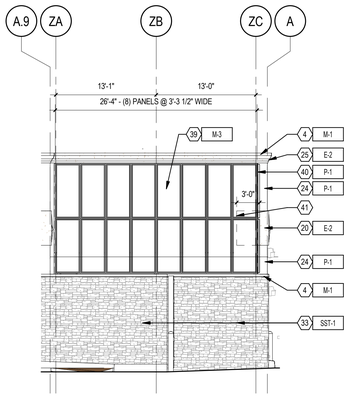
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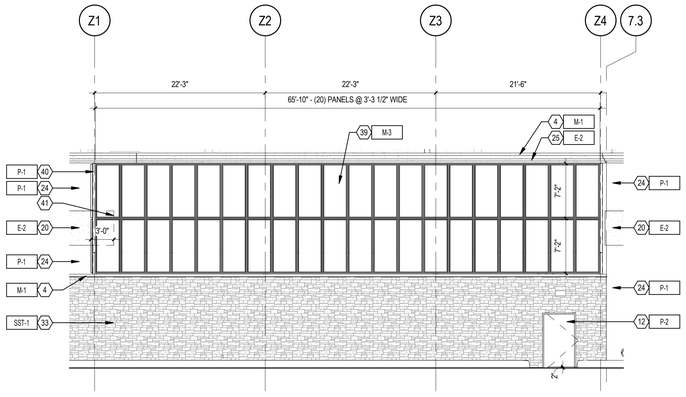
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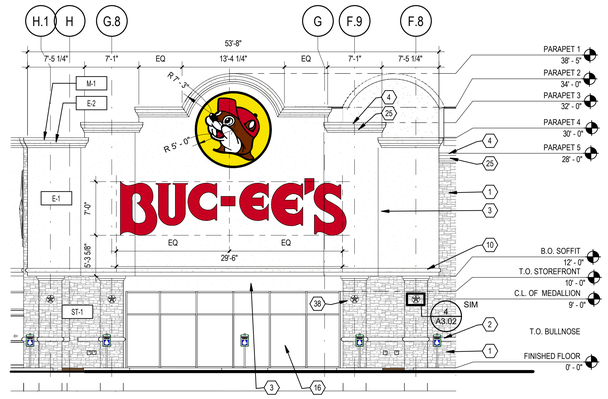
4 ENLARGED EXTERIOR ELEVATION - LARGE ICE MERCHANDISER 1/8" = 1'-0"



7 EQUIPMENT SCREEN 1/8" = 1'-0"



8 ENLARGED EXTERIOR ELEVATION - EQUIPMENT SCREEN 1/8" = 1'-0"

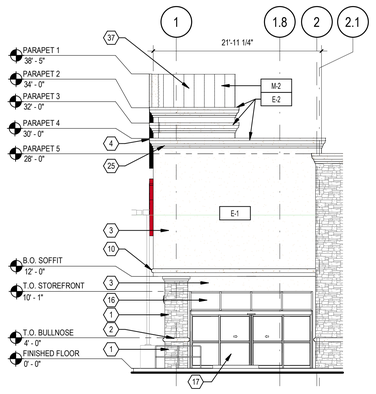


3 ENLARGED EXTERIOR ELEVATION - CONVENIENCE SALES ENTRANCE 1/8" = 1'-0"

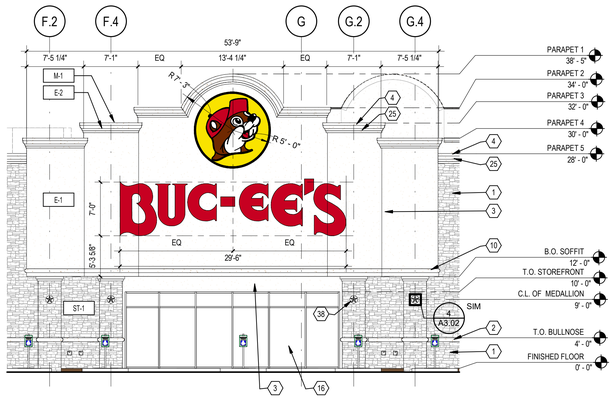
ELEVATION - KEYED NOTES

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2. 6" BULLNOSE
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27. HI-LO ADA ACCESSIBLE DRINKING FOUNTAIN RE: PLUMBING
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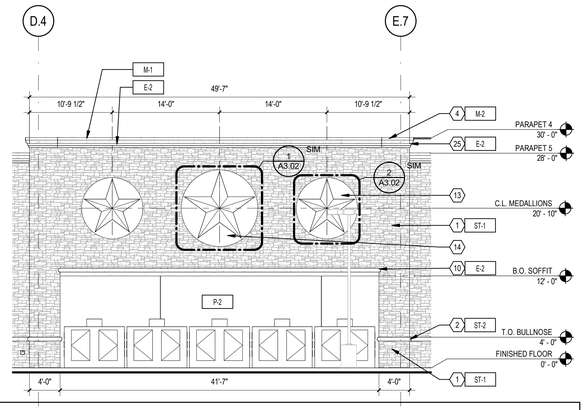
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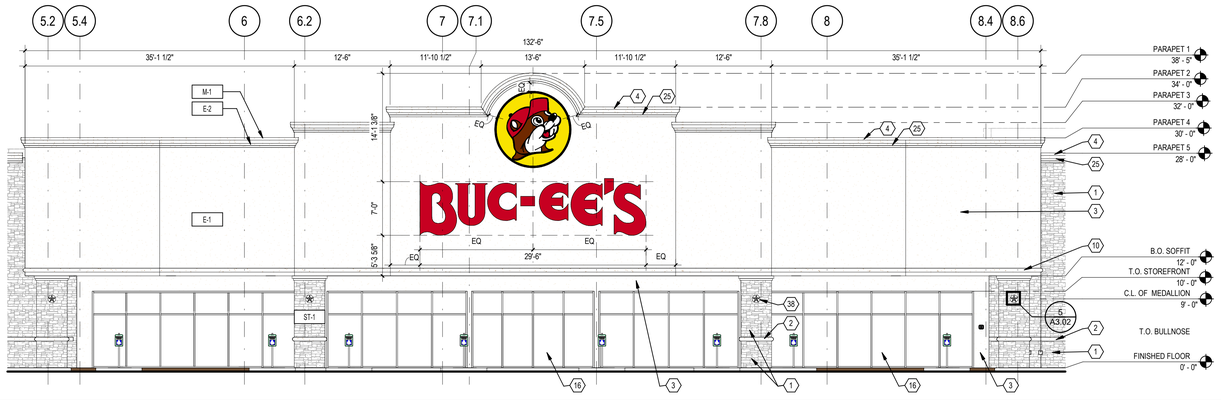
6 TYPICAL SIDE VIEW 1/8" = 1'-0"



2 ENLARGED EXTERIOR ELEVATION - MERCHANDISE SALES ENTRANCE 1/8" = 1'-0"



5 ENLARGED EXTERIOR ELEVATION - TYPICAL ICE MERCHANDISER 1/8" = 1'-0"



1 ENLARGED EXTERIOR ELEVATION - MAIN ENTRANCE 1/8" = 1'-0"

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ENLARGED EXTERIOR ELEVATIONS

LAARC PROJECT NUMBER: 2024-100.000

HUBER HEIGHTS, OHIO

SR-235 TRAVEL CENTER

Interchange Operations Study (IOS)

Huber Heights, Ohio

March, 2024







Prepared for:

ODOT District 7

Kimley»Horn

Contents

INTRODUCTION 5

NO BUILD CONDITIONS 7

Area Land Uses and Existing Roadway Characteristics 7

Traffic Volume Assumptions 8

ANALYSIS 9

Capacity Analysis 9

Intersection Capacity Analysis 10

IOS No Build Condition Capacity Analysis 11

IOS Build Condition Capacity Analysis 13

Facility Capacity Analysis 16

IOS No Build Facility Capacity Analysis: 17

Transmodeler™ 7 Capacity Analysis 22

Conclusions 26

APPENDIX 28

Tables

Table 1: Level of Service Grading Descriptions 10

Table 2: Level of Service Grading Criteria....10

Table 3: Operational Goals of Intersections....11

Table 4: Weekday AM Peak Hour – Study Intersections Capacity Analysis 12

Table 5: Weekday PM Peak Hour – Study Intersections Capacity Analysis 13

Table 6: Weekday AM Peak Hour – Study Intersections Build Capacity Analysis 15

Table 7: Weekday PM Peak Hour – Study Intersections Build Capacity Analysis....16

Table 8: Operational Goals of Facilities 17

Table 9: Weekday AM Peak Hour I-70 EB – Study Freeway Segment Capacity Analysis ..17

Table 10: Weekday AM Peak Hour I-70 EB – Study Freeway Facility Capacity Analysis ...17

Table 11: Weekday PM Peak Hour I-70 EB – Study Freeway Segment Capacity Analysis 18

Table 12: Weekday PM Peak Hour I-70 EB – Study Freeway Facility Capacity Analysis ...18

Table 13: Weekday AM Peak Hour I-70 WB – Study Freeway Segment Capacity Analysis 18

Table 14: Weekday AM Peak Hour I-70 WB – Study Freeway Facility Capacity Analysis ..19

Table 15: Weekday PM Peak Hour I-70 WB – Study Freeway Segment Capacity Analysis19

Table 16: Weekday PM Peak Hour I-70 WB – Study Freeway Facility Capacity Analysis ..19

Table 17: Weekday AM Peak Hour SR-235 NB – Study Freeway Segment Capacity Analysis 20

Table 18: Weekday AM Peak Hour SR-235 NB – Study Freeway Facility Capacity Analysis 20

Table 19: Weekday PM Peak Hour SR-235 NB – Study Freeway Segment Capacity Analysis 20

Table 20: Weekday PM Peak Hour SR-235 NB – Study Freeway Facility Capacity Analysis 21

Table 21: Weekday AM Peak Hour SR-235 SB – Study Freeway Segment Capacity Analysis 21

Table 22: Weekday AM Peak Hour SR-235 SB – Study Freeway Facility Capacity Analysis 21

Table 23: Weekday PM Peak Hour SR-235 SB – Study Freeway Segment Capacity Analysis.....22

Table 24: Weekday PM Peak Hour SR-235 SB – Study Freeway Facility Capacity Analysis 22

Table 25: TransModeler^{TM} 7 Weekday 2045 AM Peak Hour - Study Intersections Mitigated Capacity Analysis 23

Table 26: TransModeler^{TM} 7 Weekday 2045 PM Peak Hour - Study Intersections Mitigated Capacity.....24

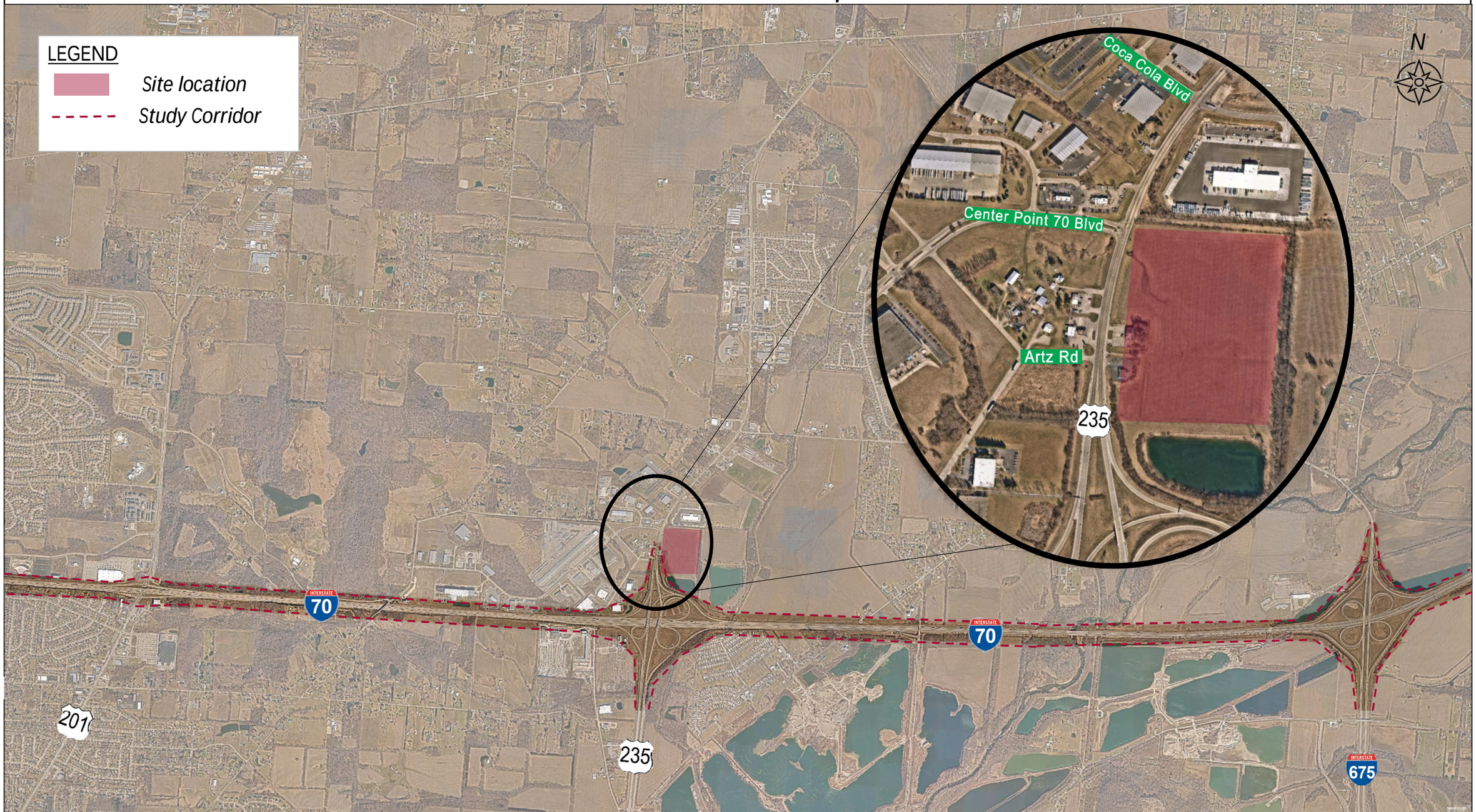
Table 27: TransModeler^{TM} 7 Weekday 2045 AM and PM Peak Hour - Study Intersections Mitigated Capacity Analysis Summary.....25

INTRODUCTION

Kimley-Horn and Associates, Inc. (Kimley-Horn) was retained to perform a traffic study for the proposed MOT 235 Travel Center, located in the northeast quadrant of the I-70 and SR-235 interchange, in Huber Heights, Ohio. The proposed 38.8-acre development consists of a travel center with 120 fueling positions, and a 74,000 square-foot convenience market. An aerial view of the study location and the surrounding roadway network is presented in **Exhibit 1.** The analysis indicated the need for modification of the westbound I-70 to northbound SR-235 ramp would be needed to accommodate the future traffic projections. To support the proposed ramp modifications an Interchange Operations Study (IOS) was requested to demonstrate how the modification may impact the operation of the I-70 and SR-235 interchange. Kimley-Horn worked closely with ODOT Central Office staff to outline the scope of the IOS and resulting roadway improvements. In addition to traditional HCS analysis, ODOT Central Office requested TransModeler Microsimulation Analysis to better demonstrate the future traffic operations and queuing in the study area. Per correspondence with ODOT Central Office, the recommendations of this report will be based on the TransModeler Analysis results.

Kimley-Horn prepared certified traffic for the study area intersections, roadway segments, and ramps. The approval of the MOT 235 Travel Center Certified Traffic Memorandum from ODOT Central Office and ODOT District 7 was received on February 23, 2024. The Certified Traffic Memorandum includes derivation of trip generation characteristics for the proposed travel center and were then added to background traffic volumes to assess the site's impact on the area roadway network. A copy of the approved MOT 235 Travel Center Certified Traffic Memorandum is provided in **Appendix A.** It has been noted throughout this process that the derived certified traffic volumes are conservative, as they represent more growth to the north of the study area than is expected. As such, the actual operation of the study intersections should be better than the capacity results presented within this report.

Site Location Map



NO BUILD CONDITIONS

Kimley-Horn conducted a field visit to collect relevant information pertaining to existing land uses in the surrounding area, the adjacent street system, current traffic volumes and operating conditions, lane configurations and traffic controls at nearby intersections, and other key roadway characteristics. This section of the report details information on these existing conditions.

AREA LAND USES AND EXISTING ROADWAY CHARACTERISTICS

The proposed 38.8-acre site is located in the northeast quadrant of the I-70 and SR-235 interchange in Huber Heights, Ohio. The project would replace an existing agricultural lot and commercial developments, east of SR-235. The area surrounding the site generally consists of agricultural, commercial, and industrial uses. The Ohio Department of Transportation (ODOT) Transportation information Mapping System (TIMS) and ODOT TransModeler™ 7 database were used to determine the roadway classifications. The project study area as defined in the ODOT Scope of Services Document is illustrated in **Appendix B** and includes the intersections and interchanges as shown in the figure below. The full interchange including all ramps, merge/diverge, and freeway segments will be studied at the I-70 and SR-235 interchange. The SR-201 ramp intersections and I-70 and SR-675 interchanges will not be included in this analysis, per correspondence with Gary Harrington and ODOT Central Office. The site location and study intersections can be referenced in the 2023-0223 MOT 235 Travel Center Certified Traffic Memorandum, which is provided in **Appendix A**.



SR-235 is a major collector generally running north-south in the study area. SR-235 provides one travel-lane in each direction north of Center Point 70 Boulevard, and 2 travel lanes in each direction south of Center Point 70 Boulevard. This roadway has a posted speed limit of 50 mile per hour. At the intersection Center Point 70 Boulevard, SR-235 provides a northbound left-turn and southbound right-turn lanes. Designated sidewalks are not present on either side of the existing roadway. Regionally, SR-235 provides direct access to interstate I-70 south of the site, and US-40 north of the proposed development.

Interstate 70 (I-70) is a major interstate highway generally running east-west in the site vicinity. Interstate 70 provides three travel-lanes in each direction. This roadway has a posted speed limit of 65 miles per hour west of the I-70 westbound and SR-235 off-ramp and I-70 eastbound and SR-235 northbound on-ramp and 70 miles per hour east of the I-70 westbound and SR-235 off-ramp and I-70 eastbound and SR-235 northbound on-ramp. Regionally, Interstate 70 runs from Utah to Maryland and runs through several major cities west of the study area (Indianapolis, Denver, St Louis, Kansas City) and east of the study area (Columbus, Pittsburgh, Baltimore).

Coca-Cola Boulevard is a local roadway generally running east-west in the site vicinity. Coca-Cola Boulevard provides one travel-lane in each direction, and a center two-way-left-turn (TWLT) lane. This roadway has an unposted speed limit of 35 miles per hour. At the intersection SR-235, Coca-Cola Boulevard provides an eastbound and westbound left-turn lane. Designated sidewalks are not present on either side of the existing roadway.

Center Point 70 Boulevard is a local roadway generally running east-west in the site vicinity. Center Point 70 Boulevard provides a single (24-foot) travel-lane in each direction and a 24-foot center grass median. This roadway has a posted speed limit of 35 miles per hour. At the intersection SR-235, Coca-Cola Boulevard provides an eastbound left-turn lane. Designated sidewalks are not present on either side of the existing roadway.

Artz Road is two-lane local roadway generally running east-west in the site vicinity, which provides a single travel-lane in each direction. This roadway has a posted speed limit of 25 miles per hour. Designated sidewalks are not present on either side of the existing roadway.

TRAFFIC VOLUME ASSUMPTIONS

The traffic volumes represented in the Certified Traffic Memorandum represent a conservative estimate for the opening and horizon years. Per correspondence with ODOT District 7, the background growth rates in the study area were set at a minimum linear rate of 1-percent. The calculated linear growth rates along Northbound and southbound SR-235 were less than 1-percent, therefore the assumed background growth rate is likely to be overprotected. The City of Huber Heights confirmed that they have expected insignificant growth north of the study area along SR-235. A copy of the approved MOT 235 Travel Center Certified Traffic Memorandum is provided in **Appendix A.**

ANALYSIS

This section of the report provides an overview of the traffic analysis for the study intersections and identifies recommended transportation improvements to accommodate the proposed development. Per conversations with ODOT Central Office, the TransModeler analysis files

CAPACITY ANALYSIS

Capacity analysis was performed to quantify the delay and level of service at the study intersections and interchange during the weekday morning (AM) and evening (PM) peak hours. McTrans HCS™ 8 software was utilized to evaluate capacity of the proposed study intersections (reported overall and by approach) and freeway facilities for the peak hours of site generated traffic. The SR-201 ramp intersections and I-70 and SR-675 interchanges will not be included in this analysis, per correspondence with Gary Harrington and ODOT Central Office. An exhibit illustrating the analysis area provided by ODOT Central Office is included in **Appendix C.**

The capacity of an intersection or movement quantifies its ability to accommodate traffic volumes and is measured in average delay per vehicle. It is expressed in terms of level of service (LOS) which ranges from A to F, with LOS A as the highest (best traffic flow and least delay), LOS E as saturated or at-capacity conditions, and LOS F as the lowest (oversaturated conditions). The LOS grades shown below, which are provided in the Transportation Research Board's Highway Capacity Manual, quantify, and categorize the driver's discomfort, frustration, fuel consumption, and travel times experienced as a result of intersection control and the resulting traffic queuing. A detailed description of each LOS rating can be found in **Table 1**. The range of control delay for each rating (as detailed in the HCM) is shown in **Table 2**. Because signalized intersections are expected to carry a larger volume of vehicles and stopping is required during red signals, higher delays are tolerated for the corresponding LOS ratings. For unsignalized stop controlled intersections, the intersection LOS is reported as the worst side street movement.

Traffic models for the following scenarios were developed and the capacity analysis (delay and LOS) was evaluated for each scenario. The scenarios that were analyzed are as follows:

- Analysis 1: 2025 IOS No Build (without site generated trips)
- Analysis 2: 2025 IOS No Build (with site generated trips)
- Analysis 3: 2025 IOS Build
- Analysis 4: 2045 IOS No Build (without site generated trips)
- Analysis 5: 2045 IOS No Build (with site generated trips)
- Analysis 6: 2045 IOS Build

Per Correspondence with ODOT Central office, traffic models were developed, and the capacity analysis (delay and LOS) was evaluated for each scenario. The analysis table can be referenced in **Appendix D.**

The summary report and HCS analysis files for Analysis 1: 2025 No Build (without site generated trips) and Analysis 4: 2045 No Build (without site generated trips) conditions can be referenced in **Appendix E**.

Table 1: Level of Service Grading Descriptions

Level of Service	*Description*
A	*Minimal control delay; traffic operates at primarily free-flow conditions; unimpeded movement within traffic stream.*
B	*Minor control delay at signalized intersections; traffic operates at a fairly unimpeded level with slightly restricted movement within traffic stream.*
C	*Moderate control delay; movement within traffic stream more restricted than at LOS B; formation of queues contributes to lower average travel speeds.*
D	*Considerable control delay that may be substantially increased by small increases in flow; average travel speeds continue to decrease.*
E	*High control delay; average travel speed no more than 33 percent of free flow speed.*
F	*Extremely high control delay; extensive queuing and high volumes create exceedingly restricted traffic flow.*

[1]Highway Capacity Manual 2010

Table 2: Level of Service Grading Criteria

Level of Service	*Average Control Delay (s/veh) at:*		*Facility Density (pc/mi/ln)*
	Unsignalized Intersections	*Signalized Intersections*	*Rural Freeway*
A	*0 – 10*	*0 – 10*	*<6*
B	*> 10 – 15*	*> 10 – 20*	*>6-14*
C	*> 15 – 25*	*> 20 – 35*	*>14-22*
D	*> 25 – 35*	*> 35 – 55*	*>22-29*
E	*> 35 – 50*	*> 55 – 80*	*>29-39*
F[2]	*> 50*	*> 80*	*>39*

[1]Highway Capacity Manual 2010

[2]All movements with a Volume to Capacity (v/C) ratio greater than 1 receive a rating of LOS F.

[2]All movements with a v_d/c ratio greater than 1 receive a rating of LOS F.

INTERSECTION CAPACITY ANALYSIS

A capacity analysis was performed to quantify the delay and level of service at the study intersections during the weekday AM and PM peak hours. McTrans HCS™ 8 software was utilized to evaluate capacity of the proposed study intersections (reported overall and by approach) for the peak hours of site generated traffic. **Table 3** is from section 5.9 of the OATS Manual, which outlines the LOS criteria for intersections. The study area is inside of the Miami Valley Regional Planning Commission (MVRPC) Boundary; therefore, LOS D is the acceptable intersection LOS threshold, and all movements shall be a LOS E or better as defined in the Memorandum of Understanding. Additionally, the volume-to-capacity ratio (v/c) for each movement should not exceed 1.0. For the capacity analysis, traffic signal timings and phasing for the SR-235 and Center Point 70 Boulevard intersection were assumed to match existing traffic signal timing and phasing, as provided by the City of Huber Heights. The existing traffic signal timings and phasing for the SR-235 and Coca Cola Boulevard intersection were estimated using Miovision traffic videos, existing traffic signal heads, and existing roadway geometry.

Table 3: Operational Goals of Intersections

Result	*Inside an MPO*	*Outside of an MPO*
Intersection LOS	*D or better*	*C of better*
Approach LOS	*E or better*	
Control LOS	*E or better*	
v/c	*All movements < 1.0 with < 0.93 preferred.*	
QSR	*All movements < 1.0 from HCS analysis, otherwise TransModeler may be needed to determine if queuing impacts upstream intersections.*	

v/c = Volume-to-capacity ratio, QSR = Queue-Storage Ratio

IOS NO BUILD CONDITION CAPACITY ANALYSIS

The capacity analysis for the study intersections and interchange were completed for Analysis 2 (2025 IOS No Build) and Analysis 5 (2045 IOS No Build) conditions and the results are summarized in **Tables 4-5**. These scenarios assumed no additional geometric changes to the roadway network, except for the addition of the proposed access drives, and a channelized northbound-right turn lane and southbound left-turn lane at the SR-235 and Center Point 70 Boulevard/ Access B intersection. The proposed northbound-right turn lane will be unsignalized. A three-lane roadway section with center two-way-left-turn (TWLT) lane was added between the SR-235 and Center Point 70 Boulevard and SR-235 and Coca Cola Boulevard intersections to accommodate the southbound left-turn lane at the SR-235 and Center Point 70 Boulevard intersection. The traffic signal timing and phasing at the SR-235 and Center Point 70 Boulevard intersection was optimized due to the addition of the eastern leg (Site Access B).

HCS™ 8 capacity analysis reports are included in **Appendix F**. With the following exceptions, all approaches and intersections operated at an acceptable LOS, during Analysis 2 (2025 IOS No Build) and Analysis 5 (2045 IOS No Build) conditions.

- SR-235 and Center Point 70 Boulevard
    - Eastbound approach during the 2025 and 2045 PM Peak hours
    - Westbound approach during the 2025 and 2045 AM and PM Peak hours.
    - Northbound approach during the 2025 and 2045 AM and PM Peak hours.
    - Overall intersection during 2025 and 2045 AM and PM Peak Hours.

Table 4: Weekday AM Peak Hour – Study Intersections Capacity Analysis

Intersection	2025 No Build (With Site Generated Trips)					2045 No Build (With Site Generated Trips)				
	LOS	Delay (s/veh)	V/C	QSR	95th %ile Queue	LOS	Delay (s/veh)	V/C	QSR	95th %ile Queue
▲ SR-235 and Artz Road / Access A										
Eastbound	C	16	0.06	-	4	C	17.6	0.10	-	6
Northbound	-	-	-	-	-	-	-	-	-	-
★ SR-235 and Center Point 70 Boulevard										
Eastbound	E	72.6	0.78	0.41	180	E	72.6	0.78	0.41	180
Westbound	F	92.1	1.03	0.85	425	F	134.1	1.16	1.01	503
Northbound	E	69.1	1.04	1.30	1010	F	82.4	1.07	1.63	1261
Southbound	C	32.3	0.93	0.78	633	C	33.0	0.93	0.79	645
Intersection	E	62.2	-	-	-	E	77.3	-	-	-
★ SR-235 and Coca-Cola Boulevard/Private Drive										
Eastbound	D	53.2	0.20	0.10	32	D	53.20	0.20	0.10	32
Westbound	D	53.6	0.31	0.07	42	D	53.60	0.31	0.07	42
Northbound	A	6.3	0.42	0.19	160	A	7.9	0.42	0.25	206
Southbound	A	9.1	0.64	0.16	337	B	11.1	0.73	0.22	473
Intersection	B	10.1	-	-	-	B	11.80	-	-	-

▲ – Minor-Leg Stop-Controlled Intersection * - Signalized Intersection

Table 5: Weekday PM Peak Hour – Study Intersections Capacity Analysis

Intersection	2025 No Build (With Site Generated Trips)					2045 No Build (With Site Generated Trips)				
	LOS	Delay (s/veh)	V/C	QSR	95th %ile Queue	LOS	Delay (s/veh)	V/C	QSR	95th %ile Queue
▲ SR-235 and Artz Road / Access A										
Eastbound	C	22	0.37	-	32	D	26.9	0.47	-	48
Southbound	-	-	-	-	-	-	-	-	-	-
✶ SR-235 and Center Point 70 Boulevard										
Eastbound	F	379.1	1.81	1.66	730	F	277.5	1.57	1.32	579
Westbound	F	229.9	1.42	1.65	907	F	209.2	1.34	1.70	851
Northbound	F	334.4	1.69	5.19	4021	F	422.8	1.90	6.49	5033
Southbound	C	18.7	0.62	0.4	324	C	31.6	0.70	0.73	592
Intersection	F	252.1	-	-	-	F	281.70	-	-	-
✶ SR-235 and Coca-Cola Boulevard/Private Drive										
Eastbound	D	52.8	0.26	0.13	44	D	52.8	0.26	0.13	44
Westbound	D	52.7	0.16	0.05	27	D	52.7	0.16	0.05	27
Northbound	A	7.2	0.47	0.25	211	A	0.3	0.48	0.01	10
Southbound	A	6	0.43	0.1	212	A	6.4	0.48	0.11	243
Intersection	A	9.1	-	-	-	A	5.9	-	-	-

▲ – Minor-Leg Stop-Controlled Intersection ✶ - Signalized Intersection

IOS BUILD CONDITION CAPACITY ANALYSIS

IOS Build analysis was used to determine the operational benefits of potential mitigation measures to offset the impact of the increased traffic attributed to the proposal development and background traffic growth. The capacity analysis for the study intersections were completed for Analysis 3 (2025 IOS Build) and Analysis 6 (2045 IOS Build) conditions and the results are summarized in **Tables 6-7**. HCS™ 8 capacity reports are included in the **Appendix G.** In addition to the roadway improvements included in the IOS No Build conditions, the IOS Build conditions included the following roadway improvements:

SR-235 and Access A:

- Construction of a northbound right turn lane at the SR-235 and Access A intersection. The recommended length of this turn lane is 270-feet.
- Construction of an additional northbound thru-lane, from Access A to Center Point 70.

SR-235 and Center Point 70 Boulevard/ Access B

- The existing Southbound right-turn lane will be converted to a Southbound thru/right-turn lane.
- Construction of a 450-foot Eastbound right-turn lane
- The existing Eastbound right-turn lane will be converted to an Eastbound thru-lane.
- Construction of an additional northbound thru-lane and receiving lane, north of Center Point 70/ Access B. The easternmost northbound thru-lane will merge to a single-lane north of Center Point

70. Further conversations need to be held between ODOT and the City of Huber Heights to determine future mitigation along SR-235, north of Center Point 70 Boulevard.

- Optimized traffic signal timing and phasing

SR-235 and Coca Cola Boulevard

- Optimized traffic signal timing and phasing

I-70 Westbound to SR-235 Northbound Off-Ramp

- Construction a new signalized intersection at the intersection of the I-70 Westbound to SR-235 Off-Ramp and SR-235 Northbound. The proposed traffic signal will be a two-phase signal and traffic signal timing and phasing were optimized within HCS™ 8 and TransModeler™ 7 software.
- Construction of an additional lane on I-70 Westbound Exit Ramp to form a two-lane ramp from the exit ramp gore to the proposed I-70 Westbound Ramp to northbound SR-235 ramp and SR-235 signalized intersection.
- Construction of a new 275-Foot northbound thru-lane, south of the proposed signalized intersection.

With the above mitigated improvements, all approaches and intersections operated at an acceptable LOS, during Analysis 3 (2025 IOS Build) and Analysis 6 (2045 IOS Build) conditions with the following exceptions. Per guidance form ODOT Central Office, the recommendations of this report will be based on TransModeler analysis results which can be found on **Table 27.**

SR-235 and Center Point 70 Boulevard AM Peak Hour:

- Northbound approach during the 2025 and 2045 AM Peak hours.
- Westbound approach during the 2045 AM Peak hour.

SR-235 and Center Point 70 Boulevard PM Peak Hour:

- Westbound approach during the 2025 and 2045 PM Peak hours.
- Northbound approach during the 2025 and 2045 PM Peak hours.
- Overall intersection during 2025 and 2045 PM Peak hours.

Table 6: Weekday AM Peak Hour – Study Intersections Build Capacity Analysis

Intersection	2025 Build (With Site Generated Trips)					2045 Build (With Site Generated Trips)				
	LOS	Delay (s/veh)	V/C	QSR	95th %ile Queue	LOS	Delay (s/veh)	V/C	QSR	95th %ile Queue
▲ SR-235 and Artz Road / Access A										
Eastbound	C	16.3	0.09	-	6	C	17.6	0.10	-	6
Southbound	-	-	-	-	-	-	-	-	-	-
★ SR-235 and Center Point 70 Boulevard										
Eastbound	D	42.9	0.91	0.25	101	C	34.8	0.22	0.23	91
Westbound	E	66.7	0.93	0.73	367	F	110.4	1.09	0.92	460
Northbound	D	46.5	0.93	1.48	704	E	58.1	1.05	1.72	574
Southbound	D	52.7	0.88	0.57	461	E	60.6	0.97	0.69	566
Intersection	E	58.6	-	-	-	E	67.1	-	-	-
★ SR-235 and Coca-Cola Boulevard/Private Drive										
Eastbound	D	53.2	0.20	0.10	32	D	53.2	0.20	0.10	32
Westbound	D	53.6	0.31	0.07	42	D	53.6	0.31	0.07	42
Northbound	A	2.5	0.87	0.06	53	A	4.3	0.93	0.09	75.3
Southbound	B	10	0.65	0.19	404	B	12.3	0.74	0.21	461.6
Intersection	A	7.4	-	-	-	A	9.3	-	-	-
★ I-70 Exit Ramp and SR-235										
Westbound	D	45.1	0.91	0.75	339	D	45.2	0.92	0.75	347
Northbound	B	10.3	0.32	0.34	184	B	10.5	0.35	0.35	312
Southbound	-	-	-	-	-	-	-	-	-	-
Intersection	C	22.9	-	-	-	C	22.5	-	-	-

▲ – Minor-Leg Stop-Controlled Intersection * - Signalized Intersection

Table 7: Weekday PM Peak Hour – Study Intersections Build Capacity Analysis

Intersection	2025 Build (With Site Generated Trips)					2045 Build (With Site Generated Trips)				
	LOS	Delay (s/veh)	V/C	QSR	95th %ile Queue	LOS	Delay (s/veh)	V/C	QSR	95th %ile Queue
▲ SR-235 and Artz Road / Access A										
Eastbound	C	22	0.37	-	32	D	26.9	0.47	-	48
Southbound	-	-	-	-	-	-	-	-	-	-
★ SR-235 and Center Point 70 Boulevard										
Eastbound	E	63.8	0.87	0.89	355	E	65.2	0.90	0.92	415
Westbound	F	130.7	1.17	1.38	690	F	151.3	1.22	1.48	741
Northbound	F	469.7	2.01	4.26	3299	F	581.1	2.63	4.77	3697
Southbound	C	22.6	0.39	0.28	227	C	31.8	0.44	0.40	323
Intersection	F	286.8	-	-	-	F	351.1	-	-	-
★ SR-235 and Coca-Cola Boulevard/Private Drive										
Eastbound	D	52.8	0.26	0.13	44	D	52.8	0.26	0.13	44
Westbound	D	52.6	0.16	0.05	27	D	52.6	0.16	0.05	27
Northbound	A	1.8	0.75	0.07	56	A	0.7	0.75	0.02	20
Southbound	A	6.2	0.43	0.09	197	A	6.7	0.48	0.1	225
Intersection	A	5.5	-	-	-	A	5.0	-	-	-
★ I-70 Exit Ramp and SR-235										
Westbound	D	42.4	0.93	0.77	347	D	42.6	0.93	0.76	343
Northbound	B	15.5	0.50	0.46	312	B	16.2	0.55	0.49	331
Intersection	C	23.2	-	-	-	C	23.4	-	-	-

▲ – Minor-Leg Stop-Controlled Intersection * - Signalized Intersection

FACILITY CAPACITY ANALYSIS

A capacity analysis was performed to quantify the delay and level of service at the study interchange during the weekday AM and PM peak hours. McTrans HCS™ 8 software was utilized to evaluate capacity of the proposed facilities (reported overall and by approach) for the peak hours of site generated traffic. **Table 8** from section 5.9 of the OATS Manual outlines the LOS criteria for facilities. The study area is inside of the Miami Valley Regional Planning Commission (MVRPC) Boundary; therefore, LOS D is the acceptable intersection LOS threshold, and all movements shall be a LOS D or better as defined in the Memorandum of Understanding. Additionally, the demand-to-capacity ratio (d/c) for each movement should not exceed 0.93.

The capacity analysis for the facility was completed for 2025 and 2045 IOS No Build and IOS Build conditions, and the results are summarized in **Tables 9-24.** The IOS No Build and IOS Build capacity analysis assumed the existing geometry at all freeway sections and interchange ramps. All freeway

segments operated at an acceptable LOS during 2025 and 2045 IOS No Build conditions. HCS™ 8 capacity analysis reports are included in **Appendix H.**

Capacity analysis files for the IOS Build conditions are not included below, since all freeway segments operated at an acceptable LOS during the IOS No Build Conditions, and there were no additional mitigated improvements to the freeway segments. The capacity analysis results for the proposed I-70 Westbound to SR-235 Northbound Off-Ramp and SR-235 intersection is provided in the IOS Build Condition intersection capacity analysis.

Table 8: Operational Goals of Facilities

Result	Inside an MPO	Outside of an MPO
LOS	D or better	C of better
d/c (Demand-to-Capacity ratio)	< 0.93.	

IOS NO BUILD FACILITY CAPACITY ANALYSIS:

Table 9: Weekday AM Peak Hour I-70 EB – Study Freeway Segment Capacity Analysis

AM Peak Hour										
Segment	Analysis Type	Location (I-70 WB)	2025 No Build (With Site Generated Trips)				2045 No Build (With Site Generated Trips)			
			LOS	v/c	d/c		LOS	v/c	d/c	
					F*	R*			F*	R*
Seg-1	Basic	IR-70 EB	B	0.49	0.49	-	B	0.55	0.55	-
Seg-2	Diverge	235EAD	C	0.49	0.49	0.58	C	0.55	0.55	0.59
Seg-3	Basic	IR-70 EB	A	0.31	0.31	-	B	0.36	0.36	-
Seg-4	Merge	235EAM	B	0.45	0.45	0.45	C	0.53	0.53	0.57
Seg-5	Basic	IR-70 EB	B	0.44	0.44	-	B	0.53	0.53	-

F = Freeway, R* = Ramp, # = Weave segment. Check to ensure on-ramp and off-ramp have sufficient capacity.*

Table 10: Weekday AM Peak Hour I-70 EB – Study Freeway Facility Capacity Analysis

	2025	2045
Facility Length, mi	4.56	4.56
Space Mean Speed, mi/h	74.1	73.8
Density, pc/mi/ln	12.7	15.0
Density, veh/mi/ln	10.4	12.3
Travel Time, min	3.70	3.70
LOS	B	B

Table 11: Weekday PM Peak Hour I-70 EB – Study Freeway Segment Capacity Analysis

PM Peak Hour										
Segment	Analysis Type	Location (I-70 WB)	2025 No Build (With Site Generated Trips)				2045 No Build (With Site Generated Trips)			
			LOS	v/c	d/c		LOS	v/c	d/c	
					F*	R*			F*	R*
Seg-1	Basic	IR-70 EB	B	0.53	0.53	-	C	0.59	0.59	-
Seg-2	Diverge	235EAD	C	0.53	0.53	0.53	C	0.59	0.59	0.55
Seg-3	Basic	IR-70 EB	B	0.36	0.36	-	B	0.43	0.43	-
Seg-4	Merge	235EAM	C	0.54	0.54	0.59	C	0.64	0.64	0.72
Seg-5	Basic	IR-70 EB	B	0.56	0.56	-	C	0.66	0.66	-

F = Freeway, R* = Ramp, # = Weave segment. Check to ensure on-ramp and off-ramp have sufficient capacity.*

Table 12: Weekday PM Peak Hour I-70 EB – Study Freeway Facility Capacity Analysis

	2025	2045
Facility Length, mi	4.56	4.56
Space Mean Speed, mi/h	74.0	73.0
Density, pc/mi/ln	14.7	17.6
Density, veh/mi/ln	12.1	14.5
Travel Time, min	3.70	3.70
LOS	B	B

Table 13: Weekday AM Peak Hour I-70 WB – Study Freeway Segment Capacity Analysis

AM Peak Hour										
Segment	Analysis Type	Location (I-70 WB)	2025 No Build (With Site Generated Trips)				2045 No Build (With Site Generated Trips)			
			LOS	v/c	d/c		LOS	v/c	d/c	
					F*	R*			F*	R*
Seg-1	Basic	US-70 WB	B	0.43	0.43	-	B	0.51	0.51	-
Seg-2	Diverge	235WAD	B	0.43	0.43	0.54	C	0.51	0.51	0.63
Seg-3	Basic	US-70 WB	A	0.25	0.25	-	A	0.30	0.30	-
Seg-4	Merge	235WSM	B	0.38	0.38	0.42	B	0.44	0.44	0.47
Seg-5	Basic	US-70 WB	B	0.38	0.38	-	B	0.44	0.44	-

F = Freeway, R* = Ramp, # = Weave segment. Check to ensure on-ramp and off-ramp have sufficient capacity.*

Table 14: Weekday AM Peak Hour I-70 WB – Study Freeway Facility Capacity Analysis

Facility	2025	2045
Facility Length, mi	4.35	4.35
Space Mean Speed, mi/h	74.2	74.1
Density, pc/mi/ln	11.2	13.3
Density, veh/mi/ln	9.20	10.9
Travel Time, min	3.50	3.50
LOS	B	B

Table 15: Weekday PM Peak Hour I-70 WB – Study Freeway Segment Capacity Analysis

PM Peak Hour										
Segment	Analysis Type	Location (I-70 WB)	2025 No Build (With Site Generated Trips)				2045 No Build (With Site Generated Trips)			
			LOS	v/c	d/c		LOS	v/c	d/c	
					F*	R*			F*	R*
Seg-1	Basic	US-70 WB	C	0.57	0.57	-	C	0.66	0.66	-
Seg-2	Diverge	235WAD	C	0.57	0.57	0.51	C	0.66	0.66	0.59
Seg-3	Basic	US-70 WB	B	0.39	0.39	-	B	0.46	0.46	-
Seg-4	Merge	235WSM	C	0.59	0.59	0.65	C	0.69	0.69	0.78
Seg-5	Basic	US-70 WB	C	0.62	0.62	-	C	0.73	0.73	-

F = Freeway, R* = Ramp, # = Weave segment. Check to ensure on-ramp and off-ramp have sufficient capacity.*

Table 16: Weekday PM Peak Hour I-70 WB – Study Freeway Facility Capacity Analysis

Facility	2025	2045
Facility Length, mi	4.35	4.35
Space Mean Speed, mi/h	73.6	72.0
Density, pc/mi/ln	16.3	19.7
Density, veh/mi/ln	13.3	16.2
Travel Time, min	3.50	3.60
LOS	B	C

Table 17: Weekday AM Peak Hour SR-235 NB – Study Freeway Segment Capacity Analysis

AM Peak Hour										
Segment	Analysis Type	Location (SR-235 NB)	2025 No Build (With Site Generated Trips)				2045 No Build (With Site Generated Trips)			
			LOS	v/c	d/c		LOS	v/c	d/c	
					F*	R*			F*	R*
Seg-1	Basic	SR-235 NB	B	0.29	0.29	-	B	0.38	0.38	-
Seg-2	Diverge	235NED	B	0.29	0.29	0.24	B	0.38	0.38	0.33
Seg-3	Basic	SR-235 NB	A	0.16	0.16	-	A	0.20	0.20	-
Seg-4	Weaving	235NEM and 235NWD	A	0.35	0.35	#	B	0.38	0.38	#
Seg-5	Basic	SR-235 NB	A	0.23	0.23	-	A	0.26	0.26	-
Seg-6	Merge	235NWM	B	0.36	0.36	0.28	B	0.38	0.38	0.28
Seg-7	Basic	SR-235 NB	B	0.38	0.38	-	B	0.40	0.40	-

F = Freeway, R* = Ramp, # = Weave segment. Check to ensure on-ramp and off-ramp have sufficient capacity.*

Table 18: Weekday AM Peak Hour SR-235 NB – Study Freeway Facility Capacity Analysis

Facility	2025	2045
Facility Length, mi	1.42	1.42
Space Mean Speed, mi/h	56.2	56.0
Density, pc/mi/ln	8.50	10.6
Density, veh/mi/ln	7.40	9.30
Travel Time, min	1.50	1.50
LOS	A	A

Table 19: Weekday PM Peak Hour SR-235 NB – Study Freeway Segment Capacity Analysis

PM Peak Hour										
Segment	Analysis Type	Location (SR-235 NB)	2025 No Build (With Site Generated Trips)				2045 No Build (With Site Generated Trips)			
			LOS	v/c	d/c		LOS	v/c	d/c	
					F*	R*			F*	R*
Seg-1	Basic	SR-235 NB	C	0.49	0.49	-	C	0.63	0.63	-
Seg-2	Diverge	235NED	B	0.49	0.49	0.31	C	0.63	0.63	0.44
Seg-3	Basic	SR-235 NB	B	0.34	0.34	-	B	0.42	0.42	-
Seg-4	Weaving	235NEM and 235NWD	B	0.64	0.64	#	C	0.74	0.74	#
Seg-5	Basic	SR-235 NB	B	0.33	0.33	-	B	0.36	0.36	-
Seg-6	Merge	235NWM	B	0.47	0.47	0.33	C	0.51	0.51	0.32
Seg-7	Basic	SR-235 NB	B	0.47	0.47	-	C	0.5	0.5	-

F = Freeway, R* = Ramp, # = Weave segment. Check to ensure on-ramp and off-ramp have sufficient capacity.*

Table 20: Weekday PM Peak Hour SR-235 NB – Study Freeway Facility Capacity Analysis

Facility	2025	2045
Facility Length, mi	1.42	1.42
Space Mean Speed, mi/h	54.8	54.2
Density, pc/mi/ln	14.6	18.5
Density, veh/mi/ln	13.4	17.0
Travel Time, min	1.60	1.60
LOS	B	C

Table 21: Weekday AM Peak Hour SR-235 SB – Study Freeway Segment Capacity Analysis

AM Peak Hour										
Segment	Analysis Type	Location (SR-235 NB)	2025 No Build (With Site Generated Trips)				2045 No Build (With Site Generated Trips)			
			LOS	v/c	d/c		LOS	v/c	d/c	
					F*	R*			F*	R*
Seg-1	Basic	SR-235 SB	B	0.35	0.35	-	B	0.38	0.38	-
Seg-2	Diverge	235SWD	B	0.35	0.35	0.31	B	0.38	0.38	0.33
Seg-3	Basic	SR-235 SB	A	0.22	0.22	-	A	0.24	0.24	-
Seg-4	Weaving	235SWM and 235SED	A	0.23	0.23	#	A	0.27	0.27	#
Seg-5	Basic	SR-235 SB	A	0.19	0.19	-	A	0.23	0.23	-
Seg-6	Merge	235SEM	B	0.28	0.28	0.3	B	0.32	0.32	0.30
Seg-7	Basic	SR-235 SB	A	0.29	0.29	-	B	0.33	0.33	-

F = Freeway, R* = Ramp, # = Weave segment. Check to ensure on-ramp and off-ramp have sufficient capacity.*

Table 22: Weekday AM Peak Hour SR-235 SB – Study Freeway Facility Capacity Analysis

Facility	2025	2045
Facility Length, mi	1.42	1.42
Space Mean Speed, mi/h	57.5	57.4
Density, pc/mi/ln	9.10	10.7
Density, veh/mi/ln	8.40	9.80
Travel Time, min	1.50	1.50
LOS	A	A

Table 23: Weekday PM Peak Hour SR-235 SB – Study Freeway Segment Capacity Analysis

PM Peak Hour										
Segment	Analysis Type	Location (SR-235 NB)	2025 No Build (With Site Generated Trips)				2045 No Build (With Site Generated Trips)			
			LOS	v/c	d/c		LOS	v/c	d/c	
					F*	R*			F*	R*
Seg-1	Basic	SR-235 SB	B	0.41	0.41	-	B	0.44	0.44	-
Seg-2	Diverge	235SWD	B	0.41	0.41	0.34	B	0.44	0.44	0.37
Seg-3	Basic	SR-235 SB	A	0.24	0.24	-	A	0.26	0.26	-
Seg-4	Weaving	235SWM and 235SED	A	0.23	0.23	#	A	0.27	0.27	#
Seg-5	Basic	SR-235 SB	A	0.16	0.16	-	A	0.19	0.19	-
Seg-6	Merge	235SEM	A	0.21	0.21	0.17	A	0.25	0.25	0.17
Seg-7	Basic	SR-235 SB	A	0.21	0.21	-	A	0.25	0.25	-

F = Freeway, R* = Ramp, # = Weave segment. Check to ensure on-ramp and off-ramp have sufficient capacity.*

Table 24: Weekday PM Peak Hour SR-235 SB – Study Freeway Facility Capacity Analysis

Facility	2025	2045
Facility Length, mi	1.42	1.42
Space Mean Speed, mi/h	57.4	57.3
Density, pc/mi/ln	7.50	8.8
Density, veh/mi/ln	6.90	8.1
Travel Time, min	1.50	1.5
LOS	A	A

TRANSMODELER™ 7 CAPACITY ANALYSIS

As requested by ODOT Central Office, TransModeler™ 7 microsimulation analysis software was utilized to highlight key areas in the facility and to evaluate areas that failed in the IOS No Build (With Site Generated Trips) conditions. Analysis 3 and Analysis 6 (2025 and 2045 IOS Build) was analyzed to mitigate the delay, LOS, and potential queuing issues along the corridor. TransModeler™ 7 uses driver behavior to simulate the traffic behavior of the proposed study intersections and freeway facilities for the peak hours of the site generated traffic. Per section 7.4.5 of the OATS manual, TransModeler™ 7 uses LOS to determine the performance of a facility and follows the operational goals shown in **Table 8**. TransModeler™ 7 capacity analysis results for Analysis 4 (2045 AM IOS Build) are shown in **Tables 25**. TransModeler™ 7 capacity analysis results for Analysis 6 (2045 IOS Build) are shown in **Tables 26.** TransModeler™ 7 capacity reports results are summarized in **Table 27**. TransModeler™ 7 capacity reports can be found in **Appendix I-L.** All approaches and intersections operated at an acceptable LOS, during Analysis 3 (2025 IOS Build) and Analysis 6 (2045 IOS Build) conditions with the following exceptions.

- SR-235 and Center Point 70 Boulevard
  - Northbound approach during the 2045 AM Peak hours (LOS, delay)
  - Westbound approach during the 2045 PM Peak hours (LOS, delay)

Table 25: TransModeler™ 7 Weekday 2045 AM Peak Hour - Study Intersections Mitigated Capacity Analysis

Project: Build IOS (Access A)
Scenario: 2045 BUILD AM #2
Run(s): 03/04/24 15:21:04
Simulated: 03/04/24 15:21:04
Time: 07:00:00 - 08:00:00
Interval: Summary
Selection: --

Intersection Level of Service by Approach - Summary

ACCESS A, ACCESS A R & ACCESS A L -- UNSIGNALIZED **NODE: 4**

Dir	Street	Superlink	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
EB	ACCESS A	720510268	275	0.30	3.7	A
SB	ACCESS A L	720510278	0	0.00	--	--
NWB	ACCESS A R	720510279	0	0.00	--	--

ARTZ ROAD -- UNSIGNALIZED **NODE: 1332**

Dir	Street	Superlink	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
NB	ARTZ ROAD	720510250	12	0.00	5.4	A
SWB	ARTZ ROAD	720510281	11	0.00	0.0	A
SEB	ARTZ ROAD	720510284	12	0.00	0.0	A

SR-235 & I-70 WB OFF RAMP -- SIGNALIZED **NODE: 1329**

Dir	Street	Superlink	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
SWB	I 70	16028	1,343	7.90	21.3	C
NB	SR-235	720510184	870	2.50	10.2	B

SR-235, CENTER POINT 70 BLVD & ACCESS B -- SIGNALIZED **NODE: 7**

Dir	Street	Superlink	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
SB	SR-235	16423	1,136	13.40	42.5	D
EB	CENTER POINT 70 BLVD	16430	180	1.60	32.1	C
NB	SR-235	720510254	1,118	35.80	115.1	F
WB	ACCESS B	720510263	717	8.40	42.0	D

SR-235, COCA COLA BLVD & ACCESS ROAD -- SIGNALIZED **NODE: 12008**

Dir	Street	Superlink	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
SEB	COCA COLA BLVD	16420	38	0.50	46.9	D
NEB	SR-235	16423	628	0.80	4.9	A
SWB	SR-235	720510240	1,144	6.10	19.3	B
NWB	ACCESS ROAD	720510243	36	0.40	44.3	D

Table 26: TransModeler™ 7 Weekday 2045 PM Peak Hour - Study Intersections Mitigated Capacity Analysis

Project: Build IOS (Access A)
Scenario: 2025 BUILD PM #2
Run(s): 02/29/24 17:50:48
Simulated: 02/29/24 17:50:48
Time: 17:00:00 - 18:00:00
Interval: Summary
Selection: --

Intersection Level of Service by Approach - Summary

ACCESS A, ACCESS A R & ACCESS A L -- UNSIGNALIZED **NODE: 4**

Dir	Street	Superlink	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
EB	ACCESS A	720510268	368	0.40	4.0	A
SB	ACCESS A L	720510278	0	0.00	--	--
NWB	ACCESS A R	720510279	0	0.00	--	--

ARTZ ROAD -- UNSIGNALIZED **NODE: 1332**

Dir	Street	Superlink	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
NB	ARTZ ROAD	720510250	36	0.10	5.1	A
SWB	ARTZ ROAD	720510281	17	0.00	0.1	A
SEB	ARTZ ROAD	720510284	25	0.00	0.0	A

SR-235 & I-70 WB OFF RAMP -- SIGNALIZED **NODE: 1329**

Dir	Street	Superlink	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
SWB	I 70	16028	1,055	6.40	22.0	C
NB	SR-235	720510184	1,316	4.80	13.2	B

SR-235, CENTER POINT 70 BLVD & ACCESS B -- SIGNALIZED **NODE: 7**

Dir	Street	Superlink	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
SB	SR-235	16423	732	8.20	40.3	D
EB	CENTER POINT 70 BLVD	16430	389	2.40	21.9	C
NB	SR-235	720510254	1,587	17.40	39.6	D
WB	ACCESS B	720510263	925	44.20	172.0	F

SR-235, COCA COLA BLVD & ACCESS ROAD -- SIGNALIZED **NODE: 12008**

Dir	Street	Superlink	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
SEB	COCA COLA BLVD	16420	54	0.50	35.8	D
NEB	SR-235	16423	1,159	2.20	6.9	A
SWB	SR-235	720510240	727	1.00	5.0	A
NWB	ACCESS ROAD	720510243	38	0.50	46.3	D

Table 27: TransModeler™ 7 Weekday 2045 AM and PM Peak Hour - Study Intersections Mitigated Capacity Analysis Summary

Intersection	AM Peak Hour		PM Peak Hour	
	2045 Build (With Site Generated Trips)		2045 Build (With Site Generated Trips)	
	LOS	Delay (s/veh)	LOS	Delay (s/veh)
▲ SR-235 & Access A				
Northbound	-	-	-	-
Southbound	-	-	-	-
Eastbound	A	3.7	A	4.0
▲ SR-235 and Artz Road				
Northbound	A	5.4	A	5.1
Eastbound	A	0	A	0.1
Westbound	A	0	A	0
* SR-235 & I-70 WB to SR-235 NB Off Ramp				
Northbound	B	10.2	B	13.2
Westbound	C	21.3	C	22
* SR-235 & Center Point 70 Blvd/ Access B				
Northbound	F	115.1	D	39.6
Southbound	D	42.5	D	40.3
Eastbound	C	32.1	C	21.9
Westbound	D	42.0	F	172.0
* SR-235 & Coca Cola Blvd/ Access Road				
Northbound	A	4.9	A	6.9
Southbound	B	19.3	A	5.0
Eastbound	D	46.9	D	35.8
Westbound	D	44.3	D	46.3

▲ – *Minor-Leg Stop-Controlled Intersection* * - *Signalized Intersection*

CONCLUSIONS

Kimley-Horn preformed capacity analysis within HCS™ 8 and TransModeler™ 7 Software to determine the operational impact of site generated traffic volumes on the study intersection. With the addition of the recommended improvements, all study intersections and approaches are expected to operate at an acceptable level-of service during horizon year (2045) Build condition, other than the SR-235 and Center Point 70 Boulevard intersection. Kimley-Horn worked closely with ODOT Central Office to determine the appropriate roadway improvements defined below.

The following improvements are recommended based on the analysis of this study. Improvements recommended below are warranted based on the additional of site generated traffic volumes.

SR-235 and Access A:

- Construct a northbound right-turn lane at the SR-235 and Access A intersection. The recommended length of this turn lane is 270-feet.

SR-235 and Center Point 70 Boulevard/ Access B

- Construct a channelized 375- foot northbound-right turn lane at the SR-235 and Center Point 70 Boulevard/ Access B intersection. The northbound right-turn lane is unsignalized and will be a free movement.
- Construct a southbound left turn lane at the SR-235 and Center Point 70 Boulevard/ Access B intersection. The recommended length of this turn lane is 200-feet including a 50-foot diverging taper. A 3-lane roadway section with center lane two-way left-turn lane (TWLT) will be constructed between Center Point 70 Boulevard Coca Cola Boulevard along SR-235.
- Construction of an additional northbound thru-lane and receiving lane, north of Center Point 70/ Access B. The easternmost northbound thru-lane will merge to a single-lane north of Center Point 70.
- Modify signal timing and phasing at the SR-235 and Center Point 70 Boulevard/ Access B intersection.
- Extend the Northbound left-turn lane to 475-feet at the SR-235 and Center Point 70 Boulevard/ Access B intersection.
- Construct an eastbound right-turn lane at the SR-235 and Center Point 70 Boulevard/ Access B intersection. The recommended length of this turn-lane is 450-feet including a 50-foot diverging taper.
- Convert the southbound right-turn lane into a southbound thru-right-turn lane at the SR-235 and Center Point 70 Boulevard/ Access B intersection.

SR-235 and Coca Cola Boulevard

- Update traffic signal timings at the SR-235 and Coca Cola Boulevard intersection

I-70 Westbound to SR-235 Northbound Off-Ramp Intersection

- Construct a signalized intersection at the I-70 Westbound to Northbound SR-235 Off-Ramp and Northbound SR-235 intersection.

- Construction of an additional lane on I-70 Westbound Exit Ramp to form a two-lane ramp from the exit ramp gore to the proposed I-70 Westbound Ramp to northbound SR-235 ramp and SR-235 signalized intersection.
- Construct an additional northbound thru-lane at the proposed I-70 Westbound to Northbound SR-235 Off-Ramp and Northbound SR-235 intersection. The additional northbound thru-lane will be 200 feet long including a 50-foot diverging taper.

SR-235 Corridor

- Extend the existing 12-foot median along SR-235 to terminate 150-feet north of SR-235 and Artz Road/ Access A. A center two-way left-turn lane (TWLT) will be constructed that begins at the median and drops into a northbound left-turn lane at the SR-235 and Center Point 70/ Access B intersection.
- Restripe SR-235 Southbound from Artz Road to I-70 Westbound on-ramp.

It is recommended that further analysis be conducted by ODOT District 8 and the City of Huber Heights to determine if additional northbound and southbound lanes should be added along SR-235, north of Center Point 70 Boulevard. These improvements are based on background traffic growth and are not the responsibility of the developer.

APPENDIX

A – Approved 2024-0223 MOT 235 Travel Center Certified Traffic Memorandum

B – ODOT Scoping Documentation

C – ODOT Study Location

D – ODOT Central Office References

E – HCS™ 8 No Build (Without Site Generated Trips) Summary Report

F – HCS™ 8 No Build (With Site Generated Trips) Intersection Outputs

G – HCS™ 8 Build Intersection Outputs

H– HCS™ 8 No Build (With Site Generated Trips) Facility Outputs

I – TransModeler™ 7 2045 Build AM Peak Hour Approach Simulation Outputs

J – TransModeler™ 7 2045 Build AM Peak Hour Movement Simulation Outputs

K – TransModeler™ 7 2045 Build PM Peak Hour Approach Simulation Outputs

L– TransModeler™ 7 2045 Build PM Peak Hour Movement Simulation Outputs

APPENDIX

A. Approved MOT 235 Travel Center Certified Traffic Memorandum

INTER-OFFICE COMMUNICATION

TO: **Mary Hoy, P.E., District Traffic Planning Engineer, District 7**

FROM: Joshua Kieselbach, P.E., Transportation Engineer, Office of Statewide Planning & Research, Modeling & Forecasting Section

SUBJECT: **MOT-235-2.249, No PID**

DATE: February 23, 2024

In reply to a request dated December 1, 2023, the review has been completed. The updated traffic is approved for use on this project.

If you have any questions, please contact me at Joshua.Kieselbach@dot.ohio.gov or (614) 752-5747.

c: R. Straub, OSPR – File

Kimley»Horn

MEMORANDUM

To:	Mary Hoy, PE, ODOT District 7 Russ Bergman, PE, City of Huber Heights
From:	Jacob Campbell, PE, Kimley-Horn
Date:	February 22th, 2024
Subject:	MOT 235 Travel Center

INTRODUCTION

The purpose of this memorandum is to document the development of Certified Traffic forecasts for the proposed MOT 235 Travel Center, located north of I-70 and east of SR-235, in Huber Heights, Ohio. The methodology, assumptions, supporting data, and certified traffic volume plates are contained in this document. The proposed 38.8-acre development consists of a travel center with 120 fueling positions, and a 74,000 square-foot convenience market. A copy of the preliminary site plan is provided in **Appendix A**.

A scoping meeting for the traffic study associated with this proposed development was conducted on May 23, 2023. The ODOT Analysis & Traffic Simulation Manual Scoping Document, and Scope of Services Supplement can be referenced in **Appendix B**.

Future traffic projections are provided for an Opening Year of 2025 and a Design Year of 2045. In addition to the future traffic projections, current year (2023) traffic counts have also been provided.

STUDY AREA

The project study area is illustrated in **Appendix C**, and includes the intersections and interchanges as summarized in **Table 1**. The full interchange including all ramps, merge/diverge, and freeway segments will be studied at the I-70 and SR-235 The SR-201 ramp intersections and I-70 and SR-675 interchanges will not be included in this analysis, correspondence with Gary Harrington and ODOT Central Office.

Table 1: Study Intersections/ Interchanges

#	Interchange/ Intersection
1	I-70 and SR-201 Interchange
2	I-70 and I-675 Interchange
3	I-70 and SR-235 Interchange
4	SR-235 and Artz Road/ Proposed Access Drive (RIRO)
5	SR-235 and Center Point 70 Boulevard/ Proposed Access Drive
6	SR-235 and Coca-Cola Boulevard

DATA COLLECTION

Base traffic volumes and turning movement counts for the study intersections were collected via MioVision traffic cameras. 24-hour weekday traffic count data was collected on Tuesday June 27, 2023, at the SR-235 and Artz Road, SR-235 and Center Point 70 Boulevard, and SR-235 and Coca-Cola Boulevard intersections. The collected traffic count data can be referenced in **Appendix E**. Existing traffic count data for the freeway segments and interchange ramps were referenced from the ODOT Transportation Data Management System (TDMS) database. Copies of the ODOT TDMS traffic volume data is provided in **Appendix F**.

NO BUILD CONDITIONS

To be conservative, the highest morning and evening peak hour data was applied for each intersection. Seasonal adjustment factors were applied to the daily and peak hour traffic volumes for each intersection. The applied seasonal adjustment factors are from the August 2021 adjustment factors as developed by the ODOT Modeling and Forecasting department, which are based on the 2021 automatic traffic recorders (ATR). Daily total traffic counts recorded on Tuesday, June 27, 2023, had a 0.932 seasonal adjustment applied along the SR-235 intersections. The ODOT seasonal adjustment factors can be referenced in **Appendix I**.

Design Volume Adjustment

Seasonal adjustment factors are developed by the ODOT Modeling and Forecasting department. Kimley-Horn referenced the 2022 seasonal adjustment factors, which are based on the 2022 automatic traffic recorders (ATR). Traffic count data recorded on Tuesday June 27th, correlates to a 0.932 seasonal adjustment factor. Seasonal adjustment factors can be less than 1, DHV factors should not be less than 1. It's assumed if a DHV factor is less than 1, the AM or PM peak exceeded the 30th highest hour and doesn't need a DHV adjustment. The ODOT seasonal adjustment factors can be referenced in **Appendix I**. The ODOT peak hour to design hourly volume adjustment factor tables were referenced to compare the total growth versus the 1.14 adjustment factor as provided in **Appendix I.** Per conversations with ODOT Traffic Forecasting and Management on 02/14/2024, no further alterations were required to adjust the traffic volumes in the AM and PM peak hours after an evaluation of the horizon year (2045) traffic volumes and peak hour to design hourly volume adjustment factors.

Expected Growth Projections

As development of the region increases over the next couple of decades, the expected vehicular volumes are anticipated to increase as well. Growth rates were derived based on the procedures outlined in the Ohio Design Traffic Forecasting Manual, Chapter 8, Volume 1. ODOT Traffic Forecast Management System (TFMS) traffic outputs were placed in the ODOT NCHRP spreadsheets to determine the annual growth along each roadway segment. Copies of the TFMS outputs and NCHRP spreadsheets are provided in **Appendix G and H**, respectfully.

Traffic Volume Balancing

The average annual daily traffic (AADT), morning (AM), and evening (PM) peak hours of traffic data were compiled for the study intersections and interchanges. Per the ODOT Analysis and Traffic

Simulation (OATS) Manual and Ohio Traffic Forecasting Manual, Module 2, all traffic counts were rounded to the nearest "10". A minimum of 10 vehicles was set for each legal traffic movement during morning and evening peak hours, and a minimum of 30 vehicles was set for the AADT's. The existing raw and No Build traffic volumes were balanced following the Ohio Traffic Forecasting Manual, Module 2: Traffic Forecasting Methodologies. The traffic volumes were balanced using the higher volume distributed method, which increases lower volume movements through an equal distribution of existing counts.

No Build Traffic Volumes

The Raw balanced AADT, morning peak (AM), and evening peak (PM) traffic volumes are shown in **Exhibit 1** as outlined in **Table 2**. The Opening Year (2025) and Horizon Year (2045) No Build AADT, morning peak (AM), and evening peak (PM) traffic volumes are shown in **Exhibits 2-4** as outlined in **Table 2**. The Certified Traffic Volume Exhibits are provided in **Appendix D**.

Table 2: No Build Certified Traffic Volume Exhibits

Exhibit	Exhibit Name
Exhibit 1	*Raw Traffic Volumes*
Exhibit 2	*No Build – AADT*
Exhibit 3	*No Build – AM Peak Hour*
Exhibit 4	*No Build – PM Peak Hour*

BUILD CONDITIONS

This section of the report outlines the proposed site plan and summarizes site-specific traffic characteristics.

Development Characteristics

The proposed travel center includes 120 fueling positions, and 74,000 square-foot convenience market. Access to the site will be via one right-in right-out (RIRO) drive at the SR-235 and Artz Road intersection, and one full access drive at the SR-235 and Center Point 70 Boulevard intersection. A divided median is proposed along SR-235, which separates traffic northbound thru-volumes with the westbound I-70 exit ramp. The access configuration is illustrated on the site plan included in the **Appendix.**

Trip Generation

The Institute of Transportation Engineer's (ITE) Trip Generation Manual, 11th Edition does not include data applicable to the proposed land use. The average daily and peak period trip generation rates from similar stores owned and operated by the developer were utilized to calculate the expected trip generation for the SR-235 Travel Center. These rates were compared to the rates provided by ITE for similar uses and are expected to represent a conservative (higher) estimate of site generated traffic volumes. Trip generation rates for the proposed development are provided in **Table 3.**

Table 3: Trip Generation Data – Average Rates

ITE Land Use	Units	Weekday		
		Daily	AM Peak Hour	PM Peak Hour
Travel Center with Convenience Market (Development-Specific Rate)	*120 VFP*	T = 192.37(x) 50% in/50% out	T = 10.16(x) 53% in/47% out	T = 14.1(x) 52% in/48% out

T – Site-generated trips x – Number of Vehicle fueling positions (VFP)

For the purpose of this study, site generated trips are expected to exhibit multiple routing patterns when traveling to and from the subject site, as described below:

- **Pass-By** - Pass-by traffic reflects the travel patterns of motorists who are already traveling on the adjacent study roadways and stop at the site en-route to another destination. Data in the ITE Trip Generation Handbook, Third Edition, reveals that each land use type has its own pass-by percentage. To be conservative, pass-by trip reductions were capped at 10-percent of the adjacent street traffic along SR-235.
- **Primary Trips** – Vehicles that travel to the subject development and then return directly to their place of origin are called "primary trips." Primary trips reflect new traffic volumes generated by the proposed development that would approach and depart on the same route. Trips to/from the site that are not pass-by trips are expected to be primary trips.

Per these assumptions, site-generated traffic projections are presented in **Table 4**.

Table 4: ITE Trip Generation Data – Number of Vehicle Twenty fueling positions

Land Use	Intensity	Units	Daily	AM Peak Hour			PM Peak Hour		
				Total	In	Out	Total	In	Out
Travel Center with Convenience Market (Development-Specific Rate)	120.0	VFP	23,084	1,219	646	573	1,692	880	812
Subtotal (Rounded to Nearest 10)			23,080	1,220	650	570	1,690	880	810
Adjacent Street Traffic			*16,950*	*1380*	-	-	*1730*	-	-
10% Adjacent Street Traffic (Rounded to Nearest 10)			*1695*	*138*	*69*	*69*	*173*	*87*	*87*
Pass-By (Rounded to Nearest 10)			1700	140	70	70	180	90	90
Total Net New External Trips[1] *(Rounded to Nearest 10)*			21,380	1,080	580	500	1,510	790	720

[1] – Trips to/from I-70 are considered new external trips for analysis purposes

Directional Distribution

The estimated distribution of site-generated traffic on the surrounding roadway network as it approaches and departs the site is a function of several variables, such as the nature of surrounding land uses, prevailing traffic volumes/patterns, characteristics of the street system, ease with which motorists can travel over various sections of that system, and past project team experience with similar developments across the United States. To determine the percentage of traffic traveling to/from the proposed site, traffic counts to/from each direction were compared. Based on prior experience and traffic data at existing sites of the same use, 90-percent of the site generated

volumes were assigned to Interstate 70. The anticipated directional distributions estimated for proposed site related primary trips are outlined in **Table 5.**

Table 5: Estimated Trip Distribution - Primary Trips

Direction	Estimated Primary Trip Distribution
West on I-70	45%
East on I-70	45%
South on SR-675	3%
North on Spangler Road	1%
South on SR-235	2%
North on SR-235	1%
North on SR-201	1%
South on SR-201	1%
West on Center Point 70 Boulevard	1%

The projected AADT, morning peak (AM), and evening peak (PM) site generated trips are shown in **Exhibits 5-13** as outlined in **Table 6**.

Table 6: Anticipated Site Generated Traffic Volume Exhibits

Exhibit	Exhibit Name
Exhibit 5	AADT – Primary Trips
Exhibit 6	AADT – Pass-By Trips
Exhibit 7	AADT – Total Site Generated Trips
Exhibit 8	AM Peak Hour – Primary Trips
Exhibit 9	AM Peak Hour – Pass-By Trips
Exhibit 10	AM Peak Hour – Total Site Generated Trips
Exhibit 11	PM Peak Hour – Primary Trips
Exhibit 12	PM Peak Hour – Pass-By Trips
Exhibit 13	PM Peak Hour – Total Site Generated Trips

Build Traffic Volumes

The Build traffic assignment represents traffic volumes at the study intersections upon construction of the proposed development. The Build traffic assignment consists of the No Build trips plus the total site-generated trips. The Horizon Year (2045) Build AADT, morning peak (AM), and evening peak (PM) traffic volumes are shown in **Exhibits 14-16** as outlined in **Table 7**.

Table 7: Build Certified Traffic Volume Exhibits

Exhibit	Exhibit Name
Exhibit 14	Build – AADT
Exhibit 15	Build – AM Peak Hour
Exhibit 16	Build – PM Peak Hour



Jacob Campbell, PE
Kimley-Horn

Cc: Isabella Culliton, PE – Kimley-Horn
Perry Morgan, PE – Kimley-Horn

APPENDIX:

Appendix A: Preliminary Site Plan
Appendix B: ODOT Traffic Scoping Documentation
Appendix C: Study Location
Appendix D: Certified Traffic Volume Exhibits
Appendix E: MioVision Traffic Count Data
Appendix F: ODOT TDMS Data
Appendix G: ODOT TFMS Data
Appendix H: NCHRP Spreadsheets
Appendix I: ODOT Seasonal Adjustment Factors

APPENDIX

A. Preliminary Site Plan

NORTH

GRAPHIC SCALE IN FEET
0 40 80 160

CLARK COUNTY BETHEL TOWNSHIP
SECTION 35, TOWN 3, RANGE 8 M.R.S.
MONTGOMERY COUNTY CITY OF HUBER HEIGHTS

PROPOSED BASIN

LOADING DOCK

LOADING AREA

FUELING CANOPY

TANKS

END OF LA R/W

CENTER POINT 70 BLVD.

S.R. 235

RIGHT-OF-WAY LINE

SITE INFORMATION

FUELING POSITIONS:	120
DEF POSITIONS:	8
PARKING:	698
TESLA PARKING:	24
ADA PARKING:	20
BUS/RV PARKING:	11

KEY NOTES

1. STOP SIGN, TYP.
2. BUS/RV PARKING, TYP.
3. STANDARD CURB, TYP.
4. LIGHT POLE, TYP.
5. EV CHARGING STATION, TYP.
6. TRASH COMPACTOR

APPENDIX

B. ODOT Traffic Scoping Documentation

Date Submitted_____

Scoping Document

This document is scoping guidance to be prepared by the ODOT project manager to be given to traffic analysts (either internal or consultants) for use in preparing scoping documents and fee estimates. It is a Memorandum of Understanding (MOU) between ODOT and the analyst.

Reset Form

CONTACT INFORMATION

PREPARED BY: _____ DATE: _____

ORE REVIEW (If necessary) _____ DATE: _____

PROJECT INFO

PROJECT NAME _____

PID _____ DISTRICT _____ COUNTY _____ ROUTE _____

LOG FROM: _____ TO: _____

TRAFFIC ANALYSIS TYPE:

○ Standard ○ Complex

PROJECT DESCRIPTION (context and background information)

TRAFFIC ANALYSIS OBJECTIVE:

ATTACH VICINITY AND LOCATION MAP

ANALYSIS BOUNDARY LIMITS

DESCRIBE GEOGRAPHIC LIMITS FOR ANALYSIS
(Include a scaled map showing all roadway segments, study intersections and interchanges)

STUDY PERIODS AND ANALYSIS YEARS

EXISTING YEAR _____ PROJECT OPENING YEAR _____ DESIGN YEAR _____

ANALYSIS PERIODS (i.e., AM, PM, Saturday, etc**.)** _____

TRAFFIC ANALYSIS TOOL SELECTION

DESCRIBE APPROACH TO TRAFFIC ANALYSIS (list tools to be used along with their versions) *check all that apply*:

HCS ☐ TransModeler ☐ Other ☐

DATA REQUIREMENTS AND DATA COLLECTION PLAN

DESCRIBE DATA COLLECTION PLAN (i.e. include locations, sources, techniques and schedule for each type of data (if applicable))

Turning Movement Counts ○ Yes ○ No

Segment Counts ○ Yes ○ No

Average Speeds/Travel Times ○ Yes ○ No

Queue Lengths ○ Yes ○ No

Existing Signal Timings ○ Yes ○ No

Should pedestrian WALK/DON'T WALK times be accommodated within the phase times? ○ Yes ○ No

Free-Flow Speed ○ Yes ○ No

Lane Utilization ○ Yes ○ No

Additional data needed for calibration/validation?

PROJECT TRAFFIC FORECASTING

Certified Traffic ☐ Planning Level Forecasts ☐ SDE Tool ☐ SHIFT ☐

SUMMARIZE METHODOLOGY FOR DEVELOPING TRAFFIC FORECASTS (Attach Early Coordination meeting summary)

PROJECT ALTERNATIVES

Existing Conditions Analysis ○Yes ○No

If yes, explain why:

No-Build Conditions Analysis ○Yes ○No

If no, explain why:

How many Build alternatives are anticipated? _____

PERFORMANCE MEASURES OF EFFECTIVENESS (MOES)

Level of Service (LOS)?	○ Yes ○ No
Delay?	○ Yes ○ No
Density?	○ Yes ○ No
95th Percentile Queue Length?	○ Yes ○ No
Volume-to-Capacity (v/c) ratio?	○ Yes ○ No
Queue-Storage Ratios (QSR)?	○ Yes ○ No

If "no" to any of the above, explain why:

Other MOEs required for analysis (explain MOE and how it is being obtained):

ADDITIONAL NOTES

ODOT District 7

Traffic Analysis/Traffic Impact Study
Scope of Services Supplement
(to be attached to C. O. Scoping Checklist)

Preliminary Meeting: 05/11/23 **Approved Scope Document:** 5/23/2023

Preliminary Submission:

√ Site Plan/Aerial/Site Documents-show the site, size, type of land use, ownership boundaries, surrounding ownerships, existing and proposed access points, type of access desired, alternative access points, estimated trip generation, existing traffic volumes, type of vehicles generated, adjacent public roadways, study limit map, proposed traffic count locations, etc.

√ C.O. Scoping Checklist and D#7 Scope of Services Supplement - completed in advance of the preliminary meeting to the extent possible.

*** Note: Items above must be submitted for review one week in advance of the Preliminary Meeting. ***

√ C.O. Reviewer's Checklist and C.O. Model Development Documentation Form – provided to consultant prior to preliminary meeting.

Preliminary Meeting:

√ **Discuss items submitted above and finalize scope documents for the study.**

Type of Study:

☐ **Traffic Analysis** (60-200 Trips)	☐ **TIS Level 1** (201-499 Trips)	√ **TIS Level 2** (500+ Trips) (District Approved Design Traffic)	√ **Possible IOS (C.O. Approval)**	√ **Possible IMS (FHWA Approval)**
			√ **Std. OATS Project**	☐ **Complex OATS Project**

Development Information:

Property Owner/Developer:	**Consultant: Kimley-Horn**
Type of Development: Travel Center with 120 vehicle fueling positions, 8 DEF positions, convenience market, and 20,000 sq ft restaurant.	**Acreage: Proposed development is on 38.88 Ac.**
Development Location: SR 235/Center Point Boulevard	**Change in Use: Yes**
City: Huber Heights	**Township: N/A**

Primary Roadway and Access Data:

County: Montgomery	**Route: SR235**	**Section: 1.97 to 2.33**	
Functional Class: Major Collector	**NHS: No**	**Posted Speed: 50 mph**	**Design Speed: 55 mph**

Access Category: ☐ **Category 1 (CO Review)** ☐ **Category 2** √ **Category 3** **Drive Spacing Required:** **425'**

Restrictions: _____

√ **New Access Request** ☐ **Existing Access Revision** ☐ **Limited Access Right of Way**

Type of Access Proposed: √ **Full** ☐ **Li/Ri/Ro** ☐ **Ri/Ro** ☐ **Ri only** ☐ **Ro only** ☐ **Other** _____

No. of Existing Accesses Along Frontage/Revisions: **2 commercial drives, 1 field drive**

Agency with Access Jurisdiction: **City of Huber Heights**

Secondary Roadway and Access Data:

County: Montgomery	**Route: SR235**	**Section: 1.34 to 1.97**	
Functional Class: Principal Arterial	**NHS: Yes**	**Posted Speed: 60 mph**	**Design Speed: 65 mph**

Access Category: √ **Category 1 (CO Review)** ☐ **Category 2** ☐ **Category 3** **Drive Spacing Required:** **570'**

Restrictions:

_____

☐ **New Access Request** ☐ **Existing Access Revision** √ **Limited Access Right of Way**

Type of Access Proposed: ☐ **Full** ☐ **Li/Ri/Ro** ☐ **Ri/Ro** √ **Ri only** ☐ **Ro only** ☐ **Other** _____

No. of Existing Accesses Along Frontage/Revisions: **1 commercial drive**

Agency with Access Jurisdiction: ODOT

Variance:

☐ **Variance is required. Type of variance requested:** _____

ODOT standards that cannot be met: _____

Justification to support the access variance request: _____

Additional Right of Way Required/Limited Access Modification:

√ **Additional R/W May Be Required** √ **R/W Plans May Be Required** √ **Possible R/W Donation to ODOT/City**

√ **Limited Access Modification Required. Involves appraisal, enhancement fee payment, survey, exhibit preparation, grant of access instrument, recording, road record update.** √ ***CO/FHWA Review Required***

Study Area/Site Driveway Intersection(s):

List All Study Intersections	Signal	Stop	Roundabout	Other (Describe)
SR 235/Artz Drive/Proposed right-in, right-out driveway	☐	√	☐	☐
SR 235/Centerpoint Boulevard/Proposed full-access driveway	√	☐	☐	☐
SR 235/Coca-Cola Boulevard	√	☐	☐	☐
IR 70/SR 235	☐	☐	☐	√ Interchange
IR 70/SR 201 (all ramp, merge/diverge, freeway; not including ramp intersections)	☐	☐	☐	√ Interchange
IR 70/IR 675 (full interchange – all ramp, merge/diverge, freeway segments)	☐	☐	☐	√ Interchange
	☐	☐	☐	☐

☐ **24-hour Machine Count Required** ☐ **Pedestrian Count Required**

√ **Take Weekday Peak Hour Traffic Counts on a T-W-TH (non-holiday weeks) at the following location(s)/time(s):**
(Need 4 consecutive hours for both AM and PM Peak between 6-10 AM and 2-7 PM. Schools, factories, etc. may require additional counts for site peak hours. Both site peak and roadway peak hours may require analysis. If development site is near an interchange and recommendations may include changes to the interchange that would require an interchange study (IOS or IMS), traffic counts shall encompass IOS/IMS limits). Include vehicle classifications and heavy vehicle percentages.

☐ **Take Site Peak Hour Traffic Counts on a T-W-TH at the following location(s)/time(s):**

☐ **Take Weekend Peak Hour Traffic Counts on a SA-SU at the following location(s)/time(s):**

☐ **Take Weekday Eight Hour Traffic Counts on a T-W-TH at the following location(s)/time(s):**

Location	AM	Mid-Day	PM	SA	SU
SR 235/Artz Drive/Proposed right-in, right-out driveway	6-10 am		3-7 pm	10am to 6pm	
SR 235/Centerpoint Boulevard/Proposed full-access driveway	6-10 am		3-7 pm	10am to 6pm	
SR 235/Coca-Cola Boulevard	6-10 am		3-7 pm	10am to 6pm	

Notes: _____

☐ **If existing demand exceeds capacity, traffic counts shall be adjusted to reflect actual demand per OATS Section 4.2.2.**

☐ **If lanes are not equally utilized within the same movement group (dual lefts, dual thru's), a lane utilization factor shall be field measured per OATS Section 4.7.**

☐ **For Complex Type projects, average speeds and travel time data is required and can be obtained from INRIX/*Streetlight Insight*/Tru-Traffic per OATS Section 4.3. Queue lengths should be field measured at intersections where demand exceeds capacity per OATS Section 4.4. Calibration of HCS analysis to field-measured traffic conditions should be done per OATS Section 6.5. Calibration and validation of TransModeler analysis to field-measured traffic conditions should be done per OATS Section 7.3.**

√ Complete the C.O. Model Development Documentation Form for all Complex Type projects. If any ODOT default values were changed for a Standard Type project, the Model Development Documentation Form will also need to be completed. If no ODOT default values were changes on a Standard Project, include a statement stating such with the traffic analysis.

Traffic Scenarios:

Use the following Traffic Scenarios: □ 10 Year Design Horizon √ 20 Year Design Horizon

X	Opening Year No Build Traffic Volumes	X	Opening Year Build Traffic Volumes
	Intermediate Year No Build Traffic Volumes		Intermediate Year Build Traffic Volumes
X	Design Year No Build Traffic Volumes	X	Design Year Build Traffic Volumes

Growth Rate(s) and Traffic Forecast:

Use the following growth rates

Primary Roadway Rate: _____ Basis: _____
Secondary Roadway Rate: _____ Basis: _____

Other Roadway(s): _____ Rate: _____ Basis: _____
_____ Rate: _____ Basis: _____

√ Traffic Forecast shall follow the procedures in Volume 1, Chapter 8 of Ohio Design Traffic Forecasting Manual.
Submit NCHRP Spreadsheet (see High Risk Certified Traffic Forecast).

Design Hourly Volume (DHV's):

Convert the existing Peak Hour Traffic Volumes to Design Hourly Volumes (DHV's) based on:
□ SHAMM Hourly Count Method 1 (□ with Covid adjustments) √ Ohio Design Traffic Forecasting Manual Vol. 1, Chapter 8 per M&F calibration document

Trip Generation:

√ Prepare trip generation using the Institute of Transportation Engineer's *Trip Generation* Manual, latest edition. List the basis for the directional distribution of the development traffic. Will be using data from similar sites for this study instead of ITE trip generation.

√ Assign development generated traffic volumes to the adjacent street network.

Capacity Analyses:

√ Perform HCS analysis using the *Highway Capacity Manual,* latest edition at study area intersections/site driveways during the peak hour time periods for the following Traffic Scenarios:

Design Year No Build Traffic Volumes – This is a true no build analysis and shall not include any geometric or operational improvements. This analysis shall use the existing geometry and existing traffic control.

Design Year Build Traffic Volumes (Build Condition #1) – This analysis shall use the existing geometry and existing traffic control.

Design Year Build Traffic Volumes (Build Condition #2) – This analysis shall use the proposed geometry and proposed traffic control.

(Build Condition #2 is required if Build Condition #1 does not meet established geometric and operational criteria. If Build Condition #2 is required, the analysis values for Build Condition #2 shall be used to compute turn lane lengths, check thru lane backup, etc.).

√ See OATS Section 6.2.2.1 for default saturation flow rate, arrival type, upstream filtering, initial queue, right turn on red value and queue length percentile to be used for all HCS intersection analyses. Full Optimization should be used for traffic signal timing optimization. The "Full Report" option should be used for the reporting of signalized intersection analyses results.

√ Perform microsimulation analyses (with TransModeler) to supplement HCS (if authorized). See OATS Chapter 7 for guidance on traffic simulation with TransModeler. *(May be required for Build Condition.)*

√ Free-flow speed used for all HCS and TransModeler analysis shall be the posted speed limit plus 5 mph.

Degradation:

√ Compare the Design Year No Build to the Design Year Build Traffic Volumes, check for degradation per SHAMM Section 9.46.

Performance Measures of Effectiveness (MOE's):

√ At a minimum, report LOS output, delay or density, 95th percentile queue lengths, volume-to-capacity ratios (v/c's) and queue-storage ratios (QSR's) for all analyses per OATS Section 1.1.10.

√ Per OATS Section 5.7, future year intersection analyses should be conducted using optimized signal timings with an operational goal of an overall intersection LOS of D or better within MPO boundaries and LOS C or better outside those limits.

Approach and Control LOS at E or better and no individual movement with v/c's greater than 1.0 (less than or equal to 0.93 preferred). QSR's should be less than 1.0 for all movements.

√ Present summaries of analyses results in tabular presentation format as outlined in OATS Chapter 8. Use format shown in Tables 8-1 and 8-2.

Traffic Signal Warrant Study:

□ Prepare a traffic signal warrant study at the following intersection(s) in accordance with ODOT standards using the ODOT Signal Warrant Spreadsheet for the following Traffic Scenarios:

Location	Opening Year Build Traffic Volumes	Intermediate Year Build Traffic Volumes	Design Year Build Traffic Volumes

□ Use 100% Values for signal warrant(s). 70% values can be used if location is in municipality (signal shall be approved/owned by municipality. In split corp, municipality can approve the signal but an agreement is required stating municipality will own, operate and maintain signal).

□ Village signal permit issued by the Traffic Operations Engineer (as needed for any signals within the Village).

√ Obtain existing signal timings from maintaining agency (field measure if needed). □ Prepare a signal coordination analysis. Cycle lengths in future year analyses should use optimized signal timings typically between 60 and 120 seconds.

Turn Lane Warrants/Queuing Analyses

√ Intersection capacity analysis procedures from the HCM shall be used to determine the number and use of turn lanes. For unsignalized intersections, check if warrants shown in ODOT's L&D Vol 1 Figures 401- 5a-5c and 401- 6a-6d are satisfied. Turn lane warrants/queuing analyses shall be performed using analyses values from Build Condition #1 or Build Condition #2 (if required) to determine if turn lanes or turn lane extensions are required at study area intersections/site driveway(s) per ODOT's L&D Vol 1. Use Figure 401-9 and 401-10 in ODOT's L&D Vol 1 for turn lane length determinations. For signalized intersections, HCS queue lengths shall also be considered in turn lane length determinations along with thru lane queue blockage of turn lanes.

√ Include a plan sheet showing conceptual geometry for all study area intersections/site driveways if roadway or traffic control improvements are warranted.

Study Submittals:

□ TRAFFIC ANALYSIS SUBMISSION

√ TRAFFIC COUNT SUBMISSION (counts, volumes, trip gen, dist. %'s) (include all spreadsheets used for calculations)

√ TRAFFIC ANALYSIS STUDY SUBMISSION

√ Send submissions to additional agencies listed below for review and comment:
City of Huber Heights
Montgomery County

√ Submit Reviewer's Checklist with Traffic Submission

□ Submit Model Development Documentation Form

Permit Requirements/Submittals:

√ ELECTRONIC MR505 PERMIT APPLICATION for work in ODOT R/W (include expected site trips using the ITE Manual. If the access request will become a public street, include letter from County/City Engineer indicating approval of roadway plan).

√ Deed showing ownership in the permittee's name.

√ Site Plan and Construction Plan (prepared in accordance with current ODOT L&D Manual Standards).

√ Cost Estimate for the work in ODOT's right of way.

√ Performance Bond √ Maintenance Bond □ ODOT as Additional Insured Party (Public Agency Contract)

√ Possible Sidewalk Agreement □ Possible Signal Agreement

√ Construction Plan/R/W Plan Submission √ Construction Plan/R/W Plan Compliance Submission

√ Estimated Begin Construction Date: Spring 2024

Construction plans shall be prepared in accordance with the most current version of the Department's design manuals and documents on the date of the Approved Scope Document (see http://www.dot.state.oh.us/drrc/). All work required by the design manuals shall be performed. Absence of a specific reference to required elements of the work in this Scope of Services shall not relieve the consultant/agency of responsibility to perform the work.

Other Requirements:

√ Environmental Review – An environmental review/document could be required for a new or modified access point located in limited access right of way (turn lanes added). An environmental review/document would be required for any right of way donation to ODOT.

√ Right of Way Donation – Additional right of way donation to ODOT could be required for pavement widening for a new access point, turn lanes, grading or for large signs, new strain poles/relocations, etc.

√ Prequalification – Consultants and contractors doing work on permit projects with a Traffic Analysis or Traffic Impact Study are required to be prequalified with ODOT for the specific work type they are performing on the project.

√ Utilities – The permittee is responsible for all utility relocation activities required on a permit project (perform utility coordination, insure necessary utility permits obtained prior to relocation work, etc.).

√ Upcoming Projects – The following projects are being constructed by ODOT in the immediate area over the next few years and may require coordination between contractors:

C-R-S	PID	Project Manager	Award Date	End Construction
MOT/CLA-70-17.38/0.00	112417	Tom Knapke	1/1/26	9/30/26
CLA IR 70 0.51/20.91 double microsurfacing	105361	Tom Knapke	2/11/25	8/31/25
CLA-675-0.00 Resurfacing	114555	Tom Knapke	1/1/26	7/1/26

Notes:

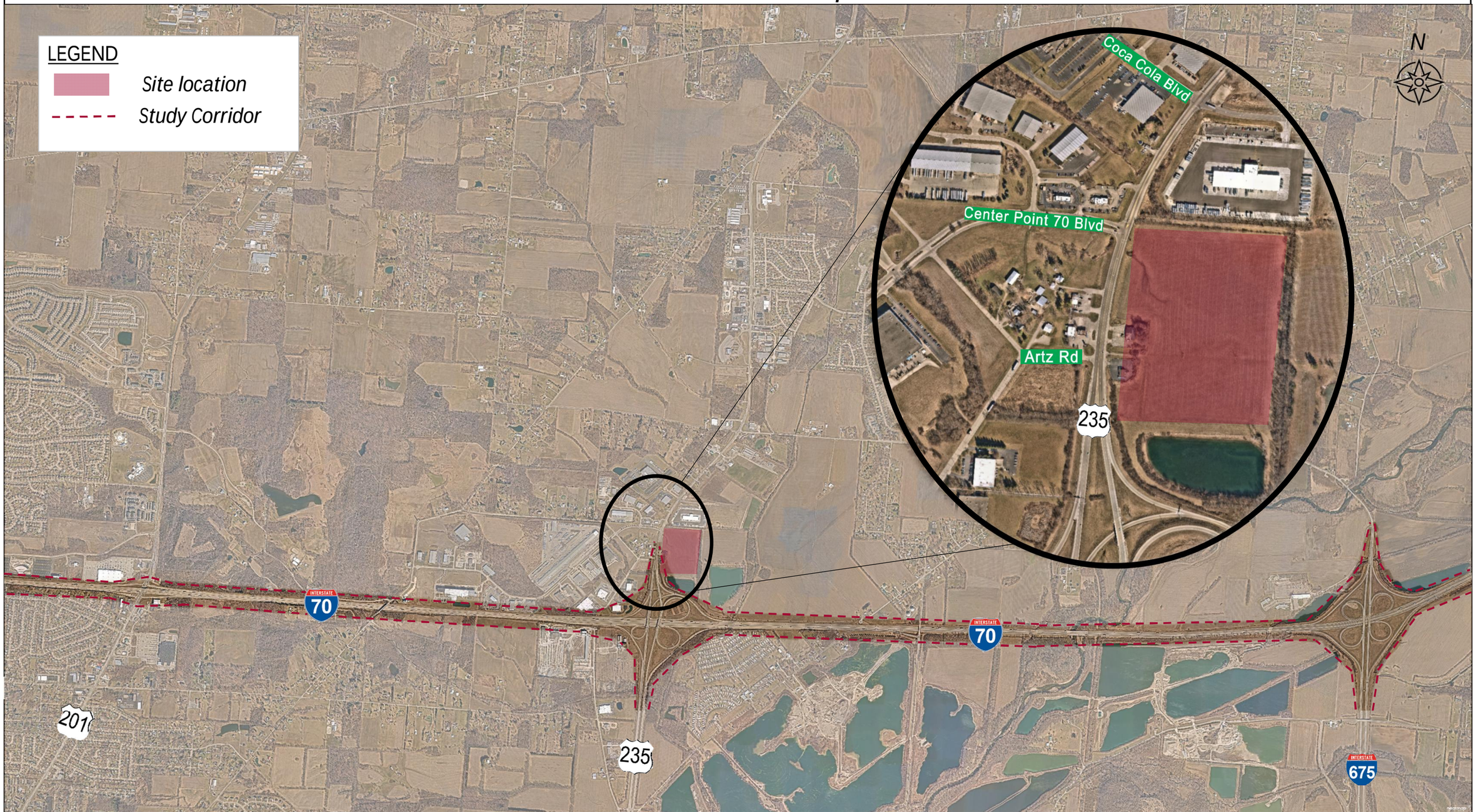
-OATS Manual Training Videos are available on ODOT website. See OATS Manual for guidance on using the PHF of the specific intersection in the study.

-Storage lengths must be entered for all approach lanes, including thru lanes.

APPENDIX

C. Study Location

Site Location Map

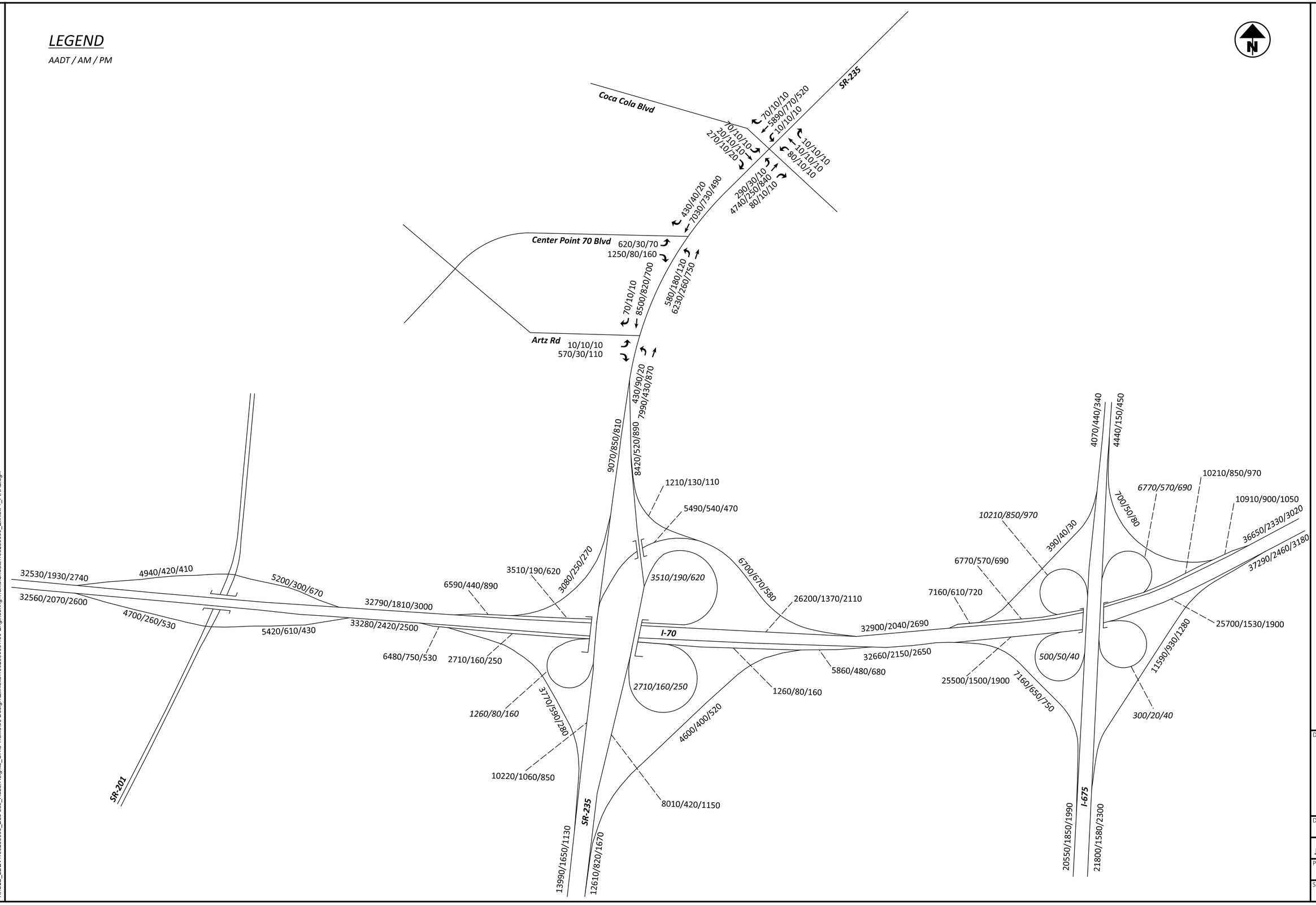


APPENDIX

D. Certified Traffic Volume Exhibits

LEGEND

AADT / AM / PM



CERTIFIED TRAFFIC

MODEL: VOLUME EXHIBIT PAPERSIZE: 34x22 (in.) DATE: 2/14/2024 TIME: 10:59:32 AM USER: AkwesiLampley
K:\CLB_LDEV\190255000_Buc-ees_HuberHeights_OH8 Traffic\06 Design\Exhibits\190255000\400-Engineering\Traffic\Sheets\190255000_Exhibit 1_FINAL.dgn

EXHIBIT 1: RAW TRAFFIC VOLUMES

DESIGN AGENCY
Kimley»Horn

DESIGNER
VIL

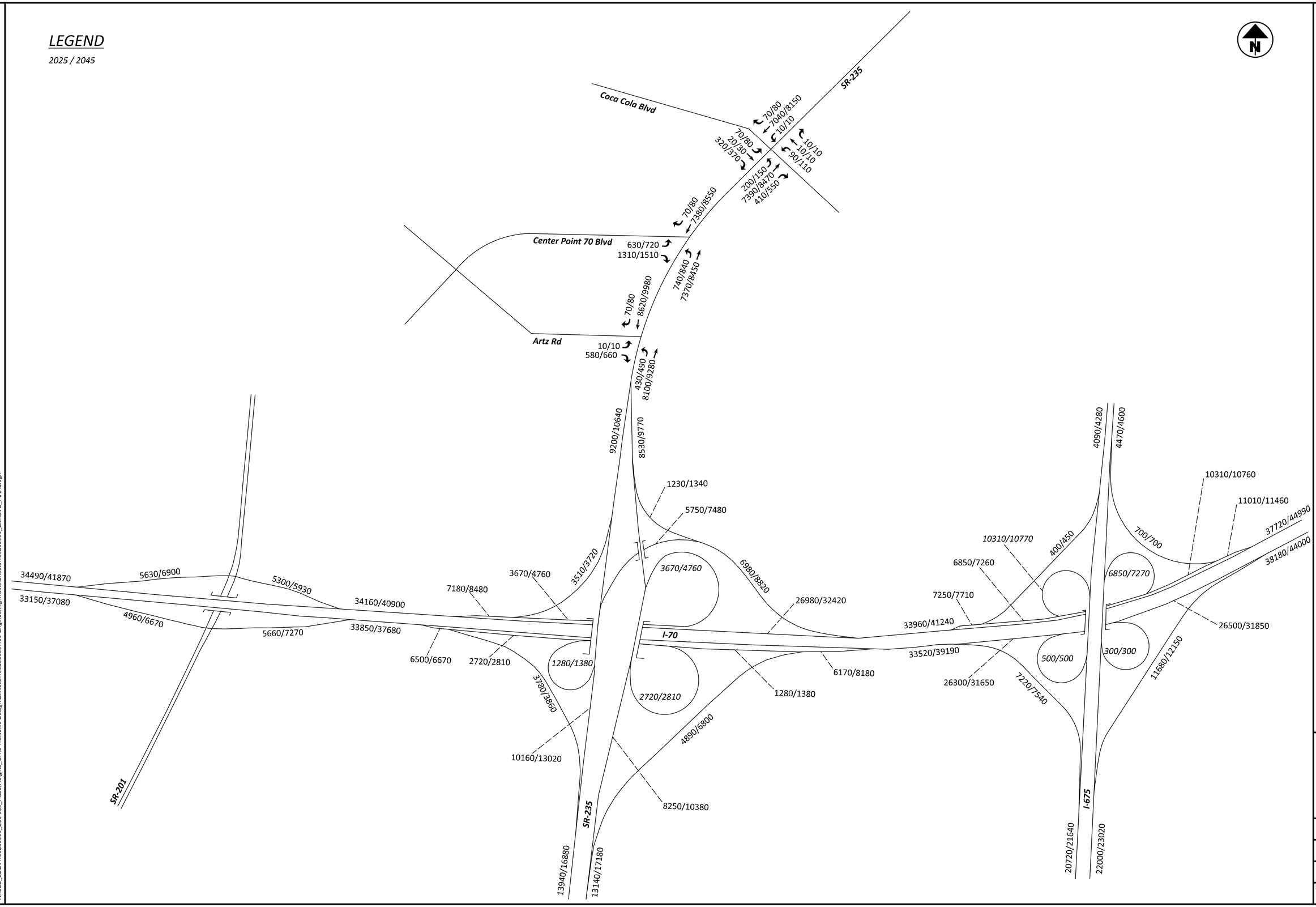
REVIEWER
JDC 02/14/24

PROJECT ID
190255000

SHEET 1 | TOTAL *18*

LEGEND

2025 / 2045



CERTIFIED TRAFFIC

MODEL: VOLUME EXHIBIT PAPERSIZE: 34x22 (in.) DATE: 2/14/2024 TIME: 10:59:32 AM USER: AkwesiLampley
K:\CLB_LDEV\190255000_Buc-ees_HuberHeights_OH\8 Traffic\06 Design\Exhibits\190255000\400-Engineering\Traffic\Sheets\190255000_Exhibit 2_FINAL.dgn

EXHIBIT 2: NO BUILD - AADT

DESIGN AGENCY
Kimley»Horn

DESIGNER
VIL

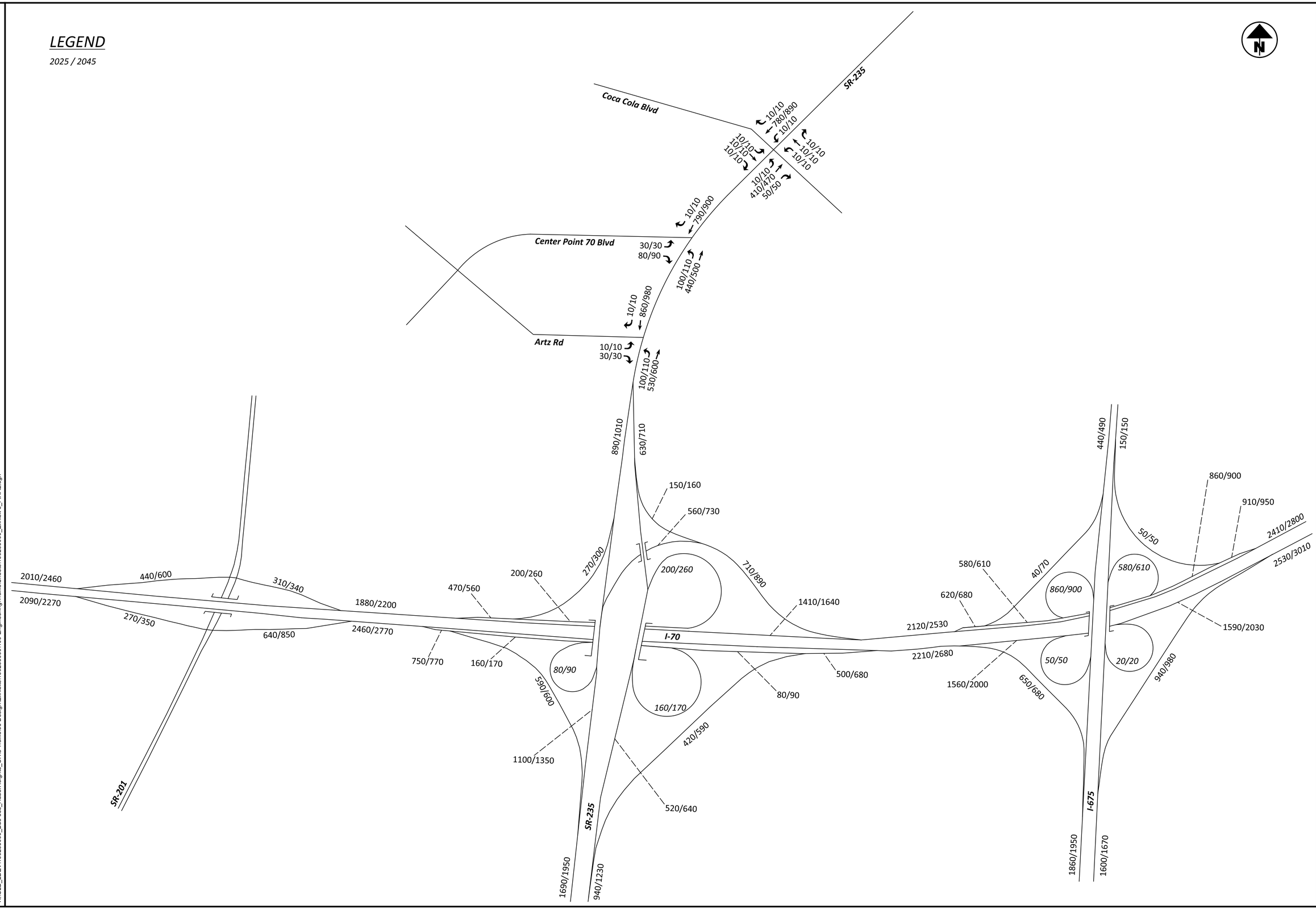
REVIEWER
JDC 02/14/24

PROJECT ID
190255000

SHEET 2 | TOTAL 18

LEGEND

2025 / 2045



CERTIFIED TRAFFIC

MODEL: VOLUME EXHIBIT PAPERSIZE: 34x22 (in.) DATE: 2/14/2024 TIME: 10:59:33 AM USER: AkwesiLamptey
K:\CLB_LDEV\190255000_Buc-ees_HuberHeights_OH\8 Traffic\06 Design\Exhibits\190255000\400-Engineering\Traffic\Sheets\190255000_Exhibit 3_FINAL.dgn

EXHIBIT 3: NO BUILD - AM PEAK HOUR

DESIGN AGENCY
Kimley»Horn

DESIGNER
VIL

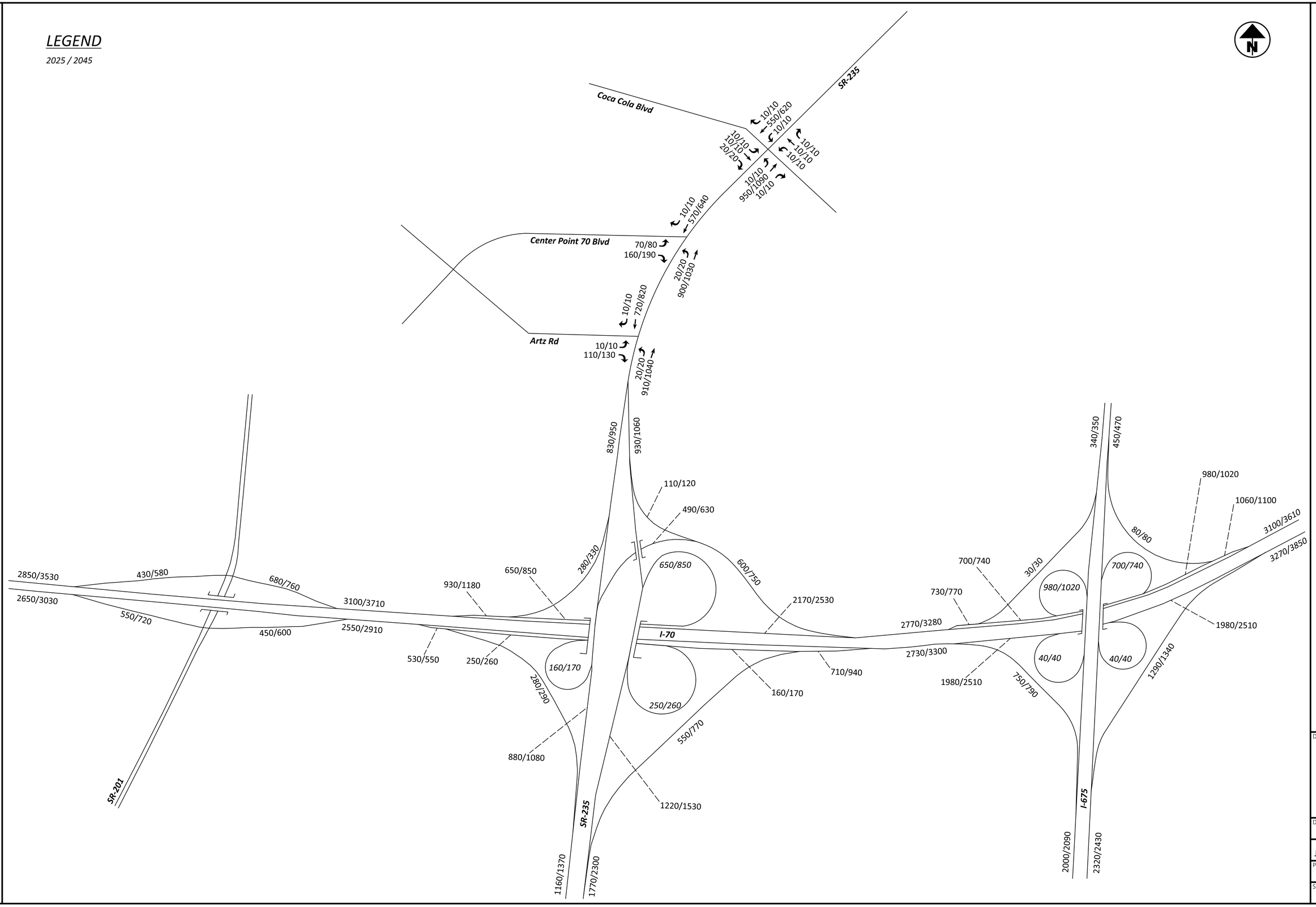
REVIEWER
JDC 02/14/24

PROJECT ID
190255000

SHEET 3 | TOTAL 18

LEGEND

2025 / 2045



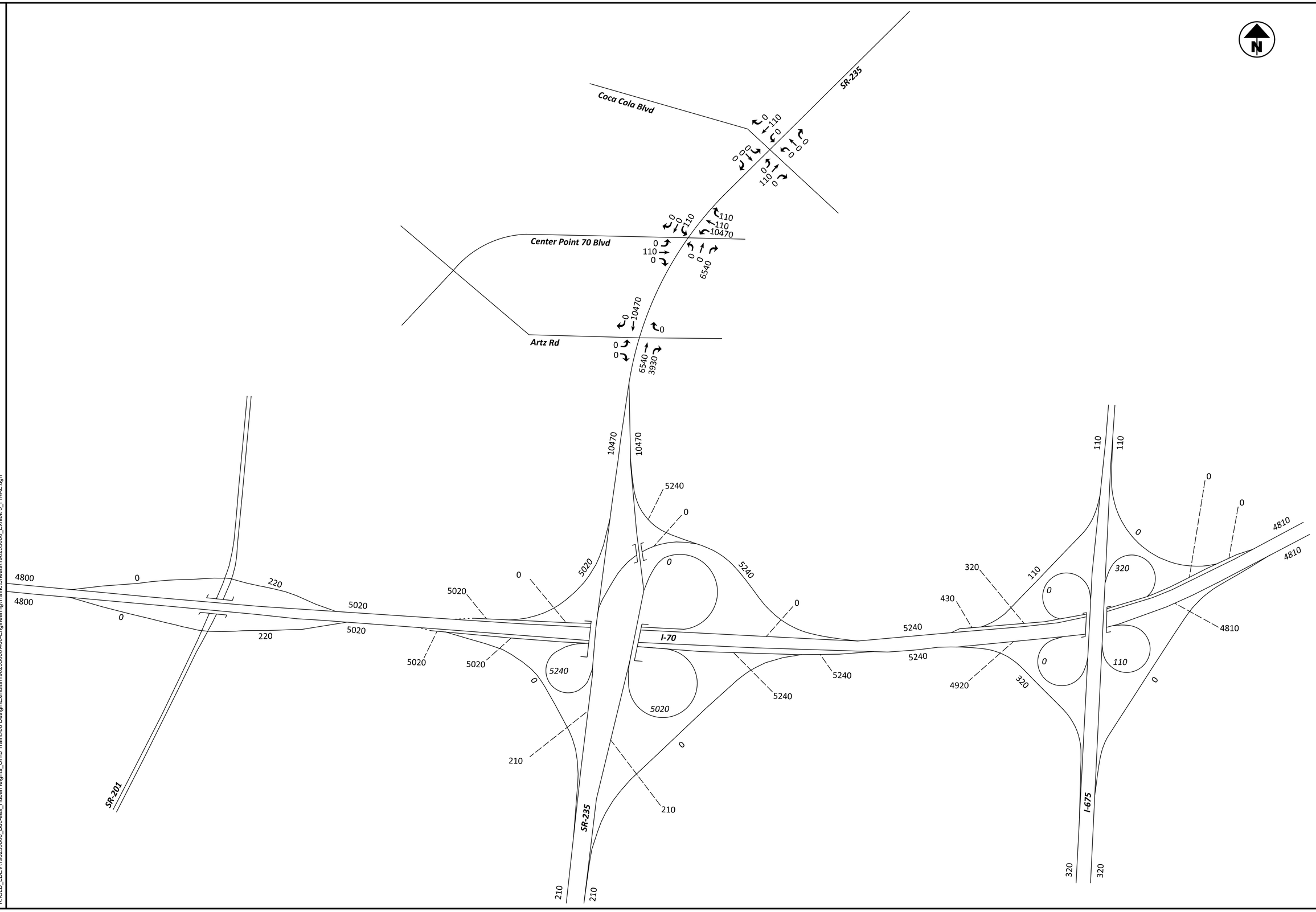
CERTIFIED TRAFFIC

MODEL: VOLUME EXHIBIT PAPERSIZE: 34x22 (in.) DATE: 2/14/2024 TIME: 10:59:34 AM USER: Akwesi.Lampley
K:\CLB_LDEV\190255000_Buc-ees_HuberHeights_OH\8 Traffic\06 Design\Exhibits\190255000\400-Engineering\Traffic\Sheets\190255000_Exhibit 4_FINAL.dgn

EXHIBIT 4: NO BUILD - PM PEAK HOUR

DESIGN AGENCY
Kimley»Horn

DESIGNER	VIL
REVIEWER	JDC 02/14/24
PROJECT ID	190255000
SHEET	4
TOTAL	18



CERTIFIED TRAFFIC

MODEL: Sheet_SurvFt PAPERSIZE: 34x22 (in.) DATE: 2/14/2024 TIME: 10:59:34 AM USER: AkweiLamptey
K:\CLB_LDEV\190255000_Buc-ees_HuberHeights_OH\8 Traffic\06 Design\Exhibits\190255000\400-Engineering\Traffic\Sheets\190255000_Exhibit 5_FINAL.dgn

EXHIBIT 5: AADT - PRIMARY TRIPS

DESIGN AGENCY
Kimley»Horn

DESIGNER
VIL

REVIEWER
JDC 02/14/24

PROJECT ID
190255000

SHEET 5 | TOTAL 18

CERTIFIED TRAFFIC

MODEL: Sheet_SurvFt PAPERSIZE: 34x22 (in.) DATE: 2/14/2024 TIME: 10:59:35 AM USER: AkwesiLampley
K:\CLB_LDEV\190255000_Buc-ees_HuberHeights_OH8 Traffic\06 Design\Exhibits\190255000\400-Engineering\Traffic\Sheets\190255000_Exhibit 6_FINAL.dgn

Coca Cola Blvd

SR-235

Center Point 70 Blvd

Artz Rd

SR-201

I-70

SR-235

I-675

EXHIBIT 6: AADT - PASS-BY TRIPS

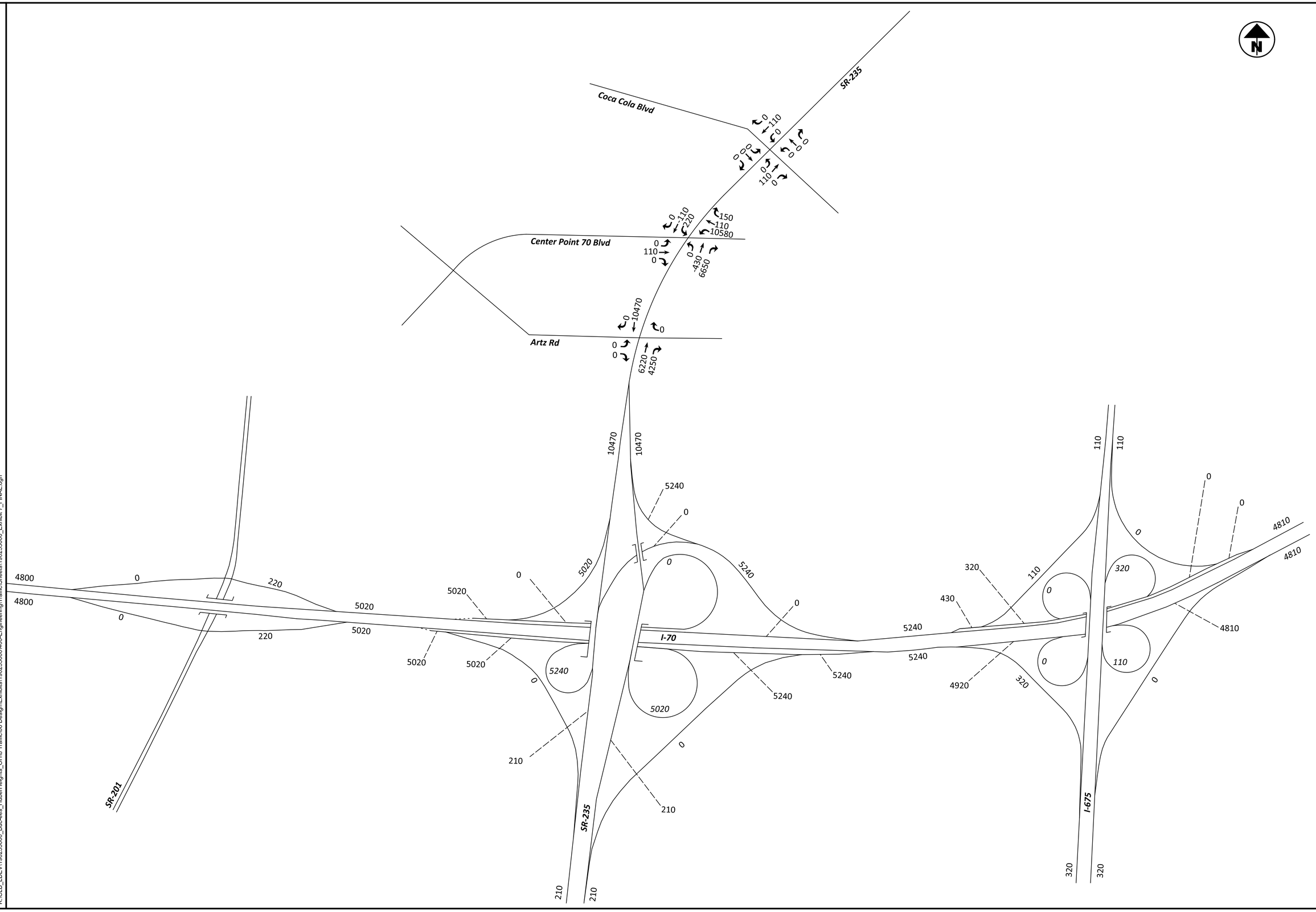
DESIGN AGENCY
Kimley»Horn

DESIGNER
VIL

REVIEWER
JDC 02/14/24

PROJECT ID
190255000

SHEET 6 TOTAL 18



CERTIFIED TRAFFIC

MODEL: Sheet_SurvFt PAPERSIZE: 34x22 (in.) DATE: 2/14/2024 TIME: 10:59:36 AM USER: Akwesi.Lampley
K:\CLB_LDEV\190255000_Buc-ees_HuberHeights_OH\8 Traffic\06 Design\Exhibits\190255000\400-Engineering\Traffic\Sheets\190255000_Exhibit 7_FINAL.dgn

EXHIBIT 7: AADT - TOTAL SITE GENERATED TRIPS

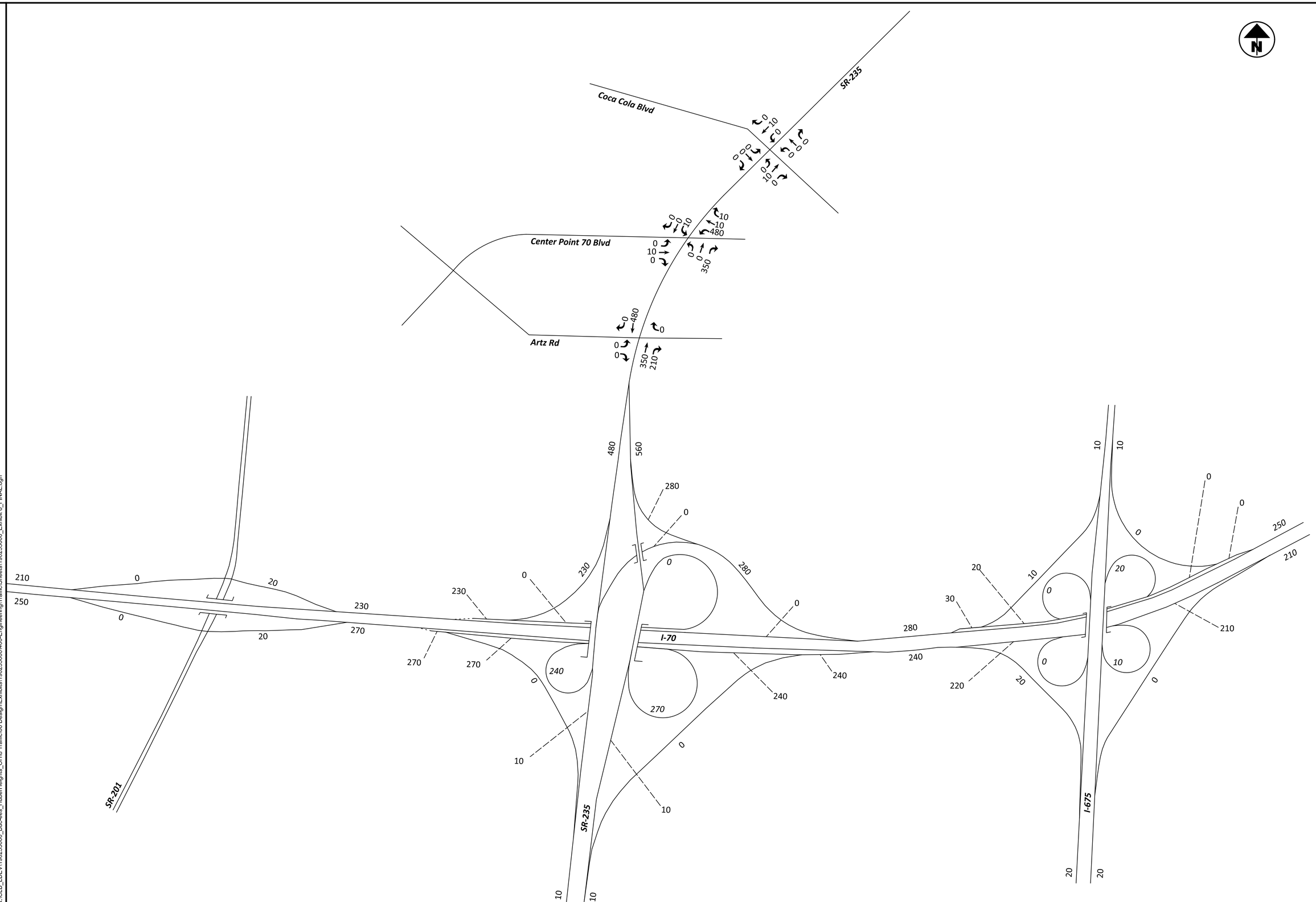
DESIGN AGENCY
Kimley»Horn

DESIGNER
VIL

REVIEWER
JDC 02/14/24

PROJECT ID
190255000

SHEET 7 | TOTAL 18



CERTIFIED TRAFFIC

MODEL: Sheet_SurvFt PAPERSIZE: 34x22 (in.) DATE: 2/14/2024 TIME: 10:59:36 AM USER: Akwesi.Lampley
K:\CLB_LDEV\190255000_Buc-ees_HuberHeights_OH\8 Traffic\06 Design\Exhibits\190255000\400-Engineering\Traffic\Sheets\190255000_Exhibit 8_FINAL.dgn

EXHIBIT 8: AM PEAK HOUR - PRIMARY TRIPS

DESIGN AGENCY
Kimley»Horn

DESIGNER
VIL

REVIEWER
JDC 02/14/24

PROJECT ID
190255000

SHEET 8 | TOTAL 18

Coca Cola Blvd

SR-235

Center Point 70 Blvd

Artz Rd

SR-201

I-70

SR-235

I-675

EXHIBIT 9: AM PEAK HOUR - PASS-BY TRIPS

CERTIFIED TRAFFIC

MODEL: Sheet_SurvFt PAPERSIZE: 34x22 (in.) DATE: 2/14/2024 TIME: 10:59:37 AM USER: Akwesi.Lampley
K:\CLB_LDEV\190255000_Buc-ees_HuberHeights_OH\8 Traffic\06 Design\Exhibits\190255000\400-Engineering\Traffic\Sheets\190255000_Exhibit 9_FINAL.dgn

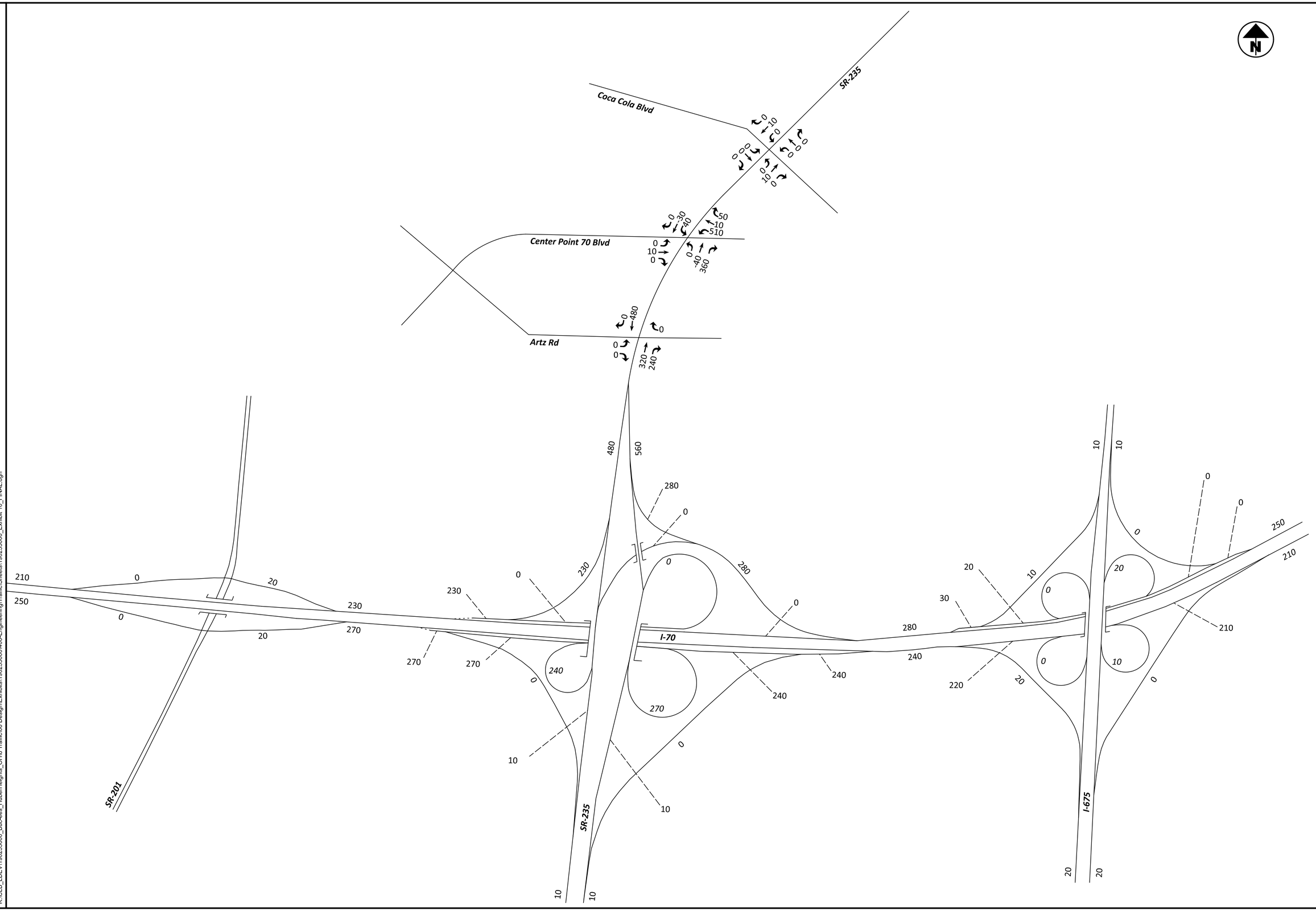
DESIGN AGENCY
Kimley»Horn

DESIGNER
VIL

REVIEWER
JDC 02/14/24

PROJECT ID
190255000

SHEET 9 | TOTAL 18



CERTIFIED TRAFFIC

MODEL: Sheet_SurvFt PAPERSIZE: 34x22 (in.) DATE: 2/14/2024 TIME: 10:59:37 AM USER: AkweiLamptey
K:\CLB_LDEV\190255000_Buc-ees_HuberHeights_OH\8 Traffic\06 Design\Exhibits\190255000\400-Engineering\Traffic\Sheets\190255000_Exhibit 10_FINAL.dgn

EXHIBIT 10: AM PEAK HOUR - TOTAL SITE GENERATED TRIPS

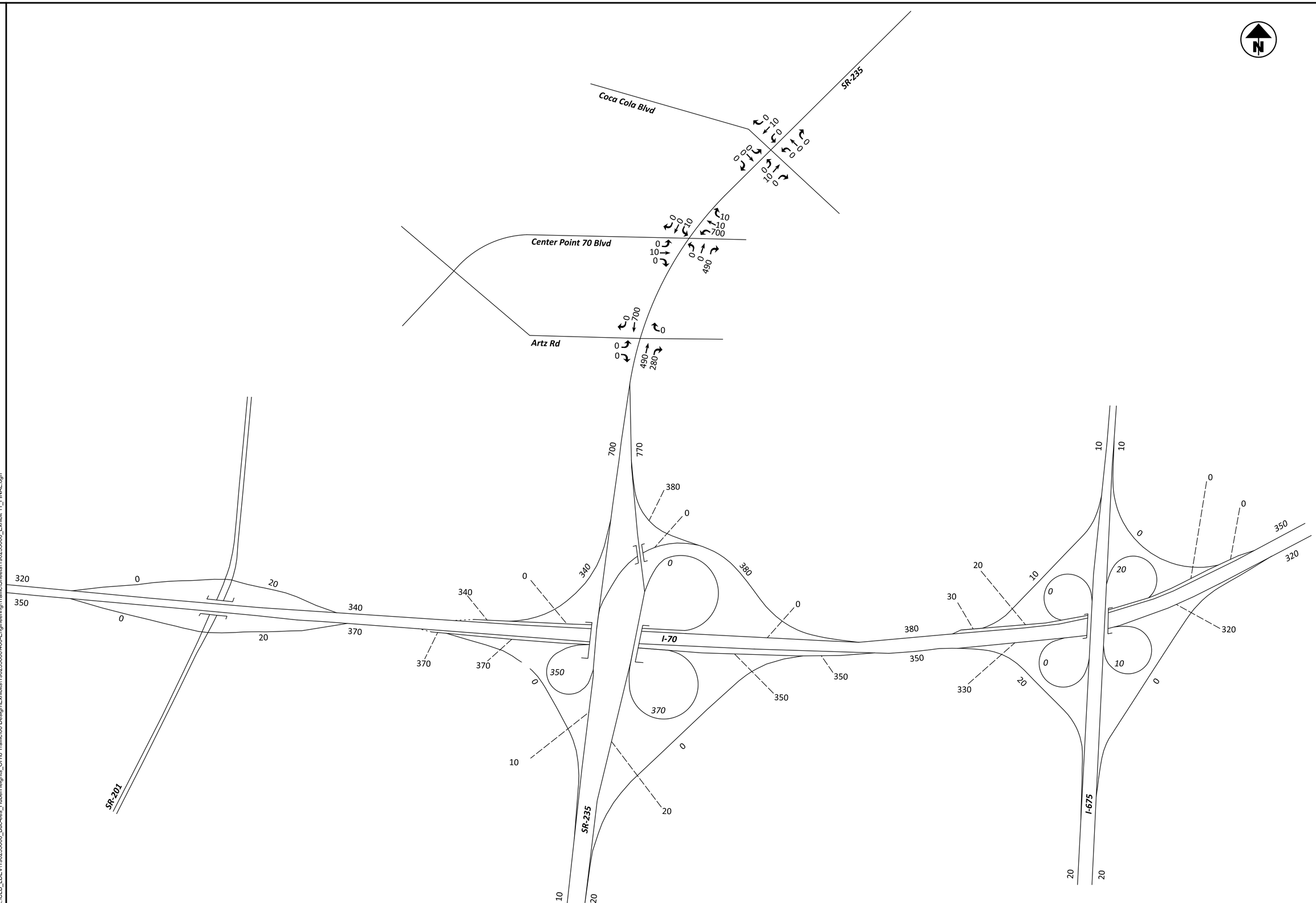
DESIGN AGENCY
Kimley»Horn

DESIGNER
VIL

REVIEWER
JDC 02/14/24

PROJECT ID
190255000

SHEET 10 | TOTAL 18



CERTIFIED TRAFFIC

MODEL: Sheet_SurvFt PAPERSIZE: 34x22 (in.) DATE: 2/14/2024 TIME: 10:59:38 AM USER: Akwesi.Lampley
K:\CLB_LDEV\190255000_Buc-ees_HuberHeights_OH\8 Traffic\06 Design\Exhibits\190255000\400-Engineering\Traffic\Sheets\190255000_Exhibit 11_FINAL.dgn

EXHIBIT 11: PM PEAK HOUR - PRIMARY TRIPS

DESIGN AGENCY
Kimley»Horn

DESIGNER
VIL

REVIEWER
JDC 02/14/24

PROJECT ID
190255000

SHEET 11 | TOTAL 18

CERTIFIED TRAFFIC

MODEL: Sheet_SurvFt PAPERSIZE: 34x22 (in.) DATE: 2/14/2024 TIME: 10:59:39 AM USER: AkwesiLampley
K:\CLB_LDEV\190255000_Buc-ees_HuberHeights_OH\8 Traffic\06 Design\Exhibits\190255000\400-Engineering\Traffic\Sheets\190255000_Exhibit 12_FINAL.dgn

EXHIBIT 12: PM PEAK HOUR - PASS-BY TRIPS

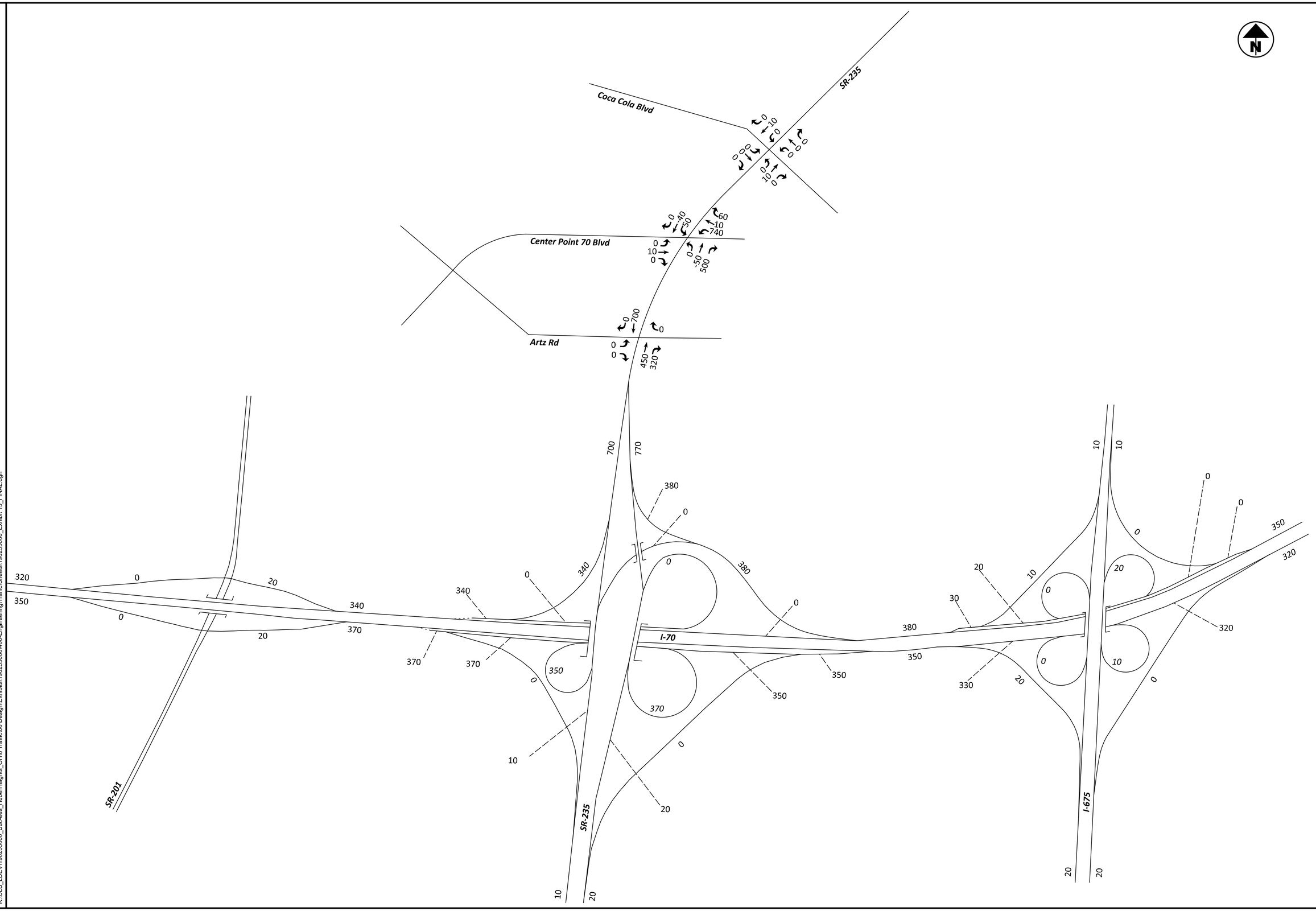
DESIGN AGENCY
Kimley»Horn

DESIGNER
VIL

REVIEWER
JDC 02/14/24

PROJECT ID
190255000

SHEET 12 | TOTAL 18



CERTIFIED TRAFFIC

MODEL: Sheet_SurvFt PAPERSIZE: 34x22 (in.) DATE: 2/14/2024 TIME: 10:59:39 AM USER: AkwesiLampley
K:\CLB_LDEV\190255000_Buc-ees_HuberHeights_OH8 Traffic\06 Design\Exhibits\190255000\400-Engineering\Traffic\Sheets\190255000_Exhibit 13_FINAL.dgn

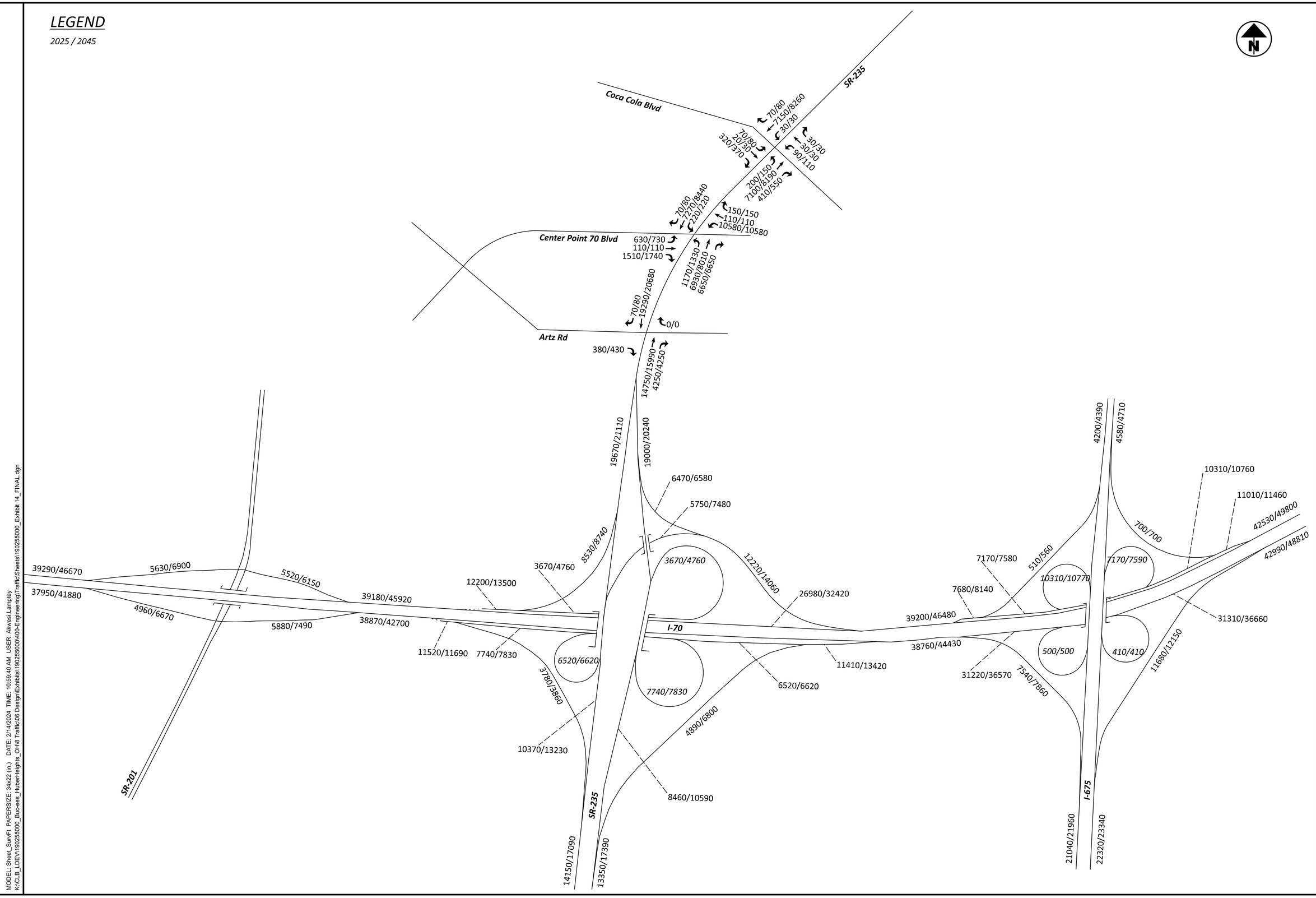
EXHIBIT 13: PM PEAK HOUR - TOTAL SITE GENERATED TRIPS

DESIGN AGENCY
Kimley»Horn

DESIGNER	VIL
REVIEWER	JDC 02/14/24
PROJECT ID	190255000
SHEET	13
TOTAL	18

LEGEND

2025 / 2045



CERTIFIED TRAFFIC

MODEL: Sheet_SurvFt PAPERSIZE: 34x22 (in.) DATE: 2/14/2024 TIME: 10:59:40 AM USER: AkwesiLampley
K:\CLB_LDEV\190255000_Buc-ees_HuberHeights_OH\8 Traffic\06 Design\Exhibits\190255000\400-Engineering\Traffic\Sheets\190255000_Exhibit 14_FINAL.dgn

EXHIBIT 14: BUILD AADT

DESIGN AGENCY
Kimley»Horn

DESIGNER
VIL

REVIEWER
JDC 02/14/24

PROJECT ID
190255000

SHEET 14 | TOTAL 18

LEGEND

2025 / 2045

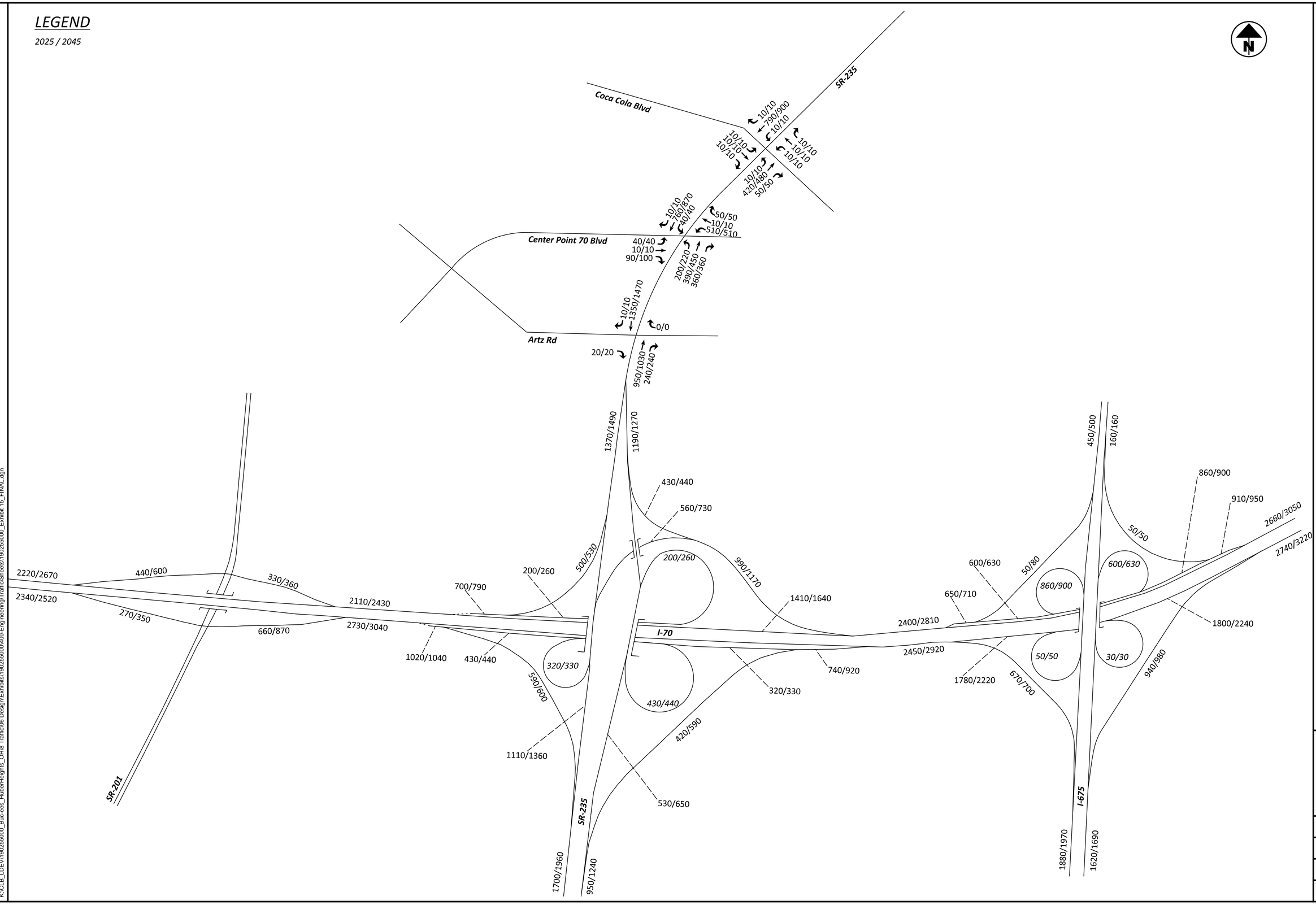


EXHIBIT 15: BUILD AM PEAK HOUR

CERTIFIED TRAFFIC

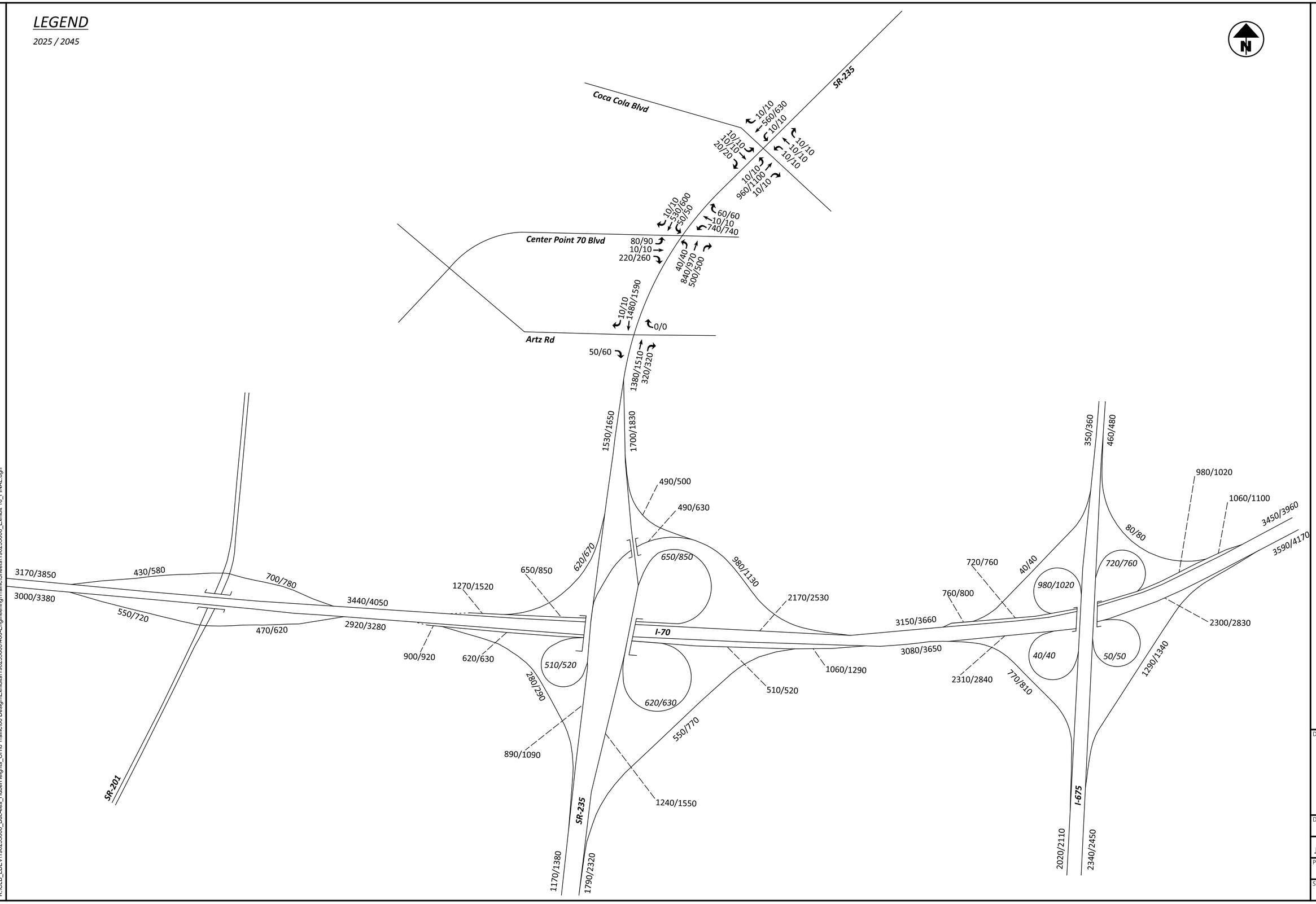
MODEL: Sheet_SunFl PAPERSIZE: 34x22 (in.) DATE: 2/14/2024 TIME: 10:59:40 AM USER: AkwesiLamptey
K:\CLB_LDEV\190255000_Buc-ees_HuberHeights_OH\8 Traffic\06 Design\Exhibits\190255000\400-Engineering\Traffic\Sheets\190255000_Exhibit 15_FINAL.dgn

DESIGN AGENCY
Kimley»Horn

DESIGNER	VIL
REVIEWER	JDC 02/14/24
PROJECT ID	190255000
SHEET	15
TOTAL	18

LEGEND

2025 / 2045



CERTIFIED TRAFFIC

MODEL: Sheet_SurvFI PAPERSIZE: 34x22 (in.) DATE: 2/14/2024 TIME: 10:59:41 AM USER: AkweiLamptey
K:\CLB_LDEV\190255000_Buc-ees_HuberHeights_OH\8 Traffic\06 Design\Exhibits\190255000\400-Engineering\Traffic\Sheets\190255000_Exhibit 16_FINAL.dgn

EXHIBIT 16: BUILD PM PEAK HOUR

DESIGN AGENCY
Kimley»Horn

DESIGNER
VIL

REVIEWER
JDC 02/14/24

PROJECT ID
190255000

SHEET 16 | TOTAL 18

LEGEND

AM/PM

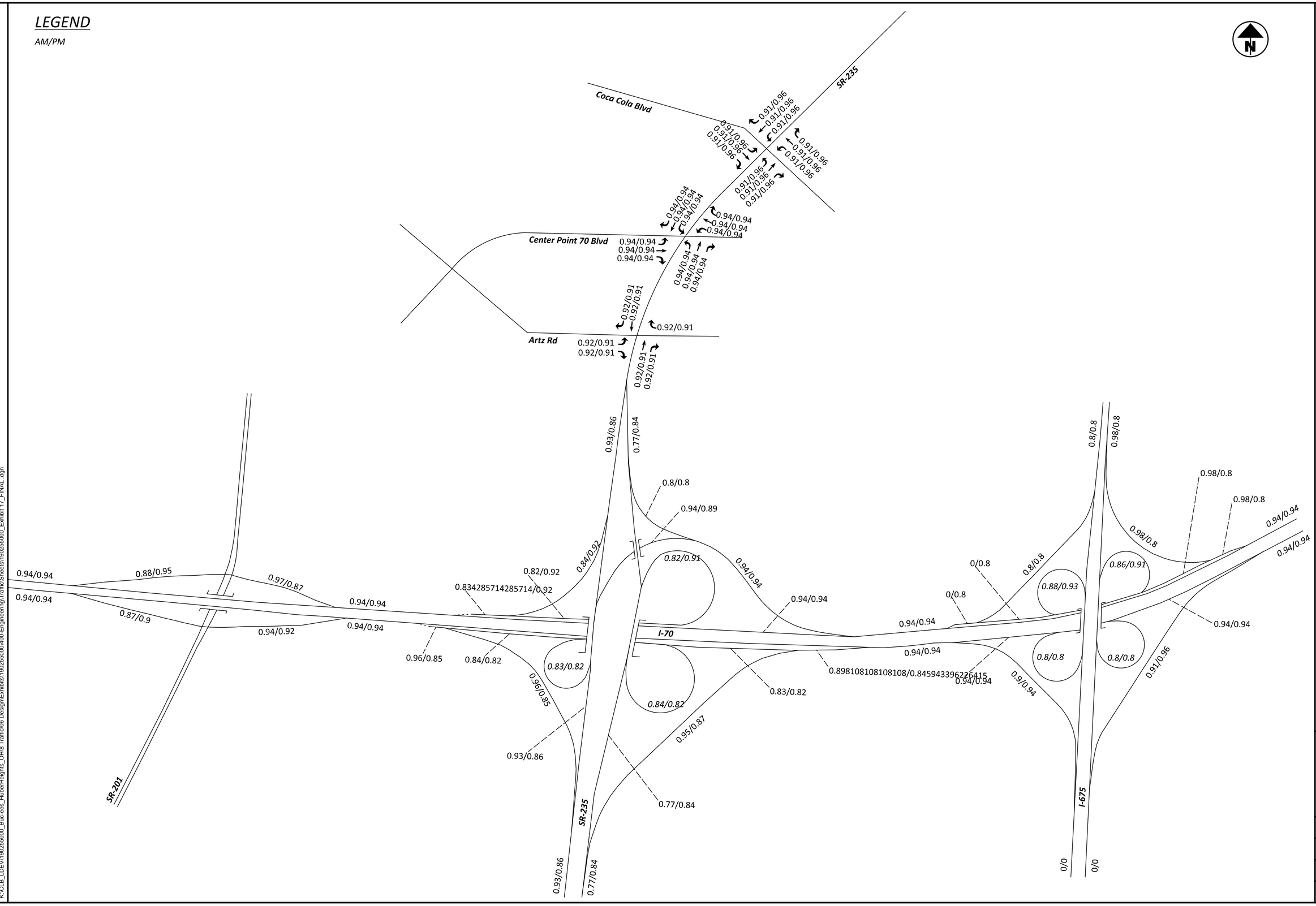


EXHIBIT 17: PEAK HOUR FACTOR

CERTIFIED TRAFFIC

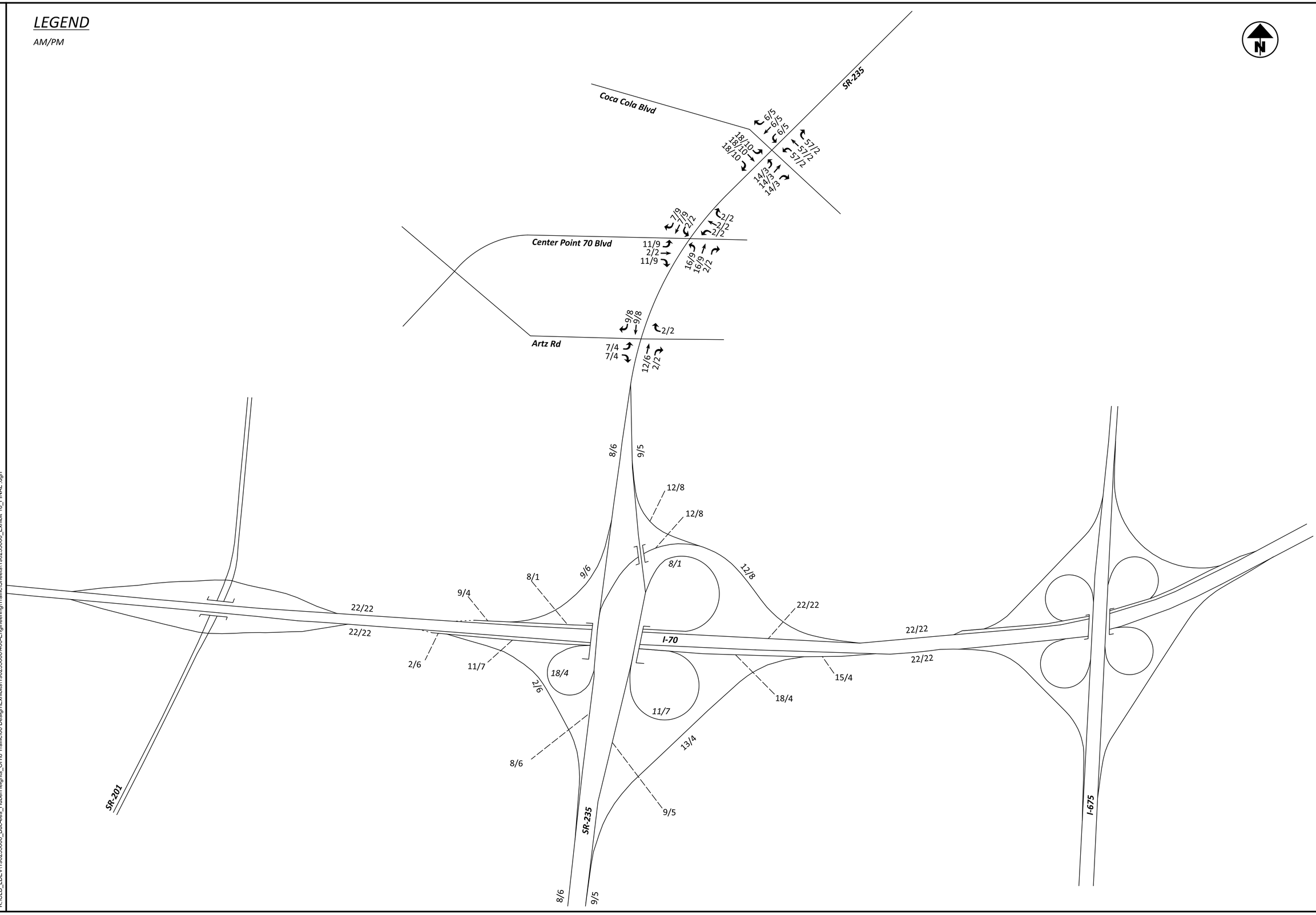
MODEL: Sheet_SurvFl PAPERSIZE: 34x22 (in.) DATE: 2/14/2024 TIME: 10:59:42 AM USER: AkweiLamptey
K:\CLB_LDEV\190255000_Buc-ees_HuberHeights_OH\8 Traffic\06 Design\Exhibits\190255000\400-Engineering\Traffic\Sheets\190255000_Exhibit 17_FINAL .dgn

DESIGN AGENCY
Kimley»Horn

DESIGNER	VIL
REVIEWER	JDC 02/14/24
PROJECT ID	190255000
SHEET	17
TOTAL	18

LEGEND

AM/PM



CERTIFIED TRAFFIC

MODEL: Sheet_SurvFt PAPERSIZE: 34x22 (in.) DATE: 2/14/2024 TIME: 10:59:42 AM USER: AkweiLampley
K:\CLB_LDEV\190255000_Buc-ees_HuberHeights_OH8 Traffic\06 Design\Exhibits\190255000\400-Engineering\Traffic\Sheets\190255000_Exhibit 18_FINAL .dgn

EXHIBIT 18: TRUCK PERCENTAGE

DESIGN AGENCY
Kimley»Horn

DESIGNER
VIL

REVIEWER
JDC 02/14/24

PROJECT ID
190255000

SHEET 18 | TOTAL 18

APPENDIX

E. MioVision Traffic Count Data

01_SR 235 & Artz Road - TMC

Tue Jun 27, 2023
Full Length (12 AM-12 AM (+1))
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1082447, Location: 39.870139, -84.055688

Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US

Leg	SB US 235					WB Artz Road					NB US 235					EB Private					
Direction	Southbound					Westbound					Northbound					Eastbound					
Time	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	Int
2023-06-27 12:00AM	0	40	0	0	**40**	0	0	0	0	**0**	0	21	1	0	**22**	8	0	0	0	**8**	**70**
12:15AM	0	17	0	0	**17**	0	0	0	0	**0**	0	31	1	0	**32**	1	0	0	0	**1**	**50**
12:30AM	0	16	0	0	**16**	0	0	0	0	**0**	0	10	0	0	**10**	0	0	0	0	**0**	**26**
12:45AM	0	12	0	0	**12**	0	0	0	0	**0**	0	14	1	0	**15**	1	0	0	0	**1**	**28**
Hourly Total	0	85	0	0	**85**	0	0	0	0	**0**	0	76	3	0	**79**	10	0	0	0	**10**	**174**
1:00AM	0	18	0	0	**18**	0	0	0	0	**0**	0	11	0	0	**11**	0	0	0	0	**0**	**29**
1:15AM	0	18	0	0	**18**	0	0	0	0	**0**	0	12	0	0	**12**	2	0	0	0	**2**	**32**
1:30AM	0	19	0	0	**19**	0	0	0	0	**0**	0	14	1	0	**15**	0	0	0	0	**0**	**34**
1:45AM	0	18	0	0	**18**	0	0	0	0	**0**	0	14	1	0	**15**	0	0	0	0	**0**	**33**
Hourly Total	0	73	0	0	**73**	0	0	0	0	**0**	0	51	2	0	**53**	2	0	0	0	**2**	**128**
2:00AM	0	11	0	0	**11**	0	0	0	0	**0**	0	11	0	0	**11**	0	0	0	0	**0**	**22**
2:15AM	0	17	0	0	**17**	0	0	0	0	**0**	0	17	0	0	**17**	0	0	0	0	**0**	**34**
2:30AM	0	15	0	0	**15**	0	0	0	0	**0**	0	12	0	0	**12**	0	0	0	0	**0**	**27**
2:45AM	0	15	0	0	**15**	0	0	0	0	**0**	0	13	0	0	**13**	0	0	0	0	**0**	**28**
Hourly Total	0	58	0	0	**58**	0	0	0	0	**0**	0	53	0	0	**53**	0	0	0	0	**0**	**111**
3:00AM	0	20	0	0	**20**	0	0	0	0	**0**	0	13	2	0	**15**	0	0	0	0	**0**	**35**
3:15AM	0	16	0	0	**16**	0	0	0	0	**0**	0	7	1	0	**8**	0	0	0	0	**0**	**24**
3:30AM	1	22	0	0	**23**	0	0	0	0	**0**	0	16	1	0	**17**	0	0	0	0	**0**	**40**
3:45AM	1	22	0	0	**23**	0	0	0	0	**0**	0	15	0	0	**15**	0	0	0	0	**0**	**38**
Hourly Total	2	80	0	0	**82**	0	0	0	0	**0**	0	51	4	0	**55**	0	0	0	0	**0**	**137**
4:00AM	1	26	0	0	**27**	0	0	0	0	**0**	0	10	2	0	**12**	0	0	0	0	**0**	**39**
4:15AM	0	34	0	0	**34**	0	0	0	0	**0**	0	14	0	0	**14**	1	0	0	0	**1**	**49**
4:30AM	0	36	0	0	**36**	0	0	0	0	**0**	0	26	0	0	**26**	1	0	0	0	**1**	**63**
4:45AM	0	45	0	0	**45**	0	0	0	0	**0**	0	38	1	0	**39**	0	0	0	0	**0**	**84**
Hourly Total	1	141	0	0	**142**	0	0	0	0	**0**	0	88	3	0	**91**	2	0	0	0	**2**	**235**
5:00AM	1	61	0	0	**62**	0	0	0	0	**0**	0	25	0	0	**25**	1	0	0	0	**1**	**88**
5:15AM	2	92	0	0	**94**	0	0	0	0	**0**	0	24	9	0	**33**	2	0	0	0	**2**	**129**
5:30AM	0	142	0	0	**142**	0	0	0	0	**0**	0	50	11	0	**61**	2	0	0	0	**2**	**205**
5:45AM	7	72	0	0	**79**	0	0	0	0	**0**	0	59	24	0	**83**	1	0	0	0	**1**	**163**
Hourly Total	10	367	0	0	**377**	0	0	0	0	**0**	0	158	44	0	**202**	6	0	0	0	**6**	**585**
6:00AM	2	127	0	0	**129**	0	0	0	0	**0**	0	43	3	0	**46**	10	0	0	0	**10**	**185**
6:15AM	0	190	0	0	**190**	0	0	0	0	**0**	0	68	5	0	**73**	3	0	0	0	**3**	**266**
6:30AM	1	232	0	0	**233**	0	0	0	0	**0**	0	81	11	0	**92**	5	0	0	0	**5**	**330**
6:45AM	0	174	0	0	**174**	0	0	0	0	**0**	0	128	24	0	**152**	4	0	0	0	**4**	**330**
Hourly Total	3	723	0	0	**726**	0	0	0	0	**0**	0	320	43	0	**363**	22	0	0	0	**22**	**1111**
7:00AM	4	188	0	0	**192**	0	0	0	0	**0**	0	87	16	0	**103**	8	0	0	0	**8**	**303**
7:15AM	1	211	0	0	**212**	0	0	0	0	**0**	0	101	14	0	**115**	2	0	0	0	**2**	**329**
7:30AM	0	242	1	0	**243**	2	0	0	0	**2**	0	102	23	0	**125**	3	0	0	0	**3**	**373**
7:45AM	4	163	0	0	**167**	0	0	0	0	**0**	0	123	34	0	**157**	3	0	0	0	**3**	**327**
Hourly Total	9	804	1	0	**814**	2	0	0	0	**2**	0	413	87	0	**500**	16	0	0	0	**16**	**1332**
8:00AM	0	193	0	0	**193**	0	0	0	0	**0**	0	103	23	0	**126**	21	0	0	0	**21**	**340**
8:15AM	1	177	0	0	**178**	0	0	0	0	**0**	0	90	9	0	**99**	5	0	0	0	**5**	**282**
8:30AM	1	136	0	0	**137**	0	0	0	0	**0**	0	107	12	0	**119**	7	0	0	0	**7**	**263**
8:45AM	1	125	0	0	**126**	0	0	0	0	**0**	0	107	8	0	**115**	6	0	0	0	**6**	**247**
Hourly Total	3	631	0	0	**634**	0	0	0	0	**0**	0	407	52	0	**459**	39	0	0	0	**39**	**1132**
9:00AM	2	119	1	0	**122**	1	0	0	0	**1**	0	89	4	0	**93**	3	0	1	0	**4**	**220**
9:15AM	1	130	0	0	**131**	0	0	0	0	**0**	0	98	3	0	**101**	3	0	0	0	**3**	**235**
9:30AM	1	124	0	0	**125**	0	0	0	0	**0**	0	93	6	0	**99**	5	0	0	0	**5**	**229**
9:45AM	1	136	0	0	**137**	0	0	0	0	**0**	0	77	4	0	**81**	2	0	0	0	**2**	**220**
Hourly Total	5	509	1	0	**515**	1	0	0	0	**1**	0	357	17	0	**374**	13	0	1	0	**14**	**904**
10:00AM	0	134	0	0	**134**	1	0	0	0	**1**	1	87	4	0	**92**	8	0	0	0	**8**	**235**
10:15AM	1	112	0	0	**113**	0	0	0	0	**0**	0	90	11	0	**101**	7	0	0	0	**7**	**221**
10:30AM	1	108	0	0	**109**	0	0	0	0	**0**	0	97	2	0	**99**	3	0	0	0	**3**	**211**
10:45AM	0	135	0	0	**135**	0	0	0	0	**0**	0	103	5	0	**108**	5	0	0	0	**5**	**248**

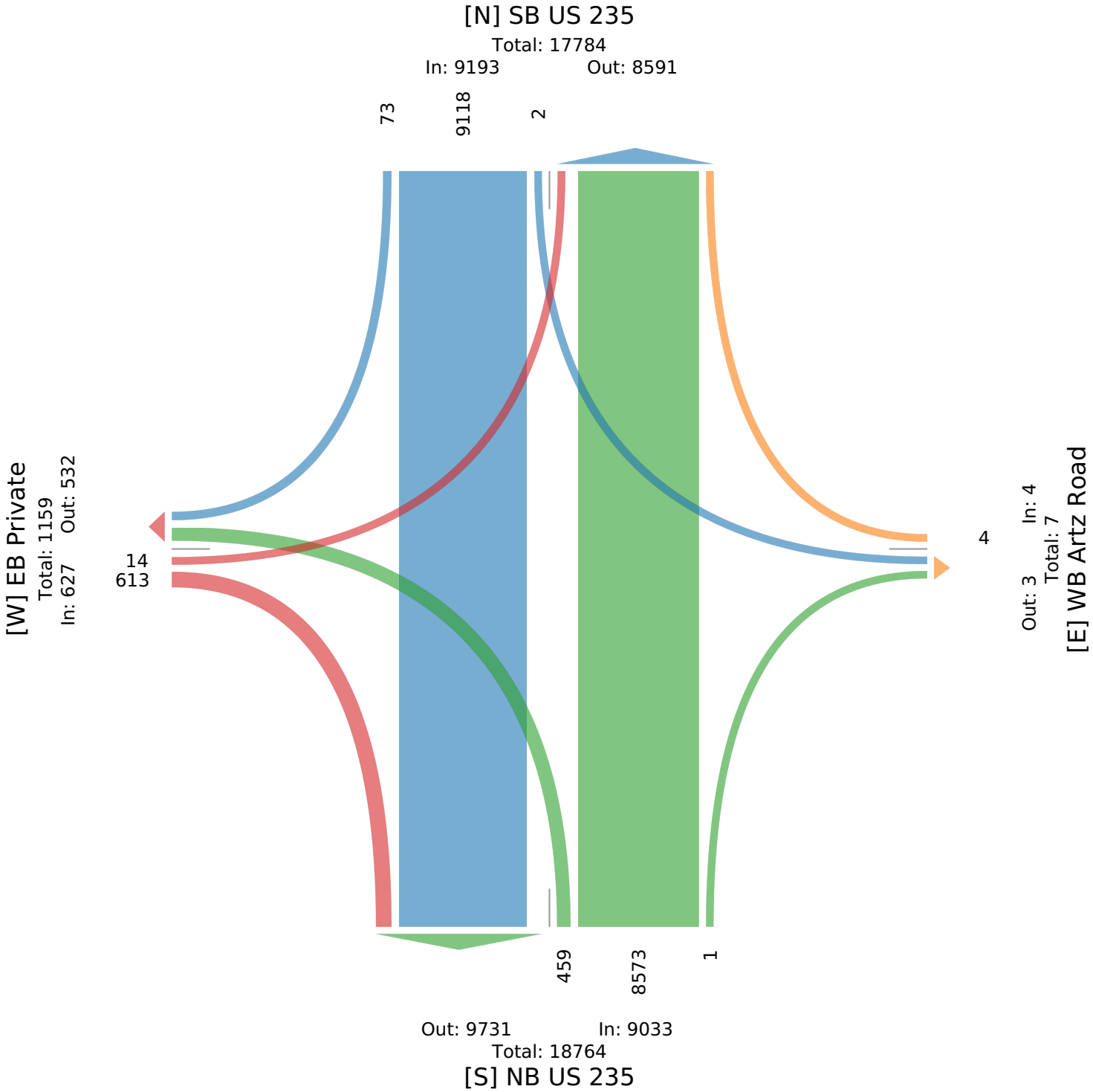
Leg	SB US 235					WB Artz Road					NB US 235					EB Private					
Direction	Southbound					Westbound					Northbound					Eastbound					
Time	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	**Int**
Hourly Total	2	489	0	0	**491**	1	0	0	0	**1**	1	377	22	0	**400**	23	0	0	0	**23**	**915**
11:00AM	1	98	0	0	**99**	0	0	0	0	**0**	0	95	2	0	**97**	1	0	0	0	**1**	**197**
11:15AM	1	107	0	0	**108**	0	0	0	0	**0**	0	101	1	0	**102**	2	0	1	0	**3**	**213**
11:30AM	1	121	0	0	**122**	0	0	0	0	**0**	0	127	4	0	**131**	7	0	2	0	**9**	**262**
11:45AM	2	112	0	0	**114**	0	0	0	0	**0**	0	117	4	0	**121**	11	0	0	0	**11**	**246**
Hourly Total	5	438	0	0	**443**	0	0	0	0	**0**	0	440	11	0	**451**	21	0	3	0	**24**	**918**
12:00PM	0	128	0	0	**128**	0	0	0	0	**0**	0	101	4	0	**105**	23	0	0	0	**23**	**256**
12:15PM	5	119	0	0	**124**	0	0	0	0	**0**	0	124	2	0	**126**	12	0	1	0	**13**	**263**
12:30PM	1	128	0	0	**129**	0	0	0	0	**0**	0	118	5	0	**123**	9	0	0	0	**9**	**261**
12:45PM	7	130	0	0	**137**	0	0	0	0	**0**	0	112	13	0	**125**	0	0	1	0	**1**	**263**
Hourly Total	13	505	0	0	**518**	0	0	0	0	**0**	0	455	24	0	**479**	44	0	2	0	**46**	**1043**
1:00PM	0	114	0	0	**114**	0	0	0	0	**0**	0	119	9	0	**128**	8	0	2	0	**10**	**252**
1:15PM	0	126	0	0	**126**	0	0	0	0	**0**	0	110	8	0	**118**	6	0	0	0	**6**	**250**
1:30PM	6	130	0	0	**136**	0	0	0	0	**0**	0	112	10	0	**122**	9	0	0	0	**9**	**267**
1:45PM	0	119	0	0	**119**	0	0	0	0	**0**	0	133	9	0	**142**	9	0	0	0	**9**	**270**
Hourly Total	6	489	0	0	**495**	0	0	0	0	**0**	0	474	36	0	**510**	32	0	2	0	**34**	**1039**
2:00PM	0	119	0	0	**119**	0	0	0	0	**0**	0	107	3	0	**110**	23	0	0	0	**23**	**252**
2:15PM	2	121	0	0	**123**	0	0	0	0	**0**	0	125	3	0	**128**	2	0	0	0	**2**	**253**
2:30PM	1	140	0	0	**141**	0	0	0	0	**0**	0	171	6	0	**177**	9	0	0	0	**9**	**327**
2:45PM	0	129	0	0	**129**	0	0	0	0	**0**	0	167	3	0	**170**	12	0	0	0	**12**	**311**
Hourly Total	3	509	0	0	**512**	0	0	0	0	**0**	0	570	15	0	**585**	46	0	0	0	**46**	**1143**
3:00PM	0	133	0	0	**133**	0	0	0	0	**0**	0	172	5	0	**177**	23	0	0	0	**23**	**333**
3:15PM	0	117	0	0	**117**	0	0	0	0	**0**	0	197	6	0	**203**	10	0	0	0	**10**	**330**
3:30PM	0	143	0	0	**143**	0	0	0	0	**0**	0	226	7	0	**233**	28	0	0	0	**28**	**404**
3:45PM	1	137	0	0	**138**	0	0	0	0	**0**	0	248	5	0	**253**	12	0	0	0	**12**	**403**
Hourly Total	1	530	0	0	**531**	0	0	0	0	**0**	0	843	23	0	**866**	73	0	0	0	**73**	**1470**
4:00PM	0	164	0	0	**164**	0	0	0	0	**0**	0	228	2	0	**230**	36	0	0	0	**36**	**430**
4:15PM	0	171	0	0	**171**	0	0	0	0	**0**	0	205	6	0	**211**	9	0	0	0	**9**	**391**
4:30PM	1	210	0	0	**211**	0	0	0	0	**0**	0	209	3	0	**212**	26	0	0	0	**26**	**449**
4:45PM	1	150	0	0	**151**	0	0	0	0	**0**	0	209	2	0	**211**	20	0	1	0	**21**	**383**
Hourly Total	2	695	0	0	**697**	0	0	0	0	**0**	0	851	13	0	**864**	91	0	1	0	**92**	**1653**
5:00PM	1	158	0	0	**159**	0	0	0	0	**0**	0	243	4	0	**247**	58	0	1	0	**59**	**465**
5:15PM	1	151	0	0	**152**	0	0	0	0	**0**	0	225	1	0	**226**	13	0	0	0	**13**	**391**
5:30PM	1	145	0	0	**146**	0	0	0	0	**0**	0	189	2	0	**191**	14	0	0	0	**14**	**351**
5:45PM	0	135	0	0	**135**	0	0	0	0	**0**	0	158	4	0	**162**	8	0	0	0	**8**	**305**
Hourly Total	3	589	0	0	**592**	0	0	0	0	**0**	0	815	11	0	**826**	93	0	1	0	**94**	**1512**
6:00PM	0	126	0	0	**126**	0	0	0	0	**0**	0	138	2	0	**140**	7	0	0	0	**7**	**273**
6:15PM	0	117	0	0	**117**	0	0	0	0	**0**	0	130	1	0	**131**	2	0	0	0	**2**	**250**
6:30PM	0	115	0	0	**115**	0	0	0	0	**0**	0	123	0	0	**123**	2	0	0	0	**2**	**240**
6:45PM	0	98	0	0	**98**	0	0	0	0	**0**	0	97	4	0	**101**	4	0	1	0	**5**	**204**
Hourly Total	0	456	0	0	**456**	0	0	0	0	**0**	0	488	7	0	**495**	15	0	1	0	**16**	**967**
7:00PM	0	77	0	0	**77**	0	0	0	0	**0**	0	93	2	0	**95**	6	0	0	0	**6**	**178**
7:15PM	0	87	0	0	**87**	0	0	0	0	**0**	0	82	4	0	**86**	3	0	0	0	**3**	**176**
7:30PM	0	68	0	0	**68**	0	0	0	0	**0**	0	82	0	0	**82**	2	0	0	0	**2**	**152**
7:45PM	1	64	0	0	**65**	0	0	0	0	**0**	0	96	0	0	**96**	2	0	0	0	**2**	**163**
Hourly Total	1	296	0	0	**297**	0	0	0	0	**0**	0	353	6	0	**359**	13	0	0	0	**13**	**669**
8:00PM	1	62	0	0	**63**	0	0	0	0	**0**	0	108	1	0	**109**	6	0	0	0	**6**	**178**
8:15PM	0	65	0	0	**65**	0	0	0	0	**0**	0	79	0	0	**79**	5	0	0	0	**5**	**149**
8:30PM	0	60	0	0	**60**	0	0	0	0	**0**	0	64	0	0	**64**	0	0	0	0	**0**	**124**
8:45PM	0	56	0	0	**56**	0	0	0	0	**0**	0	69	0	0	**69**	5	0	1	0	**6**	**131**
Hourly Total	1	243	0	0	**244**	0	0	0	0	**0**	0	320	1	0	**321**	16	0	1	0	**17**	**582**
9:00PM	0	66	0	0	**66**	0	0	0	0	**0**	0	68	1	0	**69**	4	0	1	0	**5**	**140**
9:15PM	0	59	0	0	**59**	0	0	0	0	**0**	0	56	1	0	**57**	2	0	0	0	**2**	**118**
9:30PM	1	37	0	0	**38**	0	0	0	0	**0**	0	71	9	0	**80**	1	0	0	0	**1**	**119**
9:45PM	1	47	0	0	**48**	0	0	0	0	**0**	0	63	7	0	**70**	1	0	0	0	**1**	**119**
Hourly Total	2	209	0	0	**211**	0	0	0	0	**0**	0	258	18	0	**276**	8	0	1	0	**9**	**496**
10:00PM	0	36	0	0	**36**	0	0	0	0	**0**	0	48	1	0	**49**	18	0	1	0	**19**	**104**
10:15PM	0	34	0	0	**34**	0	0	0	0	**0**	0	44	1	0	**45**	2	0	0	0	**2**	**81**
10:30PM	0	28	0	0	**28**	0	0	0	0	**0**	0	40	1	0	**41**	0	0	0	0	**0**	**69**
10:45PM	0	28	0	0	**28**	0	0	0	0	**0**	0	51	3	0	**54**	2	0	0	0	**2**	**84**

Leg	SB US 235					WB Artz Road					NB US 235					EB Private					
Direction	Southbound					Westbound					Northbound					Eastbound					
Time	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	**Int**
Hourly Total	0	126	0	0	**126**	0	0	0	0	**0**	0	183	6	0	**189**	22	0	1	0	**23**	**338**
11:00PM	1	23	0	0	**24**	0	0	0	0	**0**	0	28	4	0	**32**	3	0	0	0	**3**	**59**
11:15PM	0	22	0	0	**22**	0	0	0	0	**0**	0	51	2	0	**53**	0	0	0	0	**0**	**75**
11:30PM	0	16	0	0	**16**	0	0	0	0	**0**	0	45	3	0	**48**	0	0	0	0	**0**	**64**
11:45PM	0	12	0	0	**12**	0	0	0	0	**0**	0	48	2	0	**50**	3	0	0	0	**3**	**65**
Hourly Total	1	73	0	0	**74**	0	0	0	0	**0**	0	172	11	0	**183**	6	0	0	0	**6**	**263**
Total	73	9118	2	0	**9193**	4	0	0	0	**4**	1	8573	459	0	**9033**	613	0	14	0	**627**	**18857**
% Approach	0.8%	99.2%	0%	0%	**-**	100%	0%	0%	0%	**-**	0%	94.9%	5.1%	0%	**-**	97.8%	0%	2.2%	0%	**-**	-
% Total	0.4%	48.4%	0%	0%	**48.8%**	0%	0%	0%	0%	**0%**	0%	45.5%	2.4%	0%	**47.9%**	3.3%	0%	0.1%	0%	**3.3%**	-
Lights and Motorcycles	65	8122	2	0	**8189**	4	0	0	0	**4**	1	7609	436	0	**8046**	575	0	12	0	**587**	16826
% Lights and Motorcycles	89.0%	89.1%	100%	0%	**89.1%**	100%	0%	0%	0%	**100%**	100%	88.8%	95.0%	0%	**89.1%**	93.8%	0%	85.7%	0%	**93.6%**	89.2%
Heavy	8	996	0	0	**1004**	0	0	0	0	**0**	0	964	23	0	**987**	38	0	2	0	**40**	2031
% Heavy	11.0%	10.9%	0%	0%	**10.9%**	0%	0%	0%	0%	**0%**	0%	11.2%	5.0%	0%	**10.9%**	6.2%	0%	14.3%	0%	**6.4%**	10.8%

*L: Left, R: Right, T: Thru, U: U-Turn

01_SR 235 & Artz Road - TMC
Tue Jun 27, 2023
Full Length (12 AM-12 AM (+1))
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1082447, Location: 39.870139, -84.055688

Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US



01_SR 235 & Artz Road - TMC

Tue Jun 27, 2023
AM Peak (7:15 AM - 8:15 AM)
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1082447, Location: 39.870139, -84.055688

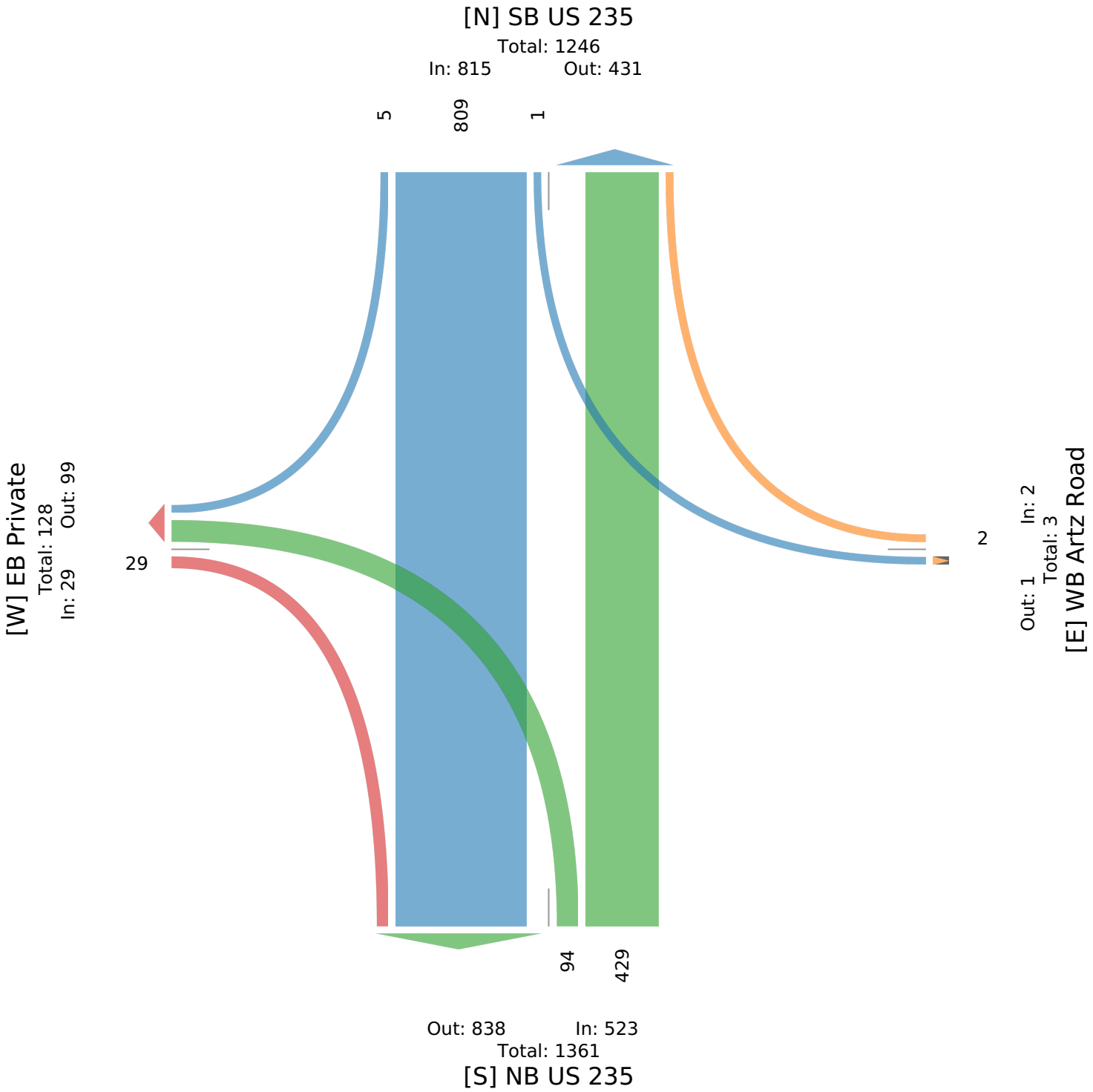
Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US

Leg	SB US 235					WB Artz Road					NB US 235					EB Private					
Direction	Southbound					Westbound					Northbound					Eastbound					
Time	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	**Int**
2023-06-27 7:15AM	1	211	0	0	**212**	0	0	0	0	**0**	0	101	14	0	**115**	2	0	0	0	**2**	**329**
7:30AM	0	242	1	0	**243**	2	0	0	0	**2**	0	102	23	0	**125**	3	0	0	0	**3**	**373**
7:45AM	4	163	0	0	**167**	0	0	0	0	**0**	0	123	34	0	**157**	3	0	0	0	**3**	**327**
8:00AM	0	193	0	0	**193**	0	0	0	0	**0**	0	103	23	0	**126**	21	0	0	0	**21**	**340**
Total	5	809	1	0	**815**	2	0	0	0	**2**	0	429	94	0	**523**	29	0	0	0	**29**	**1369**
% Approach	0.6%	99.3%	0.1%	0%	**-**	100%	0%	0%	0%	**-**	0%	82.0%	18.0%	0%	**-**	100%	0%	0%	0%	**-**	-
% Total	0.4%	59.1%	0.1%	0%	**59.5%**	0.1%	0%	0%	0%	**0.1%**	0%	31.3%	6.9%	0%	**38.2%**	2.1%	0%	0%	0%	**2.1%**	-
PHF	0.313	0.836	0.250	-	**0.838**	0.250	-	-	-	**0.250**	-	0.872	0.691	-	**0.833**	0.345	-	-	-	**0.345**	0.918
Lights and Motorcycles	5	736	1	0	**742**	2	0	0	0	**2**	0	367	91	0	**458**	27	0	0	0	**27**	1229
% Lights and Motorcycles	100%	91.0%	100%	0%	**91.0%**	100%	0%	0%	0%	**100%**	0%	85.5%	96.8%	0%	**87.6%**	93.1%	0%	0%	0%	**93.1%**	89.8%
Heavy	0	73	0	0	**73**	0	0	0	0	**0**	0	62	3	0	**65**	2	0	0	0	**2**	140
% Heavy	0%	9.0%	0%	0%	**9.0%**	0%	0%	0%	0%	**0%**	0%	14.5%	3.2%	0%	**12.4%**	6.9%	0%	0%	0%	**6.9%**	10.2%

*L: Left, R: Right, T: Thru, U: U-Turn

01_SR 235 & Artz Road - TMC
Tue Jun 27, 2023
AM Peak (7:15 AM - 8:15 AM)
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1082447, Location: 39.870139, -84.055688

Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US



01_SR 235 & Artz Road - TMC

Tue Jun 27, 2023
Midday Peak (12 PM - 1 PM)
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1082447, Location: 39.870139, -84.055688

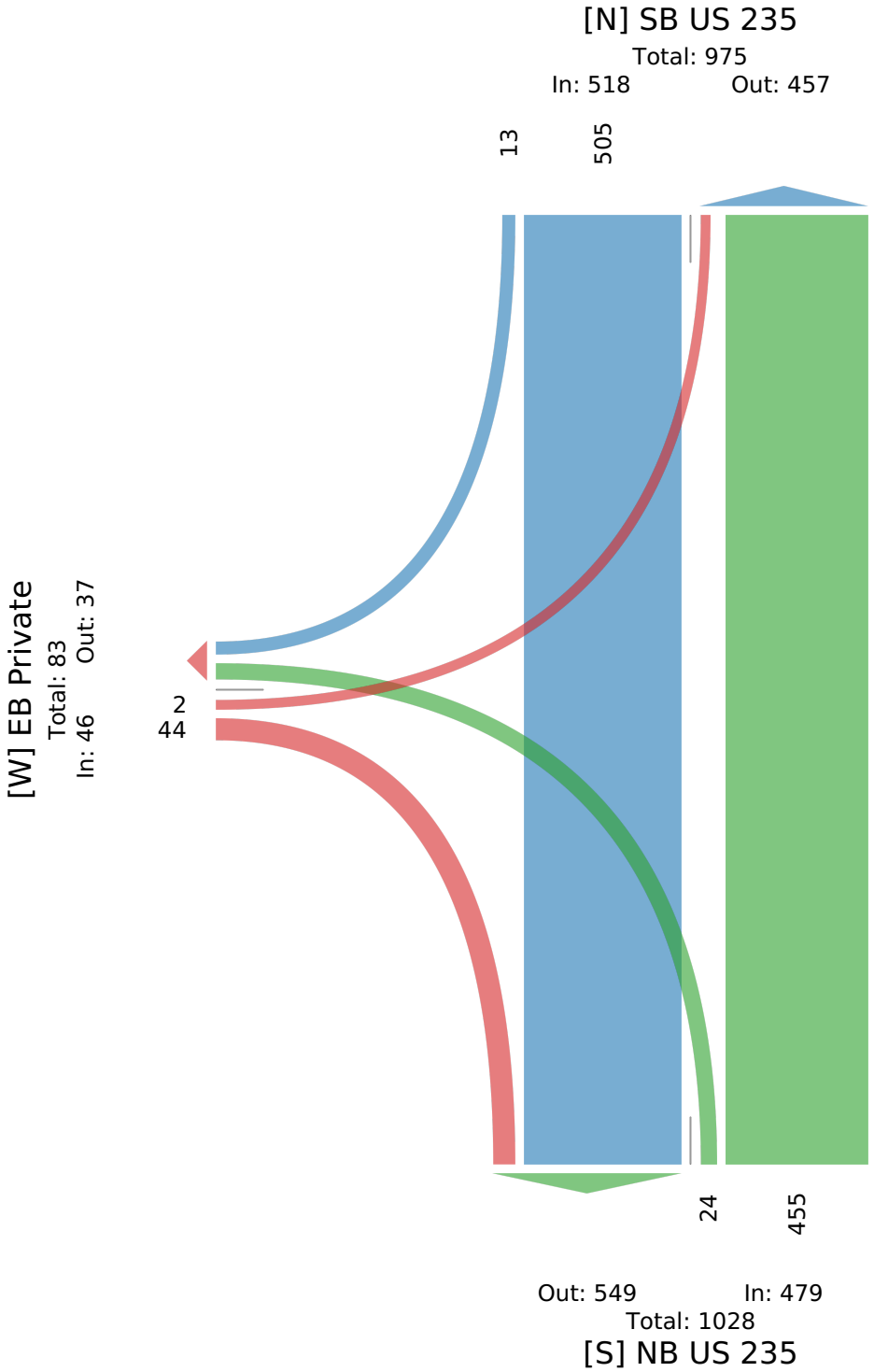
Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US

Leg	SB US 235					WB Artz Road					NB US 235					EB Private					
Direction	Southbound					Westbound					Northbound					Eastbound					
Time	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	**Int**
2023-06-27 12:00PM	0	128	0	0	**128**	0	0	0	0	**0**	0	101	4	0	**105**	23	0	0	0	**23**	**256**
12:15PM	5	119	0	0	**124**	0	0	0	0	**0**	0	124	2	0	**126**	12	0	1	0	**13**	**263**
12:30PM	1	128	0	0	**129**	0	0	0	0	**0**	0	118	5	0	**123**	9	0	0	0	**9**	**261**
12:45PM	7	130	0	0	**137**	0	0	0	0	**0**	0	112	13	0	**125**	0	0	1	0	**1**	**263**
Total	13	505	0	0	**518**	0	0	0	0	**0**	0	455	24	0	**479**	44	0	2	0	**46**	**1043**
% Approach	2.5%	97.5%	0%	0%	**-**	0%	0%	0%	0%	**-**	0%	95.0%	5.0%	0%	**-**	95.7%	0%	4.3%	0%	**-**	-
% Total	1.2%	48.4%	0%	0%	**49.7%**	0%	0%	0%	0%	**0%**	0%	43.6%	2.3%	0%	**45.9%**	4.2%	0%	0.2%	0%	**4.4%**	-
PHF	0.464	0.971	-	-	**0.945**	-	-	-	-	**-**	-	0.917	0.462	-	**0.950**	0.478	-	0.500	-	**0.500**	0.991
Lights and Motorcycles	12	437	0	0	**449**	0	0	0	0	**0**	0	391	21	0	**412**	40	0	2	0	**42**	903
% Lights and Motorcycles	92.3%	86.5%	0%	0%	**86.7%**	0%	0%	0%	0%	**-**	0%	85.9%	87.5%	0%	**86.0%**	90.9%	0%	100%	0%	**91.3%**	86.6%
Heavy	1	68	0	0	**69**	0	0	0	0	**0**	0	64	3	0	**67**	4	0	0	0	**4**	140
% Heavy	7.7%	13.5%	0%	0%	**13.3%**	0%	0%	0%	0%	**-**	0%	14.1%	12.5%	0%	**14.0%**	9.1%	0%	0%	0%	**8.7%**	13.4%

*L: Left, R: Right, T: Thru, U: U-Turn

01_SR 235 & Artz Road - TMC
Tue Jun 27, 2023
Midday Peak (12 PM - 1 PM)
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1082447, Location: 39.870139, -84.055688

Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US



01_SR 235 & Artz Road - TMC

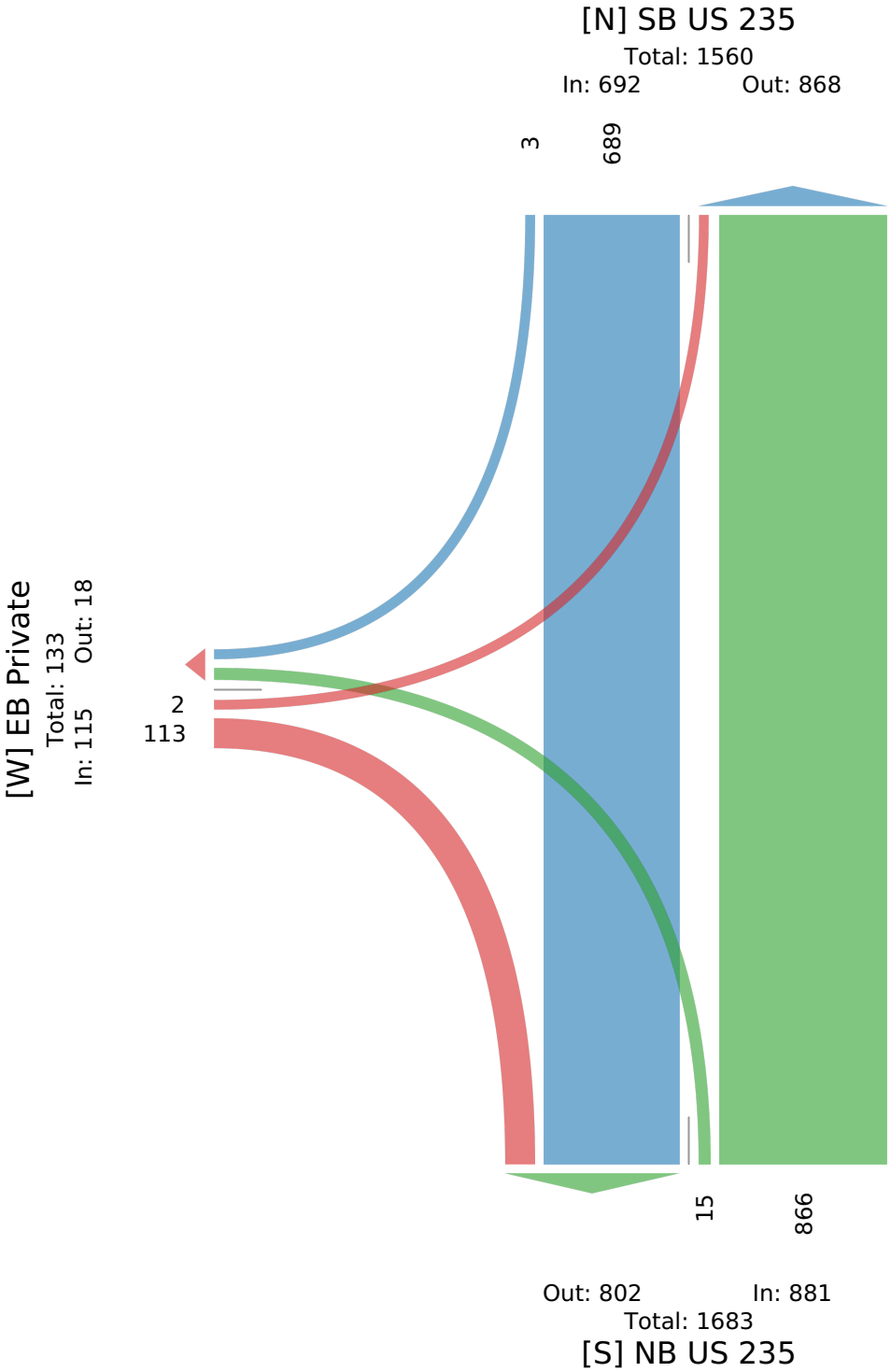
Tue Jun 27, 2023
PM Peak (4:15 PM - 5:15 PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1082447, Location: 39.870139, -84.055688

Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US

Leg	SB US 235					WB Artz Road					NB US 235					EB Private					
Direction	Southbound					Westbound					Northbound					Eastbound					
Time	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	**Int**
2023-06-27 4:15PM	0	171	0	0	**171**	0	0	0	0	**0**	0	205	6	0	**211**	9	0	0	0	**9**	**391**
4:30PM	1	210	0	0	**211**	0	0	0	0	**0**	0	209	3	0	**212**	26	0	0	0	**26**	**449**
4:45PM	1	150	0	0	**151**	0	0	0	0	**0**	0	209	2	0	**211**	20	0	1	0	**21**	**383**
5:00PM	1	158	0	0	**159**	0	0	0	0	**0**	0	243	4	0	**247**	58	0	1	0	**59**	**465**
Total	3	689	0	0	**692**	0	0	0	0	**0**	0	866	15	0	**881**	113	0	2	0	**115**	**1688**
% Approach	0.4%	99.6%	0%	0%	**-**	0%	0%	0%	0%	**-**	0%	98.3%	1.7%	0%	**-**	98.3%	0%	1.7%	0%	**-**	-
% Total	0.2%	40.8%	0%	0%	**41.0%**	0%	0%	0%	0%	**0%**	0%	51.3%	0.9%	0%	**52.2%**	6.7%	0%	0.1%	0%	**6.8%**	-
PHF	0.750	0.820	-	-	**0.820**	-	-	-	-	**-**	-	0.891	0.625	-	**0.892**	0.487	-	0.500	-	**0.487**	0.908
Lights and Motorcycles	3	637	0	0	**640**	0	0	0	0	**0**	0	811	14	0	**825**	108	0	2	0	**110**	1575
% Lights and Motorcycles	100%	92.5%	0%	0%	**92.5%**	0%	0%	0%	0%	**-**	0%	93.6%	93.3%	0%	**93.6%**	95.6%	0%	100%	0%	**95.7%**	93.3%
Heavy	0	52	0	0	**52**	0	0	0	0	**0**	0	55	1	0	**56**	5	0	0	0	**5**	113
% Heavy	0%	7.5%	0%	0%	**7.5%**	0%	0%	0%	0%	**-**	0%	6.4%	6.7%	0%	**6.4%**	4.4%	0%	0%	0%	**4.3%**	6.7%

*L: Left, R: Right, T: Thru, U: U-Turn

Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US



02_SR 235 & Center Point 70 Blvd - TMC

Sat Jun 24, 2023
Full Length (12 AM-12 AM (+1))
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1082451, Location: 39.872371, -84.055183

Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US

Leg	SB US 235				NB US 235				EB Center Point				
Direction	Southbound				Northbound				Eastbound				
Time	R	T	U	App	T	L	U	App	R	L	U	App	Int
2023-06-24 12:00AM	0	23	0	**23**	29	7	0	**36**	55	4	0	**59**	**118**
12:15AM	0	17	0	**17**	25	11	0	**36**	10	0	0	**10**	**63**
12:30AM	1	33	0	**34**	22	6	0	**28**	9	0	0	**9**	**71**
12:45AM	1	18	0	**19**	22	2	0	**24**	8	2	1	**11**	**54**
Hourly Total	2	91	0	**93**	98	26	0	**124**	82	6	1	**89**	**306**
1:00AM	1	7	0	**8**	19	5	0	**24**	3	0	0	**3**	**35**
1:15AM	3	19	0	**22**	10	3	0	**13**	8	1	1	**10**	**45**
1:30AM	0	8	0	**8**	14	3	0	**17**	5	1	0	**6**	**31**
1:45AM	1	17	0	**18**	17	2	0	**19**	4	0	0	**4**	**41**
Hourly Total	5	51	0	**56**	60	13	0	**73**	20	2	1	**23**	**152**
2:00AM	1	12	0	**13**	6	3	0	**9**	5	1	1	**7**	**29**
2:15AM	2	13	0	**15**	12	2	0	**14**	6	1	0	**7**	**36**
2:30AM	0	16	0	**16**	7	2	0	**9**	6	3	0	**9**	**34**
2:45AM	0	5	0	**5**	9	4	0	**13**	3	0	0	**3**	**21**
Hourly Total	3	46	0	**49**	34	11	0	**45**	20	5	1	**26**	**120**
3:00AM	0	10	0	**10**	4	5	0	**9**	1	0	0	**1**	**20**
3:15AM	1	8	0	**9**	13	3	0	**16**	5	1	0	**6**	**31**
3:30AM	0	15	0	**15**	11	0	0	**11**	4	0	0	**4**	**30**
3:45AM	0	10	0	**10**	7	3	0	**10**	2	1	0	**3**	**23**
Hourly Total	1	43	0	**44**	35	11	0	**46**	12	2	0	**14**	**104**
4:00AM	1	7	0	**8**	2	5	0	**7**	3	1	0	**4**	**19**
4:15AM	2	10	0	**12**	8	4	0	**12**	0	0	0	**0**	**24**
4:30AM	1	13	0	**14**	4	2	0	**6**	1	1	0	**2**	**22**
4:45AM	0	9	0	**9**	3	4	0	**7**	3	0	0	**3**	**19**
Hourly Total	4	39	0	**43**	17	15	0	**32**	7	2	0	**9**	**84**
5:00AM	0	19	0	**19**	7	2	0	**9**	0	0	0	**0**	**28**
5:15AM	0	25	0	**25**	7	2	0	**9**	1	1	0	**2**	**36**
5:30AM	1	42	0	**43**	11	5	0	**16**	2	1	0	**3**	**62**
5:45AM	2	29	0	**31**	10	8	0	**18**	2	0	0	**2**	**51**
Hourly Total	3	115	0	**118**	35	17	0	**52**	5	2	0	**7**	**177**
6:00AM	1	31	0	**32**	10	6	0	**16**	8	2	1	**11**	**59**
6:15AM	1	46	0	**47**	20	8	0	**28**	4	0	1	**5**	**80**
6:30AM	2	60	0	**62**	24	7	0	**31**	7	0	0	**7**	**100**
6:45AM	4	51	0	**55**	34	5	0	**39**	3	1	0	**4**	**98**
Hourly Total	8	188	0	**196**	88	26	0	**114**	22	3	2	**27**	**337**
7:00AM	0	36	0	**36**	31	9	0	**40**	5	0	0	**5**	**81**
7:15AM	2	56	0	**58**	48	12	0	**60**	2	2	0	**4**	**122**
7:30AM	4	49	0	**53**	40	11	0	**51**	8	0	0	**8**	**112**
7:45AM	10	57	0	**67**	41	17	0	**58**	8	1	0	**9**	**134**
Hourly Total	16	198	0	**214**	160	49	0	**209**	23	3	0	**26**	**449**
8:00AM	3	62	0	**65**	46	8	0	**54**	29	11	0	**40**	**159**
8:15AM	5	65	0	**70**	58	8	0	**66**	9	4	0	**13**	**149**
8:30AM	3	86	0	**89**	59	9	0	**68**	6	2	0	**8**	**165**
8:45AM	6	86	0	**92**	67	5	0	**72**	6	3	0	**9**	**173**
Hourly Total	17	299	0	**316**	230	30	0	**260**	50	20	0	**70**	**646**
9:00AM	2	84	0	**86**	57	11	0	**68**	5	3	0	**8**	**162**
9:15AM	4	83	0	**87**	47	17	0	**64**	3	5	0	**8**	**159**
9:30AM	1	92	0	**93**	78	3	0	**81**	5	1	0	**6**	**180**
9:45AM	3	82	0	**85**	90	19	0	**109**	3	9	0	**12**	**206**
Hourly Total	10	341	0	**351**	272	50	0	**322**	16	18	0	**34**	**707**
10:00AM	4	127	0	**131**	75	6	0	**81**	16	8	0	**24**	**236**
10:15AM	5	114	0	**119**	72	9	0	**81**	3	6	0	**9**	**209**
10:30AM	3	103	0	**106**	91	4	1	**96**	10	1	0	**11**	**213**
10:45AM	2	115	0	**117**	96	14	1	**111**	13	4	0	**17**	**245**

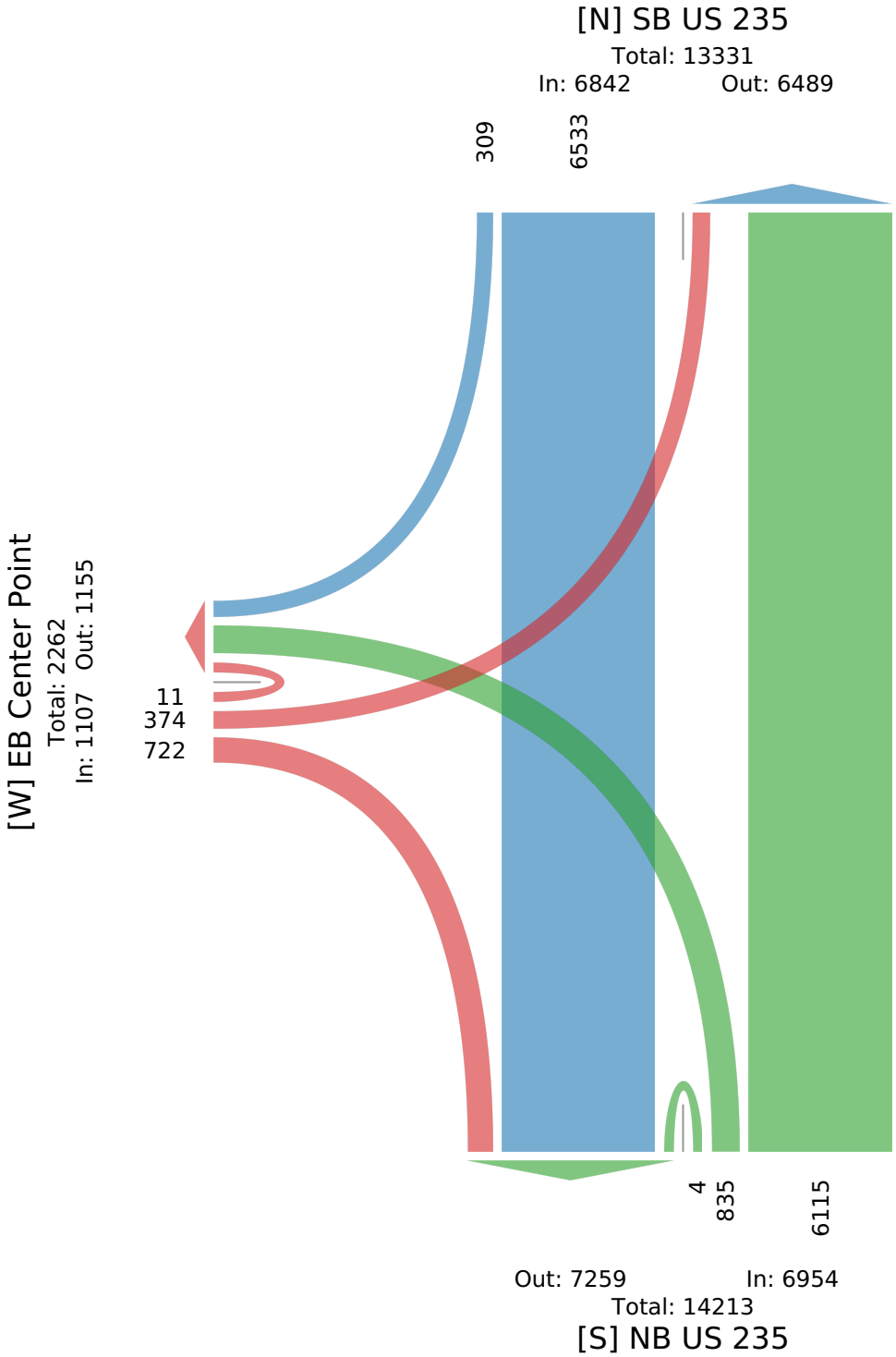
Leg	SB US 235				NB US 235				EB Center Point				
Direction	Southbound				Northbound				Eastbound				
Time	R	T	U	**App**	T	L	U	**App**	R	L	U	**App**	**Int**
Hourly Total	14	459	0	**473**	334	33	2	**369**	42	19	0	**61**	**903**
11:00AM	4	111	0	**115**	123	13	0	**136**	7	5	0	**12**	**263**
11:15AM	2	113	0	**115**	100	13	0	**113**	9	7	1	**17**	**245**
11:30AM	8	120	0	**128**	89	5	0	**94**	5	5	0	**10**	**232**
11:45AM	8	115	0	**123**	102	7	0	**109**	11	6	0	**17**	**249**
Hourly Total	22	459	0	**481**	414	38	0	**452**	32	23	1	**56**	**989**
12:00PM	1	103	0	**104**	110	12	0	**122**	5	2	0	**7**	**233**
12:15PM	4	113	0	**117**	114	13	0	**127**	8	4	0	**12**	**256**
12:30PM	6	105	0	**111**	103	12	0	**115**	11	10	0	**21**	**247**
12:45PM	5	101	0	**106**	104	17	0	**121**	12	5	0	**17**	**244**
Hourly Total	16	422	0	**438**	431	54	0	**485**	36	21	0	**57**	**980**
1:00PM	4	108	0	**112**	98	11	0	**109**	14	6	0	**20**	**241**
1:15PM	7	114	0	**121**	124	11	0	**135**	10	4	0	**14**	**270**
1:30PM	4	96	0	**100**	112	15	0	**127**	8	5	0	**13**	**240**
1:45PM	4	103	0	**107**	103	18	0	**121**	13	10	1	**24**	**252**
Hourly Total	19	421	0	**440**	437	55	0	**492**	45	25	1	**71**	**1003**
2:00PM	4	115	0	**119**	103	12	1	**116**	12	6	1	**19**	**254**
2:15PM	5	109	0	**114**	118	8	0	**126**	8	4	0	**12**	**252**
2:30PM	3	97	0	**100**	137	15	0	**152**	11	3	0	**14**	**266**
2:45PM	4	103	0	**107**	116	15	0	**131**	9	8	0	**17**	**255**
Hourly Total	16	424	0	**440**	474	50	1	**525**	40	21	1	**62**	**1027**
3:00PM	9	110	0	**119**	110	12	0	**122**	13	9	0	**22**	**263**
3:15PM	6	108	0	**114**	115	10	0	**125**	11	6	0	**17**	**256**
3:30PM	3	137	0	**140**	104	22	0	**126**	4	5	0	**9**	**275**
3:45PM	5	95	0	**100**	96	22	0	**118**	7	8	0	**15**	**233**
Hourly Total	23	450	0	**473**	425	66	0	**491**	35	28	0	**63**	**1027**
4:00PM	6	140	0	**146**	108	12	0	**120**	20	18	0	**38**	**304**
4:15PM	4	105	0	**109**	130	13	0	**143**	9	3	0	**12**	**264**
4:30PM	2	107	0	**109**	119	15	1	**135**	9	7	0	**16**	**260**
4:45PM	2	110	0	**112**	114	11	0	**125**	6	7	1	**14**	**251**
Hourly Total	14	462	0	**476**	471	51	1	**523**	44	35	1	**80**	**1079**
5:00PM	8	104	0	**112**	103	10	0	**113**	10	5	0	**15**	**240**
5:15PM	3	89	0	**92**	95	6	0	**101**	6	5	0	**11**	**204**
5:30PM	5	97	0	**102**	105	7	0	**112**	6	7	0	**13**	**227**
5:45PM	5	93	0	**98**	112	7	0	**119**	6	5	0	**11**	**228**
Hourly Total	21	383	0	**404**	415	30	0	**445**	28	22	0	**50**	**899**
6:00PM	5	124	0	**129**	89	7	0	**96**	6	5	0	**11**	**236**
6:15PM	5	113	0	**118**	85	9	0	**94**	9	4	0	**13**	**225**
6:30PM	3	82	0	**85**	98	12	0	**110**	6	4	0	**10**	**205**
6:45PM	2	109	0	**111**	90	10	0	**100**	5	4	0	**9**	**220**
Hourly Total	15	428	0	**443**	362	38	0	**400**	26	17	0	**43**	**886**
7:00PM	6	87	0	**93**	76	4	0	**80**	6	8	0	**14**	**187**
7:15PM	1	76	0	**77**	88	5	0	**93**	2	8	0	**10**	**180**
7:30PM	6	60	0	**66**	78	13	0	**91**	5	6	0	**11**	**168**
7:45PM	5	66	0	**71**	79	6	0	**85**	6	4	0	**10**	**166**
Hourly Total	18	289	0	**307**	321	28	0	**349**	19	26	0	**45**	**701**
8:00PM	8	61	0	**69**	95	12	0	**107**	6	3	0	**9**	**185**
8:15PM	2	62	0	**64**	88	11	0	**99**	9	6	0	**15**	**178**
8:30PM	1	72	0	**73**	77	9	0	**86**	13	4	0	**17**	**176**
8:45PM	4	68	0	**72**	74	5	0	**79**	8	4	1	**13**	**164**
Hourly Total	15	263	0	**278**	334	37	0	**371**	36	17	1	**54**	**703**
9:00PM	5	54	0	**59**	74	3	0	**77**	8	4	1	**13**	**149**
9:15PM	6	60	0	**66**	74	6	0	**80**	4	4	0	**8**	**154**
9:30PM	4	64	0	**68**	68	13	0	**81**	8	7	0	**15**	**164**
9:45PM	1	39	0	**40**	83	3	0	**86**	7	4	0	**11**	**137**
Hourly Total	16	217	0	**233**	299	25	0	**324**	27	19	1	**47**	**604**
10:00PM	1	47	0	**48**	66	6	0	**72**	4	3	0	**7**	**127**
10:15PM	3	66	0	**69**	58	10	0	**68**	5	5	0	**10**	**147**
10:30PM	1	70	0	**71**	31	6	0	**37**	9	4	0	**13**	**121**
10:45PM	4	79	0	**83**	49	7	0	**56**	9	10	0	**19**	**158**

Leg Direction	SB US 235 Southbound				NB US 235 Northbound				EB Center Point Eastbound				
Time	R	T	U	**App**	T	L	U	**App**	R	L	U	**App**	**Int**
Hourly Total	9	262	0	**271**	204	29	0	**233**	27	22	0	**49**	**553**
11:00PM	7	76	0	**83**	42	9	0	**51**	7	1	0	**8**	**142**
11:15PM	3	35	0	**38**	45	13	0	**58**	4	8	0	**12**	**108**
11:30PM	7	45	0	**52**	42	22	0	**64**	8	4	0	**12**	**128**
11:45PM	5	27	0	**32**	36	9	0	**45**	9	3	0	**12**	**89**
Hourly Total	22	183	0	**205**	165	53	0	**218**	28	16	0	**44**	**467**
Total	309	6533	0	**6842**	6115	835	4	**6954**	722	374	11	**1107**	**14903**
% Approach	4.5%	95.5%	0%	**-**	87.9%	12.0%	0.1%	**-**	65.2%	33.8%	1.0%	**-**	-
% Total	2.1%	43.8%	0%	**45.9%**	41.0%	5.6%	0%	**46.7%**	4.8%	2.5%	0.1%	**7.4%**	-
Lights and Motorcycles	303	6382	0	**6685**	5892	617	3	**6512**	543	370	10	**923**	14120
% Lights and Motorcycles	98.1%	97.7%	0%	**97.7%**	96.4%	73.9%	75.0%	**93.6%**	75.2%	98.9%	90.9%	**83.4%**	94.7%
Heavy	6	151	0	**157**	223	218	1	**442**	179	4	1	**184**	783
% Heavy	1.9%	2.3%	0%	**2.3%**	3.6%	26.1%	25.0%	**6.4%**	24.8%	1.1%	9.1%	**16.6%**	5.3%

*L: Left, R: Right, T: Thru, U: U-Turn

02_SR 235 & Center Point 70 Blvd - TMC
Sat Jun 24, 2023
Full Length (12 AM-12 AM (+1))
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1082451, Location: 39.872371, -84.055183

Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US



02_SR 235 & Center Point 70 Blvd - TMC

Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US

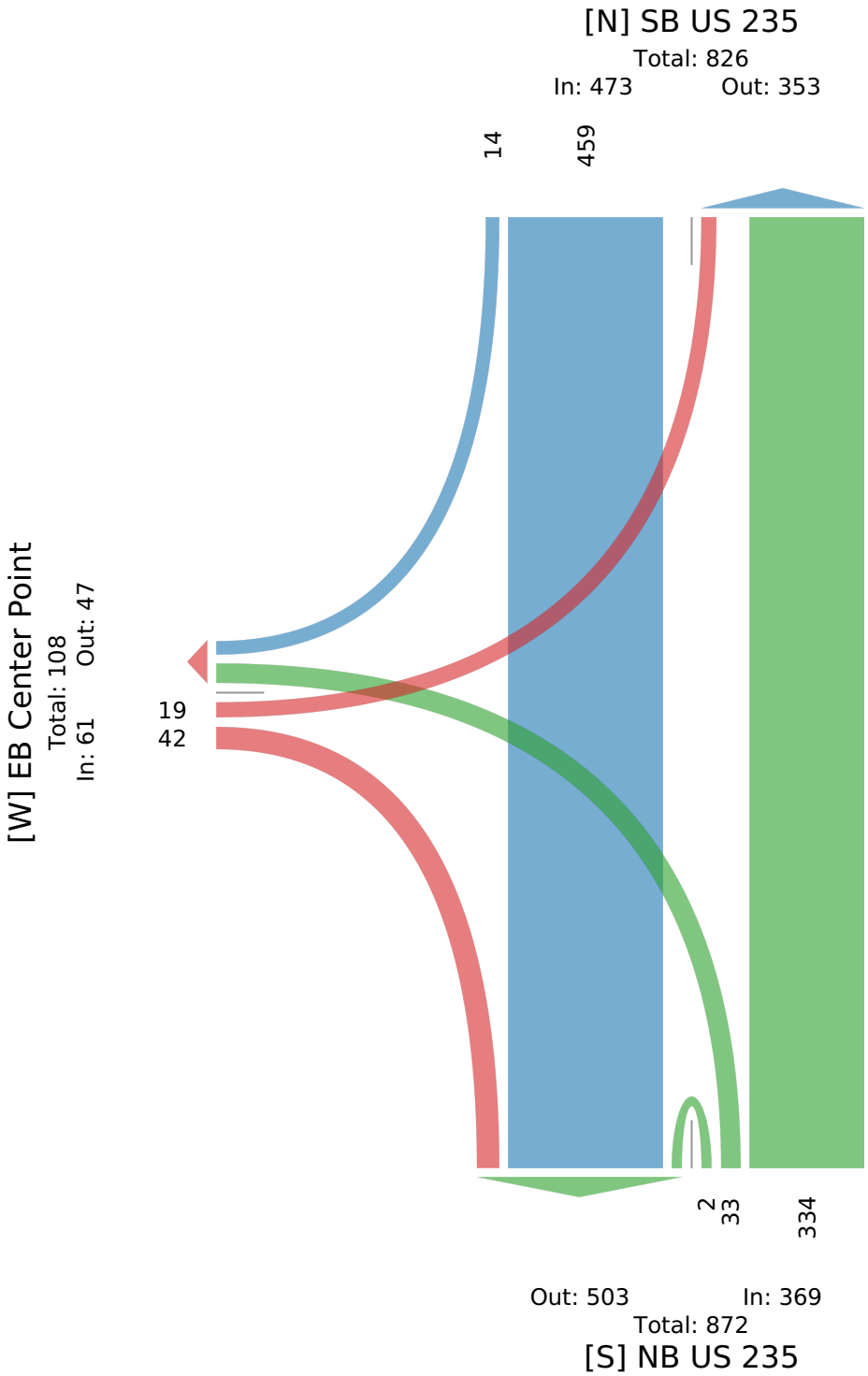
Sat Jun 24, 2023
AM Peak (WKND) (10 AM - 11 AM)
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1082451, Location: 39.872371, -84.055183

Leg	SB US 235				NB US 235				EB Center Point				
Direction	Southbound				Northbound				Eastbound				
Time	R	T	U	**App**	T	L	U	**App**	R	L	U	**App**	**Int**
2023-06-24 10:00AM	4	127	0	**131**	75	6	0	**81**	16	8	0	**24**	**236**
10:15AM	5	114	0	**119**	72	9	0	**81**	3	6	0	**9**	**209**
10:30AM	3	103	0	**106**	91	4	1	**96**	10	1	0	**11**	**213**
10:45AM	2	115	0	**117**	96	14	1	**111**	13	4	0	**17**	**245**
Total	14	459	0	**473**	334	33	2	**369**	42	19	0	**61**	**903**
% Approach	3.0%	97.0%	0%	**-**	90.5%	8.9%	0.5%	**-**	68.9%	31.1%	0%	**-**	-
% Total	1.6%	50.8%	0%	**52.4%**	37.0%	3.7%	0.2%	**40.9%**	4.7%	2.1%	0%	**6.8%**	-
PHF	0.700	0.904	-	**0.903**	0.870	0.589	0.500	**0.831**	0.656	0.594	-	**0.635**	0.921
Lights and Motorcycles	13	446	0	**459**	318	25	2	**345**	32	19	0	**51**	855
% Lights and Motorcycles	92.9%	97.2%	0%	**97.0%**	95.2%	75.8%	100%	**93.5%**	76.2%	100%	0%	**83.6%**	94.7%
Heavy	1	13	0	**14**	16	8	0	**24**	10	0	0	**10**	48
% Heavy	7.1%	2.8%	0%	**3.0%**	4.8%	24.2%	0%	**6.5%**	23.8%	0%	0%	**16.4%**	5.3%

*L: Left, R: Right, T: Thru, U: U-Turn

02_SR 235 & Center Point 70 Blvd - TMC
Sat Jun 24, 2023
AM Peak (WKND) (10 AM - 11 AM)
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1082451, Location: 39.872371, -84.055183

Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US



02_SR 235 & Center Point 70 Blvd - TMC

Sat Jun 24, 2023
Midday Peak (WKND) (1 PM - 2 PM)
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1082451, Location: 39.872371, -84.055183

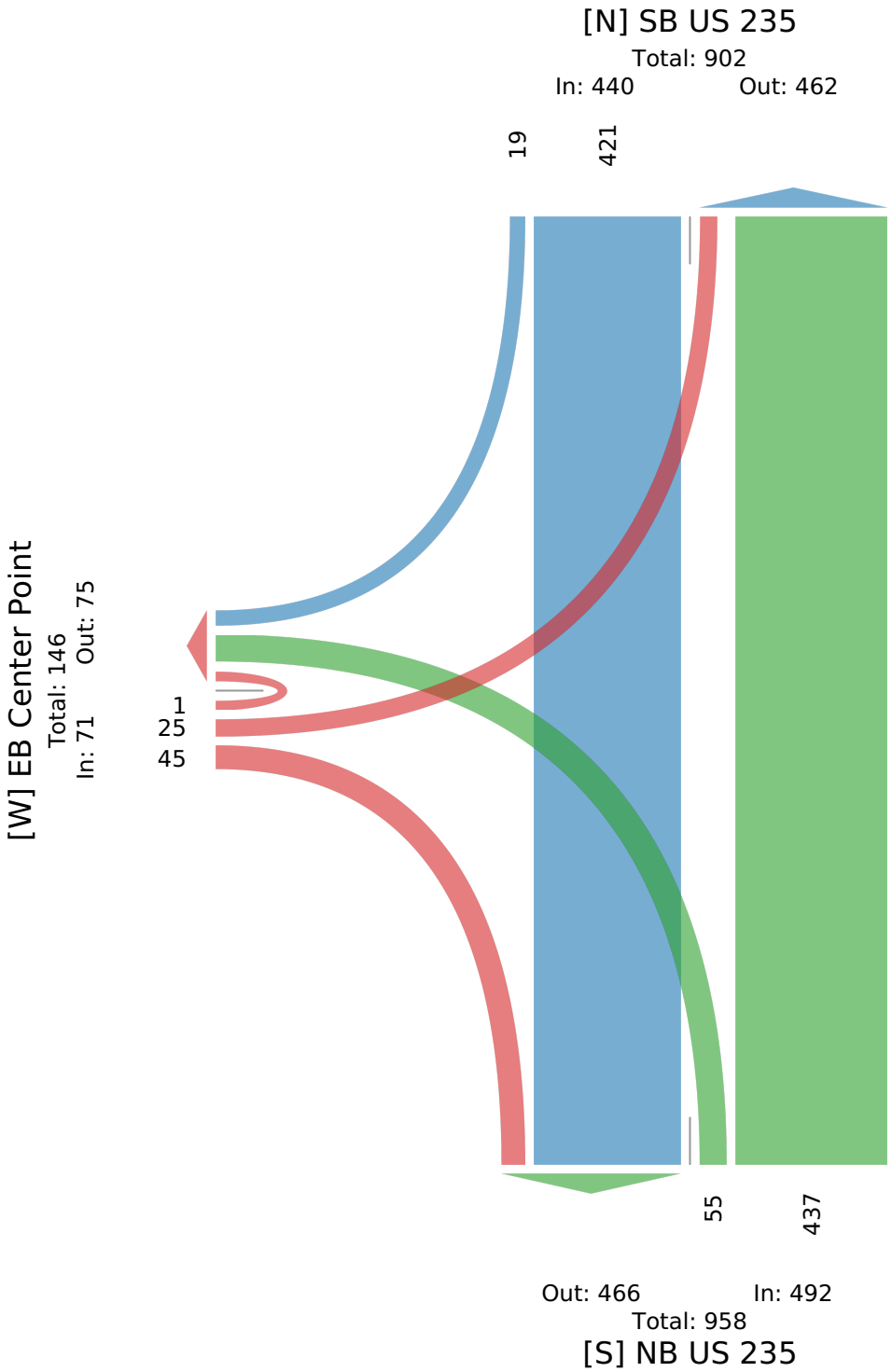
Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US

Leg	SB US 235				NB US 235				EB Center Point				
Direction	Southbound				Northbound				Eastbound				
Time	R	T	U	**App**	T	L	U	**App**	R	L	U	**App**	**Int**
2023-06-24 1:00PM	4	108	0	**112**	98	11	0	**109**	14	6	0	**20**	**241**
1:15PM	7	114	0	**121**	124	11	0	**135**	10	4	0	**14**	**270**
1:30PM	4	96	0	**100**	112	15	0	**127**	8	5	0	**13**	**240**
1:45PM	4	103	0	**107**	103	18	0	**121**	13	10	1	**24**	**252**
Total	19	421	0	**440**	437	55	0	**492**	45	25	1	**71**	**1003**
% Approach	4.3%	95.7%	0%	**-**	88.8%	11.2%	0%	**-**	63.4%	35.2%	1.4%	**-**	-
% Total	1.9%	42.0%	0%	**43.9%**	43.6%	5.5%	0%	**49.1%**	4.5%	2.5%	0.1%	**7.1%**	-
PHF	0.679	0.923	-	**0.909**	0.881	0.764	-	**0.911**	0.804	0.625	0.250	**0.740**	0.929
Lights and Motorcycles	19	413	0	**432**	419	44	0	**463**	33	25	1	**59**	954
% Lights and Motorcycles	100%	98.1%	0%	**98.2%**	95.9%	80.0%	0%	**94.1%**	73.3%	100%	100%	**83.1%**	95.1%
Heavy	0	8	0	**8**	18	11	0	**29**	12	0	0	**12**	49
% Heavy	0%	1.9%	0%	**1.8%**	4.1%	20.0%	0%	**5.9%**	26.7%	0%	0%	**16.9%**	4.9%

*L: Left, R: Right, T: Thru, U: U-Turn

02_SR 235 & Center Point 70 Blvd - TMC
Sat Jun 24, 2023
Midday Peak (WKND) (1 PM - 2 PM)
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1082451, Location: 39.872371, -84.055183

Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US



02_SR 235 & Center Point 70 Blvd - TMC

Sat Jun 24, 2023
PM Peak (WKND) (4 PM - 5 PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1082451, Location: 39.872371, -84.055183

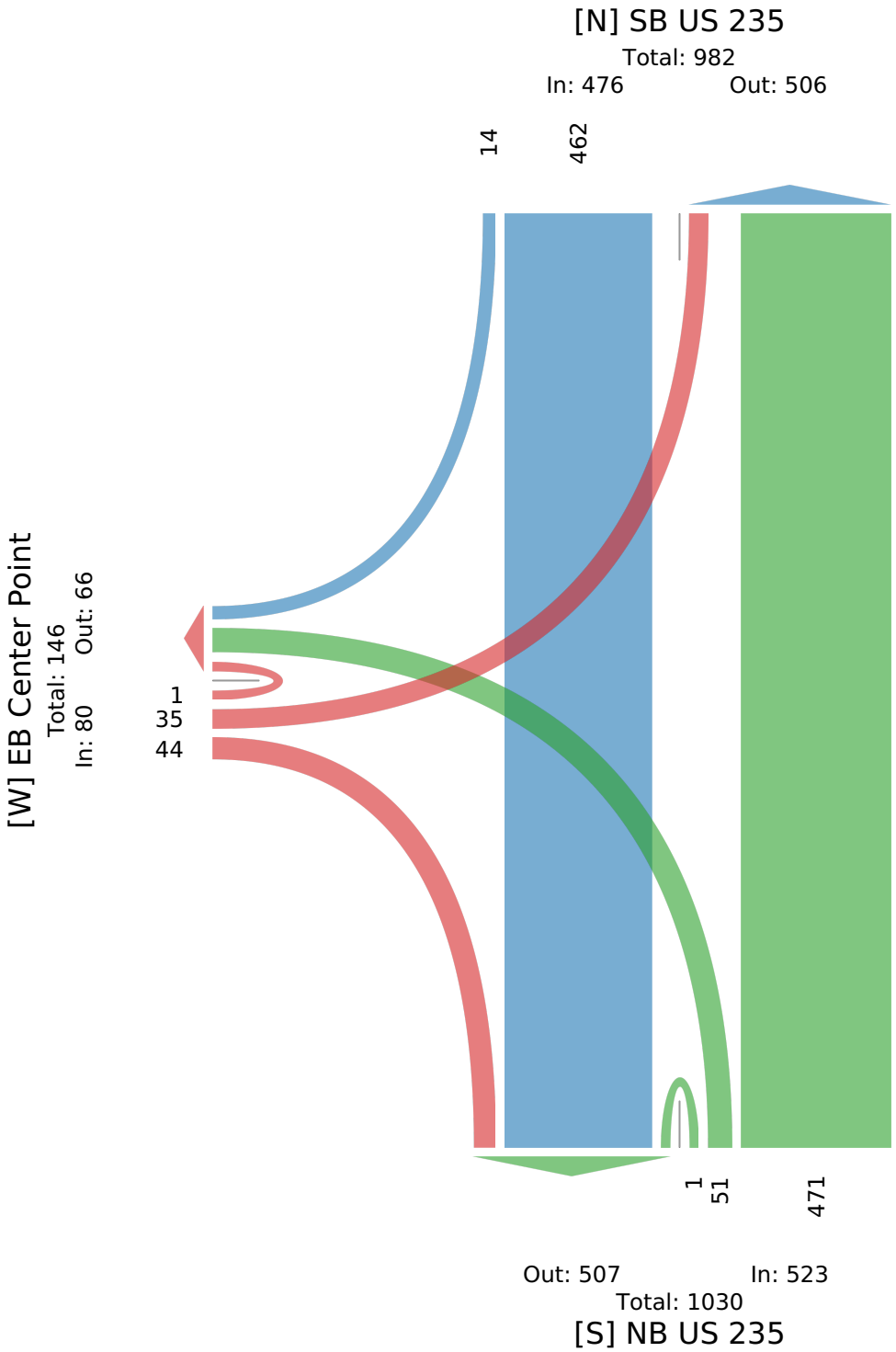
Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US

Leg	SB US 235				NB US 235				EB Center Point				
Direction	Southbound				Northbound				Eastbound				
Time	R	T	U	**App**	T	L	U	**App**	R	L	U	**App**	**Int**
2023-06-24 4:00PM	6	140	0	**146**	108	12	0	**120**	20	18	0	**38**	**304**
4:15PM	4	105	0	**109**	130	13	0	**143**	9	3	0	**12**	**264**
4:30PM	2	107	0	**109**	119	15	1	**135**	9	7	0	**16**	**260**
4:45PM	2	110	0	**112**	114	11	0	**125**	6	7	1	**14**	**251**
Total	14	462	0	**476**	471	51	1	**523**	44	35	1	**80**	**1079**
% Approach	2.9%	97.1%	0%	**-**	90.1%	9.8%	0.2%	**-**	55.0%	43.8%	1.3%	**-**	-
% Total	1.3%	42.8%	0%	**44.1%**	43.7%	4.7%	0.1%	**48.5%**	4.1%	3.2%	0.1%	**7.4%**	-
PHF	0.583	0.825	-	**0.815**	0.906	0.850	0.250	**0.914**	0.550	0.486	0.250	**0.526**	0.887
Lights and Motorcycles	14	460	0	**474**	458	39	1	**498**	38	35	1	**74**	1046
% Lights and Motorcycles	100%	99.6%	0%	**99.6%**	97.2%	76.5%	100%	**95.2%**	86.4%	100%	100%	**92.5%**	96.9%
Heavy	0	2	0	**2**	13	12	0	**25**	6	0	0	**6**	33
% Heavy	0%	0.4%	0%	**0.4%**	2.8%	23.5%	0%	**4.8%**	13.6%	0%	0%	**7.5%**	3.1%

*L: Left, R: Right, T: Thru, U: U-Turn

02_SR 235 & Center Point 70 Blvd - TMC
Sat Jun 24, 2023
PM Peak (WKND) (4 PM - 5 PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1082451, Location: 39.872371, -84.055183

Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US



02_SR 235 & Center Point 70 Blvd - TMC

Tue Jun 27, 2023
Full Length (12 AM-12 AM (+1))
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1082448, Location: 39.872378, -84.055217

Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US

Leg	SB US 235				NB US 235				EB Center Point 70				
Direction	Southbound				Northbound				Eastbound				
Time	R	T	U	**App**	T	L	U	**App**	R	L	U	**App**	**Int**
2023-06-27 12:00AM	0	12	0	**12**	15	6	0	**21**	30	4	0	**34**	**67**
12:15AM	1	6	0	**7**	22	9	0	**31**	10	0	0	**10**	**48**
12:30AM	1	11	0	**12**	10	1	0	**11**	4	3	0	**7**	**30**
12:45AM	1	11	0	**12**	7	8	0	**15**	2	0	0	**2**	**29**
Hourly Total	3	40	0	**43**	54	24	0	**78**	46	7	0	**53**	**174**
1:00AM	0	11	0	**11**	6	5	0	**11**	7	1	0	**8**	**30**
1:15AM	0	10	0	**10**	7	3	0	**10**	8	1	0	**9**	**29**
1:30AM	1	12	0	**13**	7	7	0	**14**	7	1	0	**8**	**35**
1:45AM	2	7	0	**9**	10	5	0	**15**	10	0	0	**10**	**34**
Hourly Total	3	40	0	**43**	30	20	0	**50**	32	3	0	**35**	**128**
2:00AM	2	6	0	**8**	7	4	0	**11**	3	0	0	**3**	**22**
2:15AM	2	13	0	**15**	11	7	0	**18**	4	0	0	**4**	**37**
2:30AM	0	9	0	**9**	8	4	0	**12**	6	0	0	**6**	**27**
2:45AM	0	12	0	**12**	7	6	0	**13**	4	1	0	**5**	**30**
Hourly Total	4	40	0	**44**	33	21	0	**54**	17	1	0	**18**	**116**
3:00AM	1	14	0	**15**	8	7	0	**15**	6	0	0	**6**	**36**
3:15AM	0	11	0	**11**	5	2	0	**7**	5	1	0	**6**	**24**
3:30AM	1	19	0	**20**	10	4	0	**14**	5	1	0	**6**	**40**
3:45AM	1	17	0	**18**	6	8	0	**14**	4	0	0	**4**	**36**
Hourly Total	3	61	0	**64**	29	21	0	**50**	20	2	0	**22**	**136**
4:00AM	0	23	0	**23**	5	7	0	**12**	4	0	0	**4**	**39**
4:15AM	3	29	0	**32**	8	6	0	**14**	5	2	0	**7**	**53**
4:30AM	2	34	0	**36**	17	5	0	**22**	3	1	0	**4**	**62**
4:45AM	0	37	0	**37**	31	8	0	**39**	7	2	0	**9**	**85**
Hourly Total	5	123	0	**128**	61	26	0	**87**	19	5	0	**24**	**239**
5:00AM	0	59	0	**59**	16	8	0	**24**	5	0	0	**5**	**88**
5:15AM	4	90	0	**94**	11	12	0	**23**	7	3	0	**10**	**127**
5:30AM	3	141	0	**144**	33	15	0	**48**	4	1	0	**5**	**197**
5:45AM	10	73	0	**83**	26	29	0	**55**	3	1	0	**4**	**142**
Hourly Total	17	363	0	**380**	86	64	0	**150**	19	5	0	**24**	**554**
6:00AM	3	115	0	**118**	22	16	0	**38**	17	3	0	**20**	**176**
6:15AM	5	192	0	**197**	54	16	0	**70**	10	2	0	**12**	**279**
6:30AM	9	216	0	**225**	45	29	0	**74**	11	2	0	**13**	**312**
6:45AM	7	165	0	**172**	63	62	0	**125**	8	2	0	**10**	**307**
Hourly Total	24	688	0	**712**	184	123	0	**307**	46	9	0	**55**	**1074**
7:00AM	3	166	1	**170**	56	25	0	**81**	15	5	0	**20**	**271**
7:15AM	7	192	0	**199**	56	40	0	**96**	9	1	0	**10**	**305**
7:30AM	10	216	0	**226**	60	39	0	**99**	8	5	0	**13**	**338**
7:45AM	16	152	0	**168**	60	55	1	**116**	18	6	0	**24**	**308**
Hourly Total	36	726	1	**763**	232	159	1	**392**	50	17	0	**67**	**1222**
8:00AM	5	162	0	**167**	80	40	0	**120**	40	16	0	**56**	**343**
8:15AM	7	151	0	**158**	51	27	0	**78**	21	8	0	**29**	**265**
8:30AM	3	117	0	**120**	74	27	0	**101**	19	3	0	**22**	**243**
8:45AM	3	111	0	**114**	83	21	0	**104**	22	5	0	**27**	**245**
Hourly Total	18	541	0	**559**	288	115	0	**403**	102	32	0	**134**	**1096**
9:00AM	4	100	0	**104**	66	21	0	**87**	9	13	0	**22**	**213**
9:15AM	5	109	0	**114**	68	24	0	**92**	22	0	0	**22**	**228**
9:30AM	4	107	1	**112**	72	15	0	**87**	16	8	0	**24**	**223**
9:45AM	7	107	0	**114**	60	21	0	**81**	26	3	0	**29**	**224**
Hourly Total	20	423	1	**444**	266	81	0	**347**	73	24	0	**97**	**888**
10:00AM	3	119	0	**122**	66	14	0	**80**	12	2	0	**14**	**216**
10:15AM	4	85	0	**89**	70	22	0	**92**	13	3	0	**16**	**197**
10:30AM	5	88	0	**93**	74	15	0	**89**	17	5	0	**22**	**204**
10:45AM	9	110	0	**119**	78	22	0	**100**	11	7	0	**18**	**237**

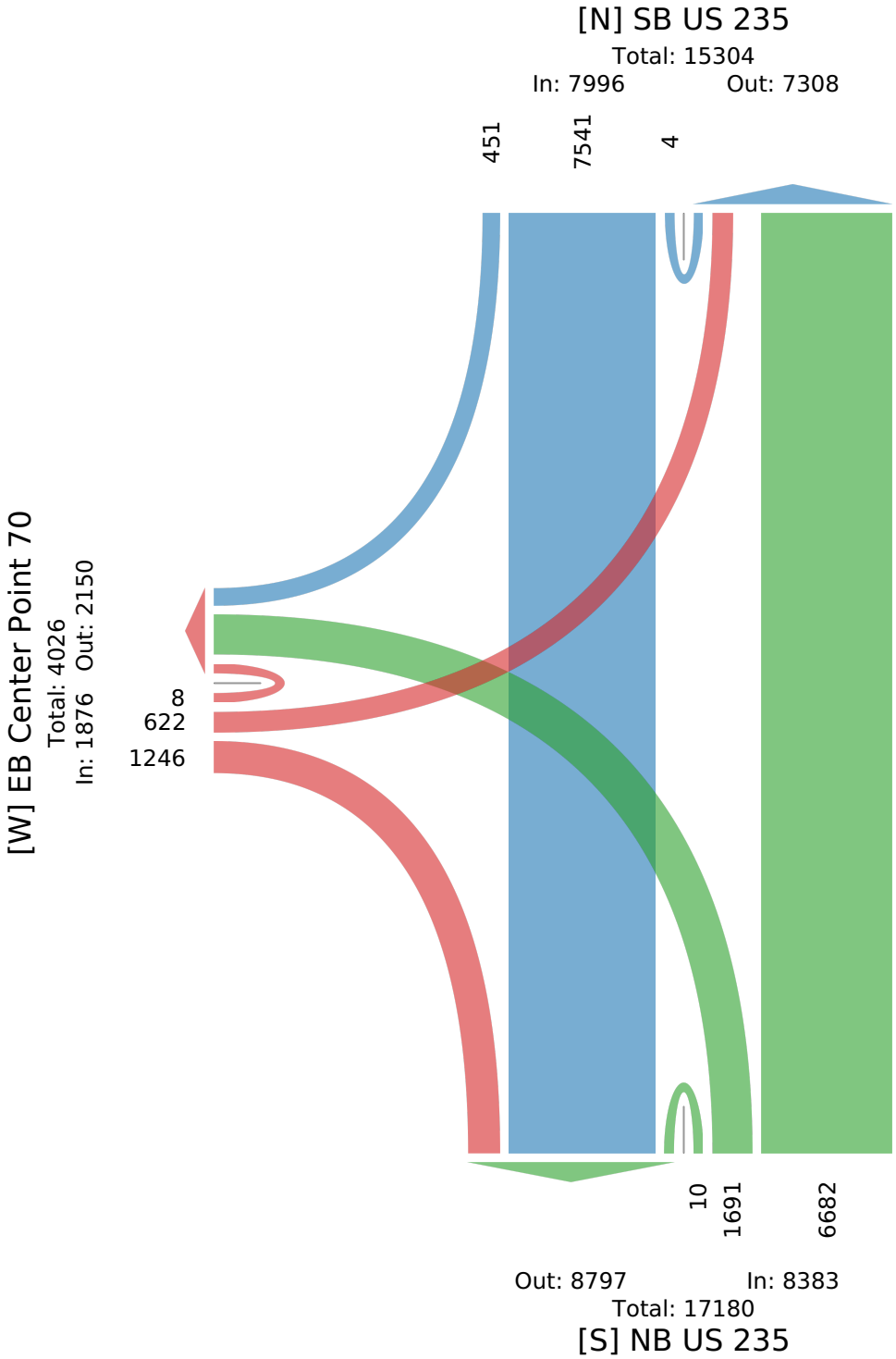
Leg	SB US 235				NB US 235				EB Center Point 70				
Direction	Southbound				Northbound				Eastbound				
Time	R	T	U	**App**	T	L	U	**App**	R	L	U	**App**	**Int**
Hourly Total	21	402	0	**423**	288	73	0	**361**	53	17	0	**70**	**854**
11:00AM	8	77	0	**85**	75	21	0	**96**	9	8	0	**17**	**198**
11:15AM	6	85	0	**91**	84	14	1	**99**	16	9	0	**25**	**215**
11:30AM	6	93	0	**99**	106	19	0	**125**	13	11	0	**24**	**248**
11:45AM	12	96	0	**108**	94	20	1	**115**	9	12	1	**22**	**245**
Hourly Total	32	351	0	**383**	359	74	2	**435**	47	40	1	**88**	**906**
12:00PM	16	113	0	**129**	73	18	1	**92**	14	24	0	**38**	**259**
12:15PM	12	90	0	**102**	97	18	1	**116**	21	15	0	**36**	**254**
12:30PM	5	102	0	**107**	90	29	1	**120**	19	5	1	**25**	**252**
12:45PM	9	107	0	**116**	87	23	1	**111**	11	13	0	**24**	**251**
Hourly Total	42	412	0	**454**	347	88	4	**439**	65	57	1	**123**	**1016**
1:00PM	11	88	0	**99**	85	18	0	**103**	21	12	0	**33**	**235**
1:15PM	8	110	0	**118**	89	19	0	**108**	17	21	0	**38**	**264**
1:30PM	8	110	0	**118**	88	26	0	**114**	15	5	1	**21**	**253**
1:45PM	5	91	0	**96**	99	29	0	**128**	18	12	0	**30**	**254**
Hourly Total	32	399	0	**431**	361	92	0	**453**	71	50	1	**122**	**1006**
2:00PM	7	91	0	**98**	88	21	0	**109**	21	15	0	**36**	**243**
2:15PM	4	94	0	**98**	93	27	0	**120**	18	8	0	**26**	**244**
2:30PM	6	108	0	**114**	133	31	0	**164**	23	5	0	**28**	**306**
2:45PM	8	103	0	**111**	140	33	1	**174**	9	12	0	**21**	**306**
Hourly Total	25	396	0	**421**	454	112	1	**567**	71	40	0	**111**	**1099**
3:00PM	8	107	0	**115**	130	31	0	**161**	32	14	0	**46**	**322**
3:15PM	9	81	0	**90**	169	31	0	**200**	30	9	0	**39**	**329**
3:30PM	7	112	2	**121**	179	42	0	**221**	29	20	1	**50**	**392**
3:45PM	9	107	0	**116**	206	40	0	**246**	25	13	0	**38**	**400**
Hourly Total	33	407	2	**442**	684	144	0	**828**	116	56	1	**173**	**1443**
4:00PM	6	106	0	**112**	190	30	0	**220**	55	26	0	**81**	**413**
4:15PM	4	126	0	**130**	179	16	0	**195**	30	13	0	**43**	**368**
4:30PM	2	150	0	**152**	179	27	1	**207**	48	18	2	**68**	**427**
4:45PM	3	123	0	**126**	188	14	0	**202**	25	12	0	**37**	**365**
Hourly Total	15	505	0	**520**	736	87	1	**824**	158	69	2	**229**	**1573**
5:00PM	6	110	0	**116**	218	24	0	**242**	26	14	0	**40**	**398**
5:15PM	6	119	0	**125**	197	23	0	**220**	20	13	1	**34**	**379**
5:30PM	10	113	0	**123**	167	14	0	**181**	23	9	0	**32**	**336**
5:45PM	3	112	0	**115**	143	18	0	**161**	10	10	0	**20**	**296**
Hourly Total	25	454	0	**479**	725	79	0	**804**	79	46	1	**126**	**1409**
6:00PM	7	102	0	**109**	122	12	1	**135**	7	12	0	**19**	**263**
6:15PM	6	94	0	**100**	116	11	0	**127**	15	11	0	**26**	**253**
6:30PM	5	91	0	**96**	118	11	0	**129**	13	2	0	**15**	**240**
6:45PM	6	89	0	**95**	77	19	0	**96**	8	8	0	**16**	**207**
Hourly Total	24	376	0	**400**	433	53	1	**487**	43	33	0	**76**	**963**
7:00PM	8	61	0	**69**	82	8	0	**90**	7	6	0	**13**	**172**
7:15PM	8	73	0	**81**	84	9	0	**93**	6	7	0	**13**	**187**
7:30PM	4	66	0	**70**	76	4	0	**80**	8	4	0	**12**	**162**
7:45PM	3	57	0	**60**	75	12	0	**87**	7	8	0	**15**	**162**
Hourly Total	23	257	0	**280**	317	33	0	**350**	28	25	0	**53**	**683**
8:00PM	6	52	0	**58**	98	16	0	**114**	4	6	1	**11**	**183**
8:15PM	5	63	0	**68**	67	10	0	**77**	5	9	0	**14**	**159**
8:30PM	1	50	0	**51**	57	7	0	**64**	2	5	0	**7**	**122**
8:45PM	6	49	0	**55**	64	9	0	**73**	7	6	0	**13**	**141**
Hourly Total	18	214	0	**232**	286	42	0	**328**	18	26	1	**45**	**605**
9:00PM	2	55	0	**57**	49	8	0	**57**	12	9	0	**21**	**135**
9:15PM	2	49	0	**51**	54	6	0	**60**	6	4	0	**10**	**121**
9:30PM	0	31	0	**31**	48	11	0	**59**	3	7	0	**10**	**100**
9:45PM	5	46	0	**51**	51	12	0	**63**	6	4	0	**10**	**124**
Hourly Total	9	181	0	**190**	202	37	0	**239**	27	24	0	**51**	**480**
10:00PM	4	25	0	**29**	41	11	0	**52**	11	11	0	**22**	**103**
10:15PM	0	28	0	**28**	34	8	0	**42**	4	7	0	**11**	**81**
10:30PM	2	22	0	**24**	30	9	0	**39**	3	3	0	**6**	**69**
10:45PM	1	18	0	**19**	26	18	0	**44**	9	1	0	**10**	**73**

Leg Direction	SB US 235 Southbound				NB US 235 Northbound				EB Center Point 70 Eastbound				
Time	R	T	U	**App**	T	L	U	**App**	R	L	U	**App**	**Int**
Hourly Total	7	93	0	**100**	131	46	0	**177**	27	22	0	**49**	**326**
11:00PM	3	16	0	**19**	19	12	0	**31**	6	3	0	**9**	**59**
11:15PM	1	14	0	**15**	30	19	0	**49**	5	6	0	**11**	**75**
11:30PM	5	12	0	**17**	21	22	0	**43**	5	2	0	**7**	**67**
11:45PM	3	7	0	**10**	26	24	0	**50**	3	1	0	**4**	**64**
Hourly Total	12	49	0	**61**	96	77	0	**173**	19	12	0	**31**	**265**
Total	451	7541	4	**7996**	6682	1691	10	**8383**	1246	622	8	**1876**	**18255**
% Approach	5.6%	94.3%	0.1%	**-**	79.7%	20.2%	0.1%	**-**	66.4%	33.2%	0.4%	**-**	-
% Total	2.5%	41.3%	0%	**43.8%**	36.6%	9.3%	0.1%	**45.9%**	6.8%	3.4%	0%	**10.3%**	-
Lights and Motorcycles	420	6976	2	**7398**	6165	1236	4	**7405**	860	576	3	**1439**	16242
% Lights and Motorcycles	93.1%	92.5%	50.0%	**92.5%**	92.3%	73.1%	40.0%	**88.3%**	69.0%	92.6%	37.5%	**76.7%**	89.0%
Heavy	31	565	2	**598**	517	455	6	**978**	386	46	5	**437**	2013
% Heavy	6.9%	7.5%	50.0%	**7.5%**	7.7%	26.9%	60.0%	**11.7%**	31.0%	7.4%	62.5%	**23.3%**	11.0%

*L: Left, R: Right, T: Thru, U: U-Turn

02_SR 235 & Center Point 70 Blvd - TMC
Tue Jun 27, 2023
Full Length (12 AM-12 AM (+1))
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1082448, Location: 39.872378, -84.055217

Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US



02_SR 235 & Center Point 70 Blvd - TMC

Tue Jun 27, 2023
AM Peak (7:15 AM - 8:15 AM)
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1082448, Location: 39.872378, -84.055217

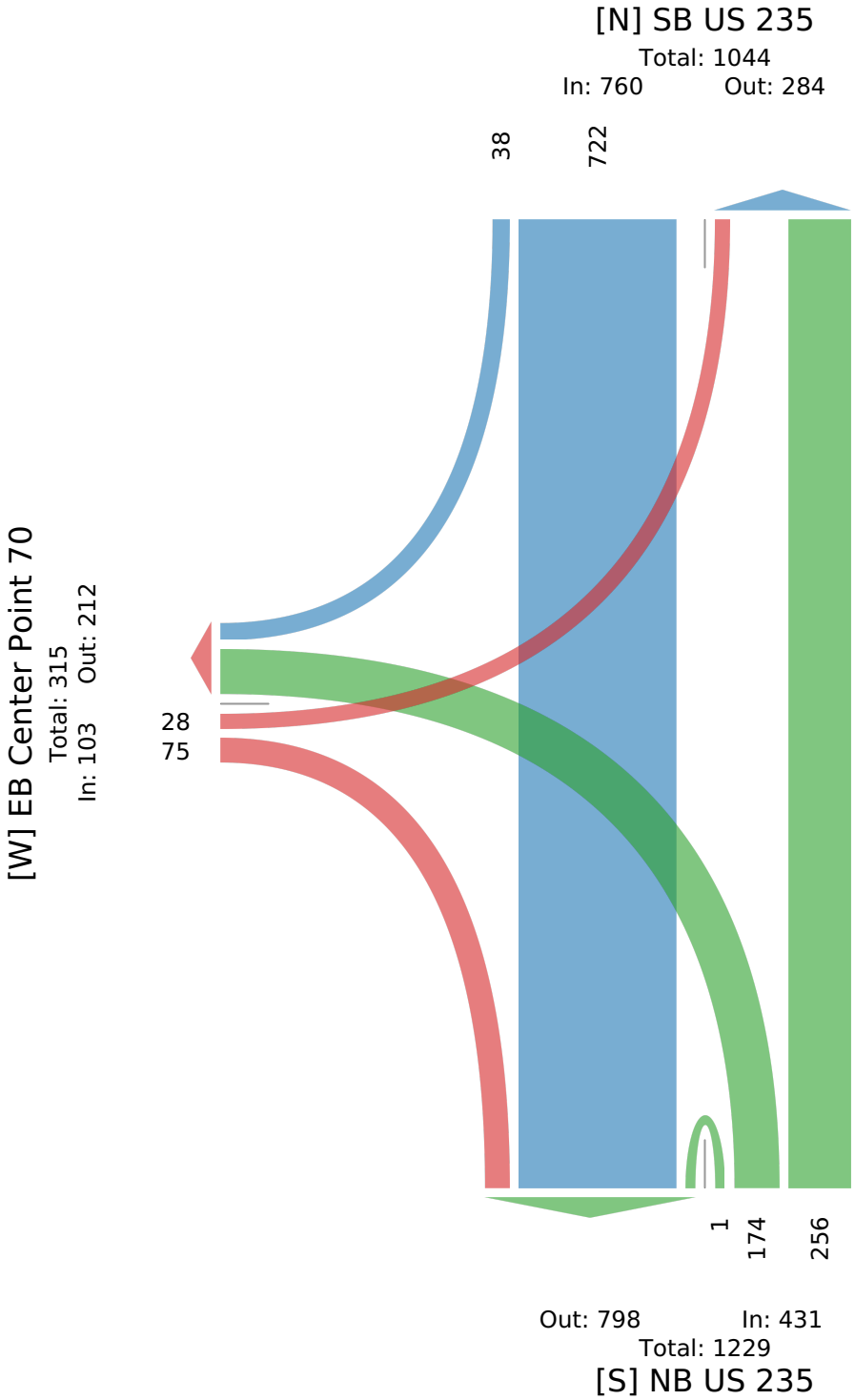
Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US

Leg Direction	SB US 235 Southbound				NB US 235 Northbound				EB Center Point 70 Eastbound				
Time	R	T	U	**App**	T	L	U	**App**	R	L	U	**App**	**Int**
2023-06-27 7:15AM	7	192	0	**199**	56	40	0	**96**	9	1	0	**10**	**305**
7:30AM	10	216	0	**226**	60	39	0	**99**	8	5	0	**13**	**338**
7:45AM	16	152	0	**168**	60	55	1	**116**	18	6	0	**24**	**308**
8:00AM	5	162	0	**167**	80	40	0	**120**	40	16	0	**56**	**343**
Total	38	722	0	**760**	256	174	1	**431**	75	28	0	**103**	**1294**
% Approach	5.0%	95.0%	0%	**-**	59.4%	40.4%	0.2%	**-**	72.8%	27.2%	0%	**-**	-
% Total	2.9%	55.8%	0%	**58.7%**	19.8%	13.4%	0.1%	**33.3%**	5.8%	2.2%	0%	**8.0%**	-
PHF	0.594	0.836	-	**0.841**	0.800	0.791	0.250	**0.898**	0.469	0.438	-	**0.460**	0.943
Lights and Motorcycles	36	674	0	**710**	217	146	0	**363**	53	24	0	**77**	1150
% Lights and Motorcycles	94.7%	93.4%	0%	**93.4%**	84.8%	83.9%	0%	**84.2%**	70.7%	85.7%	0%	**74.8%**	88.9%
Heavy	2	48	0	**50**	39	28	1	**68**	22	4	0	**26**	144
% Heavy	5.3%	6.6%	0%	**6.6%**	15.2%	16.1%	100%	**15.8%**	29.3%	14.3%	0%	**25.2%**	11.1%

*L: Left, R: Right, T: Thru, U: U-Turn

02_SR 235 & Center Point 70 Blvd - TMC
Tue Jun 27, 2023
AM Peak (7:15 AM - 8:15 AM)
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1082448, Location: 39.872378, -84.055217

Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US



02_SR 235 & Center Point 70 Blvd - TMC

Tue Jun 27, 2023
Midday Peak (12 PM - 1 PM)
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1082448, Location: 39.872378, -84.055217

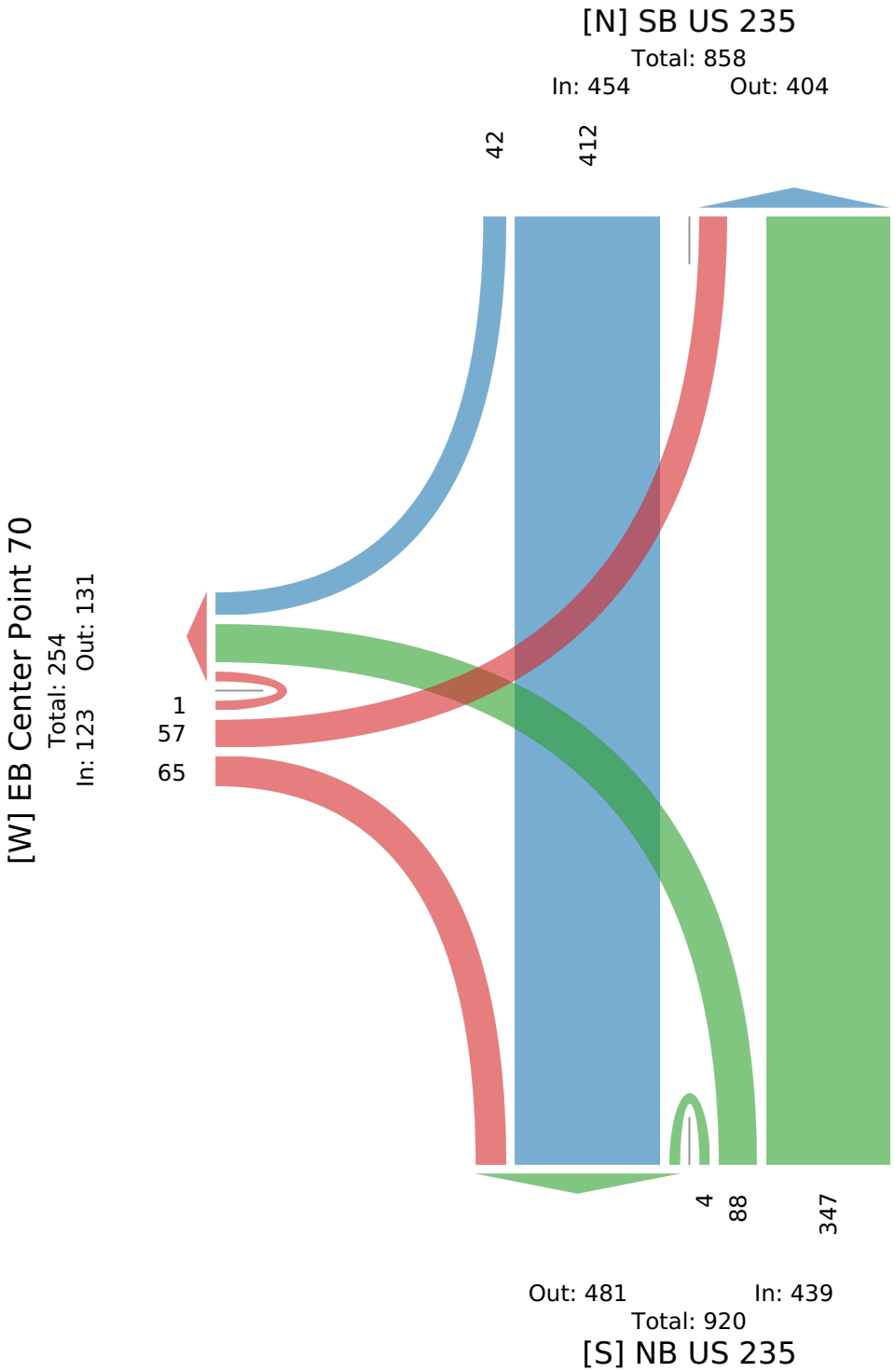
Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US

Leg	SB US 235				NB US 235				EB Center Point 70				
Direction	Southbound				Northbound				Eastbound				
Time	R	T	U	**App**	T	L	U	**App**	R	L	U	**App**	**Int**
2023-06-27 12:00PM	16	113	0	**129**	73	18	1	**92**	14	24	0	**38**	**259**
12:15PM	12	90	0	**102**	97	18	1	**116**	21	15	0	**36**	**254**
12:30PM	5	102	0	**107**	90	29	1	**120**	19	5	1	**25**	**252**
12:45PM	9	107	0	**116**	87	23	1	**111**	11	13	0	**24**	**251**
Total	42	412	0	**454**	347	88	4	**439**	65	57	1	**123**	**1016**
% Approach	9.3%	90.7%	0%	**-**	79.0%	20.0%	0.9%	**-**	52.8%	46.3%	0.8%	**-**	-
% Total	4.1%	40.6%	0%	**44.7%**	34.2%	8.7%	0.4%	**43.2%**	6.4%	5.6%	0.1%	**12.1%**	-
PHF	0.656	0.912	-	**0.880**	0.894	0.759	1.000	**0.915**	0.774	0.594	0.250	**0.809**	0.981
Lights and Motorcycles	37	379	0	**416**	317	59	0	**376**	43	52	1	**96**	888
% Lights and Motorcycles	88.1%	92.0%	0%	**91.6%**	91.4%	67.0%	0%	**85.6%**	66.2%	91.2%	100%	**78.0%**	87.4%
Heavy	5	33	0	**38**	30	29	4	**63**	22	5	0	**27**	128
% Heavy	11.9%	8.0%	0%	**8.4%**	8.6%	33.0%	100%	**14.4%**	33.8%	8.8%	0%	**22.0%**	12.6%

*L: Left, R: Right, T: Thru, U: U-Turn

02_SR 235 & Center Point 70 Blvd - TMC
Tue Jun 27, 2023
Midday Peak (12 PM - 1 PM)
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1082448, Location: 39.872378, -84.055217

Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US



02_SR 235 & Center Point 70 Blvd - TMC

Tue Jun 27, 2023
PM Peak (3:45 PM - 4:45 PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1082448, Location: 39.872378, -84.055217

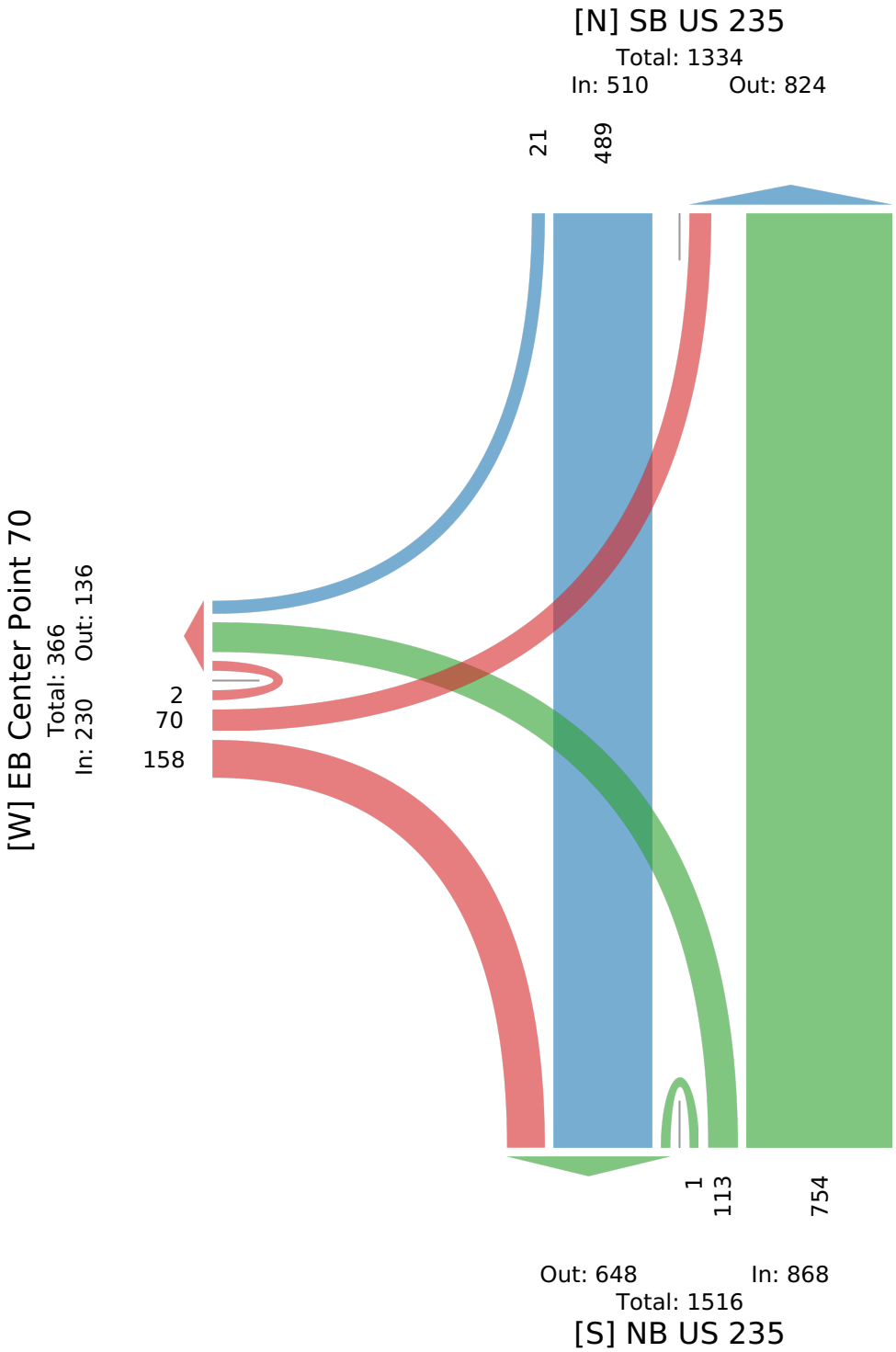
Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US

Leg	SB US 235				NB US 235				EB Center Point 70				
Direction	Southbound				Northbound				Eastbound				
Time	R	T	U	**App**	T	L	U	**App**	R	L	U	**App**	**Int**
2023-06-27 3:45PM	9	107	0	**116**	206	40	0	**246**	25	13	0	**38**	**400**
4:00PM	6	106	0	**112**	190	30	0	**220**	55	26	0	**81**	**413**
4:15PM	4	126	0	**130**	179	16	0	**195**	30	13	0	**43**	**368**
4:30PM	2	150	0	**152**	179	27	1	**207**	48	18	2	**68**	**427**
Total	21	489	0	**510**	754	113	1	**868**	158	70	2	**230**	**1608**
% Approach	4.1%	95.9%	0%	**-**	86.9%	13.0%	0.1%	**-**	68.7%	30.4%	0.9%	**-**	-
% Total	1.3%	30.4%	0%	**31.7%**	46.9%	7.0%	0.1%	**54.0%**	9.8%	4.4%	0.1%	**14.3%**	-
PHF	0.583	0.815	-	**0.839**	0.915	0.706	0.250	**0.882**	0.718	0.673	0.250	**0.710**	0.941
Lights and Motorcycles	19	446	0	**465**	712	79	1	**792**	137	65	1	**203**	1460
% Lights and Motorcycles	90.5%	91.2%	0%	**91.2%**	94.4%	69.9%	100%	**91.2%**	86.7%	92.9%	50.0%	**88.3%**	90.8%
Heavy	2	43	0	**45**	42	34	0	**76**	21	5	1	**27**	148
% Heavy	9.5%	8.8%	0%	**8.8%**	5.6%	30.1%	0%	**8.8%**	13.3%	7.1%	50.0%	**11.7%**	9.2%

*L: Left, R: Right, T: Thru, U: U-Turn

02_SR 235 & Center Point 70 Blvd - TMC
Tue Jun 27, 2023
PM Peak (3:45 PM - 4:45 PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1082448, Location: 39.872378, -84.055217

Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US



03_SR 235 & Coca-Cola Blvd - TMC

Sat Jun 24, 2023
Full Length (12 AM-12 AM (+1))
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1082452, Location: 39.874691, -84.053683

Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US

Leg	SB US 235					WB Coca Cola					NB US 235					EB Private					
Direction	Southbound					Westbound					Northbound					Eastbound					
Time	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	Int
2023-06-24 12:00AM	0	23	0	0	**23**	0	0	0	0	**0**	2	27	1	0	**30**	0	0	0	0	**0**	**53**
12:15AM	1	16	0	0	**17**	0	0	0	0	**0**	0	26	1	0	**27**	1	0	0	0	**1**	**45**
12:30AM	0	19	0	0	**19**	0	0	1	0	**1**	1	22	0	0	**23**	14	0	1	0	**15**	**58**
12:45AM	0	18	0	0	**18**	0	0	0	0	**0**	0	26	0	0	**26**	2	0	0	0	**2**	**46**
Hourly Total	1	76	0	0	**77**	0	0	1	0	**1**	3	101	2	0	**106**	17	0	1	0	**18**	**202**
1:00AM	0	8	0	0	**8**	0	0	0	0	**0**	0	19	1	0	**20**	1	0	0	0	**1**	**29**
1:15AM	0	15	0	0	**15**	0	0	1	0	**1**	0	12	0	0	**12**	3	0	0	0	**3**	**31**
1:30AM	1	9	0	0	**10**	0	0	0	0	**0**	0	12	4	0	**16**	0	0	0	0	**0**	**26**
1:45AM	0	17	0	0	**17**	0	0	0	0	**0**	0	8	10	0	**18**	2	0	0	0	**2**	**37**
Hourly Total	1	49	0	0	**50**	0	0	1	0	**1**	0	51	15	0	**66**	6	0	0	0	**6**	**123**
2:00AM	0	12	0	0	**12**	0	0	0	0	**0**	0	5	1	0	**6**	1	0	1	0	**2**	**20**
2:15AM	0	10	0	0	**10**	0	0	0	0	**0**	0	13	1	0	**14**	6	0	0	0	**6**	**30**
2:30AM	0	11	0	0	**11**	0	0	1	0	**1**	0	10	0	0	**10**	5	0	0	0	**5**	**27**
2:45AM	0	5	0	0	**5**	0	0	0	0	**0**	0	9	0	0	**9**	0	0	0	0	**0**	**14**
Hourly Total	0	38	0	0	**38**	0	0	1	0	**1**	0	37	2	0	**39**	12	0	1	0	**13**	**91**
3:00AM	0	10	0	0	**10**	0	0	0	0	**0**	1	3	0	0	**4**	0	0	0	0	**0**	**14**
3:15AM	0	8	0	0	**8**	0	0	0	0	**0**	0	13	1	0	**14**	1	0	0	0	**1**	**23**
3:30AM	0	14	0	0	**14**	0	0	1	0	**1**	0	9	2	0	**11**	0	0	0	0	**0**	**26**
3:45AM	0	10	0	0	**10**	0	0	0	0	**0**	0	7	1	0	**8**	0	0	0	0	**0**	**18**
Hourly Total	0	42	0	0	**42**	0	0	1	0	**1**	1	32	4	0	**37**	1	0	0	0	**1**	**81**
4:00AM	0	8	0	0	**8**	0	0	0	0	**0**	0	5	0	0	**5**	0	0	0	0	**0**	**13**
4:15AM	0	13	0	0	**13**	0	0	0	0	**0**	1	6	1	0	**8**	0	0	0	0	**0**	**21**
4:30AM	0	12	0	0	**12**	0	0	0	0	**0**	0	5	0	0	**5**	1	0	0	0	**1**	**18**
4:45AM	0	9	0	0	**9**	0	0	0	0	**0**	0	2	1	0	**3**	0	0	0	0	**0**	**12**
Hourly Total	0	42	0	0	**42**	0	0	0	0	**0**	1	18	2	0	**21**	1	0	0	0	**1**	**64**
5:00AM	0	19	0	0	**19**	0	0	0	0	**0**	0	6	1	0	**7**	0	0	0	0	**0**	**26**
5:15AM	0	26	0	0	**26**	0	0	0	0	**0**	0	7	1	0	**8**	1	0	0	0	**1**	**35**
5:30AM	0	41	0	0	**41**	1	0	0	0	**1**	0	11	1	0	**12**	2	0	1	0	**3**	**57**
5:45AM	0	30	0	0	**30**	0	0	0	0	**0**	1	7	2	0	**10**	0	0	0	0	**0**	**40**
Hourly Total	0	116	0	0	**116**	1	0	0	0	**1**	1	31	5	0	**37**	3	0	1	0	**4**	**158**
6:00AM	0	29	0	0	**29**	0	0	1	0	**1**	0	9	2	0	**11**	1	0	0	0	**1**	**42**
6:15AM	0	47	0	0	**47**	0	0	0	0	**0**	1	16	0	0	**17**	1	0	0	0	**1**	**65**
6:30AM	0	58	0	0	**58**	0	0	1	0	**1**	0	23	1	0	**24**	1	0	0	0	**1**	**84**
6:45AM	1	55	0	0	**56**	0	0	0	0	**0**	0	33	3	0	**36**	0	0	0	0	**0**	**92**
Hourly Total	1	189	0	0	**190**	0	0	2	0	**2**	1	81	6	0	**88**	3	0	0	0	**3**	**283**
7:00AM	0	42	0	0	**42**	0	0	0	0	**0**	2	24	3	0	**29**	1	0	0	0	**1**	**72**
7:15AM	0	56	0	0	**56**	0	0	1	0	**1**	0	48	1	0	**49**	2	0	1	0	**3**	**109**
7:30AM	0	54	0	0	**54**	0	0	1	0	**1**	1	37	1	0	**39**	2	0	0	0	**2**	**96**
7:45AM	0	70	0	0	**70**	0	0	1	0	**1**	0	41	1	0	**42**	1	0	0	0	**1**	**114**
Hourly Total	0	222	0	0	**222**	0	0	3	0	**3**	3	150	6	0	**159**	6	0	1	0	**7**	**391**
8:00AM	1	65	0	0	**66**	0	0	0	0	**0**	0	50	3	0	**53**	1	0	0	0	**1**	**120**
8:15AM	0	69	0	0	**69**	0	0	0	0	**0**	2	61	1	0	**64**	1	0	1	0	**2**	**135**
8:30AM	1	94	0	0	**95**	0	0	1	0	**1**	0	59	2	0	**61**	2	0	1	0	**3**	**160**
8:45AM	0	86	0	0	**86**	0	0	0	0	**0**	1	67	2	0	**70**	1	0	0	0	**1**	**157**
Hourly Total	2	314	0	0	**316**	0	0	1	0	**1**	3	237	8	0	**248**	5	0	2	0	**7**	**572**
9:00AM	0	88	0	0	**88**	1	0	0	0	**1**	4	58	1	0	**63**	0	0	0	0	**0**	**152**
9:15AM	1	101	0	0	**102**	0	0	0	0	**0**	0	54	1	0	**55**	2	0	0	0	**2**	**159**
9:30AM	0	89	0	0	**89**	0	0	3	0	**3**	0	81	1	0	**82**	2	0	0	0	**2**	**176**
9:45AM	0	86	0	0	**86**	0	0	0	0	**0**	1	91	1	1	**94**	2	0	0	0	**2**	**182**
Hourly Total	1	364	0	0	**365**	1	0	3	0	**4**	5	284	4	1	**294**	6	0	0	0	**6**	**669**
10:00AM	0	137	0	0	**137**	0	0	1	0	**1**	0	83	1	0	**84**	0	0	0	0	**0**	**222**
10:15AM	0	111	0	0	**111**	0	0	1	0	**1**	1	75	1	0	**77**	3	0	0	0	**3**	**192**
10:30AM	0	114	0	0	**114**	0	0	1	0	**1**	0	93	0	0	**93**	1	0	0	0	**1**	**209**
10:45AM	1	116	0	0	**117**	0	0	0	0	**0**	1	103	1	0	**105**	0	0	0	0	**0**	**222**

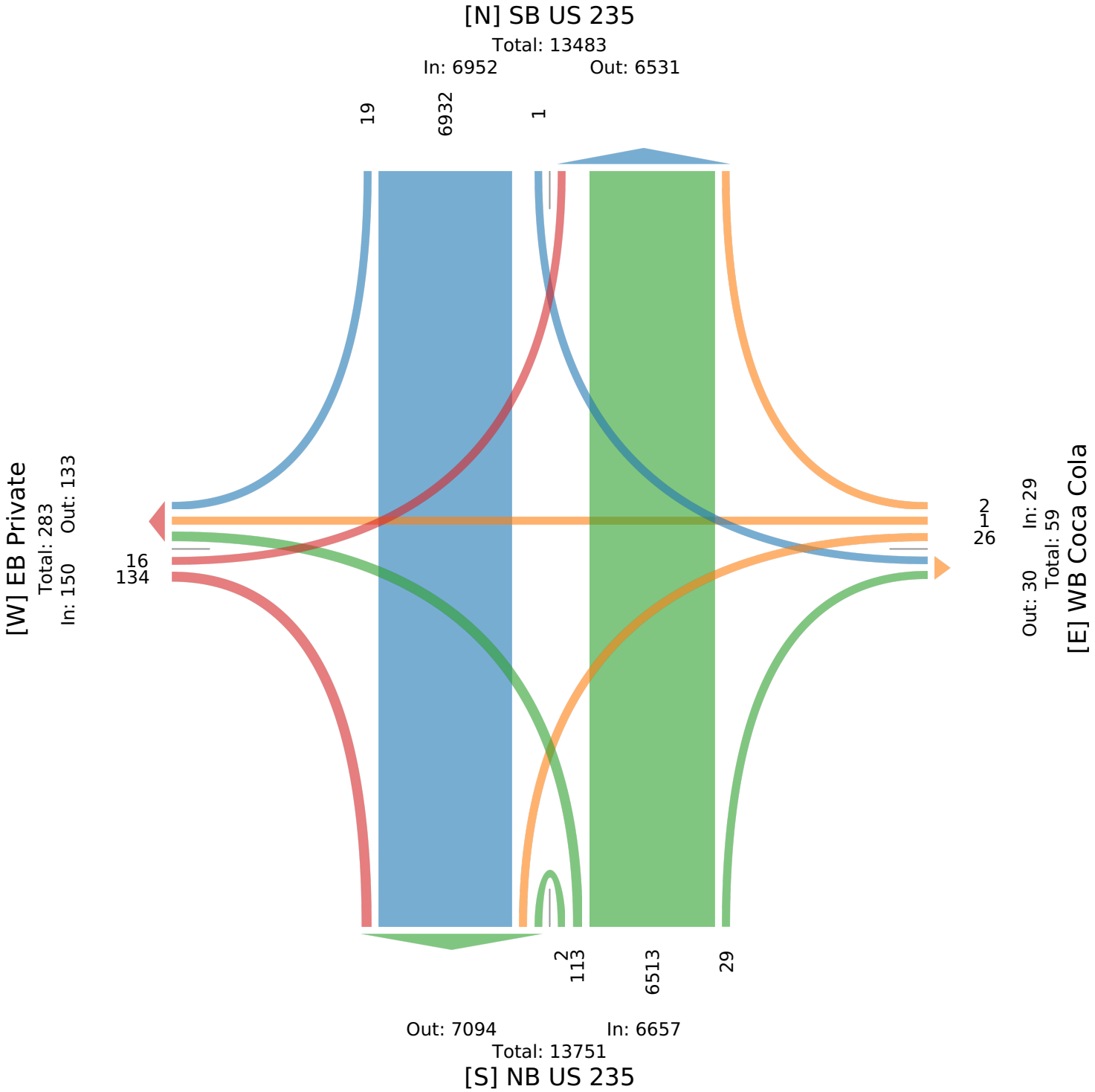
Leg	SB US 235					WB Coca Cola					NB US 235					EB Private					
Direction	Southbound					Westbound					Northbound					Eastbound					
Time	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	Int
Hourly Total	1	478	0	0	**479**	0	0	3	0	**3**	2	354	3	0	**359**	4	0	0	0	**4**	**845**
11:00AM	0	119	0	0	**119**	0	0	0	0	**0**	1	133	0	0	**134**	0	0	0	0	**0**	**253**
11:15AM	0	123	0	0	**123**	0	0	0	0	**0**	1	109	0	0	**110**	1	0	0	0	**1**	**234**
11:30AM	1	135	0	0	**136**	0	1	0	0	**1**	1	96	1	0	**98**	0	0	1	0	**1**	**236**
11:45AM	0	123	0	0	**123**	0	0	2	0	**2**	1	108	0	0	**109**	1	0	0	0	**1**	**235**
Hourly Total	1	500	0	0	**501**	0	1	2	0	**3**	4	446	1	0	**451**	2	0	1	0	**3**	**958**
12:00PM	0	110	0	0	**110**	0	0	0	0	**0**	0	119	1	0	**120**	5	0	1	0	**6**	**236**
12:15PM	1	117	0	0	**118**	0	0	2	0	**2**	0	116	3	0	**119**	0	0	1	0	**1**	**240**
12:30PM	0	121	1	0	**122**	0	0	0	0	**0**	0	106	8	0	**114**	0	0	0	0	**0**	**236**
12:45PM	1	111	0	0	**112**	0	0	1	0	**1**	0	106	6	0	**112**	2	0	0	0	**2**	**227**
Hourly Total	2	459	1	0	**462**	0	0	3	0	**3**	0	447	18	0	**465**	7	0	2	0	**9**	**939**
1:00PM	0	110	0	0	**110**	0	0	0	0	**0**	0	107	1	0	**108**	3	0	0	0	**3**	**221**
1:15PM	0	117	0	0	**117**	0	0	0	0	**0**	1	127	1	0	**129**	0	0	0	0	**0**	**246**
1:30PM	0	104	0	0	**104**	0	0	1	0	**1**	0	113	1	0	**114**	1	0	0	0	**1**	**220**
1:45PM	0	111	0	0	**111**	0	0	0	0	**0**	0	119	2	0	**121**	1	0	0	0	**1**	**233**
Hourly Total	0	442	0	0	**442**	0	0	1	0	**1**	1	466	5	0	**472**	5	0	0	0	**5**	**920**
2:00PM	1	129	0	0	**130**	0	0	0	0	**0**	0	110	0	0	**110**	1	0	0	0	**1**	**241**
2:15PM	0	73	0	0	**73**	0	0	0	0	**0**	0	123	1	0	**124**	2	0	0	0	**2**	**199**
2:30PM	0	110	0	0	**110**	0	0	0	0	**0**	0	141	0	0	**141**	0	0	0	0	**0**	**251**
2:45PM	0	111	0	0	**111**	0	0	0	0	**0**	0	131	1	0	**132**	6	0	0	0	**6**	**249**
Hourly Total	1	423	0	0	**424**	0	0	0	0	**0**	0	505	2	0	**507**	9	0	0	0	**9**	**940**
3:00PM	1	123	0	0	**124**	0	0	0	0	**0**	0	118	7	0	**125**	2	0	0	0	**2**	**251**
3:15PM	0	118	0	0	**118**	0	0	0	0	**0**	0	121	2	0	**123**	0	0	0	0	**0**	**241**
3:30PM	0	142	0	0	**142**	0	0	0	0	**0**	0	113	0	0	**113**	0	0	0	0	**0**	**255**
3:45PM	0	99	0	0	**99**	0	0	0	0	**0**	0	106	1	0	**107**	1	0	1	0	**2**	**208**
Hourly Total	1	482	0	0	**483**	0	0	0	0	**0**	0	458	10	0	**468**	3	0	1	0	**4**	**955**
4:00PM	0	140	0	0	**140**	0	0	0	0	**0**	0	131	1	0	**132**	0	0	0	0	**0**	**272**
4:15PM	0	120	0	0	**120**	0	0	0	0	**0**	0	131	0	0	**131**	1	0	0	0	**1**	**252**
4:30PM	1	110	0	0	**111**	0	0	0	0	**0**	0	122	0	0	**122**	0	0	0	0	**0**	**233**
4:45PM	0	118	0	0	**118**	0	0	0	0	**0**	0	128	1	0	**129**	0	0	0	0	**0**	**247**
Hourly Total	1	488	0	0	**489**	0	0	0	0	**0**	0	512	2	0	**514**	1	0	0	0	**1**	**1004**
5:00PM	1	103	0	0	**104**	0	0	0	0	**0**	0	113	3	0	**116**	7	0	0	0	**7**	**227**
5:15PM	1	97	0	0	**98**	0	0	0	0	**0**	0	94	1	0	**95**	0	0	1	0	**1**	**194**
5:30PM	1	106	0	0	**107**	0	0	0	0	**0**	0	101	1	0	**102**	0	0	0	0	**0**	**209**
5:45PM	0	100	0	0	**100**	0	0	0	0	**0**	0	117	1	0	**118**	2	0	0	0	**2**	**220**
Hourly Total	3	406	0	0	**409**	0	0	0	0	**0**	0	425	6	0	**431**	9	0	1	0	**10**	**850**
6:00PM	0	134	0	0	**134**	0	0	0	0	**0**	0	97	0	0	**97**	2	0	0	0	**2**	**233**
6:15PM	0	114	0	0	**114**	0	0	0	0	**0**	0	92	2	0	**94**	3	0	1	0	**4**	**212**
6:30PM	0	103	0	0	**103**	0	0	0	0	**0**	0	107	0	0	**107**	0	0	0	0	**0**	**210**
6:45PM	0	99	0	0	**99**	0	0	0	0	**0**	0	93	1	0	**94**	11	0	2	0	**13**	**206**
Hourly Total	0	450	0	0	**450**	0	0	0	0	**0**	0	389	3	0	**392**	16	0	3	0	**19**	**861**
7:00PM	0	87	0	0	**87**	0	0	0	0	**0**	0	93	1	0	**94**	4	0	1	0	**5**	**186**
7:15PM	0	79	0	0	**79**	0	0	0	0	**0**	0	94	0	0	**94**	3	0	0	0	**3**	**176**
7:30PM	0	59	0	0	**59**	0	0	0	0	**0**	0	79	0	0	**79**	0	0	0	0	**0**	**138**
7:45PM	0	77	0	0	**77**	0	0	0	0	**0**	1	85	1	0	**87**	0	0	0	0	**0**	**164**
Hourly Total	0	302	0	0	**302**	0	0	0	0	**0**	1	351	2	0	**354**	7	0	1	0	**8**	**664**
8:00PM	0	80	0	0	**80**	0	0	0	0	**0**	0	98	1	0	**99**	2	0	0	0	**2**	**181**
8:15PM	0	60	0	0	**60**	0	0	1	0	**1**	1	107	1	0	**109**	2	0	0	0	**2**	**172**
8:30PM	0	78	0	0	**78**	0	0	1	0	**1**	0	81	0	0	**81**	0	0	1	0	**1**	**161**
8:45PM	2	80	0	0	**82**	0	0	0	0	**0**	1	82	1	0	**84**	0	0	0	0	**0**	**166**
Hourly Total	2	298	0	0	**300**	0	0	2	0	**2**	2	368	3	0	**373**	4	0	1	0	**5**	**680**
9:00PM	0	59	0	0	**59**	0	0	0	0	**0**	0	80	1	0	**81**	1	0	0	0	**1**	**141**
9:15PM	1	73	0	0	**74**	0	0	0	0	**0**	0	81	1	0	**82**	3	0	0	0	**3**	**159**
9:30PM	0	71	0	0	**71**	0	0	1	0	**1**	1	88	2	1	**92**	1	0	0	0	**1**	**165**
9:45PM	0	45	0	0	**45**	0	0	1	0	**1**	0	85	0	0	**85**	1	0	0	0	**1**	**132**
Hourly Total	1	248	0	0	**249**	0	0	2	0	**2**	1	334	4	1	**340**	6	0	0	0	**6**	**597**
10:00PM	0	43	0	0	**43**	0	0	0	0	**0**	0	72	0	0	**72**	1	0	0	0	**1**	**116**
10:15PM	0	74	0	0	**74**	0	0	0	0	**0**	0	63	0	0	**63**	0	0	0	0	**0**	**137**
10:30PM	0	83	0	0	**83**	0	0	0	0	**0**	0	42	0	0	**42**	0	0	0	0	**0**	**125**
10:45PM	0	95	0	0	**95**	0	0	0	0	**0**	0	60	0	0	**60**	0	0	0	0	**0**	**155**

Leg	SB US 235					WB Coca Cola					NB US 235					EB Private					
Direction	Southbound					Westbound					Northbound					Eastbound					
Time	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	**Int**
Hourly Total	0	295	0	0	**295**	0	0	0	0	**0**	0	237	0	0	**237**	1	0	0	0	**1**	**533**
11:00PM	0	86	0	0	**86**	0	0	0	0	**0**	0	52	0	0	**52**	0	0	0	0	**0**	**138**
11:15PM	0	39	0	0	**39**	0	0	0	0	**0**	0	56	0	0	**56**	0	0	0	0	**0**	**95**
11:30PM	0	57	0	0	**57**	0	0	0	0	**0**	0	51	0	0	**51**	0	0	0	0	**0**	**108**
11:45PM	0	27	0	0	**27**	0	0	0	0	**0**	0	40	0	0	**40**	0	0	0	0	**0**	**67**
Hourly Total	0	209	0	0	**209**	0	0	0	0	**0**	0	199	0	0	**199**	0	0	0	0	**0**	**408**
Total	19	6932	1	0	**6952**	2	1	26	0	**29**	29	6513	113	2	**6657**	134	0	16	0	**150**	**13788**
% Approach	0.3%	99.7%	0%	0%	**-**	6.9%	3.4%	89.7%	0%	**-**	0.4%	97.8%	1.7%	0%	**-**	89.3%	0%	10.7%	0%	**-**	-
% Total	0.1%	50.3%	0%	0%	**50.4%**	0%	0%	0.2%	0%	**0.2%**	0.2%	47.2%	0.8%	0%	**48.3%**	1.0%	0%	0.1%	0%	**1.1%**	-
Lights and Motorcycles	15	6824	1	0	**6840**	2	1	16	0	**19**	8	6409	83	2	**6502**	105	0	13	0	**118**	13479
% Lights and Motorcycles	78.9%	98.4%	100%	0%	**98.4%**	100%	100%	61.5%	0%	**65.5%**	27.6%	98.4%	73.5%	100%	**97.7%**	78.4%	0%	81.3%	0%	**78.7%**	97.8%
Heavy	4	108	0	0	**112**	0	0	10	0	**10**	21	104	30	0	**155**	29	0	3	0	**32**	309
% Heavy	21.1%	1.6%	0%	0%	**1.6%**	0%	0%	38.5%	0%	**34.5%**	72.4%	1.6%	26.5%	0%	**2.3%**	21.6%	0%	18.8%	0%	**21.3%**	2.2%

*L: Left, R: Right, T: Thru, U: U-Turn

03_SR 235 & Coca-Cola Blvd - TMC
Sat Jun 24, 2023
Full Length (12 AM-12 AM (+1))
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1082452, Location: 39.874691, -84.053683

Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US



03_SR 235 & Coca-Cola Blvd - TMC

Sat Jun 24, 2023
AM Peak (WKND) (10 AM - 11 AM)
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1082452, Location: 39.874691, -84.053683

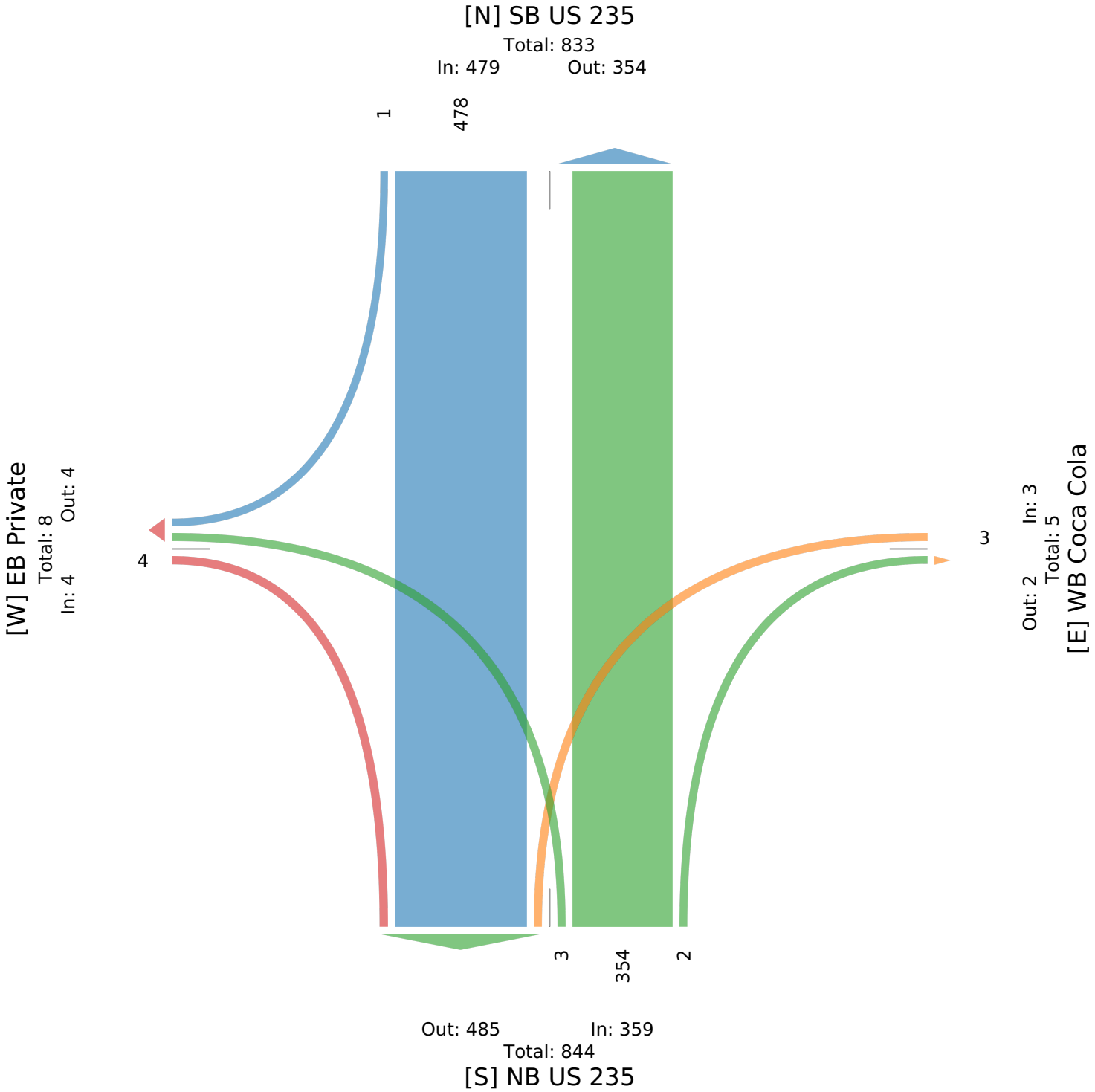
Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US

Leg	SB US 235					WB Coca Cola					NB US 235					EB Private					
Direction	Southbound					Westbound					Northbound					Eastbound					
Time	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	**Int**
2023-06-24 10:00AM	0	137	0	0	**137**	0	0	1	0	**1**	0	83	1	0	**84**	0	0	0	0	**0**	**222**
10:15AM	0	111	0	0	**111**	0	0	1	0	**1**	1	75	1	0	**77**	3	0	0	0	**3**	**192**
10:30AM	0	114	0	0	**114**	0	0	1	0	**1**	0	93	0	0	**93**	1	0	0	0	**1**	**209**
10:45AM	1	116	0	0	**117**	0	0	0	0	**0**	1	103	1	0	**105**	0	0	0	0	**0**	**222**
Total	1	478	0	0	**479**	0	0	3	0	**3**	2	354	3	0	**359**	4	0	0	0	**4**	**845**
% Approach	0.2%	99.8%	0%	0%	**-**	0%	0%	100%	0%	**-**	0.6%	98.6%	0.8%	0%	**-**	100%	0%	0%	0%	**-**	-
% Total	0.1%	56.6%	0%	0%	**56.7%**	0%	0%	0.4%	0%	**0.4%**	0.2%	41.9%	0.4%	0%	**42.5%**	0.5%	0%	0%	0%	**0.5%**	-
PHF	0.250	0.872	-	-	**0.874**	-	-	0.750	-	**0.750**	0.500	0.859	0.750	-	**0.855**	0.333	-	-	-	**0.333**	0.952
Lights and Motorcycles	1	468	0	0	**469**	0	0	2	0	**2**	1	344	1	0	**346**	4	0	0	0	**4**	821
% Lights and Motorcycles	100%	97.9%	0%	0%	**97.9%**	0%	0%	66.7%	0%	**66.7%**	50.0%	97.2%	33.3%	0%	**96.4%**	100%	0%	0%	0%	**100%**	97.2%
Heavy	0	10	0	0	**10**	0	0	1	0	**1**	1	10	2	0	**13**	0	0	0	0	**0**	24
% Heavy	0%	2.1%	0%	0%	**2.1%**	0%	0%	33.3%	0%	**33.3%**	50.0%	2.8%	66.7%	0%	**3.6%**	0%	0%	0%	0%	**0%**	2.8%

*L: Left, R: Right, T: Thru, U: U-Turn

Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US

03_SR 235 & Coca-Cola Blvd - TMC
Sat Jun 24, 2023
AM Peak (WKND) (10 AM - 11 AM)
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1082452, Location: 39.874691, -84.053683



03_SR 235 & Coca-Cola Blvd - TMC

Sat Jun 24, 2023
Midday Peak (WKND) (11 AM - 12 PM)
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1082452, Location: 39.874691, -84.053683

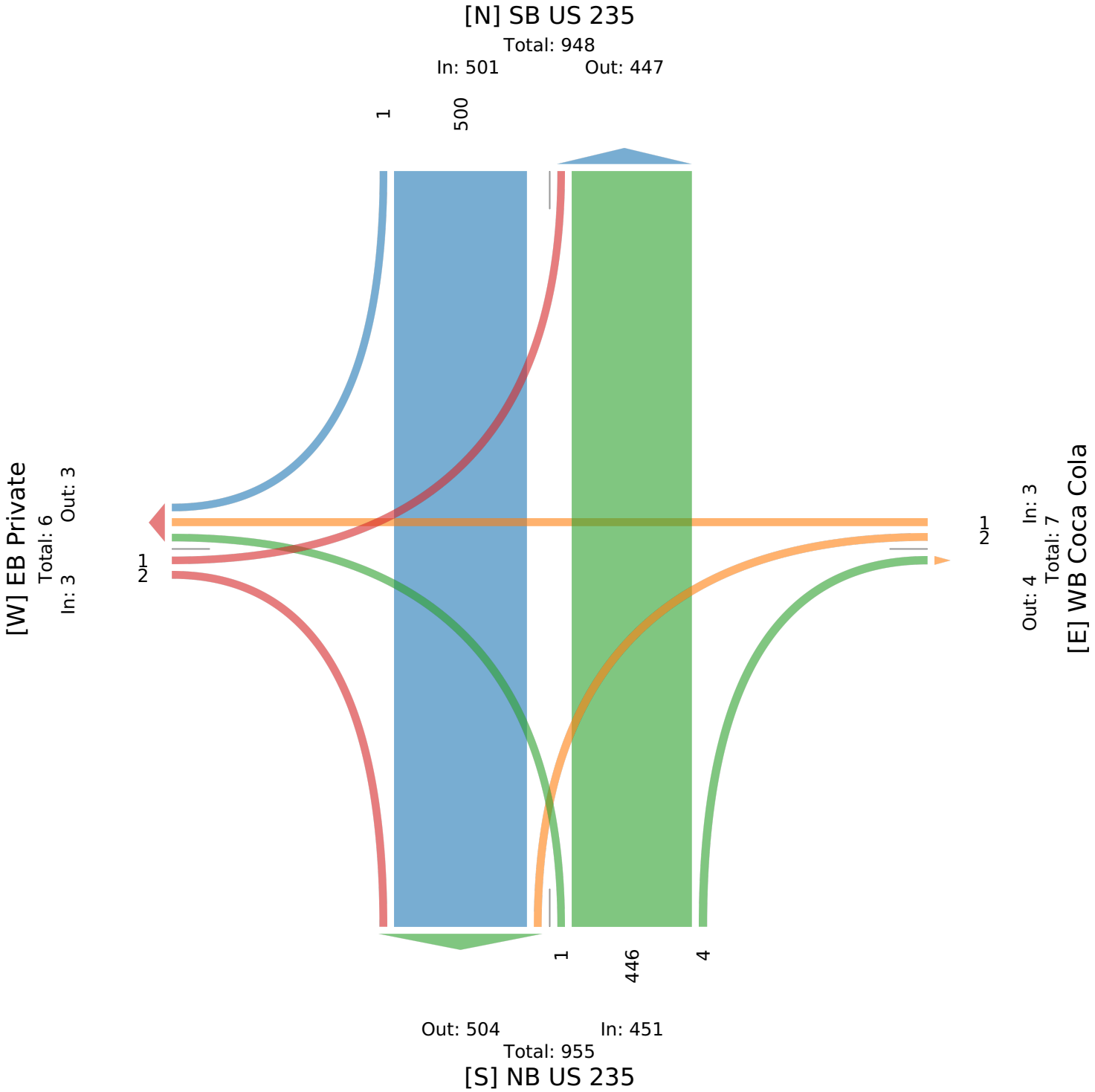
Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US

Leg	SB US 235					WB Coca Cola					NB US 235					EB Private					
Direction	Southbound					Westbound					Northbound					Eastbound					
Time	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	**Int**
2023-06-24 11:00AM	0	119	0	0	**119**	0	0	0	0	**0**	1	133	0	0	**134**	0	0	0	0	**0**	**253**
11:15AM	0	123	0	0	**123**	0	0	0	0	**0**	1	109	0	0	**110**	1	0	0	0	**1**	**234**
11:30AM	1	135	0	0	**136**	0	1	0	0	**1**	1	96	1	0	**98**	0	0	1	0	**1**	**236**
11:45AM	0	123	0	0	**123**	0	0	2	0	**2**	1	108	0	0	**109**	1	0	0	0	**1**	**235**
Total	1	500	0	0	**501**	0	1	2	0	**3**	4	446	1	0	**451**	2	0	1	0	**3**	**958**
% Approach	0.2%	99.8%	0%	0%	**-**	0%	33.3%	66.7%	0%	**-**	0.9%	98.9%	0.2%	0%	**-**	66.7%	0%	33.3%	0%	**-**	-
% Total	0.1%	52.2%	0%	0%	**52.3%**	0%	0.1%	0.2%	0%	**0.3%**	0.4%	46.6%	0.1%	0%	**47.1%**	0.2%	0%	0.1%	0%	**0.3%**	-
PHF	0.250	0.926	-	-	**0.921**	-	0.250	0.250	-	**0.375**	1.000	0.838	0.250	-	**0.841**	0.500	-	0.250	-	**0.750**	0.947
Lights and Motorcycles	1	490	0	0	**491**	0	1	1	0	**2**	2	438	1	0	**441**	2	0	1	0	**3**	937
% Lights and Motorcycles	100%	98.0%	0%	0%	**98.0%**	0%	100%	50.0%	0%	**66.7%**	50.0%	98.2%	100%	0%	**97.8%**	100%	0%	100%	0%	**100%**	97.8%
Heavy	0	10	0	0	**10**	0	0	1	0	**1**	2	8	0	0	**10**	0	0	0	0	**0**	21
% Heavy	0%	2.0%	0%	0%	**2.0%**	0%	0%	50.0%	0%	**33.3%**	50.0%	1.8%	0%	0%	**2.2%**	0%	0%	0%	0%	**0%**	2.2%

*L: Left, R: Right, T: Thru, U: U-Turn

03_SR 235 & Coca-Cola Blvd - TMC
Sat Jun 24, 2023
Midday Peak (WKND) (11 AM - 12 PM)
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1082452, Location: 39.874691, -84.053683

Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US



03_SR 235 & Coca-Cola Blvd - TMC

Sat Jun 24, 2023
PM Peak (WKND) (4 PM - 5 PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1082452, Location: 39.874691, -84.053683

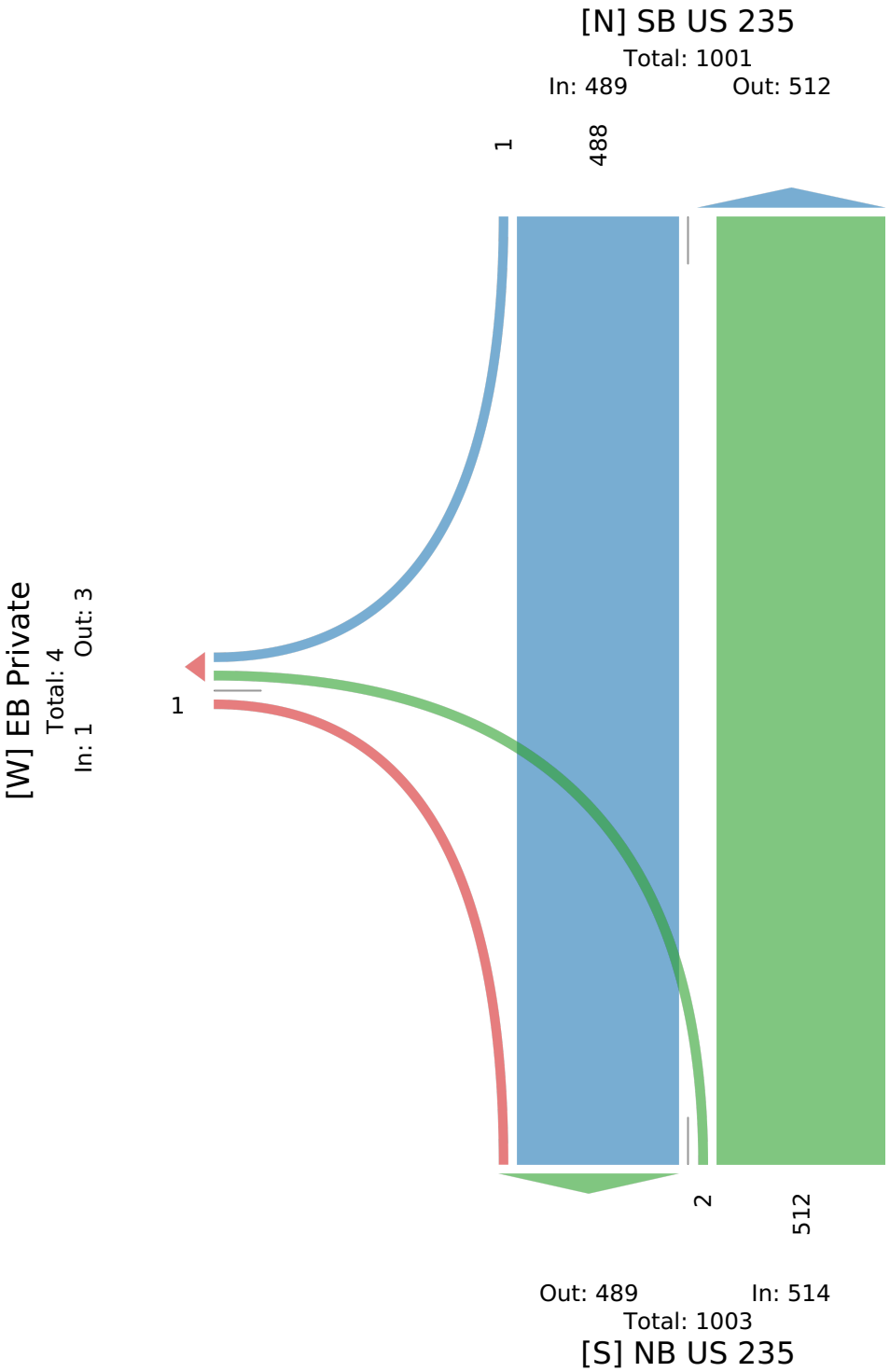
Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US

Leg	SB US 235					WB Coca Cola					NB US 235					EB Private					
Direction	Southbound					Westbound					Northbound					Eastbound					
Time	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	**Int**
2023-06-24 4:00PM	0	140	0	0	**140**	0	0	0	0	**0**	0	131	1	0	**132**	0	0	0	0	**0**	**272**
4:15PM	0	120	0	0	**120**	0	0	0	0	**0**	0	131	0	0	**131**	1	0	0	0	**1**	**252**
4:30PM	1	110	0	0	**111**	0	0	0	0	**0**	0	122	0	0	**122**	0	0	0	0	**0**	**233**
4:45PM	0	118	0	0	**118**	0	0	0	0	**0**	0	128	1	0	**129**	0	0	0	0	**0**	**247**
Total	1	488	0	0	**489**	0	0	0	0	**0**	0	512	2	0	**514**	1	0	0	0	**1**	**1004**
% Approach	0.2%	99.8%	0%	0%	**-**	0%	0%	0%	0%	**-**	0%	99.6%	0.4%	0%	**-**	100%	0%	0%	0%	**-**	-
% Total	0.1%	48.6%	0%	0%	**48.7%**	0%	0%	0%	0%	**0%**	0%	51.0%	0.2%	0%	**51.2%**	0.1%	0%	0%	0%	**0.1%**	-
PHF	0.250	0.871	-	-	**0.873**	-	-	-	-	**-**	-	0.977	0.500	-	**0.973**	0.250	-	-	-	**0.250**	0.923
Lights and Motorcycles	0	487	0	0	**487**	0	0	0	0	**0**	0	506	1	0	**507**	0	0	0	0	**0**	994
% Lights and Motorcycles	0%	99.8%	0%	0%	**99.6%**	0%	0%	0%	0%	**-**	0%	98.8%	50.0%	0%	**98.6%**	0%	0%	0%	0%	**0%**	99.0%
Heavy	1	1	0	0	**2**	0	0	0	0	**0**	0	6	1	0	**7**	1	0	0	0	**1**	10
% Heavy	100%	0.2%	0%	0%	**0.4%**	0%	0%	0%	0%	**-**	0%	1.2%	50.0%	0%	**1.4%**	100%	0%	0%	0%	**100%**	1.0%

*L: Left, R: Right, T: Thru, U: U-Turn

03_SR 235 & Coca-Cola Blvd - TMC
Sat Jun 24, 2023
PM Peak (WKND) (4 PM - 5 PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1082452, Location: 39.874691, -84.053683

Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US



03_SR 235 & Coca-Cola Blvd - TMC

Tue Jun 27, 2023
Full Length (12 AM-5:30 PM)
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1082449, Location: 39.874691, -84.053683

Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US

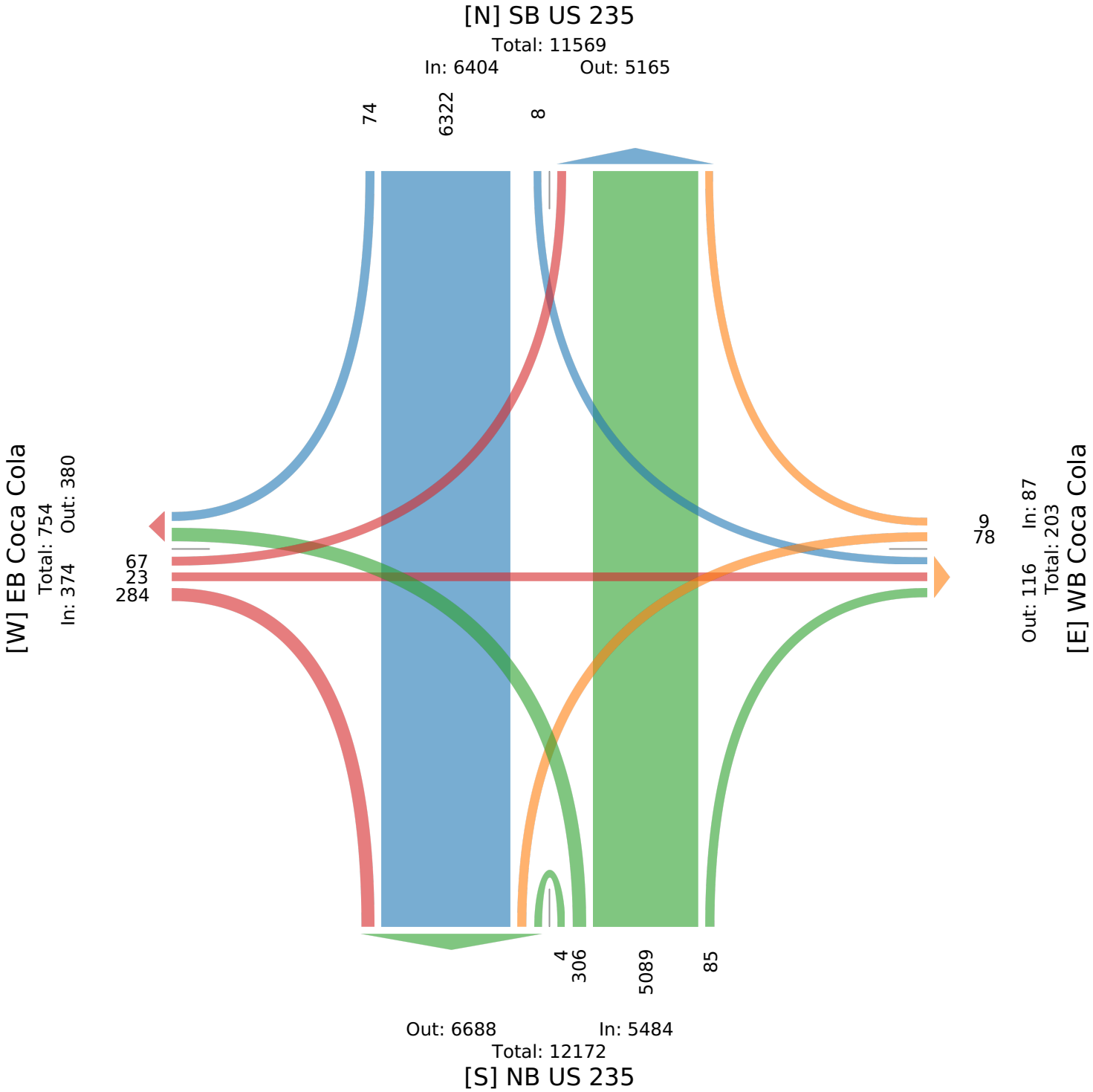
Leg	SB US 235					WB Coca Cola					NB US 235					EB Coca Cola					
Direction	Southbound					Westbound					Northbound					Eastbound					
Time	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	Int
2023-06-27 12:00AM	0	12	0	0	**12**	0	0	0	0	**0**	1	21	0	0	**22**	2	0	0	0	**2**	**36**
12:15AM	0	8	0	0	**8**	0	0	0	0	**0**	0	23	0	0	**23**	0	0	0	0	**0**	**31**
12:30AM	0	9	0	0	**9**	0	0	2	0	**2**	1	12	0	0	**13**	1	0	0	0	**1**	**25**
12:45AM	0	11	0	0	**11**	0	0	0	0	**0**	0	8	0	0	**8**	1	0	0	0	**1**	**20**
Hourly Total	0	40	0	0	**40**	0	0	2	0	**2**	2	64	0	0	**66**	4	0	0	0	**4**	**112**
1:00AM	0	10	0	0	**10**	0	0	0	0	**0**	0	7	0	0	**7**	0	0	0	0	**0**	**17**
1:15AM	0	4	0	0	**4**	0	0	1	0	**1**	1	7	0	0	**8**	5	0	1	0	**6**	**19**
1:30AM	0	8	0	0	**8**	0	0	0	0	**0**	0	7	1	0	**8**	6	0	0	0	**6**	**22**
1:45AM	0	2	0	0	**2**	0	0	1	0	**1**	0	5	5	0	**10**	5	0	1	0	**6**	**19**
Hourly Total	0	24	0	0	**24**	0	0	2	0	**2**	1	26	6	0	**33**	16	0	2	0	**18**	**77**
2:00AM	0	6	0	0	**6**	0	0	0	0	**0**	1	4	2	0	**7**	2	0	0	0	**2**	**15**
2:15AM	0	6	0	0	**6**	0	0	0	0	**0**	0	11	0	0	**11**	10	0	0	0	**10**	**27**
2:30AM	0	8	0	0	**8**	0	0	1	0	**1**	0	7	1	0	**8**	0	0	0	0	**0**	**17**
2:45AM	0	12	0	0	**12**	0	0	0	0	**0**	0	7	0	0	**7**	0	0	0	0	**0**	**19**
Hourly Total	0	32	0	0	**32**	0	0	1	0	**1**	1	29	3	0	**33**	12	0	0	0	**12**	**78**
3:00AM	0	14	0	0	**14**	0	0	0	0	**0**	1	6	2	0	**9**	0	0	0	0	**0**	**23**
3:15AM	0	11	0	0	**11**	0	0	0	0	**0**	1	3	1	0	**5**	0	0	0	0	**0**	**16**
3:30AM	0	21	0	0	**21**	0	0	0	0	**0**	2	8	2	0	**12**	0	0	0	0	**0**	**33**
3:45AM	0	17	0	0	**17**	0	0	1	0	**1**	0	4	2	0	**6**	0	0	0	0	**0**	**24**
Hourly Total	0	63	0	0	**63**	0	0	1	0	**1**	4	21	7	0	**32**	0	0	0	0	**0**	**96**
4:00AM	0	21	0	0	**21**	0	0	1	0	**1**	0	4	1	0	**5**	0	0	0	0	**0**	**27**
4:15AM	0	33	0	0	**33**	0	0	0	0	**0**	0	4	4	0	**8**	0	0	0	0	**0**	**41**
4:30AM	1	36	0	0	**37**	0	0	0	0	**0**	0	12	8	0	**20**	0	0	0	0	**0**	**57**
4:45AM	1	39	0	0	**40**	0	0	0	0	**0**	0	16	17	0	**33**	0	0	0	0	**0**	**73**
Hourly Total	2	129	0	0	**131**	0	0	1	0	**1**	0	36	30	0	**66**	0	0	0	0	**0**	**198**
5:00AM	0	56	1	0	**57**	0	0	0	0	**0**	1	13	3	0	**17**	2	0	0	0	**2**	**76**
5:15AM	1	92	1	0	**94**	0	0	0	0	**0**	0	14	0	0	**14**	6	0	2	0	**8**	**116**
5:30AM	0	141	0	0	**141**	0	0	0	0	**0**	1	25	8	0	**34**	5	0	1	0	**6**	**181**
5:45AM	2	85	1	0	**88**	0	0	0	0	**0**	2	24	2	0	**28**	1	0	1	0	**2**	**118**
Hourly Total	3	374	3	0	**380**	0	0	0	0	**0**	4	76	13	0	**93**	14	0	4	0	**18**	**491**
6:00AM	1	114	0	0	**115**	0	0	0	0	**0**	1	21	3	0	**25**	9	0	1	0	**10**	**150**
6:15AM	0	187	0	0	**187**	0	0	1	0	**1**	2	48	6	0	**56**	3	0	0	0	**3**	**247**
6:30AM	1	223	0	0	**224**	0	0	0	0	**0**	1	40	3	0	**44**	2	0	0	0	**2**	**270**
6:45AM	2	174	0	0	**176**	0	0	0	0	**0**	4	62	2	0	**68**	2	0	0	0	**2**	**246**
Hourly Total	4	698	0	0	**702**	0	0	1	0	**1**	8	171	14	0	**193**	16	0	1	0	**17**	**913**
7:00AM	1	164	0	0	**165**	1	0	2	0	**3**	1	57	2	0	**60**	2	1	0	0	**3**	**231**
7:15AM	0	216	0	0	**216**	1	0	1	0	**2**	2	49	2	0	**53**	1	1	1	0	**3**	**274**
7:30AM	0	227	1	0	**228**	0	0	0	0	**0**	2	57	7	0	**66**	0	1	0	0	**1**	**295**
7:45AM	1	170	0	0	**171**	1	0	2	0	**3**	1	57	10	0	**68**	1	0	0	0	**1**	**243**
Hourly Total	2	777	1	0	**780**	3	0	5	0	**8**	6	220	21	0	**247**	4	3	1	0	**8**	**1043**
8:00AM	3	158	0	0	**161**	0	0	2	0	**2**	1	83	11	0	**95**	5	1	0	0	**6**	**264**
8:15AM	0	152	0	0	**152**	0	0	2	0	**2**	0	55	3	0	**58**	4	0	0	0	**4**	**216**
8:30AM	2	118	0	0	**120**	0	0	0	0	**0**	3	67	8	0	**78**	1	0	0	0	**1**	**199**
8:45AM	0	110	0	0	**110**	0	0	0	0	**0**	2	77	10	0	**89**	4	1	3	0	**8**	**207**
Hourly Total	5	538	0	0	**543**	0	0	4	0	**4**	6	282	32	0	**320**	14	2	3	0	**19**	**886**
9:00AM	2	104	1	0	**107**	0	0	0	0	**0**	3	67	7	0	**77**	6	0	2	0	**8**	**192**
9:15AM	0	105	0	0	**105**	0	0	3	0	**3**	1	60	5	0	**66**	2	0	3	0	**5**	**179**
9:30AM	1	99	0	0	**100**	0	0	5	0	**5**	2	67	12	0	**81**	2	3	1	0	**6**	**192**
9:45AM	2	104	0	0	**106**	0	0	7	0	**7**	1	61	7	0	**69**	10	0	2	0	**12**	**194**
Hourly Total	5	412	1	0	**418**	0	0	15	0	**15**	7	255	31	0	**293**	20	3	8	0	**31**	**757**
10:00AM	3	116	0	0	**119**	0	0	0	0	**0**	1	65	4	0	**70**	7	0	1	0	**8**	**197**
10:15AM	0	90	0	0	**90**	0	0	4	0	**4**	5	66	3	0	**74**	6	0	0	0	**6**	**174**
10:30AM	1	80	0	0	**81**	0	0	4	0	**4**	2	76	3	0	**81**	5	0	1	0	**6**	**172**
10:45AM	3	119	0	0	**122**	0	0	2	0	**2**	2	82	4	0	**88**	5	1	0	0	**6**	**218**

Leg	SB US 235					WB Coca Cola					NB US 235					EB Coca Cola					
Direction	Southbound					Westbound					Northbound					Eastbound					
Time	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	**Int**
Hourly Total	7	405	0	0	**412**	0	0	10	0	**10**	10	289	14	0	**313**	23	1	2	0	**26**	**761**
11:00AM	3	77	0	0	**80**	1	0	1	0	**2**	1	74	8	0	**83**	7	0	2	0	**9**	**174**
11:15AM	2	85	0	0	**87**	1	0	3	0	**4**	3	87	6	0	**96**	6	0	3	0	**9**	**196**
11:30AM	3	107	1	0	**111**	1	0	2	0	**3**	1	113	1	0	**115**	8	0	2	0	**10**	**239**
11:45AM	3	116	0	0	**119**	0	0	1	0	**1**	0	101	7	0	**108**	7	0	1	0	**8**	**236**
Hourly Total	11	385	1	0	**397**	3	0	7	0	**10**	5	375	22	0	**402**	28	0	8	0	**36**	**845**
12:00PM	2	123	0	0	**125**	0	0	0	0	**0**	0	94	9	0	**103**	10	0	6	0	**16**	**244**
12:15PM	2	105	0	0	**107**	0	0	2	0	**2**	1	108	10	0	**119**	6	0	0	0	**6**	**234**
12:30PM	5	98	0	0	**103**	0	0	0	0	**0**	2	89	5	0	**96**	10	0	2	0	**12**	**211**
12:45PM	1	105	0	0	**106**	0	0	2	0	**2**	0	96	2	0	**98**	7	0	2	0	**9**	**215**
Hourly Total	10	431	0	0	**441**	0	0	4	0	**4**	3	387	26	0	**416**	33	0	10	0	**43**	**904**
1:00PM	0	93	0	0	**93**	0	0	1	0	**1**	2	95	7	0	**104**	10	0	4	0	**14**	**212**
1:15PM	3	114	1	0	**118**	0	0	1	0	**1**	1	110	7	0	**118**	1	0	2	0	**3**	**240**
1:30PM	3	117	0	0	**120**	1	0	1	0	**2**	3	87	3	0	**93**	6	0	1	0	**7**	**222**
1:45PM	0	84	0	0	**84**	0	0	2	0	**2**	1	93	12	0	**106**	10	0	0	0	**10**	**202**
Hourly Total	6	408	1	0	**415**	1	0	5	0	**6**	7	385	29	0	**421**	27	0	7	0	**34**	**876**
2:00PM	1	96	1	0	**98**	0	0	0	0	**0**	3	104	2	0	**109**	5	0	0	0	**5**	**212**
2:15PM	1	94	0	0	**95**	0	0	1	0	**1**	0	99	6	0	**105**	4	0	0	0	**4**	**205**
2:30PM	4	113	0	0	**117**	0	0	2	0	**2**	3	129	9	0	**141**	5	0	1	0	**6**	**266**
2:45PM	1	102	0	0	**103**	0	0	2	0	**2**	1	140	14	0	**155**	2	3	4	0	**9**	**269**
Hourly Total	7	405	1	0	**413**	0	0	5	0	**5**	7	472	31	0	**510**	16	3	5	0	**24**	**952**
3:00PM	1	107	0	0	**108**	0	0	4	0	**4**	2	136	3	1	**142**	6	1	0	0	**7**	**261**
3:15PM	2	87	0	0	**89**	1	0	1	0	**2**	1	169	5	0	**175**	4	0	2	0	**6**	**272**
3:30PM	2	118	0	0	**120**	1	0	1	0	**2**	5	196	2	0	**203**	1	0	2	0	**3**	**328**
3:45PM	2	102	0	0	**104**	0	0	2	0	**2**	0	221	4	0	**225**	7	3	1	0	**11**	**342**
Hourly Total	7	414	0	0	**421**	2	0	8	0	**10**	8	722	14	1	**745**	18	4	5	0	**27**	**1203**
4:00PM	0	106	0	0	**106**	0	0	3	0	**3**	0	203	3	1	**207**	10	0	3	0	**13**	**329**
4:15PM	2	120	0	0	**122**	0	0	2	0	**2**	3	197	4	0	**204**	8	3	1	0	**12**	**340**
4:30PM	1	146	0	0	**147**	0	0	1	0	**1**	0	196	0	0	**196**	8	3	2	0	**13**	**357**
4:45PM	1	122	0	0	**123**	0	0	1	0	**1**	0	205	0	1	**206**	2	0	1	0	**3**	**333**
Hourly Total	4	494	0	0	**498**	0	0	7	0	**7**	3	801	7	2	**813**	28	6	7	0	**41**	**1359**
5:00PM	1	122	0	0	**123**	0	0	0	0	**0**	1	226	5	0	**232**	8	0	4	0	**12**	**367**
5:15PM	0	134	0	0	**134**	0	0	0	0	**0**	2	213	1	0	**216**	2	1	0	0	**3**	**353**
5:30PM	0	37	0	0	**37**	0	0	0	0	**0**	0	39	0	1	**40**	1	0	0	0	**1**	**78**
Hourly Total	1	293	0	0	**294**	0	0	0	0	**0**	3	478	6	1	**488**	11	1	4	0	**16**	**798**
Total	74	6322	8	0	**6404**	9	0	78	0	**87**	85	5089	306	4	**5484**	284	23	67	0	**374**	**12349**
% Approach	1.2%	98.7%	0.1%	0%	**-**	10.3%	0%	89.7%	0%	**-**	1.5%	92.8%	5.6%	0.1%	**-**	75.9%	6.1%	17.9%	0%	**-**	-
% Total	0.6%	51.2%	0.1%	0%	**51.9%**	0.1%	0%	0.6%	0%	**0.7%**	0.7%	41.2%	2.5%	0%	**44.4%**	2.3%	0.2%	0.5%	0%	**3.0%**	-
Lights and Motorcycles	61	5977	7	0	**6045**	8	0	37	0	**45**	39	4757	228	2	**5026**	219	13	53	0	**285**	11401
% Lights and Motorcycles	82.4%	94.5%	87.5%	0%	**94.4%**	88.9%	0%	47.4%	0%	**51.7%**	45.9%	93.5%	74.5%	50.0%	**91.6%**	77.1%	56.5%	79.1%	0%	**76.2%**	92.3%
Heavy	13	345	1	0	**359**	1	0	41	0	**42**	46	332	78	2	**458**	65	10	14	0	**89**	948
% Heavy	17.6%	5.5%	12.5%	0%	**5.6%**	11.1%	0%	52.6%	0%	**48.3%**	54.1%	6.5%	25.5%	50.0%	**8.4%**	22.9%	43.5%	20.9%	0%	**23.8%**	7.7%

*L: Left, R: Right, T: Thru, U: U-Turn

03_SR 235 & Coca-Cola Blvd - TMC
Tue Jun 27, 2023
Full Length (12 AM-5:30 PM)
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1082449, Location: 39.874691, -84.053683

Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US



03_SR 235 & Coca-Cola Blvd - TMC

Tue Jun 27, 2023
AM Peak (7:15 AM - 8:15 AM)
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1082449, Location: 39.874691, -84.053683

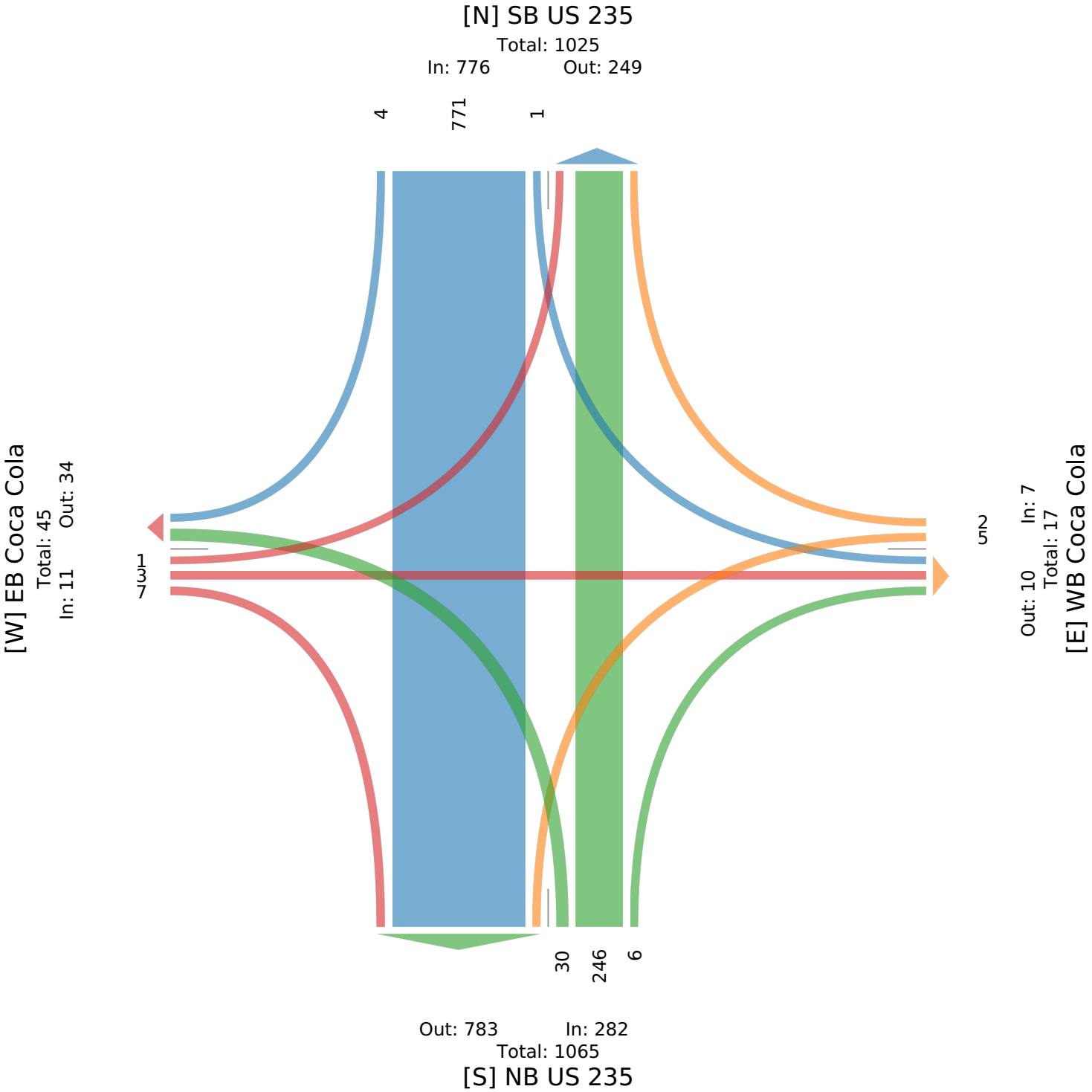
Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US

Leg	SB US 235					WB Coca Cola					NB US 235					EB Coca Cola					
Direction	Southbound					Westbound					Northbound					Eastbound					
Time	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	**Int**
2023-06-27 7:15AM	0	216	0	0	**216**	1	0	1	0	**2**	2	49	2	0	**53**	1	1	1	0	**3**	**274**
7:30AM	0	227	1	0	**228**	0	0	0	0	**0**	2	57	7	0	**66**	0	1	0	0	**1**	**295**
7:45AM	1	170	0	0	**171**	1	0	2	0	**3**	1	57	10	0	**68**	1	0	0	0	**1**	**243**
8:00AM	3	158	0	0	**161**	0	0	2	0	**2**	1	83	11	0	**95**	5	1	0	0	**6**	**264**
Total	4	771	1	0	**776**	2	0	5	0	**7**	6	246	30	0	**282**	7	3	1	0	**11**	**1076**
% Approach	0.5%	99.4%	0.1%	0%	**-**	28.6%	0%	71.4%	0%	**-**	2.1%	87.2%	10.6%	0%	**-**	63.6%	27.3%	9.1%	0%	**-**	-
% Total	0.4%	71.7%	0.1%	0%	**72.1%**	0.2%	0%	0.5%	0%	**0.7%**	0.6%	22.9%	2.8%	0%	**26.2%**	0.7%	0.3%	0.1%	0%	**1.0%**	-
PHF	0.333	0.849	0.250	-	**0.851**	0.500	-	0.625	-	**0.583**	0.750	0.741	0.682	-	**0.742**	0.350	0.750	0.250	-	**0.458**	0.912
Lights and Motorcycles	3	728	1	0	**732**	2	0	1	0	**3**	2	219	22	0	**243**	6	2	1	0	**9**	987
% Lights and Motorcycles	75.0%	94.4%	100%	0%	**94.3%**	100%	0%	20.0%	0%	**42.9%**	33.3%	89.0%	73.3%	0%	**86.2%**	85.7%	66.7%	100%	0%	**81.8%**	91.7%
Heavy	1	43	0	0	**44**	0	0	4	0	**4**	4	27	8	0	**39**	1	1	0	0	**2**	89
% Heavy	25.0%	5.6%	0%	0%	**5.7%**	0%	0%	80.0%	0%	**57.1%**	66.7%	11.0%	26.7%	0%	**13.8%**	14.3%	33.3%	0%	0%	**18.2%**	8.3%

*L: Left, R: Right, T: Thru, U: U-Turn

03_SR 235 & Coca-Cola Blvd - TMC
Tue Jun 27, 2023
AM Peak (7:15 AM - 8:15 AM)
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1082449, Location: 39.874691, -84.053683

Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US



03_SR 235 & Coca-Cola Blvd - TMC

Tue Jun 27, 2023
Midday Peak (11:30 AM - 12:30 PM)
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1082449, Location: 39.874691, -84.053683

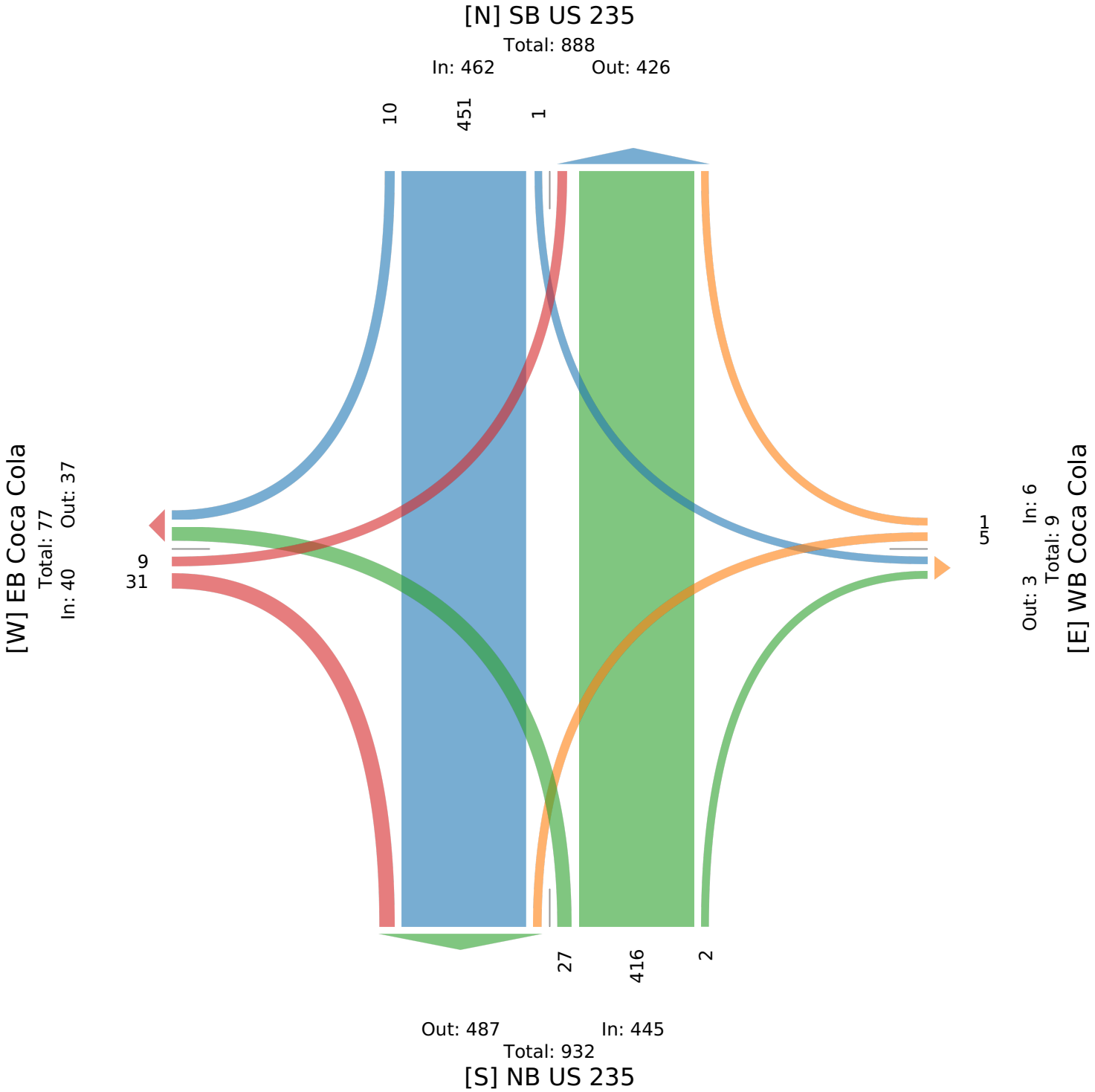
Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US

Leg	SB US 235					WB Coca Cola					NB US 235					EB Coca Cola					
Direction	Southbound					Westbound					Northbound					Eastbound					
Time	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	**Int**
2023-06-27 11:30AM	3	107	1	0	**111**	1	0	2	0	**3**	1	113	1	0	**115**	8	0	2	0	**10**	**239**
11:45AM	3	116	0	0	**119**	0	0	1	0	**1**	0	101	7	0	**108**	7	0	1	0	**8**	**236**
12:00PM	2	123	0	0	**125**	0	0	0	0	**0**	0	94	9	0	**103**	10	0	6	0	**16**	**244**
12:15PM	2	105	0	0	**107**	0	0	2	0	**2**	1	108	10	0	**119**	6	0	0	0	**6**	**234**
Total	10	451	1	0	**462**	1	0	5	0	**6**	2	416	27	0	**445**	31	0	9	0	**40**	**953**
% Approach	2.2%	97.6%	0.2%	0%	**-**	16.7%	0%	83.3%	0%	**-**	0.4%	93.5%	6.1%	0%	**-**	77.5%	0%	22.5%	0%	**-**	-
% Total	1.0%	47.3%	0.1%	0%	**48.5%**	0.1%	0%	0.5%	0%	**0.6%**	0.2%	43.7%	2.8%	0%	**46.7%**	3.3%	0%	0.9%	0%	**4.2%**	-
PHF	0.833	0.917	0.250	-	**0.924**	0.250	-	0.625	-	**0.500**	0.500	0.920	0.675	-	**0.935**	0.775	-	0.375	-	**0.625**	0.976
Lights and Motorcycles	10	426	1	0	**437**	1	0	4	0	**5**	1	392	16	0	**409**	26	0	8	0	**34**	885
% Lights and Motorcycles	100%	94.5%	100%	0%	**94.6%**	100%	0%	80.0%	0%	**83.3%**	50.0%	94.2%	59.3%	0%	**91.9%**	83.9%	0%	88.9%	0%	**85.0%**	92.9%
Heavy	0	25	0	0	**25**	0	0	1	0	**1**	1	24	11	0	**36**	5	0	1	0	**6**	68
% Heavy	0%	5.5%	0%	0%	**5.4%**	0%	0%	20.0%	0%	**16.7%**	50.0%	5.8%	40.7%	0%	**8.1%**	16.1%	0%	11.1%	0%	**15.0%**	7.1%

*L: Left, R: Right, T: Thru, U: U-Turn

03_SR 235 & Coca-Cola Blvd - TMC
Tue Jun 27, 2023
Midday Peak (11:30 AM - 12:30 PM)
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1082449, Location: 39.874691, -84.053683

Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US



03_SR 235 & Coca-Cola Blvd - TMC

Tue Jun 27, 2023
PM Peak (4:30 PM - 5:30 PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1082449, Location: 39.874691, -84.053683

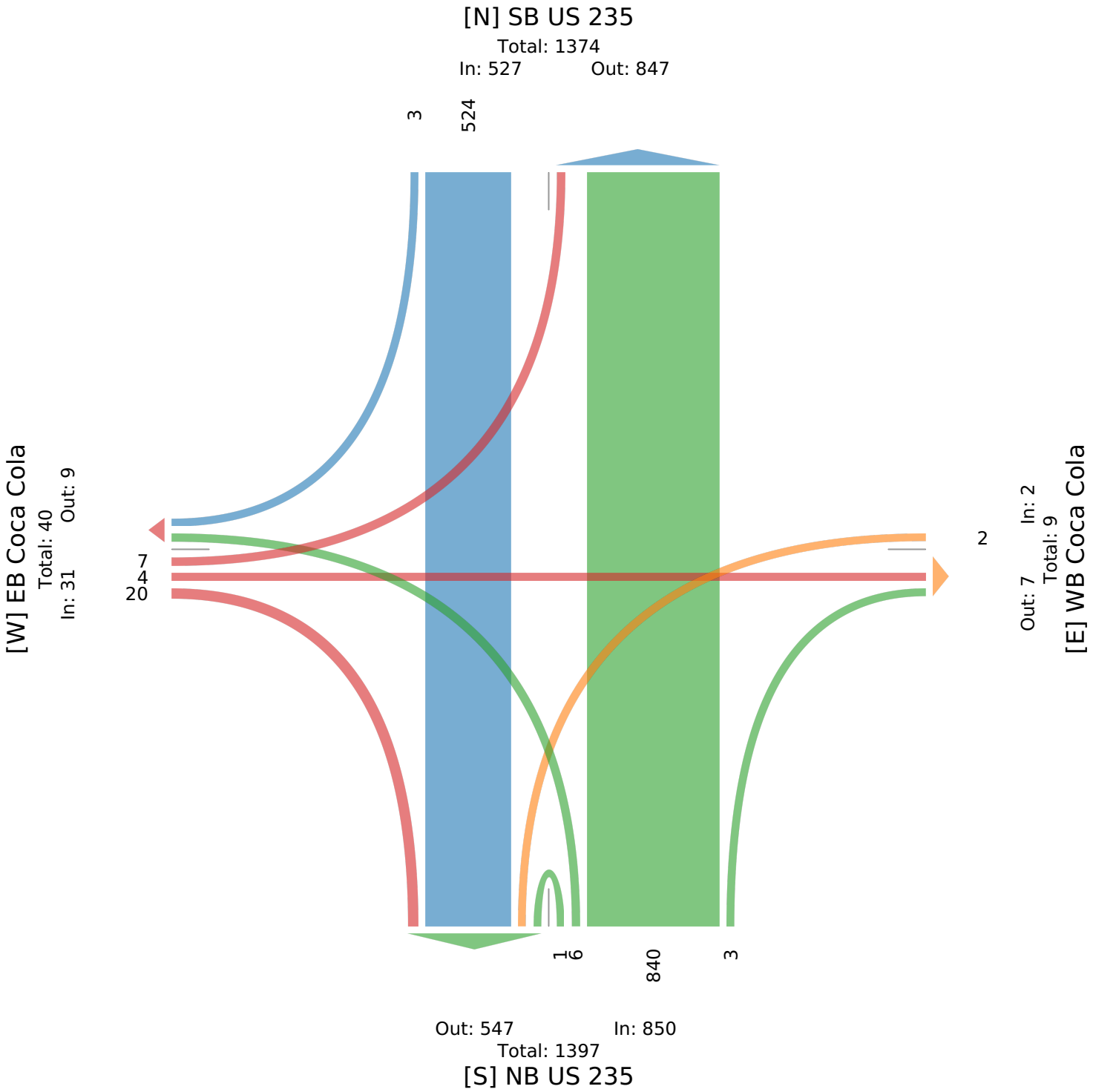
Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US

Leg	SB US 235					WB Coca Cola					NB US 235					EB Coca Cola					
Direction	Southbound					Westbound					Northbound					Eastbound					
Time	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	R	T	L	U	**App**	**Int**
2023-06-27 4:30PM	1	146	0	0	**147**	0	0	1	0	**1**	0	196	0	0	**196**	8	3	2	0	**13**	**357**
4:45PM	1	122	0	0	**123**	0	0	1	0	**1**	0	205	0	1	**206**	2	0	1	0	**3**	**333**
5:00PM	1	122	0	0	**123**	0	0	0	0	**0**	1	226	5	0	**232**	8	0	4	0	**12**	**367**
5:15PM	0	134	0	0	**134**	0	0	0	0	**0**	2	213	1	0	**216**	2	1	0	0	**3**	**353**
Total	3	524	0	0	**527**	0	0	2	0	**2**	3	840	6	1	**850**	20	4	7	0	**31**	**1410**
% Approach	0.6%	99.4%	0%	0%	**-**	0%	0%	100%	0%	**-**	0.4%	98.8%	0.7%	0.1%	**-**	64.5%	12.9%	22.6%	0%	**-**	-
% Total	0.2%	37.2%	0%	0%	**37.4%**	0%	0%	0.1%	0%	**0.1%**	0.2%	59.6%	0.4%	0.1%	**60.3%**	1.4%	0.3%	0.5%	0%	**2.2%**	-
PHF	0.750	0.897	-	-	**0.896**	-	-	0.500	-	**0.500**	0.375	0.929	0.300	0.250	**0.916**	0.625	0.333	0.438	-	**0.596**	0.960
Lights and Motorcycles	3	499	0	0	**502**	0	0	2	0	**2**	0	823	2	1	**826**	19	2	7	0	**28**	1358
% Lights and Motorcycles	100%	95.2%	0%	0%	**95.3%**	0%	0%	100%	0%	**100%**	0%	98.0%	33.3%	100%	**97.2%**	95.0%	50.0%	100%	0%	**90.3%**	96.3%
Heavy	0	25	0	0	**25**	0	0	0	0	**0**	3	17	4	0	**24**	1	2	0	0	**3**	52
% Heavy	0%	4.8%	0%	0%	**4.7%**	0%	0%	0%	0%	**0%**	100%	2.0%	66.7%	0%	**2.8%**	5.0%	50.0%	0%	0%	**9.7%**	3.7%

*L: Left, R: Right, T: Thru, U: U-Turn

03_SR 235 & Coca-Cola Blvd - TMC
Tue Jun 27, 2023
PM Peak (4:30 PM - 5:30 PM) - Overall Peak Hour
All Classes (Lights and Motorcycles, Heavy)
All Movements
ID: 1082449, Location: 39.874691, -84.053683

Provided by: Kimley-Horn and Associates, Inc.
767 Eustis Street, Suite 100, Saint Paul, MN, 55114, US



APPENDIX

F. ODOT TMMS Data

Location Info	
Location ID	47057
Type	I-SECTION
Functional Class	1
Located On	RAMP FROM SR201 TO IR70 WB
	RAMP FROM SR201 TO IR70 WB, IN HUBER HEIGHTS
Direction	RAMP
Community	-
MPO_ID	
HPMS ID	
Agency	Ohio Department of Transportation

Count Data Info	
Start Date	5/3/2022
End Date	5/4/2022
Start Time	12:00 AM
End Time	12:00 AM
Direction	
Notes	
Count Source	XA46375
File Name	47057.BIN
Weather	
Study	
Owner	eggemanengineering
QC Status	Accepted

Interval: 15 mins					
Time	15 Min				Hourly Count
	0	15	30	45	
00:00 - 01:00	16	4	7	4	31
01:00 - 02:00	7	2	2	4	15
02:00 - 03:00	4	3	8	5	20
03:00 - 04:00	6	4	5	5	20
04:00 - 05:00	14	18	20	28	80
05:00 - 06:00	26	43	63	51	183
06:00 - 07:00	58	105	118	87	368
07:00 - 08:00	101	110	119	88	418
08:00 - 09:00	74	83	78	60	295
09:00 - 10:00	74	69	65	67	275
10:00 - 11:00	61	67	77	70	275
11:00 - 12:00	68	68	64	61	261
12:00 - 13:00	74	74	70	68	286
13:00 - 14:00	78	84	95	73	330
14:00 - 15:00	87	79	86	102	354
15:00 - 16:00	92	92	103	73	360
16:00 - 17:00	102	99	85	101	387
17:00 - 18:00	100	101	108	85	394
18:00 - 19:00	93	91	73	63	320
19:00 - 20:00	65	56	55	39	215
20:00 - 21:00	33	50	42	43	168
21:00 - 22:00	48	38	26	32	144
22:00 - 23:00	32	35	24	15	106
23:00 - 24:00	17	14	12	12	55
TOTAL					5360

Total		5,360
AADT		4,937
AM Peak	07:00-08:00	
	418	
PM Peak	16:45-17:45	
	410	

Location Info	
Location ID	46957
Type	I-SECTION
Functional Class	1
Located On	RAMP FROM IR70 WB TO SR201
	RAMP FROM IR70 WB TO SR201, IN HUBER HEIGHTS
Direction	RAMP
Community	-
MPO_ID	
HPMS ID	
Agency	Ohio Department of Transportation

Count Data Info	
Start Date	4/20/2022
End Date	4/21/2022
Start Time	12:00 AM
End Time	12:00 AM
Direction	
Notes	
Count Source	XC32850
File Name	46957.BIN
Weather	
Study	
Owner	eggemanengineering
QC Status	Accepted

Interval: 15 mins					
Time	15 Min				Hourly Count
	0	15	30	45	
00:00 - 01:00	15	11	17	6	49
01:00 - 02:00	6	4	4	3	17
02:00 - 03:00	1	3	6	4	14
03:00 - 04:00	2	7	6	7	22
04:00 - 05:00	5	18	12	15	50
05:00 - 06:00	14	19	21	18	72
06:00 - 07:00	32	38	53	48	171
07:00 - 08:00	58	74	78	76	286
08:00 - 09:00	72	77	65	67	281
09:00 - 10:00	58	50	52	60	220
10:00 - 11:00	45	54	54	71	224
11:00 - 12:00	66	72	60	69	267
12:00 - 13:00	69	64	77	71	281
13:00 - 14:00	78	75	76	82	311
14:00 - 15:00	85	106	93	123	407
15:00 - 16:00	110	141	159	158	568
16:00 - 17:00	193	158	145	178	674
17:00 - 18:00	176	145	123	112	556
18:00 - 19:00	93	93	62	71	319
19:00 - 20:00	71	89	51	80	291
20:00 - 21:00	56	55	64	57	232
21:00 - 22:00	36	34	26	36	132
22:00 - 23:00	24	27	25	21	97
23:00 - 24:00	29	20	19	15	83
TOTAL					5624

Total		5,624
AADT		5,197
AM Peak	07:30-08:30	
	303	
PM Peak	16:00-17:00	
	674	

Location Info	
Location ID	47157
Type	I-SECTION
Functional Class	1
Located On	RAMP FROM IR70 EB TO SR201
	RAMP FROM IR70 EB TO SR201, IN HUBER HEIGHTS
Direction	RAMP
Community	-
MPO_ID	
HPMS ID	
Agency	Ohio Department of Transportation

Count Data Info	
Start Date	5/3/2022
End Date	5/4/2022
Start Time	12:00 AM
End Time	12:00 AM
Direction	
Notes	
Count Source	XC35852
File Name	47157.BIN
Weather	
Study	
Owner	eggemanengineering
QC Status	Accepted

Interval: 15 mins					
Time	15 Min				Hourly Count
	0	15	30	45	
00:00 - 01:00	13	19	11	9	52
01:00 - 02:00	7	7	5	3	22
02:00 - 03:00	3	3	8	7	21
03:00 - 04:00	3	5	8	4	20
04:00 - 05:00	10	6	9	17	42
05:00 - 06:00	13	13	22	40	88
06:00 - 07:00	20	31	30	49	130
07:00 - 08:00	45	62	52	75	234
08:00 - 09:00	57	71	57	53	238
09:00 - 10:00	54	52	47	50	203
10:00 - 11:00	55	54	65	59	233
11:00 - 12:00	62	67	70	81	280
12:00 - 13:00	68	65	78	59	270
13:00 - 14:00	74	83	55	93	305
14:00 - 15:00	93	97	98	82	370
15:00 - 16:00	104	110	130	106	450
16:00 - 17:00	125	116	105	115	461
17:00 - 18:00	134	146	130	105	515
18:00 - 19:00	94	98	70	78	340
19:00 - 20:00	65	62	70	56	253
20:00 - 21:00	66	50	59	57	232
21:00 - 22:00	49	40	47	26	162
22:00 - 23:00	40	36	10	18	104
23:00 - 24:00	21	23	15	15	74
TOTAL					5099

Total		5,099	
AADT		4,696	
AM Peak	11:45-12:45		7:45-8:45
	292		260
PM Peak	16:45-17:45		
	525		

Location Info	
Location ID	46857
Type	I-SECTION
Functional Class	1
Located On	RAMP FROM SR201 TO IR70 EB
	RAMP FROM SR201 TO IR70 EB, IN HUBER HEIGHTS
Direction	RAMP
Community	-
MPO_ID	
HPMS ID	
Agency	Ohio Department of Transportation

Count Data Info	
Start Date	4/20/2022
End Date	4/21/2022
Start Time	12:00 AM
End Time	12:00 AM
Direction	
Notes	
Count Source	UU30705
File Name	46857.BIN
Weather	
Study	
Owner	eggemanengineering
QC Status	Accepted

Interval: 15 mins					
Time	15 Min				Hourly Count
	0	15	30	45	
00:00 - 01:00	8	10	7	6	31
01:00 - 02:00	8	6	3	3	20
02:00 - 03:00	7	1	4	3	15
03:00 - 04:00	2	11	6	3	22
04:00 - 05:00	7	17	18	20	62
05:00 - 06:00	27	36	49	45	157
06:00 - 07:00	83	90	128	117	418
07:00 - 08:00	140	147	162	158	607
08:00 - 09:00	116	104	123	103	446
09:00 - 10:00	80	83	87	71	321
10:00 - 11:00	89	82	73	71	315
11:00 - 12:00	79	60	72	67	278
12:00 - 13:00	87	80	71	82	320
13:00 - 14:00	71	74	67	74	286
14:00 - 15:00	74	73	88	73	308
15:00 - 16:00	89	80	103	98	370
16:00 - 17:00	113	101	110	100	424
17:00 - 18:00	116	102	110	96	424
18:00 - 19:00	89	86	89	75	339
19:00 - 20:00	67	48	49	53	217
20:00 - 21:00	62	51	42	57	212
21:00 - 22:00	42	46	32	13	133
22:00 - 23:00	25	15	22	18	80
23:00 - 24:00	16	16	14	12	58
TOTAL					5863

Total		5,863
AADT		5,417
AM Peak	07:00-08:00	
	607	
PM Peak	16:30-17:30	
	428	

Location Info	
Location ID	69057
Type	I-SECTION
Functional Class	5
Located On	S DAYTON-LAKEVIEW RD
BETWEEN	GERLAUGH AVE AND IR-70
Direction	2-WAY
Community	HUBER HEIGHTS
MPO_ID	
HPMS ID	235002240
Agency	Ohio Department of Transportation

Count Data Info	
Start Date	6/7/2022
End Date	6/8/2022
Start Time	12:00 AM
End Time	12:00 AM
Direction	
Notes	
Count Source	
File Name	
Weather	
Study	
Owner	eggemanengineering
QC Status	Accepted

Interval: 15 mins					
Time	15 Min				Hourly Count
	0	15	30	45	
00:00 - 01:00	37	25	19	15	96
01:00 - 02:00	12	16	20	18	66
02:00 - 03:00	11	11	19	12	53
03:00 - 04:00	9	20	29	22	80
04:00 - 05:00	24	35	54	61	174
05:00 - 06:00	72	95	141	149	457
06:00 - 07:00	144	179	259	212	794
07:00 - 08:00	210	244	250	275	979
08:00 - 09:00	227	236	193	166	822
09:00 - 10:00	142	174	178	189	683
10:00 - 11:00	149	153	168	164	634
11:00 - 12:00	188	202	220	182	792
12:00 - 13:00	212	209	242	211	874
13:00 - 14:00	208	195	210	192	805
14:00 - 15:00	228	227	238	265	958
15:00 - 16:00	262	267	289	332	1150
16:00 - 17:00	276	276	271	324	1147
17:00 - 18:00	319	349	323	290	1281
18:00 - 19:00	231	208	210	195	844
19:00 - 20:00	182	162	161	143	648
20:00 - 21:00	149	148	123	126	546
21:00 - 22:00	121	100	86	104	411
22:00 - 23:00	82	87	80	51	300
23:00 - 24:00	47	46	58	41	192
TOTAL					14786

Total		14,786
AADT		13,781
AM Peak	07:15-08:15	
	996	
PM Peak	16:45-17:45	
	1,315	

Location Info	
Location ID	17957
Type	I-SECTION
Functional Class	3
Located On	S DAYTON-LAKEVIEW RD
	SR235 N OF IR70, IN HUBER HEIGHTS
Direction	2-WAY
Community	HUBER HEIGHTS
MPO_ID	
HPMS ID	5.70024E+11
Agency	Ohio Department of Transportation

Count Data Info	
Start Date	6/7/2022
End Date	6/8/2022
Start Time	12:00 AM
End Time	12:00 AM
Direction	
Notes	
Count Source	
File Name	
Weather	
Study	
Owner	eggemanengineering
QC Status	Accepted

Interval: 15 mins					
Time	15 Min				Hourly Count
	0	15	30	45	
00:00 - 01:00	69	48	34	36	187
01:00 - 02:00	37	25	31	21	114
02:00 - 03:00	33	34	23	26	116
03:00 - 04:00	27	29	46	28	130
04:00 - 05:00	34	51	60	91	236
05:00 - 06:00	89	129	173	183	574
06:00 - 07:00	205	212	335	288	1,040
07:00 - 08:00	288	337	360	385	1,370
08:00 - 09:00	332	262	255	223	1,072
09:00 - 10:00	208	209	228	222	867
10:00 - 11:00	192	214	222	223	851
11:00 - 12:00	231	251	263	249	994
12:00 - 13:00	247	235	262	248	992
13:00 - 14:00	251	275	268	246	1,040
14:00 - 15:00	269	238	285	313	1,105
15:00 - 16:00	319	349	381	395	1,444
16:00 - 17:00	385	344	392	374	1,495
17:00 - 18:00	393	419	343	302	1,457
18:00 - 19:00	286	267	246	240	1,039
19:00 - 20:00	199	154	190	163	706
20:00 - 21:00	152	182	132	164	630
21:00 - 22:00	116	144	122	125	507
22:00 - 23:00	93	86	90	89	358
23:00 - 24:00	66	84	75	72	297
TOTAL					18,621

Total		18,621
AADT		17,466
AM Peak	07:15-08:15	
	1,414	
PM Peak	16:30-17:30	
	1,578	

Location Info	
Location ID	72057
Type	I-SECTION
Functional Class	1
Located On	RAMP FROM IR70 WB TO SR235 NB
	RAMP FROM IR70 WB TO SR235 NB, IN HUBER HEIGHTS
Direction	RAMP
Community	-
MPO_ID	
HPMS ID	
Agency	Ohio Department of Transportation

Count Data Info	
Start Date	4/20/2022
End Date	4/21/2022
Start Time	12:00 AM
End Time	12:00 AM
Direction	
Notes	
Count Source	UU25413
File Name	72057.BIN
Weather	
Study	
Owner	eggemanengineering
QC Status	Accepted

Interval: 15 mins

Time	15 Min				Hourly Count
	0	15	30	45	
00:00 - 01:00	1	8	6	5	20
01:00 - 02:00	2	7	3	2	14
02:00 - 03:00	1	5	4	2	12
03:00 - 04:00	6	3	3	3	15
04:00 - 05:00	1	2	5	10	18
05:00 - 06:00	7	8	8	28	51
06:00 - 07:00	13	9	21	31	74
07:00 - 08:00	24	22	33	46	125
08:00 - 09:00	27	21	20	24	92
09:00 - 10:00	12	11	17	19	59
10:00 - 11:00	13	10	13	20	56
11:00 - 12:00	19	7	24	17	67
12:00 - 13:00	18	17	21	25	81
13:00 - 14:00	22	19	22	28	91
14:00 - 15:00	21	19	14	23	77
15:00 - 16:00	24	26	21	40	111
16:00 - 17:00	15	16	26	14	71
17:00 - 18:00	22	21	14	17	74
18:00 - 19:00	8	14	7	7	36
19:00 - 20:00	14	15	11	15	55
20:00 - 21:00	10	10	10	9	39
21:00 - 22:00	7	12	9	11	39
22:00 - 23:00	4	3	8	2	17
23:00 - 24:00	4	4	7	4	19
TOTAL					1313

Total		1,313
AADT		1,213
AM Peak	07:15-08:15	
	128	
PM Peak	15:00-16:00	
	111	

Location Info	
Location ID	67057
Type	I-SECTION
Functional Class	1
Located On	RAMP FROM IR70 WB TO SR235
	RAMP FROM IR70 WB TO SR235, IN HUBER HEIGHTS
Direction	RAMP
Community	-
MPO_ID	
HPMS ID	
Agency	Ohio Department of Transportation

Count Data Info	
Start Date	9/17/2008
End Date	9/18/2008
Start Time	10:00 AM
End Time	10:00 AM
Direction	RAMP
Notes	
Count Source	
File Name	
Weather	
Study	
Owner	
QC Status	Accepted

Interval: 60 mins	
Time	Hourly Count
00:00 - 01:00	48
01:00 - 02:00	30
02:00 - 03:00	31
03:00 - 04:00	38
04:00 - 05:00	60
05:00 - 06:00	163
06:00 - 07:00	313
07:00 - 08:00	443
08:00 - 09:00	314
09:00 - 10:00	227
10:00 - 11:00	220
11:00 - 12:00	216
12:00 - 13:00	250
13:00 - 14:00	228
14:00 - 15:00	244
15:00 - 16:00	280
16:00 - 17:00	322
17:00 - 18:00	345
18:00 - 19:00	228
19:00 - 20:00	176
20:00 - 21:00	131
21:00 - 22:00	105
22:00 - 23:00	67
23:00 - 24:00	77
TOTAL	4556

Total	4,556
AM Peak	07:00-08:00
	443
PM Peak	17:00-18:00
	345

Location Info	
Location ID	72157
Type	I-SECTION
Functional Class	1
Located On	RAMP FROM IR70 WB TO SR4-235 SB
	RAMP FROM IR70 WB TO SR4-235 SB, IN HUBER HEIGHTS
Direction	RAMP
Community	-
MPO_ID	
HPMS ID	
Agency	Ohio Department of Transportation

Count Data Info	
Start Date	4/20/2022
End Date	4/21/2022
Start Time	12:00 AM
End Time	12:00 AM
Direction	
Notes	
Count Source	UU25413
File Name	72157.BIN
Weather	
Study	
Owner	eggemanengineering
QC Status	Accepted

Interval: 15 mins					
Time	15 Min				Hourly Count
	0	15	30	45	
00:00 - 01:00	24	18	18	14	74
01:00 - 02:00	12	14	12	10	48
02:00 - 03:00	13	8	2	14	37
03:00 - 04:00	12	17	7	10	46
04:00 - 05:00	9	10	11	20	50
05:00 - 06:00	15	39	50	52	156
06:00 - 07:00	61	87	128	91	367
07:00 - 08:00	107	127	137	128	499
08:00 - 09:00	143	110	106	100	459
09:00 - 10:00	97	79	83	57	316
10:00 - 11:00	64	69	86	62	281
11:00 - 12:00	83	64	78	67	292
12:00 - 13:00	77	96	73	87	333
13:00 - 14:00	59	77	89	68	293
14:00 - 15:00	69	91	91	102	353
15:00 - 16:00	75	115	110	130	430
16:00 - 17:00	110	104	90	106	410
17:00 - 18:00	101	117	93	94	405
18:00 - 19:00	105	100	86	67	358
19:00 - 20:00	86	54	42	55	237
20:00 - 21:00	54	48	43	40	185
21:00 - 22:00	43	29	38	29	139
22:00 - 23:00	31	18	31	19	99
23:00 - 24:00	16	18	17	23	74
TOTAL					5941

Total		5,941
AADT		5,489
AM Peak	07:15-08:15	
	535	
PM Peak	15:15-16:15	
	465	

Location Info	
Location ID	47357
Type	I-SECTION
Functional Class	1
Located On	RAMP FROM SR235 NB TO IR70 WB
	RAMP FROM SR235 NB TO IR70 WB, IN HUBER HEIGHTS
Direction	RAMP
Community	-
MPO_ID	
HPMS ID	
Agency	Ohio Department of Transportation

Count Data Info	
Start Date	6/7/2022
End Date	6/8/2022
Start Time	12:00 AM
End Time	12:00 AM
Direction	
Notes	
Count Source	XC35852
File Name	47357.BIN
Weather	
Study	
Owner	eggemanengineering
QC Status	Accepted

Interval: 15 mins					
Time	15 Min				Hourly Count
	0	15	30	45	
00:00 - 01:00	3	1	3	6	13
01:00 - 02:00	1	2	0	0	3
02:00 - 03:00	1	2	4	1	8
03:00 - 04:00	6	3	2	3	14
04:00 - 05:00	4	6	7	8	25
05:00 - 06:00	6	12	27	11	56
06:00 - 07:00	30	39	41	26	136
07:00 - 08:00	23	33	54	58	168
08:00 - 09:00	40	38	34	45	157
09:00 - 10:00	32	34	42	42	150
10:00 - 11:00	32	42	36	35	145
11:00 - 12:00	48	47	35	50	180
12:00 - 13:00	48	53	49	50	200
13:00 - 14:00	37	53	50	44	184
14:00 - 15:00	71	57	82	67	277
15:00 - 16:00	106	120	124	142	492
16:00 - 17:00	145	171	160	148	624
17:00 - 18:00	133	143	91	88	455
18:00 - 19:00	58	51	46	36	191
19:00 - 20:00	25	24	23	28	100
20:00 - 21:00	23	31	20	17	91
21:00 - 22:00	15	20	24	13	72
22:00 - 23:00	14	15	9	9	47
23:00 - 24:00	11	10	8	5	34
TOTAL					3822

Total		3,822
AADT		3,512
AM Peak	7:30-8:30	
	190	
PM Peak	16:00-17:00	
	624	

Location Info	
Location ID	112
Type	I-SECTION
Functional Class	1
Located On	IR-70
BETWEEN	CLARK-MONTGOMERY COUNTY LINE AND IR-675
Direction	2-WAY
Community	BETHEL
MPO_ID	
HPMS ID	70001440
Agency	Ohio Department of Transportation

Count Data Info	
Start Date	6/7/2022
End Date	6/8/2022
Start Time	12:00 AM
End Time	12:00 AM
Direction	
Notes	
Count Source	
File Name	
Weather	
Study	
Owner	ODOTAuto
QC Status	Accepted

Interval: 15 mins					
Time	15 Min				Hourly Count
	0	15	30	45	
00:00 - 01:00	252	207	176	196	831
01:00 - 02:00	161	157	156	177	651
02:00 - 03:00	139	152	148	191	630
03:00 - 04:00	170	167	169	203	709
04:00 - 05:00	191	245	278	280	994
05:00 - 06:00	364	373	461	522	1720
06:00 - 07:00	586	755	920	858	3119
07:00 - 08:00	869	1020	1133	1079	4101
08:00 - 09:00	944	978	935	955	3812
09:00 - 10:00	910	916	929	891	3646
10:00 - 11:00	787	872	889	863	3411
11:00 - 12:00	924	877	902	901	3604
12:00 - 13:00	896	899	943	914	3652
13:00 - 14:00	934	925	986	967	3812
14:00 - 15:00	973	1010	1018	1026	4027
15:00 - 16:00	1126	1119	1195	1283	4723
16:00 - 17:00	1181	948	1287	1335	4751
17:00 - 18:00	1297	1403	1220	1013	4933
18:00 - 19:00	962	985	919	793	3659
19:00 - 20:00	748	681	683	638	2750
20:00 - 21:00	635	563	513	533	2244
21:00 - 22:00	471	490	465	441	1867
22:00 - 23:00	433	383	380	362	1558
23:00 - 24:00	323	333	280	290	1226
TOTAL					66430

Total		66,430
AADT		61,049
AM Peak	07:15-08:15	
	4,176	
PM Peak	16:30-17:30	
	5,322	

Location Info	
Location ID	46557
Type	I-SECTION
Functional Class	1
Located On	RAMP FROM IR70 EB TO SR235 NB
	RAMP FROM IR70 EB TO SR235 NB, IN HUBER HEIGHTS
Direction	RAMP
Community	-
MPO_ID	
HPMS ID	
Agency	Ohio Department of Transportation

Count Data Info	
Start Date	6/7/2022
End Date	6/8/2022
Start Time	12:00 AM
End Time	12:00 AM
Direction	
Notes	
Count Source	XC38507
File Name	46557.BIN
Weather	
Study	
Owner	eggemanengineering
QC Status	Accepted

Interval: 15 mins					
Time	15 Min				Hourly Count
	0	15	30	45	
00:00 - 01:00	10	5	8	2	25
01:00 - 02:00	7	6	9	9	31
02:00 - 03:00	0	6	7	3	16
03:00 - 04:00	2	4	7	4	17
04:00 - 05:00	4	5	7	15	31
05:00 - 06:00	6	7	14	15	42
06:00 - 07:00	16	22	19	33	90
07:00 - 08:00	36	28	44	49	157
08:00 - 09:00	34	37	33	36	140
09:00 - 10:00	28	30	32	33	123
10:00 - 11:00	33	23	37	34	127
11:00 - 12:00	33	49	45	32	159
12:00 - 13:00	50	46	36	51	183
13:00 - 14:00	38	34	39	59	170
14:00 - 15:00	40	55	46	44	185
15:00 - 16:00	58	57	48	79	242
16:00 - 17:00	65	47	61	77	250
17:00 - 18:00	62	54	58	67	241
18:00 - 19:00	36	42	42	49	169
19:00 - 20:00	32	49	44	50	175
20:00 - 21:00	30	28	35	33	126
21:00 - 22:00	32	23	21	20	96
22:00 - 23:00	17	30	20	14	81
23:00 - 24:00	15	19	24	17	75
TOTAL					2951

Total		2,951
AADT		2,712
AM Peak	7:30-8:30	
	164	
PM Peak	16:30-17:30	
	254	

Location Info	
Location ID	42657
Type	I-SECTION
Functional Class	3
Located On	SR-4
	SR4 NB RAMP TO IR70-4 EB, IN HUBER HEIGHTS
Direction	RAMP
Community	HUBER HEIGHTS
MPO_ID	
HPMS ID	1.2E+11
Agency	Ohio Department of Transportation

Count Data Info	
Start Date	4/20/2022
End Date	4/21/2022
Start Time	12:00 AM
End Time	12:00 AM
Direction	
Notes	
Count Source	G43611
File Name	42657.BIN
Weather	
Study	
Owner	eggemanengineering
QC Status	Accepted

Interval: 15 mins					
Time	15 Min				Hourly Count
	0	15	30	45	
00:00 - 01:00	16	17	9	7	49
01:00 - 02:00	6	6	3	8	23
02:00 - 03:00	6	11	5	10	32
03:00 - 04:00	12	8	9	9	38
04:00 - 05:00	17	11	20	20	68
05:00 - 06:00	27	28	44	50	149
06:00 - 07:00	47	71	99	80	297
07:00 - 08:00	71	102	96	106	375
08:00 - 09:00	98	92	74	69	333
09:00 - 10:00	67	58	84	69	278
10:00 - 11:00	60	68	68	76	272
11:00 - 12:00	74	63	66	66	269
12:00 - 13:00	69	63	75	83	290
13:00 - 14:00	74	76	77	76	303
14:00 - 15:00	88	94	78	79	339
15:00 - 16:00	89	95	121	135	440
16:00 - 17:00	111	139	108	144	502
17:00 - 18:00	119	149	105	92	465
18:00 - 19:00	69	83	54	60	266
19:00 - 20:00	21	10	11	18	60
20:00 - 21:00	15	11	16	9	51
21:00 - 22:00	12	10	12	12	46
22:00 - 23:00	9	9	11	6	35
23:00 - 24:00	7	8	10	5	30
TOTAL					5010

Total		5,010
AADT		4,604
AM Peak	07:15-08:15	
	402	
PM Peak	16:30-17:30	
	520	

Location Info	
Location ID	42557
Type	I-SECTION
Functional Class	1
Located On	RAMP FROM IR70 EB TO SR4-235 SB
	RAMP FROM IR70 EB TO SR4-235 SB, IN HUBER HEIGHTS
Direction	RAMP
Community	-
MPO_ID	
HPMS ID	
Agency	Ohio Department of Transportation

Count Data Info	
Start Date	4/20/2022
End Date	4/21/2022
Start Time	12:00 AM
End Time	12:00 AM
Direction	
Notes	
Count Source	UU25369
File Name	42557.BIN
Weather	
Study	
Owner	eggemanengineering
QC Status	Accepted

Interval: 15 mins					
Time	15 Min				Hourly Count
	0	15	30	45	
00:00 - 01:00	4	1	4	3	12
01:00 - 02:00	2	0	1	3	6
02:00 - 03:00	2	2	2	1	7
03:00 - 04:00	0	3	1	3	7
04:00 - 05:00	4	2	9	11	26
05:00 - 06:00	21	24	29	39	113
06:00 - 07:00	61	83	135	145	424
07:00 - 08:00	134	153	154	151	592
08:00 - 09:00	109	104	109	85	407
09:00 - 10:00	65	47	54	55	221
10:00 - 11:00	49	64	35	44	192
11:00 - 12:00	55	40	44	53	192
12:00 - 13:00	60	38	41	50	189
13:00 - 14:00	41	37	42	48	168
14:00 - 15:00	50	32	61	63	206
15:00 - 16:00	51	59	51	72	233
16:00 - 17:00	59	54	70	77	260
17:00 - 18:00	51	83	71	64	269
18:00 - 19:00	53	46	53	35	187
19:00 - 20:00	28	26	33	18	105
20:00 - 21:00	37	26	25	22	110
21:00 - 22:00	16	19	25	12	72
22:00 - 23:00	9	10	12	15	46
23:00 - 24:00	8	13	11	6	38
TOTAL					4082

Total		4,082
AADT		3,772
AM Peak	07:00-08:00	
	592	
PM Peak	16:45-17:45	
	282	

Location Info	
Location ID	46657
Type	I-SECTION
Functional Class	1
Located On	RAMP FROM SR235 SB TO IR70 EB
	RAMP FROM SR235 SB TO IR70 EB, IN HUBER HEIGHTS
Direction	RAMP
Community	-
MPO_ID	
HPMS ID	
Agency	Ohio Department of Transportation

Count Data Info	
Start Date	4/20/2022
End Date	4/21/2022
Start Time	12:00 AM
End Time	12:00 AM
Direction	
Notes	
Count Source	UU25369
File Name	46657.BIN
Weather	
Study	
Owner	eggemanengineering
QC Status	Accepted

Interval: 15 mins					
Time	15 Min				Hourly Count
	0	15	30	45	
00:00 - 01:00	18	3	4	1	26
01:00 - 02:00	7	3	6	8	24
02:00 - 03:00	2	2	8	4	16
03:00 - 04:00	6	2	3	3	14
04:00 - 05:00	6	2	6	1	15
05:00 - 06:00	8	6	9	11	34
06:00 - 07:00	21	19	13	14	67
07:00 - 08:00	16	16	22	20	74
08:00 - 09:00	25	12	18	18	73
09:00 - 10:00	22	23	14	20	79
10:00 - 11:00	12	19	14	16	61
11:00 - 12:00	12	18	16	13	59
12:00 - 13:00	11	14	20	21	66
13:00 - 14:00	21	14	22	21	78
14:00 - 15:00	29	24	19	20	92
15:00 - 16:00	13	24	29	15	81
16:00 - 17:00	48	37	40	32	157
17:00 - 18:00	36	32	27	18	113
18:00 - 19:00	21	12	13	16	62
19:00 - 20:00	13	6	11	7	37
20:00 - 21:00	13	15	17	13	58
21:00 - 22:00	10	8	4	5	27
22:00 - 23:00	7	2	8	9	26
23:00 - 24:00	6	4	6	5	21
TOTAL					1360

Total		1,360
AADT		1,257
AM Peak	07:15-08:15	
	83	
PM Peak	16:00-17:00	
	157	

Location Info	
Location ID	47257
Type	I-SECTION
Functional Class	1
Located On	RAMP FROM SR235 TO IR70 WB
	RAMP FROM SR235 TO IR70 WB, IN HUBER HEIGHTS
Direction	RAMP
Community	-
MPO_ID	
HPMS ID	
Agency	Ohio Department of Transportation

Count Data Info	
Start Date	4/20/2022
End Date	4/21/2022
Start Time	12:00 AM
End Time	12:00 AM
Direction	
Notes	
Count Source	G43836
File Name	47257.BIN
Weather	
Study	
Owner	eggemanengineering
QC Status	Accepted

Interval: 15 mins					
Time	15 Min				Hourly Count
	0	15	30	45	
00:00 - 01:00	27	11	10	12	60
01:00 - 02:00	6	4	1	2	13
02:00 - 03:00	4	4	5	3	16
03:00 - 04:00	4	7	14	4	29
04:00 - 05:00	7	11	16	17	51
05:00 - 06:00	22	23	33	37	115
06:00 - 07:00	37	39	69	39	184
07:00 - 08:00	54	58	61	73	246
08:00 - 09:00	48	40	52	51	191
09:00 - 10:00	46	47	37	41	171
10:00 - 11:00	45	43	35	38	161
11:00 - 12:00	41	50	46	52	189
12:00 - 13:00	51	43	53	48	195
13:00 - 14:00	50	54	49	46	199
14:00 - 15:00	40	56	53	48	197
15:00 - 16:00	41	47	74	54	216
16:00 - 17:00	92	54	72	50	268
17:00 - 18:00	78	68	61	44	251
18:00 - 19:00	48	45	50	36	179
19:00 - 20:00	30	45	33	25	133
20:00 - 21:00	36	41	27	14	118
21:00 - 22:00	21	16	13	10	60
22:00 - 23:00	22	12	10	13	57
23:00 - 24:00	7	8	13	9	37
TOTAL					3336

Total		3,336
AADT		3,082
AM Peak	07:00-08:00	
	246	
PM Peak	15:30-16:30	
	274	

Location Info	
Location ID	2857
Type	I-SECTION
Functional Class	3
Located On	SR-4
	SR4 N OF SR235, IN HUBER HEIGHTS
Direction	2-WAY
Community	HUBER HEIGHTS
MPO_ID	
HPMS ID	
Agency	Ohio Department of Transportation

Count Data Info	
Start Date	5/17/2022
End Date	5/18/2022
Start Time	12:00 AM
End Time	12:00 AM
Direction	
Notes	
Count Source	
File Name	
Weather	
Study	
Owner	eggemanengineering
QC Status	Accepted

Interval: 15 mins					
Time	15 Min				Hourly Count
	0	15	30	45	
00:00 - 01:00	54	73	56	33	216
01:00 - 02:00	46	25	37	30	138
02:00 - 03:00	27	32	40	39	138
03:00 - 04:00	42	38	48	52	180
04:00 - 05:00	60	54	97	105	316
05:00 - 06:00	123	184	243	298	848
06:00 - 07:00	302	438	607	549	1896
07:00 - 08:00	522	635	686	650	2493
08:00 - 09:00	521	490	515	457	1983
09:00 - 10:00	394	396	348	352	1490
10:00 - 11:00	337	318	338	376	1369
11:00 - 12:00	322	366	344	342	1374
12:00 - 13:00	343	365	404	336	1448
13:00 - 14:00	335	402	384	386	1507
14:00 - 15:00	414	425	463	458	1760
15:00 - 16:00	488	562	663	664	2377
16:00 - 17:00	673	741	683	711	2808
17:00 - 18:00	670	779	580	504	2533
18:00 - 19:00	462	454	356	304	1576
19:00 - 20:00	296	249	281	257	1083
20:00 - 21:00	263	241	262	169	935
21:00 - 22:00	190	214	212	200	816
22:00 - 23:00	164	198	123	107	592
23:00 - 24:00	90	87	99	79	355
TOTAL					30231

Total		30,231
AADT		27,601
AM Peak	07:00-08:00	
	2,493	
PM Peak	16:30-17:30	
	2,843	

Location Info	
Location ID	27012
Type	I-SECTION
Functional Class	1
Located On	RAMP FROM IR70 WB TO C335 NB
	RAMP FROM IR70 WB TO C335 NB, N OF GRE CO LINE
Direction	RAMP
Community	-
MPO_ID	
HPMS ID	
Agency	Ohio Department of Transportation

Count Data Info	
Start Date	5/18/2021
End Date	5/19/2021
Start Time	12:00 AM
End Time	12:00 AM
Direction	
Notes	
Count Source	G43824
File Name	27012.BIN
Weather	
Study	
Owner	eggemanengineering
QC Status	Accepted

Interval: 15 mins					
Time	15 Min				Hourly Count
	0	15	30	45	
00:00 - 01:00	0	2	0	2	4
01:00 - 02:00	0	2	0	1	3
02:00 - 03:00	0	1	2	2	5
03:00 - 04:00	0	0	0	0	0
04:00 - 05:00	0	2	0	0	2
05:00 - 06:00	0	0	2	3	5
06:00 - 07:00	2	5	9	4	20
07:00 - 08:00	9	9	12	12	42
08:00 - 09:00	12	11	10	6	39
09:00 - 10:00	6	6	5	5	22
10:00 - 11:00	7	9	9	6	31
11:00 - 12:00	6	5	6	8	25
12:00 - 13:00	5	11	5	11	32
13:00 - 14:00	8	10	8	11	37
14:00 - 15:00	17	4	18	12	51
15:00 - 16:00	15	10	13	29	67
16:00 - 17:00	20	7	19	15	61
17:00 - 18:00	14	17	23	14	68
18:00 - 19:00	14	12	12	9	47
19:00 - 20:00	4	10	5	9	28
20:00 - 21:00	13	8	5	9	35
21:00 - 22:00	18	6	3	3	30
22:00 - 23:00	7	5	2	3	17
23:00 - 24:00	4	1	2	7	14
TOTAL					685

Total		685
AADT		701
AM Peak	07:30-08:30	
	47	
PM Peak	15:45-16:45	
	75	

Location Info	
Location ID	27312
Type	I-SECTION
Functional Class	1
Located On	RAMP FROM IR675 NB TO IR70 WB
	RAMP FROM IR675 NB TO IR70 WB, N OF GRE CO LINE
Direction	RAMP
Community	-
MPO_ID	
HPMS ID	
Agency	Ohio Department of Transportation

Count Data Info	
Start Date	9/21/2021
End Date	9/22/2021
Start Time	12:00 AM
End Time	12:00 AM
Direction	
Notes	
Count Source	XC39796
File Name	27312.BIN
Weather	
Study	
Owner	eggemanengineering
QC Status	Accepted

Interval: 15 mins

Time	15 Min				Hourly Count
	0	15	30	45	
00:00 - 01:00	7	2	2	5	16
01:00 - 02:00	5	5	8	6	24
02:00 - 03:00	4	3	4	6	17
03:00 - 04:00	4	2	11	11	28
04:00 - 05:00	9	15	25	28	77
05:00 - 06:00	19	29	42	48	138
06:00 - 07:00	62	90	116	88	356
07:00 - 08:00	110	133	153	164	560
08:00 - 09:00	115	110	94	74	393
09:00 - 10:00	80	69	77	68	294
10:00 - 11:00	52	75	82	62	271
11:00 - 12:00	80	73	103	75	331
12:00 - 13:00	75	88	90	88	341
13:00 - 14:00	95	91	88	104	378
14:00 - 15:00	123	107	123	109	462
15:00 - 16:00	109	135	137	159	540
16:00 - 17:00	151	165	171	145	632
17:00 - 18:00	184	190	135	125	634
18:00 - 19:00	107	102	86	95	390
19:00 - 20:00	93	63	60	70	286
20:00 - 21:00	66	56	50	53	225
21:00 - 22:00	46	44	40	24	154
22:00 - 23:00	32	36	22	11	101
23:00 - 24:00	24	23	14	9	70
TOTAL					6718

Total		6,718
AADT		6,772
AM Peak	07:15-08:15	
	565	
PM Peak	16:30-17:30	
	690	

Location Info	
Location ID	27612
Type	I-SECTION
Functional Class	1
Located On	RAMP FROM IR70 EB TO C335 NB
	RAMP FROM IR70 EB TO C335 NB, N OF GRE CO LINE
Direction	RAMP
Community	-
MPO_ID	
HPMS ID	
Agency	Ohio Department of Transportation

Count Data Info	
Start Date	7/8/2021
End Date	7/9/2021
Start Time	12:00 AM
End Time	12:00 AM
Direction	
Notes	
Count Source	0518XC35858R
File Name	27612.BIN
Weather	
Study	
Owner	eggemanengineering
QC Status	Accepted

Interval: 15 mins					
Time	15 Min				Hourly Count
	0	15	30	45	
00:00 - 01:00	0	0	0	0	0
01:00 - 02:00	0	0	0	1	1
02:00 - 03:00	1	7	0	0	8
03:00 - 04:00	1	1	0	0	2
04:00 - 05:00	0	0	0	2	2
05:00 - 06:00	0	0	1	1	2
06:00 - 07:00	1	2	2	5	10
07:00 - 08:00	4	5	5	3	17
08:00 - 09:00	7	2	2	2	13
09:00 - 10:00	2	4	5	4	15
10:00 - 11:00	5	7	7	3	22
11:00 - 12:00	6	4	7	10	27
12:00 - 13:00	10	4	7	2	23
13:00 - 14:00	7	7	2	3	19
14:00 - 15:00	4	10	10	8	32
15:00 - 16:00	11	3	4	12	30
16:00 - 17:00	4	9	10	7	30
17:00 - 18:00	14	9	1	4	28
18:00 - 19:00	2	3	11	7	23
19:00 - 20:00	5	5	1	1	12
20:00 - 21:00	4	3	4	1	12
21:00 - 22:00	3	3	9	0	15
22:00 - 23:00	0	0	1	0	1
23:00 - 24:00	2	4	1	2	9
TOTAL					353

Total		353
AADT		299
AM Peak	7:15-8:15	
	20	
PM Peak	16:15-17:15	
	40	

Location Info	
Location ID	27712
Type	I-SECTION
Functional Class	1
Located On	RAMP
	IR675 NB RAMP TO IR70 EB, N OF GRE CO LINE
Direction	RAMP
Community	N OF GRE CO LINE
MPO_ID	
HPMS ID	
Agency	Ohio Department of Transportation

Count Data Info	
Start Date	7/8/2021
End Date	7/9/2021
Start Time	12:00 AM
End Time	12:00 AM
Direction	
Notes	
Count Source	XC39797
File Name	27712.BIN
Weather	
Study	
Owner	eggemanengineering
QC Status	Accepted

Interval: 15 mins

Time	15 Min				Hourly Count
	0	15	30	45	
00:00 - 01:00	29	25	28	16	98
01:00 - 02:00	18	18	18	12	66
02:00 - 03:00	15	18	15	15	63
03:00 - 04:00	22	21	24	28	95
04:00 - 05:00	16	35	46	48	145
05:00 - 06:00	52	69	111	109	341
06:00 - 07:00	127	168	203	202	700
07:00 - 08:00	192	200	255	244	891
08:00 - 09:00	191	238	201	165	795
09:00 - 10:00	184	205	169	189	747
10:00 - 11:00	173	184	190	163	710
11:00 - 12:00	157	193	183	165	698
12:00 - 13:00	190	200	190	236	816
13:00 - 14:00	200	187	202	177	766
14:00 - 15:00	202	204	244	210	860
15:00 - 16:00	224	249	232	277	982
16:00 - 17:00	312	331	317	310	1270
17:00 - 18:00	317	275	257	229	1078
18:00 - 19:00	197	191	168	173	729
19:00 - 20:00	147	147	142	122	558
20:00 - 21:00	129	132	120	113	494
21:00 - 22:00	94	107	89	80	370
22:00 - 23:00	60	73	57	58	248
23:00 - 24:00	46	40	46	43	175
TOTAL					13695

Total		13,695
AADT		11,586
AM Peak	07:30-08:30	
	928	
PM Peak	16:15-17:15	
	1,275	

Location Info	
Location ID	27412
Type	I-SECTION
Functional Class	1
Located On	RAMP FROM IR70 EB TO IR675 SB
	RAMP FROM IR70 EB TO IR675 SB, N OF GRE CO LINE
Direction	RAMP
Community	-
MPO_ID	
HPMS ID	
Agency	Ohio Department of Transportation

Count Data Info	
Start Date	9/21/2021
End Date	9/22/2021
Start Time	12:00 AM
End Time	12:00 AM
Direction	
Notes	
Count Source	G43604
File Name	27412.BIN
Weather	
Study	
Owner	eggemanengineering
QC Status	Accepted

Interval: 15 mins					
Time	15 Min				Hourly Count
	0	15	30	45	
00:00 - 01:00	16	16	16	9	57
01:00 - 02:00	9	5	8	8	30
02:00 - 03:00	7	6	4	10	27
03:00 - 04:00	3	3	6	10	22
04:00 - 05:00	4	15	10	21	50
05:00 - 06:00	17	30	45	58	150
06:00 - 07:00	50	77	93	125	345
07:00 - 08:00	117	147	177	181	622
08:00 - 09:00	144	127	135	115	521
09:00 - 10:00	87	97	95	104	383
10:00 - 11:00	73	88	95	101	357
11:00 - 12:00	83	78	95	89	345
12:00 - 13:00	95	67	106	88	356
13:00 - 14:00	97	94	110	75	376
14:00 - 15:00	77	99	95	103	374
15:00 - 16:00	101	126	130	156	513
16:00 - 17:00	168	200	183	181	732
17:00 - 18:00	187	177	179	154	697
18:00 - 19:00	111	97	89	88	385
19:00 - 20:00	76	71	63	66	276
20:00 - 21:00	70	51	41	39	201
21:00 - 22:00	32	28	28	30	118
22:00 - 23:00	24	23	25	23	95
23:00 - 24:00	16	23	14	22	75
TOTAL					7107

Total		7,107
AADT		7,164
AM Peak	07:15-08:15	
	649	
PM Peak	16:15-17:15	
	751	

Location Info	
Location ID	27512
Type	I-SECTION
Functional Class	1
Located On	RAMP FROM C335 SB TO IR70 EB
	RAMP FROM C335 SB TO IR70 EB, N OF GRE CO LINE
Direction	RAMP
Community	-
MPO_ID	
HPMS ID	
Agency	Ohio Department of Transportation

Count Data Info	
Start Date	7/8/2021
End Date	7/9/2021
Start Time	12:00 AM
End Time	12:00 AM
Direction	
Notes	
Count Source	XC35854
File Name	27512.BIN
Weather	
Study	
Owner	eggemanengineering
QC Status	Accepted

Interval: 15 mins					
Time	15 Min				Hourly Count
	0	15	30	45	
00:00 - 01:00	2	1	0	1	4
01:00 - 02:00	2	2	0	0	4
02:00 - 03:00	0	3	0	1	4
03:00 - 04:00	1	1	2	3	7
04:00 - 05:00	2	2	2	7	13
05:00 - 06:00	3	13	11	6	33
06:00 - 07:00	10	4	9	10	33
07:00 - 08:00	13	10	17	11	51
08:00 - 09:00	6	8	12	7	33
09:00 - 10:00	8	6	3	7	24
10:00 - 11:00	8	9	7	10	34
11:00 - 12:00	9	11	9	5	34
12:00 - 13:00	4	12	6	9	31
13:00 - 14:00	13	3	10	5	31
14:00 - 15:00	13	7	6	5	31
15:00 - 16:00	14	7	15	7	43
16:00 - 17:00	8	11	8	8	35
17:00 - 18:00	9	7	12	8	36
18:00 - 19:00	10	6	7	4	27
19:00 - 20:00	5	1	4	2	12
20:00 - 21:00	8	7	5	3	23
21:00 - 22:00	6	10	7	1	24
22:00 - 23:00	6	4	3	2	15
23:00 - 24:00	0	2	1	2	5
TOTAL					587

Total		587
AADT		497
AM Peak	07:00-08:00	
	51	
PM Peak	15:00-16:00	
	43	

Location Info	
Location ID	27112
Type	I-SECTION
Functional Class	1
Located On	RAMP FROM IR70 WB TO IR675 SB
	RAMP FROM IR70 WB TO IR675 SB, N OF GRE CO LINE
Direction	RAMP
Community	-
MPO_ID	
HPMS ID	
Agency	Ohio Department of Transportation

Count Data Info	
Start Date	7/8/2021
End Date	7/9/2021
Start Time	12:00 AM
End Time	12:00 AM
Direction	
Notes	
Count Source	
File Name	27112.BIN
Weather	
Study	
Owner	eggemanengineering
QC Status	Accepted

Interval: 15 mins					
Time	15 Min				Hourly Count
	0	15	30	45	
00:00 - 01:00	22	29	24	22	97
01:00 - 02:00	18	24	19	18	79
02:00 - 03:00	21	13	26	18	78
03:00 - 04:00	17	14	16	23	70
04:00 - 05:00	18	23	30	27	98
05:00 - 06:00	51	54	67	65	237
06:00 - 07:00	113	144	165	160	582
07:00 - 08:00	148	174	240	212	774
08:00 - 09:00	217	179	182	197	775
09:00 - 10:00	190	147	168	159	664
10:00 - 11:00	157	132	198	170	657
11:00 - 12:00	187	172	187	178	724
12:00 - 13:00	158	149	194	171	672
13:00 - 14:00	188	203	146	177	714
14:00 - 15:00	160	196	220	199	775
15:00 - 16:00	193	179	219	235	826
16:00 - 17:00	222	232	252	254	960
17:00 - 18:00	211	241	259	192	903
18:00 - 19:00	201	181	180	165	727
19:00 - 20:00	142	146	108	115	511
20:00 - 21:00	109	104	82	87	382
21:00 - 22:00	100	99	75	75	349
22:00 - 23:00	64	59	66	70	259
23:00 - 24:00	49	48	25	38	160
TOTAL					12073

Total		12,073
AADT		10,214
AM Peak	07:30-08:30	
	848	
PM Peak	16:45-17:45	
	965	

Location Info	
Location ID	27212
Type	I-SECTION
Functional Class	1
Located On	RAMP FROM C335 SB TO IR70 WB
	RAMP FROM C335 SB TO IR70 WB, N OF GRE CO LINE
Direction	RAMP
Community	-
MPO_ID	
HPMS ID	
Agency	Ohio Department of Transportation

Count Data Info	
Start Date	5/18/2021
End Date	5/19/2021
Start Time	12:00 AM
End Time	12:00 AM
Direction	
Notes	
Count Source	G43612
File Name	27212.BIN
Weather	
Study	
Owner	eggemanengineering
QC Status	Accepted

Interval: 15 mins					
Time	15 Min				Hourly Count
	0	15	30	45	
00:00 - 01:00	2	0	2	0	4
01:00 - 02:00	0	0	0	0	0
02:00 - 03:00	0	0	0	0	0
03:00 - 04:00	2	0	1	0	3
04:00 - 05:00	0	1	0	2	3
05:00 - 06:00	1	4	2	2	9
06:00 - 07:00	5	11	9	6	31
07:00 - 08:00	6	9	5	8	28
08:00 - 09:00	13	10	4	4	31
09:00 - 10:00	7	5	4	9	25
10:00 - 11:00	3	9	4	2	18
11:00 - 12:00	5	5	3	6	19
12:00 - 13:00	6	4	7	4	21
13:00 - 14:00	8	6	5	11	30
14:00 - 15:00	7	5	8	6	26
15:00 - 16:00	2	7	5	6	20
16:00 - 17:00	6	6	5	3	20
17:00 - 18:00	6	6	7	7	26
18:00 - 19:00	8	5	4	5	22
19:00 - 20:00	8	2	5	8	23
20:00 - 21:00	2	3	1	2	8
21:00 - 22:00	3	2	1	3	9
22:00 - 23:00	3	1	2	0	6
23:00 - 24:00	0	1	1	0	2
TOTAL					384

Total		384
AADT		393
AM Peak	07:30-08:30	
	36	
PM Peak	13:45-14:45	
	31	

Location Info	
Location ID	112
Type	I-SECTION
Functional Class	1
Located On	IR-70
BETWEEN	CLARK-MONTGOMERY COUNTY LINE AND IR-675
Direction	2-WAY
Community	BETHEL
MPO_ID	
HPMS ID	70001440
Agency	Ohio Department of Transportation

Count Data Info	
Start Date	5/17/2022
End Date	5/18/2022
Start Time	12:00 AM
End Time	12:00 AM
Direction	
Notes	
Count Source	
File Name	
Weather	
Study	
Owner	eggemanengineering
QC Status	Accepted

Interval: 15 mins					
Time	15 Min				Hourly Count
	1st	2nd	3rd	4th	
0:00-1:00	117	114	107	84	422
1:00-2:00	92	74	83	72	321
2:00-3:00	93	93	84	93	363
3:00-4:00	92	99	75	56	322
4:00-5:00	95	105	141	169	510
5:00-6:00	180	201	300	337	1,018
6:00-7:00	330	455	492	458	1,735
7:00-8:00	480	520	632	591	2,223
8:00-9:00	537	548	518	538	2,141
9:00-10:00	457	436	465	489	1,847
10:00-11:00	427	470	445	496	1,838
11:00-12:00	467	516	443	402	1,828
12:00-13:00	540	504	504	529	2,077
13:00-14:00	521	520	522	519	2,082
14:00-15:00	522	533	611	566	2,232
15:00-16:00	559	627	666	669	2,521
16:00-17:00	631	679	707	747	2,764
17:00-18:00	689	731	605	560	2,585
18:00-19:00	505	486	418	465	1,874
19:00-20:00	396	393	344	377	1,510
20:00-21:00	359	356	368	325	1,408
21:00-22:00	320	283	271	299	1,173
22:00-23:00	236	212	201	163	812
23:00-24:00	158	154	141	148	601
TOTAL					36,207

Total		36,207
AADT		32,659
AM Peak	07:30-08:30	
	2,308	
PM Peak	16:30-17:30	
	2,874	

Location Info	
Location ID	112
Type	I-SECTION
Functional Class	1
Located On	IR-70
BETWEEN	CLARK-MONTGOMERY COUNTY LINE AND IR-675
Direction	2-WAY
Community	BETHEL
MPO_ID	
HPMS ID	70001440
Agency	Ohio Department of Transportation

Count Data Info	
Start Date	5/17/2022
End Date	5/18/2022
Start Time	12:00 AM
End Time	12:00 AM
Direction	
Notes	
Count Source	
File Name	
Weather	
Study	
Owner	eggemanengineering
QC Status	Accepted

Interval: 15 mins					
Time	15 Min				Hourly Count
	1st	2nd	3rd	4th	
00:00 - 01:00	219	229	220	174	842
01:00 - 02:00	206	148	181	166	701
02:00 - 03:00	170	182	154	177	683
03:00 - 04:00	160	183	165	137	645
04:00 - 05:00	176	225	296	304	1001
05:00 - 06:00	333	397	549	594	1873
06:00 - 07:00	602	819	947	889	3257
07:00 - 08:00	921	1049	1213	1160	4343
08:00 - 09:00	1044	1072	1028	1018	4162
09:00 - 10:00	922	897	954	941	3714
10:00 - 11:00	844	930	941	964	3679
11:00 - 12:00	954	1008	938	857	3757
12:00 - 13:00	1024	981	980	1015	4000
13:00 - 14:00	1060	1073	1062	1046	4241
14:00 - 15:00	1064	1136	1162	1207	4569
15:00 - 16:00	1221	1310	1331	1346	5208
16:00 - 17:00	1331	1389	1431	1473	5624
17:00 - 18:00	1371	1518	1308	1225	5422
18:00 - 19:00	1033	973	972	923	3901
19:00 - 20:00	829	806	711	760	3106
20:00 - 21:00	736	704	732	624	2796
21:00 - 22:00	602	557	527	559	2245
22:00 - 23:00	456	442	398	353	1649
23:00 - 24:00	313	338	307	302	1260
TOTAL					72678

Total		72,678
AADT		65,556
AM Peak	07:30-08:30	
	4,489	
PM Peak	16:30-17:30	
	5,793	

Location Info	
Location ID	112
Type	I-SECTION
Functional Class	1
Located On	IR-70
BETWEEN	CLARK-MONTGOMERY COUNTY LINE AND IR-675
Direction	2-WAY
Community	BETHEL
MPO_ID	
HPMS ID	70001440
Agency	Ohio Department of Transportation

Count Data Info	
Start Date	5/17/2022
End Date	5/18/2022
Start Time	12:00 AM
End Time	12:00 AM
Direction	
Notes	
Count Source	
File Name	
Weather	
Study	
Owner	eggemanengineering
QC Status	Accepted

Interval: 15 mins					
Time	15 Min				Hourly Count
	1st	2nd	3rd	4th	
0:00-1:00	102	115	113	90	420
1:00-2:00	114	74	98	94	380
2:00-3:00	77	89	70	84	320
3:00-4:00	68	84	90	81	323
4:00-5:00	81	120	155	135	491
5:00-6:00	153	196	249	257	855
6:00-7:00	272	364	455	431	1,522
7:00-8:00	441	529	581	569	2,120
8:00-9:00	507	524	510	480	2,021
9:00-10:00	465	461	489	452	1,867
10:00-11:00	417	460	496	468	1,841
11:00-12:00	487	492	495	455	1,929
12:00-13:00	484	477	476	486	1,923
13:00-14:00	539	553	540	527	2,159
14:00-15:00	542	603	551	641	2,337
15:00-16:00	662	683	665	677	2,687
16:00-17:00	700	710	724	726	2,860
17:00-18:00	682	787	703	665	2,837
18:00-19:00	528	487	554	458	2,027
19:00-20:00	433	413	367	383	1,596
20:00-21:00	377	348	364	299	1,388
21:00-22:00	282	274	256	260	1,072
22:00-23:00	220	230	197	190	837
23:00-24:00	155	184	166	154	659
TOTAL					36,471

Total		36,471
AADT		32,897
AM Peak	07:30-08:30	
	2,186	
PM Peak	16:30-17:30	
	2,919	

APPENDIX

G. ODOT TFMS Data

TFMS - Segment Forecast Report

Username	Email	Script Import Date	Script Version	Model Version
Jacob.Campbell	Jacob.Campbell@kimley-horn.com	4/14/2020 5:30:19 PM	2020.001	2023.1900

Forecast Summary

Project ID	Project Name	Opening Year	Design Year
	I-70 & SR-201	2025	2045

Project Description

Interstate I-70 and SR-201

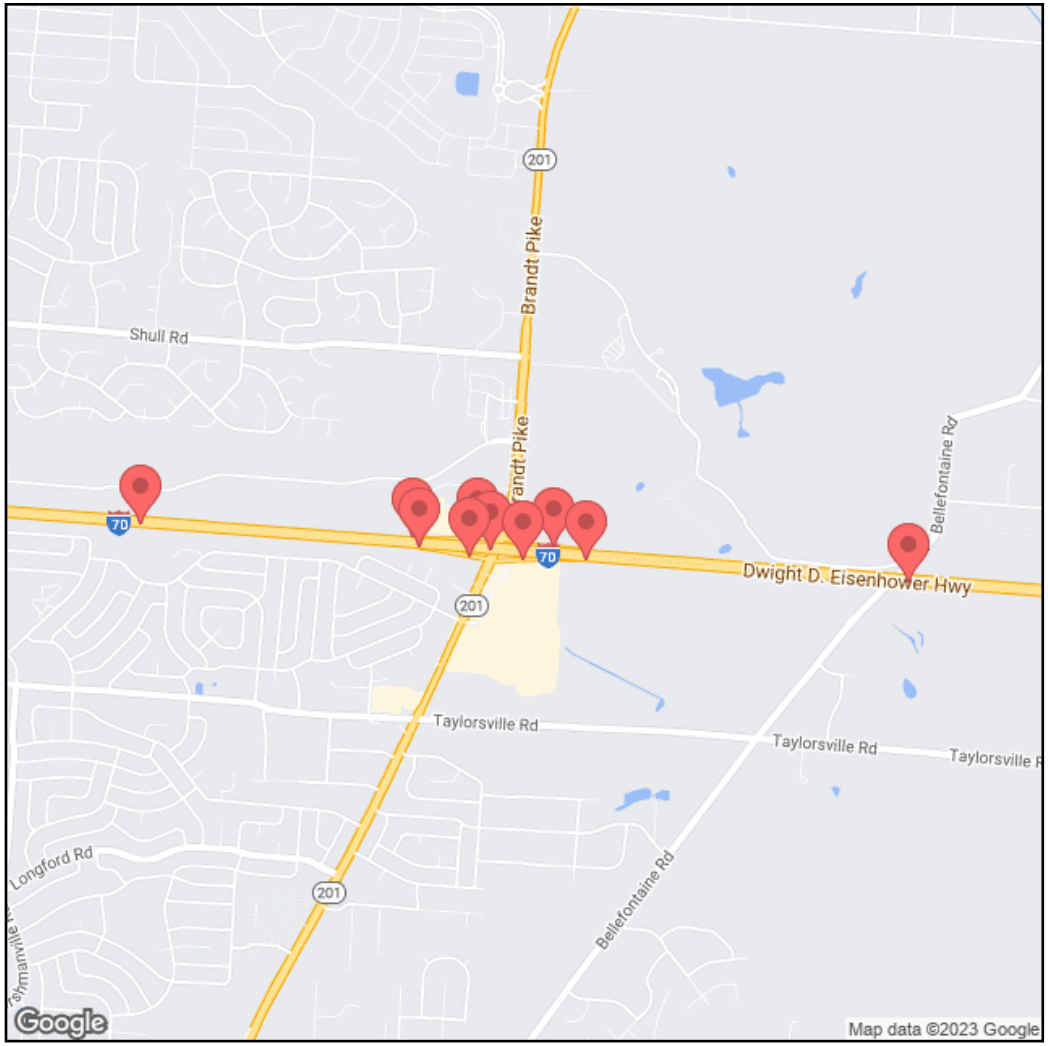
*Users of this data need to be aware that there are limitations to the forecasts generated by this product that make it suitable only for roadway design projects which are low risk.

Segment Information

Segment ID	LRS ID	BMP	EMP	Length	Latitude	Longitude
1854480	SMOTIR00070**C	18.995	20.964	1.969	-84.1191981064642	39.8687046518515
1854481	SMOTIR00070**C	20.964	20.965	0.001	-84.1007163580759	39.8676370596098
1854482	SMOTIR00070**C	20.965	23.324	2.359	-84.0785785628128	39.8663495549813
1854628	SMOTRA57032**C	0.000	0.299	0.299	-84.0973549972483	39.8677902240335
1854630	SMOTRA57033**C	0.000	0.130	0.130	-84.1013369624528	39.8681734139417
1854631	SMOTRA57033**C	0.130	0.370	0.240	-84.1048122795063	39.8681558191356
1854632	SMOTRA57034**C	0.000	0.179	0.179	-84.0989983356713	39.8672693051775
1854633	SMOTRA57034**C	0.179	0.358	0.179	-84.0956337668691	39.867270287127
1854634	SMOTRA57037**C	0.000	0.169	0.169	-84.1044455173946	39.8677785602745
1854635	SMOTRA57037**C	0.169	0.288	0.119	-84.1017794606526	39.8674215464723

Forecast Information

Segment ID	2025 AADT	2045 AADT	DHV-30	K%	D%	T24%	TD%
1854480	70,500	94,000	11,000	11.5	50.3	25	15
1854481	70,000	90,000	10,500	11.5	50.3	21	13
1854482	67,000	73,500	8,200	11.2	52.0	21	13
1854628	4,900	5,500	950	17.6	100.0	7	4
1854630	5,800	7,800	850	10.8	100.0	1	2
1854631	5,900	9,200	1,000	10.8	56.0	1	1
1854632	5,200	7,100	1,100	15.3	100.0	4	5
1854633	5,400	8,200	1,300	15.3	56.0	3	3
1854634	5,600	8,600	1,100	12.5	56.0	1	1
1854635	5,400	7,000	900	12.5	50.6	2	1



Definitions:

- AADT – Annual Average Daily Traffic
- DHV30 – Design Hour Volume for 30th highest hour of the year
- DHV30 – K * AADT
- K % – Design Hour Factor
- D % – Peak Direction Factor
- T24 % – Percent Daily Trucks
- TD % – Percent Design Hour Trucks

Forecast Segment ID	Route	BMP	EMP
1854480	SMOTIR00070**C	18.995	20.964

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 11.5	22	75,000	Average	1.600	1.600
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
100,000	◆ 50.3	13	25,000	Model	2.500	2.500

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	95,354	22,571	117,925

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
54645	104477	11005	32654	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	2.12	1.49	0	0	85,771	21,241	83,230	20,735
2	2.95	1.94	6	2	96,723	23,222	95,354	22,571
3	1.95	0.98	0	0	82,876	18,864	80,677	18,639
4	2.94	0.49	6	3	96,437	16,861	95,091	16,636
5	1.41	1.84	0	0	74,196	22,760	72,837	22,158
6	1.25	2.13	5	4	70,857	23,824	70,499	23,349

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	-13,464	80,973	-7,322	26,328	0.17	2.85
2	RAT	0.83	78,599	0.67	22,428	0.27	1.90
3	MRAT	1.18	78,955	1.53	23,783	0.20	2.23
4	RAF		79,964		25,055	0.19	2.54

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Average	Average	0.200	2.500

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total MaxVolume
54645	56171	22428	26328	77073	82499

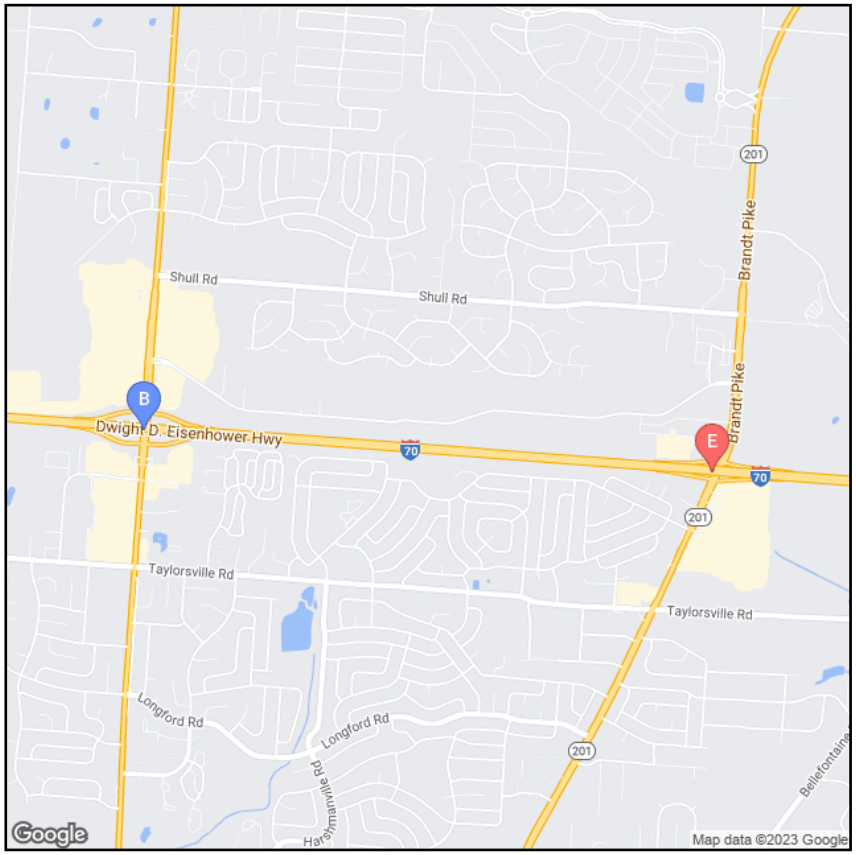
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Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2008	49,424	38,176	11,247
2010	54,389	40,492	13,897
2013	58,010	45,939	12,070
2016	64,209	49,690	14,518
2019	67,970	53,083	14,887
* 2022	66,818	52,184	14,634

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1854480	SMOTIR00070**C	18.995	20.964	1.969	70,500	94,000	11000	11.5	50.3	25	15

Forecast Segment ID	Route	BMP	EMP
1854481	SMOTIR00070**C	20.964	20.965

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 11.5	22	75,000	Average	1.500	1.500
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
95,000	◆ 50.3	13	20,000	Model	1.400	1.400

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	95,354	22,571	117,925

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
52581	104477	11005	32654	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	2.12	1.49	0	0	85,771	21,241	83,230	20,735
2	2.95	1.94	6	2	96,723	23,222	95,354	22,571
3	1.95	0.98	0	0	82,876	18,864	80,677	18,639
4	2.94	0.49	6	3	96,437	16,861	95,091	16,636
5	1.41	1.84	0	0	74,196	22,760	72,837	22,158
6	1.25	2.13	5	4	70,857	23,824	70,499	23,349

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	29,871	72,227	3,885	19,646	0.03	1.22
2	RAT	1.81	76,599	1.36	21,457	0.20	1.67
3	MRAT	1.15	76,041	1.47	20,881	0.20	1.52
4	RAF		74,134		20,264	0.12	1.37

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Average	Average	0.100	1.400

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total MaxVolume
52581	55160	19646	21457	72227	76617

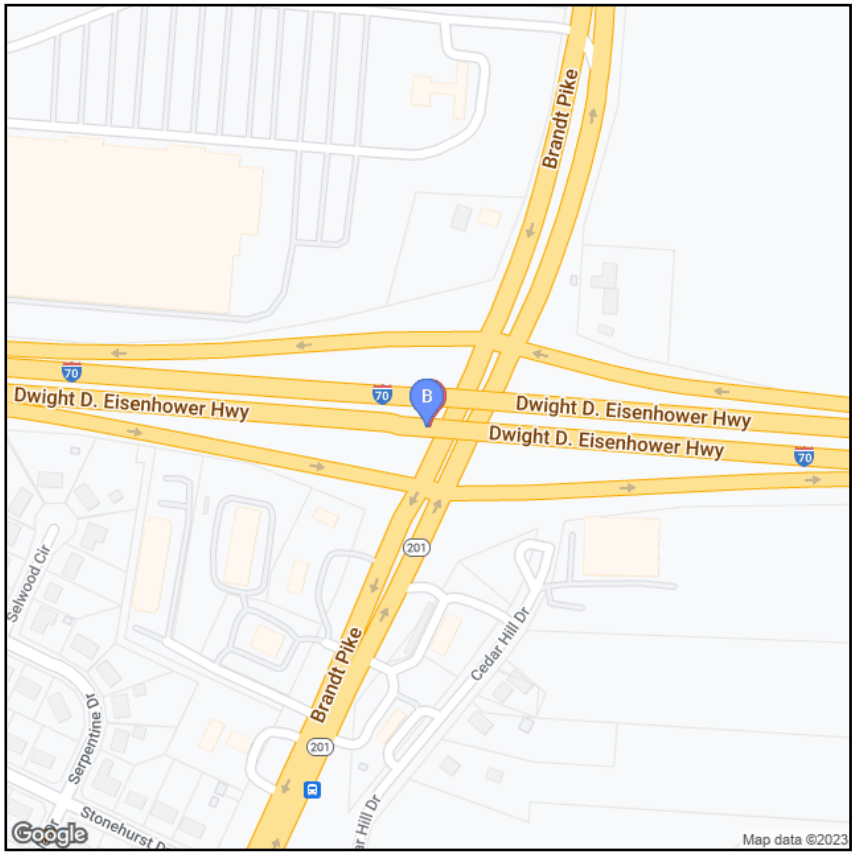
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Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2008	49,424	38,176	11,247
2010	54,389	40,492	13,897
2013	58,010	45,939	12,070
2016	64,209	49,690	14,518
2019	67,970	53,083	14,887
* 2022	66,818	52,184	14,634

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1854481	SMOTIR00070**C	20.964	20.965	0.001	70,000	90,000	10500	11.5	50.3	21	13

Forecast Segment ID	Route	BMP	EMP
1854482	SMOTIR00070**C	20.965	23.324

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 11.2	22	60,000	Average	0.600	0.600
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
75,000	◆ 52.0	13	15,000	Average	0.200	0.200

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	66,320	5,710	72,030

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
47615	103936	-2074	26238	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	1.23	-1.39	0	0	70,433	8,724	69,270	8,840
2	1.02	-2.16	5	2	65,994	5,378	66,320	5,710
3	1.72	0.15	0	0	78,590	15,883	76,384	15,084
4	1.50	0.13	5	4	74,018	15,313	73,233	14,968
5	1.65	-0.80	0	0	77,404	11,559	75,319	11,201
6	1.41	-0.37	5	4	72,569	13,132	71,935	12,962

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	-21,334	79,224	-7,537	26,238	0.10	2.91
2	RAT	0.76	75,998	0.66	22,201	0.15	1.91
3	MRAT	1.15	76,422	1.54	23,610	0.09	2.26
4	RAF		77,823		24,924	0.09	2.59

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Average	Average	0.100	2.600

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total MaxVolume
52812	53797	22201	26238	75013	80035

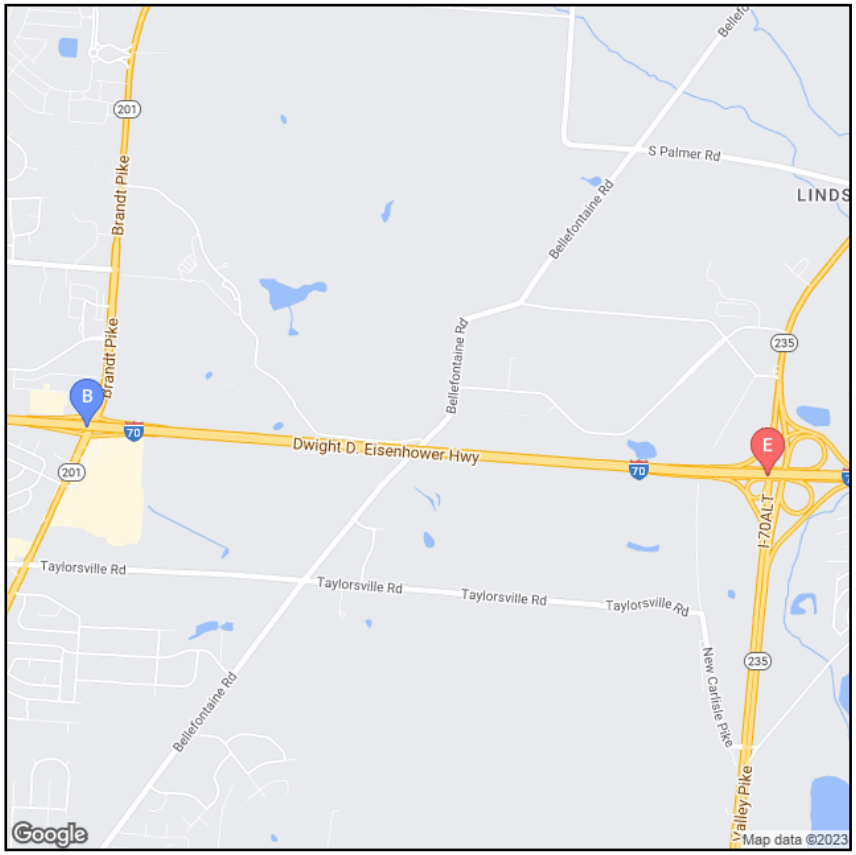
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Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2006	65,160	45,270	19,890
2009	56,270	42,040	14,230
2013	59,400	44,378	15,022
2016	66,566	49,732	16,834
2019	68,680	53,639	15,041
* 2022	66,018	51,561	14,457

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1854482	SMOTIR00070**C	20.965	23.324	2.359	67,000	73,500	8200	11.2	52.0	21	13

Forecast Segment ID	Route	BMP	EMP
1854628	SMOTRA57032**C	0.000	0.299

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 17.6	5	5,200	Average	0.500	0.500
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
5,650	100.0	2	450	Average	3.200	3.200

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	5,935	405	6,340

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
2768	10557	219	595	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	2.20	1.64	0	0	7,867	339	7,415	346
2	1.05	2.53	1	1	6,190	406	5,935	405
3	1.05	2.53	0	0	6,190	406	5,935	405
4	0.71	2.61	5	4	5,580	406	5,497	410
5	0.77	2.35	0	0	5,792	393	5,570	393
6	0.47	2.74	5	4	5,247	416	5,188	419

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	-2,778	5,097	-248	595	-0.06	5.39
2	RAT	0.63	4,997	0.49	412	0.00	2.64
3	MRAT	1.04	5,000	1.74	490	-0.06	3.81
4	RAF		5,049		543	-0.06	4.61

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Average	Model Ratio	0.000	3.800

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total MaxVolume
4502	4585	412	595	4914	5180

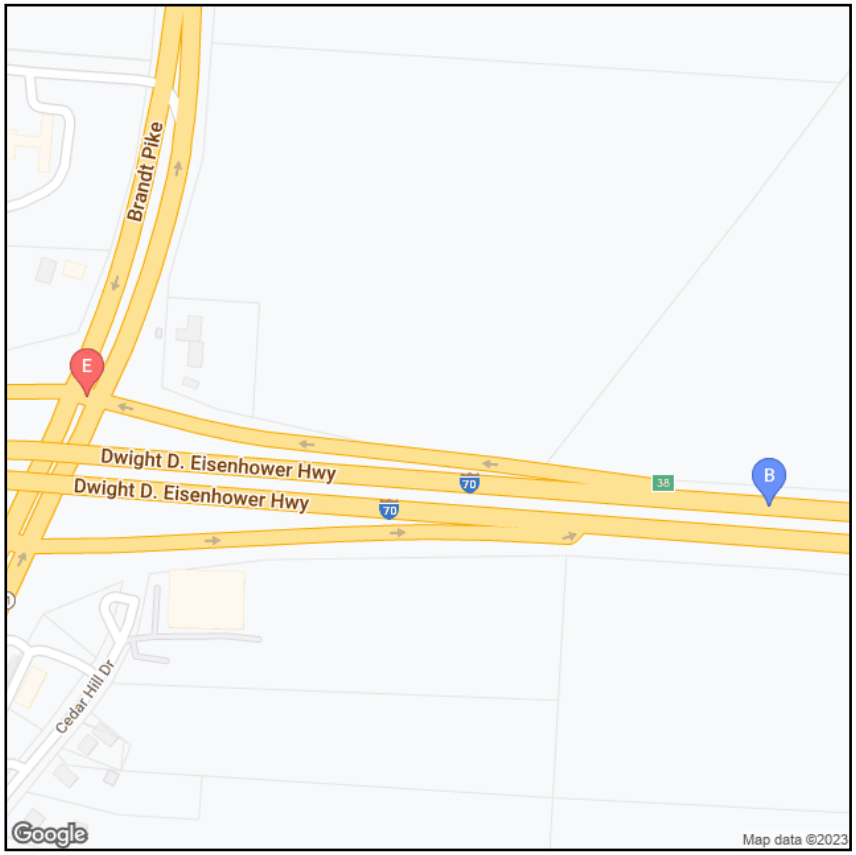
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Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2009	3,427	3,228	199
2012	4,424	4,250	174
2013	4,509	4,332	177
2016	4,915	4,692	222
2019	5,198	4,988	210
* 2022	4,822	4,585	237

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1854628	SMOTRA57032**C	0.000	0.299	0.299	4,900	5,500	950	17.6	100.0	7	4

Forecast Segment ID	Route	BMP	EMP
1854630	SMOTRA57033**C	0.000	0.130

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 10.8	2	8,200	Average	1.900	1.900
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
8,290	100.0	2	90	Average	● -3.800	0.000

● Warning: The growth rate was negative and was capped.

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	10,815	-254	10,561

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
5364	15767	-354	387	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	3.54	-13.15	0	0	10,672	-251	10,686	-252
2	3.63	-13.22	4	4	10,938	-256	10,815	-254
3	3.84	-13.34	0	0	11,182	-257	11,136	-257
4	3.77	-14.63	4	2	11,185	-294	11,037	-291
5	4.22	-14.63	0	0	11,799	-294	11,703	-291
6	3.85	-14.29	4	5	11,304	-281	11,149	-282

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	1,568	5,751	-377	387	0.00	11.13
2	RAT	1.40	5,868	0.20	152	0.23	2.20
3	MRAT	1.07	5,860	1.62	242	0.17	5.62
4	RAF		5,806		315	0.08	8.40

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Average	Model Ratio	0.100	5.600

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total MaxVolume
5364	5716	152	387	5516	6103

Process Flag: Adjusted model to counts with process per ODOT 255 spreadsheet

Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2009	3,287	3,033	254
2012	3,728	3,518	210
2013	3,800	3,586	214
2016	3,868	3,688	179
2019	5,261	5,135	126
* 2022	5,461	5,367	94

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1854630	SMOTRA57033**C	0.000	0.130	0.130	5,800	7,800	850	10.8	100.0	1	2

Forecast Segment ID	Route	BMP	EMP
1854631	SMOTRA57033**C	0.130	0.370

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 10.8	2	9,900	Count	▲ 3.600	3.000
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
9,990	56.0	2	90	Count	● -13.200	0.000

● Warning: The growth rate was negative and was capped.

▲ Warning: The car growth rate was exceeded the maximum and was capped at 3.600%

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	10,815	-254	10,561

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
0	15767	-354	0	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	3.54	-13.15	0	0	10,672	-251	10,686	-252
2	3.63	-13.22	4	4	10,938	-256	10,815	-254
3	3.84	-13.34	0	0	11,182	-257	11,136	-257
4	3.77	-14.63	4	2	11,185	-294	11,037	-291
5	4.22	-14.63	0	0	11,799	-294	11,703	-291
6	3.85	-14.29	4	5	11,304	-281	11,149	-282

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
		-999999.000	-999999.000

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total MaxVolume
0	0	0	0	0	0

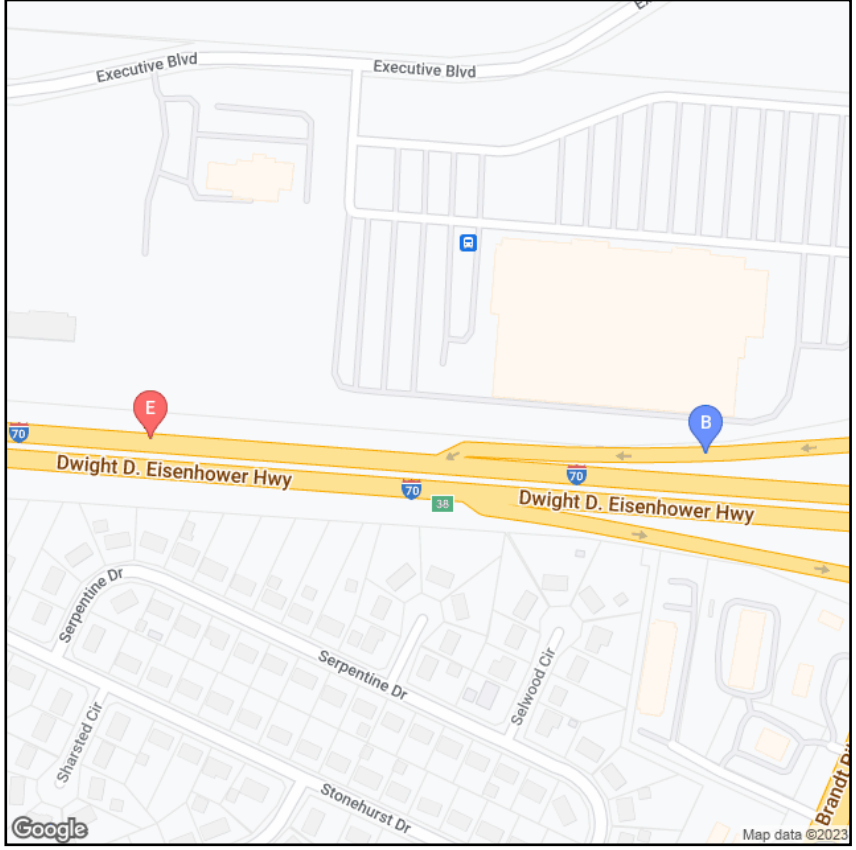
Process Flag: No model vloumes were joined to TSR segment

Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2009	3,287	3,033	254
2012	3,728	3,518	210
2013	3,800	3,586	214
2016	3,868	3,688	179
2019	5,261	5,135	126
* 2022	5,461	5,367	94

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1854631	SMOTRA57033**C	0.130	0.370	0.240	5,900	9,200	1000	10.8	56.0	1	1

Forecast Segment ID	Route	BMP	EMP
1854632	SMOTRA57034**C	0.000	0.179

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 15.3	5	7,300	Average	1.900	1.900
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
7,590	100.0	6	290	Average	0.900	0.900

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	10,364	189	10,553

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
1222	11755	-304	488	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	2.26	-1.54	0	0	8,268	124	7,734	134
2	4.24	-0.71	6	5	11,071	202	10,364	189
3	1.71	-2.57	0	0	7,438	47	7,001	66
4	1.17	-1.68	5	5	6,444	129	6,286	125
5	1.27	-2.83	0	0	6,806	28	6,420	49
6	0.80	-2.03	5	5	5,919	104	5,800	102

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	-2,787	4,298	-279	488	-0.70	3.81
2	RAT	0.64	4,541	0.46	351	-0.41	1.74
3	MRAT	0.91	4,541	1.49	396	-0.45	2.42
4	RAF		4,419		442	-0.57	3.12

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Ratio	Model Ratio	-0.500	2.400

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total MaxVolume
3810	4190	351	488	4161	4678

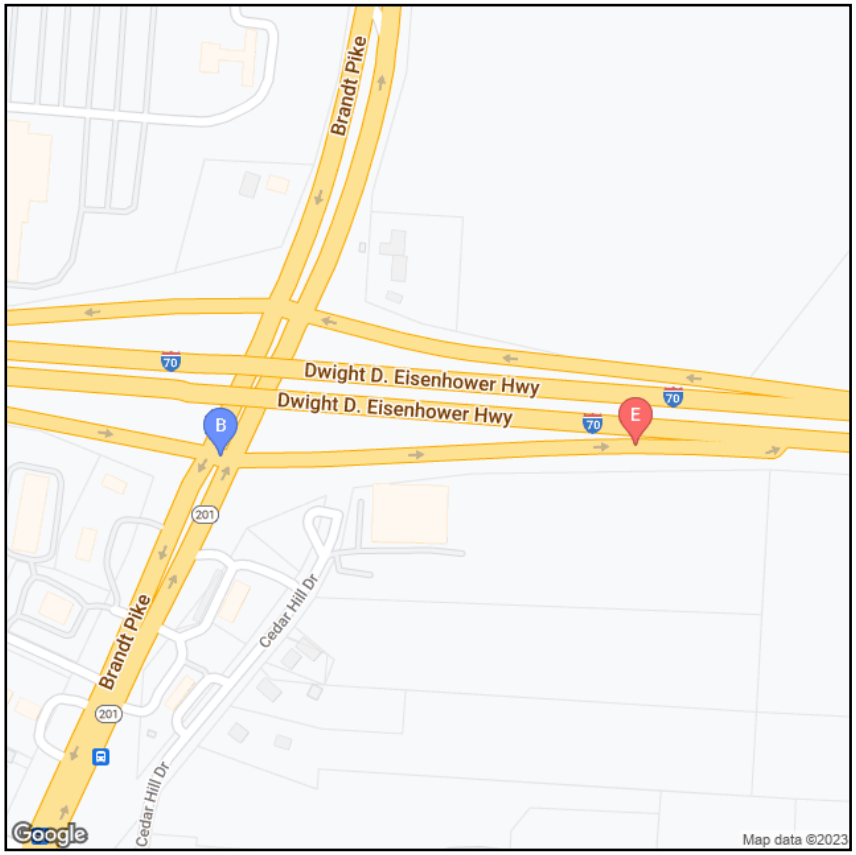
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Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2009	3,885	3,635	250
2012	4,467	4,195	272
2013	4,553	4,276	277
2016	5,260	4,987	272
2019	5,603	5,408	195
* 2022	4,973	4,737	236

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1854632	SMOTRA57034**C	0.000	0.179	0.179	5,200	7,100	1100	15.3	100.0	4	5

Forecast Segment ID	Route	BMP	EMP
1854633	SMOTRA57034**C	0.179	0.358

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 15.3	5	8,700	Count	▲ 4.200	3.000
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
8,940	56.0	6	240	Count	● -0.700	0.000

● Warning: The growth rate was negative and was capped.

▲ Warning: The car growth rate was exceeded the maximum and was capped at 4.200%

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	10,364	189	10,553

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
0	11755	-304	381	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	2.26	-1.54	0	0	8,268	124	7,734	134
2	4.24	-0.71	6	5	11,071	202	10,364	189
3	1.71	-2.57	0	0	7,438	47	7,001	66
4	1.17	-1.68	5	5	6,444	129	6,286	125
5	1.27	-2.83	0	0	6,806	28	6,420	49
6	0.80	-2.03	5	5	5,919	104	5,800	102

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
		-999999.000	-999999.000

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total MaxVolume
0	0	0	0	0	0

Process Flag: No model vloumes were joined to TSR segment

Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2009	3,885	3,635	250
2012	4,467	4,195	272
2013	4,553	4,276	277
2016	5,260	4,987	272
2019	5,603	5,408	195
* 2022	4,973	4,737	236

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1854633	SMOTRA57034**C	0.179	0.358	0.179	5,400	8,200	1300	15.3	56.0	3	3

Forecast Segment ID	Route	BMP	EMP
1854634	SMOTRA57037**C	0.000	0.169

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	12.5	2	9,300	Count	3.000	3.000
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
9,380	56.0	1	80	Count	-1.100	0.000

Warning: The growth rate was negative and was capped.

Warning: The car growth rate was exceeded the maximum and was capped at 3.000%

K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	9,297	57	9,354

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
0	11829	-501	540	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	1.87	-8.52	0	0	7,417	-102	7,698	-115
2	3.00	-1.12	1	1	9,251	95	9,297	57
3	3.00	-1.12	0	0	9,251	95	9,297	57
4	3.02	-3.23	4	5	9,352	23	9,317	8
5	3.10	-1.94	0	0	9,411	74	9,441	38
6	2.83	-4.22	4	5	9,066	-2	9,054	-15

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
		-999999.000	-999999.000

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total MaxVolume
0	0	0	0	0	0

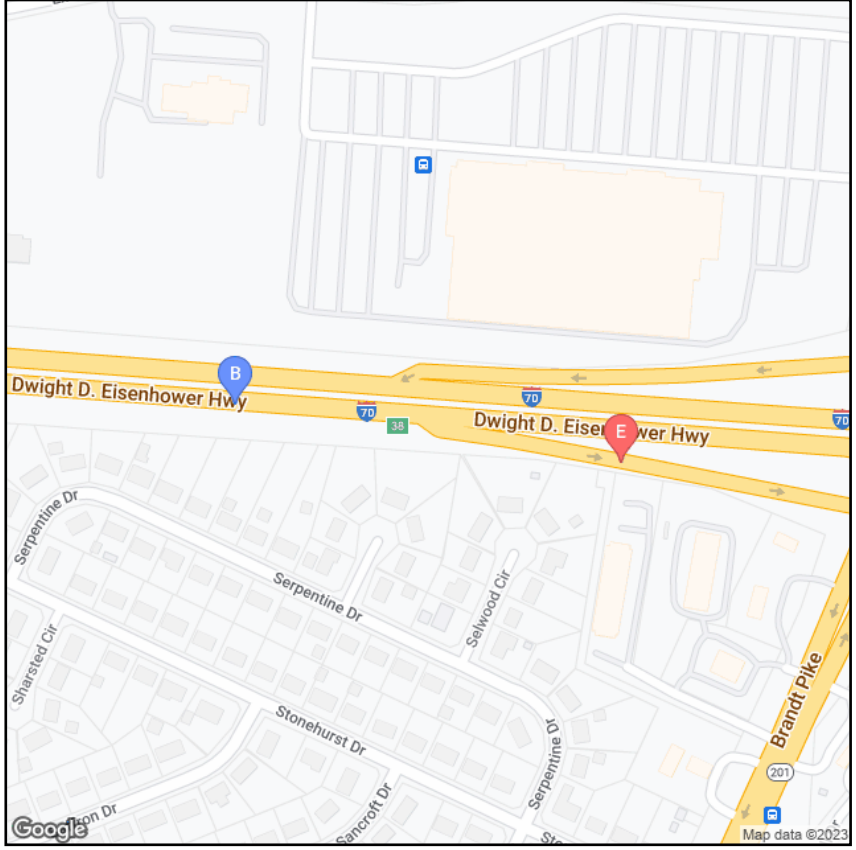
Process Flag: No model vloumes were joined to TSR segment

Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2006	4,132	3,859	274
2009	3,191	3,062	129
2013	3,873	3,771	102
2016	3,948	3,792	155
2019	4,816	4,652	164
* 2022	5,135	5,052	83

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1854634	SMOTRA57037**C	0.000	0.169	0.169	5,600	8,600	1100	12.5	56.0	1	1

Forecast Segment ID	Route	BMP	EMP
1854635	SMOTRA57037**C	0.169	0.288

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 12.5	2	7,300	Average	1.600	1.600
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
7,480	50.6	1	180	Model	■ 4.500	4.000

■ Warning: The truck growth rate was exceeded the maximum and was capped at 4.500%

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	9,297	57	9,354

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
4889	11829	-501	540	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	1.87	-8.52	0	0	7,417	-102	7,698	-115
2	3.00	-1.12	1	1	9,251	95	9,297	57
3	3.00	-1.12	0	0	9,251	95	9,297	57
4	3.02	-3.23	4	5	9,352	23	9,317	8
5	3.10	-1.94	0	0	9,411	74	9,441	38
6	2.83	-4.22	4	5	9,066	-2	9,054	-15

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	-1,898	5,474	-493	338	0.06	10.97
2	RAT	0.73	5,382	0.14	120	0.15	1.59
3	MRAT	1.05	5,387	1.44	187	0.10	4.48
4	RAF		5,430		262	0.08	7.70

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Average	Model Ratio	0.100	4.500

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total MaxVolume
5136	5262	120	338	5256	5600

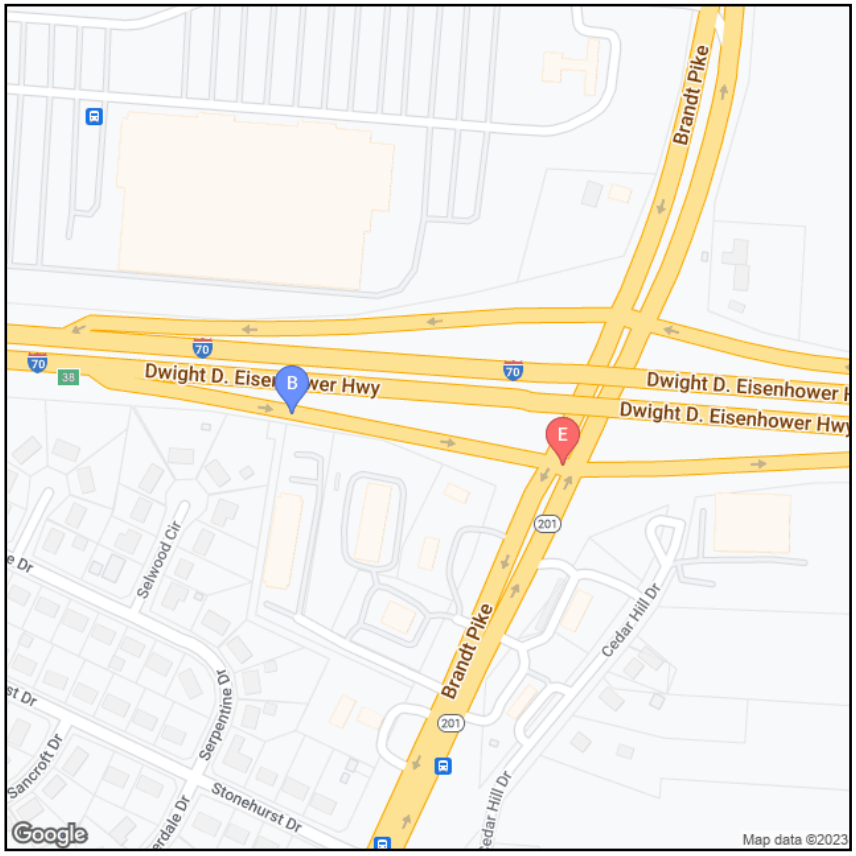
Process Flag: Adjusted model to counts with process per ODOT 255 spreadsheet

Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2006	4,132	3,859	274
2009	3,191	3,062	129
2013	3,873	3,771	102
2016	3,948	3,792	155
2019	4,816	4,652	164
* 2022	5,135	5,052	83

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1854635	SMOTRA57037**C	0.169	0.288	0.119	5,400	7,000	900	12.5	50.6	2	1

TFMS - Segment Forecast Report

Username	Email	Script Import Date	Script Version	Model Version
Jacob.Campbell	Jacob.Campbell@kimley-horn.com	4/14/2020 5:30:19 PM	2020.001	2023.1900

Forecast Summary

Project ID	Project Name	Opening Year	Design Year
	I-70 & I-675	2025	2045

Project Description

Interstate I-70 and Interstate I-675

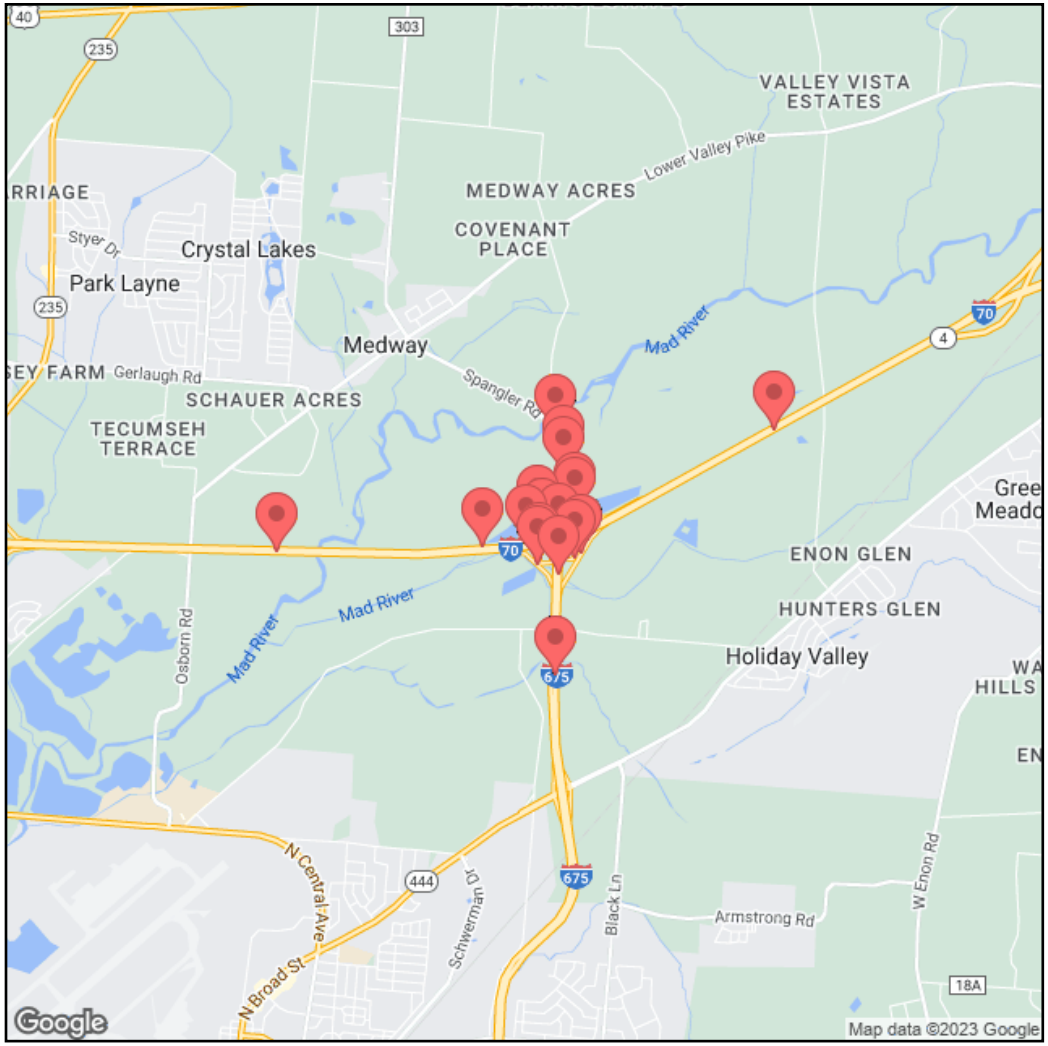
*Users of this data need to be aware that there are limitations to the forecasts generated by this product that make it suitable only for roadway design projects which are low risk.

Segment Information

Segment ID	LRS ID	BMP	EMP	Length	Latitude	Longitude
1789437	CCLACR00335**C	0.314	0.340	0.026	-83.9932943793563	39.8707327763652
1789438	CCLACR00335**C	0.340	0.446	0.106	-83.9932231127877	39.8716887546582
1789439	CCLACR00335**C	0.446	0.700	0.254	-83.9940257626959	39.8741765357792
1826574	SCLAIR00070**C	0.510	2.540	2.030	-84.0236131696005	39.8645285243305
1826580	SCLAIR00070**C	2.540	3.536	0.996	-83.9954508050412	39.865788010878
1826581	SCLAIR00070**C	2.750	3.490	0.740	-83.9937009593559	39.8653435265943
1826583	SCLAIR00070**C	3.536	5.432	1.896	-83.9709911430184	39.8744738202229
1826634	SCLAIR00675**C	0.162	0.898	0.736	-83.9940342183033	39.8545422252537
1826636	SCLAIR00675**C	0.898	1.597	0.699	-83.9912640436508	39.8644403194884
1826637	SCLAIR00675*IC	0.000	0.391	0.391	-83.993686637238	39.8627094915933
1826638	SCLARA12000**C	0.000	0.479	0.479	-83.9959738191728	39.86685152812
1826639	SCLARA12001**C	0.000	0.424	0.424	-83.9919579132031	39.8677930181054
1826640	SCLARA12002**C	0.000	0.556	0.556	-83.9958857550524	39.8634572358276
1826641	SCLARA12004**C	0.000	0.317	0.317	-83.9920391018914	39.8674880648498
1826642	SCLARA12005**C	0.000	0.316	0.316	-83.9957659939828	39.8637333250946
1826643	SCLARA12006**C	0.000	0.331	0.331	-83.9920420801664	39.8640912045769
1826725	SCLARA12090**C	0.000	0.272	0.272	-83.9970855548969	39.8652122230052
1826726	SCLARA12090**C	0.272	0.498	0.226	-84.0017569999277	39.8649432890601

Forecast Information

Segment ID	2025 AADT	2045 AADT	DHV-30	K%	D%	T24%	TD%
1789437	6,000	6,000	800	13.0	100.0	0	0
1789438	6,000	6,000	800	13.0	54.6	0	0
1789439	8,100	8,100	800	10.0	55.3	0	0
1826574	65,500	77,000	8,900	11.6	52.2	35	18
1826580	65,000	75,000	8,700	11.6	52.2	29	15
1826581	66,500	84,500	9,800	11.6	52.2	30	16
1826583	79,500	90,000	11,000	12.5	55.0	34	18
1826634	42,500	44,000	5,500	12.5	51.0	10	9
1826636	12,500	13,000	1,600	12.6	56.0	13	8
1826637	23,000	23,000	3,000	13.0	59.4	11	6
1826638	400	450	50	10.6	100.0	6	20
1826639	650	650	90	13.4	100.0	7	6
1826640	6,700	7,000	950	13.9	100.0	5	3
1826641	6,700	7,100	850	11.9	100.0	5	3
1826642	550	550	70	12.2	100.0	4	13
1826643	300	300	40	14.3	100.0	5	0
1826725	6,800	7,900	950	11.9	56.0	4	2
1826726	400	450	50	10.6	56.0	3	11



Definitions:

- AADT – Annual Average Daily Traffic
- DHV30 – Design Hour Volume for 30th highest hour of the year
- DHV30 – K * AADT
- K % – Design Hour Factor
- D % – Peak Direction Factor
- T24 % – Percent Daily Trucks
- TD % – Percent Design Hour Trucks

Forecast Segment ID	Route	BMP	EMP
1789437	CCLACR00335**C	0.314	0.340

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	13.0	0	6,000	Average	-2.400	0.000
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
6,000	100.0	0	0	Model	-999999.000	0.000

Warning: The growth rate was negative and was capped.

Warning: FORECAST TRUCKS ZERO BECAUSE NO TRUCK COUNTS ON SEGMENT

Regression

Method Number	PA AADT	BC AADT	AADT
1	-1,281		-1,281

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
-31533	8817	0	149	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	-4.33	0.00	0	0	-937		-1,281	
2	-4.40	0.00	3	0	-1,523		-1,401	
3	-7.13	0.00	0	0	-6,183		-5,992	
4	-6.11	0.00	3	0	-4,658		-4,284	
5	-10.14	0.00	0	0	-11,635		-11,081	
6	-999999.00	0.00	0	0				

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	-2,407	5,158	-274	149	-0.60	0.00
2	RAT	0.71	5,405	0.00		-0.37	0.00
3	MRAT	0.90	5,405	1.55	53	-0.40	0.00
4	RAF		5,281		101	-0.50	0.00

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Ratio	Model Ratio	-0.400	0.000

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total MaxVolume
5009	5405	0	149	5009	5554

Process Flag: Adjusted model to counts with process per ODOT 255 spreadsheet

Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2009	8,866	8,866	
2013	9,148	9,148	
2016	9,687	9,687	
2019	6,192	6,192	
* 2022	6,022	6,022	

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1789437	CCLACR00335**C	0.314	0.340	0.026	6,000	6,000	800	13.0	100.0	0	0

Forecast Segment ID	Route	BMP	EMP
1789438	CCLACR00335**C	0.340	0.446

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	13.0	0	6,000	Average	-2.400	0.000
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
6,000	54.6	0	0	Model	-999999.000	0.000

Warning: The growth rate was negative and was capped.

Warning: FORECAST TRUCKS ZERO BECAUSE NO TRUCK COUNTS ON SEGMENT

Regression

Method Number	PA AADT	BC AADT	AADT
1	-1,281		-1,281

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
-31533	8817	0	315	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	-4.33	0.00	0	0	-937		-1,281	
2	-4.40	0.00	3	0	-1,523		-1,401	
3	-7.13	0.00	0	0	-6,183		-5,992	
4	-6.11	0.00	3	0	-4,658		-4,284	
5	-10.14	0.00	0	0	-11,635		-11,081	
6	-999999.00	0.00	0	0				

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	-10,146	4,683	-574	315	-0.98	0.00
2	RAT	0.37	5,523	0.00		-0.30	0.00
3	MRAT	0.92	5,523	1.55	112	-0.36	0.00
4	RAF		5,103		214	-0.67	0.00

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Ratio	Model Ratio	-0.400	0.000

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total MaxVolume
4368	5523	0	315	4368	5838

Process Flag: Adjusted model to counts with process per ODOT 255 spreadsheet

Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2009	8,866	8,866	
2013	9,148	9,148	
2016	9,687	9,687	
2019	6,192	6,192	
* 2022	6,022	6,022	

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1789438	CCLACR00335**C	0.340	0.446	0.106	6,000	6,000	800	13.0	54.6	0	0

Forecast Segment ID	Route	BMP	EMP
1789439	CCLACR00335**C	0.446	0.700

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	10.0	0	8,100	Average	-0.600	0.000
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
8,100	55.3	0	0	Model	-999999.000	0.000

Warning: The growth rate was negative and was capped.

Warning: FORECAST TRUCKS ZERO BECAUSE NO TRUCK COUNTS ON SEGMENT

Regression

Method Number	PA AADT	BC AADT	AADT
2	5,826		5,826

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
948	10209	0	49	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	-1.04	0.00	0	0	5,700		5,735	
2	-1.00	0.00	2	0	5,705		5,826	
3	-1.37	0.00	0	0	4,868		5,002	
4	-1.64	0.00	3	0	4,316		4,384	
5	-0.14	0.00	0	0	7,859		7,793	
6	-999999.00	0.00	0	0				

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	-4,238	7,459	-384	49	-0.31	0.00
2	RAT	0.66	7,682	0.00		-0.19	0.00
3	MRAT	0.95	7,682	1.13	5	-0.19	0.00
4	RAF		7,570		27	-0.25	0.00

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Ratio	Model Ratio	-0.200	0.000

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total MaxVolume
7410	7682	0	49	7410	7731

Process Flag: Adjusted model to counts with process per ODOT 255 spreadsheet

Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2002	9,690	9,690	
2013	9,270	9,270	
2016	8,174	8,174	
2019	8,337	8,337	
* 2022	8,107	8,107	

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1789439	CCLACR00335**C	0.446	0.700	0.254	8,100	8,100	800	10.0	55.3	0	0

Forecast Segment ID	Route	BMP	EMP
1826574	SCLAIR00070**C	0.510	2.540

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 11.6	28	51,000	Model	0.400	0.400
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
80,000	◆ 52.2	15	29,000	Model	2.200	2.200

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	61,834	27,271	89,105

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
29253	79341	14643	33637	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	1.30	0.91	0	0	64,867	21,999	62,821	22,256
2	1.22	1.92	4	1	62,881	27,722	61,834	27,271
3	0.82	1.92	0	0	57,858	27,722	56,679	27,271
4	0.88	1.94	4	4	57,834	27,719	57,344	27,378
5	0.50	1.79	0	0	53,283	26,988	52,473	26,596
6	0.78	1.90	4	4	56,549	27,507	56,131	27,177

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	-13,101	80,937	-4,605	29,360	0.43	2.34
2	RAT	0.83	78,015	0.79	26,963	0.39	1.86
3	MRAT	1.22	78,548	1.52	27,783	0.37	2.02
4	RAF		79,743		28,571	0.40	2.18

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Average	Average	0.400	2.200

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total MaxVolume
50765	51577	26963	29360	77728	80937

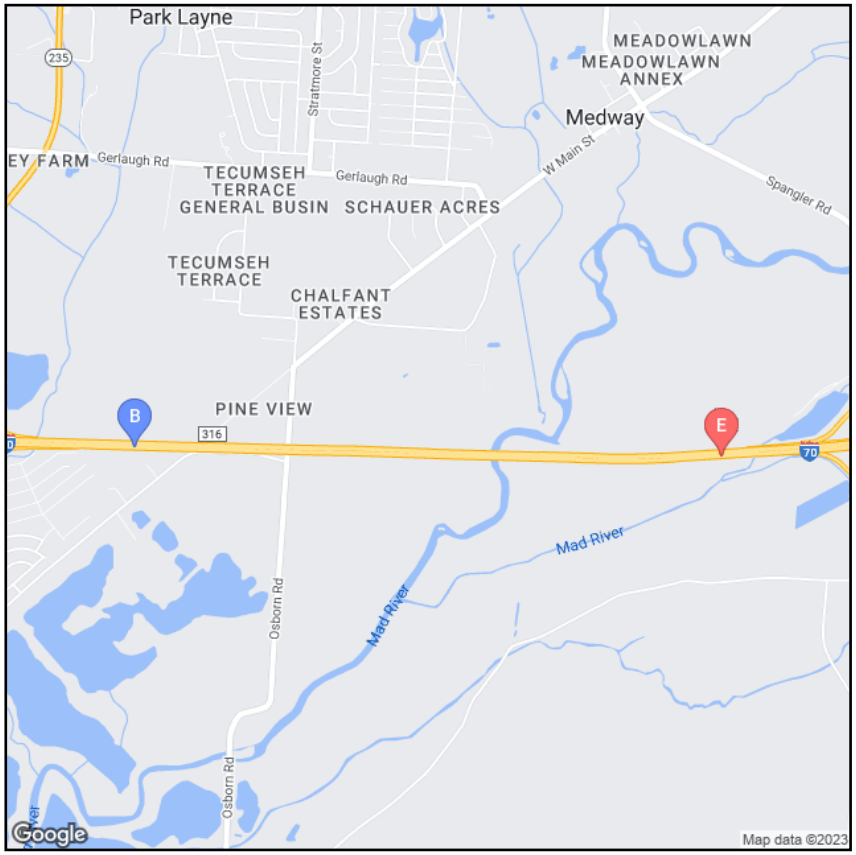
Process Flag: Adjusted model to counts with process per ODOT 255 spreadsheet

Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2008	54,600	37,910	16,690
2012	56,790	42,210	14,580
2013	57,887	43,025	14,862
2016	64,894	48,233	16,661
2019	63,565	46,020	17,545
* 2022	63,788	46,055	17,733

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1826574	SCLAIR00070**C	0.510	2.540	2.030	65,500	77,000	8900	11.6	52.2	35	18

Forecast Segment ID	Route	BMP	EMP
1826580	SCLAIR00070**C	2.540	3.536

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 11.6	28	54,000	Average	0.700	0.700
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
77,000	◆ 52.2	15	23,000	Model	1.000	1.000

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	61,834	27,271	89,105

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
29253	79341	14643	33637	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	1.30	0.91	0	0	64,867	21,999	62,821	22,256
2	1.22	1.92	4	1	62,881	27,722	61,834	27,271
3	0.82	1.92	0	0	57,858	27,722	56,679	27,271
4	0.88	1.94	4	4	57,834	27,719	57,344	27,378
5	0.50	1.79	0	0	53,283	26,988	52,473	26,596
6	0.78	1.90	4	4	56,549	27,507	56,131	27,177

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	33,150	69,851	9,757	22,814	0.08	1.02
2	RAT	2.08	76,411	2.22	29,030	0.10	2.28
3	MRAT	1.20	75,327	1.64	26,611	0.21	1.79
4	RAF		72,589		24,713	0.14	1.41

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Difference	Difference	0.100	1.000

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total MaxVolume
47037	48716	22814	29030	69851	77746

Process Flag: Adjusted model to counts with process per ODOT 255 spreadsheet

Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2008	54,600	37,910	16,690
2012	56,790	42,210	14,580
2013	57,887	43,025	14,862
2016	64,894	48,233	16,661
2019	63,565	46,020	17,545
* 2022	63,788	46,055	17,733

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1826580	SCLAIR00070**C	2.540	3.536	0.996	65,000	75,000	8700	11.6	52.2	29	15

Forecast Segment ID	Route	BMP	EMP
1826581	SCLAIR00070**C	2.750	3.490

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 11.6	28	62,000	Count	1.200	1.200
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
89,000	◆ 52.2	15	27,000	Count	1.900	1.900

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	61,834	27,271	89,105

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
0	79341	0	33637	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	1.30	0.91	0	0	64,867	21,999	62,821	22,256
2	1.22	1.92	4	1	62,881	27,722	61,834	27,271
3	0.82	1.92	0	0	57,858	27,722	56,679	27,271
4	0.88	1.94	4	4	57,834	27,719	57,344	27,378
5	0.50	1.79	0	0	53,283	26,988	52,473	26,596
6	0.78	1.90	4	4	56,549	27,507	56,131	27,177

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
		-999999.000	-999999.000

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total MaxVolume
0	0	0	0	0	0

Process Flag: No model vloumes were joined to TSR segment

Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2008	54,600	37,910	16,690
2012	56,790	42,210	14,580
2013	57,887	43,025	14,862
2016	64,894	48,233	16,661
2019	63,565	46,020	17,545
* 2022	63,788	46,055	17,733

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1826581	SCLAIR00070**C	2.750	3.490	0.740	66,500	84,500	9800	11.6	52.2	30	16

Forecast Segment ID	Route	BMP	EMP
1826583	SCLAIR00070**C	3.536	5.432

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 12.5	28	60,000	Model	0.200	0.200
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
93,000	◆ 55.0	15	33,000	Model	1.900	1.900

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	71,846	38,422	110,268

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
21223	100490	19122	50493	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	1.08	1.51	0	0	76,942	30,664	73,327	30,868
2	0.98	2.76	4	1	73,963	39,284	71,846	38,422
3	0.35	2.76	0	0	63,839	39,284	61,845	38,422
4	0.41	2.42	4	5	63,805	36,447	62,809	36,381
5	-0.07	2.74	0	0	56,550	39,141	55,143	38,290
6	0.26	2.44	4	5	61,193	36,551	60,343	36,477

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	-33,007	94,786	-526	33,083	0.34	1.88
2	RAT	0.70	89,796	0.98	32,813	0.04	1.83
3	MRAT	1.15	90,451	1.51	32,904	0.08	1.85
4	RAF		92,619		32,994	0.21	1.86

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Average	Average	0.200	1.900

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total MaxVolume
56983	61703	32813	33083	89796	94786

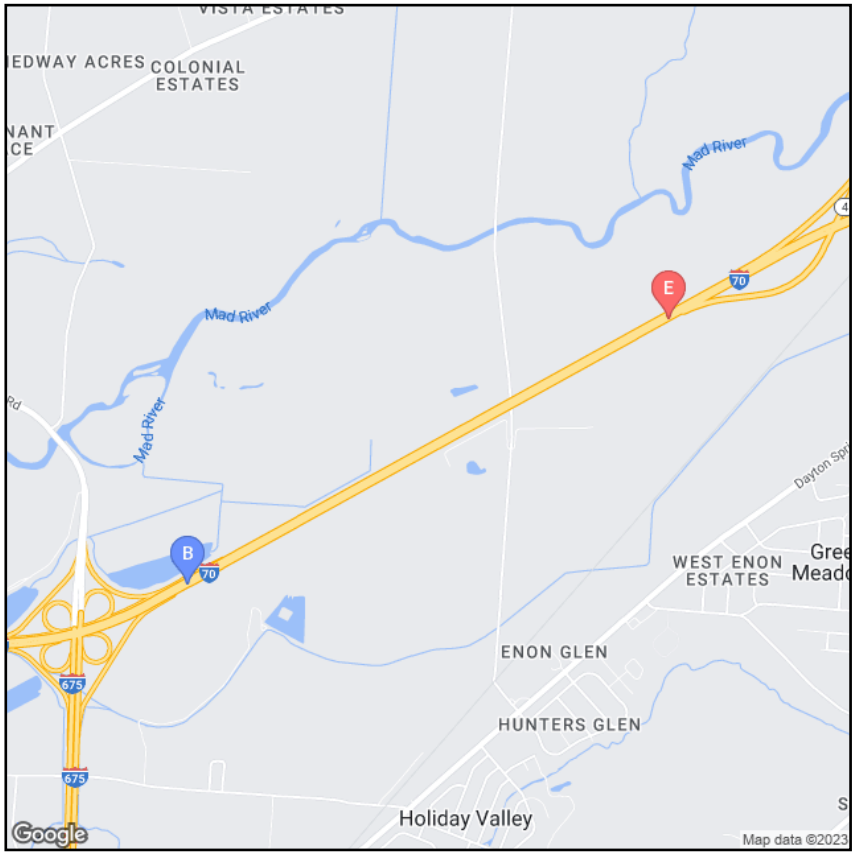
Process Flag: Adjusted model to counts with process per ODOT 255 spreadsheet

Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2008	67,160	48,050	19,110
2012	70,910	54,380	16,530
2013	72,304	55,449	16,855
2016	80,685	61,876	18,809
2019	80,126	58,011	22,115
* 2022	78,002	56,318	21,684

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1826583	SCLAIR00070**C	3.536	5.432	1.896	79,500	90,000	11000	12.5	55.0	34	18

Forecast Segment ID	Route	BMP	EMP
1826634	SCLAIR00675**C	0.162	0.898

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 12.5	11	40,000	Model	0.200	0.200
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
44,400	◆ 51.0	9	4,400	Average	● -0.400	0.000

● Warning: The growth rate was negative and was capped.

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	43,686	1,852	45,538

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
17180	69409	-6401	6175	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	0.85	-4.49	0	0	49,340	-1,611	46,888	-1,142
2	0.55	-2.08	5	1	44,728	1,805	43,686	1,852
3	0.75	-2.08	0	0	48,134	1,805	45,831	1,852
4	0.38	-1.98	5	4	42,662	1,801	41,895	1,981
5	0.41	-2.70	0	0	44,291	971	42,298	1,085
6	0.09	-2.13	5	4	39,416	1,609	38,885	1,800

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	-25,947	46,391	962	5,800	0.25	1.09
2	RAT	0.62	44,855	1.28	6,175	0.07	1.39
3	MRAT	1.06	44,941	1.39	6,070	0.09	1.31
4	RAF		45,666		5,935	0.17	1.20

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Average	Average	0.200	1.200

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total MaxVolume
38680	40591	5800	6175	44480	46766

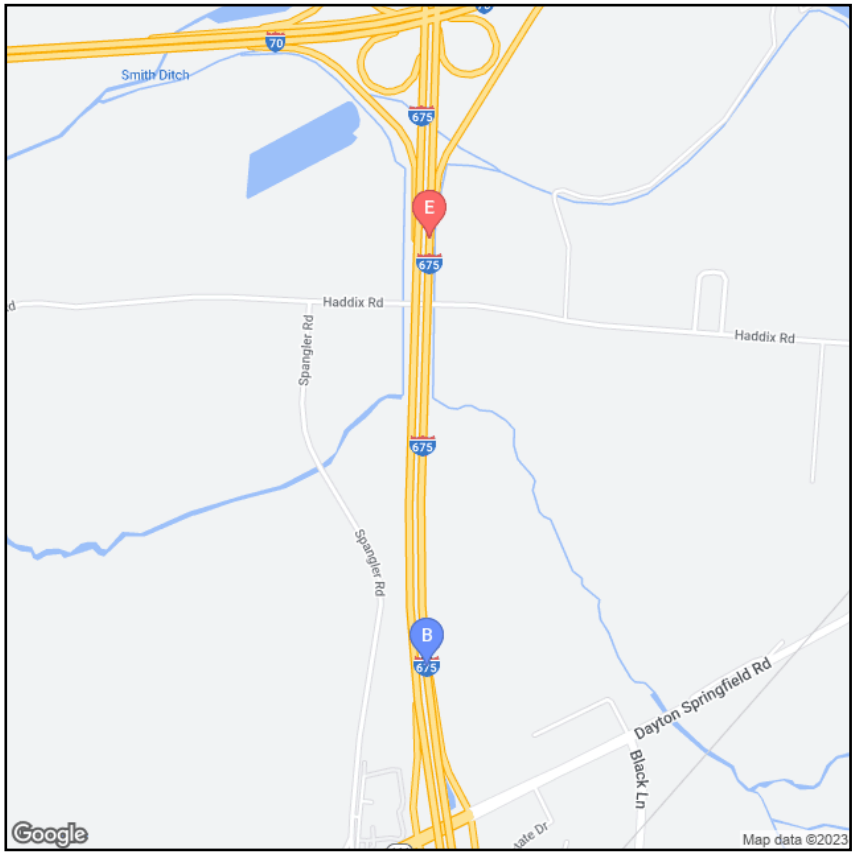
Process Flag: Adjusted model to counts with process per ODOT 255 spreadsheet

Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2008	43,200	35,550	7,650
2012	41,440	36,340	5,100
2013	42,255	37,055	5,200
2016	45,401	39,814	5,587
2019	46,235	41,983	4,252
* 2022	42,347	37,902	4,445

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1826634	SCLAIR00675**C	0.162	0.898	0.736	42,500	44,000	5500	12.5	51.0	10	9

Forecast Segment ID	Route	BMP	EMP
1826636	SCLAIR00675**C	0.898	1.597

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 12.6	13	11,000	Count	● -0.900	0.000
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
12,800	56.0	7	1,800	Count	0.400	0.400

● Warning: The growth rate was negative and was capped.

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	8,397	1,774	10,171

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
-643	23317	-1960	4466	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	0.84	0.70	0	0	15,135	2,033	13,668	1,897
2	-0.86	0.42	1	4	9,120	1,787	8,397	1,774
3	-0.86	0.25	0	0	9,120	1,807	8,397	1,699
4	-1.30	0.46	5	4	7,235	1,804	7,041	1,790
5	-1.28	-0.83	0	0	7,712	1,286	7,103	1,220
6	-1.66	0.33	5	4	6,036	1,746	5,930	1,735

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
		-999999.000	-999999.000

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total MaxVolume
0	0	0	0	0	0

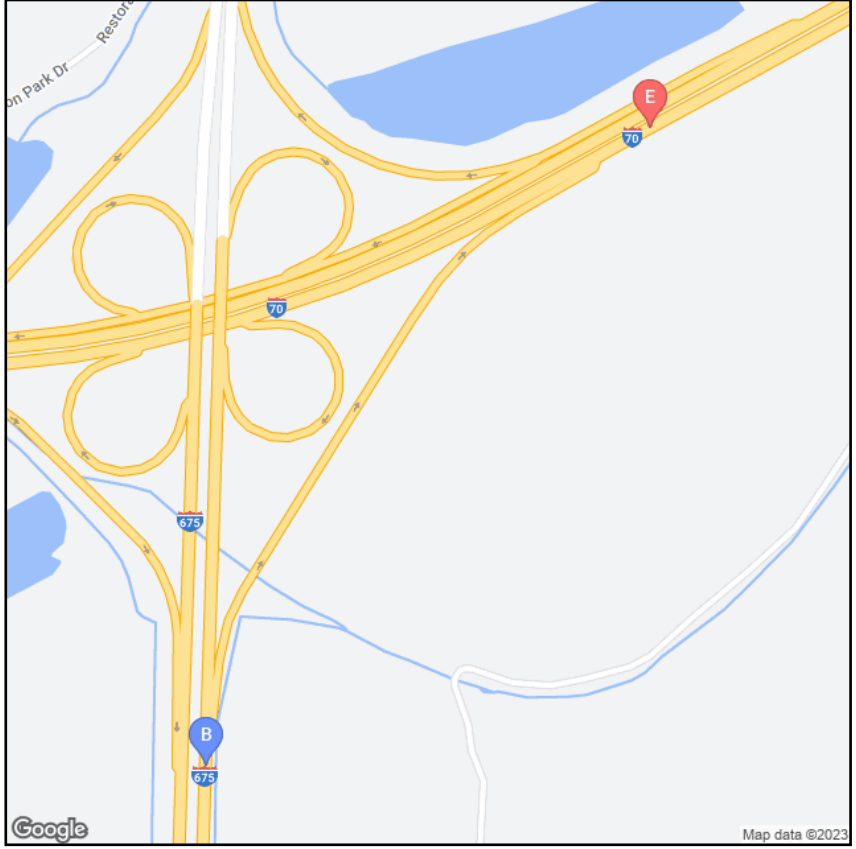
Process Flag: No model vloumes were joined to TSR segment

Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2008	11,180	9,670	1,510
2012	13,869	12,354	1,515
2013	14,146	12,601	1,545
2016	14,703	12,584	2,118
2019	14,571	12,972	1,599
* 2022	12,646	11,059	1,587

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1826636	SCLAIR00675**C	0.898	1.597	0.699	12,500	13,000	1600	12.6	56.0	13	8

Forecast Segment ID	Route	BMP	EMP
1826637	SCLAIR00675*IC	0.000	0.391

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	13.0	11	21,000	Average	-3.600	0.000
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
23,400	59.4	6	2,400	Average	-7.700	0.000

Warning: The growth rate was negative and was capped.

Regression

Method Number	PA AADT	BC AADT	AADT
1	-20,906	-8,800	-29,706

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
-149354	44039	-16916	4609	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	-7.19	-16.54	0	0	-21,795	-9,724	-20,906	-8,800
2	-5.24	-16.67	2	2	-11,574	-9,483	-9,632	-8,890
3	-12.30	-2.98	0	0	-54,852	286	-50,463	403
4	-14.73	-999999.00	3	0	-67,419		-64,538	
5	-0.24	-999999.00	0	0	19,873		19,280	
6	-999999.00	-999999.00	0	0				

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	-14,989	24,085	696	3,083	0.06	0.97
2	RAT	0.61	23,690	1.40	3,348	-0.05	1.36
3	MRAT	1.03	23,700	1.38	3,275	-0.04	1.25
4	RAF		23,893		3,179	0.01	1.11

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Average	Average	0.000	1.100

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total MaxVolume
20342	21002	3083	3348	23425	24350

Process Flag: Adjusted model to counts with process per ODOT 255 spreadsheet

Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2008	43,200	35,550	7,650
2013	46,601	46,601	
2016	23,809	20,952	2,857
2019	24,872	22,583	2,289
* 2022	23,081	20,657	2,424

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1826637	SCLAIR00675*IC	0.000	0.391	0.391	23,000	23,000	3000	13.0	59.4	11	6

Forecast Segment ID	Route	BMP	EMP
1826638	SCLARA12000**C	0.000	0.479

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 10.6	4	460	Model	1.100	1.100
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
490	100.0	13	30	Average	■ 4.500	4.000

■ Warning: The truck growth rate was exceeded the maximum and was capped at 4.500%

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	448	15	463

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
237	1450	-271	61	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	0.89	-26.90	0	0	436	-115	438	-98
2	0.99	0.00	3	1	444	14	448	15
3	0.27	0.00	0	0	367	14	378	15
4	0.46	0.00	5	4	392	15	396	15
5	0.33	1.43	0	0	373	20	383	21
6	0.50	0.00	5	4	396	15	400	15

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	319	512	-10	57	1.06	10.00
2	RAT	7.72	1,490	0.60	40	11.18	5.95
3	MRAT	4.07	752	2.68	51	3.56	8.57
4	RAF		632		54	2.31	9.29

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Difference	Average	1.100	9.300

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total MaxVolume
455	1450	40	57	495	1507

Process Flag: Adjusted model to counts with process per ODOT 255 spreadsheet

Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2008	375	287	88
2012	347	332	15
2013	354	339	15
2016	335	326	8
2019	340	325	15
* 2022	366	351	15

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1826638	SCLARA12000**C	0.000	0.479	0.479	400	450	50	10.6	100.0	6	20

Forecast Segment ID	Route	BMP	EMP
1826639	SCLARA12001**C	0.000	0.424

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 13.4	4	620	Average	● -0.600	0.000
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
670	100.0	3	50	Model	■ 11.200	4.000

● Warning: The growth rate was negative and was capped.

■ Warning: The truck growth rate was exceeded the maximum and was capped at 11.200%

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	569	-44	525

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
-2406	2469	-208	113	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	0.29	-20.13	0	0	773	-118	665	-102
2	-0.27	-10.71	4	1	581	-52	569	-44
3	-1.43	-10.71	0	0	434	-52	368	-44
4	-1.03	-20.78	4	6	432	-115	437	-106
5	-3.49	-9.74	0	0	49	-45	14	-38
6	-1.21	-8.12	4	5	399	-31	406	-28

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	-2,114	177	-34	113	-3.20	14.77
2	RAT	0.23	530	0.39	57	-0.82	5.68
3	MRAT	0.83	530	2.60	91	-1.02	11.20
4	RAF		354		102	-2.11	12.99

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Ratio	Model Ratio	-1.000	11.200

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total MaxVolume
64	473	57	113	121	586

Process Flag: Adjusted model to counts with process per ODOT 255 spreadsheet

Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2008	697	611	86
2012	706	666	40
2013	720	679	41
2016	1,096	1,073	22
2019	635	621	14
* 2022	637	615	22

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1826639	SCLARA12001**C	0.000	0.424	0.424	650	650	90	13.4	100.0	7	6

Forecast Segment ID	Route	BMP	EMP
1826640	SCLARA12002**C	0.000	0.556

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 13.9	5	6,800	Average	0.300	0.300
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
7,130	100.0	3	330	Average	● -0.500	0.000

● Warning: The growth rate was negative and was capped.

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	5,958	17	5,975

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
4437	13879	-1836	1062	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	1.59	-2.74	0	0	9,535	164	9,098	76
2	-0.19	-3.39	1	4	5,951	46	5,958	17
3	-0.19	-5.28	0	0	5,951	-101	5,958	-156
4	-0.21	-4.82	4	4	5,953	-102	5,926	-114
5	-0.24	-7.98	0	0	5,859	-370	5,873	-404
6	-0.37	-5.45	4	4	5,654	-163	5,643	-172

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	-336	8,206	-621	741	0.67	4.52
2	RAT	0.95	8,129	0.35	470	0.78	1.56
3	MRAT	1.23	8,143	1.44	553	0.74	2.47
4	RAF		8,175		647	0.70	3.49

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Average	Model Ratio	0.800	2.500

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total MaxVolume
7465	7659	470	741	7935	8400

Process Flag: Adjusted model to counts with process per ODOT 255 spreadsheet

Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2008	4,875	4,403	472
2012	6,864	6,381	483
2013	6,999	6,507	492
2016	6,889	6,197	691
2019	6,792	6,389	403
* 2022	6,620	6,293	327

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1826640	SCLARA12002**C	0.000	0.556	0.556	6,700	7,000	950	13.9	100.0	5	3

Forecast Segment ID	Route	BMP	EMP
1826641	SCLARA12004**C	0.000	0.317

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 11.9	5	6,900	Average	0.300	0.300
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
7,230	100.0	3	330	Average	● -2.400	0.000

● Warning: The growth rate was negative and was capped.

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	7,778	-322	7,456

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
4692	14992	-853	652	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	2.36	-3.60	0	0	10,908	82	10,542	-3
2	0.81	-7.09	1	1	7,753	-283	7,778	-322
3	0.81	-7.09	0	0	7,753	-283	7,778	-322
4	0.76	-7.00	4	4	7,756	-284	7,690	-314
5	0.95	-8.43	0	0	8,032	-416	8,034	-445
6	0.65	-7.97	4	4	7,559	-379	7,504	-403

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	251	6,558	-344	652	-0.25	3.55
2	RAT	1.04	6,554	0.49	485	-0.15	1.73
3	MRAT	0.98	6,554	1.48	540	-0.19	2.33
4	RAF		6,556		596	-0.22	2.94

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Average	Model Ratio	-0.200	2.300

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total MaxVolume
5906	6069	485	652	6391	6721

Process Flag: Adjusted model to counts with process per ODOT 255 spreadsheet

Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2008	4,279	3,797	482
2012	6,445	5,882	563
2013	6,572	5,998	574
2016	6,135	5,583	552
2019	6,822	6,356	466
* 2022	6,671	6,344	327

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1826641	SCLARA12004**C	0.000	0.317	0.317	6,700	7,100	850	11.9	100.0	5	3

Forecast Segment ID	Route	BMP	EMP
1826642	SCLARA12005**C	0.000	0.316

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 12.2	4	530	Average	● -1.700	0.000
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
550	100.0	13	20	Average	● -12.500	0.000

● Warning: The growth rate was negative and was capped.

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
1	354	-146	208

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
-2988	2086	-352	42	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	-1.20	-27.27	0	0	463	-164	354	-146
2	-1.88	-4.71	4	1	259	-6	252	-7
3	-4.17	-4.71	0	0	-42	-6	-89	-7
4	-3.69	-4.55	4	4	-45	-6	-18	-6
5	-6.64	-6.33	0	0	-444	-17	-458	-17
6	-3.93	-5.03	4	4	-82	-10	-53	-9

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	-1,067	-387	-20	38	-6.42	2.60
2	RAT	0.34	233	0.52	30	-2.21	1.30
3	MRAT	0.42	233	1.38	32	-2.22	1.62
4	RAF		-77		35	-4.32	2.11

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Ratio	Average	-2.200	2.100

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total MaxVolume
-425	203	30	38	-395	241

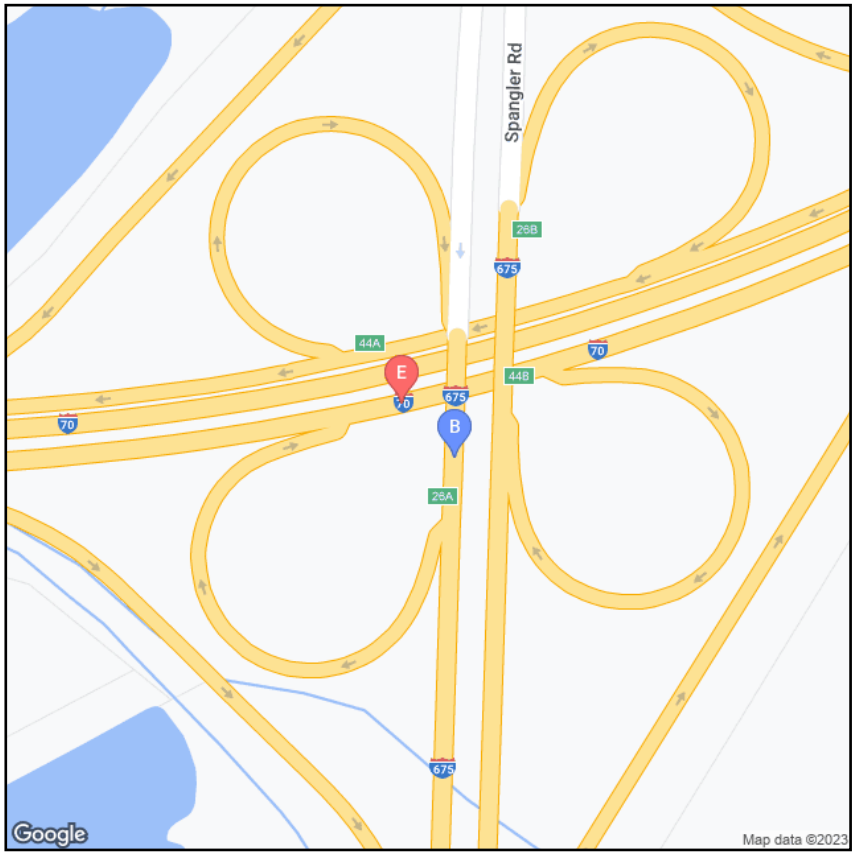
Process Flag: Adjusted model to counts with process per ODOT 255 spreadsheet

Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2008	729	601	128
2012	725	694	31
2013	739	707	32
2016	1,101	1,064	36
2019	547	523	24
* 2022	555	533	22

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1826642	SCLARA12005**C	0.000	0.316	0.316	550	550	70	12.2	100.0	4	13

Forecast Segment ID	Route	BMP	EMP
1826643	SCLARA12006**C	0.000	0.331

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 14.3	5	280	Model	● 0.000	0.000
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
300	100.0	0	20	Model	● -0.700	0.000

● Warning: The growth rate was negative and was capped.

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
4	208	1	209

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
-129	510	-239	59	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	-0.20	-25.71	0	0	271	-107	268	-93
2	0.31	-3.33	5	1	330	1	309	1
3	-1.50	-3.33	0	0	153	1	165	1
4	-0.96	-3.33	5	4	213	2	208	1
5	-1.80	-1.90	0	0	127	7	141	7
6	-1.31	-3.81	5	4	183		180	-1

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	257	294	-14	9	0.01	-1.43
2	RAT	7.18	266	0.52	12	-0.38	-0.71
3	MRAT	0.89	266	0.80	12	-0.38	-0.71
4	RAF		280		11	-0.19	-0.95

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Difference	Ratio	0.000	-0.700

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total MaxVolume
254	285	9	12	263	297

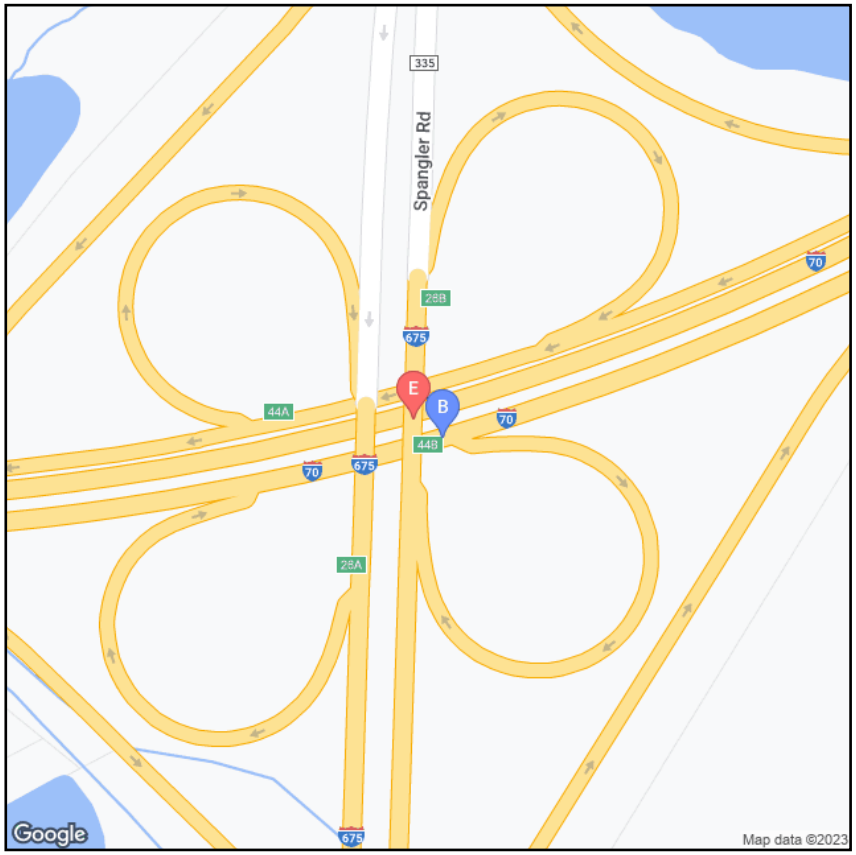
Process Flag: Adjusted model to counts with process per ODOT 255 spreadsheet

Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2008	348	264	84
2012	329	308	21
2013	335	314	21
2016	331	319	11
2019	276	256	20
* 2022	299	284	15

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1826643	SCLARA12006**C	0.000	0.331	0.331	300	300	40	14.3	100.0	5	0

Forecast Segment ID	Route	BMP	EMP
1826725	SCLARA12090**C	0.000	0.272

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 11.9	5	7,800	Count	0.800	0.800
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
8,130	56.0	3	330	Count	● -7.100	0.000

● Warning: The growth rate was negative and was capped.

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	7,778	-322	7,456

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
0	14992	-853	580	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	2.36	-3.60	0	0	10,908	82	10,542	-3
2	0.81	-7.09	1	1	7,753	-283	7,778	-322
3	0.81	-7.09	0	0	7,753	-283	7,778	-322
4	0.76	-7.00	4	4	7,756	-284	7,690	-314
5	0.95	-8.43	0	0	8,032	-416	8,034	-445
6	0.65	-7.97	4	4	7,559	-379	7,504	-403

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
		-999999.000	-999999.000

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total MaxVolume
0	0	0	0	0	0

Process Flag: No model vloumes were joined to TSR segment

Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2008	4,279	3,797	482
2012	6,445	5,882	563
2013	6,572	5,998	574
2016	6,135	5,583	552
2019	6,822	6,356	466
* 2022	6,671	6,344	327

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1826725	SCLARA12090**C	0.000	0.272	0.272	6,800	7,900	950	11.9	56.0	4	2

Forecast Segment ID	Route	BMP	EMP
1826726	SCLARA12090**C	0.272	0.498

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 10.6	4	450	Count	1.000	1.000
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
470	56.0	13	20	Count	0.000	0.000

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	448	15	463

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
0	542	-271	61	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	0.89	-26.90	0	0	436	-115	438	-98
2	0.99	0.00	3	1	444	14	448	15
3	0.27	0.00	0	0	367	14	378	15
4	0.46	0.00	5	4	392	15	396	15
5	0.33	1.43	0	0	373	20	383	21
6	0.50	0.00	5	4	396	15	400	15

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
		-999999.000	-999999.000

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total MaxVolume
0	0	0	0	0	0

Process Flag: No model vloumes were joined to TSR segment

Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2008	375	287	88
2012	347	332	15
2013	354	339	15
2016	335	326	8
2019	340	325	15
* 2022	366	351	15

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1826726	SCLARA12090**C	0.272	0.498	0.226	400	450	50	10.6	56.0	3	11

TFMS - Segment Forecast Report

Username	Email	Script Import Date	Script Version	Model Version
Jacob.Campbell	Jacob.Campbell@kimley-horn.com	4/14/2020 5:30:19 PM	2020.001	2023.1900

Forecast Summary

Project ID	Project Name	Opening Year	Design Year
	I-70 & SR-235	2025	2045

Project Description

Travel Center - Huber Heights

*Users of this data need to be aware that there are limitations to the forecasts generated by this product that make it suitable only for roadway design projects which are low risk.

Segment Information

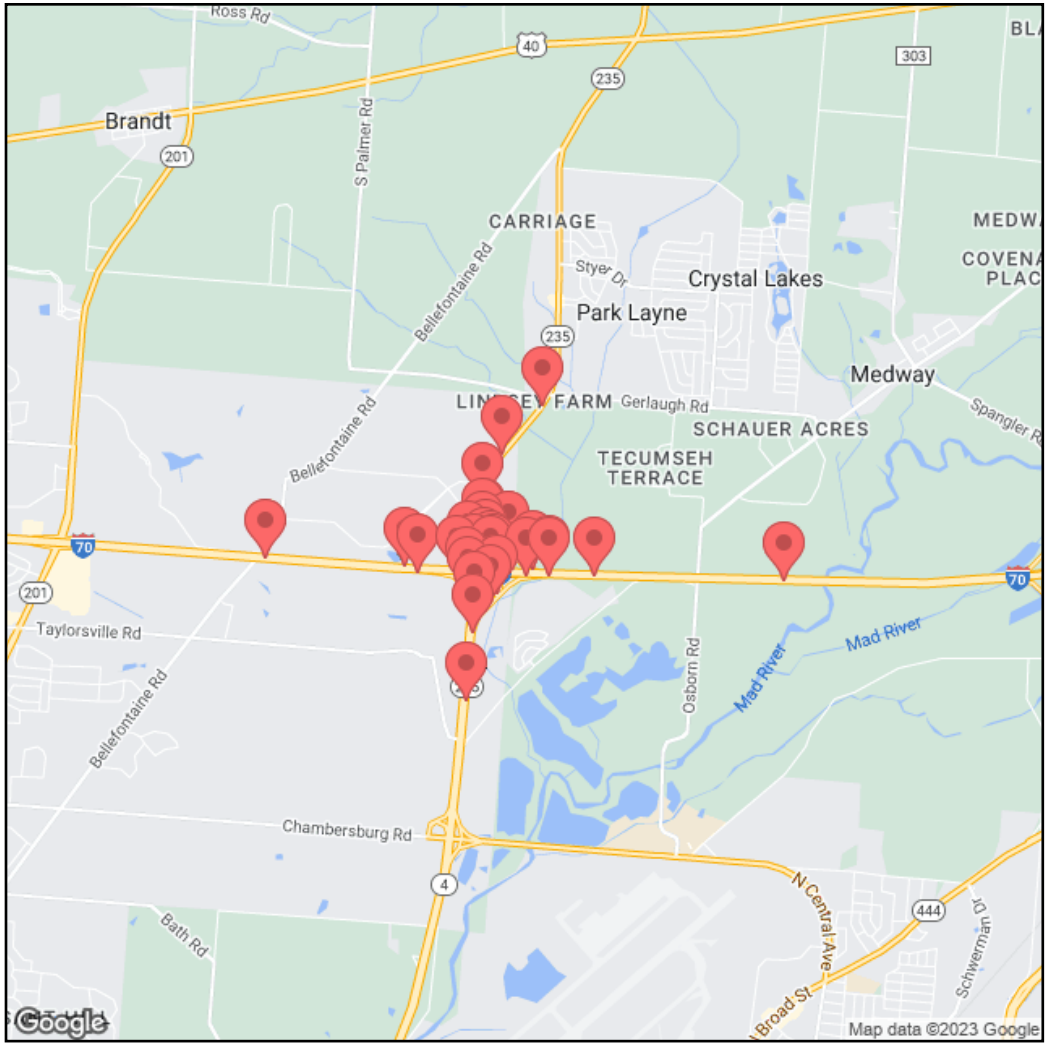
Segment ID	LRS ID	BMP	EMP	Length	Latitude	Longitude
1826572	SCLAIR00070**C	0.000	0.408	0.408	-84.0484567682137	39.8650515907065
1826573	SCLAIR00070**C	0.408	0.510	0.102	-84.0436565880751	39.8649585337213
1826574	SCLAIR00070**C	0.510	2.540	2.030	-84.0236131696005	39.8645285243305
1826733	SCLARA12158**C	0.000	0.268	0.268	-84.0501702870071	39.8654669097866
1826738	SCLARA57257**C	0.000	0.154	0.154	-84.0508640910424	39.8649899977742
1826739	SCLASR00004**C	0.000	0.422	0.422	-84.0485804588824	39.8649378835873
1826957	SCLASR00235**C	0.000	0.322	0.322	-84.0492506851253	39.8787983364787
1854482	SMOTIR00070**C	20.965	23.324	2.359	-84.0785785628128	39.8663495549813
1854483	SMOTIR00070**C	23.324	23.326	0.002	-84.0564196298126	39.8652366941923
1854484	SMOTIR00070**C	23.326	23.544	0.218	-84.0543510879121	39.8651947389493
1854565	SMOTRA12158**C	0.000	0.105	0.105	-84.0528519005366	39.8670890401872
1854566	SMOTRA12158**C	0.105	0.309	0.204	-84.0553042620153	39.8681848241325

1854768	SMOTRA57159**C	0.000	0.199	0.199	-84.0554802927195	39.867031225532
1854769	SMOTRA57160**C	0.000	0.756	0.756	-84.0547342490669	39.8655338898446
1854770	SMOTRA57160**C	0.756	0.970	0.214	-84.0638527533612	39.8657572068518
1854772	SMOTRA57161**C	0.000	0.454	0.454	-84.0570105685746	39.8663284648141
1854773	SMOTRA57162**C	0.000	0.273	0.273	-84.0572826547884	39.8641218404641
1854774	SMOTRA57163**C	0.000	0.355	0.355	-84.0540121494428	39.8635278130788
1854775	SMOTRA57164**C	0.000	0.492	0.492	-84.0571071151305	39.8633182829026
1854907	SMOTRA57257**C	0.000	0.330	0.330	-84.0623991233204	39.8652738184949
1854908	SMOTRA57257**C	0.330	0.441	0.111	-84.0582493753819	39.8651516435705
1854910	SMOTRA57257**C	0.441	0.702	0.261	-84.0547554571364	39.8650699467829
1855046	SMOTSR00004**C	24.038	24.755	0.717	-84.0573123128252	39.8548519004375
1855049	SMOTSR00004**C	24.755	24.806	0.051	-84.0565460919942	39.8603878191362
1855051	SMOTSR00004**C	24.806	25.140	0.334	-84.0546744861766	39.8626977618467
1855362	SMOTSR00235**C	1.205	1.652	0.447	-84.0563360779652	39.8621245465329
1855363	SMOTSR00235**C	1.652	1.720	0.068	-84.0552969965622	39.8657708807794
1855365	SMOTSR00235**C	1.720	1.746	0.026	-84.0552005168322	39.8664454894345
1855366	SMOTSR00235**C	1.746	1.954	0.208	-84.0554856995654	39.868126857559
1855367	SMOTSR00235**C	1.954	2.142	0.188	-84.0555759274886	39.8709833029796
1855372	SMOTSR00235**C	2.142	2.532	0.390	-84.0535094362416	39.8748141232379

Forecast Information

Segment ID	2025 AADT	2045 AADT	DHV-30	K%	D%	T24%	TD%
1826572	65,500	77,500	9,000	11.6	52.2	33	18
1826573	66,000	80,500	9,300	11.6	52.2	33	18
1826574	65,500	77,000	8,900	11.6	52.2	35	18
1826733	6,200	8,000	1,000	13.0	100.0	12	4
1826738	1,100	1,200	200	17.1	56.0	13	5
1826739	4,800	7,600	1,100	14.1	100.0	9	3
1826957	14,000	16,000	1,900	11.6	61.3	4	2
1854482	67,000	73,500	8,200	11.2	52.0	21	13
1854483	66,500	71,000	8,000	11.2	52.0	20	12

1854484	52,000	52,000	5,200	10.0	50.8	22	19
1854565	6,200	8,000	1,000	13.0	100.0	12	4
1854566	1,100	1,200	200	14.7	100.0	15	10
1854768	5,400	7,100	850	12.2	100.0	8	9
1854769	3,900	5,100	1,100	20.8	100.0	3	1
1854770	3,700	3,800	800	20.8	56.0	4	1
1854772	3,300	3,900	400	10.3	100.0	10	9
1854773	1,200	1,300	200	17.1	100.0	12	5
1854774	3,000	3,100	350	11.6	100.0	12	9
1854775	4,100	4,200	850	19.8	100.0	4	4
1854907	4,100	4,600	900	19.8	56.0	3	3
1854908	3,100	3,900	450	11.6	56.0	11	8
1854910	1,100	1,200	200	17.1	56.0	13	5
1855046	28,000	33,500	4,300	12.9	62.5	5	5
1855049	28,000	32,500	4,200	12.9	62.5	4	4
1855051	4,800	6,800	950	14.1	100.0	9	3
1855362	28,000	32,500	4,200	12.9	62.5	5	5
1855363	28,000	32,000	4,100	12.9	62.5	4	4
1855365	18,000	20,500	2,300	11.0	53.2	7	5
1855366	18,000	20,500	2,300	11.0	53.2	7	5
1855367	18,000	20,500	2,300	11.0	53.2	9	7
1855372	14,000	16,000	1,900	11.6	61.3	4	2



Definitions:

- AADT – Annual Average Daily Traffic
- DHV30 – Design Hour Volume for 30th highest hour of the year
- DHV30 – K * AADT
- K % – Design Hour Factor
- D % – Peak Direction Factor
- T24 % – Percent Daily Trucks
- TD % – Percent Design Hour Trucks

Forecast Segment ID	Route	BMP	EMP
1826572	SCLAIR00070**C	0.000	0.408

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 11.6	28	53,000	Average	0.600	0.600
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
81,000	◆ 52.2	15	28,000	Model	2.000	2.000

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	61,834	27,271	89,105

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
29253	79341	14643	33637	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	1.30	0.91	0	0	64,867	21,999	62,821	22,256
2	1.22	1.92	4	1	62,881	27,722	61,834	27,271
3	0.82	1.92	0	0	57,858	27,722	56,679	27,271
4	0.88	1.94	4	4	57,834	27,719	57,344	27,378
5	0.50	1.79	0	0	53,283	26,988	52,473	26,596
6	0.78	1.90	4	4	56,549	27,507	56,131	27,177

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	3,374	71,864	-1,309	27,847	-0.16	2.04
2	RAT	1.06	72,315	0.93	27,151	-0.07	1.90
3	MRAT	1.13	72,262	1.53	27,392	-0.09	1.95
4	RAF		72,063		27,619	-0.12	1.99

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Average	Average	-0.100	2.000

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total Max Volume
44017	45164	27151	27847	71168	73011

Process Flag: Adjusted model to counts with process per ODOT 255 spreadsheet

Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2008	54,600	37,910	16,690
2012	56,790	42,210	14,580
2013	57,887	43,025	14,862
2016	64,894	48,233	16,661
2019	63,565	46,020	17,545
* 2022	63,788	46,055	17,733

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1826572	SCLAIR00070**C	0.000	0.408	0.408	65,500	77,500	9000	11.6	52.2	33	18

Forecast Segment ID	Route	BMP	EMP
1826573	SCLAIR00070**C	0.408	0.510

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 11.6	28	55,000	Average	0.700	0.700
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
84,000	◆ 52.2	15	29,000	Model	2.300	2.300

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	61,834	27,271	89,105

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
29253	79341	14643	33637	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	1.30	0.91	0	0	64,867	21,999	62,821	22,256
2	1.22	1.92	4	1	62,881	27,722	61,834	27,271
3	0.82	1.92	0	0	57,858	27,722	56,679	27,271
4	0.88	1.94	4	4	57,834	27,719	57,344	27,378
5	0.50	1.79	0	0	53,283	26,988	52,473	26,596
6	0.78	1.90	4	4	56,549	27,507	56,131	27,177

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	-17,728	79,300	-4,819	29,747	0.27	2.42
2	RAT	0.78	75,926	0.79	27,180	0.21	1.90
3	MRAT	1.19	76,466	1.53	28,072	0.18	2.08
4	RAF		77,883		28,909	0.23	2.25

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Average	Average	0.200	2.300

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total Max Volume
48394	49553	27180	29747	75574	79300

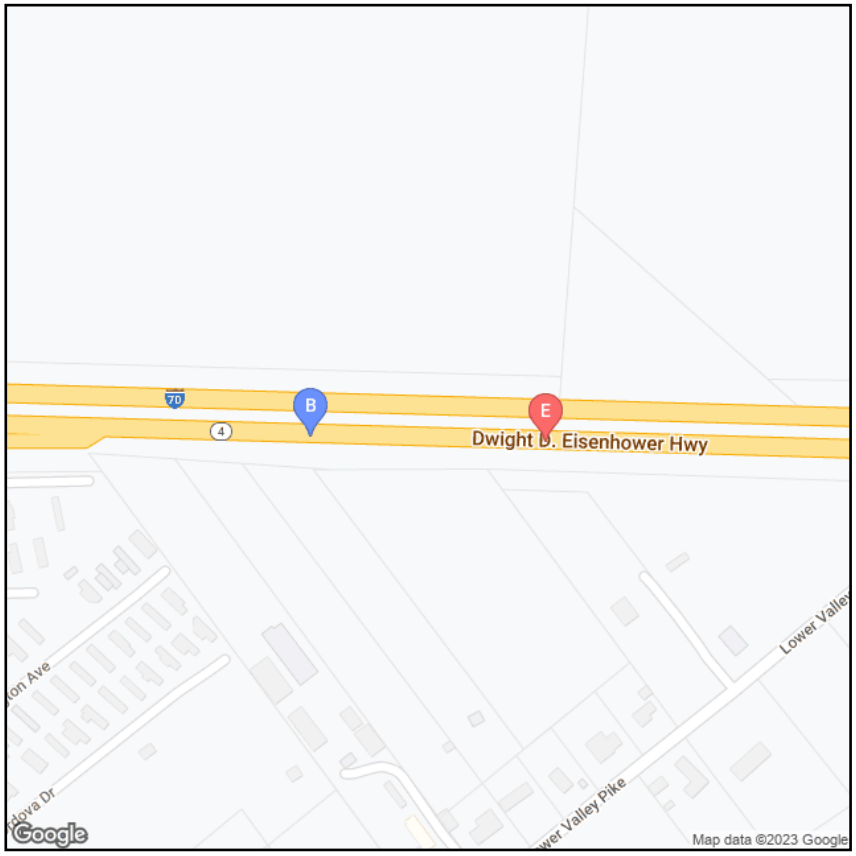
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Historical Count

Year	All	Cars	Trucks
2008	54,600	37,910	16,690
2012	56,790	42,210	14,580
2013	57,887	43,025	14,862
2016	64,894	48,233	16,661
2019	63,565	46,020	17,545
* 2022	63,788	46,055	17,733

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1826573	SCLAIR00070**C	0.408	0.510	0.102	66,000	80,500	9300	11.6	52.2	33	18

Forecast Segment ID	Route	BMP	EMP
1826574	SCLAIR00070**C	0.510	2.540

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 11.6	28	51,000	Model	0.400	0.400
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
80,000	◆ 52.2	15	29,000	Model	2.200	2.200

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	61,834	27,271	89,105

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
29253	79341	14643	33637	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	1.30	0.91	0	0	64,867	21,999	62,821	22,256
2	1.22	1.92	4	1	62,881	27,722	61,834	27,271
3	0.82	1.92	0	0	57,858	27,722	56,679	27,271
4	0.88	1.94	4	4	57,834	27,719	57,344	27,378
5	0.50	1.79	0	0	53,283	26,988	52,473	26,596
6	0.78	1.90	4	4	56,549	27,507	56,131	27,177

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	-13,101	80,937	-4,605	29,360	0.43	2.34
2	RAT	0.83	78,015	0.79	26,963	0.39	1.86
3	MRAT	1.22	78,548	1.52	27,783	0.37	2.02
4	RAF		79,743		28,571	0.40	2.18

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Average	Average	0.400	2.200

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total Max Volume
50765	51577	26963	29360	77728	80937

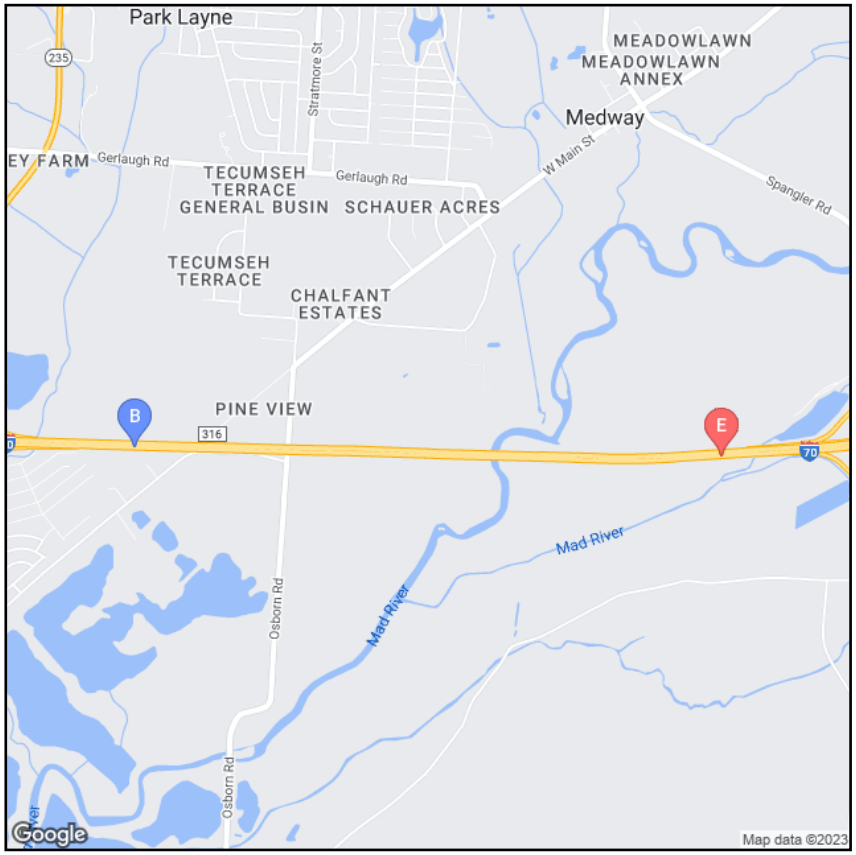
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Historical Count

Year	All	Cars	Trucks
2008	54,600	37,910	16,690
2012	56,790	42,210	14,580
2013	57,887	43,025	14,862
2016	64,894	48,233	16,661
2019	63,565	46,020	17,545
* 2022	63,788	46,055	17,733

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1826574	SCLAIR00070**C	0.510	2.540	2.030	65,500	77,000	8900	11.6	52.2	35	18

Forecast Segment ID	Route	BMP	EMP
1826733	SCLARA12158**C	0.000	0.268

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	13.0	12	7,400	Average	1.600	1.600
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
8,400	100.0	4	1,000	Model	1.000	1.000

Regression

Method Number	PA AADT	BC AADT	AADT
1	9,530	863	10,393

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
874	18303	134	1164	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	3.08	0.30	0	0	9,997	899	9,530	863
2	3.02	0.94	3	5	9,723	1,066	9,448	1,006
3	3.22	-0.29	0	0	10,220	751	9,730	731
4	3.88	-0.48	3	4	11,063	691	10,674	689
5	-0.69	-0.69	0	0	4,225	656	4,134	642
6	-999999.00	-999999.00	0	0				

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	-5,217	6,334	55	1,020	0.14	1.01
2	RAT	0.53	6,138	1.07	1,037	-0.01	1.08
3	MRAT	1.04	6,145	1.30	1,033	0.00	1.06
4	RAF		6,239		1,026	0.07	1.03

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Average	Average	0.100	1.000

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total Max Volume
5101	5314	1020	1037	6121	6351

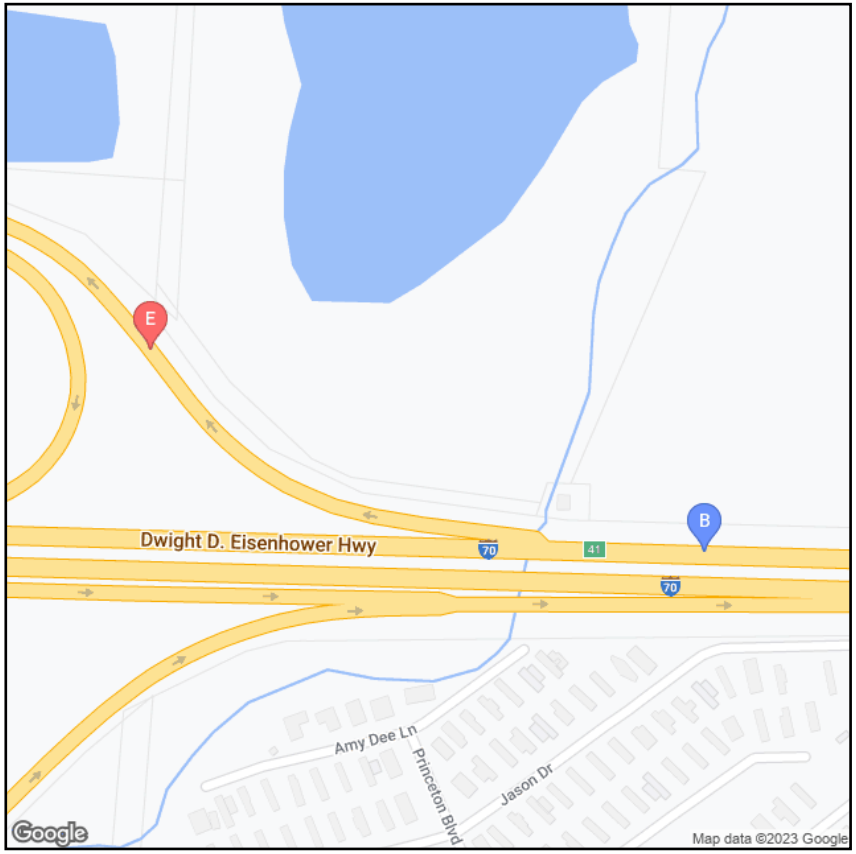
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Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2008	4,190	3,414	776
2013	4,356	3,528	828
2016	6,159	5,330	829
2019	6,352	5,497	855
* 2022	5,915	5,119	796

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1826733	SCLARA12158**C	0.000	0.268	0.268	6,200	8,000	1000	13.0	100.0	12	4

Forecast Segment ID	Route	BMP	EMP
1826738	SCLARA57257**C	0.000	0.154

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 17.1	14	1,000	Count	0.100	0.100
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
1,160	56.0	5	160	Count	● -2.100	0.000

● Warning: The growth rate was negative and was capped.

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	1,012	66	1,078

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
0	1498	-486	304	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	0.16	-6.72	0	0	1,098	-168	1,030	-142
2	0.10	-2.11	4	1	1,061	69	1,012	66
3	-0.28	-2.11	0	0	959	69	909	66
4	-0.24	-1.93	4	4	958	69	920	74
5	-0.72	-3.13	0	0	826	20	786	20
6	-0.50	-2.13	4	4	880	60	847	65

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
		-999999.000	-999999.000

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total Max Volume
0	0	0	0	0	0

Process Flag: No model vloumes were joined to TSR segment

Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2008	1,342	994	348
2012	1,212	1,027	185
2013	1,235	1,046	189
2016	1,337	1,112	224
2019	1,241	1,083	158
* 2022	1,146	985	161

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1826738	SCLARA57257**C	0.000	0.154	0.154	1,100	1,200	200	17.1	56.0	13	5

Forecast Segment ID	Route	BMP	EMP
1826739	SCLASR00004**C	0.000	0.422

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 14.1	8	7,500	Model	▲ 3.500	3.000
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
8,290	100.0	3	790	Model	■ 7.400	4.000

▲ Warning: The car growth rate was exceeded the maximum and was capped at 3.500%

■ Warning: The truck growth rate was exceeded the maximum and was capped at 7.400%

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	7,429	266	7,695

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
3368	12041	-551	2048	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	3.04	-0.76	0	0	7,773	299	7,529	293
2	2.95	-1.02	4	4	7,566	242	7,429	266
3	3.35	2.29	0	0	8,170	659	7,880	611
4	3.43	2.56	4	4	8,167	658	7,968	639
5	3.04	1.03	0	0	7,788	515	7,528	479
6	3.50	2.58	4	4	8,255	660	8,051	641

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	-5,531	11,455	-2,397	2,048	4.69	16.09
2	RAT	0.45	7,563	0.13	597	2.55	2.16
3	MRAT	1.70	9,170	1.61	1,144	3.48	7.41
4	RAF		10,313		1,596	4.08	11.75

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Model Ratio	Model Ratio	3.500	7.400

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total Max Volume
6966	9407	597	2048	7563	11455

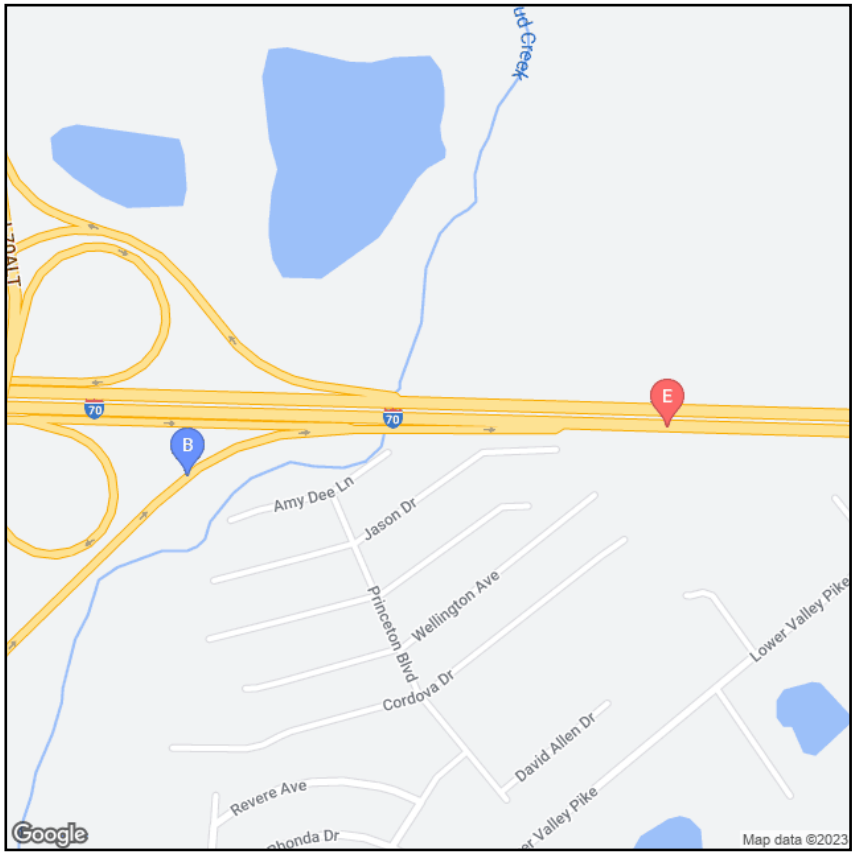
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Historical Count

Year	All	Cars	Trucks
2009	3,340	2,820	520
2012	3,189	2,893	296
2013	3,183	2,888	295
2016	4,485	3,977	507
2019	4,540	4,149	391
* 2022	4,439	4,067	372

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1826739	SCLASR00004**C	0.000	0.422	0.422	4,800	7,600	1100	14.1	100.0	9	3

Forecast Segment ID	Route	BMP	EMP
1826957	SCLASR00235**C	0.000	0.322

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 11.6	5	16,000	Model	0.700	0.700
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
16,700	◆ 61.3	2	700	Average	● -5.500	0.000

● Warning: The growth rate was negative and was capped.

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	13,487	-1,484	12,003

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
309	20067	-3541	1695	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	-0.48	-5.03	0	0	11,085	-255	11,373	-286
2	0.09	-11.12	2	1	13,345	-1,628	13,487	-1,484
3	-0.93	-11.12	0	0	9,177	-1,628	9,709	-1,484
4	-1.40	-11.04	3	4	7,537	-1,549	7,999	-1,468
5	0.95	-10.12	0	0	16,877	-1,409	16,624	-1,287
6	0.83	-11.59	5	4	16,264	-1,667	16,195	-1,576

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	-2,122	16,513	202	720	0.72	0.09
2	RAT	0.87	16,158	1.40	727	0.62	0.13
3	MRAT	1.17	16,209	1.04	727	0.64	0.13
4	RAF		16,361		723	0.68	0.11

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Average	Average	0.700	0.100

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total Max Volume
15431	15793	720	727	16151	16520

Process Flag: Adjusted model to counts with process per ODOT 255 spreadsheet

Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2006	14,090	13,240	850
2009	17,120	15,510	1,610
2013	13,480	12,090	1,389
2016	13,554	12,763	790
2019	14,061	13,342	719
* 2022	13,843	13,141	702

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1826957	SCLASR00235**C	0.000	0.322	0.322	14,000	16,000	1900	11.6	61.3	4	2

Forecast Segment ID	Route	BMP	EMP
1854482	SMOTIR00070**C	20.965	23.324

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 11.2	22	60,000	Average	0.600	0.600
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
75,000	◆ 52.0	13	15,000	Average	0.200	0.200

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	66,320	5,710	72,030

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
47615	103936	-2074	26238	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	1.23	-1.39	0	0	70,433	8,724	69,270	8,840
2	1.02	-2.16	5	2	65,994	5,378	66,320	5,710
3	1.72	0.15	0	0	78,590	15,883	76,384	15,084
4	1.50	0.13	5	4	74,018	15,313	73,233	14,968
5	1.65	-0.80	0	0	77,404	11,559	75,319	11,201
6	1.41	-0.37	5	4	72,569	13,132	71,935	12,962

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	-21,334	79,224	-7,537	26,238	0.10	2.91
2	RAT	0.76	75,998	0.66	22,201	0.15	1.91
3	MRAT	1.15	76,422	1.54	23,610	0.09	2.26
4	RAF		77,823		24,924	0.09	2.59

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Average	Average	0.100	2.600

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total Max Volume
52812	53797	22201	26238	75013	80035

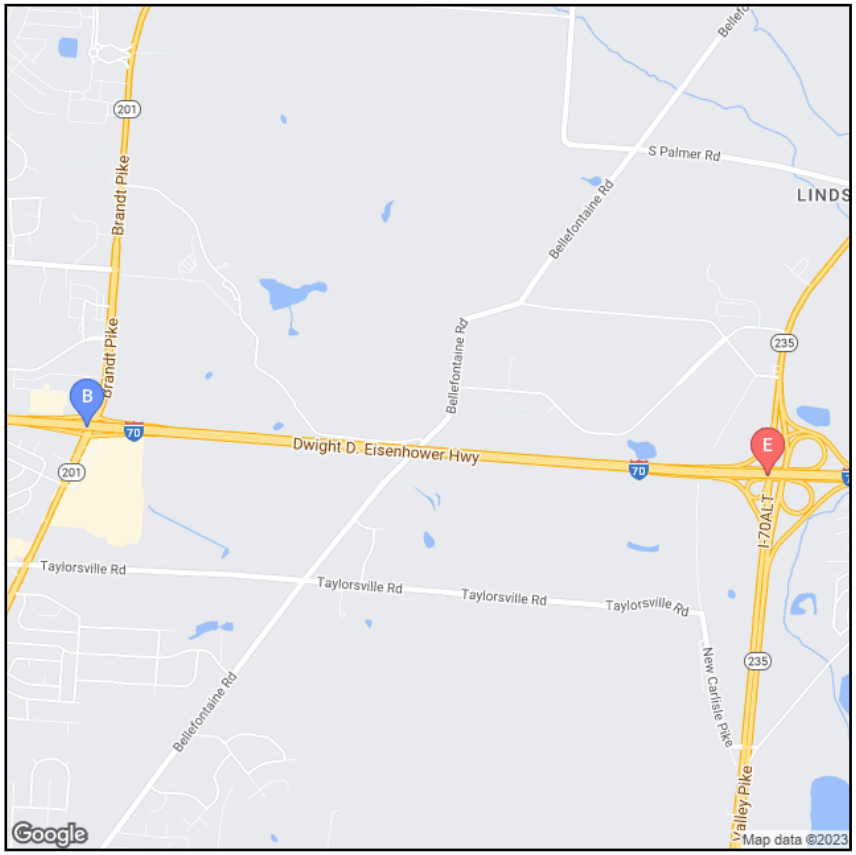
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Historical Count

Year	All	Cars	Trucks
2006	65,160	45,270	19,890
2009	56,270	42,040	14,230
2013	59,400	44,378	15,022
2016	66,566	49,732	16,834
2019	68,680	53,639	15,041
* 2022	66,018	51,561	14,457

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1854482	SMOTIR00070**C	20.965	23.324	2.359	67,000	73,500	8200	11.2	52.0	21	13

Forecast Segment ID	Route	BMP	EMP
1854483	SMOTIR00070**C	23.324	23.326

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 11.2	22	58,000	Average	0.400	0.400
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
72,000	◆ 52.0	13	14,000	Average	● -0.500	0.000

● Warning: The growth rate was negative and was capped.

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	66,320	5,710	72,030

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
47615	103936	-2074	23871	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	1.23	-1.39	0	0	70,433	8,724	69,270	8,840
2	1.02	-2.16	5	2	65,994	5,378	66,320	5,710
3	1.72	0.15	0	0	78,590	15,883	76,384	15,084
4	1.50	0.13	5	4	74,018	15,313	73,233	14,968
5	1.65	-0.80	0	0	77,404	11,559	75,319	11,201
6	1.41	-0.37	5	4	72,569	13,132	71,935	12,962

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	37,246	68,514	5,768	18,301	-0.09	0.95
2	RAT	2.29	71,744	1.66	20,854	-0.05	1.58
3	MRAT	1.09	71,487	1.44	20,071	-0.01	1.39
4	RAF		70,000		19,186	-0.05	1.17

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Difference	Average	-0.200	1.200

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total Max Volume
49328	51416	18301	20854	67629	72270

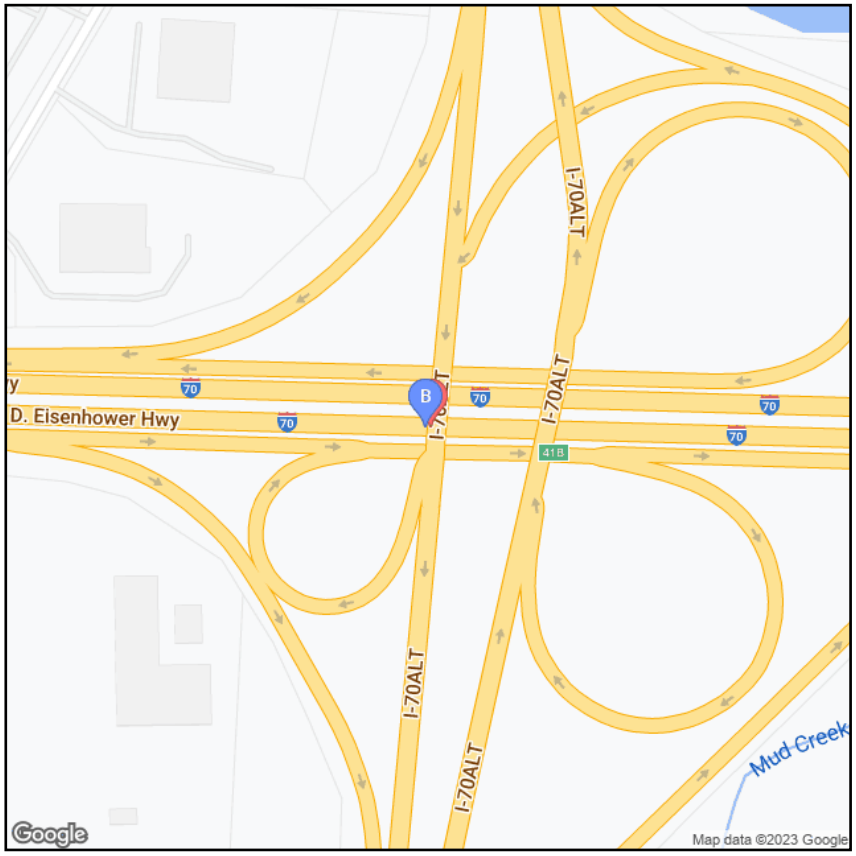
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Historical Count

Year	All	Cars	Trucks
2006	65,160	45,270	19,890
2009	56,270	42,040	14,230
2013	59,400	44,378	15,022
2016	66,566	49,732	16,834
2019	68,680	53,639	15,041
* 2022	66,018	51,561	14,457

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1854483	SMOTIR00070**C	23.324	23.326	0.002	66,500	71,000	8000	11.2	52.0	20	12

Forecast Segment ID	Route	BMP	EMP
1854484	SMOTIR00070**C	23.326	23.544

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	10.0	22	41,000	Average	0.000	0.000
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
52,000	50.8	19	11,000	Average	-0.800	0.000

Warning: The growth rate was negative and was capped.

Regression

Method Number	PA AADT	BC AADT	AADT
2	41,103	-2,705	38,398

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
34729	53472	-10476	21503	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	0.00	-3.76	0	0	39,965	-1,074	40,620	-603
2	0.04	-4.42	4	2	40,870	-3,321	41,103	-2,705
3	0.22	-2.70	0	0	42,850	2,810	43,136	2,785
4	0.23	-2.72	4	4	43,261	2,443	43,220	2,709
5	0.32	-3.94	0	0	44,099	-1,600	44,258	-1,176
6	0.19	-3.53	4	5	42,767	277	42,766	138

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	-8,410	60,080	-7,653	21,503	-0.18	3.17
2	RAT	0.86	58,956	0.60	17,438	0.08	1.90
3	MRAT	1.13	59,088	1.53	18,848	-0.03	2.34
4	RAF		59,584		20,175	-0.11	2.76

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Average	Average	-0.100	2.800

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total Max Volume
38577	41518	17438	21503	56015	63021

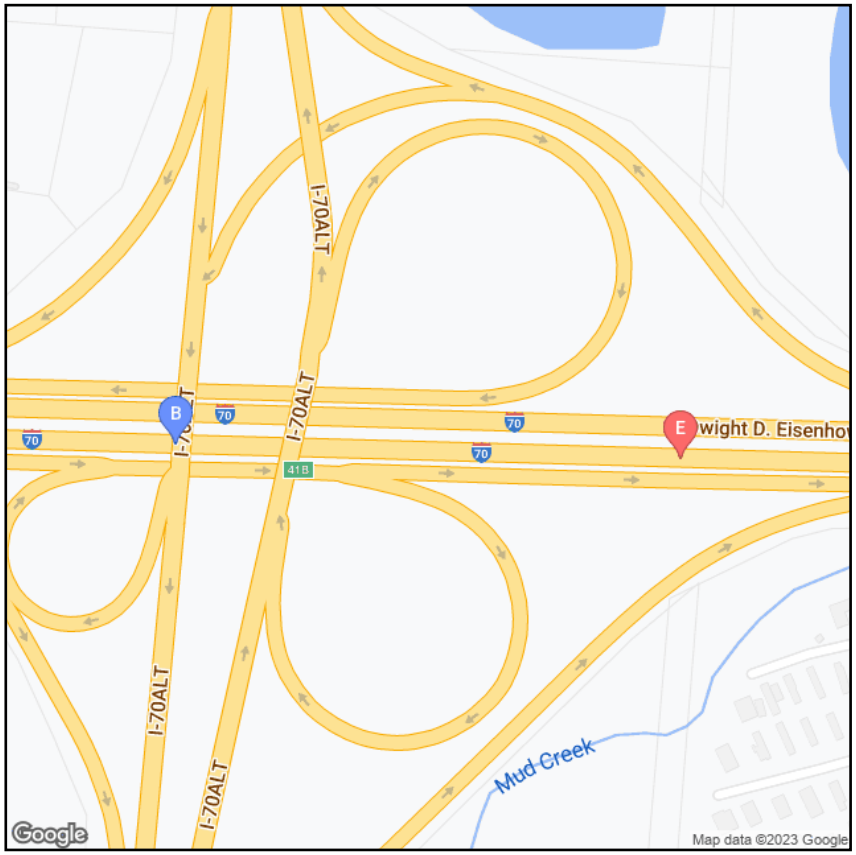
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Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2006	59,940	40,900	19,040
2009	54,030	39,370	14,660
2013	54,790	39,924	14,866
2016	52,913	38,556	14,357
2019	51,712	40,387	11,325
* 2022	52,004	40,615	11,389

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1854484	SMOTIR00070**C	23.326	23.544	0.218	52,000	52,000	5200	10.0	50.8	22	19

Forecast Segment ID	Route	BMP	EMP
1854565	SMOTRA12158**C	0.000	0.105

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	13.0	12	7,400	Average	1.600	1.600
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
8,400	100.0	4	1,000	Model	1.000	1.000

Regression

Method Number	PA AADT	BC AADT	AADT
1	9,530	863	10,393

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
874	18303	134	1164	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	3.08	0.30	0	0	9,997	899	9,530	863
2	3.02	0.94	3	5	9,723	1,066	9,448	1,006
3	3.22	-0.29	0	0	10,220	751	9,730	731
4	3.88	-0.48	3	4	11,063	691	10,674	689
5	-0.69	-0.69	0	0	4,225	656	4,134	642
6	-999999.00	-999999.00	0	0				

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	-5,217	6,334	55	1,020	0.14	1.01
2	RAT	0.53	6,138	1.07	1,037	-0.01	1.08
3	MRAT	1.04	6,145	1.30	1,033	0.00	1.06
4	RAF		6,239		1,026	0.07	1.03

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Average	Average	0.100	1.000

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total Max Volume
5101	5314	1020	1037	6121	6351

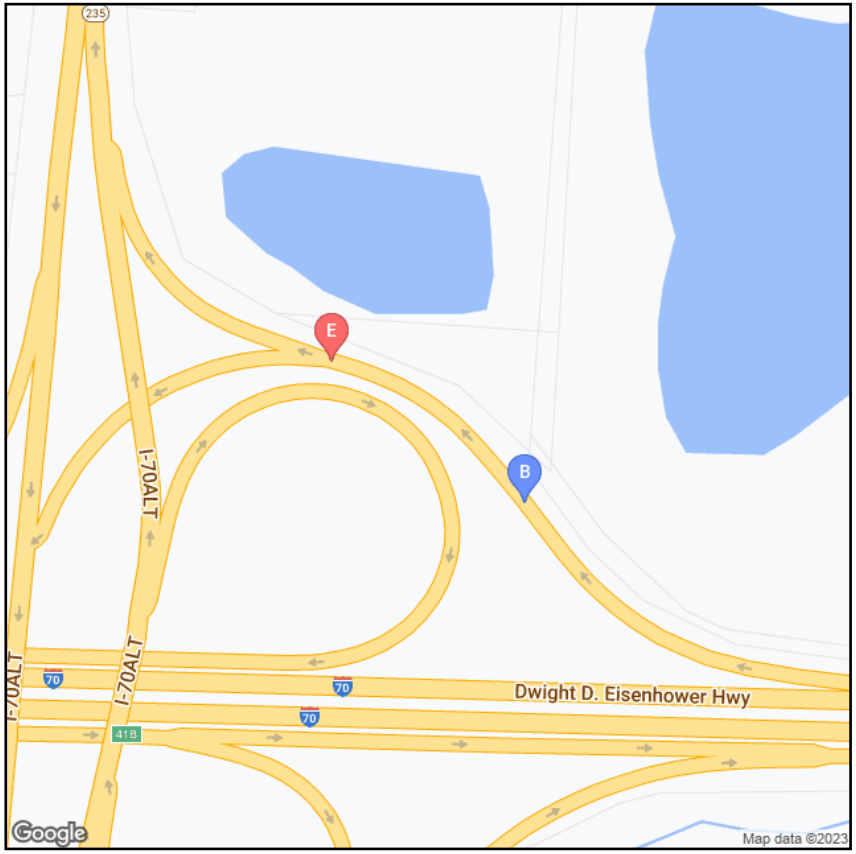
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Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2008	4,190	3,414	776
2013	4,356	3,528	828
2016	6,159	5,330	829
2019	6,352	5,497	855
* 2022	5,915	5,119	796

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1854565	SMOTRA12158**C	0.000	0.105	0.105	6,200	8,000	1000	13.0	100.0	12	4

Forecast Segment ID	Route	BMP	EMP
1854566	SMOTRA12158**C	0.105	0.309

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 14.7	15	1,000	Average	0.300	0.300
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
1,180	100.0	11	180	Average	0.200	0.200

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	952	138	1,090

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
28	1697	-462	410	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	-0.36	-1.74	0	0	885	92	840	87
2	0.07	-0.67	2	2	985	138	952	138
3	-2.66	-6.07	0	0	239	-128	237	-119
4	-999999.00	-999999.00	0	0				
5	-999999.00	-999999.00	0	0				
6	-999999.00	-999999.00	0	0				

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	-212	1,293	21	221	0.53	1.07
2	RAT	0.84	1,263	1.14	229	0.39	1.24
3	MRAT	1.14	1,267	1.35	227	0.41	1.20
4	RAF		1,280		224	0.47	1.13

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Average	Average	0.500	1.100

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total Max Volume
1034	1072	221	229	1255	1301

Process Flag: Adjusted model to counts with process per ODOT 255 spreadsheet

Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2013	1,123	943	180
2016	1,315	1,082	232
2019	1,186	1,013	173
* 2022	1,103	933	170

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1854566	SMOTRA12158**C	0.105	0.309	0.204	1,100	1,200	200	14.7	100.0	15	10

Forecast Segment ID	Route	BMP	EMP
1854768	SMOTRA57159**C	0.000	0.199

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 12.2	9	6,900	Average	1.800	1.800
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
7,520	100.0	10	620	Model	1.200	1.200

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	9,248	724	9,972

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
4610	12111	-927	1620	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	3.20	0.76	0	0	8,929	590	8,777	560
2	3.56	2.03	2	2	9,349	737	9,248	724
3	1.38	-4.79	0	0	6,407	-179	6,423	-158
4	-999999.00	-999999.00	0	0				
5	-999999.00	-999999.00	0	0				
6	-999999.00	-999999.00	0	0				

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	-4,723	5,323	-130	635	0.04	1.34
2	RAT	0.52	5,213	0.78	597	-0.01	1.04
3	MRAT	1.02	5,215	1.29	605	-0.02	1.11
4	RAF		5,269		620	0.01	1.22

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Average	Average	0.000	1.200

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total Max Volume
4610	4688	597	635	5207	5323

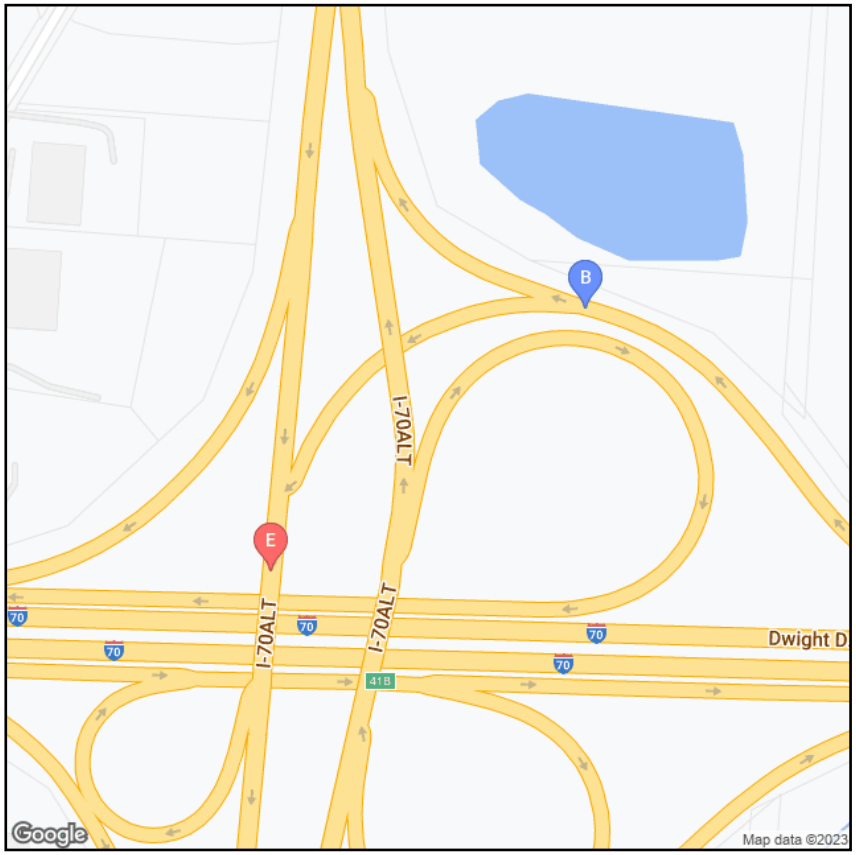
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Historical Count

Year	All	Cars	Trucks
2013	3,583	3,199	384
2016	4,844	4,248	595
2019	4,857	4,391	466
* 2022	5,094	4,632	462

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1854768	SMOTRA57159**C	0.000	0.199	0.199	5,400	7,100	850	12.2	100.0	8	9

Forecast Segment ID	Route	BMP	EMP
1854769	SMOTRA57160**C	0.000	0.756

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	20.8	4	5,200	Model	1.600	1.600
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
5,340	100.0	1	140	Average	-0.300	0.000

Warning: The growth rate was negative and was capped.

K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
4	3,612	14	3,626

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
-3966	14642	-542	393	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	2.58	-4.92	0	0	6,956	-38	6,207	-53
2	1.28	-5.36	5	4	5,066	-71	4,895	-70
3	1.63	-3.57	0	0	5,865	23	5,251	
4	0.01	-3.21	5	4	3,586	23	3,612	14
5	1.42	-5.66	0	0	5,636	-67	5,040	-82
6	-0.02	-3.83	5	4	3,559	-2	3,587	-10

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	-3,813	6,473	-6	247	2.60	2.73
2	RAT	0.50	5,096	0.96	243	1.24	2.63
3	MRAT	1.36	5,461	1.74	245	1.60	2.68
4	RAF		5,967		246	2.10	2.70

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Model Ratio	Average	1.600	2.700

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total Max Volume
4853	6226	243	247	5096	6473

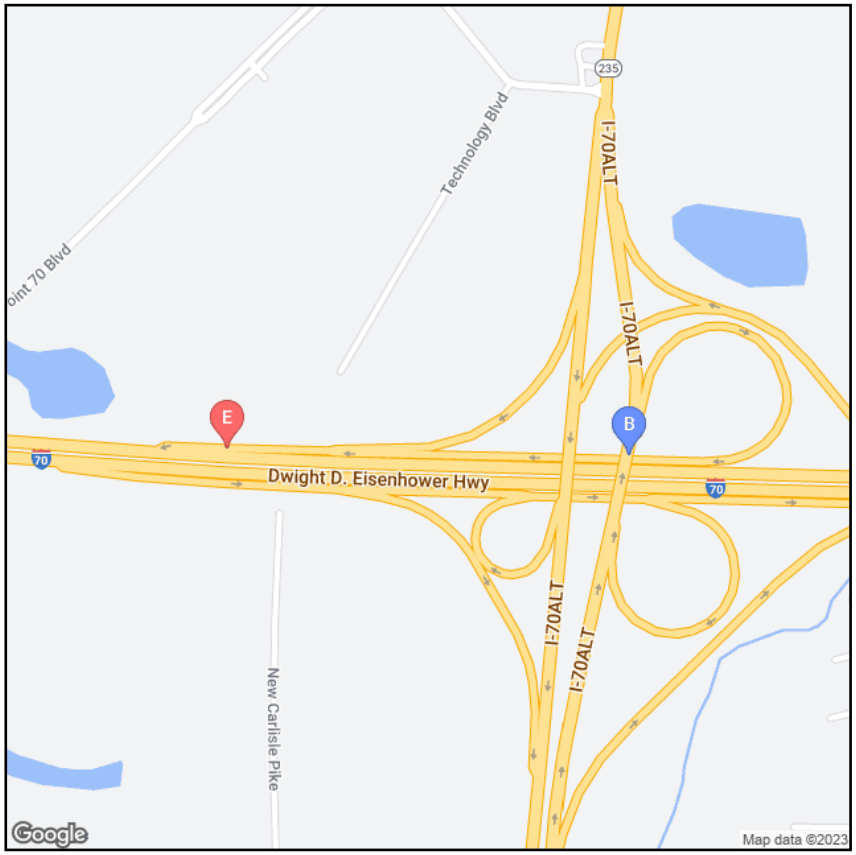
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Historical Count

Year	All	Cars	Trucks
2008	3,038	2,770	268
2012	3,756	3,568	188
2013	3,829	3,637	192
2016	3,756	3,497	258
2019	5,311	5,136	175
* 2022	3,744	3,604	140

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1854769	SMOTRA57160**C	0.000	0.756	0.756	3,900	5,100	1100	20.8	100.0	3	1

Forecast Segment ID	Route	BMP	EMP
1854770	SMOTRA57160**C	0.756	0.970

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 20.8	4	3,600	Count	0.000	0.000
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
3,740	56.0	1	140	Count	● -3.200	0.000

● Warning: The growth rate was negative and was capped.

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
4	3,612	14	3,626

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
-3966	14642	-542	393	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	2.58	-4.92	0	0	6,956	-38	6,207	-53
2	1.28	-5.36	5	4	5,066	-71	4,895	-70
3	1.63	-3.57	0	0	5,865	23	5,251	
4	0.01	-3.21	5	4	3,586	23	3,612	14
5	1.42	-5.66	0	0	5,636	-67	5,040	-82
6	-0.02	-3.83	5	4	3,559	-2	3,587	-10

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
		-999999.000	-999999.000

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total Max Volume
0	0	0	0	0	0

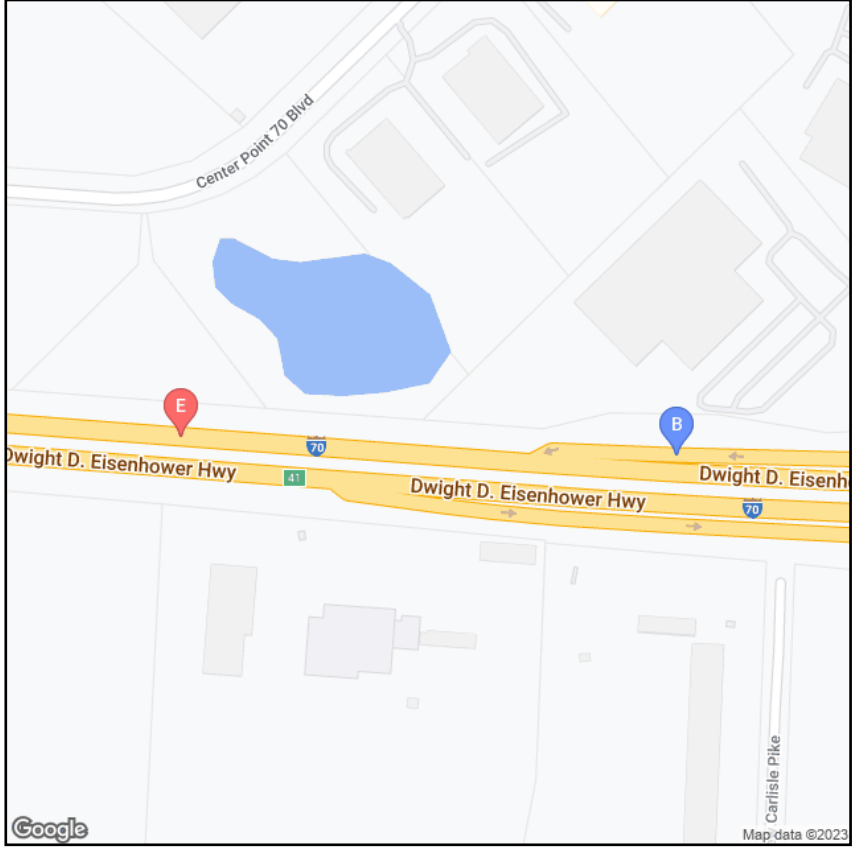
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Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2008	3,038	2,770	268
2012	3,756	3,568	188
2013	3,829	3,637	192
2016	3,756	3,497	258
2019	5,311	5,136	175
* 2022	3,744	3,604	140

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1854770	SMOTRA57160**C	0.756	0.970	0.214	3,700	3,800	800	20.8	56.0	4	1

Forecast Segment ID	Route	BMP	EMP
1854772	SMOTRA57161**C	0.000	0.454

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 10.3	8	3,600	Average	0.800	0.800
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
4,010	100.0	7	410	Model	2.000	2.000

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	4,241	376	4,617

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
1852	5988	61	534	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	1.41	-0.20	0	0	4,263	249	4,184	251
2	1.48	1.48	4	1	4,378	391	4,241	376
3	0.91	1.48	0	0	3,786	391	3,766	376
4	0.85	1.15	4	5	3,788	358	3,716	352
5	1.08	1.17	0	0	3,936	366	3,904	353
6	0.71	0.90	4	5	3,664	337	3,599	333

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	-182	3,427	35	404	0.03	1.85
2	RAT	0.95	3,419	1.15	425	-0.01	2.13
3	MRAT	1.05	3,419	1.60	417	0.00	2.03
4	RAF		3,423		411	0.02	1.95

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Average	Average	0.000	2.000

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total Max Volume
2994	3023	404	425	3398	3448

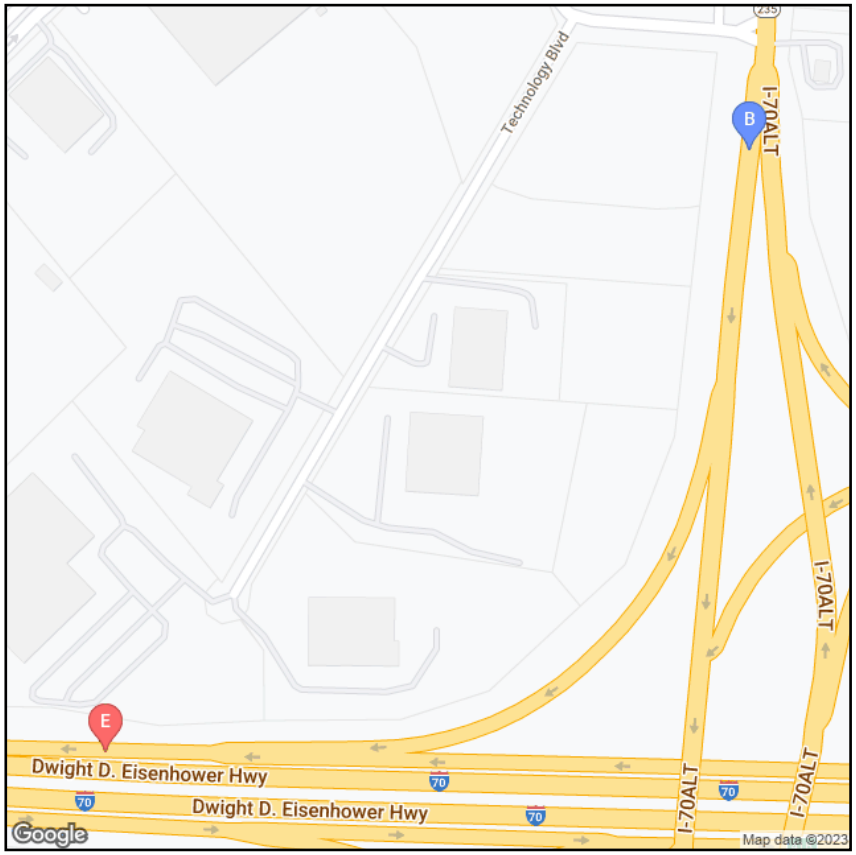
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Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2008	2,669	2,362	307
2012	3,020	2,785	235
2013	3,078	2,838	240
2016	2,879	2,609	269
2019	3,381	3,096	285
* 2022	3,265	2,999	266

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1854772	SMOTRA57161**C	0.000	0.454	0.454	3,300	3,900	400	10.3	100.0	10	9

Forecast Segment ID	Route	BMP	EMP
1854773	SMOTRA57162**C	0.000	0.273

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 17.1	14	1,200	Average	0.600	0.600
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
1,360	100.0	5	160	Average	● -0.500	0.000

● Warning: The growth rate was negative and was capped.

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	1,012	66	1,078

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
220	1498	-486	304	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	0.16	-6.72	0	0	1,098	-168	1,030	-142
2	0.10	-2.11	4	1	1,061	69	1,012	66
3	-0.28	-2.11	0	0	959	69	909	66
4	-0.24	-1.93	4	4	958	69	920	74
5	-0.72	-3.13	0	0	826	20	786	20
6	-0.50	-2.13	4	4	880	60	847	65

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	13	1,516	12	212	1.16	1.13
2	RAT	1.01	1,520	1.08	217	1.15	1.24
3	MRAT	1.33	1,519	1.35	215	1.16	1.20
4	RAF		1,517		214	1.15	1.18

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Average	Average	1.200	1.200

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total Max Volume
1303	1304	212	217	1515	1521

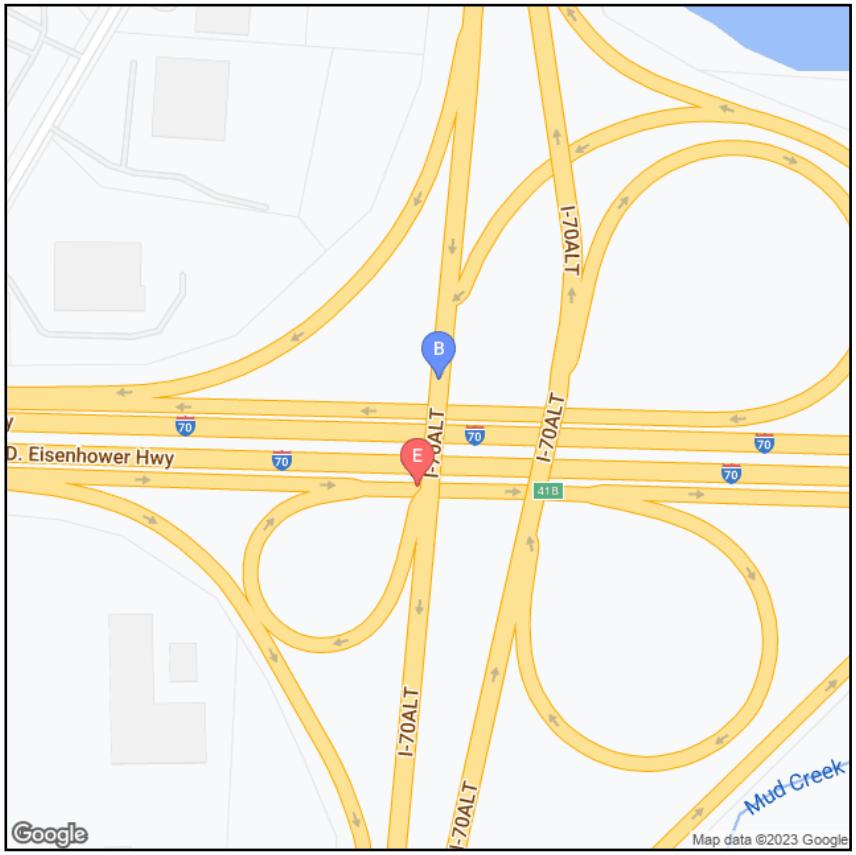
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Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2008	1,342	994	348
2012	1,212	1,027	185
2013	1,235	1,046	189
2016	1,337	1,112	224
2019	1,241	1,083	158
* 2022	1,146	985	161

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1854773	SMOTRA57162**C	0.000	0.273	0.273	1,200	1,300	200	17.1	100.0	12	5

Forecast Segment ID	Route	BMP	EMP
1854774	SMOTRA57163**C	0.000	0.355

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 11.6	9	2,700	Model	● -0.500	0.000
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
3,100	100.0	7	400	Average	1.700	1.700

● Warning: The growth rate was negative and was capped.

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	3,704	444	4,148

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
806	5219	-466	622	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	1.19	-2.97	0	0	3,743	-12	3,600	45
2	1.33	2.37	3	1	3,815	449	3,704	444
3	-0.34	2.37	0	0	2,410	449	2,443	444
4	-0.40	2.43	4	4	2,411	448	2,398	449
5	-0.20	2.09	0	0	2,520	426	2,545	423
6	-0.57	2.51	4	4	2,272	454	2,267	455

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	-1,427	2,556	23	345	-0.64	1.04
2	RAT	0.68	2,689	1.10	353	-0.48	1.15
3	MRAT	0.91	2,689	1.32	351	-0.48	1.12
4	RAF		2,623		348	-0.56	1.08

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Ratio	Average	-0.500	1.100

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total Max Volume
2211	2341	345	353	2556	2694

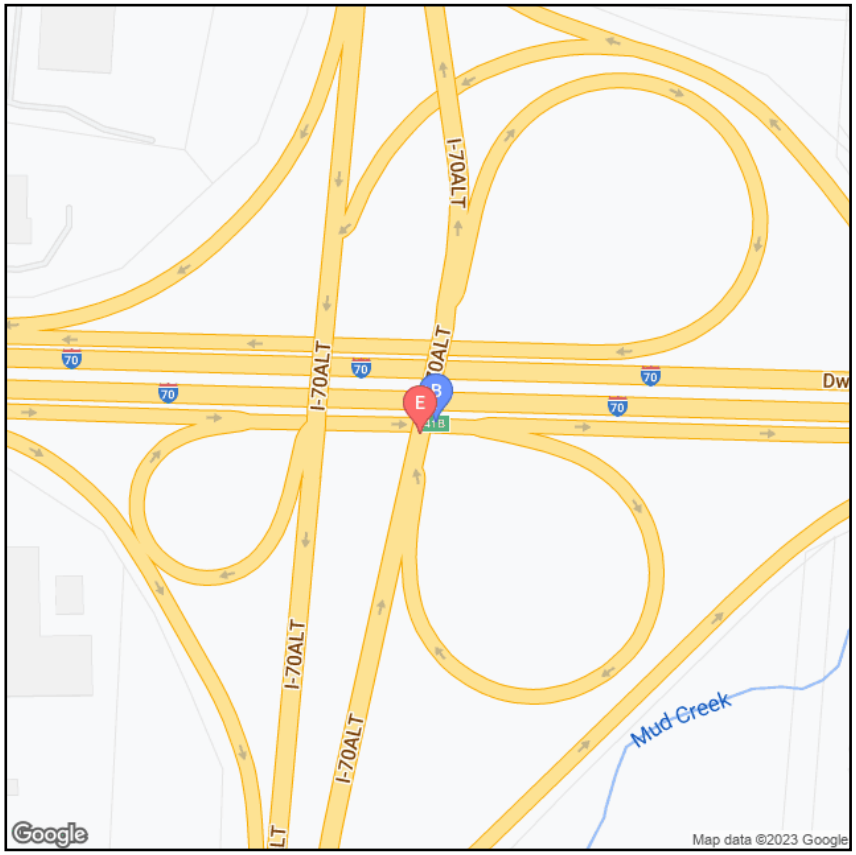
Process Flag: Adjusted model to counts with process per ODOT 255 spreadsheet

Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2006	2,483	2,050	433
2012	2,987	2,785	202
2013	3,045	2,839	206
2016	2,759	2,498	260
2019	3,002	2,757	245
* 2022	2,965	2,698	267

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1854774	SMOTRA57163**C	0.000	0.355	0.355	3,000	3,100	350	11.6	100.0	12	9

Forecast Segment ID	Route	BMP	EMP
1854775	SMOTRA57164**C	0.000	0.492

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 19.8	3	4,100	Average	0.100	0.100
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
4,280	100.0	3	180	Model	1.200	1.200

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
4	4,570	154	4,724

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
-1569	12937	-545	659	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	2.75	-2.58	0	0	7,626	55	6,912	37
2	1.84	-3.09	5	4	6,190	16	5,915	18
3	1.76	0.13	0	0	6,396	170	5,834	138
4	0.61	0.56	5	4	4,639	169	4,570	154
5	1.38	-2.36	0	0	5,947	69	5,421	45
6	0.37	0.08	5	4	4,355	150	4,307	136

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	-5,147	3,303	10	177	-0.71	1.18
2	RAT	0.44	3,716	1.08	180	-0.34	1.26
3	MRAT	0.92	3,716	1.36	179	-0.34	1.24
4	RAF		3,509		178	-0.53	1.21

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Ratio	Average	-0.300	1.200

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total Max Volume
3126	3538	177	180	3303	3718

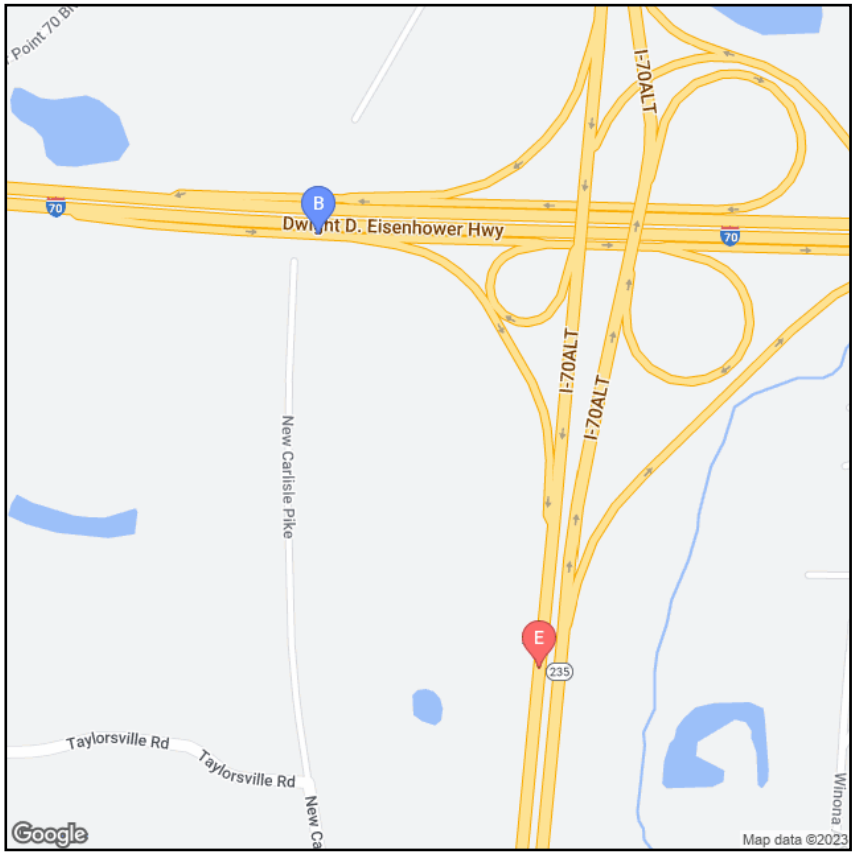
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Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2008	3,029	2,801	228
2012	3,796	3,660	136
2013	3,869	3,730	139
2016	4,259	4,014	244
2019	5,274	5,106	168
* 2022	4,040	3,907	133

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1854775	SMOTRA57164**C	0.000	0.492	0.492	4,100	4,200	850	19.8	100.0	4	4

Forecast Segment ID	Route	BMP	EMP
1854907	SMOTRA57257**C	0.000	0.330

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 19.8	3	4,600	Count	0.600	0.600
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
4,750	56.0	3	150	Count	0.600	0.600

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
4	4,570	154	4,724

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
-1569	12937	-545	659	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	2.75	-2.58	0	0	7,626	55	6,912	37
2	1.84	-3.09	5	4	6,190	16	5,915	18
3	1.76	0.13	0	0	6,396	170	5,834	138
4	0.61	0.56	5	4	4,639	169	4,570	154
5	1.38	-2.36	0	0	5,947	69	5,421	45
6	0.37	0.08	5	4	4,355	150	4,307	136

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
		-999999.000	-999999.000

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total Max Volume
0	0	0	0	0	0

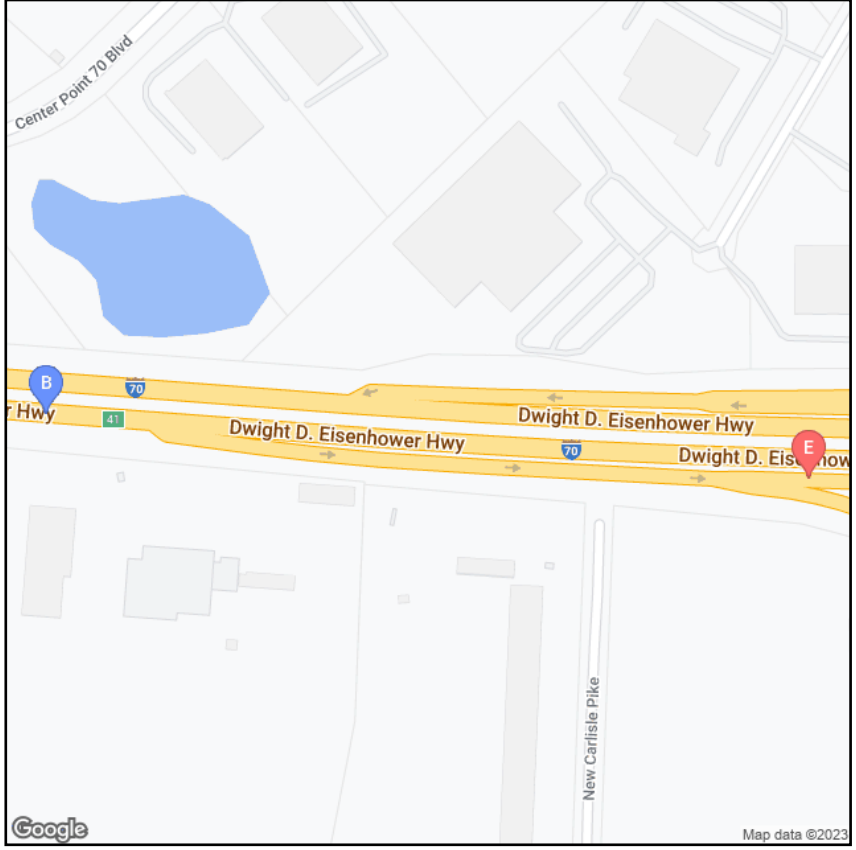
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Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2008	3,029	2,801	228
2012	3,796	3,660	136
2013	3,869	3,730	139
2016	4,259	4,014	244
2019	5,274	5,106	168
* 2022	4,040	3,907	133

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1854907	SMOTRA57257**C	0.000	0.330	0.330	4,100	4,600	900	19.8	56.0	3	3

Forecast Segment ID	Route	BMP	EMP
1854908	SMOTRA57257**C	0.330	0.441

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 11.6	9	3,700	Count	1.300	1.300
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
4,140	56.0	7	440	Count	2.400	2.400

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	3,704	444	4,148

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
0	5219	-466	622	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	1.19	-2.97	0	0	3,743	-12	3,600	45
2	1.33	2.37	3	1	3,815	449	3,704	444
3	-0.34	2.37	0	0	2,410	449	2,443	444
4	-0.40	2.43	4	4	2,411	448	2,398	449
5	-0.20	2.09	0	0	2,520	426	2,545	423
6	-0.57	2.51	4	4	2,272	454	2,267	455

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
		-999999.000	-999999.000

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total Max Volume
0	0	0	0	0	0

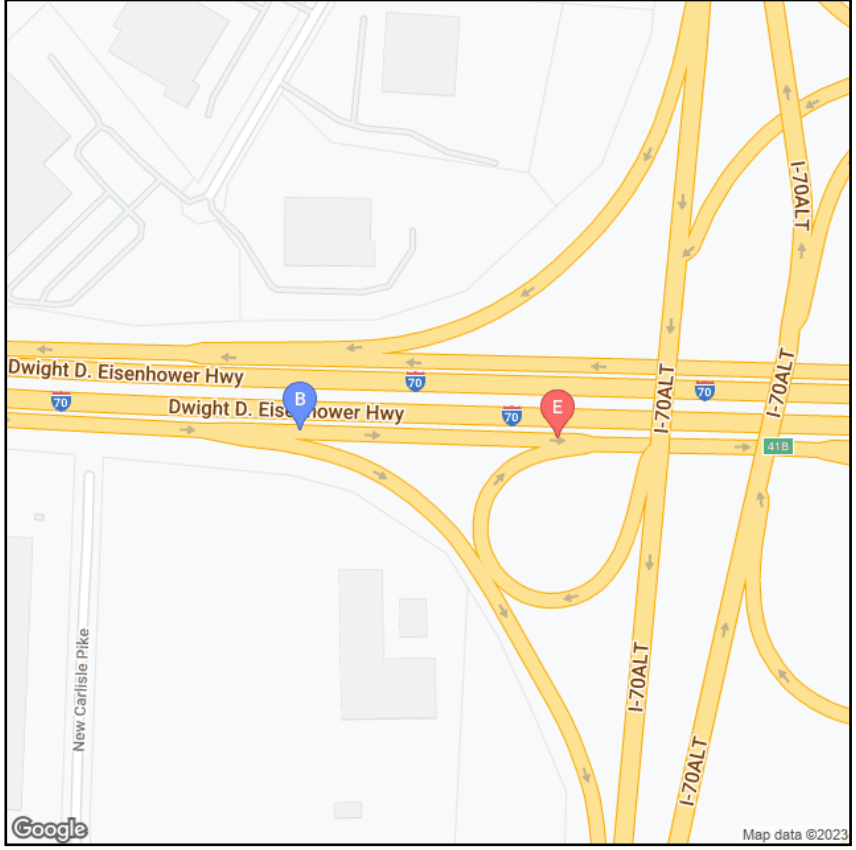
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Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2006	2,483	2,050	433
2012	2,987	2,785	202
2013	3,045	2,839	206
2016	2,759	2,498	260
2019	3,002	2,757	245
* 2022	2,965	2,698	267

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1854908	SMOTRA57257**C	0.330	0.441	0.111	3,100	3,900	450	11.6	56.0	11	8

Forecast Segment ID	Route	BMP	EMP
1854910	SMOTRA57257**C	0.441	0.702

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 17.1	14	1,000	Count	0.100	0.100
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
1,160	56.0	5	160	Count	● -2.100	0.000

● Warning: The growth rate was negative and was capped.

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	1,012	66	1,078

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
0	1498	-486	304	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	0.16	-6.72	0	0	1,098	-168	1,030	-142
2	0.10	-2.11	4	1	1,061	69	1,012	66
3	-0.28	-2.11	0	0	959	69	909	66
4	-0.24	-1.93	4	4	958	69	920	74
5	-0.72	-3.13	0	0	826	20	786	20
6	-0.50	-2.13	4	4	880	60	847	65

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
		-999999.000	-999999.000

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total Max Volume
0	0	0	0	0	0

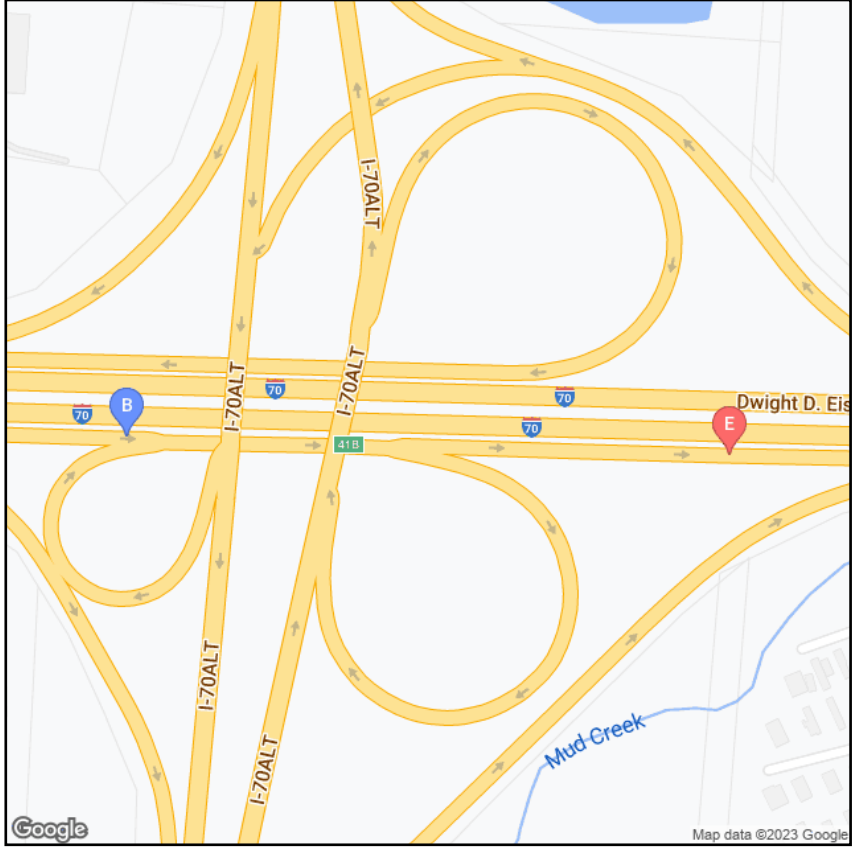
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Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2008	1,342	994	348
2012	1,212	1,027	185
2013	1,235	1,046	189
2016	1,337	1,112	224
2019	1,241	1,083	158
* 2022	1,146	985	161

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1854910	SMOTRA57257**C	0.441	0.702	0.261	1,100	1,200	200	17.1	56.0	13	5

Forecast Segment ID	Route	BMP	EMP
1855046	SMOTSR00004**C	24.038	24.755

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 12.9	4	33,000	Model	1.000	1.000
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
34,800	◆ 62.5	4	1,800	Model	2.600	2.600

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	34,982	-176	34,806

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
14975	53853	-5595	3070	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	1.61	-3.63	0	0	39,768	173	37,822	-16
2	1.22	-4.16	5	4	35,729	-158	34,982	-176
3	1.12	-5.71	0	0	35,708	-528	34,239	-635
4	0.66	-5.30	5	4	31,050	-532	30,888	-512
5	1.05	-7.91	0	0	35,125	-1,238	33,703	-1,287
6	0.64	-5.56	5	4	30,885	-616	30,735	-591

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	-16,620	36,282	-665	1,945	1.13	2.99
2	RAT	0.62	32,804	0.61	1,603	0.70	1.83
3	MRAT	1.21	33,406	1.51	1,719	0.77	2.23
4	RAF		34,844		1,832	0.95	2.61

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Average	Average	1.000	2.600

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total Max Volume
31201	34337	1603	1945	32804	36282

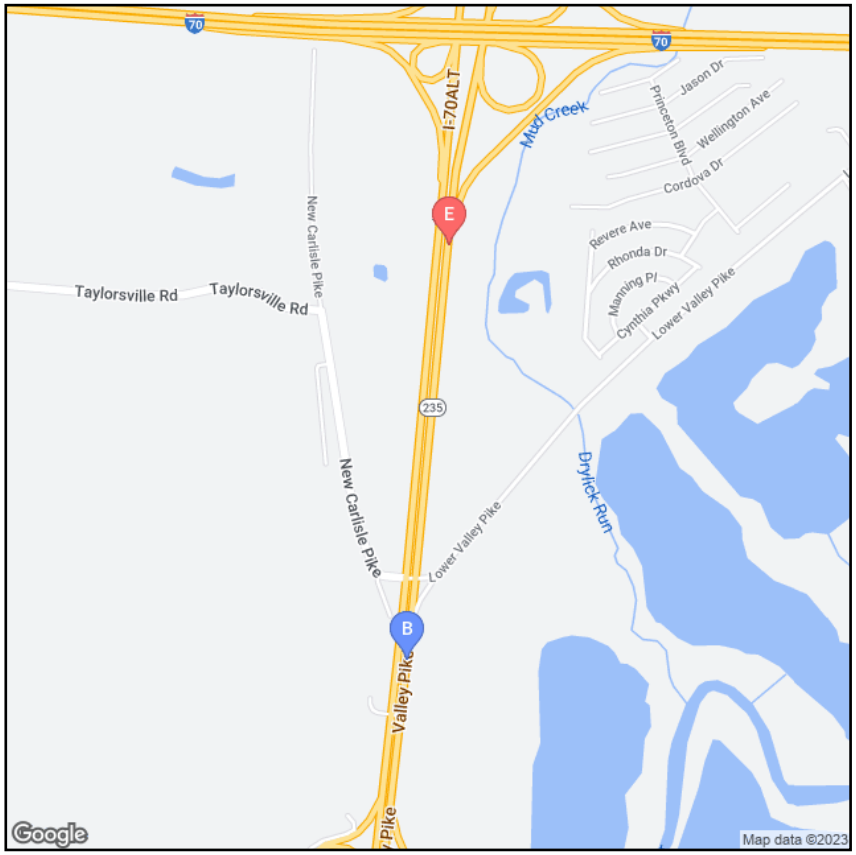
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Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2009	22,900	21,360	1,540
2012	26,042	24,462	1,580
2013	25,995	24,418	1,577
2016	27,801	25,667	2,133
2019	30,071	28,898	1,173
* 2022	27,127	26,068	1,059

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1855046	SMOTSR00004**C	24.038	24.755	0.717	28,000	33,500	4300	12.9	62.5	5	5

Forecast Segment ID	Route	BMP	EMP
1855049	SMOTSR00004**C	24.755	24.806

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 12.9	4	32,000	Average	0.800	0.800
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
33,400	◆ 62.5	4	1,400	Model	1.100	1.100

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	34,982	-176	34,806

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
14975	53853	-5595	3070	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	1.61	-3.63	0	0	39,768	173	37,822	-16
2	1.22	-4.16	5	4	35,729	-158	34,982	-176
3	1.12	-5.71	0	0	35,708	-528	34,239	-635
4	0.66	-5.30	5	4	31,050	-532	30,888	-512
5	1.05	-7.91	0	0	35,125	-1,238	33,703	-1,287
6	0.64	-5.56	5	4	30,885	-616	30,735	-591

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	20,647	30,390	647	1,385	0.40	1.10
2	RAT	4.19	40,786	2.57	1,896	1.76	2.82
3	MRAT	1.50	37,305	1.79	1,670	1.31	2.06
4	RAF		33,847		1,527	0.86	1.58

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Difference	Difference	0.400	1.100

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total Max Volume
29005	38890	1385	1896	30390	40786

Process Flag: Adjusted model to counts with process per ODOT 255 spreadsheet

Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2009	22,900	21,360	1,540
2012	26,042	24,462	1,580
2013	25,995	24,418	1,577
2016	27,801	25,667	2,133
2019	30,071	28,898	1,173
* 2022	27,127	26,068	1,059

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1855049	SMOTSR00004**C	24.755	24.806	0.051	28,000	32,500	4200	12.9	62.5	4	4

Forecast Segment ID	Route	BMP	EMP
1855051	SMOTSR00004**C	24.806	25.140

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 14.1	8	6,700	Model	2.300	2.300
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
7,390	100.0	3	690	Model	3.000	3.000

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	7,429	266	7,695

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
3368	12041	-551	1545	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	3.04	-0.76	0	0	7,773	299	7,529	293
2	2.95	-1.02	4	4	7,566	242	7,429	266
3	3.35	2.29	0	0	8,170	659	7,880	611
4	3.43	2.56	4	4	8,167	658	7,968	639
5	3.04	1.03	0	0	7,788	515	7,528	479
6	3.50	2.58	4	4	8,255	660	8,051	641

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	-2,041	7,702	-40	698	2.58	3.13
2	RAT	0.69	6,674	0.90	666	1.70	2.82
3	MRAT	1.50	7,018	1.79	680	1.99	2.96
4	RAF		7,360		689	2.29	3.04

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Average	Average	2.300	3.000

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total Max Volume
6008	7004	666	698	6674	7702

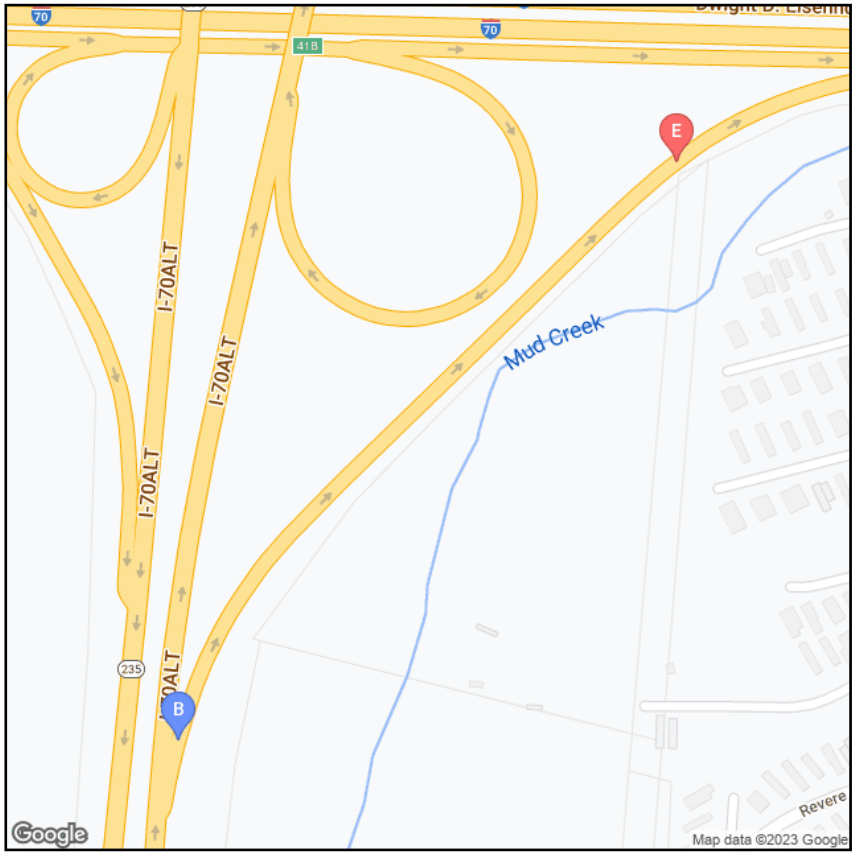
Process Flag: Adjusted model to counts with process per ODOT 255 spreadsheet

Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2009	3,340	2,820	520
2012	3,189	2,893	296
2013	3,183	2,888	295
2016	4,485	3,977	507
2019	4,540	4,149	391
* 2022	4,439	4,067	372

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1855051	SMOTSR00004**C	24.806	25.140	0.334	4,800	6,800	950	14.1	100.0	9	3

Forecast Segment ID	Route	BMP	EMP
1855362	SMOTSR00235**C	1.205	1.652

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 12.9	4	32,000	Model	0.800	0.800
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
33,600	◆ 62.5	4	1,600	Model	1.700	1.700

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	34,982	-176	34,806

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
14975	53853	-5595	3070	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	1.61	-3.63	0	0	39,768	173	37,822	-16
2	1.22	-4.16	5	4	35,729	-158	34,982	-176
3	1.12	-5.71	0	0	35,708	-528	34,239	-635
4	0.66	-5.30	5	4	31,050	-532	30,888	-512
5	1.05	-7.91	0	0	35,125	-1,238	33,703	-1,287
6	0.64	-5.56	5	4	30,885	-616	30,735	-591

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	-953	33,756	-129	1,575	0.84	1.74
2	RAT	0.97	33,532	0.89	1,519	0.81	1.55
3	MRAT	1.24	33,575	1.43	1,536	0.82	1.61
4	RAF		33,665		1,556	0.83	1.68

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Average	Average	0.800	1.700

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total Max Volume
32013	32181	1519	1575	33532	33756

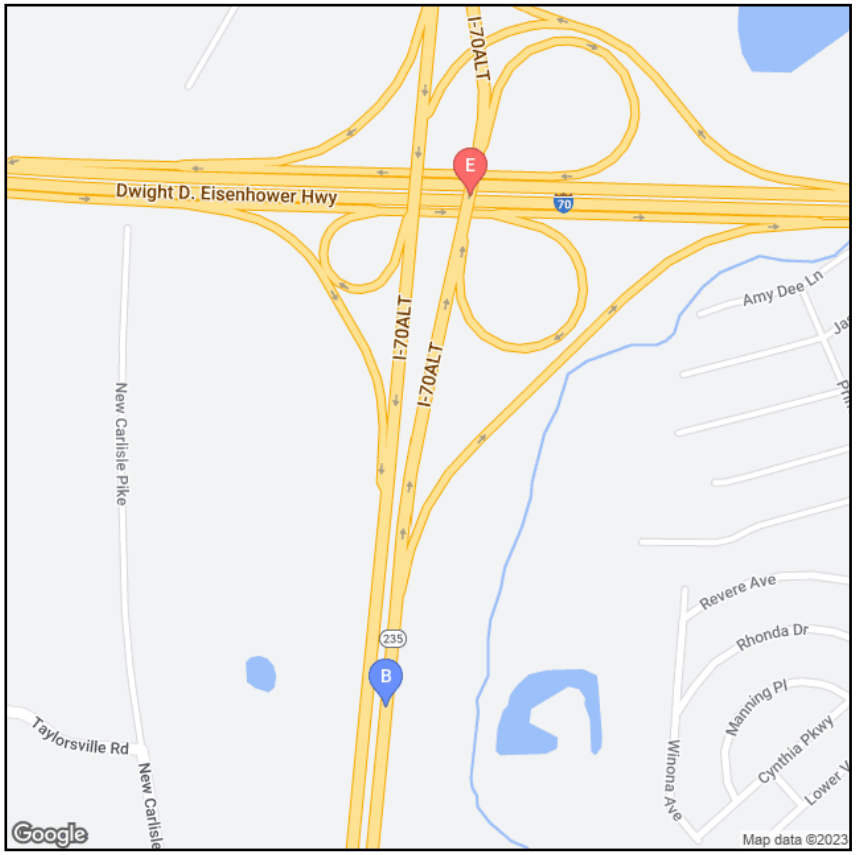
Process Flag: Adjusted model to counts with process per ODOT 255 spreadsheet

Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2009	22,900	21,360	1,540
2012	26,042	24,462	1,580
2013	25,995	24,418	1,577
2016	27,801	25,667	2,133
2019	30,071	28,898	1,173
* 2022	27,127	26,068	1,059

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1855362	SMOTSR00235**C	1.205	1.652	0.447	28,000	32,500	4200	12.9	62.5	5	5

Forecast Segment ID	Route	BMP	EMP
1855363	SMOTSR00235**C	1.652	1.720

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 12.9	4	32,000	Average	0.800	0.800
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
33,300	◆ 62.5	4	1,300	Model	0.800	0.800

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	34,982	-176	34,806

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
14975	53853	-5595	3070	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	1.61	-3.63	0	0	39,768	173	37,822	-16
2	1.22	-4.16	5	4	35,729	-158	34,982	-176
3	1.12	-5.71	0	0	35,708	-528	34,239	-635
4	0.66	-5.30	5	4	31,050	-532	30,888	-512
5	1.05	-7.91	0	0	35,125	-1,238	33,703	-1,287
6	0.64	-5.56	5	4	30,885	-616	30,735	-591

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	17,813	30,130	614	1,287	0.38	0.77
2	RAT	2.91	35,871	2.38	1,601	1.12	1.83
3	MRAT	1.32	34,472	1.51	1,494	0.95	1.47
4	RAF		32,301		1,391	0.66	1.12

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Difference	Difference	0.400	0.800

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total Max Volume
28843	34270	1287	1601	30130	35871

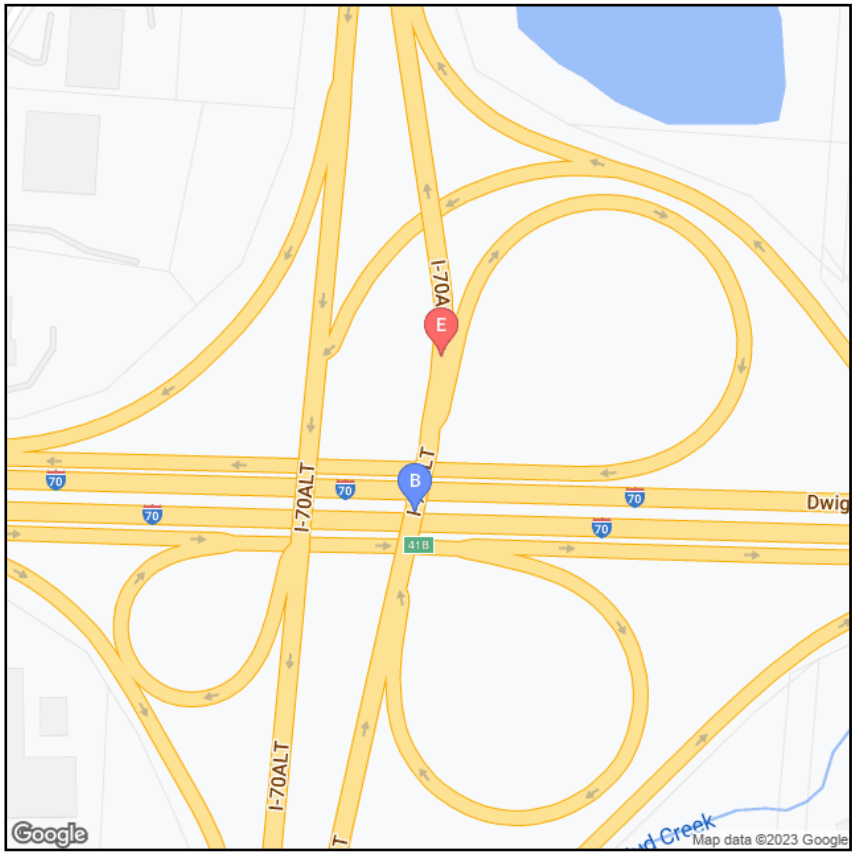
Process Flag: Adjusted model to counts with process per ODOT 255 spreadsheet

Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2009	22,900	21,360	1,540
2012	26,042	24,462	1,580
2013	25,995	24,418	1,577
2016	27,801	25,667	2,133
2019	30,071	28,898	1,173
* 2022	27,127	26,068	1,059

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1855363	SMOTSR00235**C	1.652	1.720	0.068	28,000	32,000	4100	12.9	62.5	4	4

Forecast Segment ID	Route	BMP	EMP
1855365	SMOTSR00235**C	1.720	1.746

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 11.0	8	20,000	Model	0.800	0.800
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
21,400	◆ 53.2	6	1,400	Average	● -0.500	0.000

● Warning: The growth rate was negative and was capped.

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	22,550	823	23,373

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
-2950	33440	-406	4275	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	1.31	1.63	0	0	23,958	2,323	22,102	2,053
2	1.40	-1.49	3	1	24,114	913	22,550	823
3	0.47	-1.49	0	0	19,614	913	18,313	823
4	0.00	-0.94	5	3	16,541	1,118	16,195	1,037
5	-0.68	-3.64	0	0	13,796	-34	13,088	-27
6	-1.19	-3.79	5	4	10,491	-87	10,774	-87

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	8,280	20,597	964	1,637	0.61	0.58
2	RAT	1.89	23,265	3.16	2,130	1.09	1.83
3	MRAT	1.32	22,615	1.51	1,963	0.99	1.40
4	RAF		21,606		1,800	0.80	0.99

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Average	Difference	0.800	0.600

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total Max Volume
18960	21135	1637	2130	20597	23265

Process Flag: Adjusted model to counts with process per ODOT 255 spreadsheet

Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2006	14,090	13,240	850
2009	17,120	15,510	1,610
2013	20,097	18,207	1,890
2016	17,878	16,212	1,665
2019	20,529	18,960	1,569
* 2022	17,594	16,185	1,409

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1855365	SMOTSR00235**C	1.720	1.746	0.026	18,000	20,500	2300	11.0	53.2	7	5

Forecast Segment ID	Route	BMP	EMP
1855366	SMOTSR00235**C	1.746	1.954

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 11.0	8	19,000	Model	0.700	0.700
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
20,400	◆ 53.2	6	1,400	Average	● -0.200	0.000

● Warning: The growth rate was negative and was capped.

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	22,550	823	23,373

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
-2950	33440	-406	4275	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	1.31	1.63	0	0	23,958	2,323	22,102	2,053
2	1.40	-1.49	3	1	24,114	913	22,550	823
3	0.47	-1.49	0	0	19,614	913	18,313	823
4	0.00	-0.94	5	3	16,541	1,118	16,195	1,037
5	-0.68	-3.64	0	0	13,796	-34	13,088	-27
6	-1.19	-3.79	5	4	10,491	-87	10,774	-87

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	1,363	21,225	567	1,775	0.72	0.93
2	RAT	1.08	21,529	1.67	2,021	0.73	1.55
3	MRAT	1.22	21,474	1.43	1,947	0.74	1.36
4	RAF		21,349		1,861	0.73	1.15

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Average	Average	0.700	1.200

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total Max Volume
19450	19527	1775	2021	21225	21548

Process Flag: Adjusted model to counts with process per ODOT 255 spreadsheet

Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2006	14,090	13,240	850
2009	17,120	15,510	1,610
2013	20,097	18,207	1,890
2016	17,878	16,212	1,665
2019	20,529	18,960	1,569
* 2022	17,594	16,185	1,409

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1855366	SMOTSR00235**C	1.746	1.954	0.208	18,000	20,500	2300	11.0	53.2	7	5

Forecast Segment ID	Route	BMP	EMP
1855367	SMOTSR00235**C	1.954	2.142

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 11.0	8	19,000	Model	0.700	0.700
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
21,000	◆ 53.2	6	2,000	Model	1.500	1.500

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	22,550	823	23,373

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
-2950	33440	-406	4275	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	1.31	1.63	0	0	23,958	2,323	22,102	2,053
2	1.40	-1.49	3	1	24,114	913	22,550	823
3	0.47	-1.49	0	0	19,614	913	18,313	823
4	0.00	-0.94	5	3	16,541	1,118	16,195	1,037
5	-0.68	-3.64	0	0	13,796	-34	13,088	-27
6	-1.19	-3.79	5	4	10,491	-87	10,774	-87

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	-3,399	21,577	187	1,964	0.76	1.41
2	RAT	0.84	20,933	1.15	2,049	0.60	1.62
3	MRAT	1.19	21,035	1.45	2,023	0.62	1.56
4	RAF		21,306		1,994	0.69	1.48

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Average	Average	0.700	1.500

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total Max Volume
18884	19613	1964	2049	20848	21662

Process Flag: Adjusted model to counts with process per ODOT 255 spreadsheet

Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2006	14,090	13,240	850
2009	17,120	15,510	1,610
2013	20,097	18,207	1,890
2016	17,878	16,212	1,665
2019	20,529	18,960	1,569
* 2022	17,594	16,185	1,409

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1855367	SMOTSR00235**C	1.954	2.142	0.188	18,000	20,500	2300	11.0	53.2	9	7

Forecast Segment ID	Route	BMP	EMP
1855372	SMOTSR00235**C	2.142	2.532

Forecast

Year	K%	T24 % (Existing)	PA AADT	PA Method	PA Growth Rate %	PA Calculated Rate %
2050	◆ 11.6	5	16,000	Model	0.700	0.700
AADT	**D%**	**TD % (Existing)**	**BC AADT**	**BC Method**	**BC Growth Rate %**	**BC Calculated Rate %**
16,700	◆ 61.3	2	700	Average	● -5.500	0.000

● Warning: The growth rate was negative and was capped.

◆ K/D factors from TCDS were used.

Regression

Method Number	PA AADT	BC AADT	AADT
2	13,487	-1,484	12,003

95% Confidence Min/Max

PA Min	PA Max	BC Min	BC Max	Year
309	20067	-3541	1695	2050

Method Number	PA Growth %	BC Growth %	PA Drop Count	BC Drop Count	PA AADT	BC AADT	PA Adjustment	PA Adjustment
1	-0.48	-5.03	0	0	11,085	-255	11,373	-286
2	0.09	-11.12	2	1	13,345	-1,628	13,487	-1,484
3	-0.93	-11.12	0	0	9,177	-1,628	9,709	-1,484
4	-1.40	-11.04	3	4	7,537	-1,549	7,999	-1,468
5	0.95	-10.12	0	0	16,877	-1,409	16,624	-1,287
6	0.83	-11.59	5	4	16,264	-1,667	16,195	-1,576

Adjustment Info

ID	Adjustment Methods Name	Model vs Count AADT	Adjusted AADT	Model vs Count BC	Adjusted BC	PA Growth Rate %	BC Growth Rate %
1	DIF	-2,122	16,513	202	720	0.72	0.09
2	RAT	0.87	16,158	1.40	727	0.62	0.13
3	MRAT	1.17	16,209	1.04	727	0.64	0.13
4	RAF		16,361		723	0.68	0.11

Adjust Method AADT	Adjust Method BC	Selected PA Growth Rate %	Selected BC Growth Rate %
Average	Average	0.700	0.100

Method 1 - 4 Volume

PA Min Volume	PA Max Volume	BC Min Volume	BC Max Volume	Total Min Volume	Total Max Volume
15431	15793	720	727	16151	16520

Process Flag: Adjusted model to counts with process per ODOT 255 spreadsheet

Comment: No Comment

Historical Count

Year	All	Cars	Trucks
2006	14,090	13,240	850
2009	17,120	15,510	1,610
2013	13,480	12,090	1,389
2016	13,554	12,763	790
2019	14,061	13,342	719
* 2022	13,843	13,141	702

* Pivot Point



Segment ID	LRS ID	BMP	EMP	Length	Yr 2025 AADT	Yr 2045 AADT	DHV30	K %	D %	T24 %	TD %
1855372	SMOTSR00235**C	2.142	2.532	0.390	14,000	16,000	1900	11.6	61.3	4	2

APPENDIX

H. NCHRP Spreadsheets

NCHRP255 adjustment process

NEED	TFMS ID	B	E	COL 1 (Name) Road/Link	COL 2 lin Di	COL 3 Max Rat	COL 3.5 Use SL	COL 4 near base model count year	COL 5 count data	COL 6 2025 Ab	COL 7 Ab interpolate	COL 8 2045 Af-D	COL 8.5 SLRATIO	COL 9 RATIO	COL 10 DIFF	COL 10.5 MRATIO	COL 11 RAf	COL 12 Selected Adjustment	COL 13 Selected Volume	COL 16 recent count delta	COL 17 2025 opening year	COL 18 2045 design yr	COL 19 growth factors opening yr	COL 20 growth factors design year	COL 21 annual growth check
Y	1854628	201WAD		I 70 WB OFF RAMP	0.5	2	Enable	2022	5197	4900	4810	5500	5501	5943	5887	5936	5912	**RAf**	**5912**	0	5290	5912	1.018	1.138	0.59%
Y	1854630		201WAM	I 70 WB ON RAMP	0.5	2	Enable	2022	4937	5800	5500	7800	7802	7002	7237	7071	7154	**RAf**	**7154**	0	5226	7154	1.059	1.449	1.84%
Y	1854632		201EAM	I 70 EB ON RAMP	0.5	2	Enable	2022	5417	5200	4915	7100	7102	7825	7602	7756	7679	**RAf**	**7679**	0	5712	7679	1.055	1.418	1.72%
Y	1854635	201EAD		I 70 EB OFF RAMP	0.5	2	Enable	2022	4696	5400	5160	7000	7002	6371	6536	6414	6475	**RAf**	**6475**	0	4928	6475	1.049	1.379	1.57%
	Total								**157983**		**157945**														

There are hidden rows if you want more roads in your intersection/screenline

There are hidden columns for opening year model results if you have them

	Year
Model Base	2022
Model Opening (opt)	
Model Forecast	2045
Project Opening	2025
Project Design	2045

if Yo=Yb then also must = Yc (col4)

must be > Yb

= >3%

= <.5%

NCHRP255 adjustment process — *Interpolate opening & design year & adjust for more recent count*

NEED?	TFMS ID	B	E	COL 1 Road/Link	COL 2 in Di	COL 3 Max Rat	COL 3.5 Use SL	COL 4 near base model count year	COL 5 count data	COL 6 Ab	COL 7 Ab interpolate	COL 8 Af-D	COL 8.5 SLRATIO	COL 9 RATIO	COL 10 DIFF	COL 10.5 MRATIO	COL 11 RAf	COL 12 Selected Adjustment	COL 13 Selected Volume	COL 14 most recent count year	COL 15 most recent count data	COL 16 recent count delta	COL 17 2025 opening year	COL 18 2045 design yr	COL 19 growth factors opening yr	COL 20 growth factors design year	COL 21 annual growth check
				(Name)						2025		2045															
Y	1826574	235EAM	675ESD	I70 (2 WAY)	0.5	2	Enable	2023	65556	65500	64350	77000	78861	78443	78206	78404	78305	RAf	**78305**			0	66715	78305	1.018	1.195	0.87%
Y	1854566	235WBD	235NVM	I70-WB OFF RAMP TO SR 235 NB	0.5	2	Enable	2022	1213	1100	1085	1200	1229	1342	1328	1341	1335	RAf	**1335**			0	1229	1335	1.013	1.101	0.43%
Y	1854768	235WBD	235SWM	I70-WB OFF RAMP TO SR 235 SB	0.5	2	Enable	2022	5489	5400	5145	7100	7272	7575	7444	7539	7492	RAf	**7492**			0	5750	7492	1.048	1.365	1.51%
Y	1854769	235NWD	235WSM	SR 235 NB TO I70 WB ON RAMP	0.5	2	Enable	2022	3512	3900	3720	5100	5223	4815	4892	4836	4864	RAf	**4864**			0	3688	4864	1.050	1.385	1.59%
Y	1854772	235SWD	235NSM	SR 235 SB TO I70 WB ON RAMP	0.5	2	Enable	2022	3082	3300	3210	3900	3994	3744	3772	3749	3761	RAf	**3761**			0	3171	3761	1.029	1.220	0.93%
Y	1854773	235SED	235ESM	SR 235 SB TO I70 EB ON RAMP	0.5	2	Enable	2022	1257	1200	1185	1300	1331	1379	1372	1378	1375	RAf	**1375**			0	1272	1375	1.012	1.094	0.40%
Y	1854774	235END	235NEM	I70 EB OFF RAMP TO SR 235 NB	0.5	2	Enable	2022	2712	3000	2985	3100	3175	2816	2827	2816	2822	RAf	**2822**			0	2726	2822	1.005	1.041	0.18%
Y	1854775	235ESD	235SEM	I70 EB OFF RAMP TO SR 235 SB	0.5	2	Enable	2022	6484	4100	4085	4200	4301	6667	6599	6665	6632	RAf	**6632**			0	6503	6632	1.003	1.023	0.10%
Y	1855051	235NED	235ENM	SR 235 NB TO I70 EB ON RAMP	0.5	2	Enable	2022	4604	4800	4500	6800	6964	6957	6904	6939	6922	RAf	**6922**			0	4906	6922	1.066	1.504	2.05%
Y	1855372			US-235 (2 WAY)	0.5	2	Enable	2022	13781	14000	13700	16000	16387	16095	16081	16093	16087	RAf	**16087**			0	14082	16087	1.022	1.167	0.71%
	Total								**381055**		**372065**																

There are hidden rows if you want more roads in your intersection/screenline

There are hidden columns for opening year model results if you have them

	Year
Model Base	2022
Model Opening (opt)	
Model Forecast	2045
Project Opening	2025
Project Design	2045

if Yo=Yb then also must = Yc (col4)

must be > Yb

= >3%

= <.5%

NCHRP255 adjustment process | *Interpolate opening & design year & adjust for more recent count*

NEED?	TFMS ID	B	E	COL 1 Road/Link	COL 2 in Di	COL 3 Max Rat	COL 3.5 Use SL	COL 4 near base model count year	COL 5 count data	COL 6 2025 Ab	COL 7 Ab^Interpolate	COL 8 2045 Af-D	COL 8.5 SLRATIO	COL 9 RATIO	COL 10 DIFF	COL 10.5 MRATIO	COL 11 RAf	COL 12 Selected Adjustment	COL 13 Selected Volume	COL 14 most recent count year	COL 15 most recent count data	COL 16 recent count delta	COL 17 2025 opening year	COL 18 2045 design yr	COL 19 growth factors opening yr	COL 20 growth factors design year	COL 21 annual growth check
	(Name)																										
Y	1855372			US-235 (2 WAY)	0.5	2	Enable	2022	13781	14000	13700	16000	#REF!	16095	16081	16093	16087	RAf	**16087**			0	14082	16087	1.022	1.167	0.71%
	Total								**#REF!**		**#REF!**																

There are hidden rows if you want more roads in your intersection/screenline

There are hidden columns for opening year model results if you have them

	Year	
Model Base	2022	
Model Opening (opt)		if Yo=Yb then also must = Yc (col4)
Model Forecast	2045	must be > Yb
Project Opening	2025	
Project Design	2045	

= >3%
= <.5%

NCHRP255 adjustment process | *Interpolate opening & design year & adjust for more recent count*

NEED	TFMS ID	B	E	Road/Link	COL 1 (Name)	COL 2 in Di	COL 3 Max Rat	COL 3.5 Use SL	COL 4 near base model count year	COL 5 count data	COL 6 2025 Ab	COL 7 Ab interpolate	COL 8 2045 Af-D	COL 8.5 SLRATIO	COL 9 RATIO	COL 10 DIFF	COL 10.5 MRATIO	COL 11 RAf	COL 12 Selected Adjustment	COL 13 Selected Volume	COL 14 most recent count year	COL 15 most recent count data	COL 16 recent count delta	COL 17 2025 opening year	COL 18 2045 design yr	COL 19 growth factors opening yr	COL 20 growth factors design year	COL 21 annual growth check
Y	1789438	675NWM		SPRANGLER RD (2 WAY)		0.5	2	Enable	2022	6,022	6000	6000	6000	6003	6022	6022	6022	6022	**RAf**	**6022**			0	6022	6022	1.000	1.000	0.00%
Y	1826574	235EAM	675ESD	I70 (2 WAY)		0.5	2	Enable	2023	65,556	65500	64350	77000	77041	78443	78206	78404	78305	**RAf**	**78305**			0	66715	78305	1.018	1.195	0.87%
Y	1826634		675NED	I675 (2 WAY)		0.5	2	Enable	2022	42347	42500	42275	44000	44023	44075	44072	44075	44074	**RAf**	**44074**			0	42572	44074	1.005	1.041	0.18%
Y	1826636	675NED	675ENM	I675 NB TO I70 EB ON RAMP		0.5	2	Enable	2021	11586	12500	12400	13000	13007	12147	12186	12149	12168	**RAf**	**12168**			0	11683	12168	1.008	1.050	0.21%
Y	1826638	675SWD	675WSM	SPRANGLER RD SB TO I70 WB ON RAMP		0.5	2	Enable	2021	393	400	390	450	450	453	453	453	453	**RAf**	**453**			0	403	453	1.025	1.153	0.62%
Y	1826639	675WND	675NWM	I70 WB TO SPRANGLER RD NB OFF RAMP		0.5	2	Enable	2021	701	650	650	650	650	701	701	701	701	**RAf**	**701**			0	701	701	1.000	1.000	0.00%
Y	1826640	675ESD	675SEM	I70 EB TO I675 SB RAMP		0.5	2	Enable	2021	7164	6700	6640	7000	7004	7552	7524	7551	7538	**RAf**	**7538**			0	7226	7538	1.009	1.052	0.22%
Y	1826641	675NWD	675WNM	I675 NB TO I70 WB ON RAMP		0.5	2	Enable	2021	6772	6700	6620	7100	7104	7263	7252	7262	7257	**RAf**	**7257**			0	6853	7257	1.012	1.072	0.29%
Y	1826642	675SED	675ESM	SPRANGLER RD SB TO I70 EB ON RAMP		0.5	2	Enable	2021	497	550	550	550	550	497	497	497	497	**RATIO**	**497**			0	497	497	1.000	1.000	0.00%
Y	1826643	675END	675NEM	I70 EB TO SPRANGLER RD NB OFF RAMP		0.5	2	Enable	2021	299	300	300	300	300	299	299	299	299	**RATIO**	**299**			0	299	299	1.000	1.000	0.00%
Y	Custom	675WSD	675SWM	I70 WB TO I675 SB OFF RAMP		0.5	2	Enable	2021	10,214	11500	11400	12000	12006	10752	10814	10755	10785	**RAf**	**10785**			0	10309	10785	1.009	1.056	0.23%
	Total									**252634**		**252500**																

There are hidden rows if you want more roads in your intersection/screenline

There are hidden columns for opening year model results if you have them

	Year
Model Base	2022
Model Opening (opt)	
Model Forecast	2045
Project Opening	2025
Project Design	2045

if Yo=Yb then also must = Yc (col4)
must be > Yb

= >3%
= <.5%

General Notes

Field Definiations

APPENDIX

I. ODOT Seasonal Adjustment Factors

2022 Rural Seasonal Adjustment Factors
(All Vehicles)

Group	RURAL INTERSTATE (R01)						
From Year:	2022		To Year:	2022			
	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Jan	1.506	1.229	1.203	1.161	1.159	1.089	1.340
Feb	1.359	1.099	1.102	1.092	1.071	0.986	1.268
Mar	1.176	1.081	1.062	1.037	0.979	0.872	1.145
Apr	1.074	1.033	1.024	0.993	0.920	0.839	1.042
May	1.070	0.997	1.000	0.971	0.902	0.821	1.037
Jun	1.007	0.963	0.984	0.954	0.880	0.798	0.966
Jul	0.963	0.964	0.960	0.938	0.870	0.777	0.940
Aug	0.992	0.963	0.975	0.937	0.877	0.800	0.961
Sep	1.072	0.997	1.001	0.974	0.900	0.794	1.001
Oct	1.016	0.995	1.002	0.975	0.904	0.801	1.004
Nov	1.163	1.016	0.981	1.027	0.951	0.884	1.103
Dec	1.288	1.073	1.037	0.971	0.951	0.913	1.121

Group	RURAL FREEWAY EXPRESSWAY (R02)						
From Year:	2022		To Year:	2022			
	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Jan	1.700	1.156	1.115	1.061	1.052	1.016	1.323
Feb	1.477	1.048	1.012	1.037	1.019	0.965	1.268
Mar	1.317	1.030	0.985	0.966	0.932	0.870	1.198
Apr	1.226	1.016	0.970	0.949	0.899	0.851	1.107
May	1.188	0.968	0.947	0.918	0.875	0.818	1.064
Jun	1.149	0.963	0.960	0.920	0.874	0.806	1.031
Jul	1.124	0.968	0.949	0.925	0.877	0.804	1.028
Aug	1.150	0.972	0.951	0.914	0.875	0.812	1.009
Sep	1.204	0.976	0.949	0.925	0.879	0.798	1.025
Oct	1.138	0.972	0.948	0.922	0.876	0.802	1.023
Nov	1.317	0.991	0.949	0.958	0.909	0.874	1.164
Dec	1.354	1.022	0.973	0.922	0.931	0.888	1.128

Group	RURAL OTHER PRINCIPAL ARTERIAL (R03)						
From Year:	2022		To Year:	2022			
	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Jan	1.683	1.158	1.123	1.098	1.091	1.058	1.347
Feb	1.465	1.038	1.017	1.042	1.030	0.958	1.279
Mar	1.329	1.026	0.996	0.979	0.943	0.873	1.189
Apr	1.191	1.002	0.970	0.948	0.900	0.843	1.060
May	1.157	0.952	0.937	0.929	0.889	0.829	1.042
Jun	1.146	0.954	0.943	0.918	0.874	0.820	1.025
Jul	1.147	0.959	0.942	0.933	0.879	0.815	1.039
Aug	1.174	0.954	0.939	0.911	0.874	0.811	1.033
Sep	1.161	0.943	0.936	0.917	0.869	0.787	1.006
Oct	1.148	0.969	0.949	0.933	0.891	0.813	1.045
Nov	1.311	0.992	0.961	0.973	0.930	0.880	1.169
Dec	1.350	1.001	0.973	0.941	0.939	0.889	1.134

Group	RURAL MINOR ARTERIAL (R04)						
From Year:	2022		To Year:	2022			
	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Jan	1.759	1.171	1.153	1.096	1.104	1.051	1.306
Feb	1.512	1.065	1.036	1.040	1.058	0.993	1.234
Mar	1.420	1.039	1.011	0.986	0.968	0.915	1.204
Apr	1.244	1.014	0.962	0.944	0.905	0.855	1.027
May	1.157	0.936	0.912	0.912	0.880	0.817	0.961
Jun	1.180	0.967	0.942	0.925	0.896	0.820	0.940
Jul	1.183	0.960	0.943	0.938	0.881	0.826	0.975
Aug	1.220	0.966	0.932	0.912	0.871	0.815	0.965
Sep	1.204	0.961	0.936	0.911	0.883	0.796	0.946
Oct	1.155	0.958	0.927	0.921	0.893	0.812	0.947
Nov	1.392	1.008	0.963	0.954	0.935	0.890	1.117
Dec	1.425	1.024	0.981	0.964	0.954	0.898	1.098

2022 Rural Seasonal Adjustment Factors
(All Vehicles)

Group		RURAL MAJOR COLLECTOR,MINOR COLLECTOR,LOCAL (R05, 06, 07)					
From Year:		2022	To Year:		2022		
	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Jan	1.742	1.094	1.088	1.021	1.045	1.042	1.283
Feb	1.510	1.057	0.981	0.968	1.013	1.001	1.313
Mar	1.448	0.989	0.968	0.939	0.949	0.909	1.243
Apr	1.218	0.991	0.921	0.896	0.877	0.852	1.040
May	1.177	0.887	0.870	0.871	0.860	0.813	1.006
Jun	1.228	0.970	0.953	0.928	0.914	0.863	0.982
Jul	1.281	0.987	0.964	0.957	0.924	0.901	1.054
Aug	1.213	0.937	0.913	0.878	0.865	0.839	0.988
Sep	1.265	0.910	0.891	0.870	0.846	0.803	0.983
Oct	1.235	0.940	0.899	0.895	0.891	0.829	0.984
Nov	1.440	0.989	0.948	0.934	0.901	0.911	1.153
Dec	1.485	1.021	0.980	0.981	0.960	0.916	1.165

2022 Urban Seasonal Adjustment Factors
(All Vehicles)

Group	URBAN INTERSTATE (U01)						
From Year:	2022		To Year:	2022			
	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Jan	1.678	1.126	1.081	1.048	1.052	1.021	1.308
Feb	1.454	1.019	0.992	0.993	0.998	0.957	1.231
Mar	1.351	1.010	0.966	0.948	0.925	0.890	1.176
Apr	1.265	0.995	0.943	0.924	0.889	0.862	1.094
May	1.210	0.946	0.921	0.901	0.877	0.853	1.073
Jun	1.225	0.955	0.919	0.902	0.870	0.842	1.057
Jul	1.228	0.954	0.927	0.914	0.871	0.843	1.064
Aug	1.219	0.947	0.914	0.890	0.869	0.838	1.047
Sep	1.268	0.956	0.925	0.904	0.873	0.828	1.065
Oct	1.215	0.961	0.925	0.912	0.877	0.834	1.046
Nov	1.363	0.969	0.926	0.934	0.899	0.887	1.154
Dec	1.381	0.986	0.939	0.910	0.908	0.881	1.126

Group	URBAN FREEWAY EXPRESSWAY (U02)						
From Year:	2022		To Year:	2022			
	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Jan	1.785	1.092	1.062	1.013	1.016	1.001	1.332
Feb	1.536	0.995	0.956	0.945	0.960	0.948	1.268
Mar	1.473	0.980	0.935	0.920	0.906	0.884	1.231
Apr	1.370	0.967	0.910	0.894	0.872	0.860	1.116
May	1.277	0.916	0.888	0.871	0.856	0.844	1.099
Jun	1.294	0.944	0.904	0.889	0.870	0.839	1.072
Jul	1.326	0.946	0.918	0.905	0.873	0.851	1.103
Aug	1.301	0.936	0.899	0.874	0.867	0.840	1.078
Sep	1.364	0.936	0.896	0.876	0.855	0.825	1.094
Oct	1.327	0.944	0.905	0.897	0.873	0.843	1.096
Nov	1.489	0.960	0.915	0.917	0.893	0.893	1.204
Dec	1.471	0.965	0.919	0.899	0.906	0.873	1.159

Group	URBAN OTHER PRINCIPAL ARTERIAL (U03)						
From Year:	2022		To Year:	2022			
	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Jan	1.663	1.077	1.057	1.014	1.038	0.996	1.245
Feb	1.409	0.996	0.968	0.954	0.970	0.919	1.156
Mar	1.364	0.992	0.948	0.929	0.914	0.868	1.135
Apr	1.289	0.982	0.936	0.919	0.892	0.839	1.037
May	1.242	0.935	0.913	0.904	0.886	0.848	1.054
Jun	1.289	0.975	0.938	0.922	0.897	0.855	1.059
Jul	1.355	0.993	0.959	0.954	0.920	0.878	1.107
Aug	1.300	0.958	0.925	0.911	0.899	0.854	1.062
Sep	1.310	0.943	0.916	0.902	0.873	0.821	1.039
Oct	1.299	0.965	0.929	0.924	0.893	0.838	1.062
Nov	1.376	0.963	0.934	0.944	0.910	0.883	1.112
Dec	1.393	0.965	0.923	0.904	0.897	0.859	1.094

Group	URBAN MINOR ARTERIAL, COLLECTORS, LOCAL (U04,05,06,07)						
From Year:	2022		To Year:	2022			
	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Jan	1.733	1.043	1.067	0.995	1.021	1.054	1.311
Feb	1.470	0.982	0.928	0.927	0.943	0.925	1.265
Mar	1.453	0.955	0.918	0.905	0.898	0.884	1.256
Apr	1.324	0.964	0.910	0.889	0.874	0.857	1.115
May	1.243	0.890	0.872	0.865	0.854	0.853	1.065
Jun	1.319	0.955	0.932	0.920	0.902	0.863	1.091
Jul	1.388	0.979	0.959	0.949	0.921	0.904	1.180
Aug	1.304	0.921	0.900	0.874	0.868	0.839	1.082
Sep	1.343	0.896	0.878	0.867	0.851	0.819	1.112
Oct	1.325	0.927	0.889	0.891	0.864	0.832	1.105
Nov	1.431	0.938	0.899	0.916	0.874	0.867	1.223
Dec	1.461	0.951	0.915	0.906	0.899	0.868	1.181

PEAK HOUR to DESIGN HOUR FACTORS

FUNCTIONAL CLASSIFICATION = 05, 06r

(Rural Major Collector & Rural Minor Collector)

Day / Month	Monthly Average by Day-of-Week							
	WEEKDAY MON-THUR	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
January	1.32	1.97	1.33	1.33	1.31	1.30	1.23	1.74
February	1.28	1.96	1.31	1.27	1.28	1.26	1.22	1.69
March	1.22	1.75	1.23	1.22	1.21	1.22	1.16	1.55
April	1.15	1.59	1.17	1.15	1.12	1.15	1.09	1.45
May	1.12	1.53	1.16	1.11	1.10	1.10	1.05	1.36
June	1.15	1.52	1.20	1.14	1.13	1.14	1.09	1.39
July	1.16	1.53	1.18	1.16	1.14	1.14	1.12	1.39
August	1.12	1.45	1.16	1.14	1.12	1.09	1.06	1.32
September	1.13	1.52	1.17	1.12	1.12	1.09	1.03	1.36
October	1.15	1.59	1.19	1.14	1.13	1.12	1.06	1.38
November	1.20	1.75	1.22	1.19	1.17	1.21	1.11	1.58
December	1.21	1.76	1.23	1.19	1.22	1.20	1.12	1.58

peak hour volume * factor = design hour volume

source: year 2018,2019,2021 Automatic Traffic Recorders (ATR) Data

ATR Stations:

2018: 8 Stations
2019: 8 Stations
2021: 8 Stations

Ohio Department of Transportation
Modeling & Forecasting Section
Nov 2022

NOTE: These are NOT seasonal adjustment factors!!!

Note: Insufficient data exists to produce factors for functional class 07 Rural.

APPENDIX

B. ODOT Traffic Scoping Documentation

Date Submitted_____

Scoping Document

This document is scoping guidance to be prepared by the ODOT project manager to be given to traffic analysts (either internal or consultants) for use in preparing scoping documents and fee estimates. It is a Memorandum of Understanding (MOU) between ODOT and the analyst.

Reset Form

CONTACT INFORMATION

PREPARED BY: _____ DATE: _____

ORE REVIEW (If necessary) _____ DATE: _____

PROJECT INFO

PROJECT NAME _____

PID _____ DISTRICT _____ COUNTY _____ ROUTE _____

LOG FROM: _____ TO: _____

TRAFFIC ANALYSIS TYPE:

○ Standard ○ Complex

PROJECT DESCRIPTION (context and background information)

TRAFFIC ANALYSIS OBJECTIVE:

ATTACH VICINITY AND LOCATION MAP

ANALYSIS BOUNDARY LIMITS

DESCRIBE GEOGRAPHIC LIMITS FOR ANALYSIS
(Include a scaled map showing all roadway segments, study intersections and interchanges)

STUDY PERIODS AND ANALYSIS YEARS

EXISTING YEAR _____ PROJECT OPENING YEAR _____ DESIGN YEAR _____

ANALYSIS PERIODS (i.e., AM, PM, Saturday, etc**.)** _____

TRAFFIC ANALYSIS TOOL SELECTION

DESCRIBE APPROACH TO TRAFFIC ANALYSIS (list tools to be used along with their versions) *check all that apply*:

HCS ☐ TransModeler ☐ Other ☐

DATA REQUIREMENTS AND DATA COLLECTION PLAN

DESCRIBE DATA COLLECTION PLAN (i.e. include locations, sources, techniques and schedule for each type of data (if applicable))

Turning Movement Counts ○ Yes ○ No

Segment Counts ○ Yes ○ No

Average Speeds/Travel Times ○ Yes ○ No

Queue Lengths ○ Yes ○ No

Existing Signal Timings ○ Yes ○ No

Should pedestrian WALK/DON'T WALK times be accommodated within the phase times? ○ Yes ○ No

Free-Flow Speed ○ Yes ○ No

Lane Utilization ○ Yes ○ No

Additional data needed for calibration/validation?

PROJECT TRAFFIC FORECASTING

Certified Traffic ☐ Planning Level Forecasts ☐ SDE Tool ☐ SHIFT ☐

SUMMARIZE METHODOLOGY FOR DEVELOPING TRAFFIC FORECASTS (Attach Early Coordination meeting summary)

PROJECT ALTERNATIVES

Existing Conditions Analysis ○Yes ○No

If yes, explain why:

No-Build Conditions Analysis ○Yes ○No

If no, explain why:

How many Build alternatives are anticipated? _____

PERFORMANCE MEASURES OF EFFECTIVENESS (MOES)

Level of Service (LOS)?	○ Yes ○ No
Delay?	○ Yes ○ No
Density?	○ Yes ○ No
95th Percentile Queue Length?	○ Yes ○ No
Volume-to-Capacity (v/c) ratio?	○ Yes ○ No
Queue-Storage Ratios (QSR)?	○ Yes ○ No

If "no" to any of the above, explain why:

Other MOEs required for analysis (explain MOE and how it is being obtained):

ADDITIONAL NOTES

ODOT District 7

Traffic Analysis/Traffic Impact Study
Scope of Services Supplement
(to be attached to C. O. Scoping Checklist)

Preliminary Meeting: 05/11/23 **Approved Scope Document:** 5/23/2023

Preliminary Submission:

√ Site Plan/Aerial/Site Documents-show the site, size, type of land use, ownership boundaries, surrounding ownerships, existing and proposed access points, type of access desired, alternative access points, estimated trip generation, existing traffic volumes, type of vehicles generated, adjacent public roadways, study limit map, proposed traffic count locations, etc.

√ C.O. Scoping Checklist and D#7 Scope of Services Supplement - completed in advance of the preliminary meeting to the extent possible.

*** Note: Items above must be submitted for review one week in advance of the Preliminary Meeting. ***

√ C.O. Reviewer's Checklist and C.O. Model Development Documentation Form – provided to consultant prior to preliminary meeting.

Preliminary Meeting:

√ **Discuss items submitted above and finalize scope documents for the study.**

Type of Study:

☐ **Traffic Analysis** (60-200 Trips)	☐ **TIS Level 1** (201-499 Trips)	√ **TIS Level 2** (500+ Trips) (District Approved Design Traffic)	√ **Possible IOS (C.O. Approval)**	√ **Possible IMS (FHWA Approval)**
			√ **Std. OATS Project**	☐ **Complex OATS Project**

Development Information:

Property Owner/Developer:	**Consultant: Kimley-Horn**
Type of Development: Travel Center with 120 vehicle fueling positions, 8 DEF positions, convenience market, and 20,000 sq ft restaurant.	**Acreage: Proposed development is on 38.88 Ac.**
Development Location: SR 235/Center Point Boulevard	**Change in Use: Yes**
City: Huber Heights	**Township: N/A**

Primary Roadway and Access Data:

County: Montgomery	**Route: SR235**	**Section: 1.97 to 2.33**	
Functional Class: Major Collector	**NHS: No**	**Posted Speed: 50 mph**	**Design Speed: 55 mph**

Access Category: ☐ **Category 1 (CO Review)** ☐ **Category 2** √ **Category 3** **Drive Spacing Required:** **425'**

Restrictions: _____

√ **New Access Request** ☐ **Existing Access Revision** ☐ **Limited Access Right of Way**

Type of Access Proposed: √ **Full** ☐ **Li/Ri/Ro** ☐ **Ri/Ro** ☐ **Ri only** ☐ **Ro only** ☐ **Other** _____

No. of Existing Accesses Along Frontage/Revisions: **2 commercial drives, 1 field drive**

Agency with Access Jurisdiction: **City of Huber Heights**

Secondary Roadway and Access Data:

County: Montgomery	**Route: SR235**	**Section: 1.34 to 1.97**	
Functional Class: Principal Arterial	**NHS: Yes**	**Posted Speed: 60 mph**	**Design Speed: 65 mph**

Access Category: √ **Category 1 (CO Review)** ☐ **Category 2** ☐ **Category 3** **Drive Spacing Required:** **570'**

Restrictions:

_____

☐ **New Access Request** ☐ **Existing Access Revision** √ **Limited Access Right of Way**

Type of Access Proposed: ☐ **Full** ☐ **Li/Ri/Ro** ☐ **Ri/Ro** √ **Ri only** ☐ **Ro only** ☐ **Other** _____

No. of Existing Accesses Along Frontage/Revisions: **1 commercial drive**

Agency with Access Jurisdiction: ODOT

Variance:

☐ **Variance is required. Type of variance requested:** _____

ODOT standards that cannot be met: _____

Justification to support the access variance request: _____

Additional Right of Way Required/Limited Access Modification:

√ **Additional R/W May Be Required** √ **R/W Plans May Be Required** √ **Possible R/W Donation to ODOT/City**

√ **Limited Access Modification Required. Involves appraisal, enhancement fee payment, survey, exhibit preparation, grant of access instrument, recording, road record update.** √ ***CO/FHWA Review Required***

Study Area/Site Driveway Intersection(s):

List All Study Intersections	Signal	Stop	Roundabout	Other (Describe)
SR 235/Artz Drive/Proposed right-in, right-out driveway	☐	√	☐	☐
SR 235/Centerpoint Boulevard/Proposed full-access driveway	√	☐	☐	☐
SR 235/Coca-Cola Boulevard	√	☐	☐	☐
IR 70/SR 235	☐	☐	☐	√ Interchange
IR 70/SR 201 (all ramp, merge/diverge, freeway; not including ramp intersections)	☐	☐	☐	√ Interchange
IR 70/IR 675 (full interchange – all ramp, merge/diverge, freeway segments)	☐	☐	☐	√ Interchange
	☐	☐	☐	☐

☐ **24-hour Machine Count Required** ☐ **Pedestrian Count Required**

√ **Take Weekday Peak Hour Traffic Counts on a T-W-TH (non-holiday weeks) at the following location(s)/time(s):**
(Need 4 consecutive hours for both AM and PM Peak between 6-10 AM and 2-7 PM. Schools, factories, etc. may require additional counts for site peak hours. Both site peak and roadway peak hours may require analysis. If development site is near an interchange and recommendations may include changes to the interchange that would require an interchange study (IOS or IMS), traffic counts shall encompass IOS/IMS limits). Include vehicle classifications and heavy vehicle percentages.

☐ **Take Site Peak Hour Traffic Counts on a T-W-TH at the following location(s)/time(s):**

☐ **Take Weekend Peak Hour Traffic Counts on a SA-SU at the following location(s)/time(s):**

☐ **Take Weekday Eight Hour Traffic Counts on a T-W-TH at the following location(s)/time(s):**

Location	AM	Mid-Day	PM	SA	SU
SR 235/Artz Drive/Proposed right-in, right-out driveway	6-10 am		3-7 pm	10am to 6pm	
SR 235/Centerpoint Boulevard/Proposed full-access driveway	6-10 am		3-7 pm	10am to 6pm	
SR 235/Coca-Cola Boulevard	6-10 am		3-7 pm	10am to 6pm	

Notes: _____

☐ **If existing demand exceeds capacity, traffic counts shall be adjusted to reflect actual demand per OATS Section 4.2.2.**

☐ **If lanes are not equally utilized within the same movement group (dual lefts, dual thru's), a lane utilization factor shall be field measured per OATS Section 4.7.**

☐ **For Complex Type projects, average speeds and travel time data is required and can be obtained from INRIX/*Streetlight Insight*/Tru-Traffic per OATS Section 4.3. Queue lengths should be field measured at intersections where demand exceeds capacity per OATS Section 4.4. Calibration of HCS analysis to field-measured traffic conditions should be done per OATS Section 6.5. Calibration and validation of TransModeler analysis to field-measured traffic conditions should be done per OATS Section 7.3.**

√ Complete the C.O. Model Development Documentation Form for all Complex Type projects. If any ODOT default values were changed for a Standard Type project, the Model Development Documentation Form will also need to be completed. If no ODOT default values were changes on a Standard Project, include a statement stating such with the traffic analysis.

Traffic Scenarios:

Use the following Traffic Scenarios: □ 10 Year Design Horizon √ 20 Year Design Horizon

X	Opening Year No Build Traffic Volumes	X	Opening Year Build Traffic Volumes
	Intermediate Year No Build Traffic Volumes		Intermediate Year Build Traffic Volumes
X	Design Year No Build Traffic Volumes	X	Design Year Build Traffic Volumes

Growth Rate(s) and Traffic Forecast:

Use the following growth rates

Primary Roadway Rate: _____ Basis: _____
Secondary Roadway Rate: _____ Basis: _____

Other Roadway(s): _____ Rate: _____ Basis: _____
_____ Rate: _____ Basis: _____

√ Traffic Forecast shall follow the procedures in Volume 1, Chapter 8 of Ohio Design Traffic Forecasting Manual.
Submit NCHRP Spreadsheet (see High Risk Certified Traffic Forecast).

Design Hourly Volume (DHV's):

Convert the existing Peak Hour Traffic Volumes to Design Hourly Volumes (DHV's) based on:
□ SHAMM Hourly Count Method 1 (□ with Covid adjustments) √ Ohio Design Traffic Forecasting Manual Vol. 1, Chapter 8 per M&F calibration document

Trip Generation:

√ Prepare trip generation using the Institute of Transportation Engineer's *Trip Generation* Manual, latest edition. List the basis for the directional distribution of the development traffic. Will be using data from similar sites for this study instead of ITE trip generation.

√ Assign development generated traffic volumes to the adjacent street network.

Capacity Analyses:

√ Perform HCS analysis using the *Highway Capacity Manual,* latest edition at study area intersections/site driveways during the peak hour time periods for the following Traffic Scenarios:

Design Year No Build Traffic Volumes – This is a true no build analysis and shall not include any geometric or operational improvements. This analysis shall use the existing geometry and existing traffic control.

Design Year Build Traffic Volumes (Build Condition #1) – This analysis shall use the existing geometry and existing traffic control.

Design Year Build Traffic Volumes (Build Condition #2) – This analysis shall use the proposed geometry and proposed traffic control.

(Build Condition #2 is required if Build Condition #1 does not meet established geometric and operational criteria. If Build Condition #2 is required, the analysis values for Build Condition #2 shall be used to compute turn lane lengths, check thru lane backup, etc.).

√ See OATS Section 6.2.2.1 for default saturation flow rate, arrival type, upstream filtering, initial queue, right turn on red value and queue length percentile to be used for all HCS intersection analyses. Full Optimization should be used for traffic signal timing optimization. The "Full Report" option should be used for the reporting of signalized intersection analyses results.

√ Perform microsimulation analyses (with TransModeler) to supplement HCS (if authorized). See OATS Chapter 7 for guidance on traffic simulation with TransModeler. *(May be required for Build Condition.)*

√ Free-flow speed used for all HCS and TransModeler analysis shall be the posted speed limit plus 5 mph.

Degradation:

√ Compare the Design Year No Build to the Design Year Build Traffic Volumes, check for degradation per SHAMM Section 9.46.

Performance Measures of Effectiveness (MOE's):

√ At a minimum, report LOS output, delay or density, 95th percentile queue lengths, volume-to-capacity ratios (v/c's) and queue-storage ratios (QSR's) for all analyses per OATS Section 1.1.10.

√ Per OATS Section 5.7, future year intersection analyses should be conducted using optimized signal timings with an operational goal of an overall intersection LOS of D or better within MPO boundaries and LOS C or better outside those limits.

Approach and Control LOS at E or better and no individual movement with v/c's greater than 1.0 (less than or equal to 0.93 preferred). QSR's should be less than 1.0 for all movements.

√ Present summaries of analyses results in tabular presentation format as outlined in OATS Chapter 8. Use format shown in Tables 8-1 and 8-2.

Traffic Signal Warrant Study:

□ Prepare a traffic signal warrant study at the following intersection(s) in accordance with ODOT standards using the ODOT Signal Warrant Spreadsheet for the following Traffic Scenarios:

Location	Opening Year Build Traffic Volumes	Intermediate Year Build Traffic Volumes	Design Year Build Traffic Volumes

□ Use 100% Values for signal warrant(s). 70% values can be used if location is in municipality (signal shall be approved/owned by municipality. In split corp, municipality can approve the signal but an agreement is required stating municipality will own, operate and maintain signal).

□ Village signal permit issued by the Traffic Operations Engineer (as needed for any signals within the Village).

√ Obtain existing signal timings from maintaining agency (field measure if needed). □ Prepare a signal coordination analysis. Cycle lengths in future year analyses should use optimized signal timings typically between 60 and 120 seconds.

Turn Lane Warrants/Queuing Analyses

√ Intersection capacity analysis procedures from the HCM shall be used to determine the number and use of turn lanes. For unsignalized intersections, check if warrants shown in ODOT's L&D Vol 1 Figures 401- 5a-5c and 401- 6a-6d are satisfied. Turn lane warrants/queuing analyses shall be performed using analyses values from Build Condition #1 or Build Condition #2 (if required) to determine if turn lanes or turn lane extensions are required at study area intersections/site driveway(s) per ODOT's L&D Vol 1. Use Figure 401-9 and 401-10 in ODOT's L&D Vol 1 for turn lane length determinations. For signalized intersections, HCS queue lengths shall also be considered in turn lane length determinations along with thru lane queue blockage of turn lanes.

√ Include a plan sheet showing conceptual geometry for all study area intersections/site driveways if roadway or traffic control improvements are warranted.

Study Submittals:

□ TRAFFIC ANALYSIS SUBMISSION

√ TRAFFIC COUNT SUBMISSION (counts, volumes, trip gen, dist. %'s) (include all spreadsheets used for calculations)

√ TRAFFIC ANALYSIS STUDY SUBMISSION

√ Send submissions to additional agencies listed below for review and comment:
City of Huber Heights
Montgomery County

√ Submit Reviewer's Checklist with Traffic Submission

□ Submit Model Development Documentation Form

Permit Requirements/Submittals:

√ ELECTRONIC MR505 PERMIT APPLICATION for work in ODOT R/W (include expected site trips using the ITE Manual. If the access request will become a public street, include letter from County/City Engineer indicating approval of roadway plan).

√ Deed showing ownership in the permittee's name.

√ Site Plan and Construction Plan (prepared in accordance with current ODOT L&D Manual Standards).

√ Cost Estimate for the work in ODOT's right of way.

√ Performance Bond √ Maintenance Bond □ ODOT as Additional Insured Party (Public Agency Contract)

√ Possible Sidewalk Agreement □ Possible Signal Agreement

√ Construction Plan/R/W Plan Submission √ Construction Plan/R/W Plan Compliance Submission

√ Estimated Begin Construction Date: Spring 2024

Construction plans shall be prepared in accordance with the most current version of the Department's design manuals and documents on the date of the Approved Scope Document (see http://www.dot.state.oh.us/drrc/). All work required by the design manuals shall be performed. Absence of a specific reference to required elements of the work in this Scope of Services shall not relieve the consultant/agency of responsibility to perform the work.

Other Requirements:

√ Environmental Review – An environmental review/document could be required for a new or modified access point located in limited access right of way (turn lanes added). An environmental review/document would be required for any right of way donation to ODOT.

√ Right of Way Donation – Additional right of way donation to ODOT could be required for pavement widening for a new access point, turn lanes, grading or for large signs, new strain poles/relocations, etc.

√ Prequalification – Consultants and contractors doing work on permit projects with a Traffic Analysis or Traffic Impact Study are required to be prequalified with ODOT for the specific work type they are performing on the project.

√ Utilities – The permittee is responsible for all utility relocation activities required on a permit project (perform utility coordination, insure necessary utility permits obtained prior to relocation work, etc.).

√ Upcoming Projects – The following projects are being constructed by ODOT in the immediate area over the next few years and may require coordination between contractors:

C-R-S	PID	Project Manager	Award Date	End Construction
MOT/CLA-70-17.38/0.00	112417	Tom Knapke	1/1/26	9/30/26
CLA IR 70 0.51/20.91 double microsurfacing	105361	Tom Knapke	2/11/25	8/31/25
CLA-675-0.00 Resurfacing	114555	Tom Knapke	1/1/26	7/1/26

Notes:

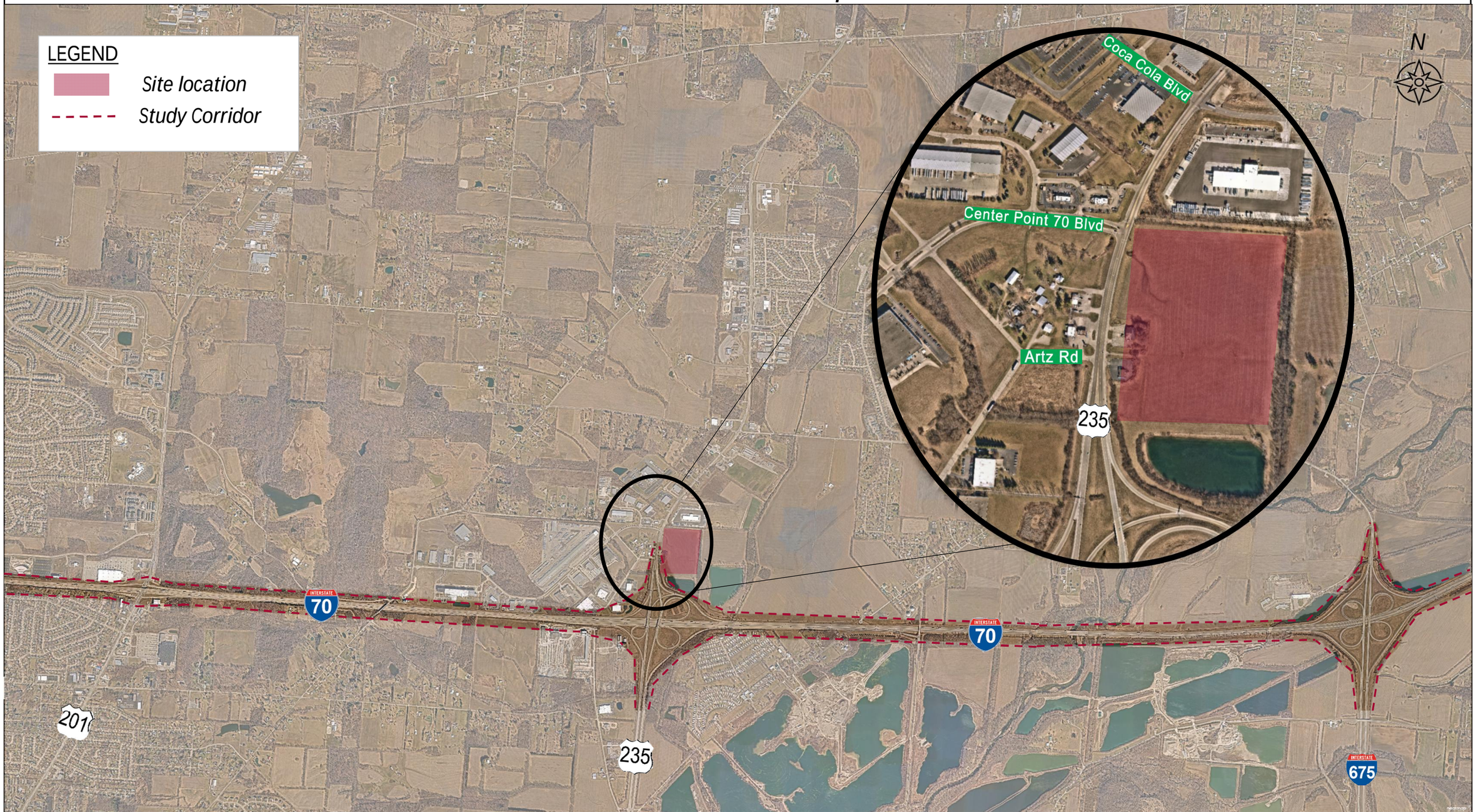
-OATS Manual Training Videos are available on ODOT website. See OATS Manual for guidance on using the PHF of the specific intersection in the study.

-Storage lengths must be entered for all approach lanes, including thru lanes.

APPENDIX

C. ODOT Study Location

Site Location Map



APPENDIX

D. ODOT Central Office References

Analysis #	Year	SHAMM (TIS) Condition	IOS Condition	Site Development (No-Build/Build)	Traffic	Geometry	Notes
1	2025	No-Build	N/A	No-Build	Background Traffic (excluding Site Development)	Existing (True No-Build)	A, B
2	2025	Build #1	No-Build	Build	Background + Site Development	Existing (True No-Build)	A, B, C
	*Most likely the LOS/traffic operations will become worse when comparing Analysis #1 to Analysis #2, if so then the existing geometry will require revisions and Analysis #3 will be required.						D
3	2025	Build #2	Build	Build	Background + Site Development	Proposed (Build)	A, B
4	2045	No-Build	N/A	No-Build	Background Traffic (excluding Site Development)	Existing (True No-Build)	A, B
5	2045	Build #1	No-Build	Build	Background + Site Development	Existing (True No-Build)	A, B, C
	*Most likely the LOS/traffic operations will become worse when comparing Analysis #4 to Analysis #5, if so then the existing geometry will require revisions and Analysis #6 will be required.						D
6	2045	Build #2	Build	Build	Background + Site Development	Proposed (Build)	A, B

A - Background Traffic is ODOT's Certified Traffic

B - Site Development traffic are the Trip Generation volumes

C - This may include a new or altered access to the development

D - Traffic operations include situations where the QSR (queue storage ratio) goes from <1.0 to >1.0


IOS Study Area
Legend
IOS Study Area
Google Earth
© 2023 Google
N
4000 ft

APPENDIX

E. No Build (Without Site Generated Trips) Summary Report

SR-235 TRAVEL CENTER

No Build (Without Site Generated Trips) Analysis

Huber Heights, Ohio

February, 2024







Prepared for:

ODOT District 7

Kimley»Horn

Contents

No Build Condition (Without Site Generated Trips) 5

ANALYSIS 6

Capacity Analysis 6

Intersection Capacity Analysis 7

Facility Capacity Analysis 9

APPENDIX 14

Tables

Table 1: No Build (Without Site Generated Trips) Certified Traffic Volume Exhibits 5

Table 2: Level of Service Grading Descriptions 7

Table 3: Level of Service Grading Criteria.....7

Table 4: Operational Goals of Intersections.....8

Table 5: Weekday AM Peak Hour - Study Intersections Capacity Analysis.....8

Table 6: Weekday PM Peak Hour - Study Intersections Capacity Analysis 9

Table 7: Operational Goals of Facilities 10

Table 8: Weekday AM Peak Hour I-70 EB – Study Freeway Segment Capacity Analysis ..10

Table 9: Weekday AM Peak Hour I-70 EB – Study Freeway Facility Capacity Analysis.....10

Table 10: Weekday PM Peak Hour I-70 EB – Study Freeway Segment Capacity Analysis 10

Table 11: Weekday PM Peak Hour I-70 EB – Study Freeway Facility Capacity Analysis ...10

Table 12: Weekday AM Peak Hour I-70 WB – Study Freeway Segment Capacity Analysis 11

Table 13: Weekday AM Peak Hour I-70 WB – Study Freeway Facility Capacity Analysis..11

Table 14: Weekday PM Peak Hour I-70 WB – Study Freeway Segment Capacity Analysis11

Table 15: Weekday PM Peak Hour I-70 WB – Study Freeway Facility Capacity Analysis ..11

Table 16: Weekday AM Peak Hour SR-235 NB – Study Freeway Segment Capacity Analysis.....12

Table 17: Weekday AM Peak Hour SR-235 NB – Study Freeway Facility Capacity Analysis 12

Table 18: Weekday PM Peak Hour SR-235 NB – Study Freeway Segment Capacity Analysis.....12

Table 19: Weekday PM Peak Hour SR-235 NB – Study Freeway Facility Capacity Analysis 12

Table 20: Weekday AM Peak Hour SR-235 SB – Study Freeway Segment Capacity Analysis.....13

Table 21: Weekday AM Peak Hour SR-235 SB – Study Freeway Facility Capacity Analysis 13

Table 22: Weekday PM Peak Hour SR-235 SB – Study Freeway Segment Capacity Analysis 13

Table 23: Weekday PM Peak Hour SR-235 SB – Study Freeway Facility Capacity Analysis 13

NO BUILD CONDITION (WITHOUT SITE GENERATED TRIPS)

To be conservative, the highest morning and evening peak hour data was applied for each intersection. Seasonal adjustment factors were applied to the daily and peak hour traffic volumes for each intersection. The applied seasonal adjustment factors are from the August 2021 adjustment factors as developed by the ODOT Modeling and Forecasting department, which are based on the 2021 automatic traffic recorders (ATR). Daily total traffic counts recorded on Tuesday, June 27, 2023, had a 0.932 seasonal adjustment applied along the SR-235 intersections.

Expected Growth Projections

As development of the region increases over the next couple of decades, the expected vehicular volumes are anticipated to increase as well. Growth rates were derived based on the procedures outlined in the Ohio Design Traffic Forecasting Manual, Chapter 8, Volume 1. ODOT Traffic Forecast Management System (TFMS) traffic outputs were placed in the ODOT NCHRP spreadsheets to determine the annual growth along each roadway segment.

Traffic Volume Balancing

The average annual daily traffic (AADT), morning (AM), and evening (PM) peak hours of traffic data were compiled for the study intersections and interchanges. Per the ODOT Analysis and Traffic Simulation (OATS) Manual and Ohio Traffic Forecasting Manual, Module 2, all traffic counts were rounded to the nearest “10”. A minimum of 10 vehicles was set for each legal traffic movement during morning and evening peak hours, and a minimum of 30 vehicles was set for the AADT’s. The existing raw and No Build traffic volumes were balanced following the Ohio Traffic Forecasting Manual, Module 2: Traffic Forecasting Methodologies. The traffic volumes were balanced using the higher volume distributed method, which increases lower volume movements through an equal distribution of existing counts.

No Build Traffic Volumes

The Raw balanced AADT, morning peak (AM), and evening peak (PM) traffic volumes are shown in **Appendix Exhibit 1** as outlined in **Table 1**. The Opening Year (2025) and Horizon Year (2045) No Build (Without Site Generated Trips) AADT, morning peak (AM), and evening peak (PM) traffic volumes are shown in **Appendix Exhibits 2-4** as outlined in **Table 1**.

Table 1: No Build (Without Site Generated Trips) Certified Traffic Volume Exhibits

Exhibit	*Exhibit Name*
Appendix Exhibit 1	*Raw Traffic Volumes*
Appendix Exhibit 2	*No Build (Without Site Generated Trips) – AADT*
Appendix Exhibit 3	*No Build (Without Site Generated Trips) – AM Peak Hour*
Appendix Exhibit 4	*No Build (Without Site Generated Trips) – PM Peak Hour*

ANALYSIS

This section of the report provides an overview of the traffic analysis for the study intersections and identifies recommended transportation improvements to accommodate the proposed development.

CAPACITY ANALYSIS

A capacity analysis was performed to quantify the delay and level of service at the study intersections and interchange during the weekday AM and PM peak hours. McTrans HCS-8 software was utilized to evaluate capacity of the proposed study intersections (reported overall and by approach) and freeway facilities for the peak hours of site generated traffic. The SR-201 ramp intersections and I-70 and SR-675 interchanges will not be included in this analysis, per correspondence with Gary Harrington and ODOT Central Office.

The capacity of an intersection or movement quantifies its ability to accommodate traffic volumes and is measured in average delay per vehicle. It is expressed in terms of level of service (LOS) which ranges from A to F, with LOS A as the highest (best traffic flow and least delay), LOS E as saturated or at-capacity conditions, and LOS F as the lowest (oversaturated conditions). The LOS grades shown below, which are provided in the Transportation Research Board's Highway Capacity Manual, quantify, and categorize the driver's discomfort, frustration, fuel consumption, and travel times experienced as a result of intersection control and the resulting traffic queuing. A detailed description of each LOS rating can be found in **Table 2**. The range of control delay for each rating (as detailed in the HCM) is shown in **Table 3**. Because signalized intersections are expected to carry a larger volume of vehicles and stopping is required during red signals, higher delays are tolerated for the corresponding LOS ratings. For unsignalized stop intersections, the intersection LOS is reported as the worst side street movement.

Traffic models for the following scenarios were developed and the capacity analysis (delay and LOS) was evaluated for each scenario. The scenarios that were analyzed are as follows:

- 2025 No Build (Without Site Generated Trips)
- 2045 No Build (Without Site Generated Trips)

Table 2: Level of Service Grading Descriptions

Level of Service	*Description*
A	*Minimal control delay; traffic operates at primarily free-flow conditions; unimpeded movement within traffic stream.*
B	*Minor control delay at signalized intersections; traffic operates at a fairly unimpeded level with slightly restricted movement within traffic stream.*
C	*Moderate control delay; movement within traffic stream more restricted than at LOS B; formation of queues contributes to lower average travel speeds.*
D	*Considerable control delay that may be substantially increased by small increases in flow; average travel speeds continue to decrease.*
E	*High control delay; average travel speed no more than 33 percent of free flow speed.*
F	*Extremely high control delay; extensive queuing and high volumes create exceedingly restricted traffic flow.*

[1]Highway Capacity Manual 2010

Table 3: Level of Service Grading Criteria

Level of Service	*Average Control Delay (s/veh) at:*		*Facility Density (pc/mi/ln)*
	Unsignalized Intersections	*Signalized Intersections*	*Rural Freeway*
A	*0 – 10*	*0 – 10*	*<6*
B	*> 10 – 15*	*> 10 – 20*	*>6-14*
C	*> 15 – 25*	*> 20 – 35*	*>14-22*
D	*> 25 – 35*	*> 35 – 55*	*>22-29*
E	*> 35 – 50*	*> 55 – 80*	*>29-39*
F[2]	*> 50*	*> 80*	*>39*

[1]Highway Capacity Manual 2010

[2]All movements with a Volume to Capacity (v/C) ratio greater than 1 receive a rating of LOS F.

[2]All movements with a v_d/c ratio greater than 1 receive a rating of LOS F.

INTERSECTION CAPACITY ANALYSIS

A capacity analysis was performed to quantify the delay and level of service at the study intersections and during the weekday AM and PM peak hours. McTrans HCS-8 software was utilized to evaluate capacity of the proposed study intersections (reported overall and by approach) for the peak hours of site generated traffic. **Table 4** is from section 5.9 of the OATS Manual, which outlines the LOS criteria for intersections. The study area is inside of the Miami Valley Regional Planning Commission (MVRPC) Boundary; therefore, LOS D is the acceptable intersection LOS threshold, and all movements shall be a LOS E or better as defined in the Memorandum of Understanding. Additionally, the volume-to-capacity ratio (v/c) for each movement should not exceed 1.0.

For the capacity analysis, traffic signal timings and phasing for the SR-235 and Center Point 70 Boulevard intersection were assumed to match existing traffic signal timing and phasing, as provided by the City of Huber Heights. The existing traffic signal timings and phasing for the SR-235 and Coca Cola Boulevard intersection were estimated using Miovision traffic videos, existing traffic signal heads, and existing roadway geometry.

Table 4: Operational Goals of Intersections

Result	Inside an MPO	Outside of an MPO
Intersection LOS	D or better	C of better
Approach LOS	E or better	
Control LOS	E or better	
v/c	All movements < 1.0 with < 0.93 preferred.	
QSR	All movements < 1.0 from HCS analysis, otherwise TransModeler may be needed to determine if queuing impacts upstream intersections.	

v/c = Volume-to-capacity ratio, QSR = Queue-Storage Ratio

The capacity analysis for the study intersections were completed for 2025 and 2045 No Build (Without Site Generated Trips) and 2045 No Build (Without Site Generated Trips) conditions and the results are summarized in **Tables 5 and 6**. The No-Build (Without Site Generated Trips) capacity analysis assumed the existing geometry at all study intersections. With the following exceptions, all approaches and intersections operated at an acceptable LOS, during 2025 and 2045 No Build (Without Site Generated Trips) conditions.

- SR-235 and Coca-Cola Boulevard/Private Drive
  - Northbound approach (2045 PM)
  - Southbound approach (2045 AM & PM)

Table 5: Weekday AM Peak Hour - Study Intersections Capacity Analysis

Intersection	2025 No Build (Without Site Generated Trips)					2045 No Build (Without Site Generated Trips)				
	LOS	Delay (s/veh)	V/C	QSR	95th %ile Queue	LOS	Delay (s/veh)	V/C	QSR	95th %ile Queue
▲ SR-235 and Artz Road										
Eastbound	C	21.30	0.12	-	8.00	D	27.50	0.17	-	12.00
Northbound	B	11.50	0.16	-	12.00	B	12.70	0.20	-	16.00
Southbound	A	0.00	0.00	-	0.00	A	0.00	0.00	-	0.00
✶ SR-235 and Center Point 70 Boulevard										
Eastbound	C	34.00	0.50	0.19	75.00	C	31.60	0.53	0.19	77.80
Northbound	A	6.50	0.38	0.05	86.30	A	7.80	0.51	0.07	105.90
Southbound	C	21.00	0.83	0.48	459.00	D	39.30	1.0	0.70	665.30
Intersection	B	16.70	-	-	-	C	27.20	-	-	-
✶ SR-235 and Coca-Cola Boulevard/Private Drive										
Eastbound	C	33.80	0.15	0.10	10.10	C	31.40	0.15	0.09	18.30
Westbound	C	34.00	0.24	0.09	25.90	C	31.60	0.23	0.08	23.90
Northbound	A	8.00	0.45	0.16	154.10	B	14.70	0.52	0.35	329.90
Southbound	B	12.70	0.73	0.20	317.10	B	18.50	0.85	0.30	466.00
Intersection	B	12.00	-	-	-	B	17.70	-	-	-

▲ – Minor-Leg Stop-Controlled Intersection * - Signalized Intersection

Table 6: Weekday PM Peak Hour - Study Intersections Capacity Analysis

Intersection	2025 No Build (Without Site Generated Trips)					2045 No Build (Without Site Generated Trips)				
	LOS	Delay (s/veh)	V/C	QSR	95th %ile Queue	LOS	Delay (s/veh)	V/C	QSR	95th %ile Queue
▲ SR-235 and Artz Road										
Eastbound	*B*	*14.40*	*0.20*	*-*	*16.00*	*C*	*19.60*	*0.30*	*-*	*24.00*
Northbound	*A*	*9.70*	*0.03*	*-*	*2.00*	*B*	*12.30*	*0.20*	*-*	*14.00*
Southbound	*A*	*0.00*	*0.00*	*-*	*0.00*	*A*	*0.00*	*0.00*	*-*	*0.00*
✶ SR-235 and Center Point 70 Boulevard										
Eastbound	*C*	*26.10*	*0.69*	*0.28*	*110.90*	*C*	*34.20*	*0.83*	*0.46*	*183.90*
Northbound	*B*	*16.70*	*0.85*	*0.19*	*316.10*	*C*	*21.00*	*0.90*	*0.30*	*499.90*
Southbound	*C*	*21.60*	*0.67*	*0.36*	*346.00*	*C*	*27.30*	*0.59*	*0.41*	*384.90*
Intersection	*B*	*19.60*	*-*	*-*	*-*	*C*	*24.80*	*-*	*-*	*-*
✶ SR-235 and Coca-Cola Boulevard/Private Drive										
Eastbound	*C*	*24.10*	*0.17*	*0.06*	*18.40*	*C*	*31.50*	*0.16*	*0.09*	*25.60*
Westbound	*C*	*24.00*	*0.10*	*0.04*	*11.40*	*C*	*31.40*	*0.10*	*0.05*	*15.90*
Northbound	*B*	*19.40*	*0.98*	*0.25*	*238.30*	*F*	*92.40*	*1.18*	*1.03*	*983.00*
Southbound	*B*	*10.70*	*0.57*	*0.13*	*197.20*	*F*	*96.30*	*1.11*	*0.53*	*824.90*
Intersection	*B*	*16.60*	*-*	*-*	*-*	*F*	*91.40*	*-*	*-*	*-*

▲ – Minor-Leg Stop-Controlled Intersection * - Signalized Intersection

FACILITY CAPACITY ANALYSIS

A capacity analysis was performed to quantify the delay and level of service at the study interchange during the weekday AM and PM peak hours. McTrans HCS-8 software was utilized to evaluate capacity of the proposed facilities (reported overall and by approach) for the peak hours of site generated traffic. **Table 7** from section 5.9 of the OATS Manual outlines the LOS criteria for facilities. The study area is inside of the Miami Valley Regional Planning Commission (MVRPC) Boundary; therefore, LOS D is the acceptable intersection LOS threshold, and all movements shall be a LOS D or better as defined in the Memorandum of Understanding. Additionally, the demand-to-capacity ratio (d/c) for each movement should not exceed 0.93.

The capacity analysis for the facility was completed for 2025 and 2045 No Build (Without Site Generated Trips) conditions and the results are summarized in **Tables 8-23**. The No-Build (Without Site Generated Trips) capacity analysis assumed the existing geometry at all freeway sections and interchange ramps. All freeway segments operated at an acceptable LOS during 2025 and 2045 No Build (Without Site Generated Trips) conditions.

Table 7: Operational Goals of Facilities

Result	Inside an MPO	Outside of an MPO
LOS	D or better	C of better
d/c (Demand-to-Capacity ratio)	< 0.93.	

Table 8: Weekday AM Peak Hour I-70 EB – Study Freeway Segment Capacity Analysis

Segment	Analysis Type	Location (I-70 EB)	2025 No Build (Without Site Generated Trips)				2045 No Build (Without Site Generated Trips)			
			LOS	v/c	d/c		LOS	v/c	d/c	
					F*	R*			F*	R*
Seg-1	Basic	IR-70 EB	B	0.44	0.44	-	B	0.50	0.50	-
Seg-2	Diverge	235EAD	C	0.44	0.44	0.38	C	0.50	0.50	0.44
Seg-3	Basic	IR-70 EB	A	0.31	0.31	-	B	0.36	0.36	-
Seg-4	Merge	235EAM	B	0.40	0.40	0.29	B	0.49	0.49	0.42
Seg-5	Basic	IR-70 EB	B	0.40	0.40	-	B	0.48	0.48	-

F* = Freeway, R* = Ramp, # = Weave segment. Check to ensure on-ramp and off-ramp have sufficient capacity.

Table 9: Weekday AM Peak Hour I-70 EB – Study Freeway Facility Capacity Analysis

Facility	2025	2045
Facility Length, mi	4.56	4.56
Space Mean Speed, mi/h	74.1	73.8
Density, pc/mi/ln	12.7	15.0
Density, veh/mi/ln	10.4	12.3
Travel Time, min	3.70	3.70
LOS	B	B

Table 10: Weekday PM Peak Hour I-70 EB – Study Freeway Segment Capacity Analysis

Segment	Analysis Type	Location (I-70 EB)	2025 No Build (Without Site Generated Trips)				2045 No Build (Without Site Generated Trips)			
			LOS	v/c	d/c		LOS	v/c	d/c	
					F*	R*			F*	R*
Seg-1	Basic	IR-70 EB	B	0.46	0.46	-	B	0.52	0.52	-
Seg-2	Diverge	235EAD	C	0.46	0.46	0.31	C	0.52	0.52	0.33
Seg-3	Basic	IR-70 EB	B	0.36	0.36	-	B	0.43	0.43	-
Seg-4	Merge	235EAM	B	0.48	0.48	0.39	C	0.58	0.58	0.52
Seg-5	Basic	IR-70 EB	B	0.49	0.49	-	C	0.59	0.59	-

F* = Freeway, R* = Ramp, # = Weave segment. Check to ensure on-ramp and off-ramp have sufficient capacity.

Table 11: Weekday PM Peak Hour I-70 EB – Study Freeway Facility Capacity Analysis

Facility	2025	2045
Facility Length, mi	4.56	4.56
Space Mean Speed, mi/h	74.0	73.0
Density, pc/mi/ln	14.7	17.6
Density, veh/mi/ln	12.1	14.5
Travel Time, min	3.70	3.70
LOS	B	B

Table 12: Weekday AM Peak Hour I-70 WB – Study Freeway Segment Capacity Analysis

Segment	Analysis Type	Location (I-70 WB)	2025 No Build (Without Site Generated Trips)				2045 No Build (Without Site Generated Trips)			
			LOS	v/c	d/c		LOS	v/c	d/c	
					F*	R*			F*	R*
Seg-1	Basic	US-70 WB	B	0.38	0.38	-	B	0.46	0.46	-
Seg-2	Diverge	235WAD	B	0.38	0.38	0.38	C	0.46	0.46	0.48
Seg-3	Basic	US-70 WB	A	0.25	0.25	-	A	0.30	0.30	-
Seg-4	Merge	235WSM	B	0.34	0.34	0.28	B	0.40	0.40	0.33
Seg-5	Basic	US-70 WB	A	0.34	0.34	-	B	0.40	0.40	-

F* = Freeway, R* = Ramp, # = Weave segment. Check to ensure on-ramp and off-ramp have sufficient capacity.

Table 13: Weekday AM Peak Hour I-70 WB – Study Freeway Facility Capacity Analysis

Facility	2025	2045
Facility Length, mi	4.35	4.35
Space Mean Speed, mi/h	74.2	74.1
Density, pc/mi/ln	11.2	13.3
Density, veh/mi/ln	9.20	10.9
Travel Time, min	3.50	3.50
LOS	B	B

Table 14: Weekday PM Peak Hour I-70 WB – Study Freeway Segment Capacity Analysis

Segment	Analysis Type	Location (I-70 WB)	2025 No Build (Without Site Generated Trips)				2045 No Build (Without Site Generated Trips)			
			LOS	v/c	d/c		LOS	v/c	d/c	
					F*	R*			F*	R*
Seg-1	Basic	US-70 WB	B	0.50	0.50	-	C	0.59	0.59	-
Seg-2	Diverge	235WAD	C	0.50	0.50	0.31	C	0.59	0.59	0.39
Seg-3	Basic	US-70 WB	B	0.39	0.39	-	B	0.46	0.46	-
Seg-4	Merge	235WSM	C	0.54	0.54	0.48	C	0.67	0.67	0.61
Seg-5	Basic	US-70 WB	C	0.56	0.56	-	C	0.67	0.67	-

F* = Freeway, R* = Ramp, # = Weave segment. Check to ensure on-ramp and off-ramp have sufficient capacity.

Table 15: Weekday PM Peak Hour I-70 WB – Study Freeway Facility Capacity Analysis

Facility	2025	2045
Facility Length, mi	4.35	4.35
Space Mean Speed, mi/h	73.6	72.0
Density, pc/mi/ln	16.3	19.7
Density, veh/mi/ln	13.3	16.2
Travel Time, min	3.50	3.60
LOS	B	C

Table 16: Weekday AM Peak Hour SR-235 NB – Study Freeway Segment Capacity Analysis

Segment	Analysis Type	Location (SR-235 NB)	2025 No Build (Without Site Generated Trips)				2045 No Build (Without Site Generated Trips)			
			LOS	v/c	d/c		LOS	v/c	d/c	
					F*	R*			F*	R*
Seg-1	Basic	SR-235 NB	B	0.29	0.29	-	B	0.38	0.38	-
Seg-2	Diverge	235NED	A	0.29	0.29	0.24	B	0.38	0.38	0.33
Seg-3	Basic	SR-235 NB	A	0.16	0.16	-	A	0.2	0.20	-
Seg-4	Weaving	235NEM and 235NWD	A	0.20	0.20	#	A	0.24	0.24	#
Seg-5	Basic	SR-235 NB	A	0.15	0.15	-	A	0.17	0.17	-
Seg-6	Merge	235NWM	A	0.19	0.19	0.10	B	0.22	0.22	0.10
Seg-7	Basic	SR-235 NB	A	0.20	0.20	-	A	0.22	0.22	-

F* = Freeway, R* = Ramp, # = Weave segment. Check to ensure on ramp and off-ramp have sufficient capacity.

Table 17: Weekday AM Peak Hour SR-235 NB – Study Freeway Facility Capacity Analysis

Facility	2025	2045
Facility Length, mi	1.42	1.42
Space Mean Speed, mi/h	56.2	56.0
Density, pc/mi/ln	8.50	10.6
Density, veh/mi/ln	7.40	9.30
Travel Time, min	1.50	1.50
LOS	A	A

Table 18: Weekday PM Peak Hour SR-235 NB – Study Freeway Segment Capacity Analysis

Segment	Analysis Type	Location (SR-235 NB)	2025 No Build (Without Site Generated Trips)				2045 No Build (Without Site Generated Trips)			
			LOS	v/c	d/c		LOS	v/c	d/c	
					F*	R*			F*	R*
Seg-1	Basic	SR-235 NB	C	0.48	0.48	-	C	0.63	0.63	-
Seg-2	Diverge	235NED	B	0.48	0.48	0.31	C	0.63	0.63	0.44
Seg-3	Basic	SR-235 NB	B	0.33	0.33	-	B	0.42	0.42	-
Seg-4	Weaving	235NEM and 235NWD	B	0.44	0.44	#	B	0.54	0.54	#
Seg-5	Basic	SR-235 NB	A	0.22	0.22	-	A	0.26	0.26	-
Seg-6	Merge	235NWM	B	0.25	0.25	0.07	B	0.29	0.29	0.08
Seg-7	Basic	SR-235 NB	A	0.26	0.26	-	B	0.29	0.29	-

F* = Freeway, R* = Ramp, # = Weave segment. Check to ensure on-ramp and off-ramp have sufficient capacity.

Table 19: Weekday PM Peak Hour SR-235 NB – Study Freeway Facility Capacity Analysis

Facility	2025	2045
Facility Length, mi	1.42	1.42
Space Mean Speed, mi/h	54.8	54.2
Density, pc/mi/ln	14.6	18.5
Density, veh/mi/ln	13.4	17.0
Travel Time, min	1.60	1.60
LOS	B	C

Table 20: Weekday AM Peak Hour SR-235 SB – Study Freeway Segment Capacity Analysis

Segment	Analysis Type	Location (SR-235 SB)	2025 No Build (Without Site Generated Trips)				2045 Build (Without Site Generated Trips)			
			LOS	v/c	d/c		LOS	v/c	d/c	
					F*	R*			F*	R*
Seg-1	Basic	SR-235 SB	A	0.22	0.22	-	A	0.26	0.26	-
Seg-2	Diverge	235SWD	A	0.22	0.22	0.17	A	0.26	0.25	0.19
Seg-3	Basic	SR-235 SB	A	0.16	0.16	-	A	0.18	0.18	-
Seg-4	Weaving	235SWM and 235SED	A	0.19	0.19	#	A	0.23	0.23	#
Seg-5	Basic	SR-235 SB	A	0.19	0.19	-	A	0.23	0.23	-
Seg-6	Merge	235SEM	B	0.28	0.28	0.30	B	0.32	0.32	0.30
Seg-7	Basic	SR-235 SB	A	0.28	0.28	-	B	0.33	0.33	-

F = Freeway, R* = Ramp, # = Weave segment. Check to ensure on-ramp and off-ramp have sufficient capacity.*

Table 21: Weekday AM Peak Hour SR-235 SB – Study Freeway Facility Capacity Analysis

Facility	2025	2045
Facility Length, mi	1.42	1.42
Space Mean Speed, mi/h	57.5	57.4
Density, pc/mi/ln	9.10	10.7
Density, veh/mi/ln	8.40	9.80
Travel Time, min	1.50	1.50
LOS	A	A

Table 22: Weekday PM Peak Hour SR-235 SB – Study Freeway Segment Capacity Analysis

Segment	Analysis Type	Location (SR-235 SB)	2025 No Build (Without Site Generated Trips)				2045 Build (Without Site Generated Trips)			
			LOS	v/c	d/c		LOS	v/c	d/c	
					F*	R*			F*	R*
Seg-1	Basic	SR-235 SB	A	0.22	0.22	-	A	0.25	0.25	-
Seg-2	Diverge	235SWD	A	0.22	0.22	0.15	A	0.25	0.25	0.18
Seg-3	Basic	SR-235 SB	A	0.15	0.15	-	A	0.17	0.17	-
Seg-4	Weaving	235SWM and 235SED	A	0.17	0.17	#	A	0.20	0.2	#
Seg-5	Basic	SR-235 SB	A	0.16	0.16	-	A	0.19	0.19	-
Seg-6	Merge	235SEM	A	0.21	0.21	0.17	A	0.25	0.25	0.17
Seg-7	Basic	SR-235 SB	A	0.21	0.21	-	A	0.24	0.24	-

F = Freeway, R* = Ramp, # = Weave segment. Check to ensure on-ramp and off-ramp have sufficient capacity.*

Table 23: Weekday PM Peak Hour SR-235 SB – Study Freeway Facility Capacity Analysis

Facility	2025	2045
Facility Length, mi	1.42	1.42
Space Mean Speed, mi/h	57.4	57.3
Density, pc/mi/ln	7.50	8.8
Density, veh/mi/ln	6.90	8.1
Travel Time, min	1.50	1.5
LOS	A	A

APPENDIX

Exhibit 1 – Raw Traffic Volumes

Exhibit 2 – No Build (Without Site Generated Trips) AADT

Exhibit 3 – No Build (Without Site Generated Trips) AM

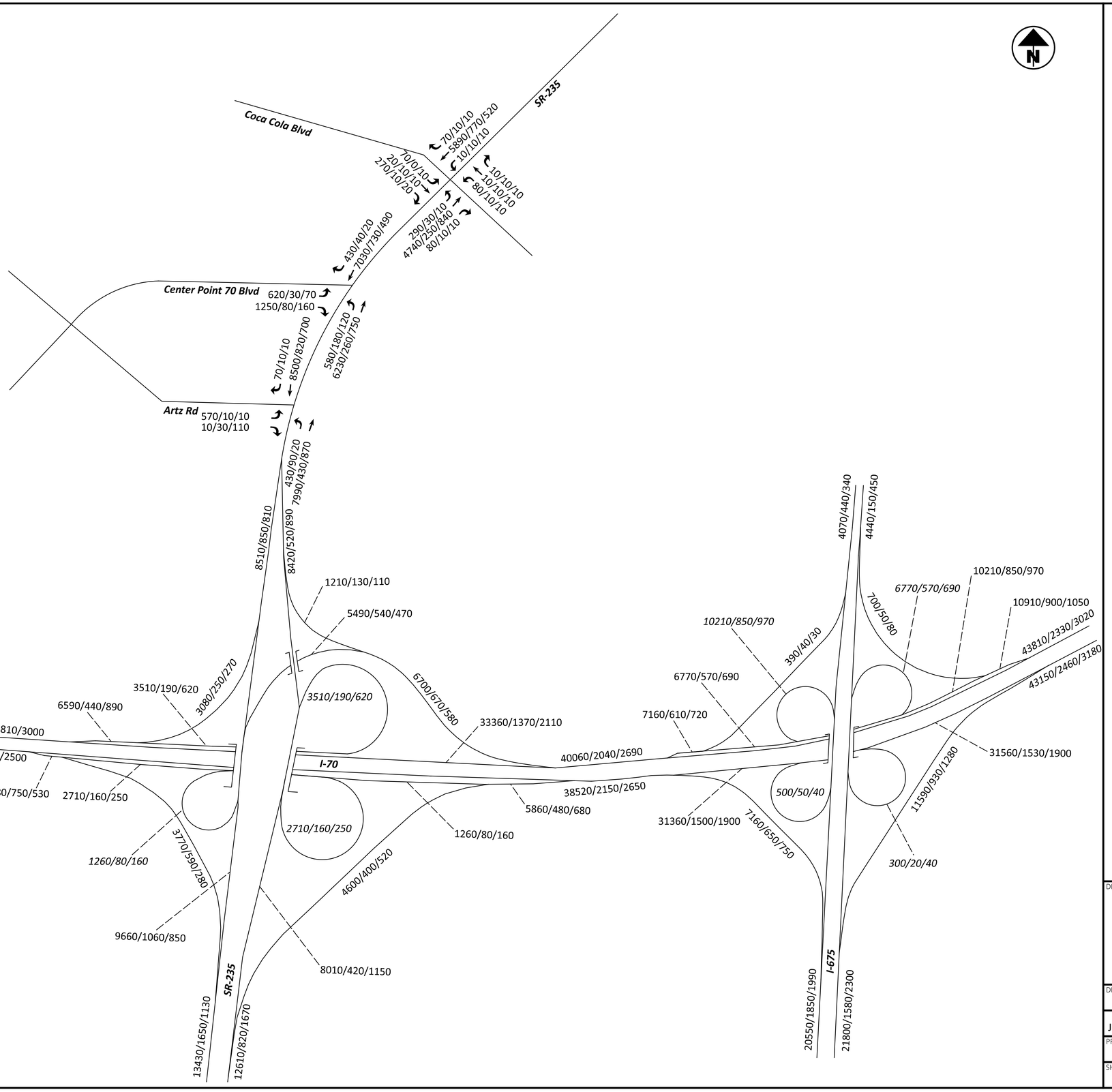
Exhibit 4 – No Build (Without Site Generated Trips) PM

A – HCS-8 No Build (Without Site Generated Trips) Intersection Outputs

B – HCS 8 No Build (Without Site Generated Trips) Facility Outputs

LEGEND

AADT / AM / PM



APPENDIX EXHIBIT 1: RAW TRAFFIC VOLUMES

CERTIFIED TRAFFIC

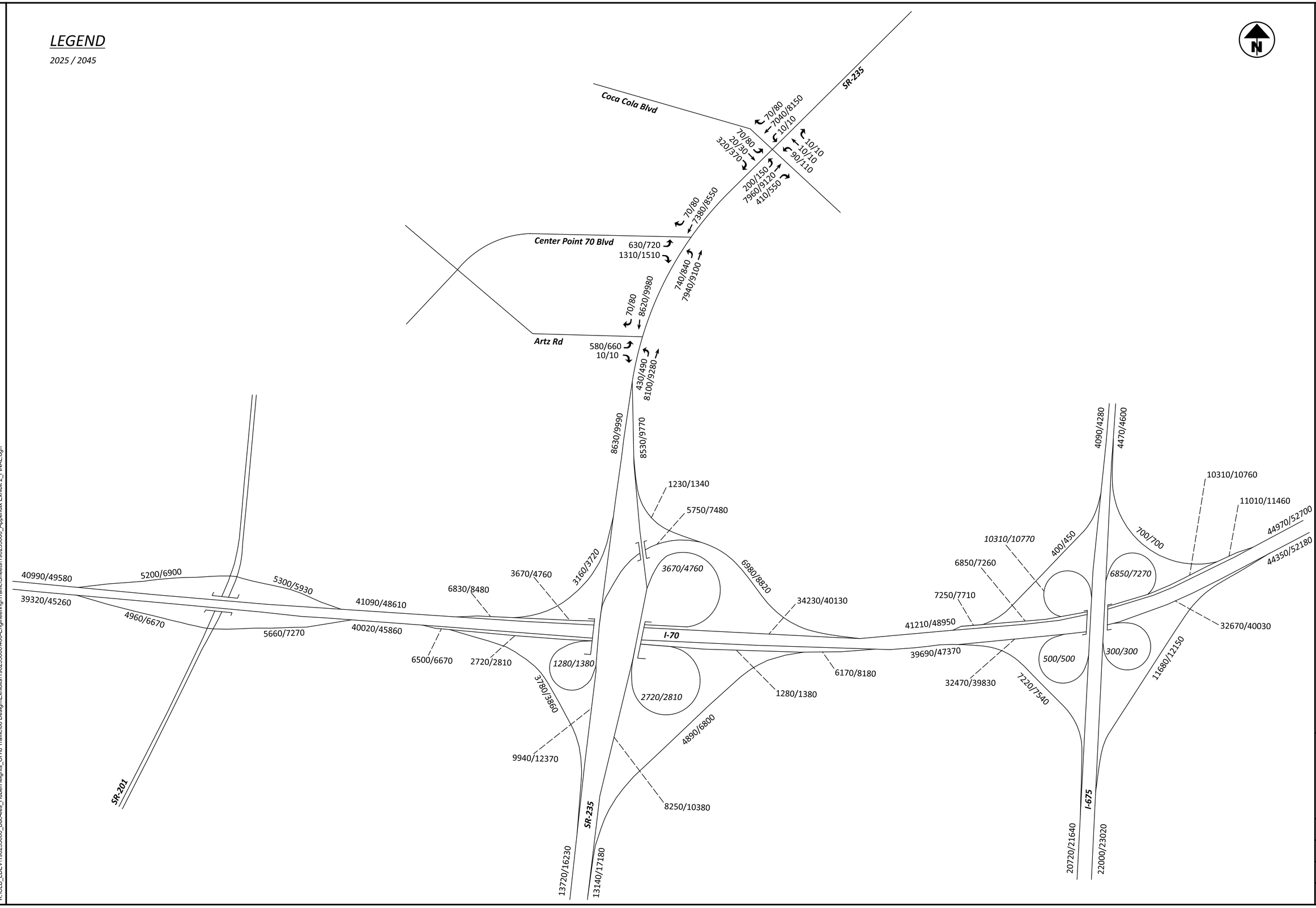
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DESIGN AGENCY
Kimley»Horn

DESIGNER	VIL
REVIEWER	JDC 10/26/23
PROJECT ID	190255000
SHEET	P.1
TOTAL	4

LEGEND

2025 / 2045



CERTIFIED TRAFFIC

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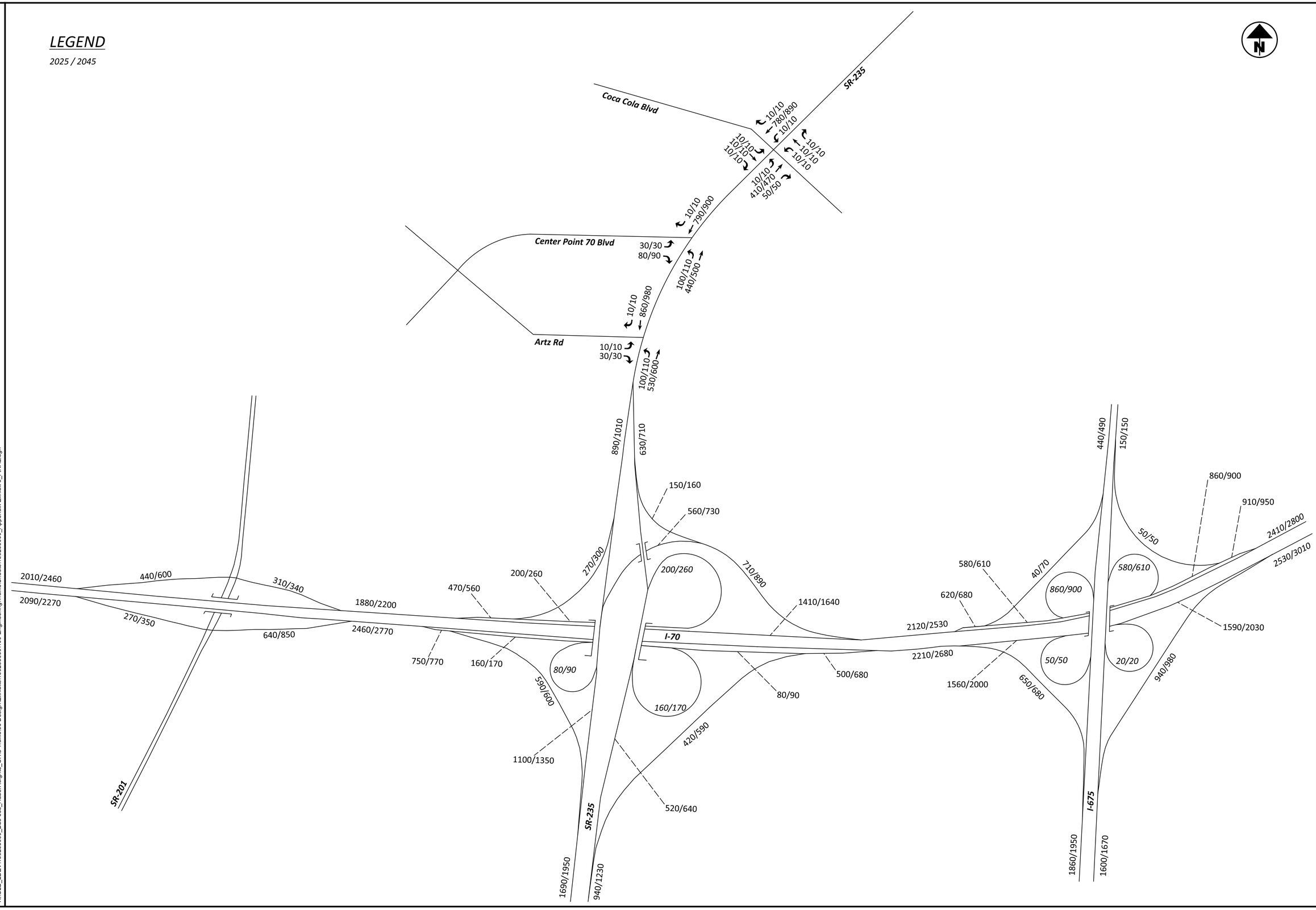
APPENDIX EXHIBIT 2: NO BUILD (WITHOUT SITE GENERATED TRIPS) - AADT

DESIGN AGENCY
Kimley»Horn

DESIGNER	VIL
REVIEWER	JDC 10/26/23
PROJECT ID	190255000
SHEET	P.2
TOTAL	4

LEGEND

2025 / 2045



APPENDIX EXHIBIT 3: NO BUILD (WITHOUT SITE GENERATED TRIPS) - AM PEAK HOUR

CERTIFIED TRAFFIC

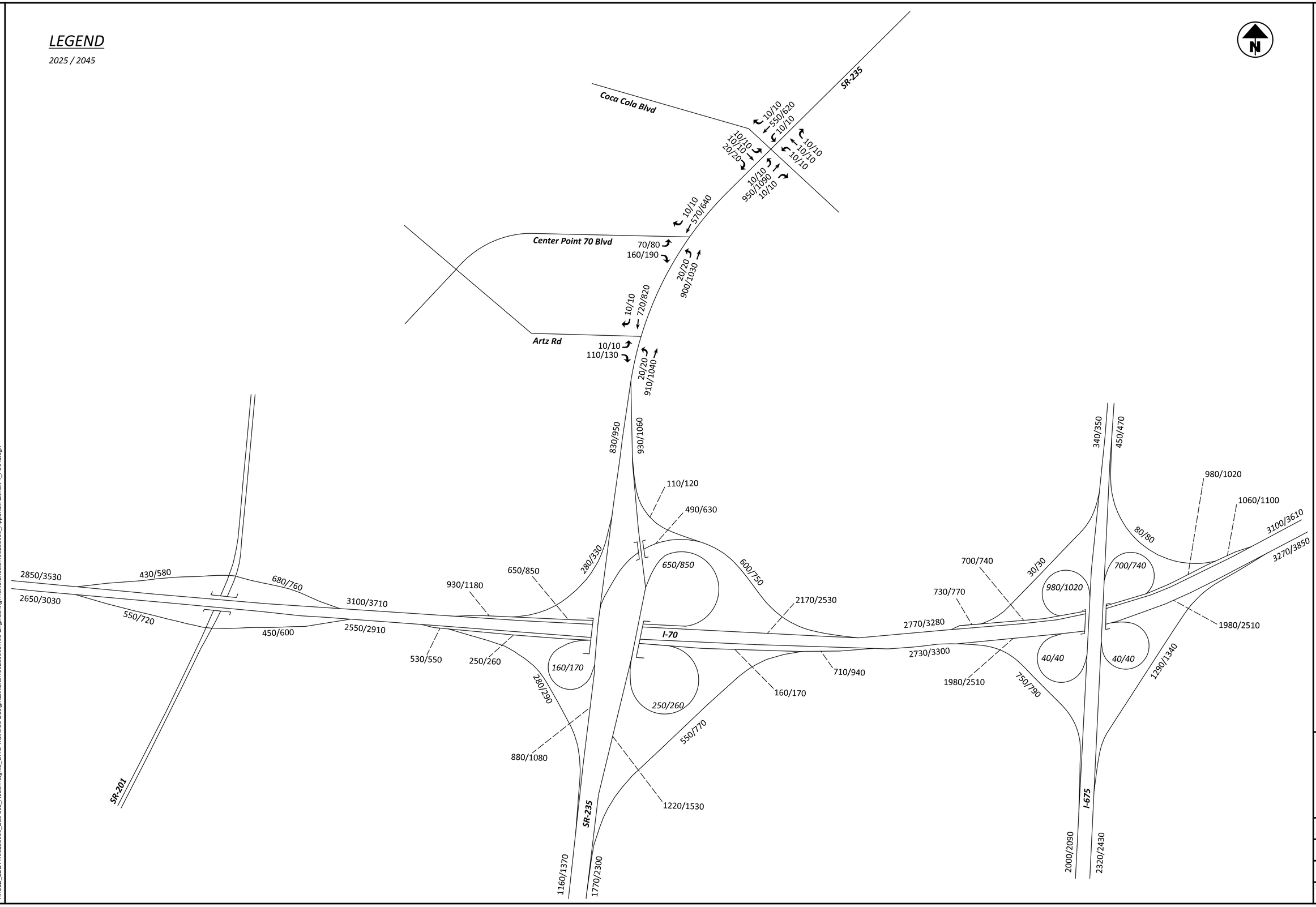
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DESIGN AGENCY
Kimley»Horn

DESIGNER	VIL
REVIEWER	JDC 10/26/23
PROJECT ID	190255000
SHEET	P.3
TOTAL	4

LEGEND

2025 / 2045



CERTIFIED TRAFFIC

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APPENDIX EXHIBIT 4: NO BUILD (WITHOUT SITE GENERATED TRIPS) - PM PEAK HOUR

DESIGN AGENCY
Kimley»Horn

DESIGNER
VIL

REVIEWER
JDC 10/26/23

PROJECT ID
190255000

SHEET P.4 | TOTAL 4

APPENDIX

A. HCS 8 No Build (Without Site Generated Trips) Intersection Outputs

HCS Two-Way Stop-Control Report

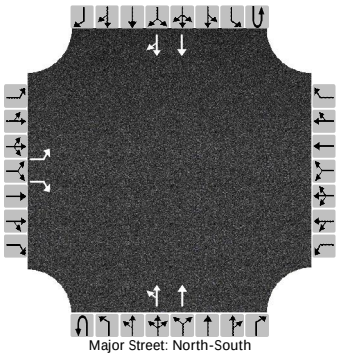
General Information

Analyst	Kimley-Horn
Agency/Co.	ODOT
Date Performed	12/15/2023
Analysis Year	2025
Time Analyzed	AM No Build (Appendix)
Intersection Orientation	North-South
Project Description	MOT-235-1.97 (at I-70), No PID

Site Information

Intersection	SR-235 and Artz Road/Private Drive
Jurisdiction	ODOT District 7
East/West Street	Artz Road/Private Drive
North/South Street	SR-235
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

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		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	0	1		0	0	0	0	0	2	0	0	0	2	0
Configuration		L		R						LT	T				T	TR
Volume (veh/h)		10		30						100	530				860	10
Percent Heavy Vehicles (%)		7		7						12						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized	No															
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5		6.9						4.1						
Critical Headway (sec)		6.94		7.04						4.34						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.57		3.37						2.32						

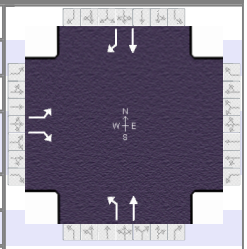
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11		33						109						
Capacity, c (veh/h)		94		525						663						
v/c Ratio		0.12		0.06						0.16						
95% Queue Length, Q_{95} (veh)		0.4		0.2						0.6						
Control Delay (s/veh)		48.2		12.3						11.5	1.6					
Level of Service (LOS)		E		B						B	A					
Approach Delay (s/veh)	21.3								3.2							
Approach LOS	C								A							

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HCS Signalized Intersection Results Summary

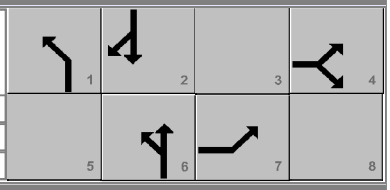
General Information				Intersection Information	
Agency	Kimley-Horn			Duration, h	0.250
Analyst		Analysis Date	Dec 15, 2023	Area Type	Other
Jurisdiction	ODOT District 7	Time Period	AM No Build (Appendix)	PHF	0.94
Urban Street	SR-235	Analysis Year	2025	Analysis Period	1> 7:00
Intersection	SR-235 and Center Poin…	File Name	SR-235 Signalized Intersections AM No Build.xus		
Project Description	MOT-235-1.97 (at I-70), No PID				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30		80				100	440			790	10

Signal Information			
Cycle, s	80.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.3	46.4	9.3	0.0	0.0	0.0	
Yellow	4.0	4.0	4.0	0.0	0.0	0.0	
Red	2.0	2.0	2.0	0.0	0.0	0.0	



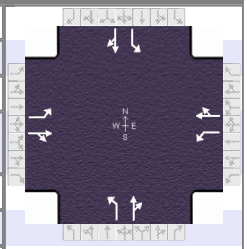
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			1	6		2
Case Number		9.0			1.0	4.0		7.3
Phase Duration, s		15.3			12.3	64.7		52.4
Change Period, ($Y+R_c$), s		6.0			6.0	6.0		6.0
Max Allow Headway (*MAH*), s		3.3			3.0	0.0		0.0
Queue Clearance Time (g_s), s		6.3			3.8			
Green Extension Time (g_e), s		0.1			0.1	0.0		0.0
Phase Call Probability		0.93			0.91			
Max Out Probability		0.01			0.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				1	6			2	12
Adjusted Flow Rate (*v*), veh/h	32		85				106	468			868	11
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1654		1472				1584	1663			1796	1522
Queue Service Time (g_s), s	1.4		4.3				1.8	8.3			32.8	0.3
Cycle Queue Clearance Time (g_c), s	1.4		4.3				1.8	8.3			32.8	0.3
Green Ratio (*g/C*)	0.09		0.09				0.68	0.73			0.58	0.58
Capacity (*c*), veh/h	152		170				312	1221			1042	883
Volume-to-Capacity Ratio (*X*)	0.210		0.500				0.341	0.383			0.833	0.012
Back of Queue (*Q*), ft/ln (95 th percentile)	27.7		75				40.2	86.3			459	3.6
Back of Queue (*Q*), veh/ln (95 th percentile)	1.0		2.8				1.4	3.1			17.4	0.1
Queue Storage Ratio (*RQ*) (95 th percentile)	0.08		0.19				0.05	0.05			0.48	0.02
Uniform Delay (d_1), s/veh	33.6		33.2				13.6	3.9			16.1	8.4
Incremental Delay (d_2), s/veh	0.3		0.8				0.2	0.9			5.1	0.0
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh	33.9		34.0				13.8	4.8			21.2	8.4
Level of Service (LOS)	C		C				B	A			C	A
Approach Delay, s/veh / LOS	34.0	C		0.0			6.5	A		21.0	C	
Intersection Delay, s/veh / LOS	16.7						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

HCS Signalized Intersection Results Summary

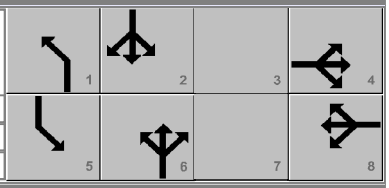
General Information				Intersection Information	
Agency	Kimley-Horn			Duration, h	0.250
Analyst		Analysis Date	Dec 15, 2023	Area Type	Other
Jurisdiction	ODOT District 7	Time Period	AM No Build (Appendix)	PHF	0.91
Urban Street	SR-235	Analysis Year	2025	Analysis Period	1> 7:00
Intersection	SR-235 and Coca-Cola…	File Name	SR-235 Signalized Intersections AM No Build.xus		
Project Description	MOT-235-1.97 (at I-70), No PID				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	10	10	10	10	10	410	50	10	780	10

Signal Information			
Cycle, s	80.0	Reference Phase	2
Offset, s	45	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	1.5	52.8	7.7	0.0	0.0	0.0	
Yellow	4.0	4.0	4.0	0.0	0.0	0.0	
Red	2.0	2.0	2.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	1	6	5	2
Case Number		6.0		6.0	1.1	4.0	1.1	4.0
Phase Duration, s		13.7		13.7	7.5	58.8	7.5	58.8
Change Period, ($Y+R_c$), s		6.0		6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s		3.6		3.6	3.0	0.0	3.0	0.0
Queue Clearance Time (g_s), s		4.3		4.1	2.2		2.2	
Green Extension Time (g_e), s		0.1		0.1	0.0	0.0	0.0	0.0
Phase Call Probability		0.77		0.77	0.21		0.22	
Max Out Probability		0.00		0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	11	22		11	22		11	489		11	868	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1213	1498		784	968		1612	1660		1725	1807	
Queue Service Time (g_s), s	0.7	1.1		1.0	1.7		0.2	11.5		0.2	25.1	
Cycle Queue Clearance Time (g_c), s	2.3	1.1		2.1	1.7		0.2	11.5		0.2	25.1	
Green Ratio (*g/C*)	0.10	0.10		0.10	0.10		0.68	0.66		0.68	0.66	
Capacity (*c*), veh/h	181	144		155	93		305	1095		575	1193	
Volume-to-Capacity Ratio (*X*)	0.061	0.153		0.071	0.236		0.035	0.447		0.019	0.727	
Back of Queue (*Q*), ft/ln (95 th percentile)	10.1	19.9		12.8	25.9		2.1	154.1		1.8	317.1	
Back of Queue (*Q*), veh/ln (95 th percentile)	0.4	0.7		0.4	0.7		0.1	5.5		0.1	12.1	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.10	0.01		0.09	0.01		0.01	0.16		0.01	0.20	
Uniform Delay (d_1), s/veh	34.5	33.2		34.1	33.4		8.9	6.7		5.0	8.9	
Incremental Delay (d_2), s/veh	0.1	0.2		0.1	0.5		0.0	1.2		0.0	3.9	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	34.6	33.3		34.2	33.9		8.9	8.0		5.0	12.8	
Level of Service (LOS)	C	C		C	C		A	A		A	B	
Approach Delay, s/veh / LOS	33.8	C		34.0	C		8.0	A		12.7	B	
Intersection Delay, s/veh / LOS	12.0						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

HCS Two-Way Stop-Control Report

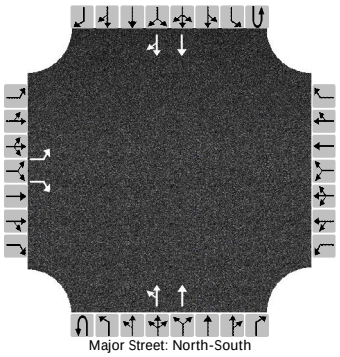
General Information

Analyst	Kimley-Horn
Agency/Co.	ODOT
Date Performed	12/15/2023
Analysis Year	2025
Time Analyzed	PM No Build (Apendix)
Intersection Orientation	North-South
Project Description	MOT-235-1.97 (at I-70), No PID

Site Information

Intersection	SR-235 and Artz Road/Private Drive
Jurisdiction	ODOT District 7
East/West Street	Artz Road/Private Drive
North/South Street	SR-235
Peak Hour Factor	0.91
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

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		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	0	1		0	0	0	0	0	2	0	0	0	2	0
Configuration		L		R						LT	T				T	TR
Volume (veh/h)		10		110						20	910				720	10
Percent Heavy Vehicles (%)		4		4						6						
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized		No														
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5		6.9						4.1						
Critical Headway (sec)		6.88		6.98						4.22						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.54		3.34						2.26						

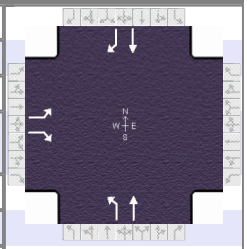
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11		121						22						
Capacity, c (veh/h)		136		593						792						
v/c Ratio		0.08		0.20						0.03						
95% Queue Length, Q_{95} (veh)		0.3		0.8						0.1						
Control Delay (s/veh)		33.8		12.6						9.7	0.4					
Level of Service (LOS)		D		B						A	A					
Approach Delay (s/veh)		14.4								0.6						
Approach LOS		B								A						

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HCS Signalized Intersection Results Summary

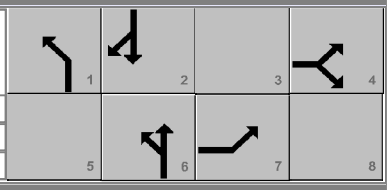
General Information				Intersection Information	
Agency	Kimley-Horn			Duration, h	0.250
Analyst		Analysis Date	Dec 15, 2023	Area Type	Other
Jurisdiction	ODOT District 7	Time Period	PM No Build (Appendix)	PHF	0.94
Urban Street	SR-235	Analysis Year	2025	Analysis Period	1> 17:00
Intersection	SR-235 and Center Poin…	File Name	SR-235 Signalized Intersections PM No Build.xus		
Project Description	MOT-235-1.97 (at I-70), No PID				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	70		160				20	900			570	10

Signal Information			
Cycle, s	60.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	2.1	30.1	9.8	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	2.0	2.0	2.0	0.0	0.0	0.0



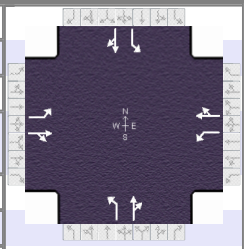
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			1	6		2
Case Number		9.0			1.0	4.0		7.3
Phase Duration, s		15.8			8.1	44.2		36.1
Change Period, ($Y+R_c$), s		6.0			6.0	6.0		6.0
Max Allow Headway (*MAH*), s		3.3			3.0	0.0		0.0
Queue Clearance Time (g_s), s		8.4			2.3			
Green Extension Time (g_e), s		0.2			0.0	0.0		0.0
Phase Call Probability		0.98			0.30			
Max Out Probability		0.79			0.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				1	6			2	12
Adjusted Flow Rate (*v*), veh/h	74		170				21	957			594	10
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1682		1497				1682	1767			1767	1497
Queue Service Time (g_s), s	2.4		6.4				0.3	25.8			18.3	0.3
Cycle Queue Clearance Time (g_c), s	2.4		6.4				0.3	25.8			18.3	0.3
Green Ratio (*g/C*)	0.13		0.13				0.57	0.64			0.50	0.50
Capacity (*c*), veh/h	222		245				331	1124			886	751
Volume-to-Capacity Ratio (*X*)	0.335		0.694				0.064	0.852			0.670	0.014
Back of Queue (*Q*), ft/ln (95 th percentile)	43.6		110.9				3.6	316.1			346	9.6
Back of Queue (*Q*), veh/ln (95 th percentile)	1.6		4.1				0.1	11.8			12.9	0.4
Queue Storage Ratio (*RQ*) (95 th percentile)	0.12		0.28				0.00	0.19			0.36	0.06
Uniform Delay (d_1), s/veh	23.6		23.7				9.2	8.7			18.4	12.2
Incremental Delay (d_2), s/veh	0.3		3.3				0.0	8.2			3.3	0.0
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh	24.0		27.0				9.2	16.9			21.7	12.2
Level of Service (LOS)	C		C				A	B			C	B
Approach Delay, s/veh / LOS	26.1	C		0.0			16.7	B		21.6	C	
Intersection Delay, s/veh / LOS	19.6						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

HCS Signalized Intersection Results Summary

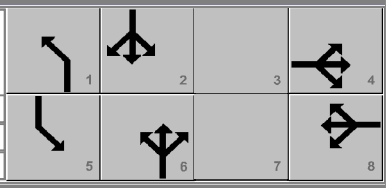
General Information				Intersection Information	
Agency	Kimley-Horn			Duration, h	0.250
Analyst		Analysis Date	Dec 15, 2023	Area Type	Other
Jurisdiction	ODOT District 7	Time Period	PM No Build (Appendix)	PHF	0.96
Urban Street	SR-235	Analysis Year	2025	Analysis Period	1> 17:00
Intersection	SR-235 and Coca-Cola…	File Name	SR-235 Signalized Intersections PM No Build.xus		
Project Description	MOT-235-1.97 (at I-70), No PID				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	20	10	10	10	10	950	10	10	550	10

Signal Information			
Cycle, s	60.0	Reference Phase	2
Offset, s	13	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	1.1	33.8	7.0	0.0	0.0	0.0	
Yellow	4.0	4.0	4.0	0.0	0.0	0.0	
Red	2.0	2.0	2.0	0.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	1	6	5	2
Case Number		6.0		6.0	1.1	4.0	1.1	4.0
Phase Duration, s		13.0		13.0	7.1	39.9	7.1	39.8
Change Period, ($Y+R_c$), s		6.0		6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s		3.2		3.2	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		3.1		3.5	2.2		2.2	
Green Extension Time (g_e), s		0.0		0.0	0.0	0.0	0.0	0.0
Phase Call Probability		0.70		0.70	0.16		0.16	
Max Out Probability		0.00		0.01	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	10	31		10	21		11	1021		10	583	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1303	1564		1378	1716		1767	1852		1739	1820	
Queue Service Time (g_s), s	0.4	1.1		0.4	0.7		0.2	29.9		0.2	12.3	
Cycle Queue Clearance Time (g_c), s	1.1	1.1		1.5	0.7		0.2	29.9		0.2	12.3	
Green Ratio (*g/C*)	0.12	0.12		0.12	0.12		0.58	0.56		0.58	0.56	
Capacity (*c*), veh/h	259	183		257	201		449	1045		169	1026	
Volume-to-Capacity Ratio (*X*)	0.040	0.170		0.041	0.104		0.024	0.977		0.062	0.568	
Back of Queue (*Q*), ft/ln (95 th percentile)	6.1	18.4		5.8	11.4		1.9	238.3		3	197.2	
Back of Queue (*Q*), veh/ln (95 th percentile)	0.2	0.7		0.2	0.4		0.1	9.3		0.1	7.6	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.06	0.01		0.04	0.01		0.01	0.25		0.01	0.13	
Uniform Delay (d_1), s/veh	24.1	23.9		24.5	23.7		6.7	5.0		13.9	8.4	
Incremental Delay (d_2), s/veh	0.0	0.2		0.0	0.1		0.0	14.5		0.1	2.3	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	24.2	24.0		24.5	23.7		6.7	19.5		14.0	10.7	
Level of Service (LOS)	C	C		C	C		A	B		B	B	
Approach Delay, s/veh / LOS	24.1	C		24.0	C		19.4	B		10.7	B	
Intersection Delay, s/veh / LOS	16.6						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

HCS Two-Way Stop-Control Report

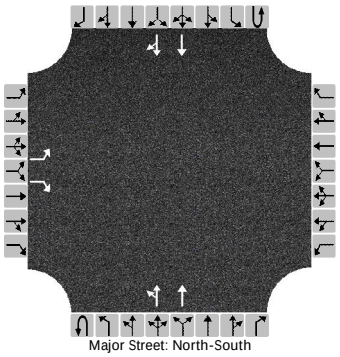
General Information

Analyst	Kimley-Horn
Agency/Co.	ODOT
Date Performed	12/15/2023
Analysis Year	2045
Time Analyzed	AM No Build (Appendix)
Intersection Orientation	North-South
Project Description	MOT-235-1.97 (at I-70), No PID

Site Information

Intersection	SR-235 and Artz Road/Private Drive
Jurisdiction	ODOT District 7
East/West Street	Artz Road/Private Drive
North/South Street	SR-235
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

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		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	0	1		0	0	0	0	0	2	0	0	0	2	0
Configuration		L		R						LT	T				T	TR
Volume (veh/h)		10		30						110	600				980	10
Percent Heavy Vehicles (%)		7		7						12						
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized		No														
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5		6.9						4.1						
Critical Headway (sec)		6.94		7.04						4.34						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.57		3.37						2.32						

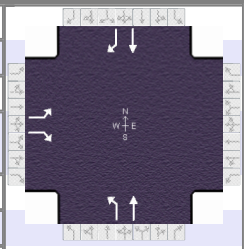
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11		33						120						
Capacity, c (veh/h)		65		475						588						
v/c Ratio		0.17		0.07						0.20						
95% Queue Length, Q_{95} (veh)		0.6		0.2						0.8						
Control Delay (s/veh)		70.7		13.1						12.7	2.3					
Level of Service (LOS)		F		B						B	A					
Approach Delay (s/veh)		27.5								3.9						
Approach LOS		D								A						

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HCS Signalized Intersection Results Summary

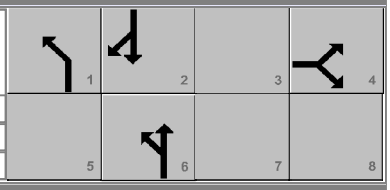
General Information				Intersection Information	
Agency	Kimley-Horn			Duration, h	0.250
Analyst		Analysis Date	Dec 15, 2023	Area Type	Other
Jurisdiction	ODOT District 7	Time Period	AM No Build (Appendix)	PHF	0.94
Urban Street	SR-235	Analysis Year	2045	Analysis Period	1> 7:00
Intersection	SR-235 and Center Poin…	File Name	SR-235 Signalized Intersections AM No Build.xus		
Project Description	MOT-235-1.97 (at I-70), No PID				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	30		90				110	500			900	10

Signal Information			
Cycle, s	75.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	6.4	41.3	9.3	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	2.0	2.0	2.0	0.0	0.0	0.0



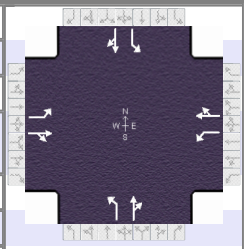
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			1	6		2
Case Number		9.0			1.0	4.0		7.3
Phase Duration, s		15.3			12.4	59.7		47.3
Change Period, ($Y+R_c$), s		6.0			6.0	6.0		6.0
Max Allow Headway (*MAH*), s		3.3			3.0	0.0		0.0
Queue Clearance Time (g_s), s		6.6			4.0			
Green Extension Time (g_e), s		0.1			0.1	0.0		0.0
Phase Call Probability		0.93			0.91			
Max Out Probability		0.03			0.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				1	6			2	12
Adjusted Flow Rate (*v*), veh/h	32		96				117	532			989	11
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1654		1472				1584	1663			1796	1522
Queue Service Time (g_s), s	1.3		4.6				2.0	10.0			41.3	0.3
Cycle Queue Clearance Time (g_c), s	1.3		4.6				2.0	10.0			41.3	0.3
Green Ratio (*g/C*)	0.10		0.10				0.66	0.72			0.55	0.55
Capacity (*c*), veh/h	163		183				231	1191			989	838
Volume-to-Capacity Ratio (*X*)	0.196		0.525				0.506	0.447			1.000	0.013
Back of Queue (*Q*), ft/ln (95 th percentile)	25.4		77.8				51.3	105.9			665.3	3.8
Back of Queue (*Q*), veh/ln (95 th percentile)	0.9		2.9				1.8	3.8			25.2	0.1
Queue Storage Ratio (*RQ*) (95 th percentile)	0.07		0.19				0.07	0.06			0.70	0.03
Uniform Delay (d_1), s/veh	31.1		30.8				17.1	4.4			20.8	9.7
Incremental Delay (d_2), s/veh	0.2		0.9				0.6	1.2			18.8	0.0
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh	31.3		31.6				17.8	5.7			39.6	9.7
Level of Service (LOS)	C		C				B	A			D	A
Approach Delay, s/veh / LOS	31.6	C		0.0			7.8	A		39.3	D	
Intersection Delay, s/veh / LOS	27.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

HCS Signalized Intersection Results Summary

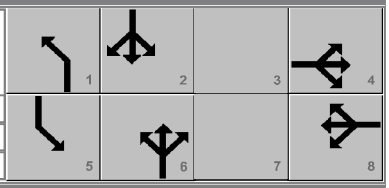
General Information				Intersection Information	
Agency	Kimley-Horn			Duration, h	0.250
Analyst		Analysis Date	Dec 15, 2023	Area Type	Other
Jurisdiction	ODOT District 7	Time Period	AM No Build (Appendix)	PHF	0.91
Urban Street	SR-235	Analysis Year	2045	Analysis Period	1> 7:00
Intersection	SR-235 and Coca-Cola…	File Name	SR-235 Signalized Intersections AM No Build.xus		
Project Description	MOT-235-1.97 (at I-70), No PID				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	10	10	10	10	10	470	50	10	890	10

Signal Information			
Cycle, s	75.0	Reference Phase	2
Offset, s	39	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	1.4	48.1	7.5	0.0	0.0	0.0
Yellow	4.0	4.0	4.0	0.0	0.0	0.0
Red	2.0	2.0	2.0	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	1	6	5	2
Case Number		6.0		6.0	1.1	4.0	1.1	4.0
Phase Duration, s		13.5		13.5	7.4	54.1	7.4	54.1
Change Period, ($Y+R_c$), s		6.0		6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s		3.6		3.6	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		4.2		4.0	2.2		2.2	
Green Extension Time (g_e), s		0.1		0.1	0.0	0.0	0.0	0.0
Phase Call Probability		0.75		0.75	0.20		0.20	
Max Out Probability		0.00		0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	11	22		11	22		11	553		11	989	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1213	1498		784	968		1612	1664		1725	1807	
Queue Service Time (g_s), s	0.6	1.0		1.0	1.6		0.2	18.4		0.2	32.5	
Cycle Queue Clearance Time (g_c), s	2.2	1.0		2.0	1.6		0.2	18.4		0.2	32.5	
Green Ratio (*g/C*)	0.10	0.10		0.10	0.10		0.66	0.64		0.66	0.64	
Capacity (*c*), veh/h	191	149		164	96		220	1067		456	1160	
Volume-to-Capacity Ratio (*X*)	0.057	0.147		0.067	0.228		0.048	0.518		0.024	0.852	
Back of Queue (*Q*), ft/ln (95 th percentile)	9.3	18.3		11.8	23.9		3.6	329.9		2.1	466	
Back of Queue (*Q*), veh/ln (95 th percentile)	0.3	0.6		0.3	0.7		0.1	11.9		0.1	17.8	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.09	0.01		0.08	0.01		0.02	0.35		0.01	0.30	
Uniform Delay (d_1), s/veh	32.1	30.9		31.8	31.1		12.3	13.1		6.7	10.6	
Incremental Delay (d_2), s/veh	0.0	0.2		0.1	0.4		0.0	1.6		0.0	8.0	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	32.2	31.0		31.8	31.6		12.3	14.7		6.7	18.6	
Level of Service (LOS)	C	C		C	C		B	B		A	B	
Approach Delay, s/veh / LOS	31.4	C		31.6	C		14.7	B		18.5	B	
Intersection Delay, s/veh / LOS	17.7						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

HCS Two-Way Stop-Control Report

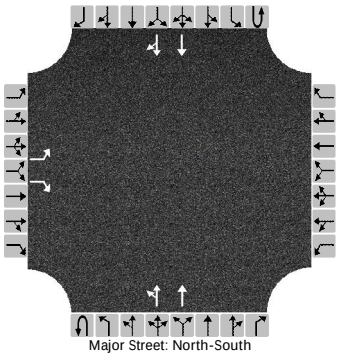
General Information

Analyst	Kimley-Horn
Agency/Co.	ODOT
Date Performed	12/15/2023
Analysis Year	2045
Time Analyzed	PM No Build (Appendix)
Intersection Orientation	North-South
Project Description	MOT-235-1.97 (at I-70), No PID

Site Information

Intersection	SR-235 and Artz Road/Private Drive
Jurisdiction	ODOT District 7
East/West Street	Artz Road/Private Drive
North/South Street	SR-235
Peak Hour Factor	0.91
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

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		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		1	0	1		0	0	0	0	0	2	0	0	0	2	0
Configuration		L		R						LT	T				T	TR
Volume (veh/h)		10		130						110	600				980	10
Percent Heavy Vehicles (%)		4		4						6						
Proportion Time Blocked																
Percent Grade (%)		0														
Right Turn Channelized		No														
Median Type | Storage		Undivided														

Critical and Follow-up Headways

Base Critical Headway (sec)		7.5		6.9						4.1						
Critical Headway (sec)		6.88		6.98						4.22						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.54		3.34						2.26						

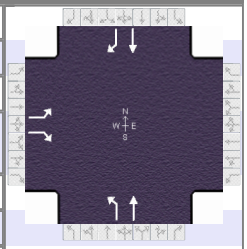
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)		11		143						121						
Capacity, c (veh/h)		66		478						614						
v/c Ratio		0.17		0.30						0.20						
95% Queue Length, Q_{95} (veh)		0.6		1.2						0.7						
Control Delay (s/veh)		69.9		15.7						12.3	2.2					
Level of Service (LOS)		F		C						B	A					
Approach Delay (s/veh)		19.6								3.7						
Approach LOS		C								A						

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HCS Signalized Intersection Results Summary

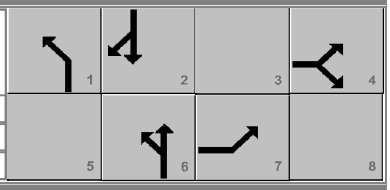
General Information				Intersection Information	
Agency	Kimley-Horn			Duration, h	0.250
Analyst		Analysis Date	Dec 15, 2023	Area Type	Other
Jurisdiction	ODOT District 7	Time Period	PM No Build (Appendix)	PHF	0.94
Urban Street	SR-235	Analysis Year	2045	Analysis Period	1> 17:00
Intersection	SR-235 and Center Poin…	File Name	SR-235 Signalized Intersections PM No Build.xus		
Project Description	MOT-235-1.97 (at I-70), No PID				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	80		190				20	1030			640	10

Signal Information			
Cycle, s	80.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	2.6	46.4	13.0	0.0	0.0	0.0	
Yellow	4.0	4.0	4.0	0.0	0.0	0.0	
Red	2.0	2.0	2.0	0.0	0.0	0.0	



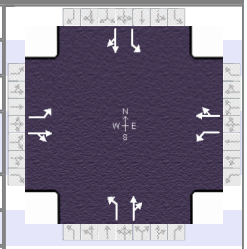
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4			1	6		2
Case Number		9.0			1.0	4.0		7.3
Phase Duration, s		19.0			8.6	61.0		52.4
Change Period, ($Y+R_c$), s		6.0			6.0	6.0		6.0
Max Allow Headway (*MAH*), s		3.3			3.0	0.0		0.0
Queue Clearance Time (g_s), s		12.5			2.4			
Green Extension Time (g_e), s		0.6			0.0	0.0		0.0
Phase Call Probability		1.00			0.38			
Max Out Probability		0.00			0.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7		14				1	6			2	12
Adjusted Flow Rate (*v*), veh/h	85		202				21	1096			604	9
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1682		1497				1682	1767			1767	1497
Queue Service Time (g_s), s	3.7		10.5				0.4	40.8			26.3	0.5
Cycle Queue Clearance Time (g_c), s	3.7		10.5				0.4	40.8			26.3	0.5
Green Ratio (*g/C*)	0.14		0.14				0.64	0.69			0.58	0.58
Capacity (*c*), veh/h	233		243				339	1215			1024	868
Volume-to-Capacity Ratio (*X*)	0.365		0.832				0.063	0.902			0.590	0.011
Back of Queue (*Q*), ft/ln (95 th percentile)	70.4		183.9				4.5	499.9			384.9	14.6
Back of Queue (*Q*), veh/ln (95 th percentile)	2.6		6.9				0.2	18.7			14.4	0.5
Queue Storage Ratio (*RQ*) (95 th percentile)	0.20		0.46				0.01	0.30			0.41	0.10
Uniform Delay (d_1), s/veh	31.3		32.4				10.5	10.3			27.3	15.9
Incremental Delay (d_2), s/veh	0.4		2.8				0.0	10.9			0.2	0.0
Initial Queue Delay (d_3), s/veh	0.0		0.0				0.0	0.0			0.0	0.0
Control Delay (*d*), s/veh	31.6		35.3				10.5	21.2			27.5	15.9
Level of Service (LOS)	C		D				B	C			C	B
Approach Delay, s/veh / LOS	34.2	C		0.0			21.0	C		27.3	C	
Intersection Delay, s/veh / LOS	24.8						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

HCS Signalized Intersection Results Summary

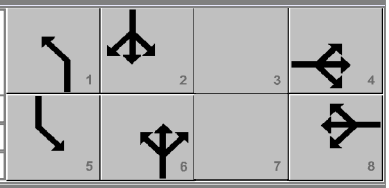
General Information				Intersection Information	
Agency	Kimley-Horn			Duration, h	0.250
Analyst		Analysis Date	Dec 15, 2023	Area Type	Other
Jurisdiction	ODOT District 7	Time Period	PM No Build (Appendix)	PHF	0.96
Urban Street	SR-235	Analysis Year	2045	Analysis Period	1> 17:00
Intersection	SR-235 and Coca-Cola…	File Name	SR-235 Signalized Intersections PM No Build.xus		
Project Description	MOT-235-1.97 (at I-70), No PID				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	20	10	10	10	10	1090	10	10	620	10

Signal Information			
Cycle, s	80.0	Reference Phase	2
Offset, s	10	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	9.0	11.0	26.0	10.0	0.0	0.0
Yellow	4.0	4.0	4.0	4.0	0.0	0.0
Red	2.0	2.0	2.0	2.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	1	6	5	2
Case Number		6.0		6.0	1.1	4.0	1.1	4.0
Phase Duration, s		16.0		16.0	32.0	49.0	15.0	32.0
Change Period, ($Y+R_c$), s		6.0		6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s		3.2		3.2	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		3.4		4.0	2.2		2.3	
Green Extension Time (g_e), s		0.0		0.0	0.0	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	1.00		1.00	
Max Out Probability		0.01		0.02	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	10	31		10	21		11	1170		10	656	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1303	1564		1378	1716		1767	1853		1739	1821	
Queue Service Time (g_s), s	0.6	1.4		0.5	0.9		0.2	43.0		0.3	26.0	
Cycle Queue Clearance Time (g_c), s	1.4	1.4		2.0	0.9		0.2	43.0		0.3	26.0	
Green Ratio (*g/C*)	0.12	0.12		0.12	0.12		0.68	0.54		0.44	0.32	
Capacity (*c*), veh/h	239	196		238	215		664	996		286	592	
Volume-to-Capacity Ratio (*X*)	0.044	0.160		0.044	0.097		0.016	1.175		0.036	1.109	
Back of Queue (*Q*), ft/ln (95 th percentile)	8.5	25.6		8.1	15.9		2.5	983		4.7	824.9	
Back of Queue (*Q*), veh/ln (95 th percentile)	0.3	0.9		0.3	0.6		0.1	38.4		0.2	31.7	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.09	0.01		0.05	0.01		0.01	1.03		0.02	0.53	
Uniform Delay (d_1), s/veh	31.6	31.2		32.1	31.0		10.0	9.9		17.0	27.0	
Incremental Delay (d_2), s/veh	0.0	0.1		0.0	0.1		0.0	83.3		0.0	70.6	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	31.7	31.4		32.2	31.1		10.0	93.1		17.0	97.6	
Level of Service (LOS)	C	C		C	C		B	F		B	F	
Approach Delay, s/veh / LOS	31.5	C		31.4	C		92.4	F		96.3	F	
Intersection Delay, s/veh / LOS	91.4						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

APPENDIX

B. HCS 8 No Build (Without Site Generated Trips) Facility Outputs

HCS Freeway Facilities Report

Project Information

Analyst	Kimley-Horn	Date	12/19/2023
Agency		Analysis Year	2025
Jurisdiction	ODOT District 7	Time Analyzed	Analysis 1 AM No Build
Facility Name	I-70 East Bound	Units	U.S. Customary
Project Description	MOT 235 Travel Center		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	4.56		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	IR-70 EB	5860	3
2	Diverge	Diverge	Off-Ramp to SR-235SB	1500	3
3	Basic	Basic	IR-70 EB	5100	3
4	Merge	Merge	On-Ramp from SR-235NB	1500	3
5	Basic	Basic	IR-70 EB	10100	3

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.820	3191	7200	0.44	75.0	14.2	B

Segment 2: Diverge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.96	0.820	0.980	3191	797	7200	2100	0.44	0.38	68.8	64.9	15.5	21.7	C

Segment 3: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.820	2218	7200	0.31	75.0	9.9	A

Segment 4: Merge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.90	0.820	0.870	2857	639	7200	2200	0.40	0.29	69.1	67.3	13.8	14.2	B

Segment 5: Basic

AP	PHF	fHV	Flow Rate	Capacity	d/c	Speed	Density	LOS

			(pc/h)	(pc/h)	Ratio	(mi/h)	(pc/mi/ln)	
1	0.94	0.820	2867	7200	0.40	75.0	12.7	B

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	2642	2449	0.42	10.38	74.1	12.7	10.4	3.70	B

Facility Overall Results

Space Mean Speed, mi/h	74.1	Average Density, veh/mi/ln	10.4
Average Travel Time, min	3.70	Average Density, pc/mi/ln	12.7
Total VMT, veh-mi	2642	Total VHD, veh-h	0.42
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	10.38

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HCS Freeway Facilities Report

Project Information

Analyst	Kimely Horn	Date	12/19/2023
Agency	ODOT	Analysis Year	2025
Jurisdiction	ODOT District 7	Time Analyzed	AM No Build
Facility Name	I-70 Westbound	Units	U.S. Customary
Project Description	MOT 235 Travel Center		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	4.35		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	US-70 WB	9940	3
2	Diverge	Diverge	Off-Ramp to SR-235NB	1500	3
3	Basic	Basic	US-70 WB	3890	3
4	Merge	Merge	On-Ramp from SR-235SB	1500	3
5	Basic	Basic	US-70 WB	6150	3

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.820	2750	7200	0.38	75.0	12.2	B

Segment 2: Diverge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.820	0.893	2750	846	7200	2200	0.38	0.38	70.1	66.9	13.1	17.0	B

Segment 3: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.820	1829	7200	0.25	74.9	8.1	A

Segment 4: Merge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.83	0.820	0.917	2447	618	7200	2200	0.34	0.28	69.3	67.4	11.8	12.2	B

Segment 5: Basic

AP	PHF	fHV	Flow Rate	Capacity	d/c	Speed	Density	LOS

			(pc/h)	(pc/h)	Ratio	(mi/h)	(pc/mi/ln)	
1	0.94	0.820	2439	7200	0.34	75.0	10.8	A

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	2223	2056	0.31	7.75	74.2	11.2	9.2	3.50	B

Facility Overall Results

Space Mean Speed, mi/h	74.2	Average Density, veh/mi/ln	9.2
Average Travel Time, min	3.50	Average Density, pc/mi/ln	11.2
Total VMT, veh-mi	2223	Total VHD, veh-h	0.31
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	7.75

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HCS Freeway Facilities Report

Project Information

Analyst	Kimley-Horn	Date	12/19/2023
Agency		Analysis Year	2025
Jurisdiction	ODOT District 7	Time Analyzed	AM No Build
Facility Name	SR-235 Northbound	Units	U.S. Customary
Project Description	MOT 235 Travel Center		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	1.42		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	SR-235 NB	1650	2
2	Diverge	Diverge	Off-Ramp to I-70EB	1500	2
3	Basic	Basic	SR-235 NB	1100	2
4	Weaving	Weaving	Between Off/On-Ramps to/from I-70EB/I-70WB	1450	3
5	Basic	Basic	SR-235 NB	500	2
6	Merge	Merge	On-Ramp from I-70WB	1000	2
7	Basic	Basic	SR-235 NB	315	2

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.77	0.917	1331	4600	0.29	60.0	11.1	B

Segment 2: Diverge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.77	0.95	0.917	0.885	1331	500	4600	2100	0.29	0.24	53.8	53.8	12.4	9.9	A

Segment 3: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.77	0.917	736	4600	0.16	59.2	6.1	A

Segment 4: Weaving

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.77	0.917	927	4696	0.20	52.7	5.9	A

Segment 5: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.77	0.917	680	4600	0.15	58.5	5.7	A

Segment 6: Merge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.77	0.80	0.917	0.926	882	202	4600	2100	0.19	0.10	54.8	54.8	8.0	9.5	A

Segment 7: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.77	0.893	916	4600	0.20	58.2	7.6	A

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	341	246	0.38	9.55	56.2	8.5	7.4	1.50	A

Facility Overall Results

Space Mean Speed, mi/h	56.2	Average Density, veh/mi/ln	7.4
Average Travel Time, min	1.50	Average Density, pc/mi/ln	8.5
Total VMT, veh-mi	341	Total VHD, veh-h	0.38
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	9.55

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HCS Freeway Facilities Report

Project Information

Analyst	Kimley-Horn	Date	12/19/2023
Agency		Analysis Year	2025
Jurisdiction	ODOT District 7	Time Analyzed	AM No Build
Facility Name	SR-235 Southbound	Units	U.S. Customary
Project Description	MOT 235 Travel Center		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	1.42		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	SR-235 SB	120	2
2	Diverge	Diverge	Off-Ramp to I-70WB	1500	2
3	Basic	Basic	SR-235 SB	125	2
4	Weaving	Weaving	Between Off/On-Ramps to/from I-70WB/I-70EB	1400	4
5	Basic	Basic	SR-235 SB	710	3
6	Merge	Merge	On-Ramp from I-70EB	1500	3
7	Basic	Basic	SR-235 SB	2125	3

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.93	0.926	1033	4600	0.22	60.0	8.6	A

Segment 2: Diverge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.93	0.84	0.926	0.917	1033	351	4600	2100	0.22	0.17	54.1	54.1	9.5	7.6	A

Segment 3: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.93	0.926	720	4600	0.16	58.4	6.0	A

Segment 4: Weaving

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.93	0.926	1396	7476	0.19	56.0	6.2	A

Segment 5: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.93	0.926	1277	6900	0.19	59.3	7.1	A

Segment 6: Merge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.93	0.96	0.926	0.980	1904	627	6900	2100	0.28	0.30	56.5	55.3	11.2	10.8	B

Segment 7: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.93	0.926	1962	6900	0.28	59.8	10.9	A

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	510	398	0.32	7.91	57.5	9.1	8.4	1.50	A

Facility Overall Results

Space Mean Speed, mi/h	57.5	Average Density, veh/mi/ln	8.4
Average Travel Time, min	1.50	Average Density, pc/mi/ln	9.1
Total VMT, veh-mi	510	Total VHD, veh-h	0.32
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	7.91

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HCS Freeway Facilities Report

Project Information

Analyst	Kimley-Horn	Date	12/19/2023
Agency		Analysis Year	2025
Jurisdiction	ODOT District 7	Time Analyzed	PM No Build
Facility Name	I-70 East Bound	Units	U.S. Customary
Project Description	MOT 235 Travel Center		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	4.56		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	IR-70 EB	5860	3
2	Diverge	Diverge	Off-Ramp to SR-235SB	1500	3
3	Basic	Basic	IR-70 EB	5100	3
4	Merge	Merge	On-Ramp from SR-235NB	1500	3
5	Basic	Basic	IR-70 EB	10100	3

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.820	3308	7200	0.46	74.9	14.7	B

Segment 2: Diverge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.85	0.820	0.943	3308	661	7200	2100	0.46	0.31	69.4	65.4	15.9	22.0	C

Segment 3: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.820	2621	7200	0.36	75.0	11.7	B

Segment 4: Merge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.85	0.820	0.962	3489	868	7200	2200	0.48	0.39	68.5	66.7	17.0	17.7	B

Segment 5: Basic

AP	PHF	fHV	Flow Rate	Capacity	d/c	Speed	Density	LOS

			(pc/h)	(pc/h)	Ratio	(mi/h)	(pc/mi/ln)	
1	0.94	0.820	3542	7200	0.49	74.6	15.8	B

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	3056	2825	0.58	14.49	74.0	14.7	12.1	3.70	B

Facility Overall Results

Space Mean Speed, mi/h	74.0	Average Density, veh/mi/ln	12.1
Average Travel Time, min	3.70	Average Density, pc/mi/ln	14.7
Total VMT, veh-mi	3056	Total VHD, veh-h	0.58
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	14.49

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HCS Freeway Facilities Report

Project Information

Analyst	Kimely Horn	Date	12/19/2023
Agency	ODOT	Analysis Year	2025
Jurisdiction	ODOT District 7	Time Analyzed	PM No Build
Facility Name	I-70 Westbound	Units	U.S. Customary
Project Description	MOT 235 Travel Center		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	4.35		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	US-70 WB	9940	3
2	Diverge	Diverge	Off-Ramp to SR-235NB	1500	3
3	Basic	Basic	US-70 WB	3890	3
4	Merge	Merge	On-Ramp from SR-235SB	1500	3
5	Basic	Basic	US-70 WB	6150	3

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.820	3594	7200	0.50	74.6	16.1	B

Segment 2: Diverge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.820	0.926	3594	689	7200	2200	0.50	0.31	71.1	67.4	16.8	20.9	C

Segment 3: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.820	2815	7200	0.39	75.0	12.5	B

Segment 4: Merge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.92	0.820	0.962	3866	1051	7200	2200	0.54	0.48	68.0	66.2	19.0	20.1	C

Segment 5: Basic

AP	PHF	fHV	Flow Rate	Capacity	d/c	Speed	Density	LOS

			(pc/h)	(pc/h)	Ratio	(mi/h)	(pc/mi/ln)	
1	0.94	0.820	4022	7200	0.56	73.7	18.2	C

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	3207	2957	0.79	19.77	73.6	16.3	13.3	3.50	B

Facility Overall Results

Space Mean Speed, mi/h	73.6	Average Density, veh/mi/ln	13.3
Average Travel Time, min	3.50	Average Density, pc/mi/ln	16.3
Total VMT, veh-mi	3207	Total VHD, veh-h	0.79
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	19.77

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HCS Freeway Facilities Report

Project Information

Analyst	Kimley-Horn	Date	9/28/23
Agency		Analysis Year	2025
Jurisdiction	ODOT District 7	Time Analyzed	PM No Build
Facility Name	SR-235 Northbound	Units	U.S. Customary
Project Description	MOT 235 Travel Center		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	1.42		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	SR-235 NB	1650	2
2	Diverge	Diverge	Off-Ramp to I-70EB	1500	2
3	Basic	Basic	SR-235 NB	1100	2
4	Weaving	Weaving	Between Off/On-Ramps to/from I-70EB/I-70WB	1450	3
5	Basic	Basic	SR-235 NB	500	2
6	Merge	Merge	On-Ramp from I-70WB	1000	2
7	Basic	Basic	SR-235 NB	315	2

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.84	0.952	2213	4600	0.48	60.0	18.4	C

Segment 2: Diverge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.84	0.87	0.952	0.962	2213	657	4600	2100	0.48	0.31	53.6	53.6	20.6	17.5	B

Segment 3: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.84	0.952	1526	4600	0.33	59.2	12.7	B

Segment 4: Weaving

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.84	0.952	1761	4034	0.44	47.2	12.4	B

Segment 5: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.84	0.952	1025	4600	0.22	57.4	8.5	A

Segment 6: Merge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.84	0.80	0.952	0.935	1172	147	4600	2100	0.25	0.07	54.7	54.7	10.7	11.8	B

Segment 7: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.84	0.943	1174	4600	0.26	58.2	9.8	A

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	599	483	0.95	23.82	54.8	14.6	13.4	1.60	B

Facility Overall Results

Space Mean Speed, mi/h	54.8	Average Density, veh/mi/ln	13.4
Average Travel Time, min	1.60	Average Density, pc/mi/ln	14.6
Total VMT, veh-mi	599	Total VHD, veh-h	0.95
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	23.82

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HCS Freeway Facilities Report

Project Information

Analyst	Kimley-Horn	Date	9/28/23
Agency		Analysis Year	2025
Jurisdiction	ODOT District 7	Time Analyzed	PM No Build
Facility Name	SR-235 Southbound	Units	U.S. Customary
Project Description	MOT 235 Travel Center		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	1.42		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	SR-235 SB	120	2
2	Diverge	Diverge	Off-Ramp to I-70WB	1500	2
3	Basic	Basic	SR-235 SB	125	2
4	Weaving	Weaving	Between Off/On-Ramps to/from I-70WB/I-70EB	1400	4
5	Basic	Basic	SR-235 SB	710	3
6	Merge	Merge	On-Ramp from I-70EB	1500	3
7	Basic	Basic	SR-235 SB	2125	3

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.86	0.943	1023	4600	0.22	60.0	8.5	A

Segment 2: Diverge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.86	0.92	0.943	0.943	1023	323	4600	2100	0.22	0.15	54.1	54.1	9.5	7.5	A

Segment 3: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.86	0.943	678	4600	0.15	58.4	5.6	A

Segment 4: Weaving

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.86	0.943	1273	7476	0.17	56.2	5.7	A

Segment 5: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.86	0.943	1085	6900	0.16	59.3	6.0	A

Segment 6: Merge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.86	0.85	0.943	0.943	1434	349	6900	2100	0.21	0.17	56.7	55.4	8.4	7.9	A

Segment 7: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.86	0.943	1430	6900	0.21	59.8	8.0	A

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	423	312	0.27	6.74	57.4	7.5	6.9	1.50	A

Facility Overall Results

Space Mean Speed, mi/h	57.4	Average Density, veh/mi/ln	6.9
Average Travel Time, min	1.50	Average Density, pc/mi/ln	7.5
Total VMT, veh-mi	423	Total VHD, veh-h	0.27
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	6.74

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HCS Freeway Facilities Report

Project Information

Analyst	Kimley-Horn	Date	12/19/2023
Agency		Analysis Year	2045
Jurisdiction	ODOT District 7	Time Analyzed	AM No Build
Facility Name	I-70 East Bound	Units	U.S. Customary
Project Description	MOT 235 Travel Center		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	4.56		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	IR-70 EB	5860	3
2	Diverge	Diverge	Off-Ramp to SR-235SB	1500	3
3	Basic	Basic	IR-70 EB	5100	3
4	Merge	Merge	On-Ramp from SR-235NB	1500	3
5	Basic	Basic	IR-70 EB	10100	3

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.820	3594	7200	0.50	74.6	16.1	B

Segment 2: Diverge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.85	0.820	0.980	3594	924	7200	2100	0.50	0.44	68.7	64.6	17.4	23.9	C

Segment 3: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.820	2595	7200	0.36	75.0	11.5	B

Segment 4: Merge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.85	0.820	0.870	3515	920	7200	2200	0.49	0.42	68.4	66.7	17.1	18.0	B

Segment 5: Basic

AP	PHF	fHV	Flow Rate	Capacity	d/c	Speed	Density	LOS

			(pc/h)	(pc/h)	Ratio	(mi/h)	(pc/mi/ln)	
1	0.94	0.820	3477	7200	0.48	74.7	15.5	B

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	3109	2872	0.65	16.34	73.8	15.0	12.3	3.70	B

Facility Overall Results

Space Mean Speed, mi/h	73.8	Average Density, veh/mi/ln	12.3
Average Travel Time, min	3.70	Average Density, pc/mi/ln	15.0
Total VMT, veh-mi	3109	Total VHD, veh-h	0.65
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	16.34

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HCS Freeway Facilities Report

Project Information

Analyst	Kimely Horn	Date	12/19/2023
Agency	ODOT	Analysis Year	2045
Jurisdiction	ODOT District 7	Time Analyzed	AM No Build
Facility Name	I-70 Westbound	Units	U.S. Customary
Project Description	MOT 235 Travel Center		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	4.35		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	US-70 WB	9940	3
2	Diverge	Diverge	Off-Ramp to SR-235NB	1500	3
3	Basic	Basic	US-70 WB	3890	3
4	Merge	Merge	On-Ramp from SR-235SB	1500	3
5	Basic	Basic	US-70 WB	6150	3

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.820	3282	7200	0.46	74.9	14.6	B

Segment 2: Diverge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.820	0.893	3282	1060	7200	2200	0.46	0.48	69.7	66.3	15.7	20.2	C

Segment 3: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.820	2128	7200	0.30	74.9	9.5	A

Segment 4: Merge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.83	0.820	0.917	2864	736	7200	2200	0.40	0.33	69.0	67.2	13.8	14.5	B

Segment 5: Basic

AP	PHF	fHV	Flow Rate	Capacity	d/c	Speed	Density	LOS

			(pc/h)	(pc/h)	Ratio	(mi/h)	(pc/mi/ln)	
1	0.94	0.820	2854	7200	0.40	75.0	12.7	B

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	2627	2430	0.41	10.37	74.1	13.3	10.9	3.50	B

Facility Overall Results

Space Mean Speed, mi/h	74.1	Average Density, veh/mi/ln	10.9
Average Travel Time, min	3.50	Average Density, pc/mi/ln	13.3
Total VMT, veh-mi	2627	Total VHD, veh-h	0.41
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	10.37

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HCS Freeway Facilities Report

Project Information

Analyst	Kimley-Horn	Date	9/28/23
Agency		Analysis Year	2045
Jurisdiction	ODOT District 7	Time Analyzed	AM No Build
Facility Name	SR-235 Northbound	Units	U.S. Customary
Project Description	MOT 235 Travel Center		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	1.42		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	SR-235 NB	1650	2
2	Diverge	Diverge	Off-Ramp to I-70EB	1500	2
3	Basic	Basic	SR-235 NB	1100	2
4	Weaving	Weaving	Between Off/On-Ramps to/from I-70EB/I-70WB	1450	3
5	Basic	Basic	SR-235 NB	500	2
6	Merge	Merge	On-Ramp from I-70WB	1000	2
7	Basic	Basic	SR-235 NB	315	2

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.77	0.917	1742	4600	0.38	60.0	14.5	B

Segment 2: Diverge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.77	0.95	0.917	0.885	1742	702	4600	2100	0.38	0.33	53.5	53.5	16.3	13.5	B

Segment 3: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.77	0.917	906	4600	0.20	59.2	7.6	A

Segment 4: Weaving

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.77	0.917	1105	4678	0.24	51.7	7.1	A

Segment 5: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.77	0.917	779	4600	0.17	58.3	6.5	A

Segment 6: Merge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.77	0.80	0.917	0.926	995	216	4600	2100	0.22	0.10	54.8	54.8	9.1	10.4	B

Segment 7: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.77	0.893	1033	4600	0.22	58.2	8.6	A

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	425	310	0.51	12.73	56.0	10.6	9.3	1.50	A

Facility Overall Results

Space Mean Speed, mi/h	56.0	Average Density, veh/mi/ln	9.3
Average Travel Time, min	1.50	Average Density, pc/mi/ln	10.6
Total VMT, veh-mi	425	Total VHD, veh-h	0.51
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	12.73

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HCS Freeway Facilities Report

Project Information

Analyst	Kimley-Horn	Date	9/28/23
Agency		Analysis Year	2045
Jurisdiction	ODOT District 7	Time Analyzed	AM No Build
Facility Name	SR-235 Southbound	Units	U.S. Customary
Project Description	MOT 235 Travel Center		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	1.42		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	SR-235 SB	120	2
2	Diverge	Diverge	On-Ramp to I-70WB	1500	2
3	Basic	Basic	SR-235 SB	125	2
4	Weaving	Weaving	Between Off/On-Ramps from/to I-70WB/I-70EB	1400	4
5	Basic	Basic	SR-235 SB	710	3
6	Merge	Merge	On-Ramp from I-70EB	1500	3
7	Basic	Basic	SR-235 SB	2125	3

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.93	0.926	1173	4600	0.26	60.0	9.8	A

Segment 2: Diverge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.93	0.84	0.926	0.917	1173	389	4600	2100	0.25	0.19	54.0	54.0	10.9	8.8	A

Segment 3: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.93	0.926	824	4600	0.18	58.4	6.9	A

Segment 4: Weaving

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.93	0.926	1702	7476	0.23	55.7	7.6	A

Segment 5: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.93	0.926	1568	6900	0.23	59.2	8.7	A

Segment 6: Merge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.93	0.96	0.926	0.980	2206	638	6900	2100	0.32	0.30	56.4	55.3	13.0	12.2	B

Segment 7: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.93	0.926	2264	6900	0.33	59.8	12.6	B

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	595	466	0.39	9.63	57.4	10.7	9.8	1.50	A

Facility Overall Results

Space Mean Speed, mi/h	57.4	Average Density, veh/mi/ln	9.8
Average Travel Time, min	1.50	Average Density, pc/mi/ln	10.7
Total VMT, veh-mi	595	Total VHD, veh-h	0.39
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	9.63

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HCS Freeway Facilities Report

Project Information

Analyst	Kimley-Horn	Date	12/20/2023
Agency		Analysis Year	2045
Jurisdiction	ODOT District 7	Time Analyzed	PM No Build
Facility Name	I-70 East Bound	Units	U.S. Customary
Project Description	MOT 235 Travel Center		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	4.56		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	IR-70 EB	5860	3
2	Diverge	Diverge	Off-Ramp to SR-235SB	1500	3
3	Basic	Basic	IR-70 EB	5100	3
4	Merge	Merge	On-Ramp from SR-235NB	1500	3
5	Basic	Basic	IR-70 EB	10100	3

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.820	3775	7200	0.52	74.3	16.9	B

Segment 2: Diverge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.85	0.820	0.943	3775	686	7200	2100	0.52	0.33	69.5	65.3	18.1	24.3	C

Segment 3: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.820	3062	7200	0.43	75.0	13.6	B

Segment 4: Merge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.85	0.820	0.962	4212	1150	7200	2200	0.58	0.52	67.4	65.6	20.8	21.9	C

Segment 5: Basic

AP	PHF	fHV	Flow Rate	Capacity	d/c	Speed	Density	LOS

			(pc/h)	(pc/h)	Ratio	(mi/h)	(pc/mi/ln)	
1	0.94	0.820	4281	7200	0.59	73.0	19.5	C

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	3609	3330	1.32	33.12	73.0	17.6	14.5	3.70	B

Facility Overall Results

Space Mean Speed, mi/h	73.0	Average Density, veh/mi/ln	14.5
Average Travel Time, min	3.70	Average Density, pc/mi/ln	17.6
Total VMT, veh-mi	3609	Total VHD, veh-h	1.32
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	33.12

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HCS Freeway Facilities Report

Project Information

Analyst	Kimely Horn	Date	12/20/2023
Agency	ODOT	Analysis Year	2045
Jurisdiction	ODOT District 7	Time Analyzed	PM No Build
Facility Name	I-70 Westbound	Units	U.S. Customary
Project Description	MOT 235 Travel Center		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	4.35		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	US-70 WB	9940	3
2	Diverge	Diverge	Off-Ramp to SR-235NB	1500	3
3	Basic	Basic	US-70 WB	3890	3
4	Merge	Merge	On-Ramp from SR-235SB	1500	3
5	Basic	Basic	US-70 WB	6150	3

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.820	4255	7200	0.59	73.1	19.4	C

Segment 2: Diverge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.820	0.926	4255	862	7200	2200	0.59	0.39	70.7	66.9	20.1	24.4	C

Segment 3: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.820	3282	7200	0.46	74.9	14.6	B

Segment 4: Merge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.92	0.820	0.962	4615	1333	7200	2200	0.64	0.61	66.6	64.6	23.1	24.3	C

Segment 5: Basic

AP	PHF	fHV	Flow Rate	Capacity	d/c	Speed	Density	LOS

			(pc/h)	(pc/h)	Ratio	(mi/h)	(pc/mi/ln)	
1	0.94	0.820	4813	7200	0.67	71.0	22.6	C

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	3804	3503	2.09	52.35	72.0	19.7	16.2	3.60	C

Facility Overall Results

Space Mean Speed, mi/h	72.0	Average Density, veh/mi/ln	16.2
Average Travel Time, min	3.60	Average Density, pc/mi/ln	19.7
Total VMT, veh-mi	3804	Total VHD, veh-h	2.09
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	52.35

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HCS Freeway Facilities Report

Project Information

Analyst	Kimley-Horn	Date	9/28/23
Agency		Analysis Year	2045
Jurisdiction	ODOT District 7	Time Analyzed	PM No Build
Facility Name	SR-235 Northbound	Units	U.S. Customary
Project Description	MOT 235 Travel Center		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	1.42		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	SR-235 NB	1650	2
2	Diverge	Diverge	Off-Ramp to I-70EB	1500	2
3	Basic	Basic	SR-235 NB	1100	2
4	Weaving	Weaving	Between Off/On-Ramps to/from I-70EB/I-70WB	1450	3
5	Basic	Basic	SR-235 NB	500	2
6	Merge	Merge	On-Ramp from I-70WB	1000	2
7	Basic	Basic	SR-235 NB	315	2

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.84	0.952	2876	4600	0.63	60.0	24.0	C

Segment 2: Diverge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.84	0.87	0.952	0.962	2876	920	4600	2100	0.63	0.44	53.1	53.1	27.1	23.2	C

Segment 3: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.84	0.952	1913	4600	0.42	59.2	15.9	B

Segment 4: Weaving

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.84	0.952	2133	3986	0.54	45.4	15.7	B

Segment 5: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.84	0.952	1175	4600	0.26	57.0	9.8	A

Segment 6: Merge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.84	0.80	0.952	0.935	1335	160	4600	2100	0.29	0.08	54.7	54.7	12.2	13.1	B

Segment 7: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.84	0.943	1338	4600	0.29	58.2	11.2	B

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	750	610	1.33	33.31	54.2	18.5	17.0	1.60	C

Facility Overall Results

Space Mean Speed, mi/h	54.2	Average Density, veh/mi/ln	17.0
Average Travel Time, min	1.60	Average Density, pc/mi/ln	18.5
Total VMT, veh-mi	750	Total VHD, veh-h	1.33
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	33.31

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HCS Freeway Facilities Report

Project Information

Analyst	Kimley-Horn	Date	9/28/23
Agency		Analysis Year	2045
Jurisdiction	ODOT District 7	Time Analyzed	PM No Build
Facility Name	SR-235 Southbound	Units	U.S. Customary
Project Description	MOT 235 Travel Center		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	1.42		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	SR-235 SB	120	2
2	Diverge	Diverge	On-Ramp to I-70WB	1500	2
3	Basic	Basic	SR-235 SB	125	2
4	Weaving	Weaving	Between Off/On-Ramps to/from I-70WB/I-70EB	1400	4
5	Basic	Basic	SR-235 SB	710	3
6	Merge	Merge	On-Ramp from I-70EB	1500	3
7	Basic	Basic	SR-235 SB	2125	3

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.86	0.943	1171	4600	0.25	60.0	9.8	A

Segment 2: Diverge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.86	0.92	0.943	0.943	1171	380	4600	2100	0.25	0.18	54.0	54.0	10.8	8.7	A

Segment 3: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.86	0.943	765	4600	0.17	58.4	6.4	A

Segment 4: Weaving

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.86	0.943	1528	7476	0.20	55.9	6.8	A

Segment 5: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.86	0.943	1332	6900	0.19	59.3	7.4	A

Segment 6: Merge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.86	0.85	0.943	0.943	1694	362	6900	2100	0.25	0.17	56.7	55.4	10.0	9.1	A

Segment 7: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.86	0.943	1689	6900	0.24	59.8	9.4	A

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	500	368	0.33	8.18	57.3	8.8	8.1	1.50	A

Facility Overall Results

Space Mean Speed, mi/h	57.3	Average Density, veh/mi/ln	8.1
Average Travel Time, min	1.50	Average Density, pc/mi/ln	8.8
Total VMT, veh-mi	500	Total VHD, veh-h	0.33
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	8.18

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Kimley»Horn

7965 North High Street | Suite 200 | Columbus, OH 43235
380-867-0815

APPENDIX

F. HCS 8 No Build (With Site Generated Trips) Intersections Outputs

HCS Two-Way Stop-Control Report

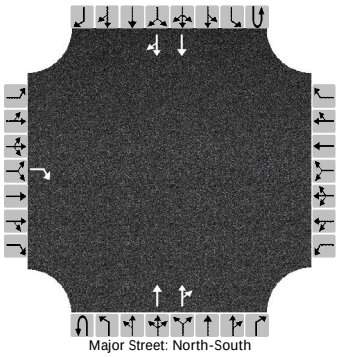
General Information

Analyst	Kimley-Horn
Agency/Co.	ODOT
Date Performed	7/6/2023
Analysis Year	2025
Time Analyzed	AM No Build
Intersection Orientation	North-South
Project Description	MOT-235-1.97 (at I-70), No PID

Site Information

Intersection	SR-235 and Artz Road/Private Drive
Jurisdiction	ODOT District 7
East/West Street	Artz Road/Private Drive
North/South Street	SR-235
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes



Major Street: North-South

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		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	1		0	0	0	0	0	2	0	0	0	2	0
Configuration				R							T	TR			T	TR
Volume (veh/h)				20							950	240			1350	10
Percent Heavy Vehicles (%)				7												
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized	No															
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)				6.9												
Critical Headway (sec)				7.04												
Base Follow-Up Headway (sec)				3.3												
Follow-Up Headway (sec)				3.37												

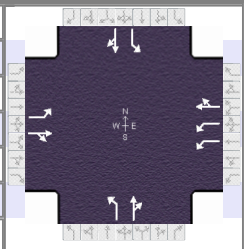
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)				22												
Capacity, c (veh/h)				349												
v/c Ratio				0.06												
95% Queue Length, Q_{95} (veh)				0.2												
Control Delay (s/veh)				16.0												
Level of Service (LOS)				C												
Approach Delay (s/veh)	16.0															
Approach LOS	C															

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HCS Signalized Intersection Results Summary

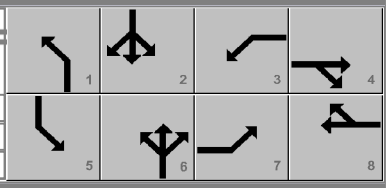
General Information				Intersection Information	
Agency	Kimley-Horn			Duration, h	0.250
Analyst		Analysis Date	Jan 3, 2024	Area Type	Other
Jurisdiction	ODOT District 7	Time Period	AM No Build	PHF	0.94
Urban Street	SR-235	Analysis Year	2025	Analysis Period	1> 7:00
Intersection	SR-235 and Center Poin…	File Name	SR-235 Signalized Intersections AM Build.xus		
Project Description	MOT-235-1.97 (at I-70), No PID				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	40	10	90	510	10	50	200	390	360	40	760	10

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	5.4	1.6	61.0	7.0	5.0	10.0
Yellow	4.0	0.0	4.0	4.0	4.0	4.0
Red	2.0	0.0	2.0	2.0	2.0	2.0



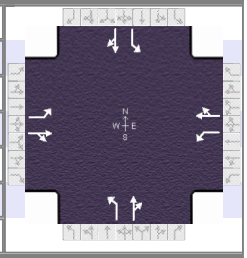
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	1	6	5	2
Case Number	2.0	4.0	2.0	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	13.0	16.0	24.0	27.0	13.0	68.6	11.4	67.0
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s	3.1	3.3	3.1	3.3	3.0	0.0	3.0	0.0
Queue Clearance Time (g_s), s	5.0	9.8	20.0	6.0	9.0		3.4	
Green Extension Time (g_e), s	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		0.77	
Max Out Probability	0.23	1.00	1.00	0.00	1.00		0.32	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	43	106		543	64		213	798		44	846	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1654	1635		1757	1652		1584	1531		1711	1792	
Queue Service Time (g_s), s	3.0	7.8		18.0	4.0		7.0	62.5		1.4	50.1	
Cycle Queue Clearance Time (g_c), s	3.0	7.8		18.0	4.0		7.0	62.5		1.4	50.1	
Green Ratio (*g/C*)	0.04	0.07		0.15	0.17		0.57	0.52		0.55	0.51	
Capacity (*c*), veh/h	70	136		527	289		205	799		137	911	
Volume-to-Capacity Ratio (*X*)	0.605	0.781		1.029	0.221		1.036	0.999		0.321	0.929	
Back of Queue (*Q*), ft/ln (95 th percentile)	64.5	179.9		424.6	73.4		328.2	1010.2		27.8	633.4	
Back of Queue (*Q*), veh/ln (95 th percentile)	2.4	7.2		17.0	2.9		11.6	35.8		1.1	24.0	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.15	0.41		0.85	0.10		0.42	1.30		0.11	0.78	
Uniform Delay (d_1), s/veh	56.5	55.0		51.0	42.5		29.5	28.7		27.5	19.1	
Incremental Delay (d_2), s/veh	3.1	22.9		46.9	0.1		72.7	31.6		0.4	13.4	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	59.6	77.8		97.9	42.6		102.2	60.2		27.9	32.5	
Level of Service (LOS)	E	E		F	D		F	E		C	C	
Approach Delay, s/veh / LOS	72.6	E		92.1	F		69.1	E		32.3	C	
Intersection Delay, s/veh / LOS	62.2						E					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

HCS Signalized Intersection Results Summary

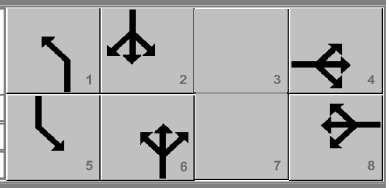
General Information				Intersection Information	
Agency	Kimley-Horn			Duration, h	0.250
Analyst		Analysis Date	Jan 3, 2024	Area Type	Other
Jurisdiction	ODOT District 7	Time Period	AM No Build	PHF	0.91
Urban Street	SR-235	Analysis Year	2025	Analysis Period	1> 7:00
Intersection	SR-235 and Coca-Cola…	File Name	SR-235 Signalized Intersections AM Build.xus		
Project Description	MOT-235-1.97 (at I-70), No PID				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	10	10	10	10	10	420	50	10	790	10

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	110	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	2.1	91.0	8.9	0.0	0.0	0.0						
Yellow	4.0	4.0	4.0	0.0	0.0	0.0						
Red	2.0	2.0	2.0	0.0	0.0	0.0						



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	1	6	5	2
Case Number		6.0		6.0	1.1	4.0	1.1	4.0
Phase Duration, s		14.9		14.9	8.1	97.0	8.1	97.0
Change Period, ($Y+R_c$), s		6.0		6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s		3.6		3.6	3.0	0.0	3.0	0.0
Queue Clearance Time (g_s), s		5.6		5.3	2.2		2.2	
Green Extension Time (g_e), s		0.0		0.0	0.0	0.0	0.0	0.0
Phase Call Probability		0.89		0.89	0.30		0.31	
Max Out Probability		0.09		0.06	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	11	22		11	22		11	500		11	879	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1213	1498		784	968		1612	1661		1725	1807	
Queue Service Time (g_s), s	1.0	1.7		1.6	2.6		0.2	14.0		0.2	27.5	
Cycle Queue Clearance Time (g_c), s	3.6	1.7		3.3	2.6		0.2	14.0		0.2	27.5	
Green Ratio (*g/C*)	0.07	0.07		0.07	0.07		0.78	0.76		0.78	0.76	
Capacity (*c*), veh/h	124	111		107	72		381	1259		648	1371	
Volume-to-Capacity Ratio (*X*)	0.089	0.198		0.102	0.306		0.028	0.397		0.017	0.641	
Back of Queue (*Q*), ft/ln (95 th percentile)	16.4	32.4		20.9	42.1		2.4	159.7		1.9	337.3	
Back of Queue (*Q*), veh/ln (95 th percentile)	0.6	1.1		0.6	1.2		0.1	5.7		0.1	12.9	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.05	0.10		0.05	0.07		0.01	0.19		0.01	0.16	
Uniform Delay (d_1), s/veh	54.3	52.2		53.7	52.6		6.6	5.9		3.9	6.8	
Incremental Delay (d_2), s/veh	0.1	0.3		0.2	0.9		0.0	0.3		0.0	2.3	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	54.5	52.5		53.9	53.5		6.7	6.3		3.9	9.1	
Level of Service (LOS)	D	D		D	D		A	A		A	A	
Approach Delay, s/veh / LOS	53.2	D		53.6	D		6.3	A		9.1	A	
Intersection Delay, s/veh / LOS	10.1						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

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HCS Two-Way Stop-Control Report

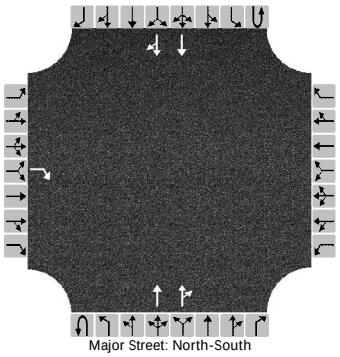
General Information

Analyst	Kimley-Horn
Agency/Co.	ODOT
Date Performed	7/6/2023
Analysis Year	2025
Time Analyzed	PM No Build
Intersection Orientation	North-South
Project Description	MOT-235-1.97 (at I-70), No PID

Site Information

Intersection	SR-235 and Artz Road/Private Drive
Jurisdiction	ODOT District 7
East/West Street	Artz Road/Private Drive
North/South Street	SR-235
Peak Hour Factor	0.91
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

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		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	1		0	0	0	0	0	2	0	0	0	2	0
Configuration				R							T	TR			T	TR
Volume (veh/h)				110							1380	320			1420	10
Percent Heavy Vehicles (%)				4												
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized	No															
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)				6.9												
Critical Headway (sec)				6.98												
Base Follow-Up Headway (sec)				3.3												
Follow-Up Headway (sec)				3.34												

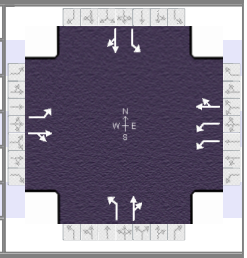
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)				121												
Capacity, c (veh/h)				331												
v/c Ratio				0.37												
95% Queue Length, Q_{95} (veh)				1.6												
Control Delay (s/veh)				22.0												
Level of Service (LOS)				C												
Approach Delay (s/veh)	22.0															
Approach LOS	C															

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HCS Signalized Intersection Results Summary

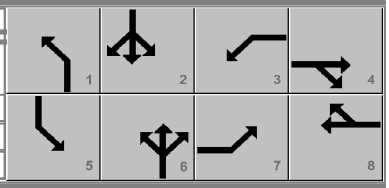
General Information				Intersection Information	
Agency	Kimley-Horn			Duration, h	0.250
Analyst		Analysis Date	Jan 3, 2024	Area Type	Other
Jurisdiction	ODOT District 7	Time Period	PM No Build	PHF	0.94
Urban Street	SR-235	Analysis Year	2025	Analysis Period	1> 17:00
Intersection	SR-235 and Center Poin…	File Name	SR-235 Signalized Intersections PM Build.xus		
Project Description	MOT-235-1.97 (at I-70), No PID				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	80	10	220	740	10	60	40	840	500	50	530	10

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	5.3	0.5	61.2	6.7	6.3	10.0	
Yellow	4.0	0.0	4.0	4.0	4.0	4.0	
Red	2.0	0.0	2.0	2.0	2.0	2.0	



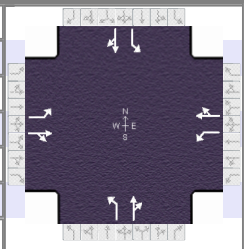
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	1	6	5	2
Case Number	2.0	4.0	2.0	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	12.7	16.0	25.0	28.3	11.3	67.2	11.8	67.7
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s	3.1	3.3	3.1	3.3	3.0	0.0	3.0	0.0
Queue Clearance Time (g_s), s	6.8	10.1	21.0	6.6	3.4		3.7	
Green Extension Time (g_e), s	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0
Phase Call Probability	0.94	1.00	1.00	1.00	0.76		0.82	
Max Out Probability	0.00	1.00	1.00	0.00	0.31		0.10	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	85	245		787	74		43	1426		52	563	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1682	1621		1757	1646		1682	1655		1682	1761	
Queue Service Time (g_s), s	4.8	8.1		19.0	4.6		1.4	61.2		1.7	23.1	
Cycle Queue Clearance Time (g_c), s	4.8	8.1		19.0	4.6		1.4	61.2		1.7	23.1	
Green Ratio (*g/C*)	0.04	0.07		0.16	0.19		0.55	0.51		0.56	0.51	
Capacity (*c*), veh/h	68	135		556	305		378	845		141	905	
Volume-to-Capacity Ratio (*X*)	1.254	1.811		1.415	0.244		0.112	1.688		0.370	0.621	
Back of Queue (*Q*), ft/ln (95 th percentile)	211.3	730		907.1	85		23.5	4021.3		33.7	323.6	
Back of Queue (*Q*), veh/ln (95 th percentile)	7.9	29.2		36.3	3.4		0.9	150.1		1.3	12.1	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.48	1.66		1.65	0.04		0.03	5.19		0.13	0.40	
Uniform Delay (d_1), s/veh	57.6	55.0		50.5	41.7		14.9	29.4		27.3	14.9	
Incremental Delay (d_2), s/veh	124.1	392.7		197.1	0.2		0.0	314.5		0.5	2.9	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	181.7	447.8		247.6	41.8		14.9	343.9		27.8	17.8	
Level of Service (LOS)	F	F		F	D		B	F		C	B	
Approach Delay, s/veh / LOS	379.1	F		229.9	F		334.4	F		18.7	B	
Intersection Delay, s/veh / LOS	252.1						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

HCS Signalized Intersection Results Summary

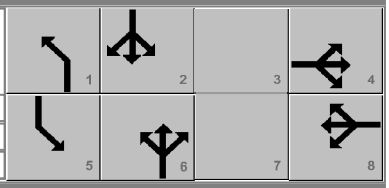
General Information				Intersection Information	
Agency	Kimley-Horn			Duration, h	0.250
Analyst		Analysis Date	Jan 3, 2024	Area Type	Other
Jurisdiction	ODOT District 7	Time Period	PM No Build	PHF	0.96
Urban Street	SR-235	Analysis Year	2025	Analysis Period	1> 17:00
Intersection	SR-235 and Coca-Cola…	File Name	SR-235 Signalized Intersections PM Build.xus		
Project Description	MOT-235-1.97 (at I-70), No PID				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	20	10	10	10	10	960	10	10	560	10

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	117	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	1.4	0.6	90.8	9.1	0.0	0.0						
Yellow	4.0	0.0	4.0	4.0	0.0	0.0						
Red	2.0	0.0	2.0	2.0	0.0	0.0						



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	1	6	5	2
Case Number		6.0		6.0	1.1	4.0	1.1	4.0
Phase Duration, s		15.1		15.1	7.4	96.8	8.1	97.5
Change Period, ($Y+R_c$), s		6.0		6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s		3.2		3.2	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		4.3		5.1	2.1		2.2	
Green Extension Time (g_e), s		0.1		0.1	0.0	0.0	0.0	0.0
Phase Call Probability		0.91		0.91	0.20		0.29	
Max Out Probability		0.00		0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	10	31		10	21		7	656		10	594	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1303	1564		1378	1716		1767	1852		1739	1820	
Queue Service Time (g_s), s	0.9	2.3		0.9	1.4		0.1	18.9		0.2	13.8	
Cycle Queue Clearance Time (g_c), s	2.3	2.3		3.1	1.4		0.1	18.9		0.2	13.8	
Green Ratio (*g/C*)	0.08	0.08		0.08	0.08		0.77	0.76		0.77	0.76	
Capacity (*c*), veh/h	144	119		139	130		596	1402		545	1387	
Volume-to-Capacity Ratio (*X*)	0.072	0.263		0.075	0.160		0.011	0.468		0.019	0.428	
Back of Queue (*Q*), ft/ln (95 th percentile)	14.5	43.6		13.7	27		1.4	210.9		2.2	212.1	
Back of Queue (*Q*), veh/ln (95 th percentile)	0.5	1.6		0.5	1.1		0.1	8.2		0.1	8.2	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.04	0.13		0.03	0.05		0.01	0.25		0.01	0.10	
Uniform Delay (d_1), s/veh	52.9	52.3		53.7	51.9		4.2	7.2		4.6	5.0	
Incremental Delay (d_2), s/veh	0.1	0.4		0.1	0.2		0.0	0.1		0.0	1.0	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	53.0	52.7		53.8	52.1		4.2	7.3		4.6	6.0	
Level of Service (LOS)	D	D		D	D		A	A		A	A	
Approach Delay, s/veh / LOS	52.8	D		52.7	D		7.2	A		6.0	A	
Intersection Delay, s/veh / LOS	9.1						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

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HCS Two-Way Stop-Control Report

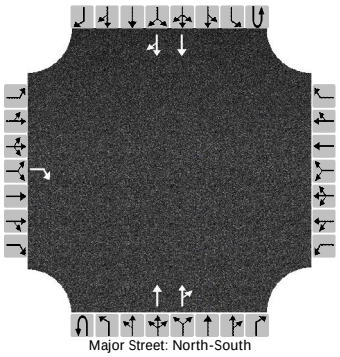
General Information

Analyst	Kimley-Horn
Agency/Co.	ODOT
Date Performed	7/6/2023
Analysis Year	2045
Time Analyzed	AM No Build
Intersection Orientation	North-South
Project Description	MOT-235-1.97 (at I-70), No PID

Site Information

Intersection	SR-235 and Artz Road/Private Drive
Jurisdiction	ODOT District 7
East/West Street	Artz Road/Private Drive
North/South Street	SR-235
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

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		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	1		0	0	0	0	0	2	0	0	0	2	0
Configuration				R							T	TR			T	TR
Volume (veh/h)				30							1030	240			1460	10
Percent Heavy Vehicles (%)				7												
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized	No															
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)				6.9												
Critical Headway (sec)				7.04												
Base Follow-Up Headway (sec)				3.3												
Follow-Up Headway (sec)				3.37												

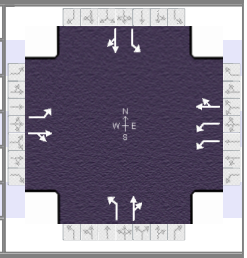
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)				33												
Capacity, c (veh/h)				318												
v/c Ratio				0.10												
95% Queue Length, Q_{95} (veh)				0.3												
Control Delay (s/veh)				17.6												
Level of Service (LOS)				C												
Approach Delay (s/veh)	17.6															
Approach LOS	C															

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HCS Signalized Intersection Results Summary

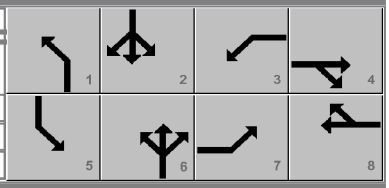
General Information				Intersection Information	
Agency	Kimley-Horn			Duration, h	0.250
Analyst		Analysis Date	Jan 3, 2024	Area Type	Other
Jurisdiction	ODOT District 7	Time Period	AM No Build	PHF	0.94
Urban Street	SR-235	Analysis Year	2045	Analysis Period	1> 7:00
Intersection	SR-235 and Center Poin…	File Name	SR-235 Signalized Intersections AM Build.xus		
Project Description	MOT-235-1.97 (at I-70), No PID				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	40	10	90	510	10	50	220	480	360	40	870	10

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	5.1	3.9	61.0	7.0	3.0	10.0
Yellow	4.0	0.0	4.0	4.0	4.0	4.0
Red	2.0	0.0	2.0	2.0	2.0	2.0



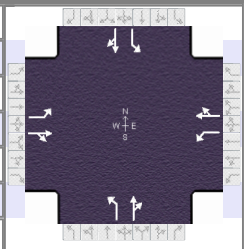
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	1	6	5	2
Case Number	2.0	4.0	2.0	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	13.0	16.0	22.0	25.0	15.0	70.9	11.1	67.0
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s	3.1	3.3	3.1	3.3	3.0	0.0	3.0	0.0
Queue Clearance Time (g_s), s	5.0	9.8	18.0	6.1	11.0		3.2	
Green Extension Time (g_e), s	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0
Phase Call Probability	1.00	1.00	1.00	1.00	1.00		0.72	
Max Out Probability	0.00	1.00	1.00	0.00	1.00		0.01	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	43	106		543	64		234	894		39	851	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1654	1635		1757	1652		1584	1544		1711	1793	
Queue Service Time (g_s), s	3.0	7.8		16.0	4.1		9.0	64.9		1.2	50.8	
Cycle Queue Clearance Time (g_c), s	3.0	7.8		16.0	4.1		9.0	64.9		1.2	50.8	
Green Ratio (*g/C*)	0.04	0.07		0.13	0.16		0.58	0.54		0.55	0.51	
Capacity (*c*), veh/h	70	136		469	261		228	835		132	911	
Volume-to-Capacity Ratio (*X*)	0.605	0.781		1.158	0.244		1.027	1.070		0.292	0.934	
Back of Queue (*Q*), ft/ln (95 th percentile)	64.5	180		503.2	75.2		331.5	1260.6		24.4	644.6	
Back of Queue (*Q*), veh/ln (95 th percentile)	2.4	7.2		20.1	3.0		11.8	44.7		0.9	24.4	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.15	0.41		1.01	0.11		0.43	1.63		0.10	0.79	
Uniform Delay (d_1), s/veh	56.5	55.0		52.0	44.2		28.3	27.5		27.6	19.2	
Incremental Delay (d_2), s/veh	3.1	22.9		92.7	0.2		66.9	51.5		0.3	14.0	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	59.6	77.8		144.7	44.4		95.2	79.0		27.9	33.2	
Level of Service (LOS)	E	E		F	D		F	F		C	C	
Approach Delay, s/veh / LOS	72.6	E		134.1	F		82.4	F		33.0	C	
Intersection Delay, s/veh / LOS	77.3						E					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Kimley-Horn			Duration, h	0.250
Analyst		Analysis Date	Jan 3, 2024	Area Type	Other
Jurisdiction	ODOT District 7	Time Period	AM No Build	PHF	0.91
Urban Street	SR-235	Analysis Year	2045	Analysis Period	1> 7:00
Intersection	SR-235 and Coca-Cola…	File Name	SR-235 Signalized Intersections AM No Build.xus		
Project Description	MOT-235-1.97 (at I-70), No PID				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	10	10	10	10	10	480	50	10	900	10

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	112	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

							1	2	3	4
Green	2.0	0.2	91.0	8.9	0.0	0.0	5	6	7	8
Yellow	4.0	0.0	4.0	4.0	0.0	0.0				
Red	2.0	0.0	2.0	2.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	1	6	5	2
Case Number		6.0		6.0	1.1	4.0	1.1	4.0
Phase Duration, s		14.9		14.9	8.0	97.0	8.1	97.1
Change Period, ($Y+R_c$), s		6.0		6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s		3.6		3.6	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		5.6		5.3	2.2		2.2	
Green Extension Time (g_e), s		0.1		0.1	0.0	0.0	0.0	0.0
Phase Call Probability		0.89		0.89	0.28		0.31	
Max Out Probability		0.00		0.00	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	11	22		11	22		10	529		11	1000	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1213	1498		784	968		1612	1664		1725	1808	
Queue Service Time (g_s), s	1.0	1.7		1.6	2.6		0.2	17.6		0.2	35.8	
Cycle Queue Clearance Time (g_c), s	3.6	1.7		3.3	2.6		0.2	17.6		0.2	35.8	
Green Ratio (*g/C*)	0.07	0.07		0.07	0.07		0.77	0.76		0.78	0.76	
Capacity (*c*), veh/h	124	111		107	72		313	1262		608	1373	
Volume-to-Capacity Ratio (*X*)	0.089	0.198		0.102	0.306		0.032	0.419		0.018	0.729	
Back of Queue (*Q*), ft/ln (95 th percentile)	16.4	32.4		20.9	42.1		3.7	206.1		2.3	473.1	
Back of Queue (*Q*), veh/ln (95 th percentile)	0.6	1.1		0.6	1.2		0.1	7.4		0.1	18.1	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.05	0.10		0.05	0.07		0.02	0.25		0.01	0.22	
Uniform Delay (d_1), s/veh	54.3	52.2		53.7	52.6		9.0	7.8		4.4	7.8	
Incremental Delay (d_2), s/veh	0.1	0.3		0.2	0.9		0.0	0.1		0.0	3.4	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	54.5	52.5		53.9	53.5		9.0	7.9		4.4	11.2	
Level of Service (LOS)	D	D		D	D		A	A		A	B	
Approach Delay, s/veh / LOS	53.2	D		53.6	D		7.9	A		11.1	B	
Intersection Delay, s/veh / LOS	11.8						B					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

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HCS Two-Way Stop-Control Report

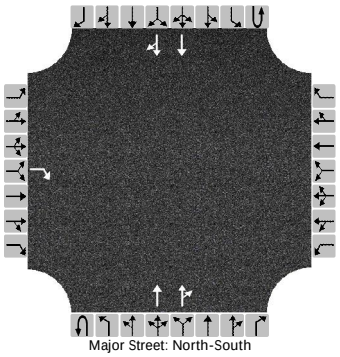
General Information

Analyst	Kimley-Horn
Agency/Co.	ODOT
Date Performed	7/6/2023
Analysis Year	2045
Time Analyzed	PM No Build
Intersection Orientation	North-South
Project Description	MOT-235-1.97 (at I-70), No PID

Site Information

Intersection	SR-235 and Artz Road/Private Drive
Jurisdiction	ODOT District 7
East/West Street	Artz Road/Private Drive
North/South Street	SR-235
Peak Hour Factor	0.91
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

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		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	1		0	0	0	0	0	2	0	0	0	2	0
Configuration				R							T	TR			T	TR
Volume (veh/h)				130							1510	320			1520	10
Percent Heavy Vehicles (%)				4												
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized	No															
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)				6.9												
Critical Headway (sec)				6.98												
Base Follow-Up Headway (sec)				3.3												
Follow-Up Headway (sec)				3.34												

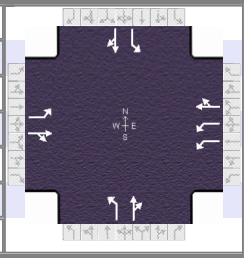
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)				143												
Capacity, c (veh/h)				304												
v/c Ratio				0.47												
95% Queue Length, Q_{95} (veh)				2.4												
Control Delay (s/veh)				26.9												
Level of Service (LOS)				D												
Approach Delay (s/veh)	26.9															
Approach LOS	D															

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HCS Signalized Intersection Results Summary

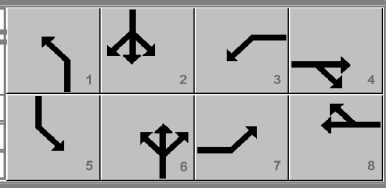
General Information				Intersection Information	
Agency	Kimley-Horn			Duration, h	0.250
Analyst		Analysis Date	Jan 3, 2024	Area Type	Other
Jurisdiction	ODOT District 7	Time Period	PM No Build	PHF	0.94
Urban Street	SR-235	Analysis Year	2045	Analysis Period	1> 17:00
Intersection	SR-235 and Center Poin…	File Name	SR-235 Signalized Intersections PM Build.xus		
Project Description	MOT-235-1.97 (at I-70), No PID				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	90	10	190	740	10	20	40	1010	500	50	600	10

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	5.3	0.5	61.2	7.9	6.1	10.0
Yellow	4.0	0.0	4.0	4.0	4.0	4.0
Red	2.0	0.0	1.0	2.0	2.0	2.0



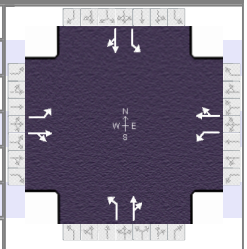
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	1	6	5	2
Case Number	2.0	4.0	2.0	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	13.9	16.0	26.0	28.1	11.3	66.2	11.8	66.7
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	5.0	6.0	5.0
Max Allow Headway (*MAH*), s	3.1	3.3	3.1	3.3	3.0	0.0	3.0	0.0
Queue Clearance Time (g_s), s	8.1	10.1	22.0	3.9	3.4		3.7	
Green Extension Time (g_e), s	0.1	0.0	0.0	0.5	0.0	0.0	0.0	0.0
Phase Call Probability	0.96	1.00	1.00	1.00	0.76		0.82	
Max Out Probability	0.00	1.00	1.00	0.00	0.05		0.55	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	96	213		787	32		43	1606		52	635	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1682	1623		1757	1696		1682	1667		1682	1761	
Queue Service Time (g_s), s	6.1	8.1		20.0	1.9		1.4	61.2		1.7	35.9	
Cycle Queue Clearance Time (g_c), s	6.1	8.1		20.0	1.9		1.4	61.2		1.7	35.9	
Green Ratio (*g/C*)	0.05	0.07		0.17	0.18		0.55	0.51		0.56	0.51	
Capacity (*c*), veh/h	85	135		586	312		283	851		141	906	
Volume-to-Capacity Ratio (*X*)	1.126	1.573		1.344	0.102		0.151	1.888		0.370	0.702	
Back of Queue (*Q*), ft/ln (95 th percentile)	202.2	579.4		850.5	35.5		23.6	5032.5		33.7	591.7	
Back of Queue (*Q*), veh/ln (95 th percentile)	7.5	23.2		34.0	1.4		0.9	187.8		1.3	22.1	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.46	1.32		1.70	0.05		0.03	6.49		0.13	0.73	
Uniform Delay (d_1), s/veh	57.0	55.0		50.0	40.8		18.4	29.4		27.2	27.9	
Incremental Delay (d_2), s/veh	69.3	290.5		166.1	0.1		0.1	404.1		0.5	4.0	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	126.3	345.6		216.1	40.8		18.5	433.5		27.8	31.9	
Level of Service (LOS)	F	F		F	D		B	F		C	C	
Approach Delay, s/veh / LOS	277.5	F		209.2	F		422.8	F		31.6	C	
Intersection Delay, s/veh / LOS	281.7						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

HCS Signalized Intersection Results Summary

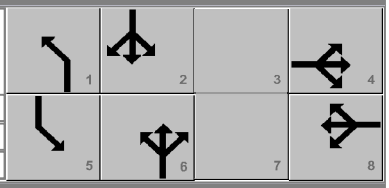
General Information				Intersection Information	
Agency	Kimley-Horn			Duration, h	0.250
Analyst		Analysis Date	Jan 3, 2024	Area Type	Other
Jurisdiction	ODOT District 7	Time Period	PM No Build	PHF	0.96
Urban Street	SR-235	Analysis Year	2045	Analysis Period	1> 17:00
Intersection	SR-235 and Coca-Cola…	File Name	SR-235 Signalized Intersections PM Build.xus		
Project Description	MOT-235-1.97 (at I-70), No PID				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	20	10	10	10	10	1100	10	10	630	10

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	45	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	1.3	0.8	90.8	9.1	0.0	0.0
Yellow	4.0	0.0	4.0	4.0	0.0	0.0
Red	2.0	0.0	2.0	2.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	1	6	5	2
Case Number		6.0		6.0	1.1	4.0	1.1	4.0
Phase Duration, s		15.1		15.1	7.3	96.8	8.1	97.6
Change Period, ($Y+R_c$), s		6.0		6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s		3.2		3.2	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		4.3		5.1	2.1		2.2	
Green Extension Time (g_e), s		0.0		0.0	0.0	0.0	0.0	0.0
Phase Call Probability		0.91		0.91	0.18		0.29	
Max Out Probability		0.01		0.02	0.00		0.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	10	31		10	21		6	670		10	667	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1303	1564		1378	1716		1767	1853		1739	1821	
Queue Service Time (g_s), s	0.9	2.3		0.9	1.4		0.1	1.0		0.2	16.4	
Cycle Queue Clearance Time (g_c), s	2.3	2.3		3.1	1.4		0.1	1.0		0.2	16.4	
Green Ratio (*g/C*)	0.08	0.08		0.08	0.08		0.77	0.76		0.77	0.76	
Capacity (*c*), veh/h	144	119		139	130		545	1402		650	1390	
Volume-to-Capacity Ratio (*X*)	0.072	0.263		0.075	0.160		0.011	0.478		0.016	0.480	
Back of Queue (*Q*), ft/ln (95 th percentile)	14.5	43.6		13.7	27		1.3	9.6		2.2	242.8	
Back of Queue (*Q*), veh/ln (95 th percentile)	0.5	1.6		0.5	1.1		0.1	0.4		0.1	9.3	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.04	0.13		0.03	0.05		0.01	0.01		0.01	0.11	
Uniform Delay (d_1), s/veh	52.9	52.3		53.7	51.9		4.6	0.2		3.1	5.3	
Incremental Delay (d_2), s/veh	0.1	0.4		0.1	0.2		0.0	0.1		0.0	1.2	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	53.0	52.7		53.8	52.1		4.6	0.3		3.1	6.5	
Level of Service (LOS)	D	D		D	D		A	A		A	A	
Approach Delay, s/veh / LOS	52.8	D		52.7	D		0.3	A		6.4	A	
Intersection Delay, s/veh / LOS	5.9						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

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APPENDIX

G. HCS 8 Build Intersections Outputs

HCS Two-Way Stop-Control Report

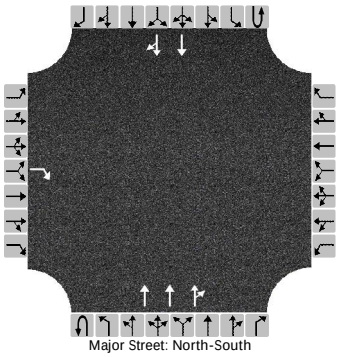
General Information

Analyst	Kimley-Horn
Agency/Co.	ODOT
Date Performed	01/30/2024
Analysis Year	2025
Time Analyzed	AM Build
Intersection Orientation	North-South
Project Description	MOT-235-1.97 (at I-70), No PID

Site Information

Intersection	SR-235 and Artz Road/Private Drive
Jurisdiction	ODOT District 7
East/West Street	Artz Road/Private Drive
North/South Street	SR-235
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

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		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	1		0	0	0	0	0	3	0	0	0	2	0
Configuration				R							T	TR			T	TR
Volume (veh/h)				30							740	450			1340	10
Percent Heavy Vehicles (%)				7												
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized	No															
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)				6.9												
Critical Headway (sec)				7.04												
Base Follow-Up Headway (sec)				3.3												
Follow-Up Headway (sec)				3.37												

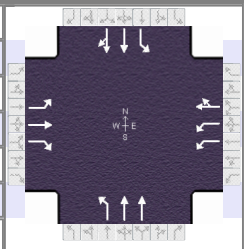
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)				33												
Capacity, c (veh/h)				352												
v/c Ratio				0.09												
95% Queue Length, Q_{95} (veh)				0.3												
Control Delay (s/veh)				16.3												
Level of Service (LOS)				C												
Approach Delay (s/veh)	16.3															
Approach LOS	C															

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HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Kimley-Horn			Duration, h	0.250
Analyst		Analysis Date	Jan 30, 2024	Area Type	Other
Jurisdiction	ODOT District 7	Time Period	AM Build	PHF	0.94
Urban Street	SR-235	Analysis Year	2025	Analysis Period	1> 7:00
Intersection	SR-235 and Center Poin…	File Name	SR-235 Signalized Intersections AM Build Mitigat…		
Project Description	MOT-235-1.97 (at I-70), No PID				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	40	10	90	510	10	50	200	390		40	760	10

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	86	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

							1	2	3	4
Green	5.4	22.6	32.1	5.3	8.7	10.0	5	6	7	8
Yellow	4.0	4.0	4.0	4.0	4.0	4.0				
Red	2.0	2.0	2.0	2.0	2.0	2.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	1	6	5	2
Case Number	2.0	3.0	2.0	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	11.3	16.0	26.0	30.7	39.9	66.6	11.4	38.1
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s	3.1	3.3	3.1	3.3	3.0	0.0	3.0	0.0
Queue Clearance Time (g_s), s	5.1	8.1	20.3	5.8	34.5		4.2	
Green Extension Time (g_e), s	0.0	0.1	0.0	0.3	0.0	0.0	0.0	0.0
Phase Call Probability	0.76	1.00	1.00	1.00	1.00		0.77	
Max Out Probability	0.00	1.00	1.00	0.00	1.00		1.00	

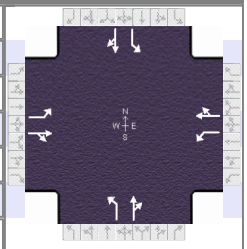
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	1	6		5	2	12
Adjusted Flow Rate (*v*), veh/h	43	11	96	543	64		524	1022		44	424	422
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1654	1900	1296	1757	1652		1584	1039		1711	1796	1788
Queue Service Time (g_s), s	3.1	0.6	6.1	18.3	3.8		32.5	56.1		2.2	26.7	26.7
Cycle Queue Clearance Time (g_c), s	3.1	0.6	6.1	18.3	3.8		32.5	56.1		2.2	26.7	26.7
Green Ratio (*g/C*)	0.03	0.07	0.35	0.17	0.21		0.57	0.51		0.31	0.27	0.27
Capacity (*c*), veh/h	47	128	474	586	340		536	1050		148	481	479
Volume-to-Capacity Ratio (*X*)	0.906	0.083	0.202	0.926	0.188		0.978	0.973		0.297	0.881	0.882
Back of Queue (*Q*), ft/ln (95 th percentile)	75.4	13.6	101.1	366.7	70.2		704.3	492.1		41	462.2	460.5
Back of Queue (*Q*), veh/ln (95 th percentile)	2.8	0.5	3.4	14.7	2.8		25.0	17.4		1.6	17.5	17.4
Queue Storage Ratio (*RQ*) (95 th percentile)	0.17	0.03	0.25	0.73	0.10		1.48	0.63		0.16	0.57	0.57
Uniform Delay (d_1), s/veh	58.1	51.6	26.1	49.3	39.4		30.3	20.1		32.7	38.1	38.1
Incremental Delay (d_2), s/veh	20.1	0.1	0.1	20.6	0.1		29.6	19.6		0.3	15.6	15.6
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Control Delay (*d*), s/veh	78.3	51.7	26.2	69.9	39.5		59.9	39.6		33.0	53.7	53.7
Level of Service (LOS)	E	D	C	E	D		E	D		C	D	D
Approach Delay, s/veh / LOS	42.9	D		66.7	E		46.5	D		52.7	D	
Intersection Delay, s/veh / LOS	51.9						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

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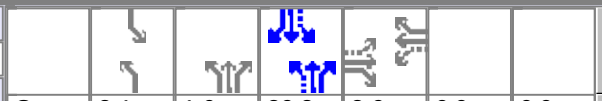
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Kimley-Horn			Duration, h	0.250
Analyst		Analysis Date	Jan 30, 2024	Area Type	Other
Jurisdiction	ODOT District 7	Time Period	AM Build	PHF	0.91
Urban Street	SR-235	Analysis Year	2025	Analysis Period	1> 7:00
Intersection	SR-235 and Coca-Cola…	File Name	SR-235 Signalized Intersections AM Build Mitigat…		
Project Description	MOT-235-1.97 (at I-70), No PID				

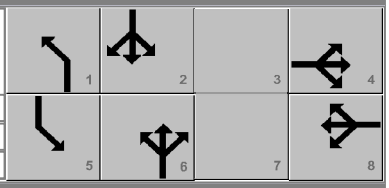


Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	10	10	10	10	10	420	50	10	790	10

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	8	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On



Green	2.1	1.6	89.3	8.9	0.0	0.0
Yellow	4.0	0.0	4.0	4.0	0.0	0.0
Red	2.0	0.0	2.0	2.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	1	6	5	2
Case Number		6.0		6.0	1.1	4.0	1.1	4.0
Phase Duration, s		14.9		14.9	9.8	97.0	8.1	95.3
Change Period, ($Y+R_c$), s		6.0		6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s		3.6		3.6	3.1	0.0	3.1	0.0
Queue Clearance Time (g_s), s		5.6		5.3	2.4		2.2	
Green Extension Time (g_e), s		0.0		0.0	0.0	0.0	0.0	0.0
Phase Call Probability		0.89		0.89	0.54		0.31	
Max Out Probability		0.34		0.21	0.00		0.00	

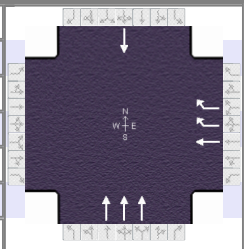
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	11	22		11	22		23	1094		11	879	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1213	1498		784	968		1612	1661		1725	1807	
Queue Service Time (g_s), s	1.0	1.7		1.6	2.6		0.4	6.6		0.2	29.1	
Cycle Queue Clearance Time (g_c), s	3.6	1.7		3.3	2.6		0.4	6.6		0.2	29.1	
Green Ratio (*g/C*)	0.07	0.07		0.07	0.07		0.78	0.76		0.76	0.74	
Capacity (*c*), veh/h	124	111		107	72		398	1259		433	1345	
Volume-to-Capacity Ratio (*X*)	0.089	0.198		0.102	0.306		0.059	0.869		0.025	0.654	
Back of Queue (*Q*), ft/ln (95 th percentile)	16.4	32.4		20.9	42.1		6.2	52.5		2.5	403.9	
Back of Queue (*Q*), veh/ln (95 th percentile)	0.6	1.1		0.6	1.2		0.2	1.9		0.1	15.4	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.05	0.10		0.05	0.07		0.03	0.06		0.01	0.19	
Uniform Delay (d_1), s/veh	54.3	52.2		53.7	52.6		7.0	0.2		3.6	7.6	
Incremental Delay (d_2), s/veh	0.1	0.3		0.2	0.9		0.0	2.2		0.0	2.5	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	54.5	52.5		53.9	53.5		7.0	2.4		3.6	10.1	
Level of Service (LOS)	D	D		D	D		A	A		A	B	
Approach Delay, s/veh / LOS	53.2	D		53.6	D		2.5	A		10.0	B	
Intersection Delay, s/veh / LOS	7.4						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

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HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Kimley-Horn			Duration, h	0.250
Analyst		Analysis Date	Jan 30, 2024	Area Type	Other
Jurisdiction	ODOT District 7	Time Period	AM Build	PHF	0.77
Urban Street	SR-235	Analysis Year	2025	Analysis Period	1> 7:00
Intersection	SR-235 & I-70WB Ramp	File Name	SR-235 Signalized Intersections AM Build Mitigat…		
Project Description	MOT-235-1.97 (at I-70), No PID				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h					0	430		760			0	

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

							1	2	3	4
Green	76.3	31.7	0.0	0.0	0.0	0.0	5	6	7	8
Yellow	4.0	4.0	0.0	0.0	0.0	0.0				
Red	2.0	2.0	0.0	0.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		6		2
Case Number				11.0		8.0		8.0
Phase Duration, s				37.7		82.3		82.3
Change Period, ($Y+R_c$), s				6.0		6.0		6.0
Max Allow Headway (*MAH*), s				3.4		0.0		0.0
Queue Clearance Time (g_s), s				30.0				
Green Extension Time (g_e), s				1.7		0.0		0.0
Phase Call Probability				1.00				
Max Out Probability				0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement					8	18		6			2	
Adjusted Flow Rate (*v*), veh/h					0	558		987			0	
Adjusted Saturation Flow Rate (*s*), veh/h/ln					1900	1159		1604			1900	
Queue Service Time (g_s), s					0.0	28.0		11.3			0.0	
Cycle Queue Clearance Time (g_c), s					0.0	28.0		11.3			0.0	
Green Ratio (*g/C*)					0.26	0.26		0.64			0.64	
Capacity (*c*), veh/h					502	612		3060			1208	
Volume-to-Capacity Ratio (*X*)					0.000	0.912		0.323			0.000	
Back of Queue (*Q*), ft/ln (95 th percentile)					0	338.8		183.7			0	
Back of Queue (*Q*), veh/ln (95 th percentile)					0.0	12.7		6.9			0.0	
Queue Storage Ratio (*RQ*) (95 th percentile)					0.00	0.75		0.34			0.00	
Uniform Delay (d_1), s/veh					0.0	42.8		10.0			0.0	
Incremental Delay (d_2), s/veh					0.0	2.3		0.3			0.0	
Initial Queue Delay (d_3), s/veh					0.0	0.0		0.0			0.0	
Control Delay (*d*), s/veh					0.0	45.1		10.3			0.0	
Level of Service (LOS)						D		B				
Approach Delay, s/veh / LOS	0.0			45.1		D	10.3		B	0.0		
Intersection Delay, s/veh / LOS	22.9						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

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HCS Two-Way Stop-Control Report

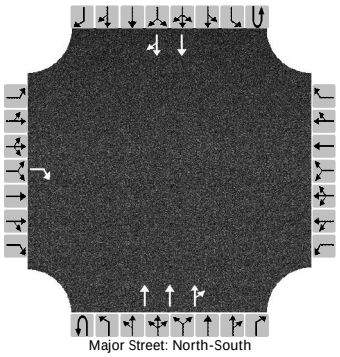
General Information

Analyst	Kimley-Horn
Agency/Co.	ODOT
Date Performed	01/30/2024
Analysis Year	2025
Time Analyzed	PM Build
Intersection Orientation	North-South
Project Description	MOT-235-1.97 (at I-70), No PID

Site Information

Intersection	SR-235 and Artz Road/Private Drive
Jurisdiction	ODOT District 7
East/West Street	Artz Road/Private Drive
North/South Street	SR-235
Peak Hour Factor	0.91
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

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		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	1		0	0	0	0	0	3	0	0	0	2	0
Configuration				R							T	TR			T	TR
Volume (veh/h)				110							1080	620			1420	10
Percent Heavy Vehicles (%)				4												
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized	No															
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)				6.9												
Critical Headway (sec)				6.98												
Base Follow-Up Headway (sec)				3.3												
Follow-Up Headway (sec)				3.34												

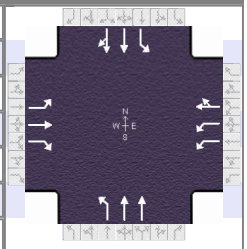
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)				121												
Capacity, c (veh/h)				331												
v/c Ratio				0.37												
95% Queue Length, Q_{95} (veh)				1.6												
Control Delay (s/veh)				22.0												
Level of Service (LOS)				C												
Approach Delay (s/veh)	22.0															
Approach LOS	C															

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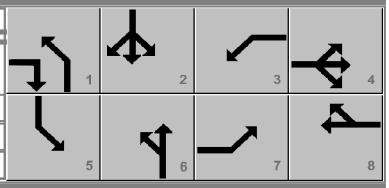
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Kimley-Horn			Duration, h	0.250
Analyst		Analysis Date	Jan 30, 2024	Area Type	Other
Jurisdiction	ODOT District 7	Time Period	PM Build	PHF	0.94
Urban Street	SR-235	Analysis Year	2025	Analysis Period	1> 17:00
Intersection	SR-235 and Center Poin…	File Name	SR-235 Signalized Intersections PM Build Mitigat…		
Project Description	MOT-235-1.97 (at I-70), No PID				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	80	10	220	740	10	60	40	840		50	530	10

Signal Information												
Cycle, s	120.0	Reference Phase	2									
Offset, s	21	Reference Point	End	Green	5.8	0.9	51.3	6.6	10.4	15.0		
Uncoordinated	No	Simult. Gap E/W	On	Yellow	4.0	0.0	4.0	4.0	4.0	4.0		
Force Mode	Fixed	Simult. Gap N/S	On	Red	2.0	0.0	2.0	2.0	2.0	2.0		



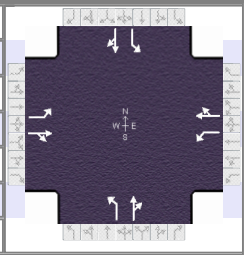
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	1	6	5	2
Case Number	1.1	3.0	2.0	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	12.6	21.0	29.0	37.4	12.7	58.2	11.8	57.3
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s	3.1	3.3	3.1	3.3	3.0	0.0	3.0	0.0
Queue Clearance Time (g_s), s	6.7	17.0	25.0	6.2	5.6		4.0	
Green Extension Time (g_e), s	0.1	0.0	0.0	0.7	0.0	0.0	0.0	0.0
Phase Call Probability	0.94	1.00	1.00	1.00	0.95		0.82	
Max Out Probability	0.00	1.00	1.00	0.00	1.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	1	6		5	2	12
Adjusted Flow Rate (*v*), veh/h	85	11	234	787	74		92	1932		52	297	266
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1682	1900	1497	1757	1646		1682	1104		1682	1767	1579
Queue Service Time (g_s), s	4.7	0.6	15.0	23.0	4.2		3.6	52.2		2.0	12.6	12.6
Cycle Queue Clearance Time (g_c), s	4.7	0.6	15.0	23.0	4.2		3.6	52.2		2.0	12.6	12.6
Green Ratio (*g/C*)	0.15	0.11	0.16	0.19	0.26		0.48	0.44		0.48	0.43	0.43
Capacity (*c*), veh/h	262	207	270	674	431		412	961		141	756	675
Volume-to-Capacity Ratio (*X*)	0.324	0.051	0.866	1.169	0.173		0.223	2.010		0.370	0.393	0.393
Back of Queue (*Q*), ft/ln (95 th percentile)	110.2	12.9	354.6	689.8	75.8		62.4	3187.9		38.2	226.5	205.2
Back of Queue (*Q*), veh/ln (95 th percentile)	4.1	0.5	13.2	27.6	3.0		2.3	119.0		1.4	8.5	7.8
Queue Storage Ratio (*RQ*) (95 th percentile)	0.25	0.03	0.89	1.38	0.11		0.13	4.11		0.15	0.28	0.26
Uniform Delay (d_1), s/veh	45.9	47.0	47.7	48.5	34.3		17.4	34.1		29.4	20.4	20.4
Incremental Delay (d_2), s/veh	0.3	0.0	23.3	91.4	0.1		0.1	457.2		0.5	1.4	1.6
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Control Delay (*d*), s/veh	46.1	47.1	71.0	139.9	34.3		17.5	491.3		29.9	21.8	21.9
Level of Service (LOS)	D	D	E	F	C		B	F		C	C	C
Approach Delay, s/veh / LOS	63.8	E		130.7	F		469.7	F		22.6	C	
Intersection Delay, s/veh / LOS	286.8						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

HCS Signalized Intersection Results Summary

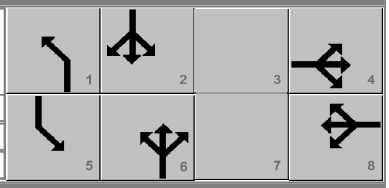
General Information				Intersection Information	
Agency	Kimley-Horn			Duration, h	0.250
Analyst		Analysis Date	Jan 30, 2024	Area Type	Other
Jurisdiction	ODOT District 7	Time Period	PM Build	PHF	0.96
Urban Street	SR-235	Analysis Year	2025	Analysis Period	1> 17:00
Intersection	SR-235 and Coca-Cola…	File Name	SR-235 Signalized Intersections PM Build Mitigat…		
Project Description	MOT-235-1.97 (at I-70), No PID				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	20	10	10	10	10	960	10	10	560	10

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	48	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	2.1	0.1	90.7	9.1	0.0	0.0
Yellow	4.0	0.0	4.0	4.0	0.0	0.0
Red	2.0	0.0	2.0	2.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	1	6	5	2
Case Number		6.0		6.0	1.1	4.0	1.1	4.0
Phase Duration, s		15.1		15.1	8.2	96.8	8.1	96.7
Change Period, (*Y+R c*), s		6.0		6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s		3.2		3.2	3.0	0.0	3.0	0.0
Queue Clearance Time (*g s*), s		4.3		5.1	2.2		2.2	
Green Extension Time (*g e*), s		0.1		0.1	0.0	0.0	0.0	0.0
Phase Call Probability		0.91		0.91	0.31		0.29	
Max Out Probability		0.00		0.00	0.00		0.00	

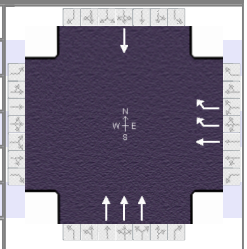
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	10	31		10	21		11	1099		10	594	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1303	1564		1378	1716		1767	1852		1739	1820	
Queue Service Time (*g s*), s	0.9	2.3		0.9	1.4		0.2	17.1		0.2	14.2	
Cycle Queue Clearance Time (*g c*), s	2.3	2.3		3.1	1.4		0.2	17.1		0.2	14.2	
Green Ratio (*g/C*)	0.08	0.08		0.08	0.08		0.77	0.76		0.77	0.76	
Capacity (*c*), veh/h	144	119		139	130		613	1402		389	1375	
Volume-to-Capacity Ratio (*X*)	0.072	0.263		0.075	0.160		0.018	0.784		0.027	0.432	
Back of Queue (*Q*), ft/ln (95 th percentile)	14.5	43.6		13.7	27		2	57.8		1.9	198	
Back of Queue (*Q*), veh/ln (95 th percentile)	0.5	1.6		0.5	1.1		0.1	2.3		0.1	7.6	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.04	0.13		0.03	0.05		0.01	0.07		0.01	0.09	
Uniform Delay (*d 1*), s/veh	52.9	52.3		53.7	51.9		4.0	1.5		4.6	5.3	
Incremental Delay (*d 2*), s/veh	0.1	0.4		0.1	0.2		0.0	0.4		0.0	1.0	
Initial Queue Delay (*d 3*), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	53.0	52.7		53.8	52.1		4.0	1.9		4.7	6.3	
Level of Service (LOS)	D	D		D	D		A	A		A	A	
Approach Delay, s/veh / LOS	52.8	D		52.6	D		1.9	A		6.3	A	
Intersection Delay, s/veh / LOS	5.5						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

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HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Kimley-Horn			Duration, h	0.250
Analyst		Analysis Date	Jan 30, 2024	Area Type	Other
Jurisdiction	ODOT District 7	Time Period	PM Build	PHF	0.84
Urban Street	SR-235	Analysis Year	2025	Analysis Period	1> 17:00
Intersection	SR- 235 & I-70WB Ramp	File Name	SR-235 Signalized Intersections PM Build Mitigat…		
Project Description	MOT-235-1.97 (at I-70), No PID				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h					0	490		1210			0	

Signal Information													
Cycle, s	120.0	Reference Phase	2										
Offset, s	0	Reference Point	End							1	2	3	4
Uncoordinated	No	Simult. Gap E/W	On	Green	69.7	38.3	0.0	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0			
				Red	2.0	2.0	0.0	0.0	0.0	0.0	5	6	7	8

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		6		2
Case Number				11.0		8.0		8.0
Phase Duration, s				44.3		75.7		75.7
Change Period, ($Y+R_c$), s				6.0		6.0		6.0
Max Allow Headway (*MAH*), s				3.4		0.0		0.0
Queue Clearance Time (g_s), s				36.6				
Green Extension Time (g_e), s				1.7		0.0		0.0
Phase Call Probability				1.00				
Max Out Probability				0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement					8	18		6			2	
Adjusted Flow Rate (*v*), veh/h					0	583		1440			0	
Adjusted Saturation Flow Rate (*s*), veh/h/ln					1900	981		1658			1900	
Queue Service Time (g_s), s					0.0	34.6		20.5			0.0	
Cycle Queue Clearance Time (g_c), s					0.0	34.6		20.5			0.0	
Green Ratio (*g/C*)					0.32	0.32		0.58			0.58	
Capacity (*c*), veh/h					606	626		2889			1104	
Volume-to-Capacity Ratio (*X*)					0.000	0.931		0.499			0.000	
Back of Queue (*Q*), ft/ln (95 th percentile)					0	346.7		311.8			0	
Back of Queue (*Q*), veh/ln (95 th percentile)					0.0	13.1		12.0			0.0	
Queue Storage Ratio (*RQ*) (95 th percentile)					0.00	0.77		0.57			0.00	
Uniform Delay (d_1), s/veh					0.0	39.6		14.8			0.0	
Incremental Delay (d_2), s/veh					0.0	2.9		0.6			0.0	
Initial Queue Delay (d_3), s/veh					0.0	0.0		0.0			0.0	
Control Delay (*d*), s/veh					0.0	42.4		15.5			0.0	
Level of Service (LOS)						D		B				
Approach Delay, s/veh / LOS	0.0			42.4		D	15.5		B	0.0		
Intersection Delay, s/veh / LOS	23.2						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

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HCS Two-Way Stop-Control Report

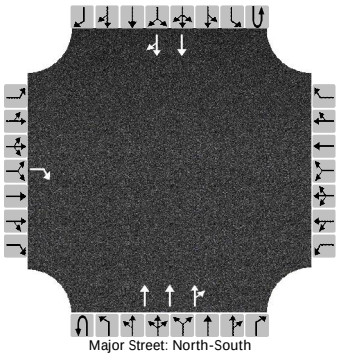
General Information

Analyst	Kimley-Horn
Agency/Co.	ODOT
Date Performed	01/30/2024
Analysis Year	2045
Time Analyzed	AM Build
Intersection Orientation	North-South
Project Description	MOT-235-1.97 (at I-70), No PID

Site Information

Intersection	SR-235 and Artz Road/Private Drive
Jurisdiction	ODOT District 7
East/West Street	Artz Road/Private Drive
North/South Street	SR-235
Peak Hour Factor	0.92
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

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		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	1		0	0	0	0	0	3	0	0	0	2	0
Configuration				R							T	TR			T	TR
Volume (veh/h)				30							820	450			1460	10
Percent Heavy Vehicles (%)				7												
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized	No															
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)				6.9												
Critical Headway (sec)				7.04												
Base Follow-Up Headway (sec)				3.3												
Follow-Up Headway (sec)				3.37												

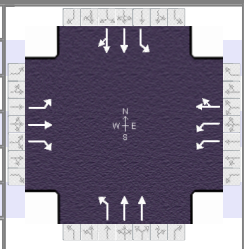
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)				33												
Capacity, c (veh/h)				318												
v/c Ratio				0.10												
95% Queue Length, Q_{95} (veh)				0.3												
Control Delay (s/veh)				17.6												
Level of Service (LOS)				C												
Approach Delay (s/veh)	17.6															
Approach LOS	C															

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HCS Signalized Intersection Results Summary

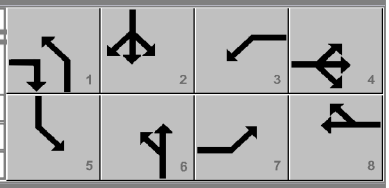
General Information				Intersection Information	
Agency	Kimley-Horn			Duration, h	0.250
Analyst		Analysis Date	Jan 3, 2024	Area Type	Other
Jurisdiction	ODOT District 7	Time Period	AM Build	PHF	0.94
Urban Street	SR-235	Analysis Year	2045	Analysis Period	1> 7:00
Intersection	SR-235 and Center Poin…	File Name	SR-235 Signalized Intersections AM IOS Build.xus		
Project Description	MOT-235-1.97 (at I-70), No PID				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	40	10	90	510	10	50	220	450		40	870	10

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	90	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	5.4	22.6	35.1	5.3	5.7	10.0	
Yellow	4.0	4.0	4.0	4.0	4.0	4.0	
Red	2.0	2.0	2.0	2.0	2.0	2.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	1	6	5	2
Case Number	1.1	3.0	2.0	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	11.3	16.0	23.0	27.7	40.0	69.6	11.4	41.1
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s	3.1	3.3	3.1	3.3	3.0	0.0	3.0	0.0
Queue Clearance Time (g_s), s	4.9	7.3	19.0	6.0	35.9		4.1	
Green Extension Time (g_e), s	0.0	0.1	0.0	0.3	0.0	0.0	0.0	0.0
Phase Call Probability	0.76	1.00	1.00	1.00	1.00		0.77	
Max Out Probability	0.00	1.00	1.00	0.00	1.00		1.00	

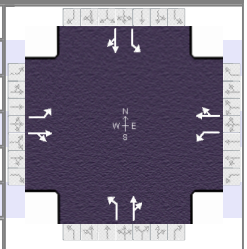
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	1	6		5	2	12
Adjusted Flow Rate (*v*), veh/h	43	11	96	543	64		542	1108		44	510	457
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1654	1900	1472	1757	1652		1584	1039		1711	1796	1610
Queue Service Time (g_s), s	2.9	0.6	5.3	17.0	4.0		33.9	63.6		2.1	33.5	33.5
Cycle Queue Clearance Time (g_c), s	2.9	0.6	5.3	17.0	4.0		33.9	63.6		2.1	33.5	33.5
Green Ratio (*g/C*)	0.10	0.07	0.35	0.14	0.18		0.59	0.53		0.34	0.29	0.29
Capacity (*c*), veh/h	191	128	538	498	299		517	1102		137	525	471
Volume-to-Capacity Ratio (*X*)	0.223	0.083	0.178	1.090	0.214		1.047	1.005		0.321	0.971	0.971
Back of Queue (*Q*), ft/ln (95 th percentile)	58.3	13.6	90.8	460.1	72.9		817	574.9		39.4	566.4	521.1
Back of Queue (*Q*), veh/ln (95 th percentile)	2.1	0.5	3.3	18.4	2.9		29.0	20.4		1.5	21.5	19.7
Queue Storage Ratio (*RQ*) (95 th percentile)	0.13	0.03	0.23	0.92	0.10		1.72	0.74		0.16	0.69	0.64
Uniform Delay (d_1), s/veh	50.3	51.6	25.8	51.5	41.9		33.9	20.3		31.9	36.8	36.8
Incremental Delay (d_2), s/veh	0.2	0.1	0.1	66.9	0.1		48.9	25.8		0.3	24.3	26.0
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Control Delay (*d*), s/veh	50.6	51.7	25.9	118.4	42.0		82.8	46.1		32.2	61.1	62.8
Level of Service (LOS)	D	D	C	F	D		F	F		C	E	E
Approach Delay, s/veh / LOS	34.8	C		110.4	F		58.1	E		60.6	E	
Intersection Delay, s/veh / LOS	67.1						E					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

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HCS Signalized Intersection Results Summary

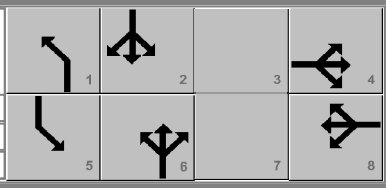
General Information				Intersection Information	
Agency	Kimley-Horn			Duration, h	0.250
Analyst		Analysis Date	Jan 3, 2024	Area Type	Other
Jurisdiction	ODOT District 7	Time Period	AM Build	PHF	0.91
Urban Street	SR-235	Analysis Year	2045	Analysis Period	1> 7:00
Intersection	SR-235 and Coca-Cola…	File Name	SR-235 Signalized Intersections AM IOS Build.xus		
Project Description	MOT-235-1.97 (at I-70), No PID				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	10	10	10	10	10	480	50	10	900	10

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	6	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	2.1	1.5	89.5	8.9	0.0	0.0
Yellow	4.0	0.0	4.0	4.0	0.0	0.0
Red	2.0	0.0	2.0	2.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	1	6	5	2
Case Number		6.0		6.0	1.1	4.0	1.1	4.0
Phase Duration, s		14.9		14.9	9.7	97.0	8.1	95.5
Change Period, ($Y+R_c$), s		6.0		6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s		3.6		3.6	3.0	0.0	3.0	0.0
Queue Clearance Time (g_s), s		5.6		5.3	2.4		2.2	
Green Extension Time (g_e), s		0.1		0.1	0.0	0.0	0.0	0.0
Phase Call Probability		0.89		0.89	0.52		0.31	
Max Out Probability		0.00		0.00	0.00		0.00	

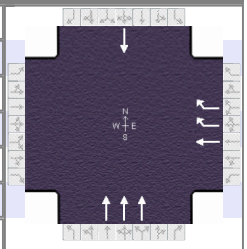
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	11	22		11	22		22	1176		11	1000	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1213	1498		784	968		1612	1664		1725	1808	
Queue Service Time (g_s), s	1.0	1.7		1.6	2.6		0.4	16.0		0.2	37.8	
Cycle Queue Clearance Time (g_c), s	3.6	1.7		3.3	2.6		0.4	16.0		0.2	37.8	
Green Ratio (*g/C*)	0.07	0.07		0.07	0.07		0.78	0.76		0.76	0.75	
Capacity (*c*), veh/h	124	111		107	72		328	1262		371	1347	
Volume-to-Capacity Ratio (*X*)	0.089	0.198		0.102	0.306		0.068	0.932		0.030	0.742	
Back of Queue (*Q*), ft/ln (95 th percentile)	16.4	32.4		20.9	42.1		8.1	75.3		2.2	461.6	
Back of Queue (*Q*), veh/ln (95 th percentile)	0.6	1.1		0.6	1.2		0.3	2.7		0.1	17.6	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.05	0.10		0.05	0.07		0.04	0.09		0.01	0.21	
Uniform Delay (d_1), s/veh	54.3	52.2		53.7	52.6		9.6	0.4		4.6	8.7	
Incremental Delay (d_2), s/veh	0.1	0.3		0.2	0.9		0.0	3.9		0.0	3.7	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	54.5	52.5		53.9	53.5		9.6	4.2		4.6	12.4	
Level of Service (LOS)	D	D		D	D		A	A		A	B	
Approach Delay, s/veh / LOS	53.2	D		53.6	D		4.3	A		12.3	B	
Intersection Delay, s/veh / LOS	9.3						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

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HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Kimley-Horn			Duration, h	0.250
Analyst		Analysis Date	Jan 3, 2024	Area Type	Other
Jurisdiction	ODOT District 7	Time Period	AM Build	PHF	0.77
Urban Street	SR-235	Analysis Year	2045	Analysis Period	1> 7:00
Intersection	SR-235 & I-70WB Ramp	File Name	SR-235 Signalized Intersections AM IOS Build.xus		
Project Description	MOT-235-1.97 (at I-70), No PID				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h					0	440		830			0	

Signal Information													
Cycle, s	120.0	Reference Phase	2										
Offset, s	0	Reference Point	End							1	2	3	4
Uncoordinated	No	Simult. Gap E/W	On	Green	76.4	31.6	0.0	0.0	0.0	0.0			
Force Mode	Fixed	Simult. Gap N/S	On	Yellow	4.0	4.0	0.0	0.0	0.0	0.0			
				Red	2.0	2.0	0.0	0.0	0.0	0.0	5	6	7	8

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		6		2
Case Number				11.0		8.0		8.0
Phase Duration, s				37.6		82.4		82.4
Change Period, ($Y+R_c$), s				6.0		6.0		6.0
Max Allow Headway (*MAH*), s				3.2		0.0		0.0
Queue Clearance Time (g_s), s				30.0				
Green Extension Time (g_e), s				1.5		0.0		0.0
Phase Call Probability				1.00				
Max Out Probability				0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement					8	18		6			2	
Adjusted Flow Rate (*v*), veh/h					0	571		1078			0	
Adjusted Saturation Flow Rate (*s*), veh/h/ln					1900	1186		1604			1900	
Queue Service Time (g_s), s					0.0	28.0		12.6			0.0	
Cycle Queue Clearance Time (g_c), s					0.0	28.0		12.6			0.0	
Green Ratio (*g/C*)					0.26	0.26		0.64			0.64	
Capacity (*c*), veh/h					500	625		3064			1210	
Volume-to-Capacity Ratio (*X*)					0.000	0.915		0.352			0.000	
Back of Queue (*Q*), ft/ln (95 th percentile)					0	336.9		189.7			0	
Back of Queue (*Q*), veh/ln (95 th percentile)					0.0	12.7		7.1			0.0	
Queue Storage Ratio (*RQ*) (95 th percentile)					0.00	0.75		0.35			0.00	
Uniform Delay (d_1), s/veh					0.0	42.9		10.2			0.0	
Incremental Delay (d_2), s/veh					0.0	2.3		0.3			0.0	
Initial Queue Delay (d_3), s/veh					0.0	0.0		0.0			0.0	
Control Delay (*d*), s/veh					0.0	45.2		10.5			0.0	
Level of Service (LOS)						D		B				
Approach Delay, s/veh / LOS	0.0			45.2		D	10.5		B	0.0		
Intersection Delay, s/veh / LOS	22.5						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

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HCS Two-Way Stop-Control Report

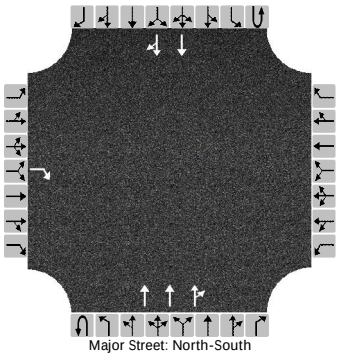
General Information

Analyst	Kimley-Horn
Agency/Co.	ODOT
Date Performed	01/30/2024
Analysis Year	2045
Time Analyzed	PM Build
Intersection Orientation	North-South
Project Description	MOT-235-1.97 (at I-70), No PID

Site Information

Intersection	SR-235 and Artz Road/Private Drive
Jurisdiction	ODOT District 7
East/West Street	Artz Road/Private Drive
North/South Street	SR-235
Peak Hour Factor	0.91
Analysis Time Period (hrs)	0.25

Lanes


Major Street: North-South

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		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	1		0	0	0	0	0	3	0	0	0	2	0
Configuration				R							T	TR			T	TR
Volume (veh/h)				130							1210	620			1520	10
Percent Heavy Vehicles (%)				4												
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized	No															
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)				6.9												
Critical Headway (sec)				6.98												
Base Follow-Up Headway (sec)				3.3												
Follow-Up Headway (sec)				3.34												

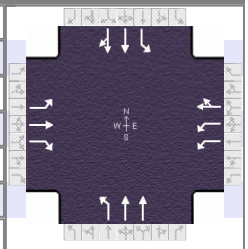
Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)				143												
Capacity, c (veh/h)				304												
v/c Ratio				0.47												
95% Queue Length, Q_{95} (veh)				2.4												
Control Delay (s/veh)				26.9												
Level of Service (LOS)				D												
Approach Delay (s/veh)	26.9															
Approach LOS	D															

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HCS Signalized Intersection Results Summary

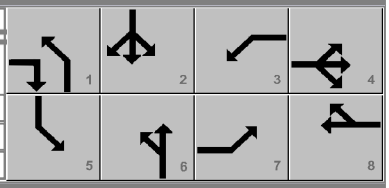
General Information				Intersection Information	
Agency	Kimley-Horn			Duration, h	0.250
Analyst		Analysis Date	Jan 30, 2024	Area Type	Other
Jurisdiction	ODOT District 7	Time Period	PM Build	PHF	0.94
Urban Street	SR-235	Analysis Year	2045	Analysis Period	1> 17:00
Intersection	SR-235 and Center Poin…	File Name	SR-235 Signalized Intersections PM IOS Build.xus		
Project Description	MOT-235-1.97 (at I-70), No PID				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	90	10	260	740	10	60	40	970		50	600	10

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	57	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	5.8	0.8	49.4	7.3	8.7	18.0	
Yellow	4.0	0.0	4.0	4.0	4.0	4.0	
Red	2.0	0.0	2.0	2.0	2.0	2.0	



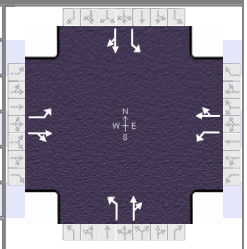
Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	7	4	3	8	1	6	5	2
Case Number	1.1	3.0	2.0	4.0	1.1	4.0	1.1	4.0
Phase Duration, s	13.3	24.0	28.0	38.7	12.6	56.2	11.8	55.4
Change Period, ($Y+R_c$), s	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s	3.1	3.3	3.1	3.3	3.0	0.0	3.0	0.0
Queue Clearance Time (g_s), s	7.4	20.0	24.0	6.1	5.5		4.1	
Green Extension Time (g_e), s	0.1	0.0	0.0	0.8	0.0	0.0	0.0	0.0
Phase Call Probability	0.96	1.00	1.00	1.00	0.94		0.82	
Max Out Probability	0.00	1.00	1.00	0.00	1.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	1	6		5	2	12
Adjusted Flow Rate (*v*), veh/h	96	11	277	787	74		86	2092		52	319	317
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1682	1900	1497	1757	1646		1682	1104		1682	1767	1756
Queue Service Time (g_s), s	5.4	0.6	18.0	22.0	4.1		3.5	50.2		2.1	17.3	17.3
Cycle Queue Clearance Time (g_c), s	5.4	0.6	18.0	22.0	4.1		3.5	50.2		2.1	17.3	17.3
Green Ratio (*g/C*)	0.18	0.13	0.19	0.18	0.27		0.47	0.42		0.46	0.41	0.41
Capacity (*c*), veh/h	304	255	307	644	448		353	924		141	727	723
Volume-to-Capacity Ratio (*X*)	0.315	0.042	0.901	1.222	0.166		0.245	2.263		0.370	0.438	0.438
Back of Queue (*Q*), ft/ln (95 th percentile)	119.4	12.5	415.2	741	74.6		60.1	3696.7		37.5	323.2	317.2
Back of Queue (*Q*), veh/ln (95 th percentile)	4.5	0.5	15.5	29.6	3.0		2.2	137.9		1.4	12.1	12.0
Queue Storage Ratio (*RQ*) (95 th percentile)	0.27	0.03	0.92	1.48	0.11		0.13	4.77		0.15	0.40	0.40
Uniform Delay (d_1), s/veh	42.8	44.4	46.5	49.0	33.3		18.9	33.3		28.0	30.3	30.3
Incremental Delay (d_2), s/veh	0.2	0.0	27.1	113.4	0.1		0.1	571.0		0.5	1.7	1.7
Initial Queue Delay (d_3), s/veh	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Control Delay (*d*), s/veh	43.1	44.4	73.6	162.4	33.4		19.0	604.3		28.5	32.0	32.0
Level of Service (LOS)	D	D	E	F	C		B	F		C	C	C
Approach Delay, s/veh / LOS	65.2	E		151.3	F		581.1	F		31.8	C	
Intersection Delay, s/veh / LOS	351.1						F					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

HCS Signalized Intersection Results Summary

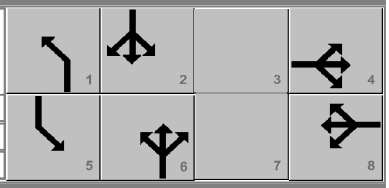
General Information				Intersection Information	
Agency	Kimley-Horn			Duration, h	0.250
Analyst		Analysis Date	Jan 30, 2024	Area Type	Other
Jurisdiction	ODOT District 7	Time Period	PM Build	PHF	0.96
Urban Street	SR-235	Analysis Year	2045	Analysis Period	1> 17:00
Intersection	SR-235 and Coca-Cola…	File Name	SR-235 Signalized Intersections PM IOS Build.xus		
Project Description	MOT-235-1.97 (at I-70), No PID				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	10	10	20	10	10	10	10	1100	10	10	630	10

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	106	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	1.9	0.1	90.8	9.1	0.0	0.0	
Yellow	4.0	0.0	4.0	4.0	0.0	0.0	
Red	2.0	0.0	2.0	2.0	0.0	0.0	



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		4		8	1	6	5	2
Case Number		6.0		6.0	1.1	4.0	1.1	4.0
Phase Duration, s		15.1		15.1	7.9	96.8	8.1	96.9
Change Period, ($Y+R_c$), s		6.0		6.0	6.0	6.0	6.0	6.0
Max Allow Headway (*MAH*), s		3.2		3.2	3.0	0.0	3.0	0.0
Queue Clearance Time (g_s), s		4.3		5.1	2.2		2.2	
Green Extension Time (g_e), s		0.1		0.1	0.0	0.0	0.0	0.0
Phase Call Probability		1.00		0.91	0.28		0.29	
Max Out Probability		0.00		0.00	0.00		0.00	

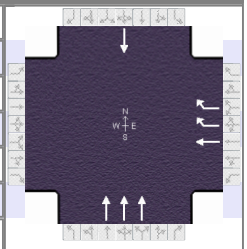
Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	7	4	14	3	8	18	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	10	31		10	21		10	1074		10	667	
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1303	1564		1378	1716		1767	1853		1739	1821	
Queue Service Time (g_s), s	0.9	2.3		0.9	1.4		0.2	4.8		0.2	16.8	
Cycle Queue Clearance Time (g_c), s	2.3	2.3		3.1	1.4		0.2	4.8		0.2	16.8	
Green Ratio (*g/C*)	0.08	0.08		0.08	0.08		0.77	0.76		0.77	0.76	
Capacity (*c*), veh/h	144	119		139	130		547	1402		457	1380	
Volume-to-Capacity Ratio (*X*)	0.072	0.263		0.075	0.160		0.018	0.766		0.023	0.483	
Back of Queue (*Q*), ft/ln (95 th percentile)	14.5	43.6		13.7	27		1.7	21.2		1.9	224.8	
Back of Queue (*Q*), veh/ln (95 th percentile)	0.5	1.6		0.5	1.1		0.1	0.8		0.1	8.6	
Queue Storage Ratio (*RQ*) (95 th percentile)	0.04	0.13		0.03	0.05		0.01	0.03		0.01	0.10	
Uniform Delay (d_1), s/veh	52.9	52.3		53.7	51.9		4.7	0.3		3.2	5.5	
Incremental Delay (d_2), s/veh	0.1	0.4		0.1	0.2		0.0	0.4		0.0	1.2	
Initial Queue Delay (d_3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (*d*), s/veh	53.0	52.7		53.8	52.1		4.7	0.7		3.2	6.8	
Level of Service (LOS)	D	D		D	D		A	A		A	A	
Approach Delay, s/veh / LOS	52.8	D		52.6	D		0.7	A		6.7	A	
Intersection Delay, s/veh / LOS	5.0						A					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

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HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	Kimley-Horn			Duration, h	0.250
Analyst		Analysis Date	Jan 30, 2024	Area Type	Other
Jurisdiction	ODOT District 7	Time Period	PM Build	PHF	0.84
Urban Street	SR-235	Analysis Year	2045	Analysis Period	1> 17:00
Intersection	SR-235 & I-70WB Ramp	File Name	SR-235 Signalized Intersections PM IOS Build.xus		
Project Description	MOT-235-1.97 (at I-70), No PID				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h					0	500		1330			0	

Signal Information			
Cycle, s	120.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

							1	2	3	4
Green	69.8	38.2	0.0	0.0	0.0	0.0	5	6	7	8
Yellow	4.0	4.0	0.0	0.0	0.0	0.0				
Red	2.0	2.0	0.0	0.0	0.0	0.0				

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase				8		6		2
Case Number				11.0		8.0		8.0
Phase Duration, s				44.2		75.8		75.8
Change Period, ($Y+R_c$), s				6.0		6.0		6.0
Max Allow Headway (*MAH*), s				3.2		0.0		0.0
Queue Clearance Time (g_s), s				36.6				
Green Extension Time (g_e), s				1.6		0.0		0.0
Phase Call Probability				1.00				
Max Out Probability				0.00				

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement					8	18		6			2	
Adjusted Flow Rate (*v*), veh/h					0	595		1583			0	
Adjusted Saturation Flow Rate (*s*), veh/h/ln					1900	1001		1658			1900	
Queue Service Time (g_s), s					0.0	34.6		23.4			0.0	
Cycle Queue Clearance Time (g_c), s					0.0	34.6		23.4			0.0	
Green Ratio (*g/C*)					0.32	0.32		0.58			0.58	
Capacity (*c*), veh/h					605	638		2893			1105	
Volume-to-Capacity Ratio (*X*)					0.000	0.933		0.547			0.000	
Back of Queue (*Q*), ft/ln (95 th percentile)					0	342.7		331.1			0	
Back of Queue (*Q*), veh/ln (95 th percentile)					0.0	13.0		12.7			0.0	
Queue Storage Ratio (*RQ*) (95 th percentile)					0.00	0.76		0.61			0.00	
Uniform Delay (d_1), s/veh					0.0	39.7		15.4			0.0	
Incremental Delay (d_2), s/veh					0.0	2.9		0.7			0.0	
Initial Queue Delay (d_3), s/veh					0.0	0.0		0.0			0.0	
Control Delay (*d*), s/veh					0.0	42.6		16.2			0.0	
Level of Service (LOS)						D		B				
Approach Delay, s/veh / LOS	0.0			42.6		D	16.2		B	0.0		
Intersection Delay, s/veh / LOS	23.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS								
Bicycle LOS Score / LOS								

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APPENDIX

H. HCS 8 No Build (With Site Generated Trips) Facility Report

HCS Freeway Facilities Report

Project Information

Analyst	Kimley-Horn	Date	9/29/23
Agency		Analysis Year	2025
Jurisdiction	ODOT District 7	Time Analyzed	AM Build
Facility Name	I-70 East Bound	Units	U.S. Customary
Project Description	MOT 235 Travel Center		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	4.56		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	IR-70 EB	5860	3
2	Diverge	Diverge	Off-Ramp to SR-235SB	1500	3
3	Basic	Basic	IR-70 EB	5100	3
4	Merge	Merge	On-Ramp from SR-235NB	1500	3
5	Basic	Basic	IR-70 EB	10100	3

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.820	3542	7200	0.49	74.6	15.8	B

Segment 2: Diverge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.85	0.820	0.980	3542	1224	7200	2100	0.49	0.58	67.5	63.7	17.5	24.3	C

Segment 3: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.820	2218	7200	0.31	75.0	9.9	A

Segment 4: Merge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.85	0.820	0.870	3219	1001	7200	2200	0.45	0.45	68.6	66.9	15.6	16.8	B

Segment 5: Basic

AP	PHF	fHV	Flow Rate	Capacity	d/c	Speed	Density	LOS

			(pc/h)	(pc/h)	Ratio	(mi/h)	(pc/mi/ln)	
1	0.94	0.820	3179	7200	0.44	75.0	14.1	B

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	2885	2657	0.60	14.98	73.9	13.9	11.5	3.70	B

Facility Overall Results

Space Mean Speed, mi/h	73.9	Average Density, veh/mi/ln	11.5
Average Travel Time, min	3.70	Average Density, pc/mi/ln	13.9
Total VMT, veh-mi	2885	Total VHD, veh-h	0.60
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	14.98

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HCS Freeway Facilities Report

Project Information

Analyst	Kimely Horn	Date	9/29/23
Agency	ODOT	Analysis Year	2025
Jurisdiction	ODOT District 7	Time Analyzed	AM Build
Facility Name	I-70 Westbound	Units	U.S. Customary
Project Description	MOT 235 Travel Center		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	4.35		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	US-70 WB	9940	3
2	Diverge	Diverge	Off-Ramp to SR-235NB	1500	3
3	Basic	Basic	US-70 WB	3890	3
4	Merge	Merge	On-Ramp from SR-235SB	1500	3
5	Basic	Basic	US-70 WB	6150	3

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.820	3114	7200	0.43	75.0	13.8	B

Segment 2: Diverge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.820	0.893	3114	1179	7200	2200	0.43	0.54	69.2	66.0	15.0	19.6	B

Segment 3: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.820	1829	7200	0.25	74.9	8.1	A

Segment 4: Merge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.83	0.820	0.917	2749	920	7200	2200	0.38	0.42	68.9	67.2	13.3	14.4	B

Segment 5: Basic

AP	PHF	fHV	Flow Rate	Capacity	d/c	Speed	Density	LOS

			(pc/h)	(pc/h)	Ratio	(mi/h)	(pc/mi/ln)	
1	0.94	0.820	2737	7200	0.38	75.0	12.2	B

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	2473	2274	0.40	9.92	74.1	12.5	10.2	3.50	B

Facility Overall Results

Space Mean Speed, mi/h	74.1	Average Density, veh/mi/ln	10.2
Average Travel Time, min	3.50	Average Density, pc/mi/ln	12.5
Total VMT, veh-mi	2473	Total VHD, veh-h	0.40
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	9.92

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HCS Freeway Facilities Report

Project Information

Analyst	Kimley-Horn	Date	9/28/23
Agency		Analysis Year	2025
Jurisdiction	ODOT District 7	Time Analyzed	AM Build
Facility Name	SR-235 Northbound	Units	U.S. Customary
Project Description	MOT 235 Travel Center		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	1.42		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	SR-235 NB	1650	2
2	Diverge	Diverge	Off-Ramp to I-70EB	1500	2
3	Basic	Basic	SR-235 NB	1100	2
4	Weaving	Weaving	Between Off/On-Ramps to/from I-70EB/I-70WB	1450	3
5	Basic	Basic	SR-235 NB	500	2
6	Merge	Merge	On-Ramp from I-70WB	1000	2
7	Basic	Basic	SR-235 NB	315	2

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.77	0.917	1345	4600	0.29	60.0	11.2	B

Segment 2: Diverge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.77	0.95	0.917	0.885	1345	500	4600	2100	0.29	0.24	53.8	53.8	12.5	10.1	B

Segment 3: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.77	0.917	751	4600	0.16	59.2	6.3	A

Segment 4: Weaving

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.77	0.917	1298	3749	0.35	48.9	8.8	A

Segment 5: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.77	0.917	1076	4600	0.23	57.7	9.0	A

Segment 6: Merge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.77	0.80	0.917	0.926	1656	580	4600	2100	0.36	0.28	54.6	54.6	15.2	15.4	B

Segment 7: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.77	0.893	1731	4600	0.38	58.1	14.4	B

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	419	277	0.63	15.74	55.0	10.6	9.3	1.60	A

Facility Overall Results

Space Mean Speed, mi/h	55.0	Average Density, veh/mi/ln	9.3
Average Travel Time, min	1.60	Average Density, pc/mi/ln	10.6
Total VMT, veh-mi	419	Total VHD, veh-h	0.63
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	15.74

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HCS Freeway Facilities Report

Project Information

Analyst	Kimley-Horn	Date	9/28/23
Agency		Analysis Year	2025
Jurisdiction	ODOT District 7	Time Analyzed	AM Build
Facility Name	SR-235 Southbound	Units	U.S. Customary
Project Description	MOT 235 Travel Center		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	1.42		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	SR-235 SB	120	2
2	Diverge	Diverge	On-Ramp to I-70WB	1500	2
3	Basic	Basic	SR-235 SB	125	2
4	Weaving	Weaving	Between Off/On-Ramps to/from I-70WB/I-70EB	1400	4
5	Basic	Basic	SR-235 SB	710	3
6	Merge	Merge	On-Ramp from I-70EB	1500	3
7	Basic	Basic	SR-235 SB	2125	3

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.93	0.926	1591	4600	0.35	60.0	13.3	B

Segment 2: Diverge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.93	0.84	0.926	0.917	1591	649	4600	2100	0.35	0.31	53.6	53.6	14.8	12.4	B

Segment 3: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.93	0.926	1010	4600	0.22	58.3	8.4	A

Segment 4: Weaving

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.93	0.926	1749	7476	0.23	55.6	7.9	A

Segment 5: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.93	0.926	1289	6900	0.19	59.2	7.2	A

Segment 6: Merge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.93	0.96	0.926	0.980	1916	627	6900	2100	0.28	0.30	56.5	55.3	11.3	10.9	B

Segment 7: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.93	0.926	1974	6900	0.29	59.8	11.0	A

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	573	455	0.43	10.69	57.0	10.4	9.5	1.50	A

Facility Overall Results

Space Mean Speed, mi/h	57.0	Average Density, veh/mi/ln	9.5
Average Travel Time, min	1.50	Average Density, pc/mi/ln	10.4
Total VMT, veh-mi	573	Total VHD, veh-h	0.43
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	10.69

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HCS Freeway Facilities Report

Project Information

Analyst	Kimley-Horn	Date	6/27/2023
Agency		Analysis Year	2025
Jurisdiction	ODOT District 7	Time Analyzed	PM No Build
Facility Name	I-70 East Bound	Units	U.S. Customary
Project Description	MOT 235 Travel Center		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	4.56		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	IR-70 EB	5860	3
2	Diverge	Diverge	Off-Ramp to SR-235SB	1500	3
3	Basic	Basic	IR-70 EB	5100	3
4	Merge	Merge	On-Ramp from SR-235NB	1500	3
5	Basic	Basic	IR-70 EB	10100	3

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.820	3788	7200	0.53	74.2	17.0	B

Segment 2: Diverge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.85	0.820	0.943	3788	1123	7200	2100	0.53	0.53	68.1	64.0	18.5	25.3	C

Segment 3: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.820	2621	7200	0.36	75.0	11.7	B

Segment 4: Merge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.85	0.820	0.962	3917	1296	7200	2200	0.54	0.59	67.7	65.9	19.3	20.9	C

Segment 5: Basic

AP	PHF	fHV	Flow Rate	Capacity	d/c	Speed	Density	LOS

			(pc/h)	(pc/h)	Ratio	(mi/h)	(pc/mi/ln)	
1	0.94	0.820	3996	7200	0.56	73.8	18.0	B

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	3397	3122	1.09	27.32	73.2	16.5	13.6	3.70	B

Facility Overall Results

Space Mean Speed, mi/h	73.2	Average Density, veh/mi/ln	13.6
Average Travel Time, min	3.70	Average Density, pc/mi/ln	16.5
Total VMT, veh-mi	3397	Total VHD, veh-h	1.09
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	27.32

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HCS Freeway Facilities Report

Project Information

Analyst	Kimely Horn	Date	6/27/2023
Agency	ODOT	Analysis Year	2025
Jurisdiction	ODOT District 7	Time Analyzed	PM No Build
Facility Name	I-70 Westbound	Units	U.S. Customary
Project Description	MOT 235 Travel Center		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	4.35		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	US-70 WB	9940	3
2	Diverge	Diverge	Off-Ramp to SR-235NB	1500	3
3	Basic	Basic	US-70 WB	3890	3
4	Merge	Merge	On-Ramp from SR-235SB	1500	3
5	Basic	Basic	US-70 WB	6150	3

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.820	4087	7200	0.57	73.6	18.5	C

Segment 2: Diverge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.820	0.926	4087	1126	7200	2200	0.57	0.51	69.9	66.1	19.5	24.1	C

Segment 3: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.820	2815	7200	0.39	74.9	12.5	B

Segment 4: Merge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.92	0.820	0.962	4250	1435	7200	2200	0.59	0.65	67.0	65.2	21.1	22.9	C

Segment 5: Basic

AP	PHF	fHV	Flow Rate	Capacity	d/c	Speed	Density	LOS

			(pc/h)	(pc/h)	Ratio	(mi/h)	(pc/mi/ln)	
1	0.94	0.820	4463	7200	0.62	72.4	20.6	C

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	3554	3262	1.54	38.52	72.6	18.3	15.0	3.60	C

Facility Overall Results

Space Mean Speed, mi/h	72.6	Average Density, veh/mi/ln	15.0
Average Travel Time, min	3.60	Average Density, pc/mi/ln	18.3
Total VMT, veh-mi	3554	Total VHD, veh-h	1.54
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	38.52

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HCS Freeway Facilities Report

Project Information

Analyst	Kimley-Horn	Date	9/28/23
Agency		Analysis Year	2025
Jurisdiction	ODOT District 7	Time Analyzed	PM Build
Facility Name	SR-235 Northbound	Units	U.S. Customary
Project Description	MOT 235 Travel Center		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	1.42		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	SR-235 NB	1650	2
2	Diverge	Diverge	Off-Ramp to I-70EB	1500	2
3	Basic	Basic	SR-235 NB	1100	2
4	Weaving	Weaving	Between Off/On-Ramps to/from I-70EB/I-70WB	1450	3
5	Basic	Basic	SR-235 NB	500	2
6	Merge	Merge	On-Ramp from I-70WB	1000	2
7	Basic	Basic	SR-235 NB	315	2

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.84	0.952	2238	4600	0.49	60.0	18.6	C

Segment 2: Diverge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.84	0.87	0.952	0.962	2238	657	4600	2100	0.49	0.31	53.6	53.6	20.9	17.6	B

Segment 3: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.84	0.952	1551	4600	0.34	59.2	12.9	B

Segment 4: Weaving

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.84	0.952	2269	3556	0.64	43.6	17.3	B

Segment 5: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.84	0.952	1513	4600	0.33	56.6	12.6	B

Segment 6: Merge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.84	0.80	0.952	0.935	2168	655	4600	2000	0.47	0.33	54.2	54.2	20.0	19.3	B

Segment 7: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.84	0.943	2146	4600	0.47	58.0	17.9	B

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	706	528	1.48	36.97	53.3	17.7	16.1	1.60	B

Facility Overall Results

Space Mean Speed, mi/h	53.3	Average Density, veh/mi/ln	16.1
Average Travel Time, min	1.60	Average Density, pc/mi/ln	17.7
Total VMT, veh-mi	706	Total VHD, veh-h	1.48
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	36.97

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HCS Freeway Facilities Report

Project Information

Analyst	Kimley-Horn	Date	9/28/23
Agency		Analysis Year	2025
Jurisdiction	ODOT District 7	Time Analyzed	PM Build
Facility Name	SR-235 Southbound	Units	U.S. Customary
Project Description	MOT 235 Travel Center		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	1.42		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	SR-235 SB	120	2
2	Diverge	Diverge	On-Ramp to I-70WB	1500	2
3	Basic	Basic	SR-235 SB	125	2
4	Weaving	Weaving	Between Off/On-Ramps to/from I-70WB/I-70EB	1400	4
5	Basic	Basic	SR-235 SB	710	3
6	Merge	Merge	On-Ramp from I-70EB	1500	3
7	Basic	Basic	SR-235 SB	2125	3

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.86	0.943	1887	4600	0.41	60.0	15.7	B

Segment 2: Diverge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.86	0.92	0.943	0.943	1887	715	4600	2100	0.41	0.34	53.5	53.5	17.6	14.9	B

Segment 3: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.86	0.943	1122	4600	0.24	58.3	9.4	A

Segment 4: Weaving

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.86	0.943	1729	7476	0.23	55.6	7.8	A

Segment 5: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.86	0.943	1097	6900	0.16	59.2	6.1	A

Segment 6: Merge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.86	0.85	0.943	0.943	1446	349	6900	2100	0.21	0.17	56.7	55.4	8.5	7.9	A

Segment 7: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.86	0.943	1443	6900	0.21	59.8	8.0	A

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	520	394	0.44	10.96	56.7	9.3	8.5	1.50	A

Facility Overall Results

Space Mean Speed, mi/h	56.7	Average Density, veh/mi/ln	8.5
Average Travel Time, min	1.50	Average Density, pc/mi/ln	9.3
Total VMT, veh-mi	520	Total VHD, veh-h	0.44
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	10.96

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HCS Freeway Facilities Report

Project Information

Analyst	Kimley-Horn	Date	9/29/23
Agency		Analysis Year	2045
Jurisdiction	ODOT District 7	Time Analyzed	AM Build
Facility Name	I-70 East Bound	Units	U.S. Customary
Project Description	MOT 235 Travel Center		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	4.56		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	IR-70 EB	5860	3
2	Diverge	Diverge	Off-Ramp to SR-235SB	1500	3
3	Basic	Basic	IR-70 EB	5100	3
4	Merge	Merge	On-Ramp from SR-235NB	1500	3
5	Basic	Basic	IR-70 EB	10100	3

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.820	3944	7200	0.55	73.9	17.8	B

Segment 2: Diverge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.85	0.820	0.980	3944	1248	7200	2100	0.55	0.59	67.7	63.6	19.4	26.3	C

Segment 3: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.820	2595	7200	0.36	75.0	11.5	B

Segment 4: Merge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.85	0.820	0.870	3839	1244	7200	2200	0.53	0.57	67.8	66.1	18.9	20.4	C

Segment 5: Basic

AP	PHF	fHV	Flow Rate	Capacity	d/c	Speed	Density	LOS

			(pc/h)	(pc/h)	Ratio	(mi/h)	(pc/mi/ln)	
1	0.94	0.820	3788	7200	0.53	74.2	17.0	B

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	3350	3081	1.04	26.04	73.3	16.3	13.3	3.70	B

Facility Overall Results

Space Mean Speed, mi/h	73.3	Average Density, veh/mi/ln	13.3
Average Travel Time, min	3.70	Average Density, pc/mi/ln	16.3
Total VMT, veh-mi	3350	Total VHD, veh-h	1.04
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	26.04

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HCS Freeway Facilities Report

Project Information

Analyst	Kimely Horn	Date	9/29/23
Agency	ODOT	Analysis Year	2045
Jurisdiction	ODOT District 7	Time Analyzed	AM Build
Facility Name	I-70 Westbound	Units	U.S. Customary
Project Description	MOT 235 Travel Center		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	4.35		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	US-70 WB	9940	3
2	Diverge	Diverge	Off-Ramp to SR-235NB	1500	3
3	Basic	Basic	US-70 WB	3890	3
4	Merge	Merge	On-Ramp from SR-235SB	1500	3
5	Basic	Basic	US-70 WB	6150	3

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.820	3646	7200	0.51	74.5	16.3	B

Segment 2: Diverge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.820	0.893	3646	1394	7200	2200	0.51	0.63	68.8	65.3	17.7	22.7	C

Segment 3: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.820	2128	7200	0.30	74.9	9.5	A

Segment 4: Merge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.83	0.820	0.917	3166	1038	7200	2200	0.44	0.47	68.5	66.8	15.4	16.7	B

Segment 5: Basic

AP	PHF	fHV	Flow Rate	Capacity	d/c	Speed	Density	LOS

			(pc/h)	(pc/h)	Ratio	(mi/h)	(pc/mi/ln)	
1	0.94	0.820	3153	7200	0.44	75.0	14.0	B

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	2878	2648	0.62	15.52	73.8	14.6	12.0	3.50	B

Facility Overall Results

Space Mean Speed, mi/h	73.8	Average Density, veh/mi/ln	12.0
Average Travel Time, min	3.50	Average Density, pc/mi/ln	14.6
Total VMT, veh-mi	2878	Total VHD, veh-h	0.62
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	15.52

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HCS Freeway Facilities Report

Project Information

Analyst	Kimley-Horn	Date	9/28/23
Agency		Analysis Year	2045
Jurisdiction	ODOT District 7	Time Analyzed	AM Build
Facility Name	SR-235 Northbound	Units	U.S. Customary
Project Description	MOT 235 Travel Center		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	1.42		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	SR-235 NB	1650	2
2	Diverge	Diverge	Off-Ramp to I-70EB	1500	2
3	Basic	Basic	SR-235 NB	1100	2
4	Weaving	Weaving	Between Off/On-Ramps to/from I-70EB/I-70WB	1450	3
5	Basic	Basic	SR-235 NB	500	2
6	Merge	Merge	On-Ramp from I-70WB	1000	2
7	Basic	Basic	SR-235 NB	315	2

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.77	0.917	1756	4600	0.38	60.0	14.6	B

Segment 2: Diverge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.77	0.95	0.917	0.885	1756	702	4600	2100	0.38	0.33	53.5	53.5	16.4	13.6	B

Segment 3: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.77	0.917	921	4600	0.20	59.2	7.7	A

Segment 4: Weaving

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.77	0.917	1475	3834	0.38	48.2	10.2	B

Segment 5: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.77	0.917	1175	4600	0.26	57.6	9.8	A

Segment 6: Merge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.77	0.80	0.917	0.926	1769	594	4600	2100	0.38	0.28	54.5	54.5	16.2	16.3	B

Segment 7: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.77	0.893	1847	4600	0.40	58.1	15.4	B

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	504	341	0.78	19.48	54.9	12.8	11.1	1.60	B

Facility Overall Results

Space Mean Speed, mi/h	54.9	Average Density, veh/mi/ln	11.1
Average Travel Time, min	1.60	Average Density, pc/mi/ln	12.8
Total VMT, veh-mi	504	Total VHD, veh-h	0.78
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	19.48

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HCS Freeway Facilities Report

Project Information

Analyst	Kimley-Horn	Date	9/28/23
Agency		Analysis Year	2045
Jurisdiction	ODOT District 7	Time Analyzed	AM Build
Facility Name	SR-235 Southbound	Units	U.S. Customary
Project Description	MOT 235 Travel Center		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	1.42		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	SR-235 SB	120	2
2	Diverge	Diverge	On-Ramp to I-70WB	1500	2
3	Basic	Basic	SR-235 SB	125	2
4	Weaving	Weaving	Between Off/On-Ramps to/from I-70WB/I-70EB	1400	4
5	Basic	Basic	SR-235 SB	710	3
6	Merge	Merge	On-Ramp from I-70EB	1500	3
7	Basic	Basic	SR-235 SB	2125	3

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.93	0.926	1730	4600	0.38	60.0	14.4	B

Segment 2: Diverge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.93	0.84	0.926	0.917	1730	688	4600	2100	0.38	0.33	53.5	53.5	16.2	13.6	B

Segment 3: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.93	0.926	1115	4600	0.24	58.3	9.3	A

Segment 4: Weaving

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.93	0.926	2055	7476	0.27	55.2	9.3	A

Segment 5: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.93	0.926	1579	6900	0.23	59.1	8.8	A

Segment 6: Merge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.93	0.96	0.926	0.980	2217	638	6900	2100	0.32	0.30	56.4	55.2	13.1	12.3	B

Segment 7: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.93	0.926	2276	6900	0.33	59.8	12.6	B

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	659	523	0.51	12.71	56.9	12.0	10.9	1.50	B

Facility Overall Results

Space Mean Speed, mi/h	56.9	Average Density, veh/mi/ln	10.9
Average Travel Time, min	1.50	Average Density, pc/mi/ln	12.0
Total VMT, veh-mi	659	Total VHD, veh-h	0.51
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	12.71

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HCS Freeway Facilities Report

Project Information

Analyst	Kimley-Horn	Date	6/27/2023
Agency		Analysis Year	2045
Jurisdiction	ODOT District 7	Time Analyzed	PM No Build
Facility Name	I-70 East Bound	Units	U.S. Customary
Project Description	MOT 235 Travel Center		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	4.56		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	IR-70 EB	5860	3
2	Diverge	Diverge	Off-Ramp to SR-235SB	1500	3
3	Basic	Basic	IR-70 EB	5100	3
4	Merge	Merge	On-Ramp from SR-235NB	1500	3
5	Basic	Basic	IR-70 EB	10100	3

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.820	4255	7200	0.59	73.1	19.4	C

Segment 2: Diverge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.85	0.820	0.943	4255	1148	7200	2100	0.59	0.55	68.2	63.9	20.8	27.5	C

Segment 3: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.820	3062	7200	0.43	75.0	13.6	B

Segment 4: Merge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.85	0.820	0.962	4640	1578	7200	2200	0.64	0.72	66.2	64.2	23.4	25.0	C

Segment 5: Basic

AP	PHF	fHV	Flow Rate	Capacity	d/c	Speed	Density	LOS

			(pc/h)	(pc/h)	Ratio	(mi/h)	(pc/mi/ln)	
1	0.94	0.820	4735	7200	0.66	71.3	22.1	C

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	3949	3626	2.43	60.81	71.7	19.6	16.1	3.80	C

Facility Overall Results

Space Mean Speed, mi/h	71.7	Average Density, veh/mi/ln	16.1
Average Travel Time, min	3.80	Average Density, pc/mi/ln	19.6
Total VMT, veh-mi	3949	Total VHD, veh-h	2.43
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	60.81

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HCS Freeway Facilities Report

Project Information

Analyst	Kimely Horn	Date	6/27/2023
Agency	ODOT	Analysis Year	2045
Jurisdiction	ODOT District 7	Time Analyzed	PM No Build
Facility Name	I-70 Westbound	Units	U.S. Customary
Project Description	MOT 235 Travel Center		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	5
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	4.35		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	US-70 WB	9940	3
2	Diverge	Diverge	Off-Ramp to SR-235NB	1500	3
3	Basic	Basic	US-70 WB	3890	3
4	Merge	Merge	On-Ramp from SR-235SB	1500	3
5	Basic	Basic	US-70 WB	6150	3

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.820	4748	7200	0.66	71.2	22.2	C

Segment 2: Diverge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.94	0.820	0.926	4748	1298	7200	2200	0.66	0.59	69.5	65.6	22.8	27.5	C

Segment 3: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.94	0.820	3282	7200	0.46	74.9	14.6	B

Segment 4: Merge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.94	0.92	0.820	0.962	4999	1717	7200	2200	0.69	0.78	65.1	62.9	25.6	27.2	C

Segment 5: Basic

AP	PHF	fHV	Flow Rate	Capacity	d/c	Speed	Density	LOS

			(pc/h)	(pc/h)	Ratio	(mi/h)	(pc/mi/ln)	
1	0.94	0.820	5254	7200	0.73	68.8	25.5	C

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	4150	3808	3.70	92.55	70.3	22.1	18.1	3.70	C

Facility Overall Results

Space Mean Speed, mi/h	70.3	Average Density, veh/mi/ln	18.1
Average Travel Time, min	3.70	Average Density, pc/mi/ln	22.1
Total VMT, veh-mi	4150	Total VHD, veh-h	3.70
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	92.55

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HCS Freeway Facilities Report

Project Information

Analyst	Kimley-Horn	Date	9/28/23
Agency		Analysis Year	2045
Jurisdiction	ODOT District 7	Time Analyzed	PM Build
Facility Name	SR-235 Northbound	Units	U.S. Customary
Project Description	MOT 235 Travel Center		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	1.42		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	SR-235 NB	1650	2
2	Diverge	Diverge	Off-Ramp to I-70EB	1500	2
3	Basic	Basic	SR-235 NB	1100	2
4	Weaving	Weaving	Between Off/On-Ramps to/from I-70EB/I-70WB	1450	3
5	Basic	Basic	SR-235 NB	500	2
6	Merge	Merge	On-Ramp from I-70WB	1000	2
7	Basic	Basic	SR-235 NB	315	2

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.84	0.952	2901	4600	0.63	60.0	24.2	C

Segment 2: Diverge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.84	0.87	0.952	0.962	2901	920	4600	2100	0.63	0.44	53.1	53.1	27.3	23.4	C

Segment 3: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.84	0.952	1938	4600	0.42	59.2	16.2	B

Segment 4: Weaving

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.84	0.952	2641	3588	0.74	42.2	20.9	C

Segment 5: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.84	0.952	1663	4600	0.36	56.3	13.9	B

Segment 6: Merge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.84	0.80	0.952	0.935	2331	668	4600	2100	0.51	0.32	54.2	54.2	21.5	20.6	C

Segment 7: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.84	0.943	2310	4600	0.50	58.0	19.2	C

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	857	655	1.92	47.95	52.9	21.7	19.8	1.60	C

Facility Overall Results

Space Mean Speed, mi/h	52.9	Average Density, veh/mi/ln	19.8
Average Travel Time, min	1.60	Average Density, pc/mi/ln	21.7
Total VMT, veh-mi	857	Total VHD, veh-h	1.92
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	47.95

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HCS Freeway Facilities Report

Project Information

Analyst	Kimley-Horn	Date	9/28/23
Agency		Analysis Year	2045
Jurisdiction	ODOT District 7	Time Analyzed	PM Build
Facility Name	SR-235 Southbound	Units	U.S. Customary
Project Description	MOT 235 Travel Center		

Facility Global Input

Jam Density, pc/mi/ln	190.0	Density at Capacity, pc/mi/ln	45.0
Queue Discharge Capacity Drop, %	7	Total Segments	7
Total Analysis Periods	1	Analysis Period Duration, min	15
Facility Length, mi	1.42		

Facility Segment Data

No.	Coded	Analyzed	Name	Length, ft	Lanes
1	Basic	Basic	SR-235 SB	120	2
2	Diverge	Diverge	On-Ramp to I-70WB	1500	2
3	Basic	Basic	SR-235 SB	125	2
4	Weaving	Weaving	Between Off/On-Ramps to/from I-70WB/I-70EB	1400	4
5	Basic	Basic	SR-235 SB	710	3
6	Merge	Merge	On-Ramp from I-70EB	1500	3
7	Basic	Basic	SR-235 SB	2125	3

Facility Segment Data

Segment 1: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.86	0.943	2035	4600	0.44	60.0	17.0	B

Segment 2: Diverge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.86	0.92	0.943	0.943	2035	772	4600	2100	0.44	0.37	53.4	53.4	19.1	16.2	B

Segment 3: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.86	0.943	1208	4600	0.26	58.2	10.1	A

Segment 4: Weaving

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.86	0.943	1983	7476	0.27	55.3	9.0	A

Segment 5: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.86	0.943	1344	6900	0.19	59.1	7.5	A

Segment 6: Merge

AP	PHF		fHV		Flow Rate (pc/h)		Capacity (pc/h)		d/c Ratio		Speed (mi/h)		Density (pc/mi/ln)		LOS
	F	R	F	R	Freeway	Ramp	Freeway	Ramp	F	R	F	R Infl.	F	R Infl.	
1	0.86	0.85	0.943	0.943	1706	362	6900	2100	0.25	0.17	56.7	55.4	10.0	9.2	A

Segment 7: Basic

AP	PHF	fHV	Flow Rate (pc/h)	Capacity (pc/h)	d/c Ratio	Speed (mi/h)	Density (pc/mi/ln)	LOS
1	0.86	0.943	1702	6900	0.25	59.8	9.4	A

Facility Analysis Results

AP	VMT veh-mi/AP	VMT-Demand veh-mi/AP	VHD veh-h/AP	Total Delay Cost $/AP	Speed mi/h	Density pc/mi/ln	Density veh/mi/ln	TT min	LOS
1	597	450	0.51	12.67	56.6	10.7	9.7	1.50	A

Facility Overall Results

Space Mean Speed, mi/h	56.6	Average Density, veh/mi/ln	9.7
Average Travel Time, min	1.50	Average Density, pc/mi/ln	10.7
Total VMT, veh-mi	597	Total VHD, veh-h	0.51
Vehicle Value of Time (VOT), $/h	25.00	Total Delay Cost, $	12.67

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APPENDIX

I. TransModeler 7 2045 Build AM Peak Hour Simulation Approach Outputs

Project: Build IOS (Access A)
Scenario: 2045 BUILD AM #2
Run(s): 03/04/24 15:21:04
Simulated: 03/04/24 15:21:04
Time: 07:00:00 - 08:00:00
Interval: Summary
Selection: --

Intersection Level of Service by Approach - Summary

ACCESS A, ACCESS A R & ACCESS A L -- UNSIGNALIZED — NODE: 4

Dir	Street	Superlink	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
EB	ACCESS A	720510268	275	0.30	3.7	A
SB	ACCESS A L	720510278	0	0.00	--	--
NWB	ACCESS A R	720510279	0	0.00	--	--

ARTZ ROAD -- UNSIGNALIZED — NODE: 1332

Dir	Street	Superlink	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
NB	ARTZ ROAD	720510250	12	0.00	5.4	A
SWB	ARTZ ROAD	720510281	11	0.00	0.0	A
SEB	ARTZ ROAD	720510284	12	0.00	0.0	A

SR-235 & I-70 WB OFF RAMP -- SIGNALIZED — NODE: 1329

Dir	Street	Superlink	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
SWB	I 70	16028	1,343	7.90	21.3	C
NB	SR-235	720510184	870	2.50	10.2	B

SR-235, CENTER POINT 70 BLVD & ACCESS B -- SIGNALIZED — NODE: 7

Dir	Street	Superlink	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
SB	SR-235	16423	1,136	13.40	42.5	D
EB	CENTER POINT 70 BLVD	16430	180	1.60	32.1	C
NB	SR-235	720510254	1,118	35.80	115.1	F
WB	ACCESS B	720510263	717	8.40	42.0	D

SR-235, COCA COLA BLVD & ACCESS ROAD -- SIGNALIZED — NODE: 12008

Dir	Street	Superlink	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
SEB	COCA COLA BLVD	16420	38	0.50	46.9	D
NEB	SR-235	16423	628	0.80	4.9	A
SWB	SR-235	720510240	1,144	6.10	19.3	B
NWB	ACCESS ROAD	720510243	36	0.40	44.3	D

APPENDIX

J. TransModeler 7 2045 Build AM Peak Hour Simulation Movement Outputs

Project: Build IOS (Access A)
Scenario: 2045 BUILD AM #2
Run(s): 03/04/24 15:21:04
Simulated: 03/04/24 15:21:04
Time: 07:00:00 - 08:00:00
Interval: Summary
Selection: --

Intersection Level of Service by Lane Group - Summary

ACCESS A, ACCESS A R & ACCESS A L -- UNSIGNALIZED — NODE: 4

Lane Group	Street Name	Superlink ID	Number of Vehicles	Total Control Delay (hrs)	Avg Control Delay (sec/veh)	Level of Service
EB L	ACCESS A	720510268	80	0.10	4.0	A
EB R	ACCESS A	720510268	195	0.20	3.6	A
NWB T	ACCESS A R	720510279	0	0.00	--	--
SB T	ACCESS A L	720510278	0	0.00	--	--

ARTZ ROAD -- UNSIGNALIZED — NODE: 1332

Lane Group	Street Name	Superlink ID	Number of Vehicles	Total Control Delay (hrs)	Avg Control Delay (sec/veh)	Level of Service
NB LR	ARTZ ROAD	720510250	12	0.00	5.4	A
SEB LR	ARTZ ROAD	720510284	12	0.00	0.0	A
SWB LR	ARTZ ROAD	720510281	11	0.00	0.0	A

SR-235 & I-70 WB OFF RAMP -- SIGNALIZED — NODE: 1329

Lane Group	Street Name	Superlink ID	Number of Vehicles	Total Control Delay (hrs)	Avg Control Delay (sec/veh)	Level of Service
NB T	SR-235	720510184	870	2.50	10.2	B
NWB T	I 70	16028	574	7.90	49.8	D
SWB CH	I 70	16028	769	0.00	0.0	A

SR-235, CENTER POINT 70 BLVD & ACCESS B -- SIGNALIZED — NODE: 7

Lane Group	Street Name	Superlink ID	Number of Vehicles	Total Control Delay (hrs)	Avg Control Delay (sec/veh)	Level of Service
EB L	CENTER POINT 70 BLVD	16430	50	0.80	60.6	E
EB R	CENTER POINT 70 BLVD	16430	118	0.50	16.7	B
EB T	CENTER POINT 70 BLVD	16430	12	0.20	64.3	E
NB L	SR-235	720510254	199	22.80	411.7	F
NB R	SR-235	720510254	411	0.00	0.0	A
NB T	SR-235	720510254	508	13.00	92.1	F
SB L	SR-235	16423	50	0.50	36.2	D
SB T	SR-235	16423	658	8.60	46.8	D
SB TR	SR-235	16423	428	4.30	36.6	D
WB L	ACCESS B	720510263	637	8.00	45.4	D
WB TR	ACCESS B	720510263	80	0.30	15.3	B

SR-235, COCA COLA BLVD & ACCESS ROAD -- SIGNALIZED NODE: 12008

Lane Group	Street Name	Superlink ID	Number of Vehicles	Total Control Delay (hrs)	Avg Control Delay (sec/veh)	Level of Service
NEB L	SR-235	16423	12	0.10	34.1	C
NEB TR	SR-235	16423	616	0.70	4.3	A
NWB L	ACCESS ROAD	720510243	10	0.10	48.5	D
NWB TR	ACCESS ROAD	720510243	26	0.30	42.7	D
SEB L	COCA COLA BLVD	16420	12	0.10	40.2	D
SEB TR	COCA COLA BLVD	16420	26	0.40	49.9	D
SWB L	SR-235	720510240	14	0.10	18.0	B
SWB TR	SR-235	720510240	1,130	6.10	19.3	B

APPENDIX

K. TransModeler 7 2045 Build PM Peak Hour Simulation Approach Outputs

Project: Build IOS (Access A)
Scenario: 2045 BUILD PM #2
Run(s): 02/29/24 18:36:47
Simulated: 02/29/24 18:36:47
Time: 17:00:00 - 18:00:00
Interval: Summary
Selection: --

Intersection Level of Service by Approach - Summary

ACCESS A, ACCESS A R & ACCESS A L -- UNSIGNALIZED

NODE: 4

Dir	Street	Superlink	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
EB	ACCESS A	720510268	370	0.40	3.5	A
SB	ACCESS A L	720510278	0	0.00	--	--
NWB	ACCESS A R	720510279	0	0.00	--	--

ARTZ ROAD -- UNSIGNALIZED

NODE: 1332

Dir	Street	Superlink	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
NB	ARTZ ROAD	720510250	38	0.10	5.2	A
SWB	ARTZ ROAD	720510281	17	0.00	0.0	A
SEB	ARTZ ROAD	720510284	38	0.00	0.0	A

SR-235 & I-70 WB OFF RAMP -- SIGNALIZED

NODE: 1329

Dir	Street	Superlink	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
SWB	I 70	16028	1,218	6.80	20.1	C
NB	SR-235	720510184	1,472	6.00	14.7	B

SR-235, CENTER POINT 70 BLVD & ACCESS B -- SIGNALIZED

NODE: 7

Dir	Street	Superlink	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
SB	SR-235	16423	823	6.30	27.6	C
EB	CENTER POINT 70 BLVD	16430	454	6.90	54.7	D
NB	SR-235	720510254	1,735	35.20	73.0	E
WB	ACCESS B	720510263	919	41.80	163.7	F

SR-235, COCA COLA BLVD & ACCESS ROAD -- SIGNALIZED

NODE: 12008

Dir	Street	Superlink	Number of Vehicles	Total Control Delay (hr)	Avg Control Delay (sec/veh)	Level of Service
SEB	COCA COLA BLVD	16420	49	0.40	30.6	C
NEB	SR-235	16423	1,300	5.00	13.9	B
SWB	SR-235	720510240	816	1.30	5.8	A
NWB	ACCESS ROAD	720510243	40	0.50	48.2	D

APPENDIX

L. TransModeler 7 2045 Build PM Peak Hour Simulation Movement Outputs

Project: Build IOS (Access A)
Scenario: 2045 BUILD PM #2
Run(s): 02/29/24 18:36:47
Simulated: 02/29/24 18:36:47
Time: 17:00:00 - 18:00:00
Interval: Summary
Selection: --

Intersection Level of Service by Lane Group - Summary

ACCESS A, ACCESS A R & ACCESS A L -- UNSIGNALIZED

NODE: 4

Lane Group	Street Name	Superlink ID	Number of Vehicles	Total Control Delay (hrs)	Avg Control Delay (sec/veh)	Level of Service
EB L	ACCESS A	720510268	110	0.10	3.7	A
EB R	ACCESS A	720510268	260	0.30	3.5	A
NWB T	ACCESS A R	720510279	0	0.00	--	--
SB T	ACCESS A L	720510278	0	0.00	--	--

ARTZ ROAD -- UNSIGNALIZED

NODE: 1332

Lane Group	Street Name	Superlink ID	Number of Vehicles	Total Control Delay (hrs)	Avg Control Delay (sec/veh)	Level of Service
NB LR	ARTZ ROAD	720510250	38	0.10	5.2	A
SEB LR	ARTZ ROAD	720510284	38	0.00	0.0	A
SWB LR	ARTZ ROAD	720510281	17	0.00	0.0	A

SR-235 & I-70 WB OFF RAMP -- SIGNALIZED

NODE: 1329

Lane Group	Street Name	Superlink ID	Number of Vehicles	Total Control Delay (hrs)	Avg Control Delay (sec/veh)	Level of Service
NB T	SR-235	720510184	1,472	6.00	14.7	B
NWB T	I 70	16028	656	6.80	37.3	D
SWB CH	I 70	16028	562	0.00	0.0	A

SR-235, CENTER POINT 70 BLVD & ACCESS B -- SIGNALIZED

NODE: 7

Lane Group	Street Name	Superlink ID	Number of Vehicles	Total Control Delay (hrs)	Avg Control Delay (sec/veh)	Level of Service
L	SR-235	16423	65	1.10	60.1	E
T	SR-235	16423	406	2.80	25.2	C
TR	SR-235	16423	352	2.40	24.4	C
EB L	CENTER POINT 70 BLVD	16430	122	1.90	56.1	E
EB R	CENTER POINT 70 BLVD	16430	317	4.80	54.5	D
EB T	CENTER POINT 70 BLVD	16430	15	0.20	49.4	D
NB L	SR-235	720510254	46	0.90	69.8	E
NB R	SR-235	720510254	582	0.00	0.0	A
NB T	SR-235	720510254	1,107	34.30	111.5	F
WB L	ACCESS B	720510263	825	41.30	180.1	F
WB TR	ACCESS B	720510263	94	0.50	19.1	B

SR-235, COCA COLA BLVD & ACCESS ROAD -- SIGNALIZED NODE: 12008

Lane Group	Street Name	Superlink ID	Number of Vehicles	Total Control Delay (hrs)	Avg Control Delay (sec/veh)	Level of Service
NEB L	SR-235	16423	12	0.10	15.4	B
NEB TR	SR-235	16423	1,288	5.00	13.9	B
NWB L	ACCESS ROAD	720510243	14	0.20	42.7	D
NWB TR	ACCESS ROAD	720510243	26	0.40	51.2	D
SEB L	COCA COLA BLVD	16420	14	0.10	37.4	D
SEB TR	COCA COLA BLVD	16420	35	0.30	27.9	C
SWB L	SR-235	720510240	14	0.10	30.1	C
SWB TR	SR-235	720510240	802	1.20	5.3	A





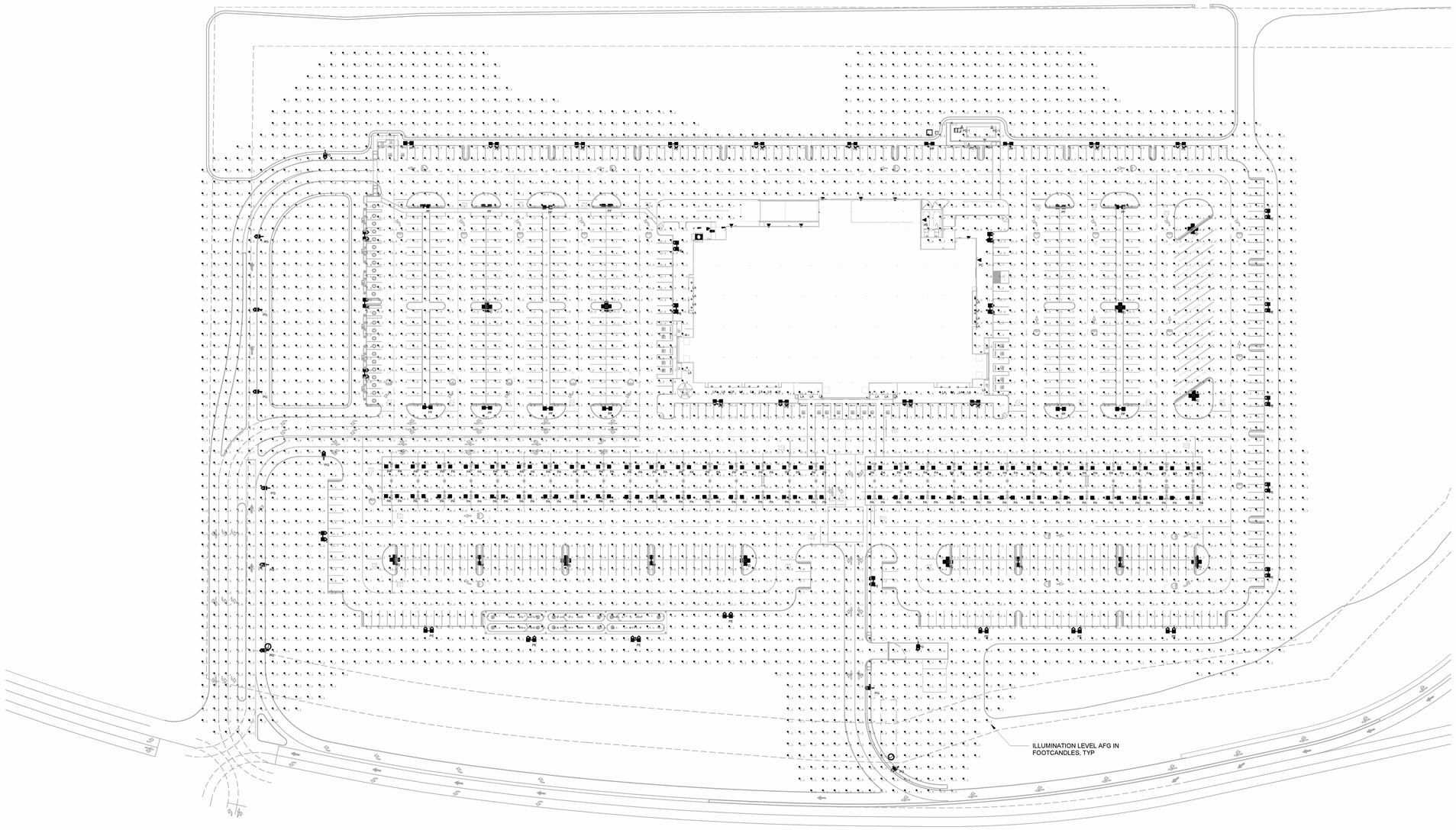


Kimley»Horn

7965 North High Street | Suite 200 | Columbus, OH 43235
380-867-0815

LIGHTING DESIGN RESPONSIBILITY GENERAL NOTES:

1.THE LOCATION AND SELECTION OF THE SITE LIGHTING FIXTURES WERE MADE BY OTHERS AND ARE OUTSIDE OF THE SCOPE OF WORK OF HENDERSON ENGINEERS, UNLESS NOTED OTHERWISE. HENDERSON ENGINEER'S SCOPE OF SERVICES IS LIMITED TO PROVIDING LIGHTING POWER CIRCUIT AND CONTROL DESIGN AND CODE COMPLIANCE CALCULATIONS. THE USE OF THE SEAL AND SIGNATURE ON THIS SHEET APPLIES TO HENDERSON ENGINEER'S SCOPE OF SERVICES ONLY.



Luminaire Schedule

Symbol	Qty	Label	Arrangement	Description	LLF	Luminaire Lumens	Luminaire Watts	Total Watts
	30	LA	Single	XSL2-S-LED-50-HO-CW-DFL - 12' MH	0.850	8751	87	2610
	120	PA	SINGLE	CRUS-SC-LED-VHO-50 UE WHT - 17' MH	0.850	22418	159.1	19092.001
	8	PB	D180° 2RTD	SLM-LED-36L-SIL-FT-L - FT-R-50-70CRI-D180 ON 27' POLE + 2.5' BASE	0.850	37808	286	4576
	12	PC	SINGLE	XWM-FT-LED-06L-50 - 10' MH	0.850	8465	64	768
	4	PC-1	SINGLE	XWM-FT-LED-04L-50 - 8' MH	0.850	4386	30	120
	10	PD	4 @ 90°	SLM-LED-36L-SIL-SW-50-70CRI-QUAD ON 27' POLE +2.5' BASE	0.850	35784	317.8	12712
	58	PE	D180 RTD	SLM-LED-42L-SIL-(1)-FT-L - (1) FT-R-50-70CRI-IL-D180 ON 27' POLE + 2.5' BASE	0.850	27038	303.4	18883.2
	19	PF	D180°	SLM-LED-36L-SIL-SW-50-70CRI-D180 ON 27' POLE +2.5' BASE	0.850	35784	317.8	12076.4
	11	PG	Single	SLM-LED-36L-SIL-3-50-70CRI-SINGLE ON 27' POLE + 2.5' BASE	0.850	36632	255	2805

Calculation Summary

Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
All Calc Points At Grade	Illuminance	Fc	6.41	39.0	0.1	64.10	390.00
DRIVE ENTRANCE SUMMARY	Illuminance	Fc	4.84	9.2	1.8	2.69	5.11
PARKING SUMMARY	Illuminance	Fc	7.39	35.8	0.6	12.32	59.67
SIDEWALK SUMMARY	Illuminance	Fc	10.47	24.8	0.6	17.45	41.33
UNDER CANOPY SUMMARY	Illuminance	Fc	28.88	39.0	17.4	1.66	2.24

1 ELECTRICAL SITE PLAN - PHOTOMETRIC
1" = 60'-0"

DEAN.W.CHANDLER
Autodesk Docs://71-Buc-ee's Huber Hts-OH (R)/BUC-EES_Huber Heights OH (R)_MEPRF.rvt

BUC-EE'S

A DEVELOPMENT OF

Buc-ee's Huber Heights, LLC
Montgomery County, Ohio
TEL: (979) 230-2920

BUC-EE'S TRAVEL CENTER
HUBER HEIGHTS, OHIO
74K - R - 2024 - Q2
8000 STATE HIGHWAY 235
HUBER HEIGHTS, OHIO 45344

LAWRENCE S. LEVINSON, A.I.A.

7800 Washington Ave., Suite 600 Houston, TX 77007
main: 713.600.3600 www.laarc.com

HENDERSON ENGINEERS
8345 LENEXA DRIVE, SUITE 300
LENEXA, KS 66214
TEL 913.742.5000 **FAX** 913.742.5001
WWW.HENDERSONENGINEERS.COM
2450001174
OH. CORPORATE NO. COA02362
EXPIRES 6/30/2024

ISSUE/REVISION LOG:

No.	DESCRIPTION	DATE

STATE OF OHIO
DEAN WAY CHANDLER
E-83639
REGISTERED PROFESSIONAL ENGINEER

04/04/2024

DEAN WAY CHANDLER, P.E. LICENSE #83639
EXP DATE 12/31/2025

ISSUED FOR REVIEW: 04/26/2024

ISSUED FOR BID: 04/05/2024

ISSUED FOR PERMIT: 04/05/2024

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E0.4

ELECTRICAL SITE PLAN - PHOTOMETRIC

LSL PROJECT NUMBER: 2024-100.000

HUBER HEIGHTS, OHIO

BUC-EE'S #71 HUBER HEIGHTS, OH
ISSUED FOR BIDDING
HUBER HEIGHTS, OH
BUC-EE'S LTD.

BLU FISH COLLABORATIVE
Landscape Architecture

BLU FISH COLLABORATIVE, INC.
P.O. BOX 40792, Austin, TX 78704
Phone: (512)388-4115

SHEET INDEX:

	TITLE SHEET
L-100	OVERALL LANDSCAPE PLAN
L-101	LANDSCAPE PLAN
L-102	LANDSCAPE PLAN
L-103	LANDSCAPE PLAN
L-104	LANDSCAPE PLAN
L-105	LANDSCAPE PLAN
L-106	LANDSCAPE PLAN
L-107	LANDSCAPE DETAILS

LI-100	OVERALL IRRIGATION PLAN
L1-101	IRRIGATION PLAN
L1-102	IRRIGATION PLAN
L1-103	IRRIGATION PLAN
L1-104	IRRIGATION PLAN
L1-105	IRRIGATION PLAN
L1-106	IRRIGATION PLAN
L1-107	IRRIGATION DETAILS

SUBMITTAL:

DATE:	SUBMITTAL:	DESCRIPTION (SHEETS / SPECS):
2023-08-15	ZONING APPLICATION	L-100 - OVERALL PLAN
2023-08-30	ZONING APPLICATION	L-100 - OVERALL PLAN - UPDATE
2023-09-11	ZONING APPLICATION	L-100 - OVERALL PLAN - UPDATE
2024-03-01	OWNER REVIEW	L100, L101, L102, L103, L104, L105, L106, L107
2024-04-12	BID SET	L100, L101, L102, L103, L104, L105, L106, L107, LI100, LI101, LI102, LI103, LI104, LI105, LI106, LI107

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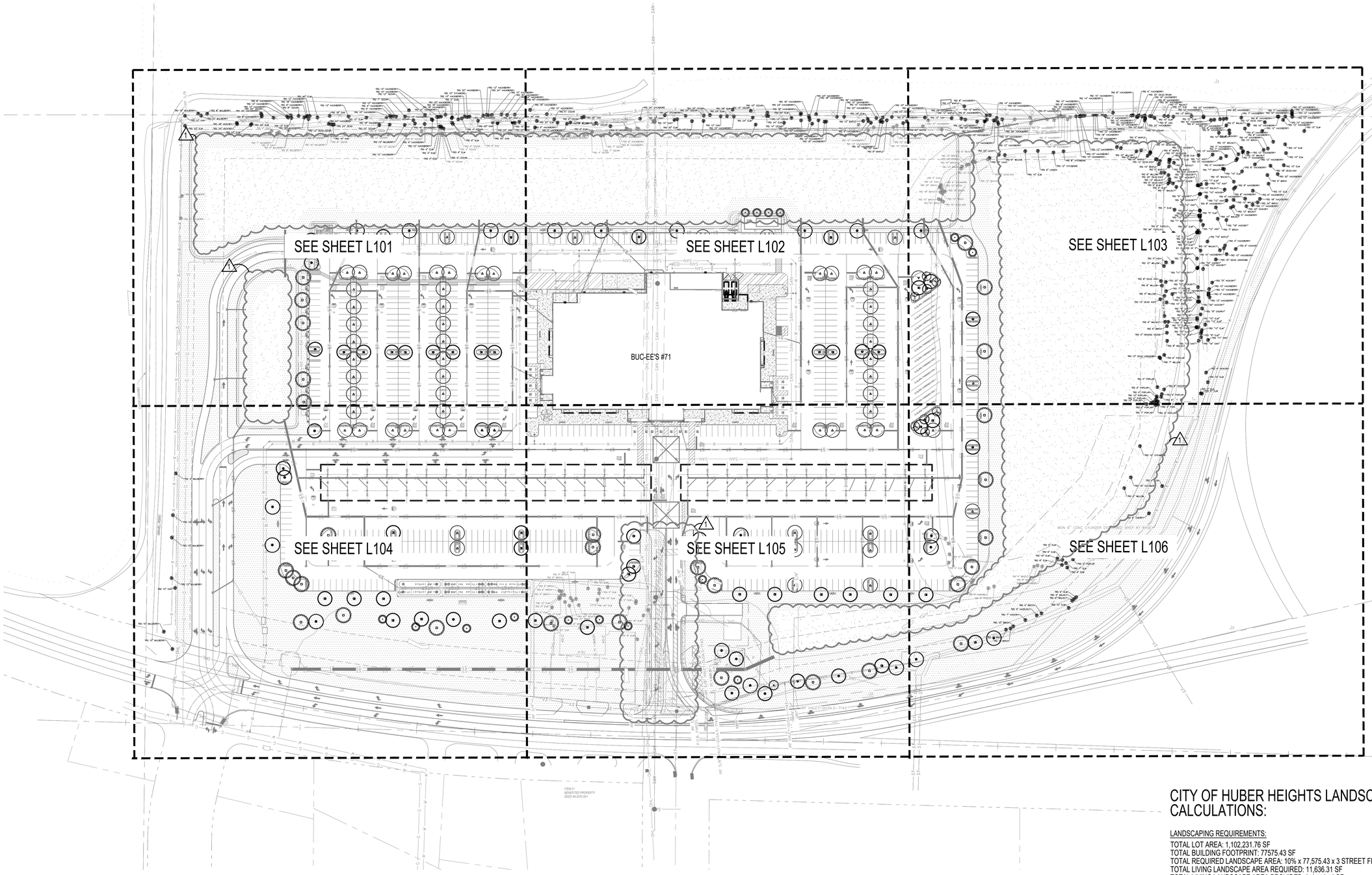
NAME:	ORGANIZATION:	POSITION:	SIGNATURE:	DATE:

PROFESSIONAL SEAL:



DATE SEALED: 09/11/2023

BFC PROJECT #: 001-23-10



TREE KEY:

- PIN OAK, *QUERCUS PALUSTRIS*
- BLACK GUM, *NYSSA SYLVATICA*
- SKYLINE HONEYLOCUST, *GLEDITSIA TRIACANTHOS F. INERMIS 'SKYCOLE' SKYLINE*
- AMERICAN HOPHORNBEAM, *OSTRYA VIRGINIANA*
- LONDON PLANE TREE, *PLATANUS × ACERIFOLIA*
- MEYER'S SPRUCE , *PICEA MEYERI*
- EXISTING TREE TO BE PRESERVED
- EXISTING TREE TO BE REMOVED

CITY OF HUBER HEIGHTS LANDSCAPE CALCULATIONS:

LANDSCAPING REQUIREMENTS:

TOTAL LOT AREA: 1,102,231.76 SF
TOTAL BUILDING FOOTPRINT: 77575.43 SF
TOTAL REQUIRED LANDSCAPE AREA: 10% x 77,575.43 x 3 STREET FRONTAGES = 23,272.63 SF
TOTAL LIVING LANDSCAPE AREA REQUIRED: 11,636.31 SF
TOTAL LIVING LANDSCAPE AREA PROVIDED: 319,110.46 SF
TOTAL NONLIVING LANDSCAPE AREA PROVIDED: 3,227.68 SF

STREET TREE REQUIREMENTS:

TOTAL LENGTH OF STREET FRONTAGE: 787 + 1350 + 775 = 2,913'
TOTAL TREES REQUIRED PER STREET FRONTAGE:
- SOUTHERN FRONTAGE (787')/20 = 40 TREES
- ATTERBURY ROAD (1350')/20 = 68 TREES
- HIGHWAY 40 (775')/20 = 39 TREES

TOTAL TREES PROVIDED PER STREET FRONTAGE:
- SOUTHERN FRONTAGE: 40 TREES
- ATTERBURY ROAD: 68 TREES
- HIGHWAY 40: 39 TREES

NORTH

SCALE IN FEET (1"=80'-0")

0 40 80 160 240

CIVIL BASE FILES: 03/28/2024

BLU FISH COLLABORATIVE
Landscape Architecture

107 Leland Street, Suite 2
Austin, TX 78704

P.O. BOX 40792
Austin, TX 78704

Phone: (512) 388-4115

BUC-EE'S

PROFESSIONAL SEAL:

STATE OF OHIO
MICHAEL R FISHBAUGH
9844
REGISTERED
LANDSCAPE ARCHITECT

DATE SEALED: 08/16/2023

PROJECT NAME:
BUC-EE'S
HUBER
HEIGHTS, OH

OWNER:
BUC-EE'S LTD.

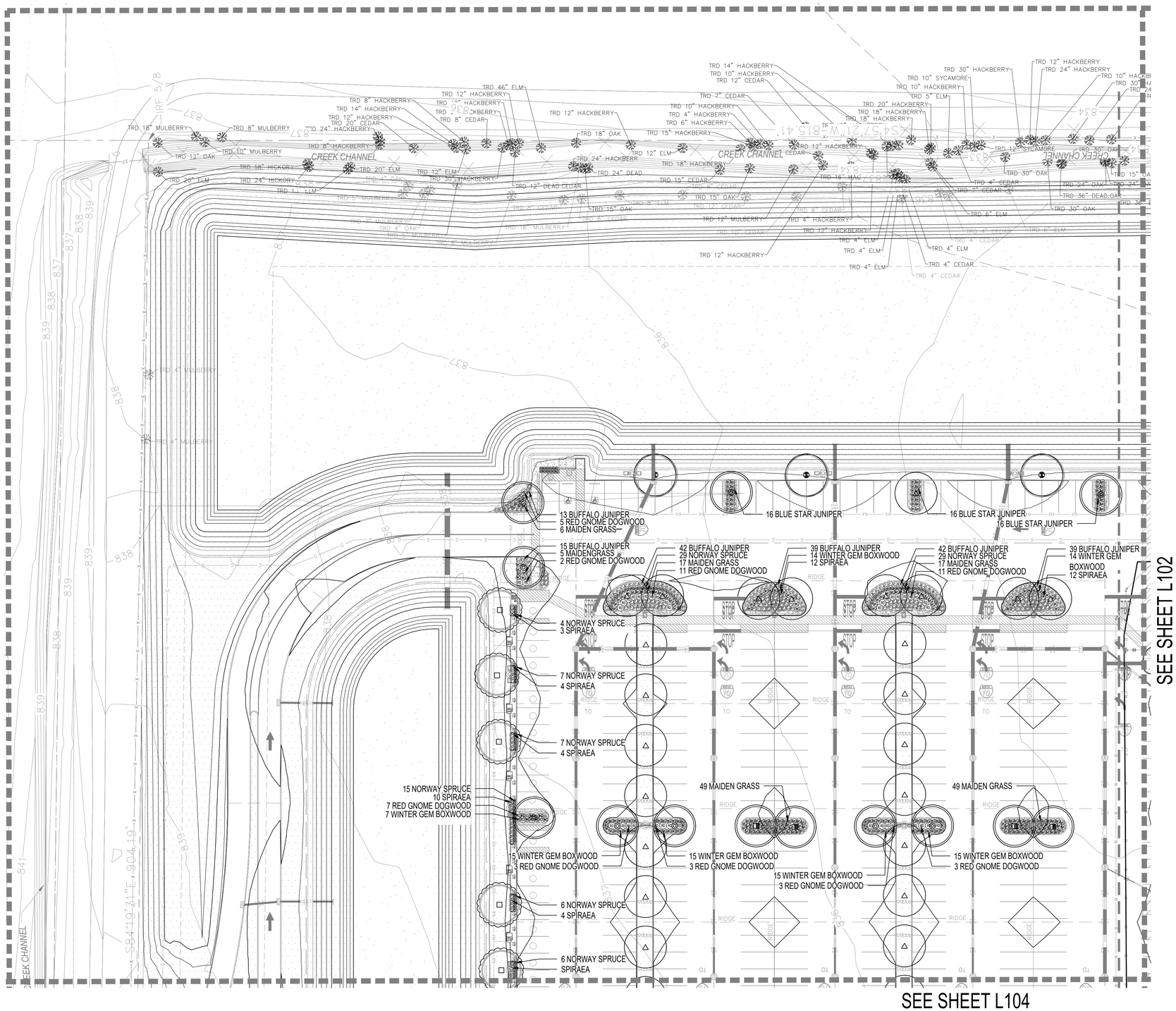
PROJECT LOCATION:
HUBER
HEIGHTS, OH

ISSUED FOR:
BIDDING

REVISIONS:

PROJECT #: 001-23-10
ORIGINAL ISSUE: 08/16/2023
DRAWING TITLE:
OVERALL
LANDSCAPE
PLAN

SHEET NO.:
L100



TREE KEY:

- PIN OAK, *QUERCUS PALUSTRIS*
- BLACK GUM, *NYSSA SYLVATICA*
- SKYLINE HONEYLOCUST, *GLEDITSIA TRIACANTHOS F. INERMIS 'SKYCOLE' SKYLINE*
- AMERICAN HOPHORNBEAM, *OSTRYA VIRGINIANA*
- SYCAMORE, *PLATANUS OCCIDENTALIS*
- EASTERN RED CEDAR , *JUNIPERUS VIRGINIANA*
- EXISTING TREE TO BE PRESERVED
- EXISTING TREE TO BE REMOVED

NORTH

SCALE IN FEET (1"=30'-0")

0 15 30 60 90

CIVIL BASE FILES: 03/28/2024

SHEET NO.:

L101

BLU FISH COLLABORATIVE
Landscape Architecture

107 Leland Street, Suite 2
Austin, TX 78704

P.O. BOX 40792
Austin, TX 78704

Phone: (512) 388-4115

BUC-EE'S

PROFESSIONAL SEAL:

STATE OF OHIO
MICHAEL R FISHBAUGH
9844
REGISTERED LANDSCAPE ARCHITECT

DATE SEALED: 08/16/2023

PROJECT NAME:
BUC-EE'S
HUBER
HEIGHTS, OH

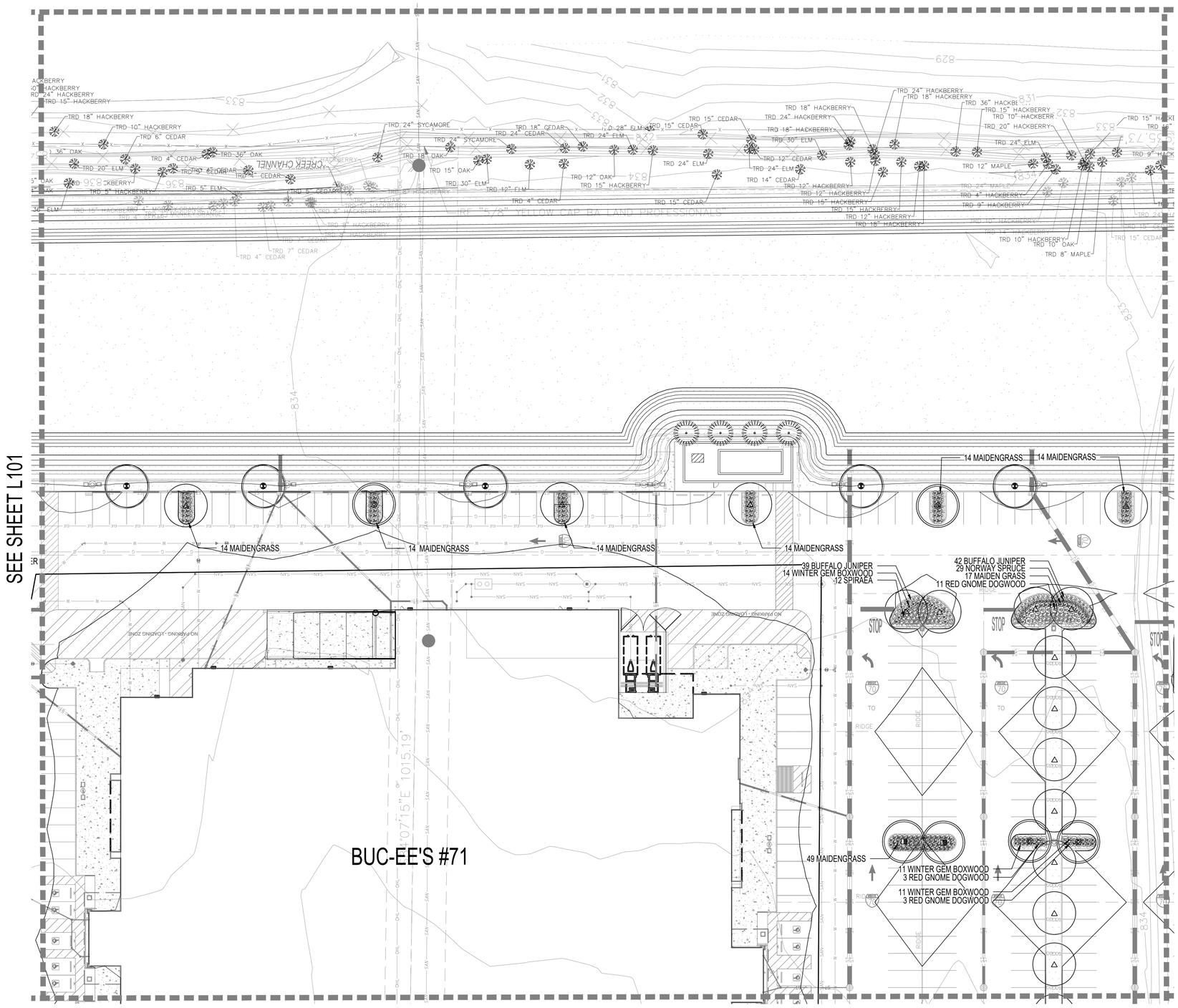
OWNER:
BUC-EE'S LTD.

PROJECT LOCATION:
HUBER
HEIGHTS, OH

ISSUED FOR:
BIDDING

REVISIONS:

PROJECT #: 001-23-10
ORIGINAL ISSUE: 08/16/2023
DRAWING TITLE:
LANDSCAPE
PLAN



TREE KEY:

- PIN OAK, *QUERCUS PALUSTRIS*
- BLACK GUM, *NYSSA SYLVATICA*
- SKYLINE HONEYLOCUST, *GLEDITSIA TRIACANTHOS F. INERMIS 'SKYCOLE' SKYLINE*
- AMERICAN HOPHORNBEAM, *OSTRYA VIRGINIANA*
- SYCAMORE, *PLATANUS OCCIDENTALIS*
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- EXISTING TREE TO BE PRESERVED
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BLU FISH COLLABORATIVE
Landscape Architecture

107 Leland Street, Suite 2
Austin, TX 78704

P.O. BOX 40792
Austin, TX 78704

Phone: (512) 388-4115

PROFESSIONAL SEAL:

STATE OF OHIO
MICHAEL R FISHBAUGH
9844
REGISTERED LANDSCAPE ARCHITECT

DATE SEALED: 08/16/2023

PROJECT NAME:
BUC-EE'S
HUBER
HEIGHTS, OH

OWNER:
BUC-EE'S LTD.

PROJECT LOCATION:
HUBER
HEIGHTS, OH

ISSUED FOR:
BIDDING

REVISIONS:

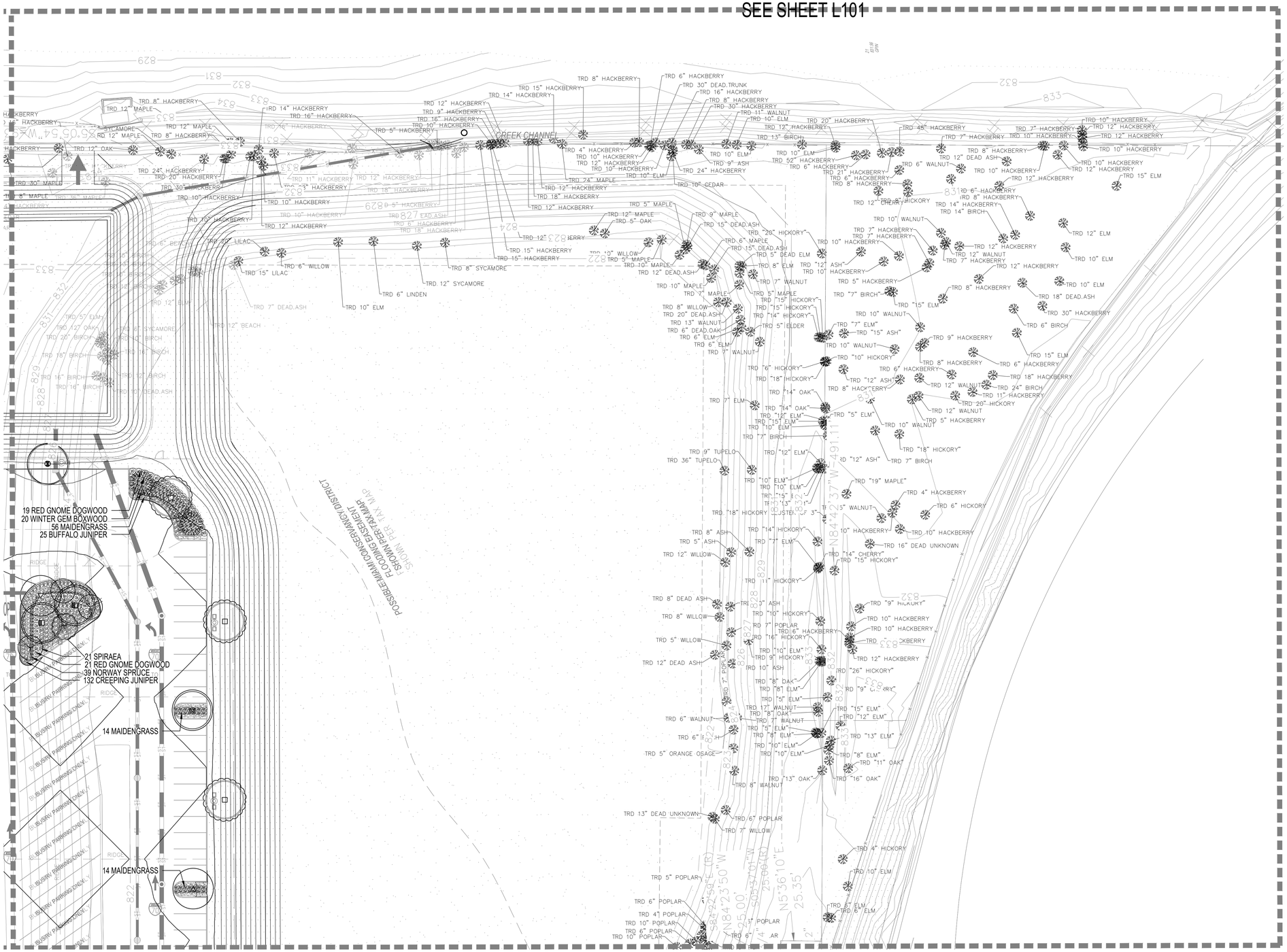
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ORIGINAL ISSUE: 08/16/2023
DRAWING TITLE:
LANDSCAPE
PLAN

NORTH
SCALE IN FEET (1"=30'-0")
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CIVIL BASE FILES: 03/28/2024

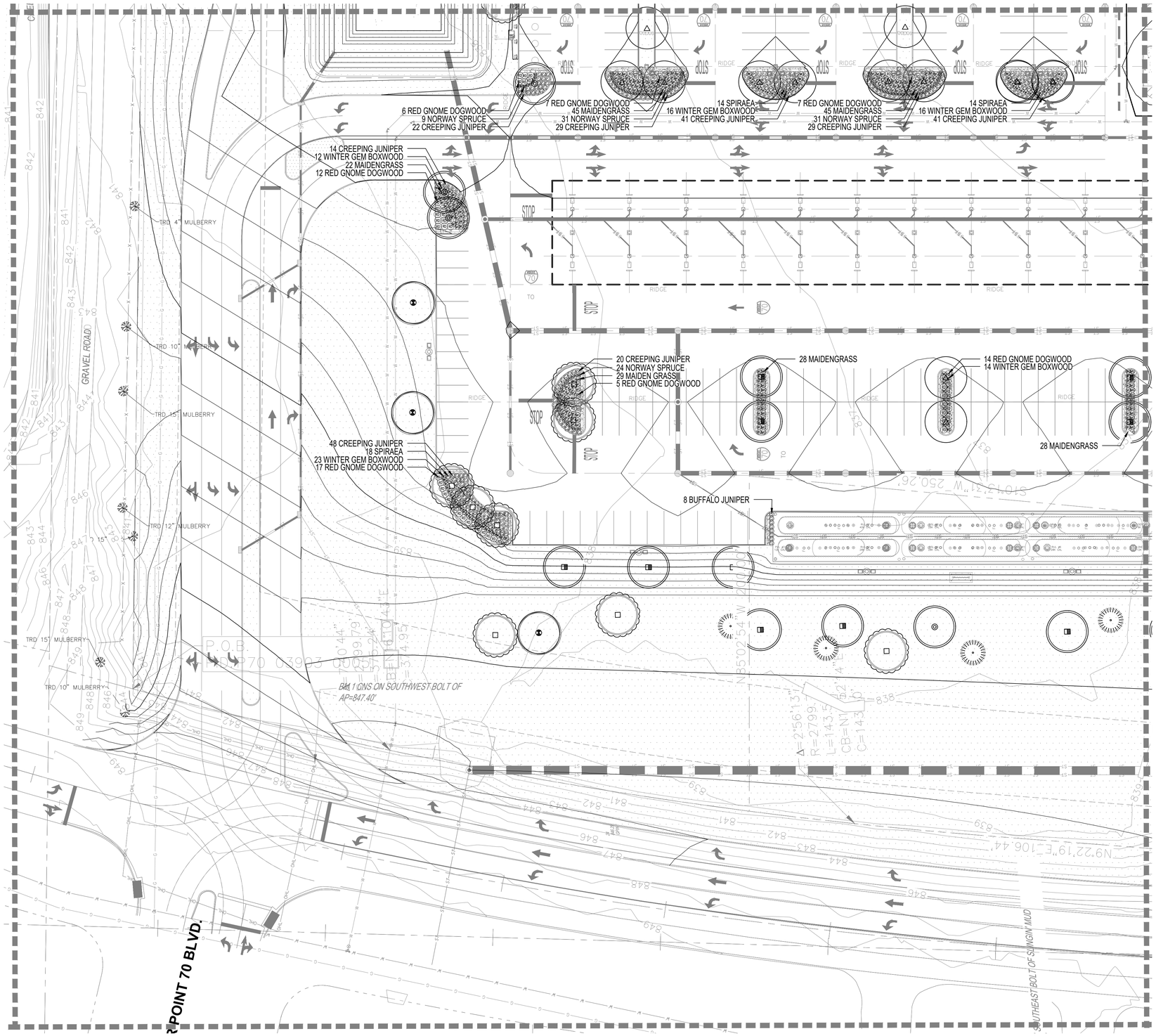
SHEET NO.:
L102

SEE SHEET L101

SEE SHEET L104


CREEK CHANNEL
POSSIBLE MAM ONSEMAGY DISTRICT FLOODPLAIN EASEMENT SHOWN PER FAX MAP
19 RED GNOME DOGWOOD
20 WINTER GEM BOXWOOD
56 MAIDENGRASS
25 BUFFALO JUNIPER
21 SPIRAEA
21 RED GNOME DOGWOOD
39 NORWAY SPRUCE
132 CREEPING JUNIPER
14 MAIDENGRASS
14 MAIDENGRASS
TRD 12" MAPLE
TRD 8" HACKBERRY
TRD 12" OAK
TRD 24" HACKBERRY
TRD 20" HACKBERRY
TRD 30" MAPLE
TRD 10" HACKBERRY
TRD 15" LILAC
TRD 6" WILLOW
TRD 15" LILAC
TRD 6" LINDEN
TRD 12" SYCAMORE
TRD 10" ELM
TRD 7" DEAD ASH
TRD 12" BEACH
TRD 16" BIRCH
TRD 16" BIRCH
TRD 16" BIRCH
TRD 10" DEAD ASH
TRD 8" HACKBERRY
TRD 14" HACKBERRY
TRD 16" HACKBERRY
TRD 5" HACKBERRY
TRD 12" HACKBERRY
TRD 9" HACKBERRY
TRD 16" HACKBERRY
TRD 10" HACKBERRY
TRD 4" HACKBERRY
TRD 10" HACKBERRY
TRD 12" HACKBERRY
TRD 10" ELM
TRD 24" HACKBERRY
TRD 24" MAPLE
TRD 12" HACKBERRY
TRD 18" HACKBERRY
TRD 12" HACKBERRY
TRD 10" CEDAR
TRD 5" MAPLE
TRD 12" MAPLE
TRD 5" OAK
TRD 15" HACKBERRY
TRD 15" HACKBERRY
TRD 8" SYCAMORE
TRD 6" LINDEN
TRD 10" MAPLE
TRD 12" DEAD ASH
TRD 10" MAPLE
TRD 7" MAPLE
TRD 8" WILLOW
TRD 20" DEAD ASH
TRD 13" WALNUT
TRD 6" DEAD OAK
TRD 6" ELM
TRD 6" ELM
TRD 7" WALNUT
TRD 6" HICKORY
TRD 18" HICKORY
TRD 14" OAK
TRD 7" ELM
TRD 14" OAK
TRD 12" ELM
TRD 15" ELM
TRD 10" ELM
TRD 7" BIRCH
TRD 9" TUPELO
TRD 36" TUPELO
TRD 10" ELM
TRD 10" ELM
TRD 15" ELM
TRD 13" ELM
TRD 18" HICKORY
TRD 8" ASH
TRD 5" ASH
TRD 12" WILLOW
TRD 14" HICKORY
TRD 7" ELM
TRD 11" HICKORY
TRD 8" DEAD ASH
TRD 8" WILLOW
TRD 5" WILLOW
TRD 12" DEAD ASH
TRD 6" WALNUT
TRD 6" ASH
TRD 5" ORANGE OSAGE
TRD 13" DEAD UNKNOWN
TRD 6" POPLAR
TRD 7" WILLOW
TRD 5" POPLAR
TRD 6" POPLAR
TRD 4" POPLAR
TRD 10" POPLAR
TRD 6" POPLAR
TRD 10" POPLAR
TRD 6" POPLAR
TRD 8" HACKBERRY
TRD 6" HACKBERRY
TRD 30" DEAD TRUNK
TRD 16" HACKBERRY
TRD 8" HACKBERRY
TRD 30" HACKBERRY
TRD 11" WALNUT
TRD 10" ELM
TRD 12" HACKBERRY
TRD 13" BIRCH
TRD 20" HACKBERRY
TRD 10" ELM
TRD 52" HACKBERRY
TRD 6" HACKBERRY
TRD 9" ASH
TRD 24" HACKBERRY
TRD 45" HACKBERRY
TRD 7" HACKBERRY
TRD 10" HACKBERRY
TRD 12" HACKBERRY
TRD 8" HACKBERRY
TRD 12" DEAD ASH
TRD 10" HACKBERRY
TRD 21" HACKBERRY
TRD 6" HACKBERRY
TRD 8" HACKBERRY
TRD 12" HACKBERRY
TRD 10" HACKBERRY
TRD 12" HACKBERRY
TRD 15" ELM
TRD 12" CHERRY
TRD 6" HICKORY
TRD 6" HACKBERRY
TRD 8" HACKBERRY
TRD 14" HACKBERRY
TRD 14" BIRCH
TRD 10" WALNUT
TRD 7" HACKBERRY
TRD 7" HACKBERRY
TRD 10" HACKBERRY
TRD 12" HACKBERRY
TRD 7" HACKBERRY
TRD 12" WALNUT
TRD 7" HACKBERRY
TRD 12" HACKBERRY
TRD 12" ELM
TRD 10" ELM
TRD 5" HACKBERRY
TRD 8" HACKBERRY
TRD 18" DEAD ASH
TRD 7" BIRCH
TRD 15" ELM
TRD 30" HACKBERRY
TRD 6" BIRCH
TRD 10" WALNUT
TRD 7" ELM
TRD 15" ASH
TRD 9" HACKBERRY
TRD 10" WALNUT
TRD 10" HICKORY
TRD 8" HACKBERRY
TRD 6" HACKBERRY
TRD 15" ELM
TRD 6" HACKBERRY
TRD 18" HACKBERRY
TRD 12" ASH
TRD 12" WALNUT
TRD 24" BIRCH
TRD 8" HACKBERRY
TRD 11" HACKBERRY
TRD 20" HICKORY
TRD 12" WALNUT
TRD 5" HACKBERRY
TRD 10" WALNUT
TRD 18" HICKORY
TRD 19" MAPLE
TRD 4" HACKBERRY
TRD 6" HICKORY
TRD 5" WALNUT
TRD 10" HACKBERRY
TRD 16" DEAD UNKNOWN
TRD 14" CHERRY
TRD 15" HICKORY
TRD 9" HICKORY
TRD 10" HACKBERRY
TRD 10" HACKBERRY
TRD 7" POPLAR
TRD 6" HACKBERRY
TRD 16" HICKORY
TRD 10" ELM
TRD 9" HICKORY
TRD 10" ASH
TRD 8" OAK
TRD 8" ELM
TRD 5" ELM
TRD 17" WALNUT
TRD 8" OAK
TRD 7" WALNUT
TRD 5" ELM
TRD 8" ELM
TRD 10" ELM
TRD 10" ELM
TRD 13" OAK
TRD 8" WALNUT
TRD 9" CHERRY
TRD 26" HICKORY
TRD 15" ELM
TRD 12" ELM
TRD 13" ELM
TRD 8" ELM
TRD 11" OAK
TRD 16" OAK
TRD 4" HICKORY
TRD 10" ELM
TRD 6" ELM
TRD 6" ELM
TRD 12" HACKBERRY
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TRD 10" HACKBERRY
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TRD 15" ELM
TRD 12" ELM
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TRD 10" HACKBERRY
TRD 10" HACKBERRY
TRD 12" HACKBERRY
TRD 15" ELM
TRD 10" HACKBERRY
TRD 12" HACKBERRY
TRD 10" HACKBERRY
TRD 16" DEAD UNKNOWN
TRD 12" HACKBERRY
TRD 15" ELM
TRD 10" HACKBERRY
TRD 12" HACKBERRY
TRD 10" HACKBERRY
TRD 12" HACKBERRY
TRD 10" HACKBERRY
TRD 12" HACKBERRY

SEE SHEET L102



TREE KEY:

- PIN OAK, *QUERCUS PALUSTRIS*
- BLACK GUM, *NYSSA SYLVATICA*
- SKYLINE HONEYLOCUST, *GLEDITSIA TRIACANTHOS F. INERMIS 'SKYCOLE' SKYLINE*
- AMERICAN HOPHORNBEAM, *OSTRYA VIRGINIANA*
- SYCAMORE, *PLATANUS OCCIDENTALIS*
- EASTERN RED CEDAR , *JUNIPERUS VIRGINIANA*
- EXISTING TREE TO BE PRESERVED
- EXISTING TREE TO BE REMOVED

NORTH

SCALE IN FEET (1"=30'-0")

0 15 30 60 90

CIVIL BASE FILES: 03/28/2024

SHEET NO.: L104

BLU FISH COLLABORATIVE
Landscape Architecture

107 Leland Street, Suite 2
Austin, TX 78704

P.O. BOX 40792
Austin, TX 78704

Phone: (512) 388-4115

PROFESSIONAL SEAL:

STATE OF OHIO
MICHAEL R FISHBAUGH
9844
REGISTERED LANDSCAPE ARCHITECT

DATE SEALED: 08/16/2023

PROJECT NAME:
BUC-EE'S
HUBER HEIGHTS, OH

OWNER:
BUC-EE'S LTD.

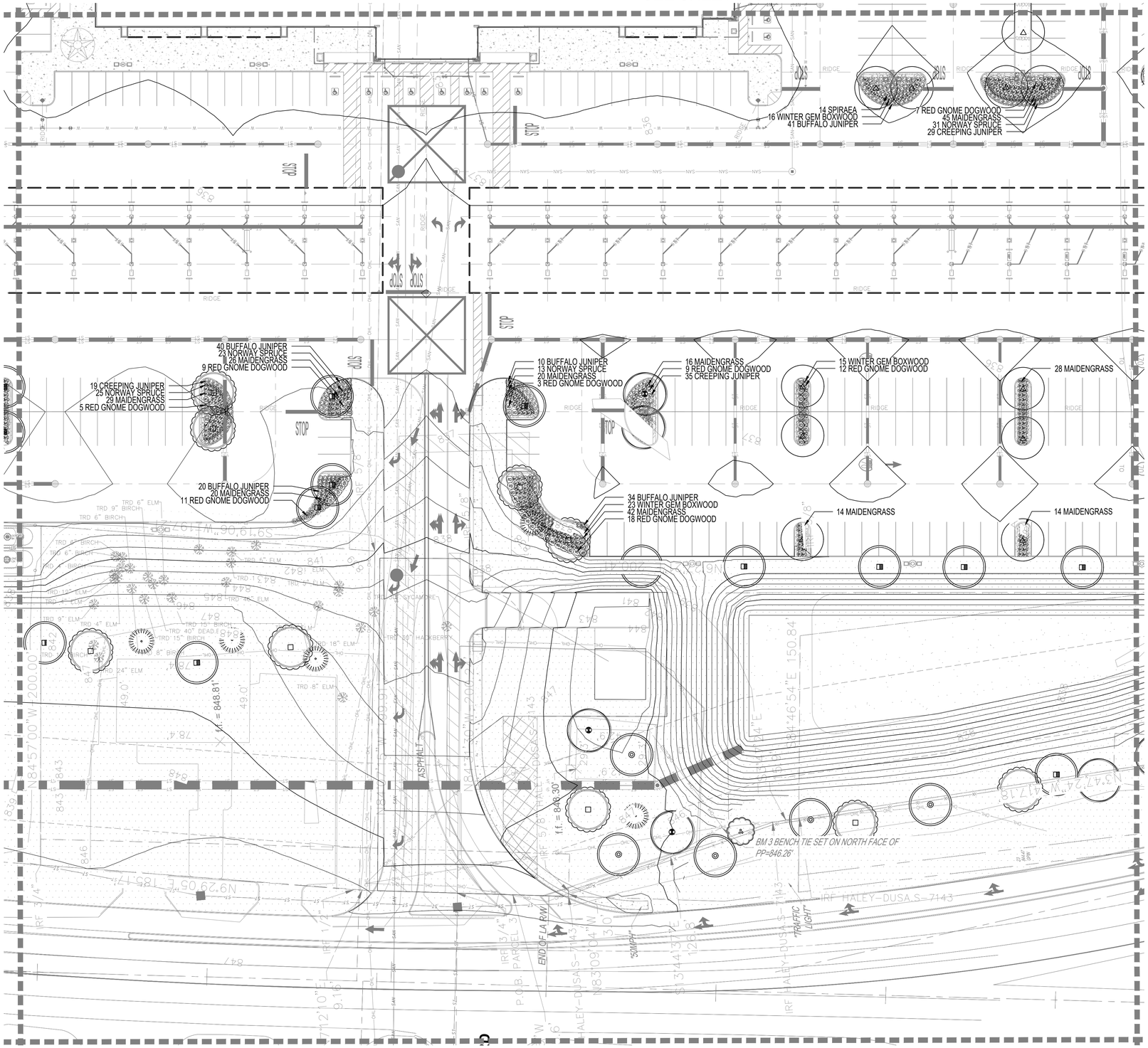
PROJECT LOCATION:
HUBER HEIGHTS, OH

ISSUED FOR:
BIDDING

REVISIONS:

PROJECT #: 001-23-10
ORIGINAL ISSUE: 08/16/2023
DRAWING TITLE:
LANDSCAPE PLAN

SEE SHEET L102



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DRAWING TITLE:
LANDSCAPE
PLAN

SEE SHEET L102

22 SPIRAEA
20 RED GNOME DOGWOOD
39 NORWAY SPRUCE
132 BUFFALO JUNIPER

14 MAIDENGRASS

14 MAIDENGRASS

33 BUFFALO JUNIPER
15 MAIDEN GRASS
9 RED GNOME DOGWOOD

41 BUFFALO JUNIPER
42 SPIRAEA
24 WINTER GEM BOXWOOD
19 RED GNOME DOGWOOD

TRD 4" POPLAR
TRD 4" POPLAR
TRD 7" POPLAR
TRD 4" POPLAR
IRF
IRF
N65°37'01"E 14.55'(M)
S5°36'10"W 16.73'
TRD 15" SYCAMORE
TRD 4" ELM
TRD 16" SYCAMORE
TRD 6" WILLOW
TRD 8" CHERRY
MON 6" CONC CYLINDER DISTURBED SHOT AT BASE
N61°52'07"W 195.20'
N41°14'26"W 290.28'
TRD 17" SYCAMORE
TRD 8" ELM
TRD 5" ELM
TRD 6" ELM
TRD 10" ELM
TRD 8" ELM
TRD 4" HACKBERRY
TRD 5" POPLAR
TRD 7" ELM
TRD 6" ELM
TRD 6" ELM
TRD 4" WALNUT
TRD 6" WALNUT
TRD 10" ELM
TRD 4" BEECH
TRD 5" HAZELNUT
TRD 7" HICKORY
TRD 10" BIRCH
TRD 7" BIRCH
TRD 7" BIRCH
I-70 RAMP
S.R. 235

TREE KEY:

- PIN OAK, *QUERCUS PALUSTRIS*
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- SYCAMORE, *PLATANUS OCCIDENTALIS*
- EASTERN RED CEDAR , *JUNIPERUS VIRGINIANA*
- EXISTING TREE TO BE PRESERVED
- EXISTING TREE TO BE REMOVED

NORTH

SCALE IN FEET (1"=30'-0")
0 15 30 60 90

SHEET NO.:
L106

CIVIL BASE FILES: 03/28/2024

BLU FISH COLLABORATIVE
Landscape Architecture

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984
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HUBER HEIGHTS, OH

OWNER:
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PROJECT LOCATION:
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BIDDING

REVISIONS:

PROJECT #: 001-23-10
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DRAWING TITLE:
LANDSCAPE PLAN

PLANT LIST

NOTES:
1. THE CONTRACTORS (GENERAL AND SUBCONTRACTORS) SHALL PROVIDE UNIT COSTS FOR ALL SOFTSCAPE AND HARDSCAPE MATERIAL SPECIFIED ON THE DRAWINGS AND SPECIFICATIONS. UNIT COSTS SHALL BE PROVIDED FOR MATERIALS AND INSTALLATION SEPARATELY. UNIT COSTS SHALL BE: 'EACH' FOR PLANT MATERIAL, 'SQUARE FOOT' OR 'SQUARE YARD' FOR PAVEMENTS, LINEAR FOOT FOR WALL AND FENCE, 'EACH' FOR SITE FURNISHINGS AND SITE AMENITIES, 'CUBIC YARD' OR 'CUBIC FOOT' FOR SOIL, MULCH AND OTHER BULK PRODUCTS AND 'EACH' OR 'LUMP SUM' FOR MISCELLANEOUS ITEMS. THE UNIT COST SHALL BE FORMATTED TO HAVE COLUMNS FOR; ITEMS, UNIT, UNIT COST, TOTAL ITEM COST.
2. PLANT QUANTITIES ARE PROVIDED FOR OWNER CONVENIENCE ONLY. CONTRACTOR IS RESPONSIBLE FOR VERIFYING AND PROVIDING PLANT QUANTITIES SHOWN ON THE LANDSCAPE PLAN.
3. CONTRACTOR IS RESPONSIBLE FOR LOCATING AND SECURING TREE AND PLANT MATERIAL IN ADVANCE. BECAUSE OF THE LONG LEAD TIME ON THIS INSTALLATION AND THE RECENT SHORTAGE ON TREE CROP, CONTRACTOR SHALL RESERVE OR CONTRACT GROW TREES WITH A GROWER.

SHADE TREES

SYM.	QTY.	COMMON NAME, *BOTANICAL NAME*	MIN. SPEC.
△	67	PIN OAK, *QUERCUS PALUSTRIS*	4" CAL., 16' HT. MINIMUM CONTAINER GROWN
⊗	21	BLACK GUM, *NYSSA SYLVATICA*	4" CAL., 16' HT. MINIMUM CONTAINER GROWN
◎	24	SKYLINE HONEYLOCUST, *GLEDITSIA TRIACANTHOS F. INERMIS 'SKYCOLE' SKYLINE*	4" CAL., 16' HT. MINIMUM CONTAINER GROWN
◨	35	AMERICAN HOPHORNBEAM, *OSTRYA VIRGINIANA*	4" CAL., 16' HT. MINIMUM CONTAINER GROWN
□	31	LONDON PLANE TREE, *PLATANUS × ACERIFOLIA*	4" CAL., 16' HT. MINIMUM CONTAINER GROWN
⊙	15	GREEN COLORADO SPRUCE , *PICEA PUNGENS*	4" CAL., 14' HT. MINIMUM CONTAINER GROWN OR B&B

ORNAMENTAL TREES

SYM.	QTY.	COMMON NAME, *BOTANICAL NAME*	MIN. SPEC.
	6	SHADBLOW SERVICEBERRY, *AMELANCHIER CANADENSIS*	45 GAL., 2.5" CAL., 10' HT. MINIMUM CONTAINER GROWN
	3	DOGWOOD, *CORNUS FLORIDA*	45 GAL., 2.5" CAL., 8' HT. MINIMUM CONTAINER GROWN

SHRUBS

SYM.	QTY.	COMMON NAME, *BOTANICAL NAME*	MIN. CONTAINER	MAX. SPACING
MG	905	DWARF MAIDEN GRASS, *MISCANTHUS ADAGIO*	3 GALLON	3' O.C.
RD	302	RED GNOME DOGWOOD, *CORNUS ALBA 'RED GNOME'*	5 GALLON	3' O.C.
WB	312	WINTER GEM BOXWOOD	5 GALLON	3' O.C.
PS	210	LITTLE PRINCESS SPIRAEA, *SPIRAEA JAPONICA 'LITTLE PRINCESS'*	5 GALLON	3' O.C.
⊛	409	LITTLE GEM NORWAY SPRUCE	5 GALLON	2' O.C.

GROUNDCOVERS

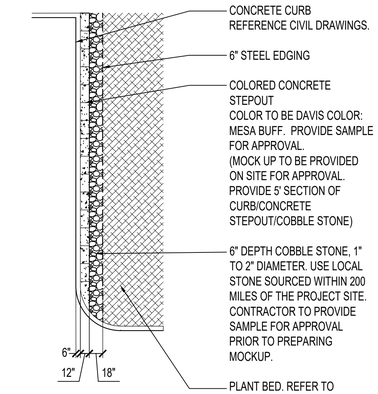
SYM.	QTY.	COMMON NAME, *BOTANICAL NAME*	MIN. CONTAINER	MAX. SPACING
JC	1114	BUFFALO JUNIPER, JUNIPERUS SABINA 'BUFFALO'	3 GALLON	3' O.C.

TURF

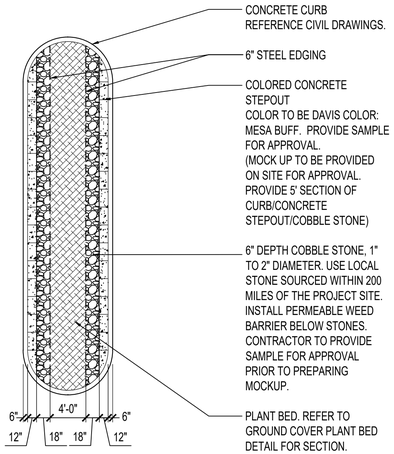
SYM.	QTY.	COMMON NAME, *BOTANICAL NAME*	CONTAINER	
	SEE PLAN	KENTUCKY BLUEGRASS, *POA PRATENSIS L.*	SOD	
	SEE PLAN	85% TALL FESCUE, 10% KENTUCKY BLUEGRASS, 5% PERENNIAL RYE	HYDRO-MULCH	

LANDSCAPE PLANTING NOTES:

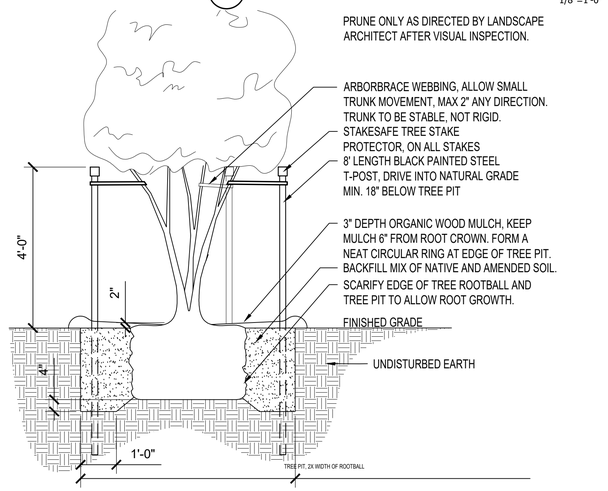
1. ALL WEEDS WITHIN THE LIMITS OF CONSTRUCTION ARE TO BE REMOVED AND TAKEN OFF SITE BY THE CONTRACTOR. ROOT SYSTEMS SHOULD BE ERADICATED.
2. FINISH GRADES OF PLANT BED AREAS (TOP OF MULCH), SOD (TOP OF SOD), HYDROMULCH (TOP OF TOPSOIL), SHALL BE FLUSH WITH ADJACENT PAVING.
3. TRENCHING AND SITE WORK PERFORMED WITHIN THE PROMINENT ROOT ZONES OF EXISTING TREES SHALL BE DONE BY HAND OR AIR SPADE UNLESS OTHERWISE SPECIFIED BY THE LANDSCAPE ARCHITECT. NO ROOTS OVER 1" DIA. SHALL BE CUT.
4. VERIFY PLANT COUNTS AND SQUARE FOOTAGES: IF QUANTITIES ON PLANT SCHEDULE DIFFER FROM GRAPHIC INDICATIONS, THEN GRAPHICS SHALL PREVAIL.
5. LANDSCAPE ARCHITECT TO REVIEW PLANT MATERIALS AT SOURCE OR BY PHOTOGRAPHS OF ACTUAL MATERIAL TO BE PLANTED PRIOR TO PURCHASE, DIGGING, OR SHIPPING OF PLANT MATERIALS.
6. PROVIDE MATCHING FORMS AND SIZES FOR PLANT MATERIALS WITHIN EACH SPECIES AND SIZE DESIGNATED ON THE DRAWINGS.
7. PLANT NAMES USED ON THE PLANS COMPLY WITH STANDARD HORTICULTURAL NOMENCLATURE, AND NAMES GENERALLY ACCEPTED IN THE NURSERY TRADE. THE LANDSCAPE ARCHITECT, OR OWNERS REPRESENTATIVE SHALL REVIEW ALL PLANTS AT THE TIME OF DELIVERY TO THE SITE. IF THE CONTRACTOR FAILS TO NOTIFY THE LANDSCAPE ARCHITECT, OR OWNERS REPRESENTATIVE FORTY-EIGHT (48) HOURS IN ADVANCE OF THE DELIVERY TIME, AND/OR DOES NOT CALL FOR OBSERVATION OF THE MATERIAL, THE CONTRACTOR SHALL BE LIABLE FOR ALL REMOVAL AND REPLACEMENT COSTS OF THE PLANT MATERIAL. THE PLANT MATERIAL WILL BE JUDGED AND ACCEPTED OR REJECTED ON BASIS OF THE FOLLOWING CRITERIA:
   a. PROVIDE PLANTS OF QUALITY, SIZE, GENUS, SPECIES, AND VARIETY AS INDICATED ON THE PLANS AND AS COORDINATED WITH THE LANDSCAPE ARCHITECT.
   b. PLANTS SHALL BE FREE OF DISEASE, INSECTS, EGGS, LARVAE, AND DEFECTS, CONFORMING TO ANSI Z60.1
   c. TREE CANOPIES SHALL HAVE AN INTACT AND UNDAMAGED CENTRAL LEADER.
   d. TREES ARE REQUIRED TO STAND UPRIGHT WITH NO SUPPORT AND HAVE PROPER TRUNK CALIPER AND TAPER. TREES HAVING "BROOM STICK" TRUNKS WITH "POODLE" TOPS WILL NOT BE ACCEPTED.
   e. BARK SHALL BE DAMAGE FREE WITH ALL MINOR CUTS AND ABRASIONS SHOWING HEALING TISSUE. FOLIAGE, ROOTS AND STEMS OF ALL PLANTS SHALL BE OF VIGOROUS HEALTH AND NORMAL HABIT OF GROWTH FOR ITS SPECIES. ALL PLANTS SHALL BE FREE OF INSECT INFESTATIONS AND DISEASES. TOP GROWTH SHALL BE PROPORTIONATE TO BOTTOM GROWTH.
   f. SHRUBS TRANSPLANTED IN AN UP-SIZED CONTAINER LARGER THAN SPECIFIED SIZE, SHALL HAVE BEEN GROWN IN THAT CONTAINER FOR A SUFFICIENT LENGTH OF TIME TO DEVELOP NEW FIBROUS ROOTS, SO THAT ROOT MASS WILL FILL THE CONTAINER.
   g. AREAS DISTURBED BY CONSTRUCTION AND ARE NOT SCHEDULED TO BE IMPROVED SHALL BE REPAIRED TO THE STATE THAT IT WAS PRIOR TO THE START OF CONSTRUCTION.
8. ALIGN AND EQUALLY SPACE IN ALL DIRECTIONS PLANTS SO DESIGNATED PER THESE NOTES AND DRAWINGS.
9. EXACT LOCATIONS OF PLANT MATERIALS TO BE APPROVED BY THE LANDSCAPE ARCHITECT IN THE FIELD PRIOR TO INSTALLATION. LANDSCAPE ARCHITECT RESERVES THE RIGHT TO DIRECT THE ADJUSTMENT OF PLANTS TO EXACT LOCATION IN FIELD.
10. IF PLANT MATERIAL IS BALL AND BURLAP, CUT AND REMOVE BURLAP FROM TOP 1/3 OF BALL. CONTAINER GROWN STOCK WILL HAVE THE OUTSIDE EDGE OF THE ROOTBALL LOOSENED BY HAND AFTER REMOVING FROM THE CONTAINER.
11. PRUNE NEWLY PLANTED TREES ONLY AS DIRECTED BY LANDSCAPE ARCHITECT.
12. PROVIDE SPECIFIED EDGING AS DIVIDER BETWEEN PLANTING BEDS AND LAWN AREAS.
13. PLANT SPACING LISTED IN PLANT SCHEDULE IS A MAXIMUM TYPICAL SPACING. IF PLANTS ARE SHOWN CLOSER ON THE PLAN THEY SHOULD BE INSTALLED PER THE PLAN.
14. ALL PROPOSED TURF GRASS AREAS SHALL HAVE 6" DEPTH OF CLEAN (NO WEEDS, ROOTS, DEBRIS, VEGETATION) TOPSOIL, UNLESS A LESSOR DEPTH IS REQUIRED BY THE LOCAL JURISDICTION. TOP SOIL SHOULD BE ATTAINED FROM A REPUTABLE SOURCE LOCATED WITHIN 50 MILES OF THE PROJECT SITE.
15. ALL PLANTING BED SOIL MIX SHALL BE AMENDED TOPSOIL. CONTRACTOR TO PROVIDE A SOIL TEST RESULTS TO THE LANDSCAPE ARCHITECT FOR REVIEW AND APPROVAL OF TOPSOIL TO BE USED, AND THE APPROPRIATE AMENDMENTS TO BE ADDED TO THE TOPSOIL TO PROVIDE OPTIMUM GROWING CONDITIONS. ALL TOPSOIL SHALL BE FREE OF ROCKS LARGER THAN ¾" DIAMETER, DELETERIOUS MATERIAL AND ANY DEBRIS.
16. SUBMITTALS
   a. PRODUCT DATA
      a.a. PESTICIDES AND HERBICIDES: INCLUDE PRODUCT LABEL AND MANUFACTURERS INSTRUCTIONS SPECIFIC TO THIS PROJECT. PROVIDE THE QUALIFICATIONS OF THE PERSON CERTIFIED TO APPLY THE PESTICIDES AND HERBICIDES.
      a.b. SOD & HYDROMULCH: INCLUDE PRODUCT LABEL AND MANUFACTURER'S APPLICATION INSTRUCTIONS SPECIFIC TO THIS PROJECT.
      a.c. IMPORTED TOPSOIL: INCLUDE PRODUCT LABEL AND MANUFACTURER'S APPLICATION INSTRUCTIONS SPECIFIC TO THIS PROJECT.
17. LABORATORY TEST RESULTS OF ALL SOIL MATERIALS INSTALLED ON SITE
   a. IF ON SITE SOIL IS USED, ONE TEST RESULT SHALL BE SUBMITTED FOR EACH ONE TON OF SOIL TO BE INSTALLED. FOR IMPORTED SOIL FROM A QUALIFIED SUPPLIER, ONE TEST RESULT PER TEN TONS WILL BE REQUIRED.
      a.a. PLEASE PROVIDE SOIL TEST ANALYSIS FROM ONE OF THE FOLLOWING LABS: LABORATORY REPORTS FROM TEXAS PLANT & SOIL LAB (956) 383-0739, TEXAS A&M AGRILIFE EXTENSION (979) 845-4816, WALLACE LABORATORIES LLC (310) 615-0116 OR APPROVED EQUAL.
      a.b. TESTS SHOULD PROVIDE RESULTS FOR: pH, NO3-N, P, K, Ca, Mg, Na, S, AND CONDUCTIVITY. THIS TEST IS A BASE TEST FOR BASIC FERTILIZER RECOMMENDATIONS. ADDITIONAL INFORMATION TO BE TESTED FOR IS MICRO + B + OM + TEXTURE ANALYSES (MICRONUTRIENT, BORON, ORGANIC MATTER AND TEXTURAL ANALYSIS).
      a.c. TEST RESULTS SHALL BE ACCOMPANIED WITH A LETTER FROM THE TESTING LAB SUMMARIZING THE TEST RESULTS AND CLEARLY IDENTIFYING IF THE SOIL IS SUITABLE FOR PLANT GROWTH OF THE TYPE OF PLANTS PROPOSED (TURF GRASS, SHRUBS, GROUND COVERS, PERENNIALS, TREES AND OTHER PLANTS) FOR THIS PROJECT. IF AMENDMENTS ARE NEEDED THE TYPE AND QUANTITY OF AMENDMENTS TO BE ADDED TO ATTAIN THE OPTIMUM GROWING CONDITION SHALL BE CLEARLY DESCRIBED.
   b. OBTAINING A SAMPLE:
      b.a. A SEPARATE SAMPLE SHALL BE TAKEN FOR:
         b.a.a. AREAS WITH DIFFERENT SOIL TYPES
         b.a.b. AREAS WITH DIFFERENT LAND USES OR FERTILIZER APPLICATION RATES
         b.a.c. AREAS WITH DIFFERENT CROPPING HISTORIES (SPECIES AND YIELDS)
         b.a.d. AREAS WITH DIFFERENT TERRAIN
      b.b. AVOID SAMPLING AREAS SUCH AS SMALL GULLIES, SLIGHT FIELD DEPRESSIONS, TERRACE, WATERWAYS, OR UNUSUAL AREAS
      b.c. WHEN SAMPLING FERTILIZED FIELDS, AVOID SAMPLING DIRECTLY IN THE FERTILIZED BAND AND WAIT AT LEAST 2 MONTHS AFTER LAST FERTILIZATION.
      b.d. WHEN TAKING A SAMPLE TAKE A 0-6" DEPTH SAMPLE.
         b.d.a. USE A SPADE, SOIL AUGER, OR SOIL SAMPLING TUBE.
         b.d.b. CLEAR PLANTS AND PLANT RESIDUE FROM THE SURFACE (DO NOT REMOVE DECOMPOSED BLACK MATERIAL THAT CAN NO LONGER BE IDENTIFIED AS A PLANT).
         b.d.c. PLACE EACH COLLECTED CORE/SAMPLE IN A CLEAN PLASTIC BUCKET OR OTHER NON-METALLIC CONTAINER AND THOROUGHLY MIX THE SOIL WHILE REMOVING ANY LARGE ROOTS/PLANT TISSUES THAT MIGHT HAVE BEEN COLLECTED.
         b.d.d. APPROXIMATELY ⅓ TO ⅔ FULL QUART-SIZED FREEZER RESEALABLE BAG OR A FULL SOIL SAMPLE BAG IS REQUIRED FOR ROUTINE ANALYSES.



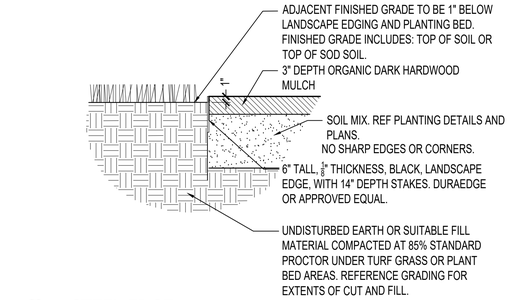
7 END OF PARKING ROW DETAIL
SCALE: 1/8"=1'



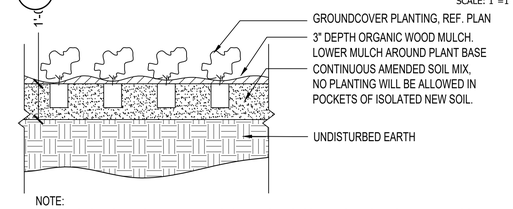
6 CURB ISLAND PLAN DETAIL
1/8"=1'-0"



5 ORNAMENTAL TREE PLANTING
1/2"=1'-0"

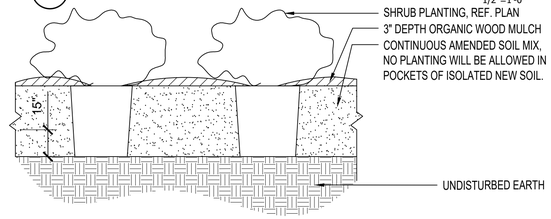


4 STEEL EDGE
SCALE: 1"=1'



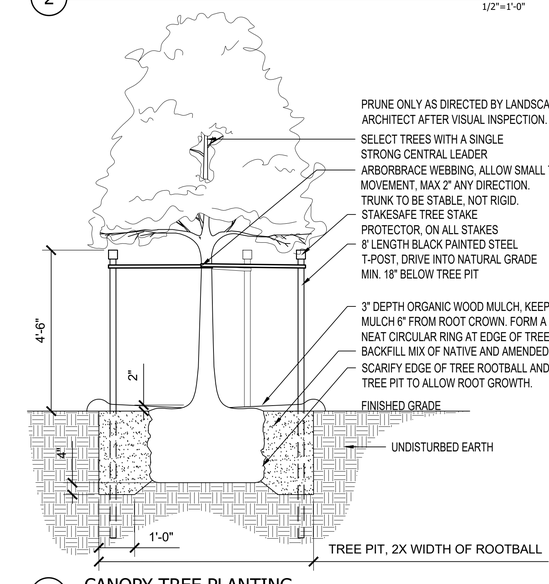
NOTE:
CONTRACTOR TO REMOVE DIRT, DEBRIS, & FILL AS NECESSARY TO ALLOW FOR AMENDED SOIL MIX. LANDSCAPE CONTRACTOR SHALL COORDINATE WITH THE GENERAL CONTRACTOR AND EARTHWORK CONTRACTOR TO ENSURE THAT THE PROPER GRADES AND MATERIALS ARE PROVIDED. IF MATERIAL IS REQUIRED TO BE BROUGHT IN AS FILL OR REMOVED FROM SITE AS CUT THE CONTRACTORS SHALL BE RESPONSIBLE FOR COORDINATING THAT WORK.

3 GROUNDCOVER PLANTING WITH SHOVEL CUT EDGE
1/2"=1'-0"



NOTE:
CONTRACTOR TO REMOVE DIRT, DEBRIS, & FILL AS NECESSARY TO ALLOW FOR AMENDED SOIL MIX. LANDSCAPE CONTRACTOR SHALL COORDINATE WITH THE GENERAL CONTRACTOR AND EARTHWORK CONTRACTOR TO ENSURE THAT THE PROPER GRADES AND MATERIALS ARE PROVIDED. IF MATERIAL IS REQUIRED TO BE BROUGHT IN AS FILL OR REMOVED FROM SITE AS CUT THE CONTRACTORS SHALL BE RESPONSIBLE FOR COORDINATING THAT WORK.

2 SHRUB PLANTING
1/2"=1'-0"



1 CANOPY TREE PLANTING
1/2"=1'-0"
CIVIL BASE FILES: 03/28/2024

BLU FISH COLLABORATIVE
Landscape Architecture
107 Leland Street, Suite 2
Austin, TX 78704
P.O. BOX 40792
Austin, TX 78704
Phone: (512) 388-4115

BUC-EE'S

PROFESSIONAL SEAL:

STATE OF OHIO
MICHAEL
R.
FISHBAUGH
3844
REGISTERED
LANDSCAPE ARCHITECT

DATE SEALED: 08/16/2023

PROJECT NAME:
BUC-EE'S
HUBER
HEIGHTS, OH

OWNER:
BUC-EE'S LTD.

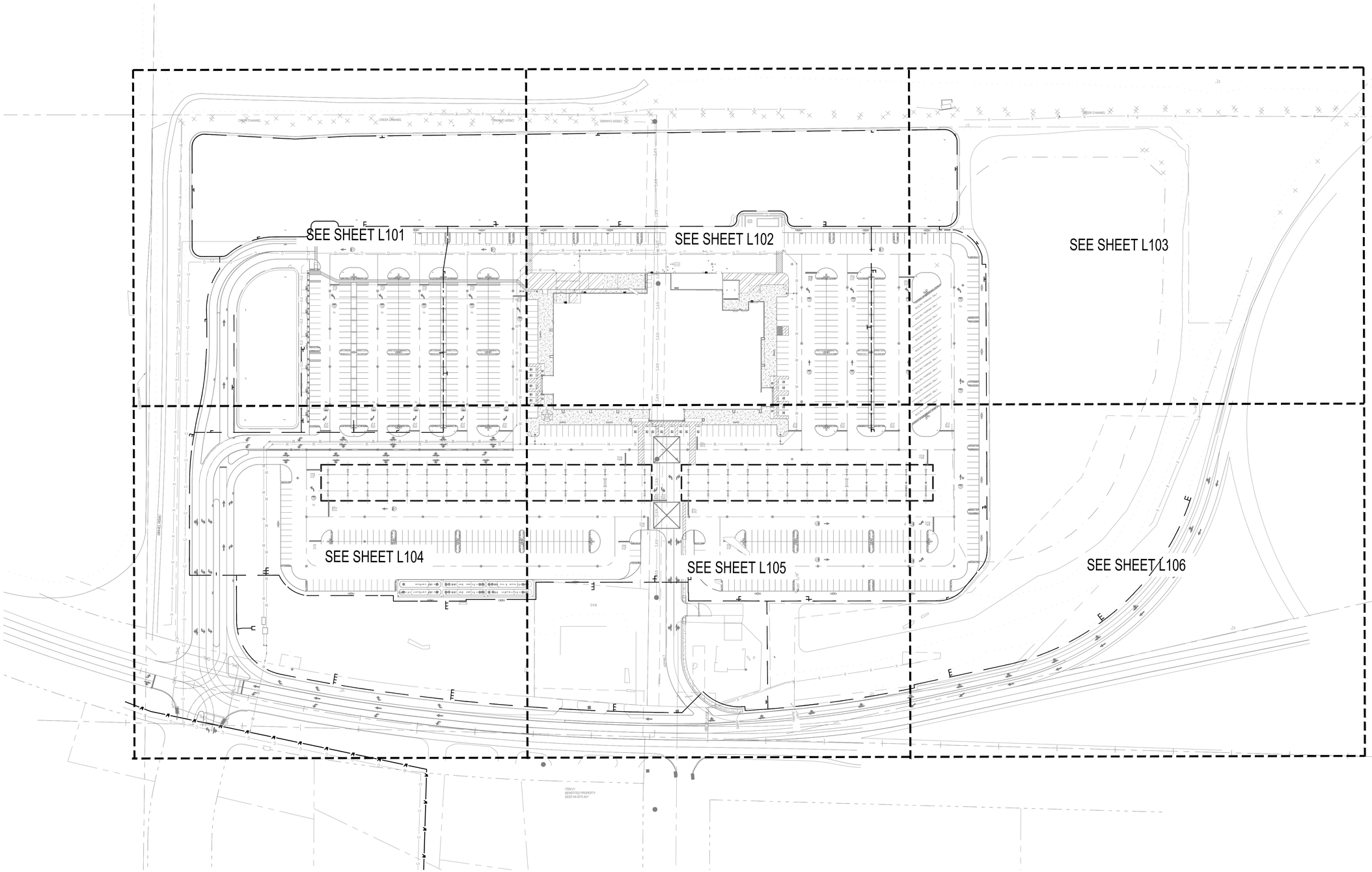
PROJECT LOCATION:
HUBER
HEIGHTS, OH

ISSUED FOR:
BIDDING

REVISIONS:

PROJECT #: 001-23-10
ORIGINAL ISSUE: 08/16/2023
DRAWING TITLE:
LANDSCAPE
DETAILS

SHEET NO.:
L107



BLU FISH
COLLABORATIVE
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PROFESSIONAL SEAL:

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R
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9844
REGISTERED
LANDSCAPE ARCHITECT

DATE SEALED: 08/16/2023

PROJECT NAME:
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HUBER
HEIGHTS, OH

OWNER:
BUC-EE'S LTD.

PROJECT LOCATION:
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ISSUED FOR:
BIDDING

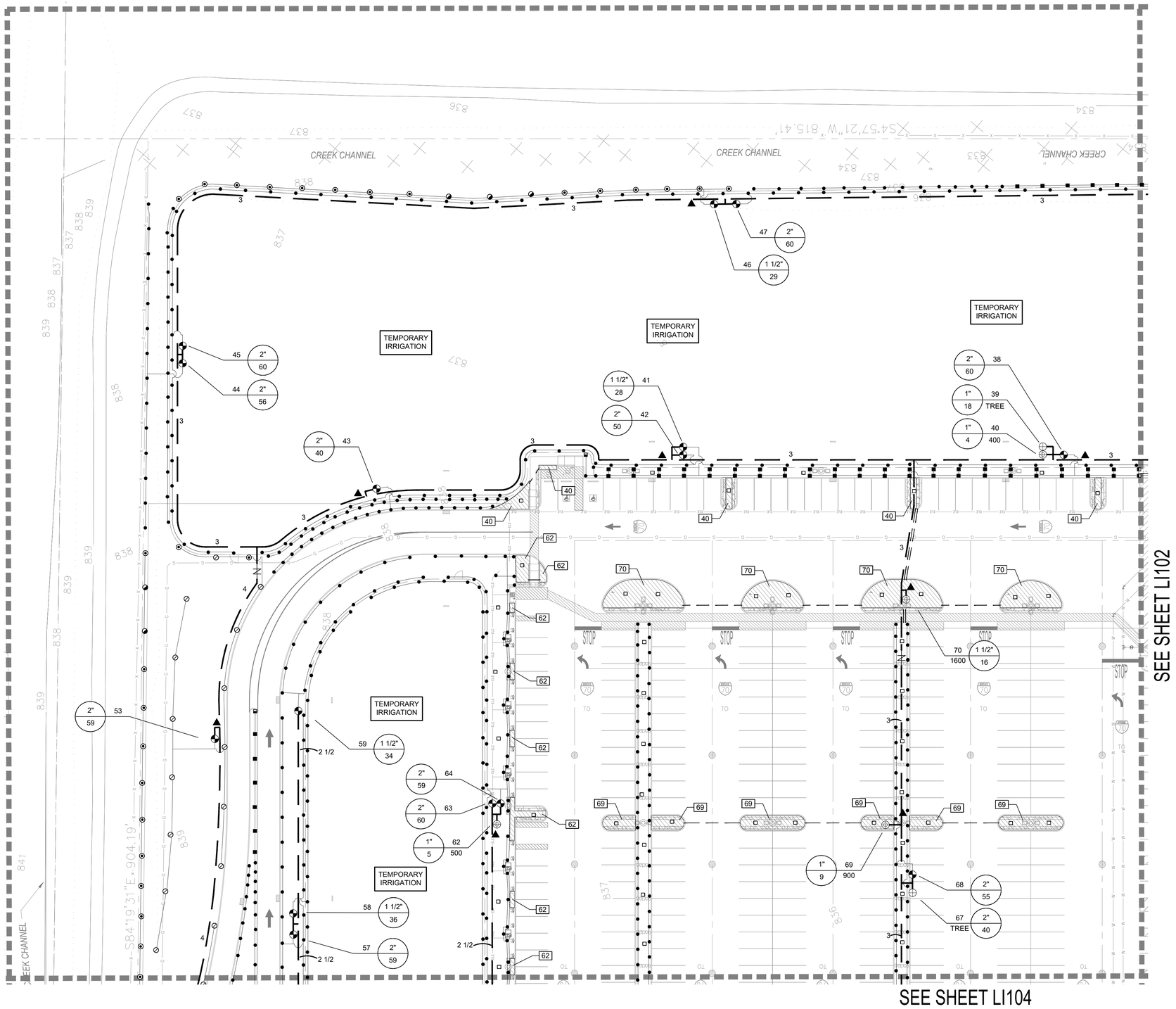
REVISIONS:

PROJECT #: 001-23-10
ORIGINAL ISSUE: 08/16/2023
DRAWING TITLE:
OVERALL
IRRIGATION
PLAN

NORTH
SCALE IN FEET (1"=80'-0")
0 40 80 160 240

SHEET NO.:
LI100

CIVIL BASE FILES: 03/28/2024



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STATE OF OHIO
MICHAEL R. FISHBAUGH
3847
REGISTERED
LANDSCAPE ARCHITECT

DATE SEALED: 08/16/2023

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BUC-EE'S
HUBER
HEIGHTS, OH

OWNER:
BUC-EE'S LTD.

PROJECT LOCATION:
HUBER
HEIGHTS, OH

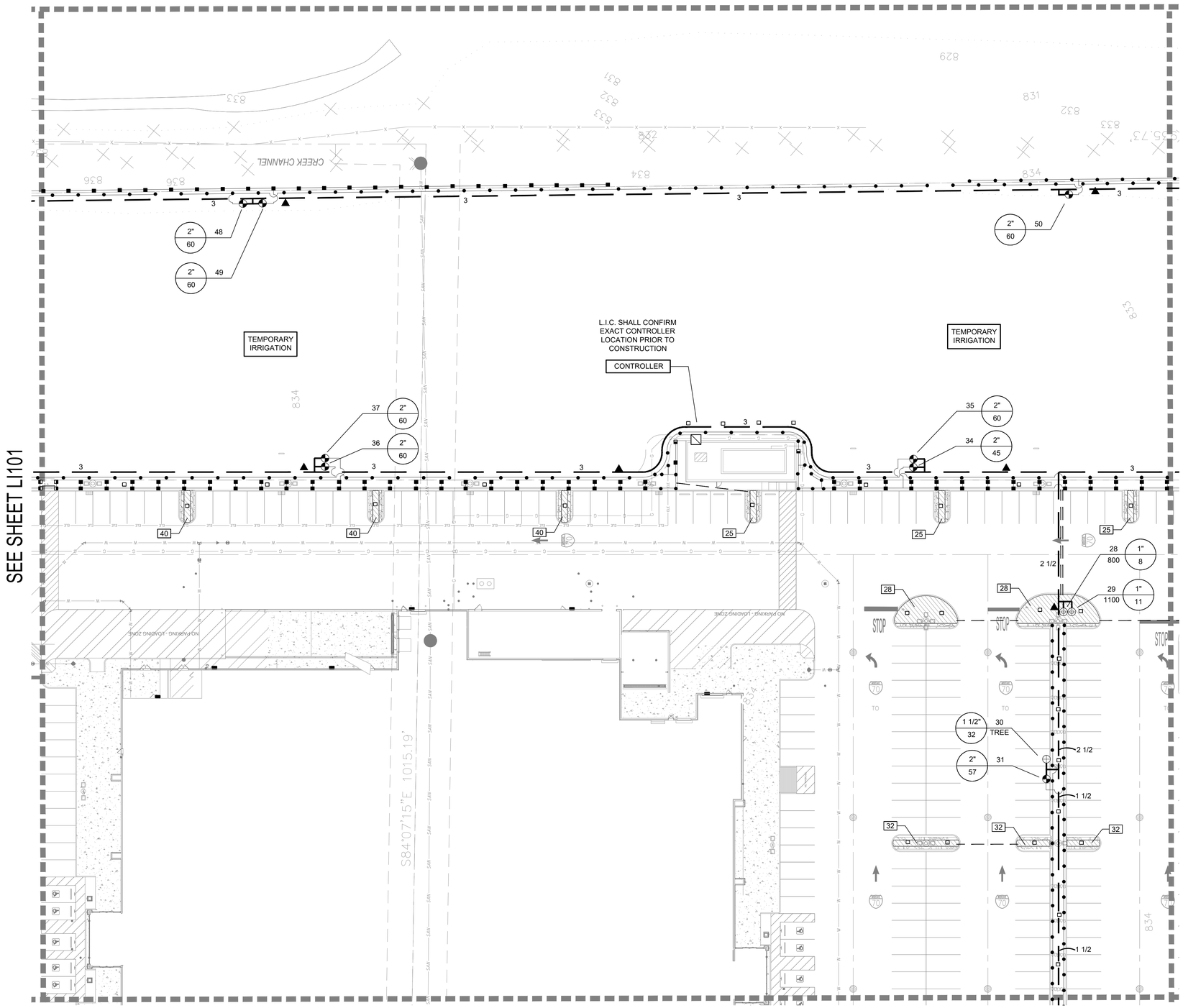
ISSUED FOR:
BIDDING

REVISIONS:

PROJECT #: 001-23-10
ORIGINAL ISSUE: 08/16/2023
DRAWING TITLE:
IRRIGATION
PLAN

NORTH
SCALE IN FEET (1"=30'-0")
0 15 30 60 90
CIVIL BASE FILES: 03/28/2024

SHEET NO.:
LI101



BLU FISH COLLABORATIVE
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BUC-EE'S

PROFESSIONAL SEAL:

STATE OF OHIO
MICHAEL
R
FISHBAUGH
9844
REGISTERED
LANDSCAPE ARCHITECT

DATE SEALED: 08/16/2023

PROJECT NAME:
BUC-EE'S
HUBER
HEIGHTS, OH

OWNER:
BUC-EE'S LTD.

PROJECT LOCATION:
HUBER
HEIGHTS, OH

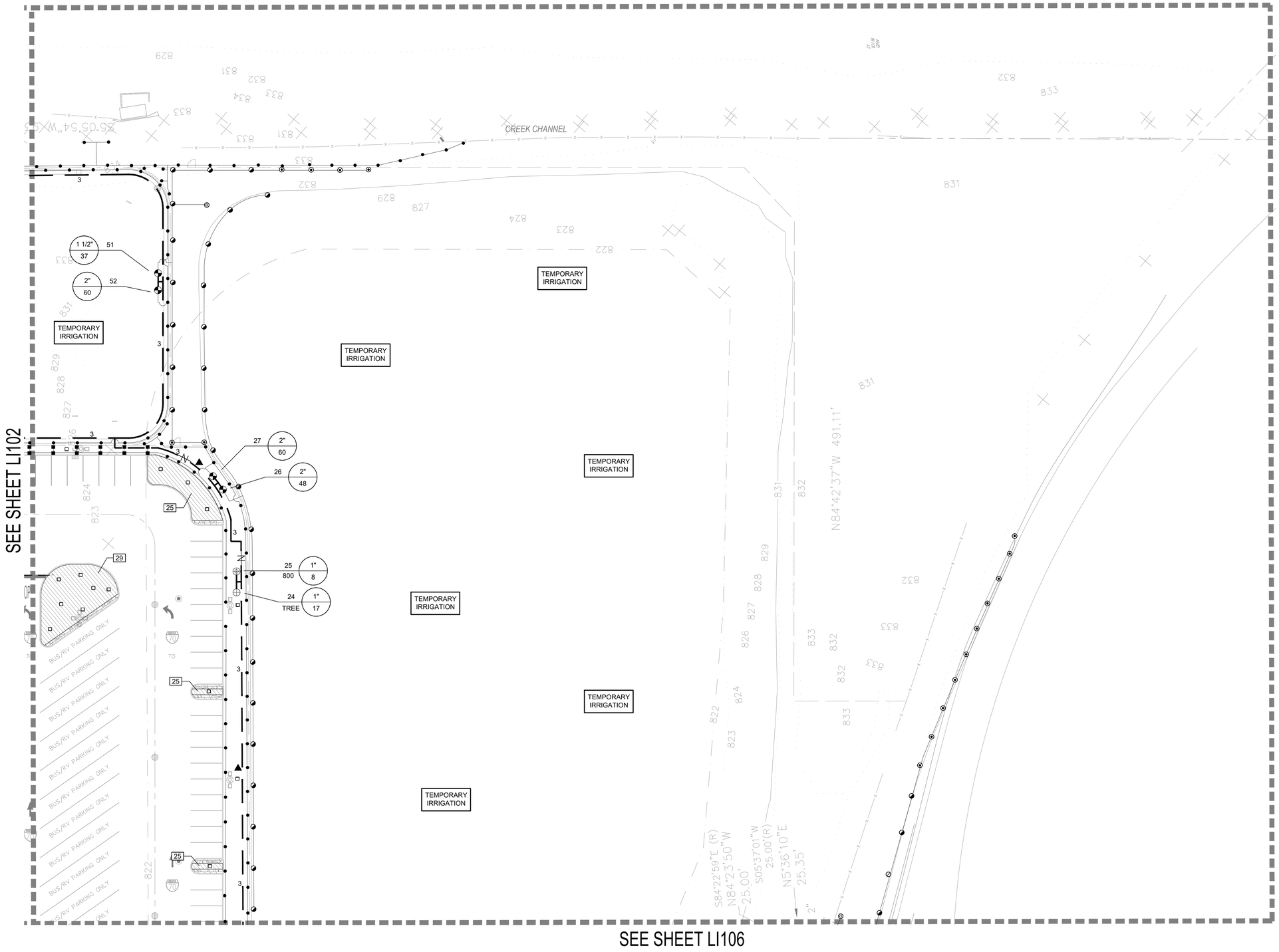
ISSUED FOR:
BIDDING

REVISIONS:

PROJECT #: 001-23-10
ORIGINAL ISSUE: 08/16/2023
DRAWING TITLE:
IRRIGATION
PLAN

NORTH
SCALE IN FEET (1"=30'-0")
0 15 30 60 90
CIVIL BASE FILES: 03/28/2024

SHEET NO.:
LI102



BLU FISH COLLABORATIVE
Landscape Architecture

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BUC-EE'S

PROFESSIONAL SEAL:

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MICHAEL
R
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9844
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DATE SEALED: 08/16/2023

PROJECT NAME:
BUC-EE'S
HUBER
HEIGHTS, OH

OWNER:
BUC-EE'S LTD.

PROJECT LOCATION:
HUBER
HEIGHTS, OH

ISSUED FOR:
BIDDING

REVISIONS:

PROJECT #: 001-23-10
ORIGINAL ISSUE: 08/16/2023
DRAWING TITLE:
IRRIGATION
PLAN

NORTH
SCALE IN FEET (1"=30'-0")
0 15 30 60 90
CIVIL BASE FILES: 03/28/2024

SHEET NO.:
LI103

SEE SHEET LI101

SEE SHEET LI105

(2) 2" WATER METER
(2) 2" BALL VALVE
(2) 2" R.P. ASSEMBLY
(1) 3" MASTER VALVE / FLOW SENSOR

IRRIGATION VALVES AND MAINLINE SHALL BE PLACED INSIDE OF PROPERTY LINE

BM 1 CMS ON SOUTHWEST BOLT OF AP=847.40'

SOUTHEAST BOLT OF SLINGIN' MUD

GRAVEL ROAD

P.O.B. PID: P70 039003 0

BLU FISH COLLABORATIVE
Landscape Architecture

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IRRIGATION
PLAN

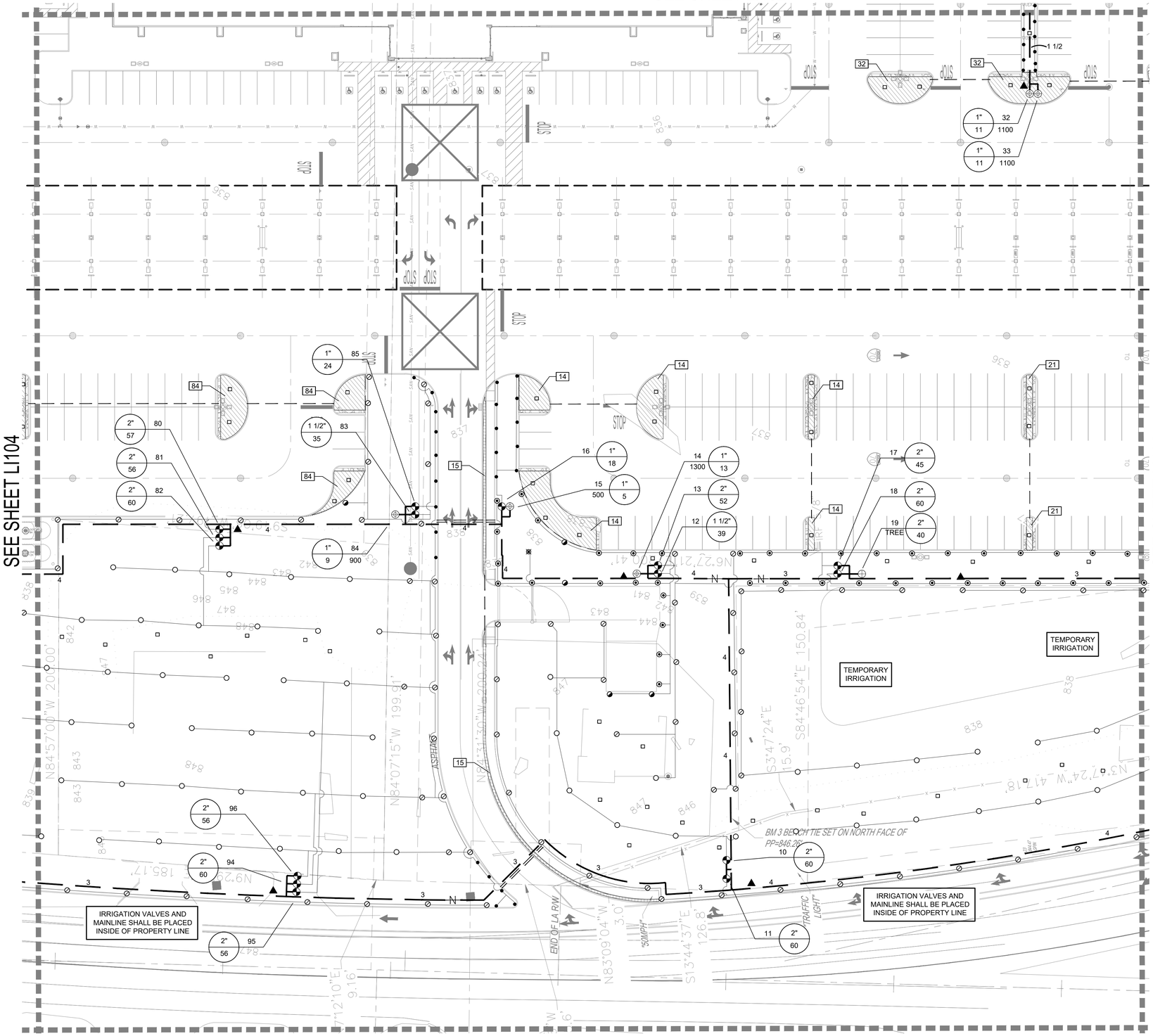
NORTH
SCALE IN FEET (1"=30'-0")
0 15 30 60 90
CIVIL BASE FILES: 03/28/2024

SHEET NO.:
LI104

SEE SHEET LI102

SEE SHEET LI104

SEE SHEET LI106



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Austin, TX 78704

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BUC-EE'S

PROFESSIONAL SEAL:

STATE OF OHIO
MICHAEL
R
FISHBAUGH
7864
REGISTERED
LANDSCAPE ARCHITECT

DATE SEALED: 08/16/2023

PROJECT NAME:
BUC-EE'S
HUBER
HEIGHTS, OH

OWNER:
BUC-EE'S LTD.

PROJECT LOCATION:
HUBER
HEIGHTS, OH

ISSUED FOR:
BIDDING

REVISIONS:

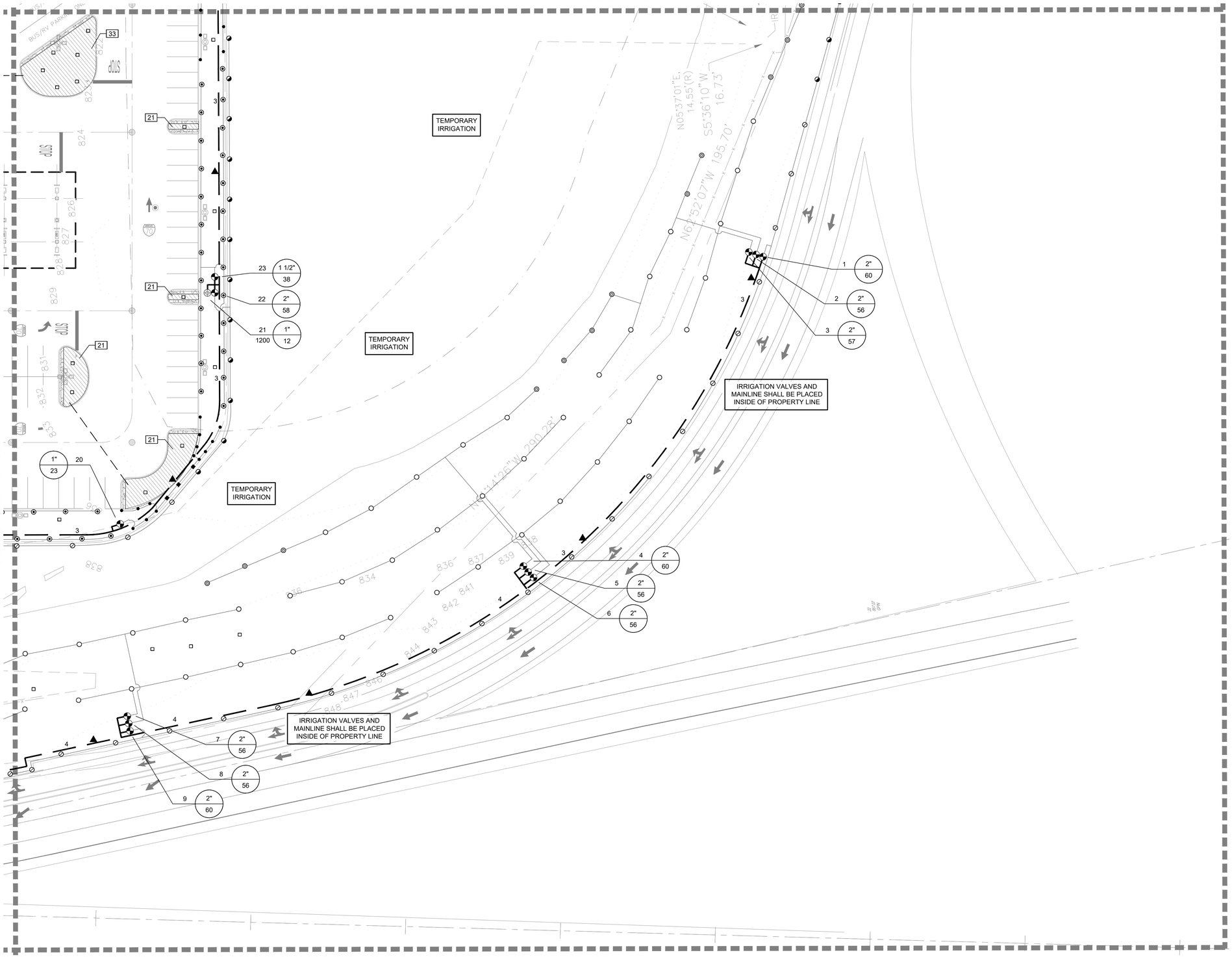
PROJECT #: 001-23-10
ORIGINAL ISSUE: 08/16/2023
DRAWING TITLE:
IRRIGATION
PLAN

NORTH
SCALE IN FEET (1"=30'-0")
0 15 30 60 90
CIVIL BASE FILES: 03/28/2024

SHEET NO.:
LI105

SEE SHEET LI103

SEE SHEET LI105



BLU FISH COLLABORATIVE
Landscape Architecture

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P.O. BOX 40792
Austin, TX 78704

Phone: (512) 388-4115

BUC-EE'S

PROFESSIONAL SEAL:

STATE OF OHIO
MICHAEL R FISHBAUGH
7864
REGISTERED LANDSCAPE ARCHITECT

DATE SEALED: 08/16/2023

PROJECT NAME:
BUC-EE'S
HUBER
HEIGHTS, OH

OWNER:
BUC-EE'S LTD.

PROJECT LOCATION:
HUBER
HEIGHTS, OH

ISSUED FOR:
BIDDING

REVISIONS:

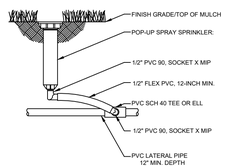
PROJECT #: 001-23-10
ORIGINAL ISSUE: 08/16/2023
DRAWING TITLE:
IRRIGATION
PLAN

NORTH

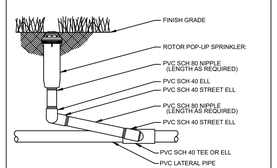
SCALE IN FEET (1"=30'-0")
0 15 30 60 90

CIVIL BASE FILES: 03/28/2024

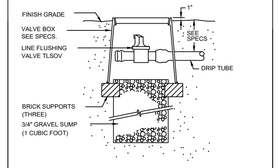
SHEET NO.:
LI106



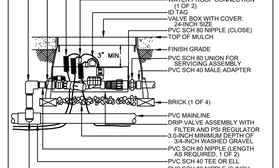
POP-UP SPRAY HEAD



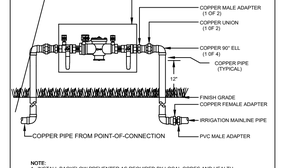
ROTOR POP-UP SPRINKLER



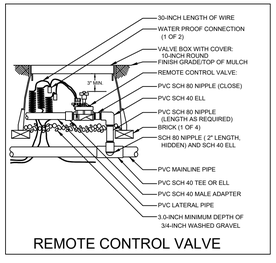
MANUAL LINE FLUSH VALVE



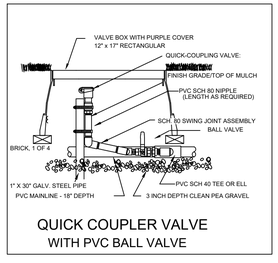
CONTROL ZONE KIT



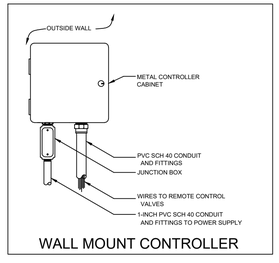
RP DEVICE



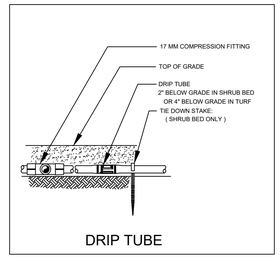
REMOTE CONTROL VALVE



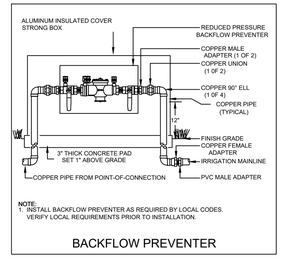
QUICK COUPLER VALVE
WITH PVC BALL VALVE



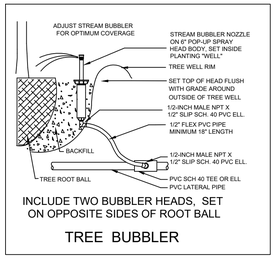
WALL MOUNT CONTROLLER



DRIP TUBE

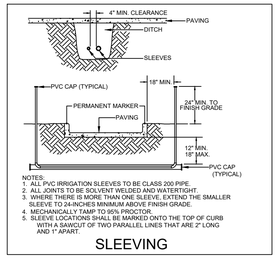


BACKFLOW PREVENTER



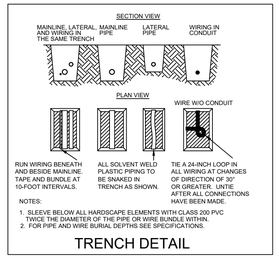
INCLUDE TWO BUBBLER HEADS, SET
ON OPPOSITE SIDES OF ROOT BALL

TREE BUBBLER



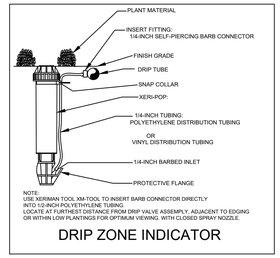
NOTES:
1. ALL PVC IRRIGATION SLEEVES TO BE CLASS 200 PIPE.
2. ALL JOINTS TO BE SOLVENT WELDED AND WATERTIGHT.
3. WHERE THERE IS MORE THAN ONE SLEEVE, EXTEND THE SMALLER SLEEVE TO 24-INCHES MINIMUM ABOVE FINISH GRADE.
4. MECHANICALLY TAMP TO 95% PROCTOR.
5. SLEEVE LOCATIONS SHALL BE MARKED ONTO THE TOP OF CURB WITH A SAWCUT OF TWO PARALLEL LINES THAT ARE 2" LONG AND 1" APART.

SLEEVING



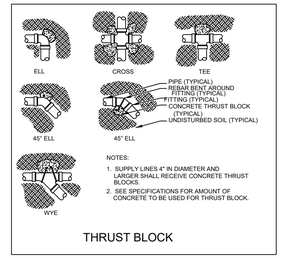
NOTES:
1. SLEEVE BELOW ALL HARDSCAPE ELEMENTS WITH CLASS 200 PVC TWICE THE DIAMETER OF THE PIPE OR WIRE BUNDLE WITHIN.
2. FOR PIPE AND WIRE BURIAL DEPTHS SEE SPECIFICATIONS.

TRENCH DETAIL



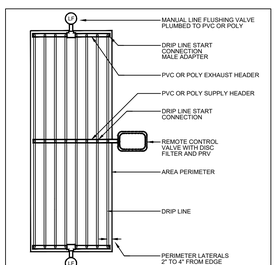
NOTE:
USE SPRINKMAN TOOL XM-TOOL TO INSERT BARB CONNECTOR DIRECTLY INTO 1/2-INCH POLYETHYLENE TUBING.
LOCATE AT FURTHEST DISTANCE FROM DRIP VALVE ASSEMBLY, ADJACENT TO EDGING OR WITHIN LOW PLANTINGS FOR OPTIMUM VIEWING. WITH CLOSED SPRAY NOZZLE.

DRIP ZONE INDICATOR



NOTES:
1. SUPPLY LINES 4" IN DIAMETER AND LARGER SHALL RECEIVE CONCRETE THRUST BLOCKS.
2. SEE SPECIFICATIONS FOR AMOUNT OF CONCRETE TO BE USED FOR THRUST BLOCK.

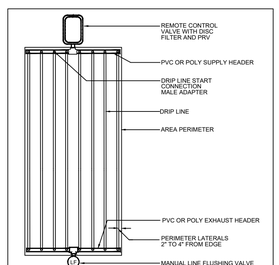
THRUST BLOCK



SUPPLY AND EXHAUST HEADERS SHALL BE CLASS 200 PVC PIPE, OF THE SAME DIAMETER AS THE ZONE VALVE SIZE.

USE DRIP TUBE FOR SUPPLY AND EXHAUST HEADERS ON GRIDS WITH FLOW SMALLER THAN 5 GPM ONLY.

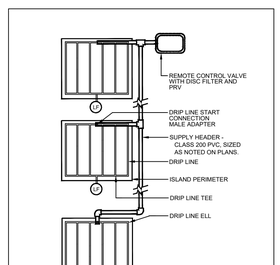
DRIP CENTER FEED LAYOUT



SUPPLY AND EXHAUST HEADERS SHALL BE CLASS 200 PVC PIPE, OF THE SAME DIAMETER AS THE ZONE VALVE SIZE.

USE DRIP TUBE FOR SUPPLY AND EXHAUST HEADERS ON GRIDS WITH FLOW SMALLER THAN 5 GPM ONLY.

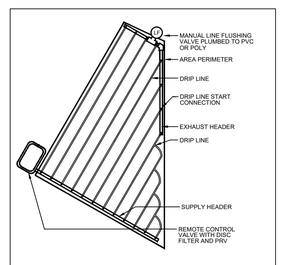
DRIP END FEED LAYOUT



SUPPLY AND EXHAUST HEADERS SHALL BE CLASS 200 PVC PIPE, OF THE SAME DIAMETER AS THE ZONE VALVE SIZE.

USE DRIP TUBE FOR SUPPLY AND EXHAUST HEADERS ON GRIDS WITH FLOW SMALLER THAN 5 GPM ONLY.

DRIP ISLAND LAYOUT



SUPPLY AND EXHAUST HEADERS SHALL BE CLASS 200 PVC PIPE, OF THE SAME DIAMETER AS THE ZONE VALVE SIZE.

USE DRIP TUBE FOR SUPPLY AND EXHAUST HEADERS ON GRIDS WITH FLOW SMALLER THAN 5 GPM ONLY.

IRREGULAR AREA DRIP LAYOUT

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BUC-EE'S

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LANDSCAPE ARCHITECT

DATE SEALED: 08/16/2023

PROJECT NAME:
BUC-EE'S
HUBER
HEIGHTS, OH

OWNER:
BUC-EE'S LTD.

PROJECT LOCATION:
HUBER
HEIGHTS, OH

ISSUED FOR:
BIDDING

REVISIONS:

PROJECT #: 001-23-10
ORIGINAL ISSUE: 08/16/2023
DRAWING TITLE:
IRRIGATION
DETAILS

SHEET NO.:
LI107

CIVIL BASE FILES: 03/28/2024

INSTALLATION NOTES

1. COORDINATE IRRIGATION INSTALLATION WITH PLANTING PLAN AND SITE CONDITIONS TO PROVIDE COMPLETE COVERAGE WITH MINIMUM OVERSPRAY. THE IRRIGATION CONTRACTOR SHALL MAKE MINOR ADJUSTMENTS TO ENSURE PROPER COVERAGE AT NO ADDITIONAL COST TO THE OWNER. THE IRRIGATION CONTRACTOR SHALL COMPLY WITH ALL LOCAL AND STATE MANDATED IRRIGATION ORDINANCES AND CODES, AND WILL SECURE ALL REQUIRED PERMITS. L.I.C. SHALL PAY ANY ASSOCIATED FEES UNLESS OTHERWISE NOTED. ALL LOCAL CODES SHALL PREVAIL OVER ANY DISCREPANCIES HEREIN AND SHALL BE ADDRESSED BEFORE ANY CONSTRUCTION BEGINS.
2. NO MACHINE TRENCHING SHALL BE PERMITTED WITHIN THE ROOT ZONE OF EXISTING TREES. HAND-DIG ONLY, WITHIN THE ROOT ZONES OF EXISTING TREES. NO ROOTS OVER 1" DIAMETER SHALL BE CUT. STAKE ALL PROPOSED TRENCH ROUTES NEAR EXISTING TREES FOR APPROVAL BY THE LANDSCAPE ARCHITECT BEFORE DIGGING BEGINS.
3. CONFIRM MINIMUM STATIC WATER PRESSURE OF 65 PSI AT THE HIGHEST ELEVATION OF THE SYSTEM LIMITS, AND MAXIMUM STATIC WATER PRESSURE OF 90 P.S.I. AT THE LOWEST ELEVATION OF THE SYSTEM LIMITS AT LEAST 7 DAYS BEFORE BEGINNING WORK. IF STATIC WATER PRESSURE IS OUTSIDE THE RANGE STATED ABOVE, DO NOT PROCEED UNTIL DIRECTED BY THE LANDSCAPE ARCHITECT.
4. LATERAL PIPE SHALL BE INSTALLED AT A MINIMUM DEPTH OF 12 INCHES. MAINLINE PIPE AND WIRES SHALL BE INSTALLED AT A MINIMUM DEPTH OF 18 INCHES. NO MACHINE TRENCHING SHALL BE PERMITTED WITHIN EXISTING TREE ROOT ZONES. WHEN HAND - TRENCHING WITHIN EXISTING TREE ROOT ZONES, NO ROOTS LARGER THAN 1" DIAMETER SHALL BE CUT.
5. IRRIGATION PLANS ARE DIAGRAMMATIC ONLY. IRRIGATION EQUIPMENT MAY BE SHOWN IN IMPERVIOUS SURFACES FOR GRAPHIC CLARITY PURPOSES. L.I.C. SHALL MAKE MINOR ADJUSTMENTS, AT NO ADDITIONAL COST TO THE OWNER, OF THE LOCATIONS OF THE IRRIGATION EQUIPMENT IN ORDER TO AVOID UTILITIES OR IMPERVIOUS SURFACES. R.F.I.S MAY BE SUBMITTED FOR APPROVAL OF CHANGES. UNSLEEVED PIPES MAY BE SHOWN UNDER PAVEMENT FOR GRAPHIC CLARITY ONLY. INSTALL THESE PIPES IN ADJACENT LANDSCAPED AREAS.
6. ELECTRIC POWER SHALL BE PROVIDED WITHIN FIVE FEET OF CONTROLLER LOCATION BY GENERAL CONTRACTOR. L.I.C. TO PROVIDE FINAL HARD-WIRE TO CONTROLLER.
7. 24 VOLT VALVE WIRE SHALL BE A MINIMUM OF #14 GAUGE, U.F. APPROVED FOR DIRECT BURIAL, SINGLE CONDUCTOR "IRRIGATION WIRE". WIRE SPLICES SHALL INCLUDE DBY CONNECTORS AS MANUFACTURED BY 3M COMPANY. ALL FIELD SPLICES SHALL BE LOCATED IN A ROUND VALVE BOX OF SUFFICIENT SIZE TO ALLOW INSPECTION.
8. VALVE BOXES SHALL BE INSTALLED FLUSH WITH GRADE, SUPPORTED BY BRICKS IF NEEDED, WITH 3 INCHES OF CLEAN PEA GRAVEL LOCATED BELOW THE VALVE. USE 12" x 17" RECTANGULAR VALVE BOXES WITH PURPLE LID FOR QUICK COUPLING VALVES, AND 10" ROUND BOXES FOR ELECTRIC VALVES UNLESS NOTED OTHERWISE.
9. USE RIGID SCH. 80 PVC SWING JOINT ASSEMBLIES TO CONNECT ALL ROTARY HEADS AND QUICK COUPLERS.
10. ALL SPRAY HEADS SHALL BE CONNECTED WITH A 12" MINIMUM LENGTH OF 1/2" FLEX PVC. THE FLEX PVC SHALL BE SOLVENT WELDED TO SCHEDULE 40 PVC FITTINGS WITH WELD-ON #795 SOLVENT AND #P-70 PRIMER.
11. PROVIDE ONE QUICK COUPLER KEY WITH SWIVEL HOSE ELL FOR EVERY SIX Q.C. VALVES. (MINIMUM ONE SET).
12. CONTRACTOR IS TO CONTACT APPROPRIATE AUTHORITIES AND LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.
13. LATERAL PIPE TO TREE STREAM BUBBLER HEADS IS OMITTED FOR GRAPHIC CLARITY. CONNECT TREE BUBBLER HEADS TO VALVES AS SHOWN WITH CLASS 200 PVC PIPE SIZED TO ALLOW A MAXIMUM FLOW VELOCITY OF 5 FEET PER SECOND
14. THE PROPOSED LOCATIONS OF ALL ABOVE- GROUND EQUIPMENT INCLUDING BACKFLOW PREVENTORS, CONTROLLERS AND WEATHER SENSORS SHALL BE STAKED BY THE CONTRACTOR FOR APPROVAL BY THE LANDSCAPE ARCHITECT OR OWNER'S REPRESENTATIVE BEFORE THESE ITEMS ARE INSTALLED.
15. ALL HEADS SHALL BE INSTALLED A MINIMUM OF 4" FROM PAVEMENT EDGES. (6" OR GREATER WHERE REQUIRED BY LOCAL CODE) FINAL HEAD ADJUSTMENTS BY THE CONTRACTOR SHALL INCLUDE THE ADDITION OF CHECK VALVES WHERE NEEDED TO PREVENT EXCESSIVE LOW HEAD DRAINAGE. THE CONTRACTOR SHALL BUDGET FOR, AND INSTALL CHECK VALVES FOR UP 10 % OF THE TOTAL NUMBER OF HEADS WHEN NEEDED, WITH NO ADDITIONAL COST TO THE OWNER.
16. WHERE SHOWN ON THE PLANS, MASS SHRUB / GROUNDCOVER BEDS SHALL INCLUDE NETAFIM TECHLINE TLHCVXR SERIES DRIP TUBE WITH PRE-INSTALLED .53 GPH DRIP EMITTERS AT 12" INTERVALS (TLHCVXR5-12), INSTALLED IN CENTER-FED GRIDS WITH ROWS SPACED 18" APART. INDIVIDUAL DRIP TUBE RUNS SHALL NOT EXCEED 150 L.F. PVC LATERAL "TRUNK" LINES SHALL BE INSTALLED 10" DEEP. DRIP TUBE SHALL BE SET 2" BELOW FINISHED SOIL GRADE (NOT INCLUDING MULCH LAYER), SECURELY STAKED EVERY 18". NETAFIM #TL050MFV-1 FLUSH VALVES SHALL BE INSTALLED AT THE FARTHEST POINTS FROM THE ZONE VALVE. USE 17 MM BARBED FITTINGS FOR DRIP LINE CONNECTIONS, SET THE MAXIMUM OPERATING PRESSURE AT 50 PSI. TECHLINE CV SHALL BE INSTALLED PERPENDICULAR TO SLOPE FACE. INSTALL TLCV IN-LINE CHECK VALVES FOR EVERY 4.5 FEET OF DRIP LINE ELEVATION CHANGE WITHIN THE ZONE. EACH DRIP ZONE SHALL INCLUDE ONE MAINTENANCE "FLAG" WHICH SHALL CONSIST OF A 12" POP-UP SPRAY HEAD AND COMPLETELY CLOSED SPRAY NOZZLE. THE POP-UP HEAD SHALL BE CONNECTED TO THE DRIP ZONE PIPE, SET FLUSH WITH GRADE, AND LOCATED AT THE FARTHEST DISTANCE FROM THE DRIP VALVE ASSEMBLY. INSTALL THE "FLAG" HEAD ADJACENT TO EDGING OR IN LOW PLANTINGS FOR EASE OF VIEWING. SPARSLEY SPACED, INDIVIDUAL SHRUB PLANTINGS MAY INCLUDE RAINBIRD #XBT-10 SINGLE-OUTLET EMITTERS OR RAINBIRD #XBT-10-6 MULTI-OUTLET EMITTERS INSTALLED AS DETAILED. PROVIDE MINIMUM TWO, 1 G.P.H. OUTLETS PER INDIVIDUAL SHRUB. SINGLE / MULTI-OUTLET EMITTERS MAY BE CONNECTED TO THE SAME DRIP ZONE VALVE WHICH SERVES ADJACENT DRIP TUBE GRIDS, UNLESS NOTED OTHERWISE.
17. WHERE SHOWN ON THE PLANS, SPECIFIC TURF AREAS SHALL INCLUDE NETAFIM TECHLINE TLHCVXR SERIES DRIP TUBE WITH PRE-INSTALLED .53 GPH DRIP EMITTERS AT 12" INTERVALS (TLHCVXR5-12), INSTALLED IN CENTER-FED GRIDS WITH ROWS SPACED 12" APART. INDIVIDUAL DRIP TUBE RUNS SHALL NOT EXCEED 150 L.F. PVC LATERAL "TRUNK" LINES SHALL BE INSTALLED 10" DEEP. DRIP TUBE SHALL BE SET 4" BELOW FINISHED SOIL GRADE. NETAFIM #TLO5OMF-1 FLUSH FLUSH VALVES SHALL BE INSTALLED AT THE FARTHEST POINTS FROM THE ZONE VALVE. USE 17 MM BARBED FITTINGS FOR DRIP LINE CONNECTIONS, SET THE MAXIMUM OPERATING PRESSURE AT 50 PSI. TECHLINE CV SHALL BE INSTALLED PERPENDICULAR TO SLOPE FACE. INSTALL TLCV IN-LINE CHECK VALVES FOR EVERY 4.5 FEET OF DRIP LINE ELEVATION CHANGE WITHIN THE ZONE. EACH DRIP ZONE SHALL INCLUDE ONE MAINTENANCE "FLAG" WHICH SHALL CONSIST OF A 12" POP-UP SPRAY HEAD AND COMPLETELY CLOSED SPRAY NOZZLE. THE POP-UP HEAD SHALL BE CONNECTED TO THE DRIP ZONE PIPE, SET FLUSH WITH GRADE, AND LOCATED AT THE FARTHEST DISTANCE FROM THE DRIP VALVE ASSEMBLY. INSTALL THE "FLAG" HEAD ADJACENT TO EDGING OR IN LOW PLANTINGS FOR EASE OF VIEWING. TEMPORARY SUPPLEMENTAL OVERHEAD WATERING MAY BE REQUIRED FOR INITIAL ESTABLISHMENT OF NEW SOD, SEEDED TURF, OR SEEDED NATIVE MIX AREAS SERVED BY SUB-SURFACE DRIP EQUIPMENT.

LATERAL PIPE SIZE CHART

LATERAL PIPE SHALL BE SIZED TO ALLOW A MAXIMUM FLOW VELOCITY OF FIVE FEET PER SECOND ACCORDING TO THE FOLLOWING CHART:

FLOW IN GPM	LATERAL PIPE SIZE
UP TO 5 GPM	1/2" CLASS 315
6 - 10 GPM	3/4" CLASS 200
11 - 15 GPM	1" CLASS 200
16 - 28 GPM	1 1/4 CLASS 200
29 - 35 GPM	1 1/2" CLASS 200
36 - 54 GPM	2" CLASS 200
55 - 81 GPM	2 1/2" CLASS 200
82 - 120 GPM	3" CLASS 200

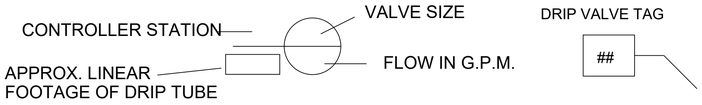
TEMPORARY IRRIGATION

THE CONTRACTOR SHALL COORDINATE WITH THE PLANTING PLAN AND PROVIDE TEMPORARY IRRIGATION FOR THE ESTABLISHMENT OF ALL PROPOSED PLANT MATERIALS LOCATED OUTSIDE THE LIMITS OF COVERAGE PROVIDED BY THE PERMANENT SYSTEM.

IRRIGATION LEGEND

- HUNTER PROS-06-PRS30 SERIES POP UP SPRAY HEADS WITH HUNTER MSBN-50H STREAM BUBBLER NOZZLES. (TWO PER TREE) SEE INSTALLATION NOTE #13 REGARDING TREE BUBBLER LATERAL PIPE
- HUNTER PROS-04-PRS30 SERIES POP UP SPRAY HEAD WITH SS / ES SERIES STRIP NOZZLE UNLESS NOTED OTHERWISE.
- HUNTER PROS-04-PRS30 SERIES POP UP SPRAY HEAD WITH PRO SPRAY SERIES NOZZLE AS NOTED BELOW
- HUNTER PGP ULTRA, ADJUSTABLE ARC 4" POP UP ROTARY HEAD, PART CIRCLE, #1.5 SR BLACK NOZZLE UNLESS NOTED OTHERWISE
- HUNTER PGP ULTRA, ADJUSTABLE ARC 4" POP UP ROTARY HEAD, FULL CIRCLE, #3.0 SR BLACK NOZZLE UNLESS NOTED OTHERWISE
- HUNTER PGP ULTRA, ADJUSTABLE ARC 4" POP UP ROTARY HEAD, PART CIRCLE, #2.5 BLUE NOZZLE UNLESS NOTED OTHERWISE
- HUNTER PGP ULTRA, ADJUSTABLE ARC 4" POP UP ROTARY HEAD, FULL CIRCLE, #5.0 BLUE UNLESS NOTED OTHERWISE
- HUNTER PGP ULTRA, ADJUSTABLE ARC 4" POP UP ROTARY HEAD, PART CIRCLE, #4.0 BLUE NOZZLE UNLESS NOTED OTHERWISE
- HUNTER PGP ULTRA, ADJUSTABLE ARC 4" POP UP ROTARY HEAD, FULL CIRCLE, #8.0 BLUE NOZZLE UNLESS NOTED OTHERWISE
- NETAFIM TECHLINE TLHCVXR5-12 SERIES DRIP TUBE IN SHRUB BED INSTALLED AT 2" DEPTH SEE INSTALLATION NOTE #16 REGARDING DRIP TUBE LAYOUT IN SHRUB BEDS.
- NETAFIM TECHLINE TLHCVXR5-12 SERIES DRIP TUBE IN NARROW TURF AREAS INSTALLED AT 4" DEPTH SEE INSTALLATION NOTE #17 REGARDING DRIP TUBE LAYOUT IN TURF.
- HUNTER ICV SERIES ELECTRIC REMOTE CONTROL VALVE WITH ICD-100 SERIES DECODER
- HUNTER ICV SERIES ELECTRIC REMOTE CONTROL, "TREE BUBBLER ZONE" VALVE WITH ICD-100 SERIES DECODER SEE INSTALLATION NOTE #13 REGARDING TREE BUBBLER LATERAL PIPE
- NETAFIM CONTROL ZONE KIT MODEL #NCZ-1S SERIES WITH 50 PSI PRESSURE REGULATOR AND SCREEN FILTER WITH ICD-100 SERIES DECODER
- HUNTER HQ-33DLRC-R QUICK COUPLING VALVE WITH LOCKING PURPLE COVER AND 3/4" PVC BALL VALVE
- ZURN / WILKINS 375XLB SERIES REDUCED PRESSURE TYPE BACKFLOW PREVENTOR INSTALLED PER CITY CODE WITH HEATED / INSULATED ALUMINUM ENCLSOURE AND SAME SIZE BRONZE BALL VALVE INSTALLED ON THE UP-STREAM SIDE. G.C. TO COORDINATE POWER TO BACKFLOW ENCLOSURE LOCATION PRIOR TO CONSTRUCTION
- ISOLATION VALVE WHERE MAINLINE IS 3" OR SMALLER, INSTALL LASCO "V" SERIES SCH. 80 PVC TRUE UNION BALL VALVE, MAINLINE SIZE WHERE MAINLINE IS 4" OR LARGER, INSTALL CAST IRON PUSH-ON TYPE GATE VALVE WITH GASKET FITTINGS, MAINLINE SIZE
- IRRIGATION WATER METER AND TAP, SIZE AS NOTED ON THE PLAN
- HUNTER ACC2 DECODER SERIES TWO-WIRE CONTROLLER MODEL A2C-75D-M WITH ONE A2C-D75 MODULE AND WIRELESS SOLAR SYNC SENSOR LOCATE SENSOR AS FIELD DIRECTED BY THE LANDSCAPE ARCHITECT SURGE PROTECTION DEVICE WITH GROUNDING DEVICE TO BE SPACED NO MORE THAN 500 FEET APART ALONG PATH
- HUNTER BV-301G-FS "MASTER" ELECTRIC VALVE WITH ICD-100 SERIES DECODER AND CST SERIES FLOW SENSOR, MODEL #FSI-S30-001 WITH #ICD-SEN SERIES SENSOR DECODER.
- MAINLINE PIPE 3" DIAMETER AND SMALLER SHALL BE CLASS 200 PVC SOLVENT-WELD TYPE 4" DIAMETER AND LARGER SHALL BE CLASS 200 PVC O-RING GASKET TYPE WITH DUCTILE IRON GASKET FITTINGS
- CLASS 200 (EXCEPT 1/2 INCH #315) PVC LATERAL PIPE
- ONE 4" CLASS 200 SLEEVE PIPE
- TWO 4" CLASS 200 SLEEVE PIPES ONE 6" AND ONE 4" CLASS 200 SLEEVE PIPE AT PAVEMENT CROSSINGS WITH 3" MAINLINE UNLESS NOTED OTHERWISE ONE 8" AND ONE 4" CLASS 200 SLEEVE PIPE AT PAVEMENT CROSSINGS WITH 4" MAINLINE UNLESS NOTED OTHERWISE
- 1 1/2" PVC CONDUIT WITH LONG RADIUS SWEEP FITTINGS

L.I.C. SHALL SELECT SPRAY NOZZLES FOR "HEAD-TO-HEAD" COVERAGE, ADJUSTED FOR NO OVERSPRAY ONTO WALLS AND WALKS. NO OVERSPRAY INTO STREETS IS PERMITTED.



HUNTER "ACC2" TWO WIRE NOTES

SPLICES SHALL BE LOCATED IN A ROUND VALVE BOX OF SUFFICIENT SIZE TO ALLOW INSPECTION.
"TWO-WIRE" PATH CONTROL WIRES SHALL BE HUNTER #ID1GRY.

ALL WIRE SPLICES MUST BE MADE IN A VALVE BOX WITH DBR-6 OR EQUAL DIRECT-BURIAL WATERPROOF CONNECTORS. ALL CONNECTIONS IN THE TWO-WIRE PATHS (OUTSIDE THE CONTROLLER ENCLOSURE) SHALL BE MADE WITH 3M DBR-6 WATERPROOF, STRAIN-RELIEVING DIRECT BURIAL CONNECTORS, OR EXACT EQUALS.

18 AWG/1MM DIA. WIRE OR LARGER SHALL BE USED FOR ALL DECODER-TO-SOLENOID CONNECTIONS. IN HIGH LIGHTNING AREAS THIS WIRE SHALL BE TWISTED TO MAXIMIZE SURGE SUPPRESSION.

THE INSTALLER SHALL PROVIDE ADEQUATE EARTH GROUND (NOT TO EXCEED 10 OHMS, OR IN COMPLIANCE WITH PRACTICES AS DEFINED IN AMERICAN SOCIETY OF IRRIGATION CONSULTANTS EARTH GROUNDING GUIDELINE 100-2002, AVAILABLE AT WWW.ASIC.ORG) AND CONNECT IT TO ONE OF THE DECODER GROUND LEADS EVERY 1000 FT.(330M), OR EVERY 12TH DECODER MODULE, WHICHEVER IS SHORTER. MINIMUM GROUND HARDWARE SHALL BE A 4" X 36" (100 X 915MM) COPPER PLATE WITH AT LEAST 10AWG/2.5MM DIA. COPPER WIRE. IN HIGH LIGHTNING AREAS, GROUNDING MAY BE INCREASED TO EVERY 500 FT./150M OR 6 DECODERS.

GROUND CONNECTIONS FROM DECODER GROUND LEAD TO GROUNDING HARDWARE SHALL BE MADE BY JOINING THE 12AWG (2MM DIA.) DECODER GROUND WIRE WITH A 10AWG (2.5MM DIA.) SOLID COPPER LEAD IN AN APPROVED WIRE NUT OF APPROPRIATE SIZE. INSERTED IN A DBR-6 WATERPROOF DIRECT BURIAL CONNECTOR, OR WITH AN APPROVED WIRE CLAMP. GROUND HARDWARE SHALL EXTEND AT RIGHT ANGLES FROM THE TWO-WIRE RED/BLUE PATH, AND GROUND HARDWARE SHALL BE LOCATED AT LEAST 6FT./2M AWAY FROM THE TWO-WIRE PATH.

THE SENSOR DECODER SHALL HAVE A BARE GROUND WIRE FOR CONNECTION TO EARTH GROUND, IN ACCORDANCE WITH THE SPECIFICATIONS APPLYING TO ALL OTHER DECODERS. THE SENSOR DECODER SHALL COUNT AS A "DECODER" FOR GROUND SPACING PURPOSES.

BLU FISH COLLABORATIVE
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BUC-EE'S

PROFESSIONAL SEAL:

STATE OF OHIO — MICHAEL R. FISHBAUGH — 384 — REGISTERED LANDSCAPE ARCHITECT

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ALTA / NSPS LAND TITLE SURVEY

NW CORNER OF I-70 & S.R. 235
SECTION 6, TOWN 2, RANGE 8 M.R.s.
CITY OF HUBER HEIGHTS, MONTGOMERY COUNTY, STATE OF OHIO

EXHIBIT "A" LEGAL DESCRIPTION

(FROM TITLE COMMITMENT PROVIDED BY CHICAGO TITLE INSURANCE COMPANY, COMMITMENT NUMBER 2353620080 WITH AN EFFECTIVE DATE OF AUGUST 1, 2023 AT 6:59 A.M.)

PARCEL 1:

INTENTIONALLY DELETED

PARCEL 2:

ALL THAT CERTAIN PARCEL OF REAL ESTATE SITUATE IN THE CITY OF HUBER HEIGHTS, COUNTY OF MONTGOMERY, STATE OF OHIO, TO WIT: SITUATE IN SECTION 6, TOWN 2, RANGE 8 MRS AND MORE PARTICULARLY DESCRIBED AS FOLLOWS:
BEGINNING AT AN IRON PIN ON THE EAST LINE OF STATE ROUTE 235 AND THE NORTHWEST CORNER OF THE LANDS CONVEYED TO SHELL OIL COMPANY AS DESCRIBED IN DEED BOOK 2358, PAGE 729; THENCE NORTH 6 DEGREES 32 MINUTES 40 SECONDS EAST, ALONG THE EAST LINE OF SAID STATE ROUTE 235, A DISTANCE OF 106.44 FEET TO A CONCRETE MONUMENT; THENCE ALONG THE EAST LINE OF SAID STATE ROUTE 235 ON A CURVE TO THE RIGHT WHOSE RADIUS IS 2799.79 FEET, A DISTANCE OF 143.52 FEET, CHORD BEARING NORTH 8 DEGREES 00 MINUTES 46 SECONDS EAST, 143.50 FEET TO AN IRON PIN; THENCE SOUTH 89 DEGREES 06 MINUTES 20 SECONDS EAST, A DISTANCE OF 200.00 FEET TO AN IRON PIN; THENCE SOUTH 7 DEGREES 23 MINUTES 15 SECONDS WEST A DISTANCE OF 249.94 FEET TO AN IRON PIN AT THE NORTHEAST CORNER OF THE ABOVE SAID SHELL OIL COMPANY LANDS; THENCE NORTH 89 DEGREES 06 MINUTES 20 SECONDS WEST, ALONG THE NORTH LINE OF THE ABOVE SAID SHELL OIL COMPANY LANDS, A DISTANCE OF 200.00 FEET TO THE PLACE OF BEGINNING.

CONTAINING 1.143 ACRES.

PPN: P70-03903-0052

PARCEL 3:

SITUATED IN THE CITY OF HUBER HEIGHTS, COUNTY OF MONTGOMERY AND STATE OF OHIO:

THE FOLLOWING DESCRIBED REAL ESTATE BEING LOCATED IN SECTION 6, TOWN 2, RANGE 8 MRS, TOWNSHIP OF WAYNE, COUNTY OF MONTGOMERY, STATE OF OHIO AND BEING A PART OF THAT CERTAIN TRACT OF LAND CONVEYED TO RALPH H. AND MARY ELIZABETH HARMAN BY DEED AND RECORDED IN DEED BOOK 1619, PAGE 118 OF THE DEED RECORDS OF SAID COUNTY AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT AN IRON PIN IN THE EAST RIGHT-OF-WAY LINE OF STATE ROUTE NO. 235 (FORMERLY KNOWN AS NORTHBOUND AND A SOUTHBOUND STATE ROUTE NO. 69, THE CENTERLINE SURVEY OF WHICH IS RECORDED IN PLAT BOOK OO, PAGE 78 OF THE PLAT RECORDS OF SAID COUNTY), WITNESS THE NORTH LINE OF THE SAID HARMAN TRACT BEARING NORTH 6 DEGREES 32 MINUTES 40 SECONDS EAST A DISTANCE OF 52.00 FEET;

THENCE SOUTH 6 DEGREES 32 MINUTES 40 SECONDS WEST WITH THE EAST RIGHT-OF-WAY LINE OF STATE ROUTE NO. 235 (SAID EAST RIGHT-OF-WAY LINE BEING LOCATED 55 FEET EAST OF AND PARALLEL TO THE CENTERLINE OF SOUTHBOUND STATE ROUTE NO. 235) A DISTANCE OF 158.47 FEET TO A CONCRETE MONUMENT;

THENCE SOUTH 02 DEGREES 02 MINUTES 50 SECONDS EAST WITH THE EAST RIGHT-OF-WAY LINE OF STATE ROUTE NO. 235, A DISTANCE OF 303.28 FEET TO AN IRON PIN;

THENCE SOUTH 08 DEGREES 32 MINUTES 50 SECONDS EAST CONTINUING WITH SAID EASTERLY RIGHT-OF-WAY LINE A DISTANCE OF 126.00 FEET TO A CONCRETE MONUMENT.

THENCE SOUTH 41 DEGREES 20 MINUTES 50 SECONDS EAST CONTINUING WITH SAID EASTERLY RIGHT-OF-WAY LINE A DISTANCE OF 347.04 FEET TO A CONCRETE MONUMENT;

THENCE SOUTH 62 DEGREES 54 MINUTES 50 SECONDS EAST CONTINUING WITH SAID EASTERLY RIGHT-OF-WAY LINE A DISTANCE OF 191.50 FEET TO A CONCRETE MONUMENT;

THENCE SOUTH 84 DEGREES 27 MINUTES 20 SECONDS EAST A DISTANCE OF 25.00 FEET TO AN IRON PIN; THENCE NORTH 05 DEGREES 32 MINUTES 40 SECONDS EAST A DISTANCE OF 25.00 FEET TO AN IRON PIN; THENCE NORTH 84 DEGREES 27 MINUTES 20 SECONDS WEST A DISTANCE OF 25.00 FEET TO AN IRON PIN;

THENCE SOUTH 05 DEGREES 32 MINUTES 40 SECONDS WEST A DISTANCE OF 14.25 FEET TO AN IRON PIN (SAID IRON PIN BEING LOCATED 10.00 FEET DISTANT FROM THE AFORESAID RIGHT-OF-WAY LINE);

THENCE NORTH 52 DEGREES 54 MINUTES 50 SECONDS WEST PARALLEL TO AND 10.00 FEET DISTANT FROM SAID RIGHT-OF-WAY LINE A DISTANCE 185.64 FEET TO AN IRON PIN;

THENCE NORTH 41 DEGREES 20 MINUTES 50 SECONDS WEST PARALLEL TO AND 10.00 FEET DISTANT FROM SAID RIGHT-OF-WAY LINE A DISTANCE OF 382.19 FEET TO AN IRON PIN;

THENCE NORTH 08 DEGREES 32 MINUTES 50 SECONDS WEST PARALLEL TO AND 10.00 FEET DISTANT FROM SAID RIGHT-OF-WAY LINE A DISTANCE OF 122.48 FEET TO AN IRON PIN;

THENCE NORTH 02 DEGREES 02 MINUTES 50 SECONDS WEST PARALLEL TO AND 10.00 FEET DISTANT FROM SAID RIGHT-OF-WAY LINE DISTANCE OF 259.51 FEET TO AN IRON PIN;

THENCE SOUTH 84 DEGREES 27 MINUTES 20 SECONDS EAST A DISTANCE OF 183.64 FEET TO AN IRON PIN;

THENCE NORTH 06 DEGREES 32 MINUTES 40 SECONDS EAST A DISTANCE OF 200.00 FEET TO AN IRON PIN;

THENCE NORTH 84 DEGREES 27 MINUTES 20 SECONDS WEST A DISTANCE OF 200.00 FEET TO THE PLACE OF BEGINNING.

CONTAINING 49,667.04 SQUARE FEET OF LAND MORE OR LESS.

SUBJECT TO ALL LEGAL HIGHWAYS, EASEMENTS AND RESTRICTIONS OF RECORD.

LESS AND EXCEPT THAT PORTION OF THE ABOVE PROPERTY CONVEYED BY THE GRANTOR HEREIN TO THE STATE OF OHIO BY SPECIAL WARRANTY DEED DATED MARCH 22, 1985, UNDERSTOOD TO BE A STRIP OF LAND ON THE SOUTHERLY AND WESTERLY SIDES CONTAINING 0.309 OF AN ACRE, MORE OR LESS, CALCULATED AND DERIVED FROM A CENTERLINE SURVEY MADE BY THE OHIO DEPARTMENT OF TRANSPORTATION, RICHARD HELMLINGER, REGISTERED SURVEYOR NUMBER 5421.

EXCEPTING THE FOLLOWING DESCRIBED PROPERTY:

SITUATED IN THE TOWNSHIP OF WAYNE AND CITY OF HUBER HEIGHTS, COUNTY OF MONTGOMERY AND STATE OF OHIO, AND BEING THE SAME PREMISES CONVEYED TO THE SAID GRANTOR BY DEED RECORDED IN VOLUME __ , PAGE ___ OF THE RECORDS OF SAID COUNTY, MORE FULLY DESCRIBED AS FOLLOWS:

THAT PORTION OF THE GRANTOR'S PROPERTY AFFECTED BY THIS DESCRIPTION IS UNDERSTOOD TO BE THE SOUTHERLY AND WESTERLY SIDES.

COMMENCING AT AN IRON PIPE OVER STONE AT THE NORTHEAST CORNER OF THE SOUTHEAST QUARTER OF SECTION 6, TOWN 2, RANGE 8 MRS, AND ON THE COUNTY LINE BETWEEN MONTGOMERY AND CLARK COUNTIES;

THENCE SOUTH 05 DEGREES 02 MINUTES 35 SECONDS WEST WITH THE EASTERLY LINE OF SECTION 6 AND WITH THE COUNTY LINE, 1800.70 FEET TO A POINT 824.24 FEET LEFT OF STATION 0 PLUS 35.91 OF A SURVEY OF INTERSTATE 70 MADE ALONG WITH A SURVEY OF STATE ROUTE 235 RECORDED AS NOTED ABOVE;

THENCE NORTH 84 DEGREES 22 MINUTES 59 SECONDS WEST, 493.36 FEET TO A POINT ON THE OWNER'S SOUTHEASTERLY PROPERTY CORNER, 598.02 FEET RIGHT OF SOUTHBOUND STATE ROUTE 235 STATION 471 PLUS 77.15, AND THIS IS THE TRUE PLACE OF BEGINNING;

THENCE CONTINUE NORTH 84 DEGREES 22 MINUTES 59 SECONDS WEST WITH THE OWNER'S SOUTHERLY PROPERTY LINE, 25.00 FEET TO A POINT ON THE EXISTING LIMITED ACCESS RIGHT OF WAY LINE, 573.03 FEET RIGHT OF SOUTH BOUND STATE ROUTE 235 STATION 471 PLUS 76.75;

THENCE WITH THE EXISTING LIMITED ACCESS RIGHT OF WAY LINE AND WITH THE OWNER'S PROPERTY LINE, THE FOLLOWING 6 COURSES:

NORTH 66 DEGREES 54 MINUTES 03 SECONDS WEST, 3.95 FEET TO A POINT 569.24 FEET RIGHT OF SOUTHBOUND STATE ROUTE 235 STATION 471 PLUS 77.88;

THENCE NORTH 62 DEGREES 51 MINUTES 16 SECONDS WEST, 191.70 FEET TO A CONCRETE MONUMENT, 389.83 FEET RIGHT OF SOUTHBOUND STATE ROUTE 235 STATION 472 PLUS 45.41;

THENCE NORTH 41 DEGREES 18 MINUTES 29 SECONDS WEST, 347.11 FEET TO A CONCRETE MONUMENT, 132.58 FEET RIGHT OF SOUTHBOUND STATE ROUTE 235 STATION 474 PLUS 78.46;

THENCE NORTH 08 DEGREES 28 MINUTES 15 SECONDS WEST, 125.98 FEET TO AN IRON PIN, 100.00 FEET RIGHT OF SOUTHBOUND STATE ROUTE 235 STATION 476 PLUS 00.15;

THENCE NORTH 02 DEGREES 01 MINUTES 00 SECONDS WEST, 303.21 FEET TO A POINT 55 FEET RIGHT OF SOUTHBOUND STATE ROUTE 235 STATION 479 PLUS 00;

THENCE NORTH 06 DEGREES 31 MINUTES 06 SECONDS EAST, 93.94 FEET TO A POINT ON THE NORTHERLY END OF THE EXISTING LIMITED ACCESS RIGHT OF WAY, 55 FEET RIGHT OF SOUTHBOUND STATE ROUTE 235 STATION 479 PLUS 93.94;

THENCE WITH THE PROPOSED LIMITED ACCESS RIGHT OF WAY LINE, THE FOLLOWING 3 COURSES:

SOUTH 83 DEGREES 28 MINUTES 54 SECONDS EAST, 3.00 FEET TO A POINT 58 FEET RIGHT OF SOUTHBOUND STATE ROUTE 235 STATION 479 PLUS 93.94;

THENCE SOUTH 13 DEGREES 46 MINUTES 57 SECONDS EAST, 126.82 FEET TO A POINT 102 FEET RIGHT OF SOUTHBOUND STATE ROUTE 235 STATION 478 PLUS 75;

THENCE SOUTH 03 DEGREES 51 MINUTES 27 SECONDS EAST, 15.91 TO A POINT ON THE OWNER'S PROPERTY LINE, 104.86 FEET RIGHT OF SOUTHBOUND STATE ROUTE 235 STATION 478 PLUS 59.36 MINUTES;

THENCE NORTH 84 DEGREES 25 MINUTES 47 SECONDS WEST WITH THE OWNER'S PROPERTY LINE, 33.57 FEET TO A POINT 71.30 FEET RIGHT OF SOUTHBOUND STATE ROUTE 235 STATION 478 PLUS 58.80;

THENCE WITH THE OWNER'S PROPERTY LINE, BEING EAST OF AND NORTH OF AND PARALLEL TO THE EXISTING LIMITED ACCESS RIGHT OF WAY LINE AT A PERPENDICULAR DISTANCE OF 10 FEET, THE FOLLOWING 4 COURSES:

SOUTH 02 DEGREES 01 MINUTES 00 SECONDS EAST, 259.48 FEET TO A POINT 109.81 FEET RIGHT OF SOUTHBOUND STATE ROUTE 235 STATION 476
PLUS 02.19;

THENCE SOUTH 08 DEGREES 28 MINUTES 15 SECONDS EAST, 122.47 FEET TO A POINT 141.48 FEET RIGHT OF SOUTHBOUND STATE ROUTE 235 STATION 474 PLUS 83.89;

THENCE SOUTH 41 DEGREES 18 MINUTES 29 SECONDS EAST, 342.27 FEET TO A POINT 395.14 FEET RIGHT OF SOUTHBOUND STATE ROUTE 235 STATION 472 PLUS 54.10;

THENCE SOUTH 62 DEGREES 51 MINUTES 16 SECONDS EAST, 189.90 FEET TO A POINT 572.86 FEET RIGHT OF SOUTHBOUND STATE ROUTE 235 STATION 471 PLUS 87.20;

THENCE WITH THE OWNER'S PROPERTY LINE, THE FOLLOWING 3 COURSES:

NORTH 05 DEGREES 37 MINUTES 01 SECONDS EAST, 14.55 FEET TO A POINT 572.63 FEET RIGHT OF SOUTHBOUND STATE ROUTE 235 STATION 472 PLUS 01.75;

THENCE SOUTH 84 DEGREES 22 MINUTES 59 SECONDS EAST, 25.00 FEET TO A POINT 597.63 FEET RIGHT OF SOUTHBOUND STATE ROUTE 235 STATION 472 PLUS 02.14;

THENCE SOUTH 05 DEGREES 37 MINUTES 01 SECONDS WEST, 25.00 FEET TO THE PLACE OF BEGINNING.

PPN: P70-03903-0048

PARCEL 4:

SITUATE IN SECTION 6, TOWN 2 RANGE 8 M.RS, CITY OF HUBER HEIGHTS, MONTGOMERY COUNTY, OHIO AND BEING PART OF THE LANDS OF THE PATRICK C.BURROWS, TRUST, AS RECORDED IN IR DEED 07-030113 OF THE MONTGOMERY COUNTY DEED RECORDS, ON FILE IN DAYTON, OHIO AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT A SET 5/8" IRON PIN AND CAP ON THE WESTERLY RIGHT-OF-WAY LINE OF STATE ROUTE 235 (MOT-70-22.72) AT THE NORTHEAST CORNER OF A GREEN SPACE LOT OF THE CENTERPOINT 70 BLVD PLAT, AS RECORDED IN PLAT BOOK 153, PAGE 5 IN THE NAME OF THE CITY OF HUBER HEIGHTS, AND ALSO BEING AT THE SOUTHEAST CORNER OF LOT 3 OF THE CENTERPOINT 70-II PLAT, AS RECORDED IN PLAT BOOK 168, PAGE 19 IN THE NAME OF BRADLEY M. DRAIN & TAMERA WARREN, AS RECORDED IN IR DEED 13-078587

THENCE ALONG A LINE THROUGH RIGHT-OF-WAY OF SAID STATE ROUTE 235, SOUTH 84°22'31" EAST, A DISTANCE OF 151.81 FEET TO A SET 5/8" IRON PIN AND CAP ON THE EASTERLY RIGHT-OF-WAY LINE OF SAID STATE ROUTE 235 AT THE SOUTHWEST CORNER OF LANDS IN THE NAME THE NANCY E. NEFF TRUST, AS RECORDED IN I.R. DEED 09-031325, ALSO BEING THE TRUE POINT OF BEGINNING.

THENCE ALONG THE SOUTHERLY LINE OF SAID NEFF TRUST LANDS, SOUTH 84°22'31" EAST, A DISTANCE OF 887.54 FEET TO A SET 5/8" IRON PIN AND CAP ON THE CLARK COUNTY LINE, ALSO BEING THE WESTERLY LINE OF SECTION 35, TOWN 3, RANGE 8 M.RS, AT THE SOUTHWEST CORNER OF LANDS IN THE NAME OF OLD DOMINION FREIGHT LINE, INC., AS RECORDED IN O.R. 2165, PG 5785 (CLARK COUNTY), AND THE NORTHWEST CORNER OF LANDS IN THE NAME NANCY E. NEFF TRUST, AS RECORDED IN O.R. 1680, PG 793 (CLARK COUNTY), SAID POINT ALSO BEING ON THE:

THENCE ALONG SAID COUNTY LINE, SECTION LINE AND NEFF TRUST LANDS, SOUTH 04°54'21" WEST, A DISTANCE OF 866.74 FEET TO A SET 5/8" IRON PIN AND CAP ON A NORTHEASTERLY CORNER OF LANDS OF THE PATRICK C. BURROWS TRUST, AS RECORDED IN IR DEED 20-040662;

THENCE ALONG SAID BURROWS TRUST LANDS, NORTH 84°06'15" WEST, A DISTANCE OF 815.28 FEET TO A FOUND 5/8" IRON PIN (NO CAP) ON THE SOUTHEASTERLY CORNER OF LANDS OF FRED R. GREIL AS RECORDED IN I.R. DEED 20-041154;

THENCE ALONG SAID GREIL LANDS NORTH 09°30'46" EAST, A DISTANCE OF 196.98 FEET TO A SET 5/8" IRON PIN AND CAP ON THE SOUTHEAST CORNER OF THE LANDS OF RAY W. & ANITA HACKER, AS RECORDED IN DMF 84-274D05;

THENCE ALONG SAID HACKER LANDS, THE FOLLOWING 2 (TWO) COURSES:

1. NORTH 10°30'04" EAST, A DISTANCE OF 249.94 FEET TO A SET 5/8" IRON PIN AND CAP;
2. NORTH 81°53'04" WEST, A DISTANCE OF 200.00 FEET TO A SET 5/8" IRON PIN AND CAP ON THE AFOREMENTIONED EASTERLY RIGHT-OF-WAY OF STATE ROUTE 235;

THENCE ALONG SAID EASTERLY RIGHT-OF-WAY OF STATE ROUTE 235, 417.10 FEET ON A CURVE TO THE RIGHT, SAID CURVE HAVING A 2,799.79' RADIUS, AND BEING SUBTENDED BY A CHORD BEARING NORTH 16°58'57" EAST, A DISTANCE OF 416.72 FEET TO THE TRUE POINT OF BEGINNING.

CONTAINING: 17.1363 TOTAL ACRES. BEING SUBJECT TO ALL EASEMENTS, COVENANTS, CONDITIONS, RESERVATIONS AND RESTRICTIONS OF RECORD.

NORTH AND BEARINGS SYSTEM BASED UPON THE OHIO STATE PLANE COORDINATE SYSTEM, SOUTH ZONE, NAD83(18), AND THE OHIO DEPARTMENT TRANSPORTATION V.R.S. NETWORK, AND A FIELD SURVEY CONDUCTED BY BA LAND PROFESSIONALS ON 12/15/2021 REFERENCED BY THE WESTERLY RIGHT-OF-WAY LINE OF ARTZ ROAD (N38°24'39"E), ALL MONUMENTS CALLED TO BE SET ARE 5/8" X 30" REBAR WITH YELLOW IDENTIFICATION CAP STAMPED "BA LAND PROFESSIONALS' UNLESS NOTED OTHERWISE RECORDED WITH THE MONTGOMERY COUNTY ENGINEER'S RECORD OF LAND SURVEYS VOLUME 2022, PAGE 101.

PPN: P70-03903-0003

PARCEL 5:

SITUATE IN THE SOUTH HALF OF SECTION 6, TOWN 2, RANGE 8 M.R.S. CITY OF HUBER HEIGHTS, MONTGOMERY COUNTY, OHIO, BOUNDED AND DESCRIBED AS FOLLOWS:

BEGINNING AT A STONE AT THE NORTHEAST CORNER OF THE SOUTHEAST QUARTER OF SAID SECTION 6;

THENCE, SOUTH 4 DEGREES 59' WEST, WITH THE EAST LINE OF SECTION 6, BEING THE LINE BETWEEN MONTGOMERY COUNTY AND CLARK COUNTY, A DISTANCE OF 854.29 FEET TO A STEEL FENCE POST MARKING THE TRUE PLACE OF BEGINNING OF THE TRACT HEREIN DESCRIBED;

THENCE, CONTINUING SOUTH 4 DEGREES 59' WEST, WITH THE EAST LINE OF SECTION 6 AND THE COUNTY LINE, A DISTANCE OF 946.41 FEET TO A WOOD CORNER POST;

THENCE, NORTH 84 DEGREES 47' WEST 521.61 FEET TO AN IRON PIN IN THE EASTERLY LIMITS OF A PERPETUAL EASEMENT FOR LIMITED ACCESS HIGHWAY PURPOSES, KNOWN AS HIGHWAY DEPARTMENT PARCEL NO. 7-LA AND RECORDED IN VOLUME 477, PAGE 106, OF THE COMMON PLEAS COURT RECORDS OF MONTGOMERY COUNTY, OHIO;

THENCE, WITH THE EASTERLY LIMITS OF SAID EASEMENT THE FOLLOWING SIX (6) BEARINGS AND DISTANCES, NORTH 66 DEGREES 58' WEST 3.95 FEET TO A CONCRETE MONUMENT;

THENCE, NORTH 62 DEGREES 53' WEST 191.28 FEET TO A CONCRETE MONUMENT;

THENCE, NORTH 41 DEGREES 21' WEST 347.3 FEET TO A CONCRETE MONUMENT;

THENCE NORTH 11 DEGREES 03' WEST 146.14 FEET TO A CONCRETE MONUMENT;

THENCE NORTH 0 DEGREES 20' WEST 284.29 FEET TO A CONCRETE MONUMENT;

THENCE NORTH 6 DEGREES 23' EAST 211.89 FEET TO AN IRON PIN;

THENCE, LEAVING SAID EASEMENT, SOUTH 84 DEGREES 47' EAST A DISTANCE OF 1015.32 FEET TO THE PLACE OF BEGINNING, CONTAINING 20.190 ACRES, MORE OR LESS.

EXCEPTING FROM THE ABOVE DESCRIBED 20.190 ACRES TRACT THE 49667.04 SQUARE FEET THEREOF CONVEYED BY REAL ESTATE INVESTORS LAND CORPORATION TO THE STANDARD OIL COMPANY BY DEED RECORDED IN MICROFICHE 72-9B09 IN THE OFFICE OF THE RECORDER OF MONTGOMERY COUNTY, OHIO.

EXCEPTING THEREFROM THE FOLLOWING DESCRIBED PARCEL WHICH IS TO BE CONVEYED TO THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION FOR HIGHWAY PURPOSES:

THAT PORTION OF THE GRANTOR'S PROPERTY AFFECTED BY THIS DESCRIPTION IS UNDERSTOOD TO BE THE WESTERLY SIDE OF PARCEL II IN THE OWNER'S DEED.

COMMENCING AT AN IRON PIPE OVER STONE AT THE NORTHEAST CORNER OF THE SOUTHEAST QUARTER OF SECTION 6, TOWN 2, RANGE 8 MRS AND ON THE COUNTY LINE BETWEEN MONTGOMERY AND CLARK COUNTIES; THENCE SOUTH 05 DEGREES 02 MINUTES 35 SECONDS WEST WITH THE EASTERLY LINE OF SECTION 6 AND WITH THE COUNTY LINE 1800.70 FEET TO A POINT 824.24 FEET LEFT OF STATION 0 PLUS 35.91 OF A SURVEY OF INTERSTATE 70 MADE ALONG WITH A SURVEY OF STATE ROUTE 235 RECORDED AS NOTED ABOVE; THENCE NORTH 84 DEGREES 22 MINUTES 59 SECONDS WEST, 518.36 FEET TO A POINT ON THE EXISTING LIMITED ACCESS RIGHT OF WAY LINE, 573.03 FEET RIGHT OF SOUTHBOUND STATE ROUTE 235 STATION 471 PLUS 76.75; THENCE WITH THE EXISTING LIMITED ACCESS RIGHT OF WAY LINE, THE FOLLOWING 5 COURSES: NORTH 66 DEGREES 54 MINUTES 03 SECONDS WEST, 3.95 FEET TO A POINT 569.24 FEET RIGHT OF SOUTHBOUND STATE ROUTE 235 STATION 471 PLUS 17.88; THENCE NORTH 62 DEGREES 51 MINUTES 16 SECONDS WEST, 191.70 FEET TO A CONCRETE MONUMENT, 389.83 FEET RIGHT OF SOUTHBOUND STATE ROUTE 235 STATION 472 PLUS 45.4' 1; THENCE NORTH 41 DEGREES 18 MINUTES 29 SECONDS WEST, 347.11 FEET TO A CONCRETE MONUMENT, 132.58 FEET RIGHT OF SOUTHBOUND STATE ROUTE 235 STATION 474 PLUS 78.46; THENCE NORTH 08 DEGREES 28 MINUTES 15 SECONDS WEST, 125.98 FEET TO AN IRON PIN, 100.00 FEET RIGHT OF SOUTHBOUND STATE ROUTE 235 STATION 476 PLUS 00.15; THENCE NORTH 02 DEGREES 01 MINUTE 00 SECONDS WEST, 261.38 FEET TO AN IRON PIN, 61.21 FEET RIGHT OF SOUTHBOUND STATE ROUTE 235 STATION 478 PLUS 58.63; THENCE SOUTH 84 DEGREES 25 MINUTES 47 SECONDS EAST, 10.09 FEET TO A POINT ON ONE OF THE OWNER'S PROPERTY CORNERS, 71.30 FEET RIGHT OF SOUTHBOUND STATE ROUTE 235 STATION 478 PLUS 58.80, AND THIS IS THE TRUE PLACE OF BEGINNING; THENCE CONTINUE SOUTH 84 DEGREES 25 MINUTES 47 SECONDS EAST WITH ONE OF THE OWNER'S NORTHERLY PROPERTY LINES, 33.57 FEET TO A POINT ON THE PROPOSED LIMITED ACCESS RIGHT OF WAY LINE 104.86 FEET RIGHT OF SOUTHBOUND STATE ROUTE 235 STATION 478 PLUS 59.36; THENCE SOUTH 03 DEGREES 51 MINUTES 27 SECONDS EAST WITH THE PROPOSED LIMITED ACCESS RIGHT OF WAY LINE, 417.18 FEET TO A POINT ON THE OWNER'S SOUTHERLY PROPERTY LINE, 180 FEET RIGHT OF SOUTHBOUND STATE ROUTE 235 STATION 474 PLUS 49.00; THENCE WITH THE OWNER'S SOUTHERLY AND WESTERLY PROPERTY LINE AND BEING PARALLEL TO AND 10 FEET PERPENDICULAR DISTANCE NORTH OF AND EAST OF THE EXISTING LIMITED ACCESS RIGHT OF WAY LINE, THE FOLLOWING 3 COURSES, NORTH 41 DEGREES 18 MINUTES 29 SECONDS WEST, 51.98 FEET TO A POINT 141.48 FEET RIGHT OF SOUTHBOUND STATE ROUTE 235 STATION 474 PLUS 83.89; THENCE NORTH 08 DEGREES 28 MINUTES 15 SECONDS WEST, 122.47 FEET TO A POINT 109.81 FEET RIGHT OF SOUTH BOUND STATE ROUTE 235 STATION 476 PLUS 02.19; THENCE NORTH 02 DEGREES 01 MINUTE 00 SECONDS WEST, 259.48 FEET TO THE PLACE OF BEGINNING.

IT IS UNDERSTOOD THAT THE STRIP OF LAND ABOVE DESCRIBED CONTAINS 0.337 OF AN ACRE, MORE OR LESS, INCLUDING THE PRESENT ROAD WHICH OCCUPIES NO ACRES, MORE OR LESS.

THE DESCRIPTION FOR PARCEL NUMBER 8-WL ABOVE WAS CALCULATED AND DERIVED FROM A CENTERLINE SURVEY MADE BY THE OHIO DEPARTMENT OF TRANSPORTATION. RICHARD HELMLINGER, REGISTERED SURVEYOR NUMBER 5421.

PPN: P70-03903-0079

PARCEL 6

INTENTIONALLY DELETED

PARCEL 2
AS-SURVEYED LEGAL DESCRIPTION

Situated in Section 6, Town 2, Range 8 M.Rs., City of Huber City Heights, Montgomery County, Ohio and being all of a 1.143 acre parcel conveyed to Ray W. & Anita Hacker as recorded in Deed Microfiche 84-274D05 and being more particularly described as follows:

Beginning, at a found 5/8" iron pin with "CESO" cap at the northeast corner of the southeast quarter of Section 6, said point also being the southeast corner of Lot 1 of S.R. 235 Industrial Park Corrective Plat as recorded in Plat Book 239, Page 12, and the northeast corner of a 1.03 acre parcel conveyed to Nancy E. Neff Trust as recorded in I.R. Deed 09-031325, and the northwest corner of a 69.02 acre parcel conveyed to Nancy E. Neff Trust as recorded in Instrument Number 2009-00006881 (Clark County) and being on the County Line of Montgomery County and Clark County;

Thence along said County Line, east line of Section 6 and Neff Trust lands, South 04°57'21" West, a distance of 50.00 feet to a found 5/8" iron pin with no cap being the **True Point of Beginning;**

Thence continuing along said County Line, East line of Section 6 and Neff Trust lands **South 04°57'21" West**, a distance of **815.41 feet** to a found 5/8" iron pin with yellow "BA Professionals" cap;

Thence continuing along said County Line, East line of Section 6 and Neff Trust lands **South 05°05'54" West**, a distance of **935.73 feet** to a set iron pin at the northeast corner of a 1.019 acre highway parcel 7-WL in the name of Span-America Motels, Inc. as recorded in Deed Microfiche 91-287D03;

Thence along said north line of said Span-America Motels, Inc. land, **North 84°42'37" West**, a distance of **491.11 feet** to a set iron pin in the southeast corner of 0.309 acre Highway Parcel 9-WL as shown on roadway plans MOT-70-22.72, said parcel in the name of State of Ohio, and recorded in Deed Microfiche 85-234D08;

Thence along the northeasterly limited-access right-of-way lines of said Highway Parcel 9-WL for the following courses:

- **North 05°36'10" East**, a distance of **25.35 feet** to a set iron pin
- **North 84°23'50" West**, a distance of **25.00 feet** to a found ½" iron pin with no cap;
- **South 05°36'10" West**, a distance of **16.73 feet** to a set iron pin;
- **North 62°52'07" West**, a distance of **195.70 feet** to a set iron pin;
- **North 41°14'26" West**, a distance of **290.28 feet** to a set iron pin at the southeast corner of 0.337 acre Highway Parcel 8-WL as shown on right-of-way plan MOT-70-22.72, said parcel in the name of State of Ohio, and recorded in Deed Microfiche 85-029E02;

Thence along the easterly limited-access right-of-way line of said Highway Parcel 8-WL, **North 03°47'24" West**, a distance of **417.18 feet** to a found 5/8" iron pin with "Haley-Dusa 7143" cap at the southwest corner of a 0.831 acre parcel conveyed to Fred Greil as conveyed in I.R. Deed 19-055763 and the southeast corner aforesaid 0.309 acre Highway Parcel 9-WL;

Thence along the southerly, easterly, and northerly lines of said Fred Greil land for the following courses:

- **South 84°46'54" East**, a distance of **150.84 feet** to a found 5/8" iron pin with no cap;
- **North 06°27'21" East**, a distance of **200.41 feet** to a found 5/8" iron pin with no cap;
- **North 84°31'30" West**, a distance of **200.24 feet** to a 3/4" iron pin with no cap on the east right-of-way line of State Route 235 as described in MOT-70-22.72;

Thence along said easterly right-of-way line of State Route 235, **North 05°41'54" East**, a distance of **51.75 feet** to a set iron pin at the southwest corner of a 0.916 acre parcel conveyed to Fred R. Greil as recorded in I.R. Deed 20-041154;

Thence along the southerly line of said Fred R. Greil land, **South 84°07'15" East**, a distance of **200.00 feet** to a found 5/8" iron pin with no cap;

Thence along the easterly line of said Fred R. Greil land, **North 09°19'06" East**, a distance of **197.21 feet** to a
set iron pin at the southeast corner of a 1.143 acre parcel conveyed to Ray W. and Anita Hacker as recorded in Deed Microfiche 84-274D05;

Thence along the easterly and northerly lines of said Ray W. and Anita Hacker land for the following courses:

- **North 10°13'31" East**, a distance of **250.26 feet** to a set iron pin;
- **North 85°02'54" West**, a distance of **200.00 feet** to a set iron pin in the easterly right-of-way line of aforesaid State Route 235, formerly State Route 69;

Thence along said easterly right-of-way line of State Route 235 on a curve to the right with a radius of **2799.79 feet**, an arc distance of **375.24 feet**, a delta angle of **7°40'44"** and a chord bearing North 16°10'43" East, a distance of 374.95 feet to a set iron pin at the southwest corner of aforesaid Nancy E. Neff Trust land;

Thence along the southerly line of said Nancy E. Neff Trust land, **South 84°19'31" East**, a distance of **904.19 feet** to the **True Point of Beginning.**

Containing 34.6767 acres, more or less. Subject to all covenants, restrictions, reservations and easements contained in any instrument of record pertaining to the above described tract of land.

All iron pins called as set are 5/8" x 30" rebar with yellow cap stamped "CESO".

North and Bearing system based upon the Ohio State Plane south (NAD83) established from utilizing the Ohio Real Time Network (RTN) provided by the Ohio Department of Transportation. Bearings based on the construction centerline of State Route 235, being North 06°31'06" East.

PARCEL 3
AS-SURVEYED LEGAL DESCRIPTION

Situated in Section 6, Town 2, Range 8 M.Rs., City of Huber City Heights, Montgomery County, Ohio and being all of a 0.831 acre parcel conveyed to Fred Greil as recorded in I.R. Deed 19-055763 and being more particularly described as follows:

Beginning at a found 5/8" iron pin with "CESO" cap at the northeast corner of the southeast quarter of Section 6, said point also being the southeast corner of Lot 1 of S.R. 235 Industrial Park Corrective Plat as recorded in Plat Book 239, Page 12, and the northeast corner of a 1.03 acre parcel conveyed to Nancy E. Neff Trust as recorded in I.R. Deed 09-031325, and the northwest corner of a 69.02 acre parcel conveyed to Nancy E. Neff Trust as recorded in Instrument Number 2009-00006881 (Clark County) and being on the County Line of Montgomery County and Clark County;

Thence along said County Line, east line of Section 6 and Neff Trust lands, South 04°57'21" West, a distance of 50.00 feet to a found 5/8" iron pin with no cap at the northeast corner of a 17.1363 acre parcel designated as Tract 1 (Per Deed) conveyed to Philly Petroleum LLC as recorded in I.R. Deed 22-041575;

Thence along the northerly line of said Philly Petroleum LLC land, North 84°19'31" West, a distance of 904.19 feet to a set iron pin in the easterly right-of-way line of State Route 235, formerly State Route 69, as described in MOT-70-22.72;

Thence along said easterly line of State Route 235 and the westerly line of aforesaid Philly Petroleum LLC land, on a curve to the left with a radius of 2799.79 feet, an arc distance of 375.24 feet, a delta angle of 7°40'44" and a chord bearing South 16°10'43" West, a distance of 374.95 feet to a set iron pin at the **True Point of Beginning;**

Thence along the westerly line of said Philly Petroleum LLC land for the following courses:

- **South 85°02'54" East**, a distance of **200.00 feet** to a set iron pin;
- **South 10°13'31" West**, a distance of **250.26 feet** to an iron pin on the northwest corner of a 0.916 acre parcel conveyed to Fred R. Greil as recorded in I.R. Deed 20-041154;

Thence along the northerly line of said Fred R. Greil land, **North 84°57'00" West**, a distance of **200.00 feet** to a found 3/4" iron pin with no cap on the aforementioned easterly right-of-way line of State Route 235;

Thence along the said easterly right-of-way line of State Route 235 for the following courses:
North 09°22'19" East, a distance of **106.44 feet** to a set iron pin;

Thence on a curve to the right with a radius of **2799.79 feet**, an arc distance of **143.52 feet**, a delta angle of **2°56'13"** and a chord bearing North 10°52'14" East, a distance of 143.50 feet to the **True Point of Beginning**.

Containing 1.1501 acres, more or less. Subject to all covenants, restrictions, reservations and easements contained in any instrument of record pertaining to the above described

ALTA / NSPS LAND TITLE SURVEY

NW CORNER OF I-70 & S.R. 235
SECTION 6, TOWN 2, RANGE 8 M.R.s.
CITY OF HUBER HEIGHTS, MONTGOMERY COUNTY, STATE OF OHIO



BENCHMARKS:

BM 1 - X-CUT ON THE SOUTHWEST ANCHOR BOLT ON THE TRAFFIC POLE LOCATED ON THE SOUTHEAST CORNER OF THE INTERSECTION OF CENTER POINT 70 BOULEVARD & S.R. 235.
ELEV. = 847.40 (NAVD 88)

BM 2 - X-CUT ON THE SOUTHEAST ANCHOR BOLT FOR THE SLINGIN MUDD SIGN LOCATED ON THE WEST SIDE OF S.R. 235APPROXIMATLY 350 NORTH OF ARTZ ROAD.
ELEV. = 849.88 (NAVD 88)

BM 3 - SPIKE SET IN THE NORTH FACE OF A POWER POLE LOCATED 53± FEET SOUTHWEST OF THE BUILDING LOCATED AT 8000 S.R. 235.
ELEV. = 846.31 (NAVD 88)

MONUMENT LEGEND

- ◎ ○ REBAR/IRON PIN FOUND AS NOTED
- ⊠ CONCRETE MONUMENT FOUND 5/8" X 30" REBAR SET WITH A CESO CAP

LEGEND

- EXISTING UTILITY POLE
- EXISTING BENCHMARK
- EXISTING FIRE HYDRANT
- EXISTING STORM INLET/CATCH BASIN
- EXISTING CURB INLET
- EXISTING MONITORING WELL
- EXISTING SIGN
- EXISTING SEWER MANHOLE
- EXISTING LIGHT POLE
- EXISTING PROPERTY BOUNDARY
- EXISTING PROPERTY LINE
- EXISTING PAVEMENT
- EXISTING TREE LINE
- UGT — EXISTING COMM/TELEPHONE LINE
- OHL — OHL — EXISTING OVERHEAD UTILITY LINE
- G — G — EXISTING UNDERGROUND GAS LINE
- X — X — EXISTING FENCE
- ST — ST — EXISTING STORM LINE
- SAN — SAN — EXISTING SANITARY LINE

CESO
WWW.CESOINC.COM
3601 Rigby Rd., Suite 300
Miamisburg, OH 45342
Phone: 937.435.8584 Fax: 888.208.4826

KIMLEY HORN

NW CORNER OF I-70 & S.R. 235
CITY OF HUBER HEIGHTS, OHIO

Revisions / Submissions

ID	Description	Date

Project Number:	762451
Scale:	1" = 50'
Drawn By:	DAS / RSL
Checked By:	JKH
Date:	02/14/2024
Issue:	

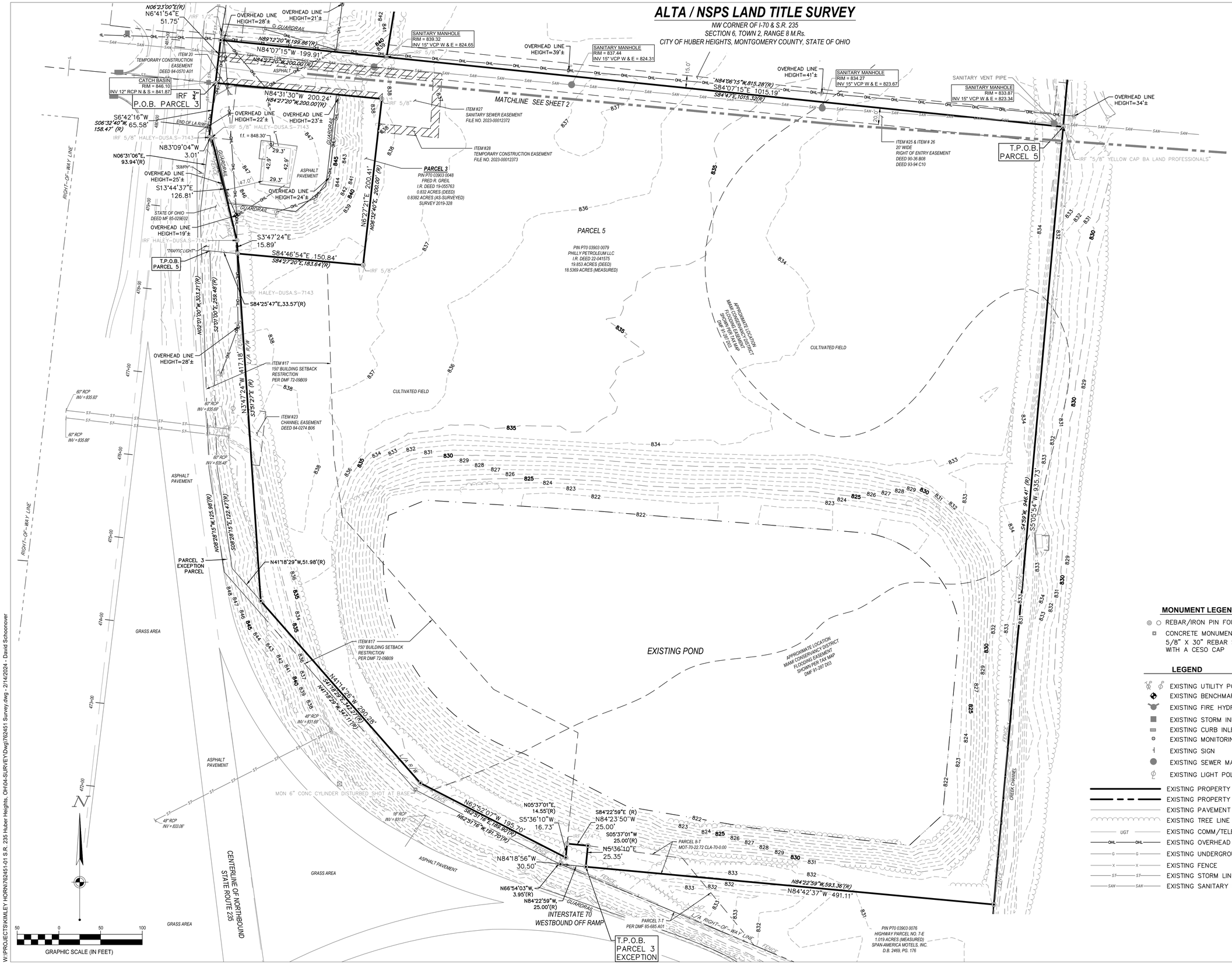
Drawing Title:
ALTA/NSPS LAND TITLE SURVEY

2 OF 3

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ALTA / NSPS LAND TITLE SURVEY

NW CORNER OF I-70 & S.R. 235
SECTION 6, TOWN 2, RANGE 8 M.Rs.
CITY OF HUBER HEIGHTS, MONTGOMERY COUNTY, STATE OF OHIO



MONUMENT LEGEND

- REBAR/IRON PIN FOUND AS NOTED
- CONCRETE MONUMENT FOUND 5/8" X 30" REBAR SET WITH A CESO CAP

LEGEND

- EXISTING UTILITY POLE
- EXISTING BENCHMARK
- EXISTING FIRE HYDRANT
- EXISTING STORM INLET/CATCH BASIN
- EXISTING CURB INLET
- EXISTING MONITORING WELL
- EXISTING SIGN
- EXISTING SEWER MANHOLE
- EXISTING LIGHT POLE
- EXISTING PROPERTY BOUNDARY
- EXISTING PROPERTY LINE
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- X — X — EXISTING FENCE
- ST — ST — EXISTING STORM LINE
- SAN — SAN — EXISTING SANITARY LINE

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KIMLEY HORN

NW CORNER OF I-70 & S.R. 235

CITY OF HUBER HEIGHTS, OHIO

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Date:	02/14/2024
Issue:	

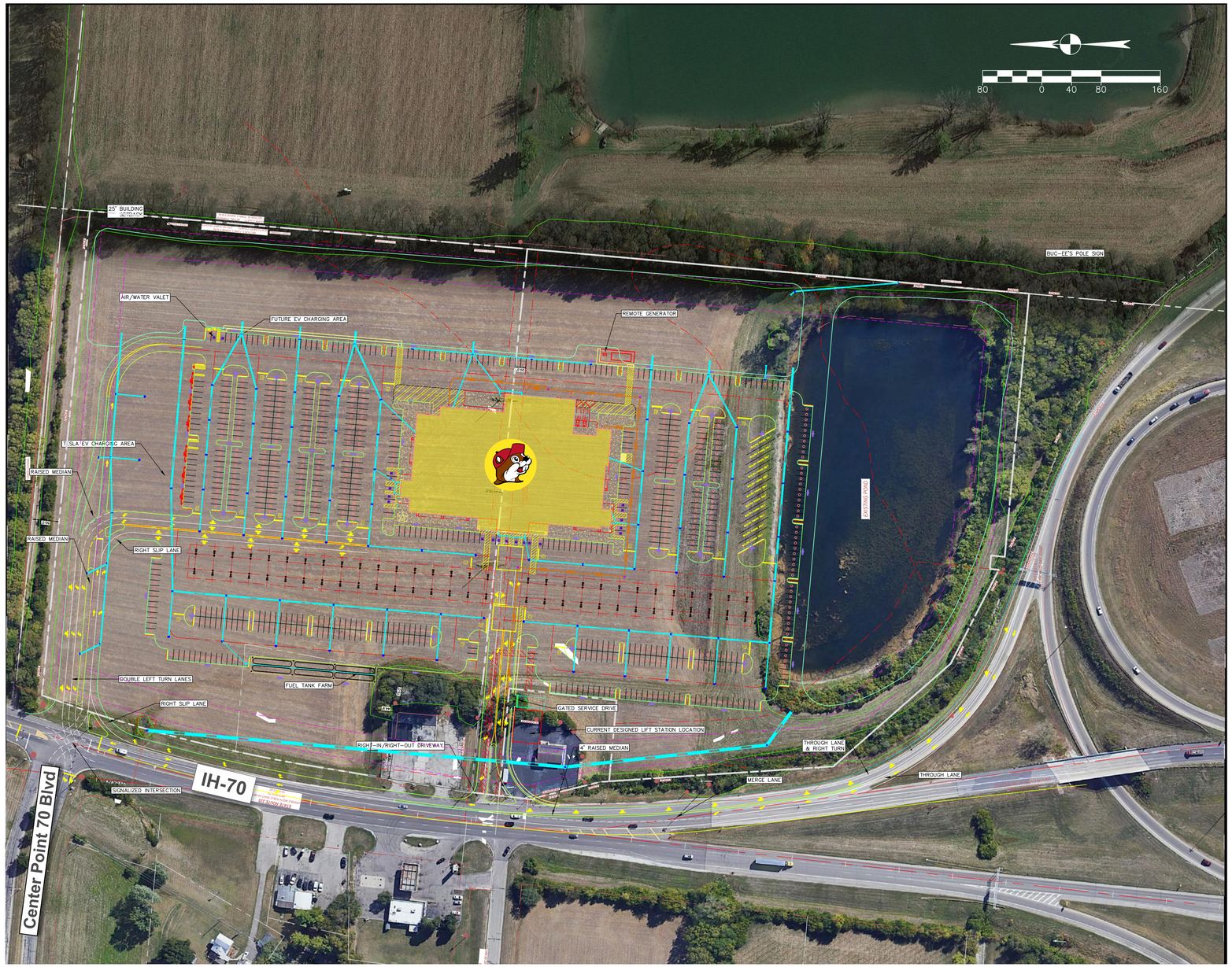
Drawing Title:
ALTA/NSPS LAND TITLE SURVEY

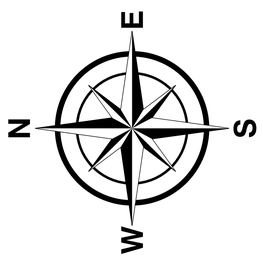
3 of 3

W:\PROJECTS\KIMLEY HORN\762451-01 S.R. 235 Huber Heights, OH\04-SURVEY\Dwg\762451 Survey.dwg - 2/14/2024 - David Schoonover

BUC-EE'S

Interstate Highway 70 & Alt IH-70 Huber Heights, OH





Apex SIGN GROUP

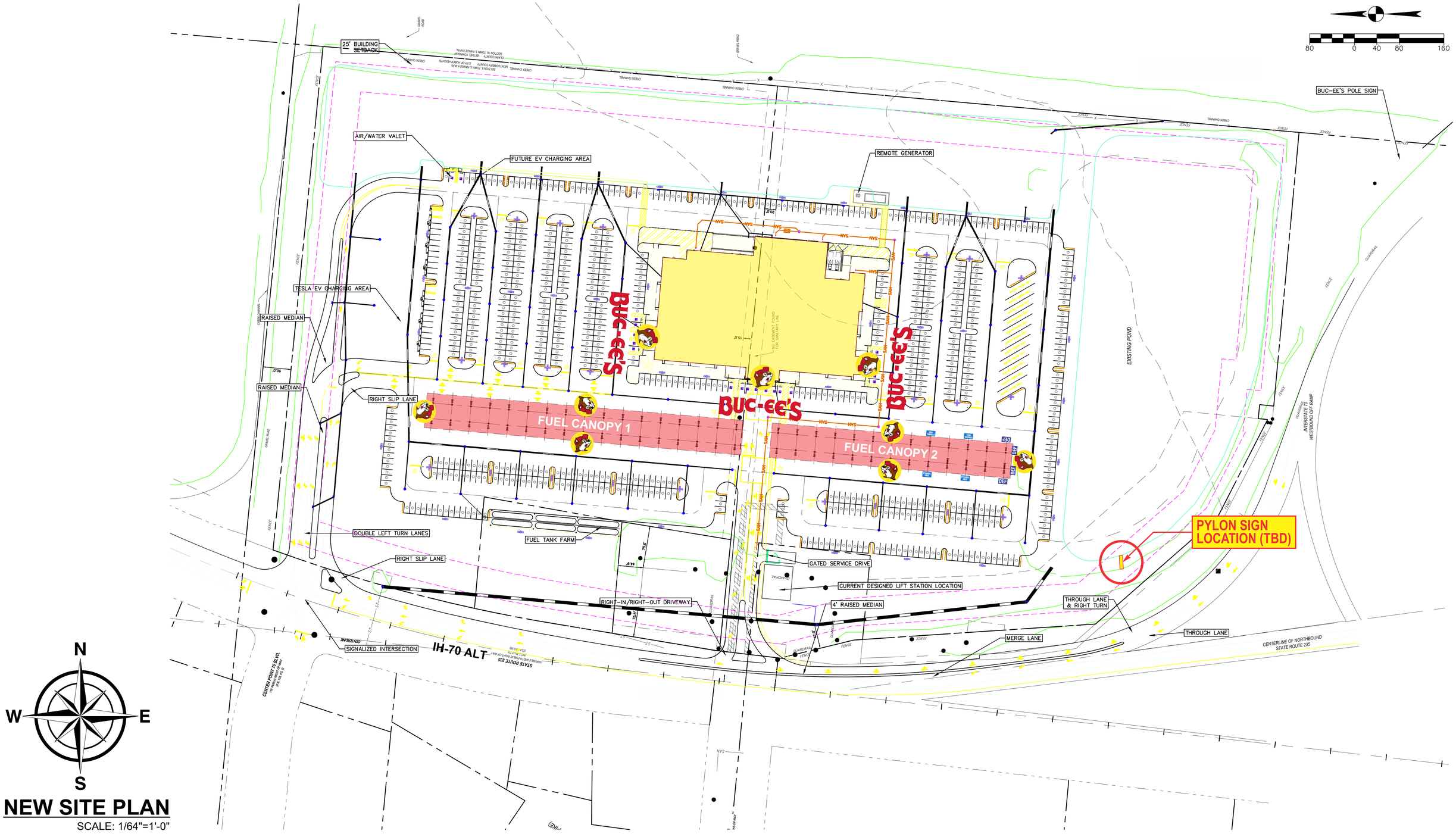
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Buc-ee's
Interstate Highway 70 & Alt IH-70
Huber Heights, OH

Project ID#:	**136748**
Project Mgr:	Brenda Beams
Designer:	JR
Created on:	04/22/2024

REVISION: R1

Aerial
SG-01



NEW SITE PLAN

SCALE: 1/64"=1'-0"

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Buc-ee's
Interstate Highway 70 & Alt IH-70
Huber Heights, OH

Project ID#: **136748**
Project Mgr: Brenda Beams
Designer: JR
Created on: 04/22/2024

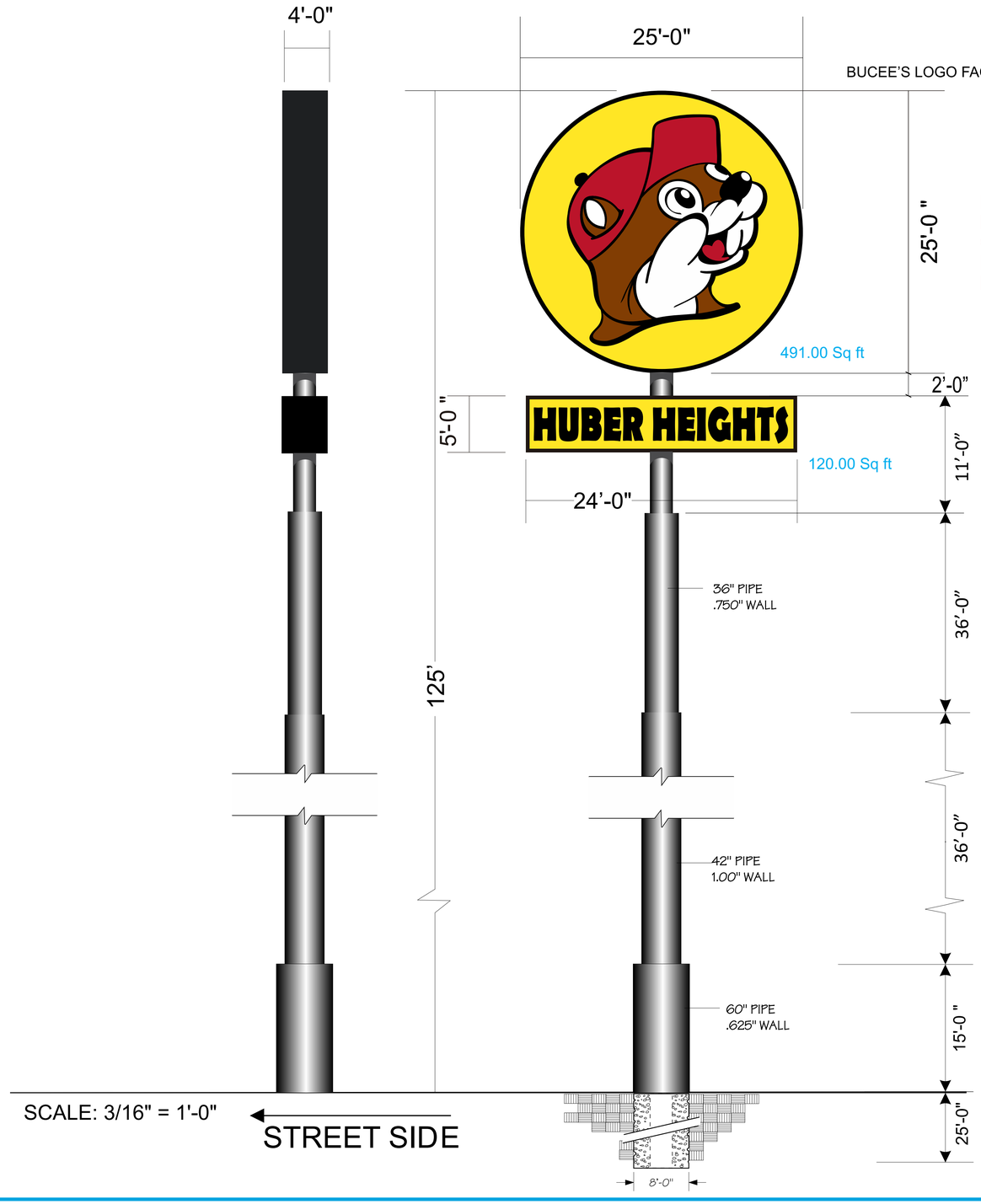
REVISION R1

Site Plan
SG-02

611.00 SQ. FT.

25’ LOGO &
5’-0” x 24’-0” HUBER HEIGHTS PANEL
125’ OAH

NOTE: PYLON SIGN LOCATION TO BE DETERMINED



NOTE:
BEAVER LOGO
ON PYLON SIGN
FACES TOWARDS
BUILDING



OPPOSITE VIEW
LOGO FACES LEFT

NOTE:
BEAVER LOGO
ON PYLON SIGN
FACES TOWARDS
BUILDING

LOGO COLOR SPECS

- ARLON 33 RED • PMS 485c
- ARLON 63 RUST • PMS 483c
- ARLON 15 YELLOW • PMS 109c
- BLACK
- WHITE

NOTE:
The orientation notation (Placed on all sign construction plans) needs to be *"as directed by GC on date of installation"* and the GC needs to take resposibility for checking with us on how we want the orientation to be.

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Buc-ee's
Interstate Highway 70 & Alt IH-70
Huber Heights, OH

Project ID#: **136748**
Project Mgr: Brenda Beams
Designer: JR
Created on: 04/22/2024

REVISION R1

Pylon Sign
SG-03

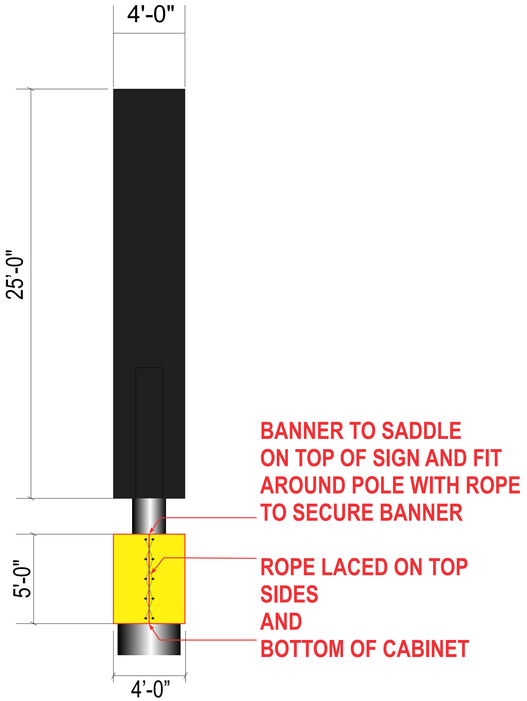
25' LOGO &
5'-0" X 25'-0" NAME CABINET
100' OAH

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

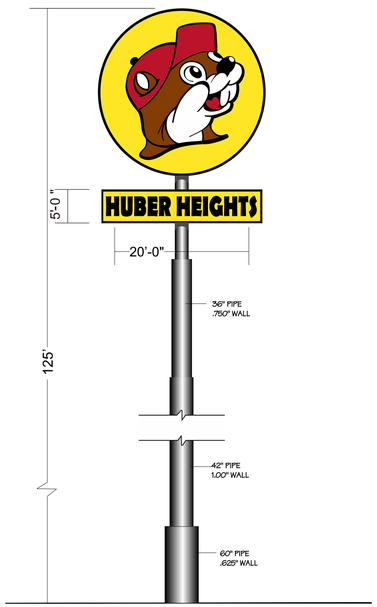


OPPOSITE VIEW
SCALE: 1/4" = 1'-0"

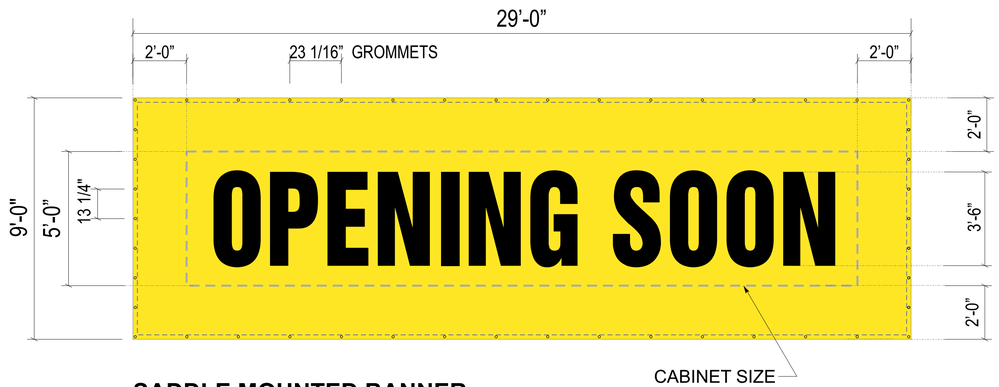




END VIEW
SCALE: 1/4" = 1'-0"



ELEVATION VIEW
SCALE: 3/32" = 1'-0"



SADDLE MOUNTED BANNER
SCALE: 3/8" = 1'-0"

MFG AND INSTALL TWO (2) FLEX MATERIAL BANNERS HEMMED WITH GROMMETS TO SADDLE OVER TOP OF CABINET AND WRAPPED AROUND BOTH SIDES LACE TIED AROUND POLE WITH ROPE ON TOP, BOTTOM AND SIDES

- ARLON 15 YELLOW • PMS 109c
- ARLON 22 BLACK

Apex SIGN GROUP

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Buc-ee's
Interstate Highway 70 & Alt IH-70
Huber Heights, OH

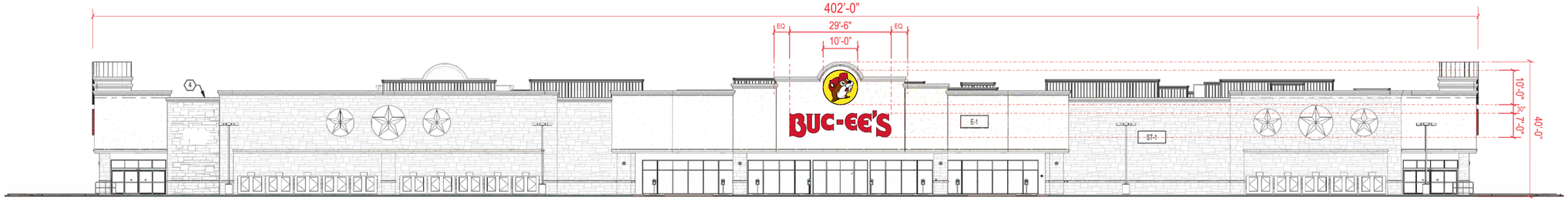
Project ID#: **136748**
Project Mgr: Brenda Beams
Designer: JR
Created on: 04/22/2024

REVISION R1

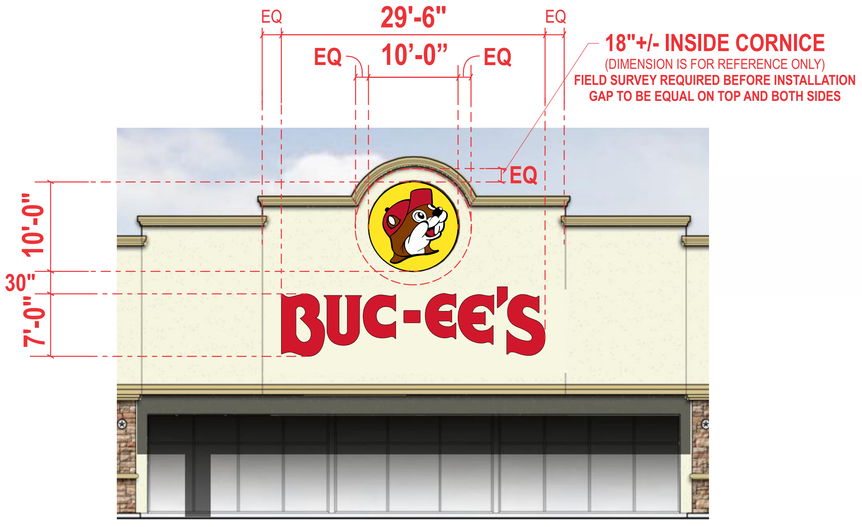
Pylon Banner
SG-04

LOGO:
78.50 SQ. FT. (ea.)

BUC-EE'S:
206.42 SQ. FT. (ea.)



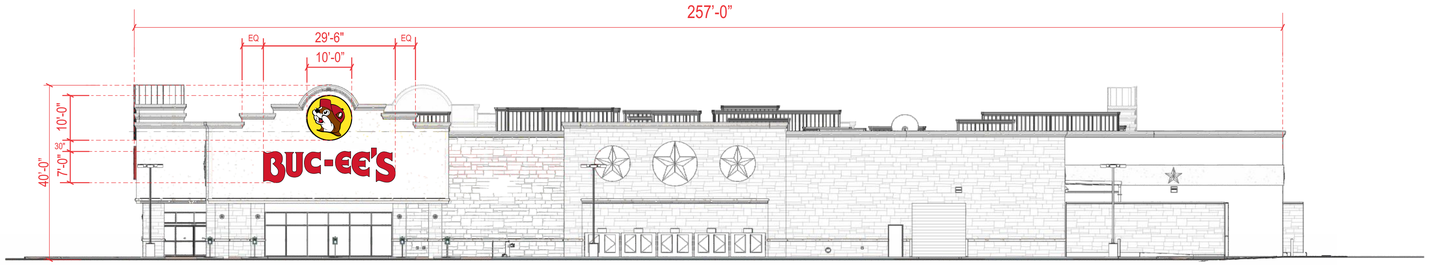
1 | EXTERIOR ELEVATION - MAIN ENTRANCE / WEST | 1/16" = 1'-0"



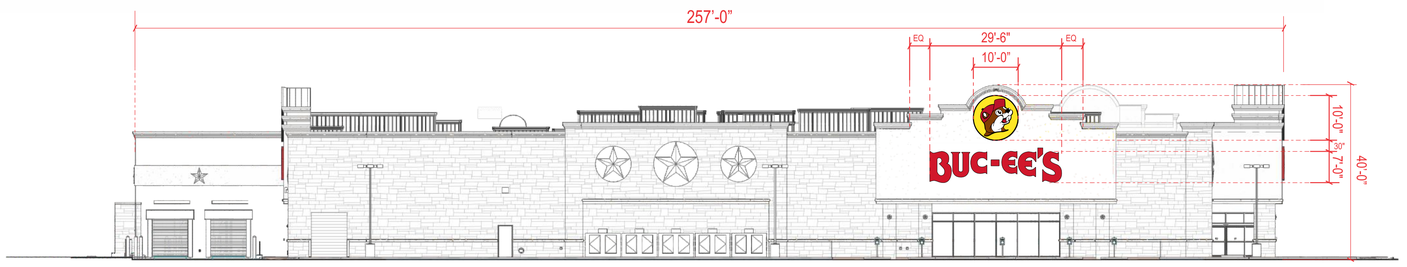
BUILDING LOGO DETAIL (TYP.)

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

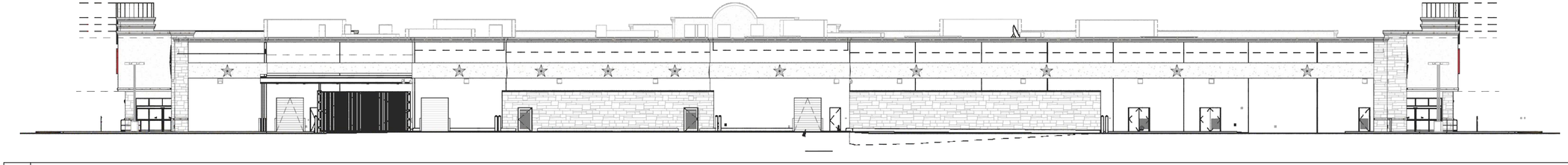
**NOTE: 18" IS FOR REFERENCE *ONLY*. LOGO IS TO BE PLACED AS PRESENTED IN DRAWING.
THE GAP BETWEEN BOTH LEFT AND RIGHT IS TO BE EQUAL DISTANCE FROM THE TOP.
SAME AS LEFT AND RIGHT SIDE. THE AREA AROUND THE LOGO TO BE EQUAL AROUND THE ARCH.**



2 | EXTERIOR ELEVATION - CONVENIENCE ENTRANCE / SOUTH | 1/16" = 1'-0"



3 | EXTERIOR ELEVATION - MERCHANDISE ENTRANCE / NORTH | 1/16" = 1'-0"



4 | EXTERIOR ELEVATION - MAIN ENTRANCE / EAST | 1/16" = 1'-0"

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Buc-ee's
Interstate Highway 70 & Alt IH-70
Huber Heights, OH

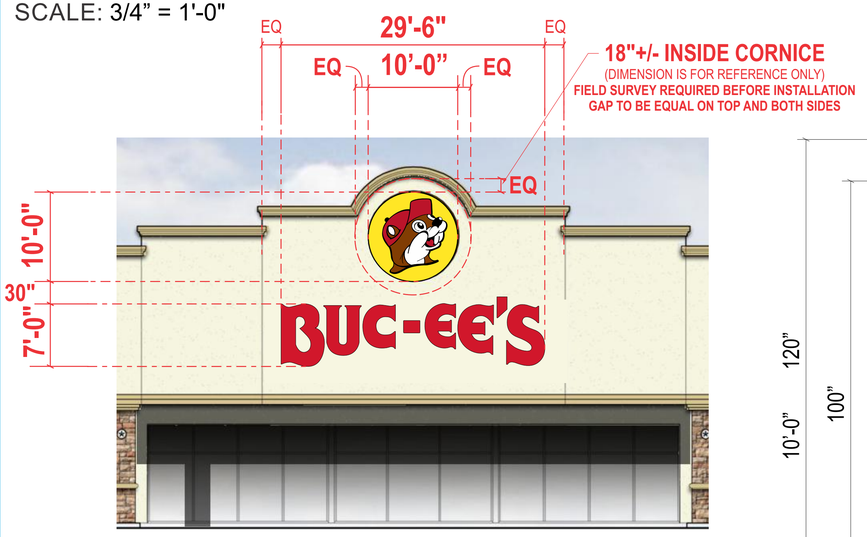
Project ID#: **136748**
Project Mgr: Brenda Beams
Designer: JR
Created on: 04/22/2024

REVISION R1

Building Elevations
SG-05

78.50 SQ./FT. (ea.)

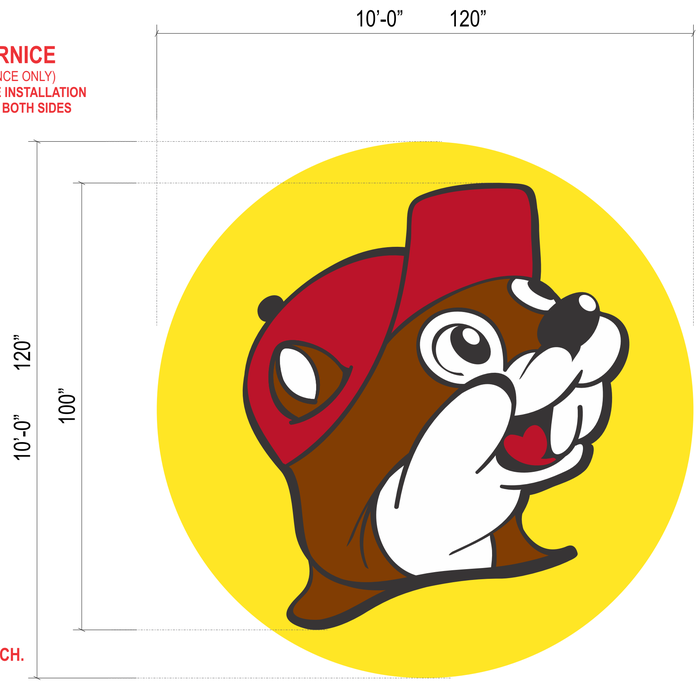
SCALE: 3/4" = 1'-0"



BUILDING LOGO DETAIL (TYP.)

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

NOTE: 18" IS FOR REFERENCE *ONLY*. LOGO IS TO BE PLACED AS PRESENTED IN DRAWING.
THE GAP BETWEEN BOTH LEFT AND RIGHT IS TO BE EQUAL DISTANCE FROM THE TOP.
SAME AS LEFT AND RIGHT SIDE. THE AREA AROUND THE LOGO TO BE EQUAL AROUND THE ARCH.

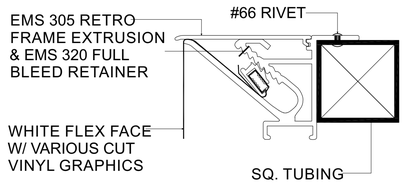


MFG. & INSTALL
TWO (2) RIGHT FACING LOGOS
TO BE INSTALLED ON THE
FRONT & LEFT ELEVATION



MFG. & INSTALL
ONE (1) LEFT FACING LOGOS
TO BE INSTALLED ON THE
RIGHT ELEVATION

FLEX FACE RETRO FRAME - DETAIL



Electrical Detail:

White LEDs
(X) 60w Power Supplies
Total Amps: X.XX
(1) 20 amp 120V Circuit Req.

UL LISTED

General Notes:

This sign is to be installed in accordance with the requirements of Article 600 of the National Electrical Code.

- Grounded and bonded per NEC 600.7/NEC 250
- Existing branch circuit in compliance with NEC 600.5, not to exceed 20 amps
- Sign is to be UL listed per NEC 600.3
- UL disconnect switch per NEC 600.6- required per sign component before leaving manufacturer. For multiple signs, a disconnect is permitted but not required for each section
- The location of the disconnect switch after installation shall comply with artilcle 600.6 (A) (1) per NEC

ELECTRICAL REQUIREMENTS
10' Single Face Cabinet
(1) 120 volt circuit
(1) @ 2.13 amps per cabinet

COLOR SPECS

- ARLON 33 RED • PMS 485c
- ARLON 63 RUST • PMS 483c
- ARLON 15 YELLOW • PMS 109c
- ARLON 22 BLACK
- WHITE

MFG. & INSTALL:
THREE (3) INTERN. ILLUM. CABINETS W/ FLEX FACES

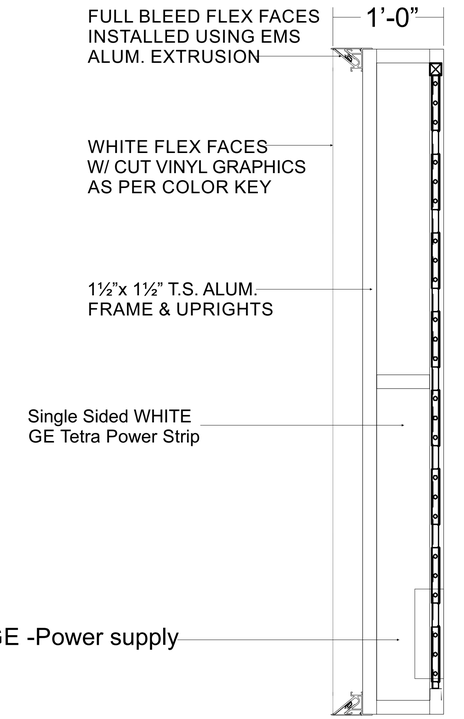
FACE: FULL BLEED WHITE FLEX FACE W/ CUT VINYL GRAPHICS AS PER COLOR KEY

RETURNS: ALUM., 12 DEEP PTD. BLACK

BACKS: ALUM. PTD. BLACK

ILLUMINATION: GE TETRA MAX POWER STRIP

INSTALLATION: FLUSH MOUNT TO WALL FASCIA



10'-0" LOGO CABINET DETAIL - NTS

Apex SIGN GROUP

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Buc-ee's
Interstate Highway 70 & Alt IH-70
Huber Heights, OH

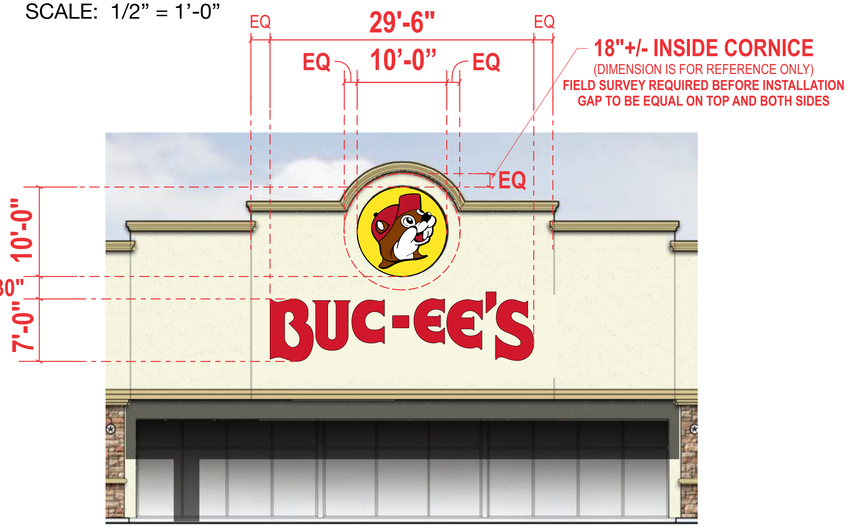
Project ID#: **136748**
Project Mgr: Brenda Beams
Designer: JR
Created on: 04/22/2024

REVISION R1

Building Logo
SG-06

206.42 SQ./FT.

SCALE: 1/2” = 1’-0”



BUILDING LOGO DETAIL (TYP.)

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

NOTE: 18" IS FOR REFERENCE *ONLY*. LOGO TO BE PLACED AS PRESENTED IN DRAWING.
THE GAP BETWEEN BOTH LEFT AND RIGHT IS TO BE EQUAL DISTANCE FROM THE TOP.
SAME AS LEFT AND RIGHT SIDE. THE AREA AROUND THE LOGO TO BE EQUAL AROUND THE ARCH.

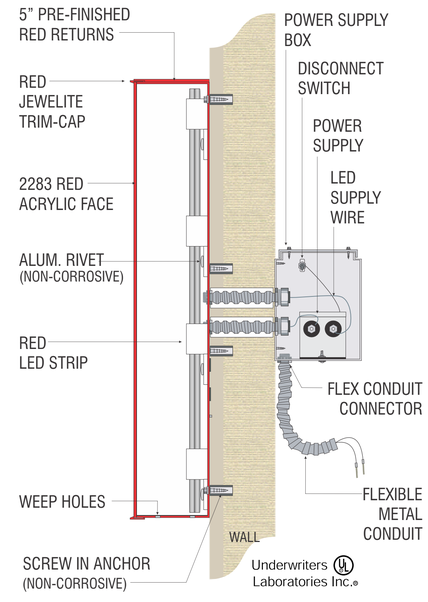


MFG. & INSTALL:
THREE (3) SETS OF 7 INTERN. ILLUM. RED LED CHANNEL LETTERS,
BUC-EE S TO BE INSTALLED ONTO THE WEST & SOUTH ELEVATIONS

FACES: 2283 RED ACRYLIC
TRIMCAP: 2 RED JEWELITE
RETURNS: 5 DEEP ALUM. PRE-FINSHED RED
BACKS: ALUM. PTD. RED
LIGHTING: RED LED
INSTALL: FLUSH MOUNTED ON WALL FASCIA

COLOR SPECS

- **2283 RED ACRYLIC**
- **2 RED TRIM-CAP**
- **5 PRE-FINSHED RED RETURNS**



CHANNEL LETTERS FLUSH MOUNTED
W/ REMOTE POWER SUPPLY(S)

Electrical Detail:

White LEDs
(X) 60w Power Supplies
Total Amps: X.XX
(1) 20 amp 120V Circuit Req.

UL LISTED

General Notes:

This sign is to be installed in accordance with the requirements of Article 600 of the National Electrical Code.

- Grounded and bonded per NEC 600.7/NEC 250
- Existing branch circuit in compliance with NEC 600.5, not to exceed 20 amps
- Sign is to be UL listed per NEC 600.3
- UL disconnect switch per NEC 600.6- required per sign component before leaving manufacturer. For multiple signs, a disconnect is permitted but not required for each section
- The location of the disconnect switch after installation shall comply with artilcle 600.6 (A) (1) per NEC

ELECTRICAL REQUIREMENTS

7’ Set of Channel letters
(1) 120 volt circuit
(1) @ 5 amps per set of letters

Apex SIGN GROUP

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Buc-ee's
Interstate Highway 70 & Alt IH-70
Huber Heights, OH

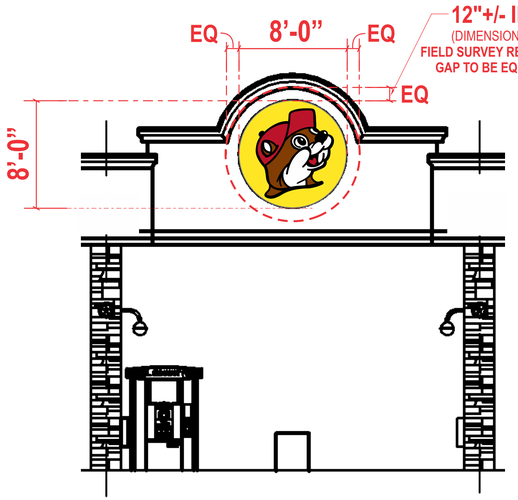
Project ID#: **136748**
Project Mgr: Brenda Beams
Designer: JR
Created on: 04/22/2024

REVISION R1

Channel Letters
SG-07

FUEL CANOPY 1

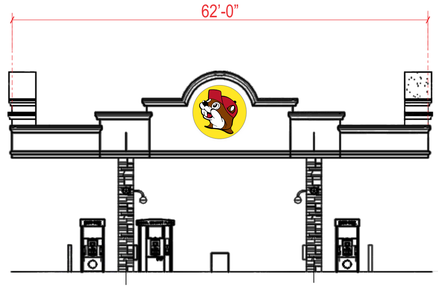
LOGO:
50.24 SQ. FT. (ea.)



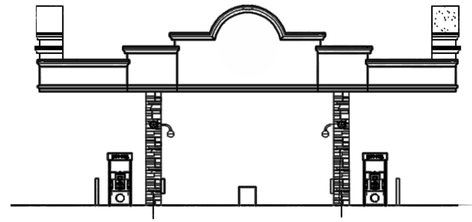
CANOPY LOGO DETAIL (TYP.)

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

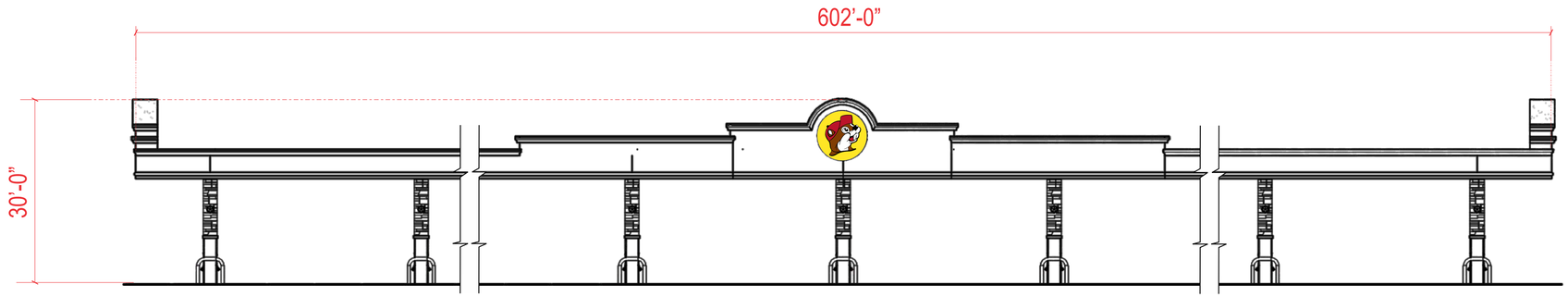
NOTE: 12" IS FOR REFERENCE *ONLY*. LOGO IS TO BE PLACED AS PRESENTED IN DRAWING. THE GAP BETWEEN BOTH LEFT AND RIGHT IS TO BE EQUAL DISTANCE FROM THE TOP. SAME AS LEFT AND RIGHT SIDE. THE AREA AROUND THE LOGO TO BE EQUAL AROUND THE ARCH.



1	FUEL CANOPY 1 -NORTH ELEVATION	3/32” = 1'-0"

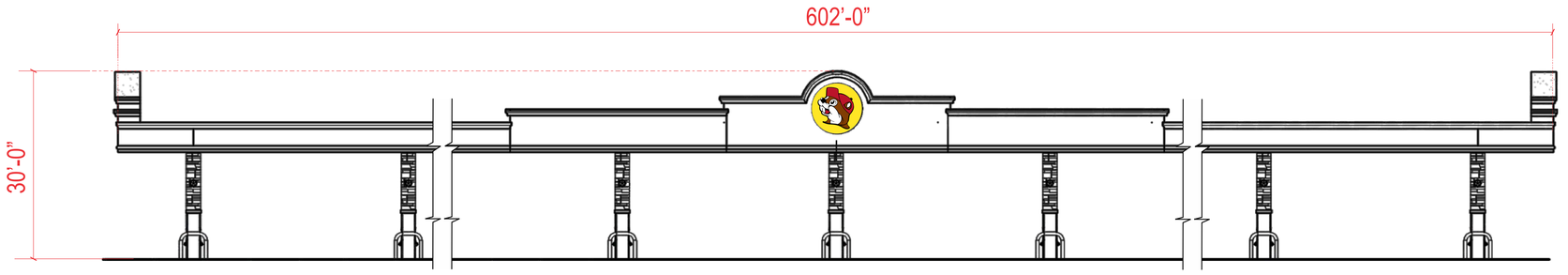


2	FUEL CANOPY 1 - SOUTH ELEVATION	3/32” = 1'-0"



3	FUEL CANOPY 1 - WEST ELEVATION	3/32” = 1'-0"

17 (BAYS x 34') +(2 OVERHANGS x 12') = 568'



4	FUEL CANOPY 1 - EAST ELEVATION	3/32” = 1'-0"

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Buc-ee's
Interstate Highway 70 & Alt IH-70
Huber Heights, OH

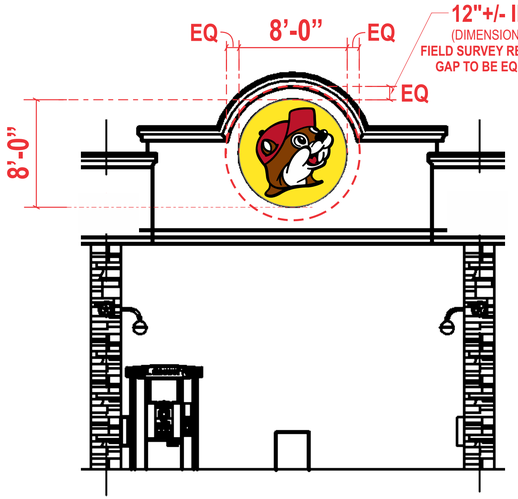
Project ID#: **136748**
Project Mgr: Brenda Beams
Designer: JR
Created on: 04/22/2024

REVISION: R1

Fuel Canopy 1
SG-08

FUEL CANOPY 2

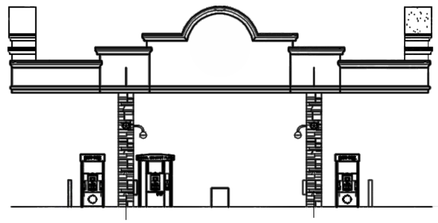
LOGO:
50.24 SQ. FT. (ea.)



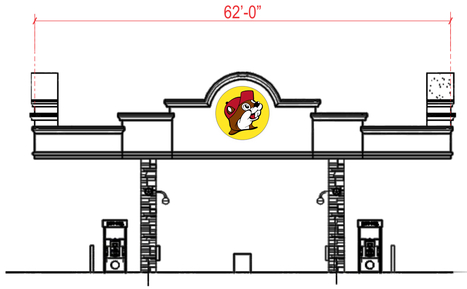
CANOPY LOGO DETAIL (TYP.)

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

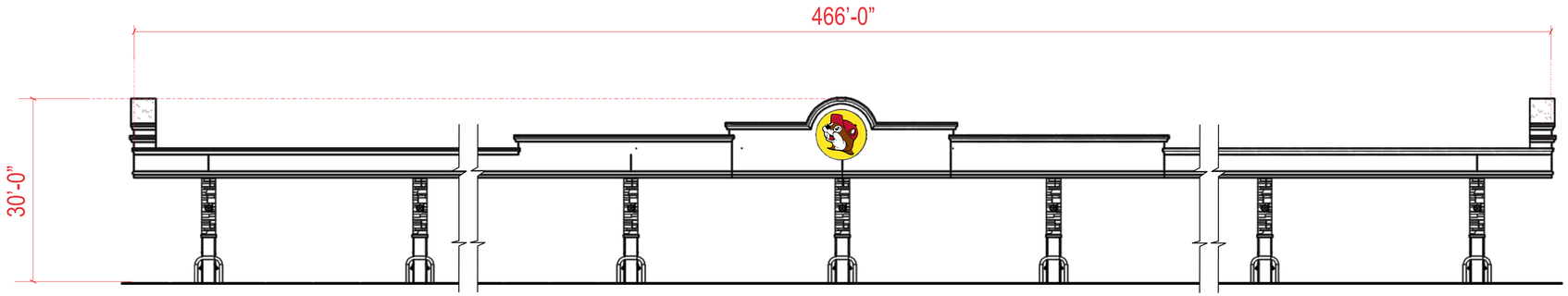
NOTE: 12" IS FOR REFERENCE *ONLY*. LOGO IS TO BE PLACED AS PRESENTED IN DRAWING. THE GAP BETWEEN BOTH LEFT AND RIGHT IS TO BE EQUAL DISTANCE FROM THE TOP. SAME AS LEFT AND RIGHT SIDE. THE AREA AROUND THE LOGO TO BE EQUAL AROUND THE ARCH.



5 FUEL CANOPY 2 - NORTH ELEVATION 3/32” = 1'-0"

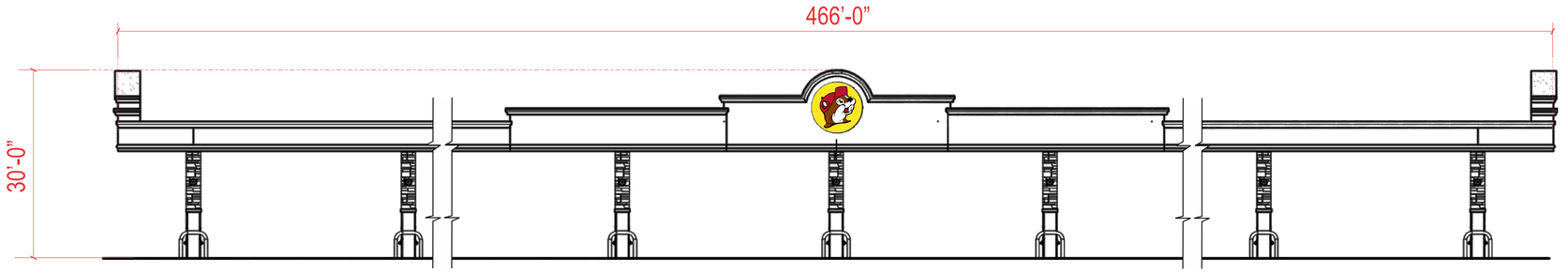


6 FUEL CANOPY 2 - SOUTH ELEVATION 3/32” = 1'-0"



13 (BAYS x 34') +(2 OVERHANGS x 12') = 466'

7 FUEL CANOPY 2 - WEST ELEVATION 3/32” = 1'-0"



8 FUEL CANOPY 2 - EAST ELEVATION 3/32” = 1'-0"

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Buc-ee's
Interstate Highway 70 & Alt IH-70
Huber Heights, OH

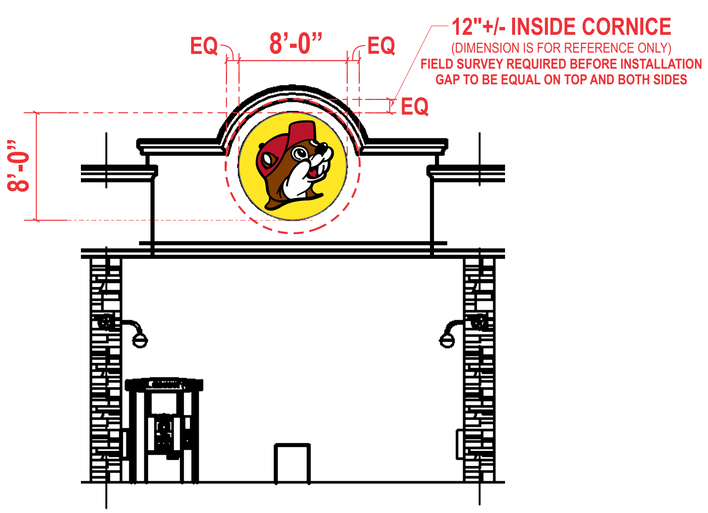
Project ID#: **136748**
Project Mgr: Brenda Beams
Designer: JR
Created on: 04/22/2024

REVISION R1

Fuel Canopy 2
SG-09

50.24 SQ./FT. (ea.)

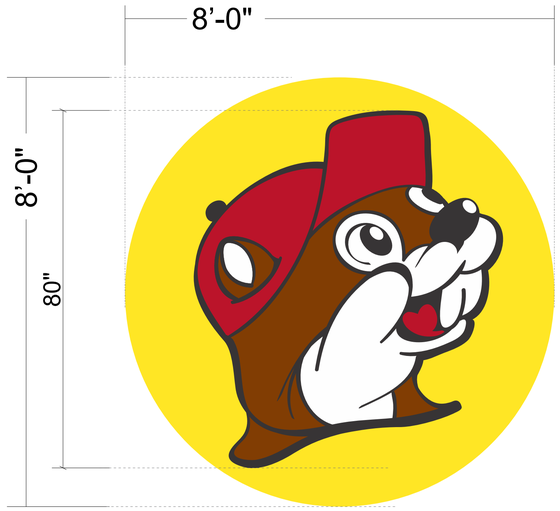
SCALE: 3/4” = 1'-0"



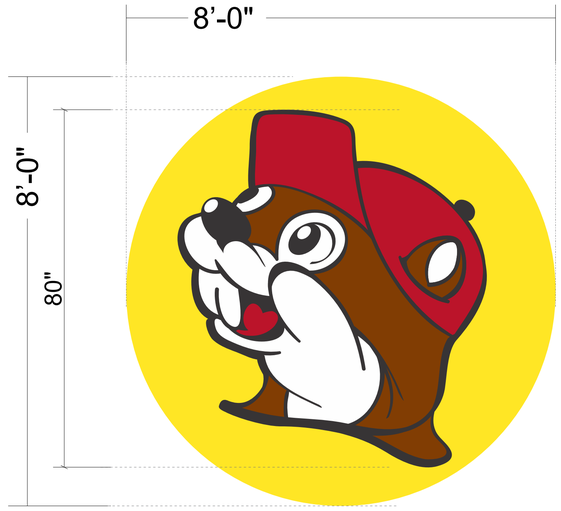
CANOPY LOGO DETAIL (TYP.)

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

NOTE: 12" IS FOR REFERENCE *ONLY*. LOGO IS TO BE PLACED AS PRESENTED IN DRAWING. THE GAP BETWEEN BOTH LEFT AND RIGHT IS TO BE EQUAL DISTANCE FROM THE TOP. SAME AS LEFT AND RIGHT SIDE. THE AREA AROUND THE LOGO TO BE EQUAL AROUND THE ARCH.

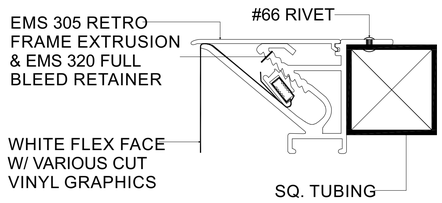


MFG. FIVE (5) RIGHT FACING LOGOS



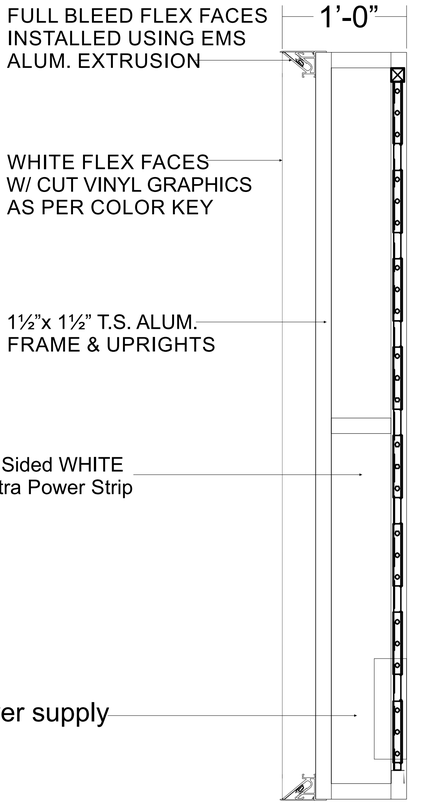
MFG. THREE (3) LEFT FACING LOGO

FLEX FACE RETRO FRAME - DETAIL



- MFG. & INSTALL:
  SIX (6) INTERN. ILLUM. CABINETS W/ FLEX FACES.
  THREE (3) W/ LOGOS FACING RIGHT - THREE (3) FACING LEFT
  TO BE INSTALLED FLUSH ONTO GAS STATION CANOPY

- FACES: FULL BLEED WHITE FLEX FACE W/ CUT VINYL GRAPHICS AS PER COLOR KEY
- RETURNS: ALUM., 12” DEEP PTD. BLACK
- BACKS: ALUM. PTD. BLACK
- ILLUMINATION: GE Tetra Max Power Strips
- INSTALLATION: FLUSH MOUNT TO WALL FASCIA
  (GAS STATION CANOPY)



8’-0” LOGO CABINET DETAIL - NTS

Electrical Detail:

White LEDs
(X) 60w Power Supplies
Total Amps: X.XX
(1) 20 amp 120V Circuit Req.

ELECTRICAL REQUIREMENTS
8’ Single Face Cabinet
(1) 120 volt circuit
(1) @ 2.13 amps per cabinet

UL LISTED

General Notes:

This sign is to be installed in accordance with the requirements of Article 600 of the National Electrical Code.

- Grounded and bonded per NEC 600.7/NEC 250
- Existing branch circuit in compliance with NEC 600.5, not to exceed 20 amps
- Sign is to be UL listed per NEC 600.3
- UL disconnect switch per NEC 600.6- required per sign component before leaving manufacturer. For multiple signs, a disconnect is permitted but not required for each section
- The location of the disconnect switch after installation shall comply with artilcle 600.6 (A) (1) per NEC

COLOR SPECS

- ARLON 33 RED • PMS 485c
- ARLON 63 RUST • PMS 483c
- ARLON 15 YELLOW • PMS 109c
- ARLON 22 BLACK
- WHITE

Apex SIGN GROUP

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Buc-ee's
Interstate Highway 70 & Alt IH-70
Huber Heights, OH

Project ID#: **136748**
Project Mgr: Brenda Beams
Designer: JR
Created on: 04/22/2024

REVISION R1

Canopy Logo
SG-10

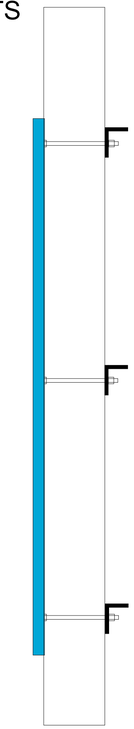
11.78 SQ. FEET

SCALE: 3" = 1'-0"

QTY: FOUR (4)



MOUNTED FLUSH TO WALL USING THRU-BOLTS



ETHANOL FREE SIGN

- **MFG. & INSTALL:**
  FOUR (4) ETHANOL FREE SIGNS
  NON-ILLUMINATED .125" ALUM. PANEL PTD BLUE
  W/ WHITE VINYL LETTERING APPLIED
  INSTALL FLUSH ON EXISTING GAS CANOPY

COLOR SPECS

- PROCESS CYAN
- WHITE

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Buc-ee's
Interstate Highway 70 & Alt IH-70
Huber Heights, OH

Project ID#: **136748**
Project Mgr: Brenda Beams
Designer: JR
Created on: 04/22/2024

REVISION R1

Ethanol Free
SG-11

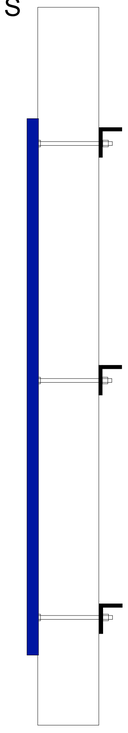
11.78 SQ. FEET

SCALE: 3" = 1'-0"

QTY: FOUR (4)



MOUNTED FLUSH TO WALL USING THRU-BOLTS



DEF SIGN

- **MFG. & INSTALL:**
  FOUR (4) DEF SIGNS
  NON-ILLUMINATED .125" ALUM. PANEL PTD BLUE
  W/ WHITE VINYL LETTERING APPLIED
  INSTALL FLUSH ON EXISTING GAS CANOPY

COLOR SPECS

- PMS 072 BLUE
- WHITE

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Buc-ee's
Interstate Highway 70 & Alt IH-70
Huber Heights, OH

Project ID#: **136748**
Project Mgr: Brenda Beams
Designer: JR
Created on: 04/22/2024

REVISION R1

DEF Panels
G-12

24.5 SQ./FT. (BUC-EE S)	9.0 SQ./FT. (EACH LOGO)



Sign Layout Detail

Scale: 1" = 1'-0"

200% SPACING

MFG. & INSTALL:
ONE (1) SET OF 28" INTERN. ILLUM. RED LED CHANNEL LETTERS, BUC-EE S TO BE INSTALLED IN THE STORE INTERIOR

FACES: 2283 RED ACRYLIC
TRIMCAP: 1" RED JEWELITE
RETURNS: 5" DEEP ALUM. PRE-FINSHED RED
BACKS: ALUM. PTD. RED
LIGHTING: RED LED
INSTALL: FLUSH MOUNTED ON WALL FASCIA

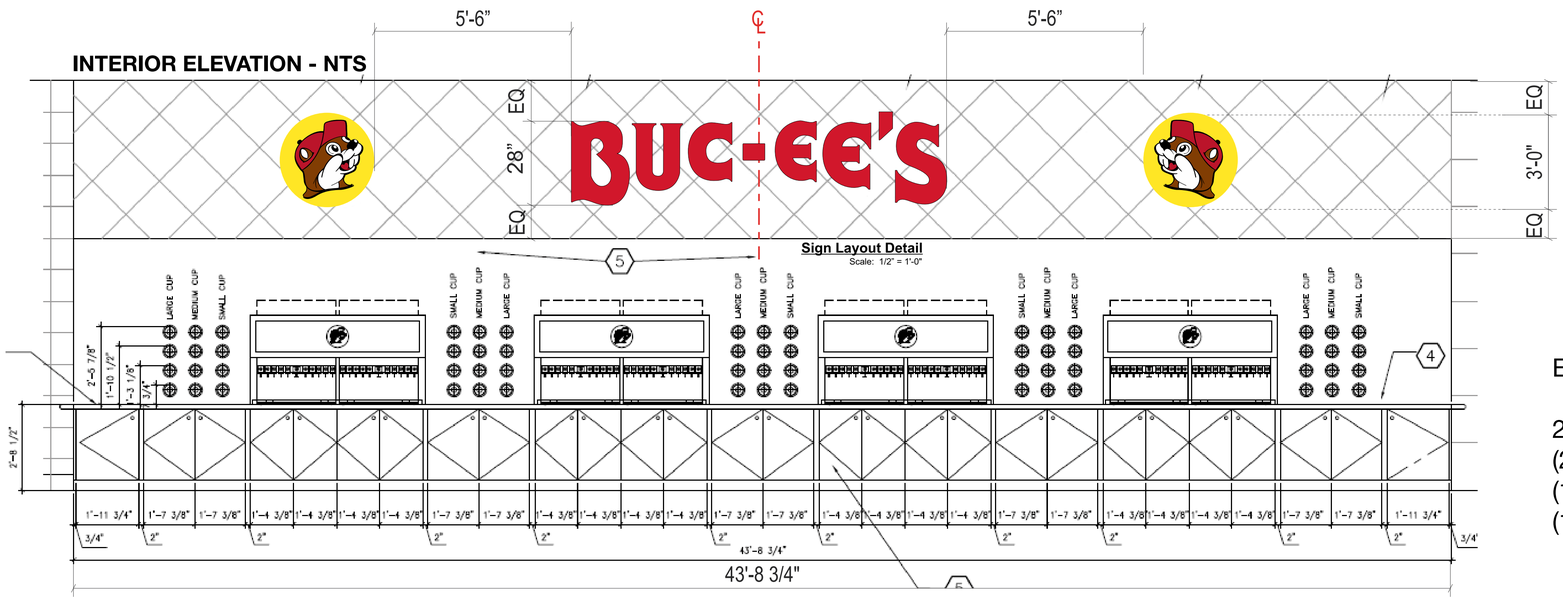
COLOR SPECS
- 2283 RED ACRYLIC
- 2" RED TRIM-CAP
- 5" PRE-FINSHED RED RETURNS

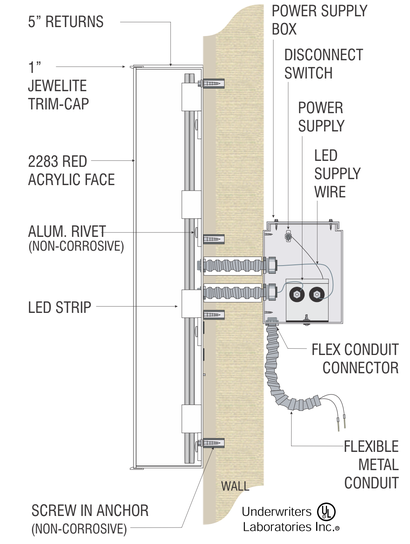
MFG. & INSTALL:
TWO (2) INTERN. ILLUM. LOGO CABINETS W/ WHITE FLAT ACRYLIC FACES OVERLAID W/ CUT VINYL GRAPHICS AS PER COLOR KEY INSTALLED IN THE STORE INTERIOR

FACES: 7328 WHITE ACRYLIC
TRIMCAP: 1" BLACK JEWELITE
RETURNS: 5" DEEP ALUM. PRE-FINSHED BLACK
BACKS: ALUM. PTD. BLACK
LIGHTING: WHITE LED
INSTALL: FLUSH MOUNTED ON WALL FASCIA

COLOR SPECS
- ARLON 33 RED PMS 485c
- ARLON 63 RUST PMS 483c
- ARLON 15 YELLOW PMS 109c
- BLACK
- WHITE

INTERIOR ELEVATION - NTS





ELECTRICAL REQUIREMENTS

28'' Set of Channel letters
(2) 3' Logos
(1) 120 volt circuit
(1) @ 4 amps total

CHANNEL LETTERS FLUSH MOUNTED W/ REMOTE POWER SUPPLY(S)

APEX SIGN GROUP

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Buc-ee's
Interstate Highway 70 & Alt IH-70
Huber Heights, OH

Project ID#: **136748**
Project Mgr: Brenda Beams
Designer: JR
Created on: 04/22/2024

REVISION R1

Interior
SG-13

STORMWATER MANAGEMENT REPORT – BUC-EE'S #71

HUBER HEIGHTS, OHIO

8000 State Route 235

City of Huber Heights
Montgomery County, Ohio

Prepared by:
Kimley-Horn and Associates, Inc.
7965 North High Street, Suite 200
Columbus, OH 43235
Contact: Isabella Culliton, P.E.

Prepared: April 17, 2024

Kimley»Horn

CONTENTS

1. PROJECT DESCRIPTION 3
2. PRE-DEVELOPMENT CONDITIONS 3
2.1. Existing Watershed A Characteristics 3
3. POST-DEVELOPMENT CONDITIONS 4
3.1. Proposed Watershed Characteristics 4
4. DETENTION POND DESIGN SUMMARY 4
4.1. Critical Storm 4
4.2. Post-Developed Discharge 5
4.2.1. Watershed A 5
4.3. Water Quality 6
4.3.1. Basin A 6
5. SEDIMENT BASINS 6
6. STORM SEWER DESIGN 7
6.1. Offsite Bypass Storm Sizing 7
7. CONCLUSION 7

EXHIBITS

Exhibit A. Pre-Developed Tributary Map

Exhibit B. Pre-Development Release Rates

Exhibit C. NRCS Web Soil Survey

Exhibit D. Post-Developed Tributary Map

Exhibit E. Critical Storm Calculations

Exhibit F. Post-Developed Release Rates

Exhibit G. Overflow Spillway Calculations

Exhibit H. Water Quality Calculations

Exhibit I. Skimmer Sizing Calculations

Exhibit J. Local Tributary Map

Exhibit K. Storm Sewer Design Calculations

Exhibit L. StreamStats Delineation for Offsites Flow Analysis

Exhibit M. Offsite Bypass Storm Sizing Calculations

1. PROJECT DESCRIPTION

The proposed development consists of the construction of one (1) approximately 74,000 SF convenience center building with associated parking lot and gas canopy. Site work includes grading, storm sewer, water services, sanitary sewer, electric, paving installation, retention basin, and landscaping. The site is located at 8000 State Route 235, in the City of Huber Heights (Montgomery County). The development is bordered to the north by a gravel access drive leading to the eastern parcel and a Old Dominion Freight Line facility. The site is bordered to the east by an intermittent stream and undeveloped land. The site is bordered to the south by the I-70 west exit ramp/ROW. The west of the site is bordered by OH-235 ROW.

The site is located within the Miami Conservancy District (MCD) easement limits, which has rules that stipulate cut and fill within the easement limits. The easement exists onsite at/below the existing 835 contour elevation. There cannot be any net fill within these easement limits in proposed conditions.

The site is designed to maintain existing drainage patterns with the addition of one (1) retention basin (Basin A) which outfalls to an intermittent stream that leads to Mud Creek.

2. PRE-DEVELOPMENT CONDITIONS

The site currently consists of undeveloped agricultural land, a pond, and two vacant commercial buildings with associated parking lots and utilities. The existing site consists of two main drainage areas that flow to the intermittent stream on the eastern edge of the site, eventually discharging to Mud Creek. The site watershed (Watershed A) and the OH-235 ROW offsite watershed (Watershed A.1) flow to the stream. There is an existing culvert that conveys flows under OH-235 and discharges onsite. This flow will be routed around the site via storm sewer pipe. **Section 6.1** of this report outlines this analysis and design.

Watersheds A and A.1 will be analyzed for existing and proposed conditions.

2.1. Existing Watershed A Characteristics

Pre-Developed Watershed A
Area = 36.08 acres
Weighted Curve Number = 80
Time of Concentration = 43.2 minutes

Pre-Developed Watershed A.1 (offsite pass-thru)
Area = 3.50 acres
Weighted Curve Number = 87
Time of Concentration = 53.2 minutes (10 mins + 43.2 mins)

Total Existing Watershed A Area = 39.58 acres

See **Exhibit A** for the Pre-Developed Tributary Map and **Exhibit B** for Pre-Developed Watershed A HydroCAD calculations. Existing soils range from Hydrologic Groups B through D; see **Exhibit C** for NRCS soils map.

3. POST-DEVELOPMENT CONDITIONS

The post-developed stormwater management was based on the requirements of the Montgomery County and the Ohio Environmental Protection Agency (OEPA) General Permit OHC000006. The proposed improvements will include a new storm sewer system and one Basin A, which consists of two hydraulically-connected sections.

Basin A is designed for the overall development from Watershed A (including off-site area A.1). See **Exhibit D** for Post-Developed Tributary Map.

3.1. Proposed Watershed Characteristics

Post-Developed Watershed A includes:
Watershed A
Area = 36.38 acres
Weighted Curve Number = 98 (assume fully impervious to be conservative)
Time of Concentration = 10 minutes

Post-Developed Watershed A.1 (Offsite Pass-Thru):
Total Area = 3.94 acres
Weighted Curve Number = 90
Time of Concentration = 20 minutes (10 mins + 10 mins)

Total Proposed Watershed A Area = 40.32 acres

4. DETENTION POND DESIGN SUMMARY

4.1. Critical Storm

The critical storm events for the proposed improvements were calculated based on the comparison of the runoff volumes of the pre-developed and post-developed runoff conditions for the disturbed area within the site. The runoff volumes were determined utilizing the pre-developed/post-developed drainage areas, runoff curve numbers, and time of concentrations. See **Exhibit E** for critical storm calculations.

Pre-Developed Watershed A
Area = 36.08 acres
Weighted Curve Number = 80
Time of Concentration = 43.2 minutes
1-Year Runoff Volume = 2.381 acre-ft

Pre-Developed Watershed A.1 (Offsite Pass-thru)
Area = 3.50 acres
Weighted Curve Number = 87
Time of Concentration = 53.2 minutes
1-Year Runoff Volume = 0.347 acre-ft

Total Pre-Developed (Watershed A and A.1) 1-Year Runoff Volume = 2.728 acre-ft

Post-Developed Watershed A
Area = 36.38 acres
Weighted Curve Number = 98 (assume fully impervious)
Time of Concentration = 10 minutes
1-Year Runoff Volume = 6.394 acre-ft

Post-Developed Watershed A.1 (Offsite Pass-Thru)
Total Area = 3.94 acres
Weighted Curve Number = 90
Time of Concentration = 20 minutes (10 mins + 10 mins)
1-Year Runoff Volume = 0.465 acre-ft

Total Post-Developed (Watershed A and A.1) 1-Year Runoff Volume = 6.859 acre-ft

The increase in volume is **151.4%** which corresponds to the **25-year** critical storm for Watershed A. The allowable release rates for Watershed A are summarized in Table 1.

4.2. Post-Developed Discharge

Per the Montgomery County stormwater regulations, the allowable release rate of the post developed critical storm event must be less than or equal to the 1-year pre-developed release rate. Therefore, for Watershed A, the allowable release rate for the post developed 25-year storm event for the basin system must be less than or equal to the 1-year. See **Exhibit F** for all post-developed release rate calculations. These release rates, outlet control structures, and basins were designed to meet the allowable release rates of all Watershed A before leaving the site.

4.2.1. Watershed A

The retention basin flow releases will be controlled by an 12” circular orifice at the normal water surface elevation (NWSE) of 830.00. At 831.50, the 18” riser pipe will be open at the water quality elevation. At 833.70, in the horizontal plane, a 24”x24” open grate will release the flows that exceed the 100-year storm event. The outlet control structure will outlet via a 18” outlet pipe at 0.18% to the ditch. The 100-year high water elevation in the basin is 832.49.

A 20’ wide overflow spillway will be constructed at elevation 833.00 and the top of pond will be at 833.70. The overflow spillway will release storm events greater than the 100-year storm. For the overflow weir calculations, it is assumed the orifices within the outlet control structure are

restricted. The 100-year overflow elevation, assuming all other outlets are restricted, is 833.12. See **Exhibit G** for these calculations.

Table 1: Watershed A Release Rates

Storm Event (YR)	Pre-Developed Watershed A Peak Flow Rates (CFS) [A]	Pre-Developed Watershed A.1 (Offsite Pass-Thru) (CFS) [B]	Allowable Post-Developed Release Rates (CFS) [A]+[B]	Proposed Release Rates (CFS)	Proposed Basin A Elevation
1	20.41	2.65	23.06	2.96	831.13
2	25.80	3.18	23.59	3.32	831.27
5	39.28	4.45	24.86	4.44	831.60
10	49.44	5.38	25.79	5.65	831.80
25	62.01	6.49	26.90	6.01	832.09
50	70.55	7.24	77.79	6.56	832.27
100	81.37	8.18	89.55	7.19	832.49

Based on the critical storm event, the existing release rates, and the outlet structure detailed above, the total release rates do not exceed allowable rates for any storm events for Watershed A.

4.3. Water Quality

This site has been designed to adhere to water quality regulations set forward by both the Montgomery County and the OEPA's Current Construction General Permit (OHC000006). Per the General Permit (OHC000006), water quality is required should the development disturb greater than 1-acre of land. The OEPA stipulates that the amount of runoff to be treated shall be in direct relation to precipitation depth, the volumetric runoff coefficient, and the area draining into the BMP.

4.3.1. Basin A

The total tributary area to Basin A is 40.32 acres. To be conservative, it is assumed that the entire drainage area is impervious, making the required water quality volume 2.87 ac-ft. At an elevation in the basin of 831.50, there is 7.14 ac-ft of storage. Treatment has been provided for Watershed A through the use of a retention basin (Basin A). The 12" circular orifice at 831.50 allows for the water quality volume to release less than 50% of the volume in the first 8 hours per the Ohio EPA general construction permit requirements. The water quality calculations can be seen in **Exhibit H**.

5. SEDIMENT BASINS

During construction, the Ohio EPA requires sediment settling ponds to control runoff prior to site stabilization. Each basin onsite will be a sediment pond during construction. The sediment settling pond volumes consist of both a dewatering zone and a sediment storage zone. The volume of the dewatering zone shall be a minimum of 1,800 cubic feet per acre of drainage with a minimum 48-hour drain time. The volume of the sediment storage zone shall be 1,000 cubic feet per disturbed acre within the watershed of the basins. See **Exhibit I** for dewatering, sediment storage, and skimmer sizing calculations for Basin A.

6. STORM SEWER DESIGN

A storm sewer network will be constructed to convey runoff to the detention basin. The storm sewer design will be in accordance with the Montgomery County stormwater design standards.

Per the Montgomery County Stormwater Subdivision Regulations Manual, storm pipes have been sized for the 10-year storm event. The storm sewer system has been designed so that the hydraulic grade line (HGL) remains below the rim elevations throughout the site. The HGL remains below the rim elevations for the 100-year storm event. For excess storms, the storm inlets will overflow to the basins. A minimum time of concentration (TC) of 5 minutes was used for inlets. A manning's value of 0.013 was used for all pipes. Refer to **Exhibit J** for the local tributary map and **Exhibit K** for Hydraflow storm sewer design calculations.

6.1. Offsite Bypass Storm Sizing

There is an existing 60" culvert that crosses OH-235 and conveys flows from west of the road and discharges onsite. Based on StreamStats delineation, there are approximately 42.43 acres tributary to the culvert. The flow rate for the 100-year storm is 147 cfs. Refer to **Exhibit L** for the StreamStats delineation for this offsite area and associated flow statistics.

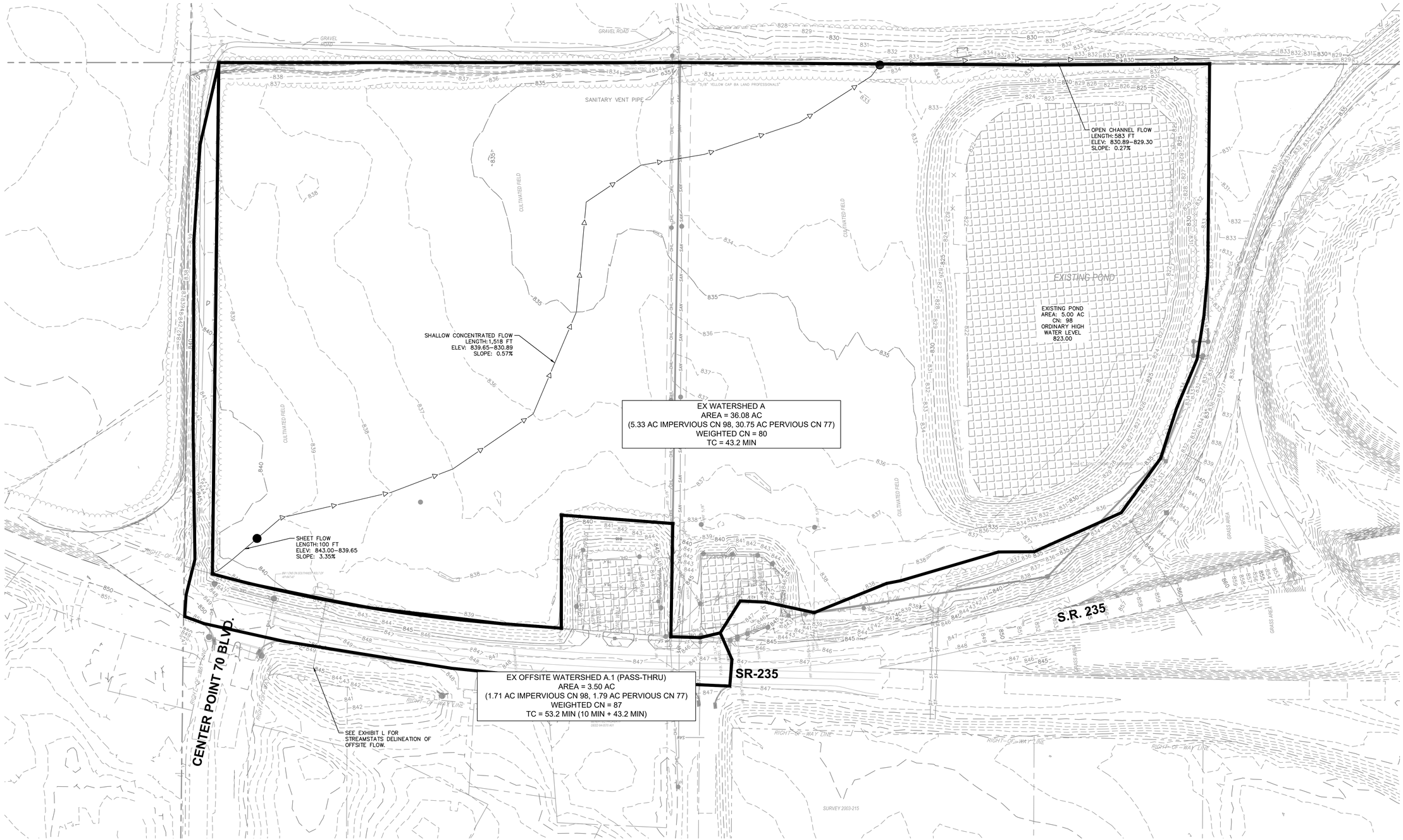
This offsite flow will be routed around the proposed site via 60" storm sewer pipe to the existing pond, which will overflow to the existing site discharge point. See **Exhibit M** for the offsite pipe sizing.

7. CONCLUSION

The proposed storm sewer system is designed to convey release rates that are equal to or less than the allowable release rates. The proposed system will provide detention that is designed to contain the runoff for the on-site development and is sized appropriately per code. Montgomery County and Ohio EPA rules and regulations are adhered to by all proposed improvements. No threat to property and public safety downstream of the proposed development shall be imposed by the proposed storm sewer system.

Exhibit A – Pre-Developed Tributary Map

Drawing name: K:\CLE_LDEV\190255000_Buc-ees_HuberHeights_OH\2 Design\CAD\Exhibits\Drainage\20224-0229-ExistingTribMap.dwg EX A Feb 29, 2024 11:37am by: IsabellaCuillon
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LEGEND

- EXISTING SITE BOUNDARY
- EXISTING WATERSHED BOUNDARY
- EXISTING FLOW PATH
- CHANGE IN SURFACE FLOW CONDITIONS
- 990 EXISTING INDEX CONTOUR
- 988 EXISTING INTERMEDIATE CONTOUR

NORTH

GRAPHIC SCALE IN FEET
0 40 80 160

No.	REVISIONS	DATE	BY

Kimley»Horn

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7965 N. HIGH STREET, SUITE 200,
COLUMBUS, OH 43235
PHONE: 614-846-0599
WWW.KIMLEY-HORN.COM

SCALE: AS NOTED
DESIGNED BY: IC
DRAWN BY: MAN
CHECKED BY: AJS

NOT FOR CONSTRUCTION

BUC-EE'S

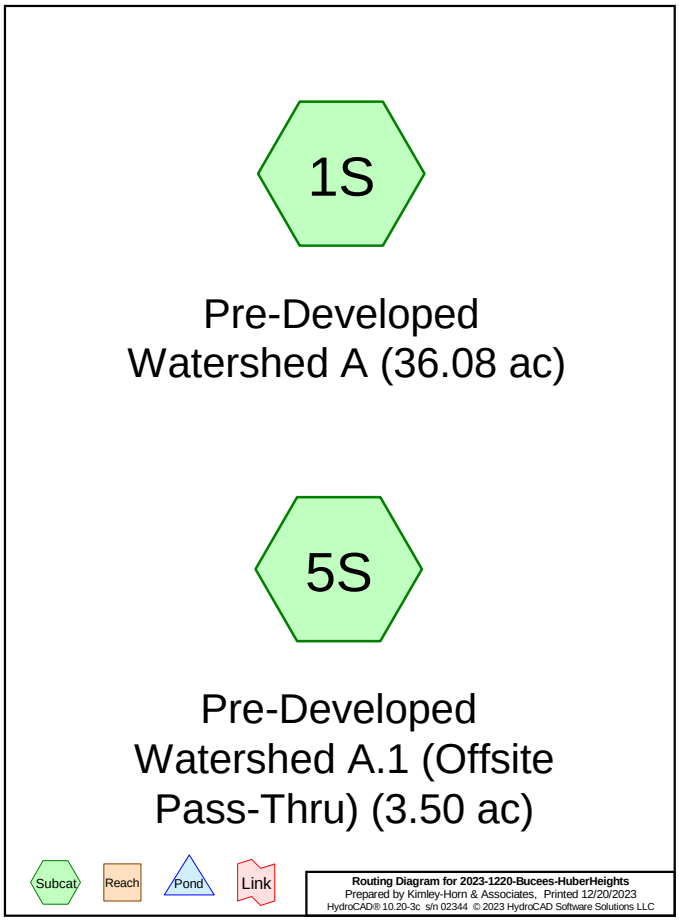
BUC-EE'S #71 HUBER HEIGHTS, OH

INTERSTATE HIGHWAY 70 & OH-235
HUBER HEIGHTS, OH 45424

PRE-DEVELOPED TRIBUTARY MAP

ORIGINAL ISSUE: 02/29/2024
KHA PROJECT NO. 190255000
SHEET NUMBER
EX-A

Exhibit B – Pre-Development Release Rates



Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
5.000	98	POND (1S)
2.040	98	Paved parking, HSG A (1S, 5S)
32.540	77	Row crops, straight row, Poor, HSG D (1S, 5S)
39.580	**81**	**TOTAL AREA**

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Pre-Developed Watershed Runoff Area=36.080 ac 14.77% Impervious Runoff Depth>0.79"
Flow Length=2,201' Tc=43.2 min CN=80 Runoff=20.41 cfs 2.381 af

Subcatchment 5S: Pre-Developed Watershed Runoff Area=3.500 ac 48.86% Impervious Runoff Depth>1.19"
Tc=53.2 min CN=87 Runoff=2.65 cfs 0.347 af

Total Runoff Area = 39.580 ac Runoff Volume = 2.727 af Average Runoff Depth = 0.83"
82.21% Pervious = 32.540 ac 17.79% Impervious = 7.040 ac

Summary for Subcatchment 1S: Pre-Developed Watershed A (36.08 ac)

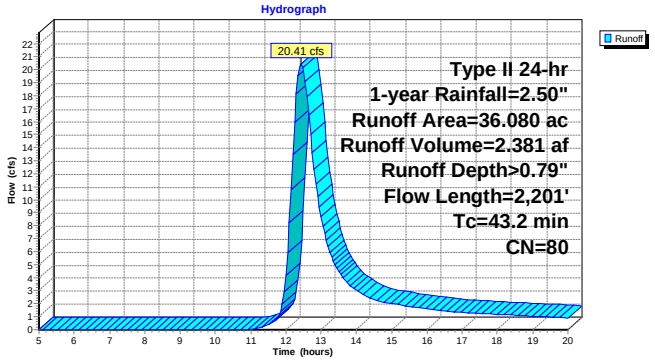
Runoff = 20.41 cfs @ 12.43 hrs, Volume= 2.381 af, Depth> 0.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-year Rainfall=2.50"

	Area (ac)	CN	Description
*	5.000	98	POND
	0.330	98	Paved parking, HSG A
*	30.750	77	Row crops, straight row, Poor, HSG D
	36.080	80	Weighted Average
	30.750		85.23% Pervious Area
	5.330		14.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	100	0.0335	0.41		**Sheet Flow, SHEET FLOW** Cultivated: Residue<=20% n= 0.060 P2= 2.80"
37.2	1,518	0.0057	0.68		**Shallow Concentrated Flow, SHALLOW CONCENTRATED** Cultivated Straight Rows Kv= 9.0 fps
1.9	583	0.0027	5.13	153.76	**Channel Flow, CHANNEL FLOW** Area= 30.0 sf Perim= 17.0' r= 1.76' n= 0.022 Earth, clean & straight
43.2	2,201	Total			

Subcatchment 1S: Pre-Developed Watershed A (36.08 ac)



Summary for Subcatchment 5S: Pre-Developed Watershed A.1 (Offsite Pass-Thru) (3.50 ac)

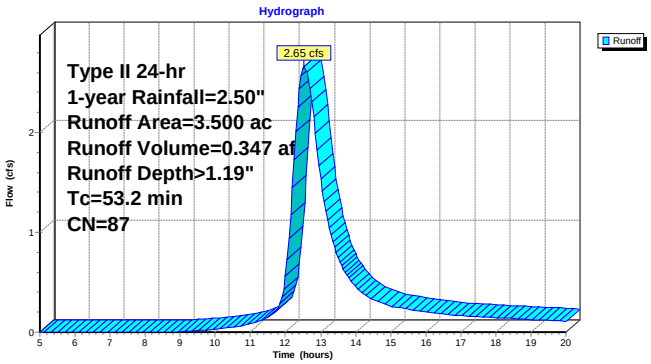
Runoff = 2.65 cfs @ 12.54 hrs, Volume= 0.347 af, Depth> 1.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-year Rainfall=2.50"

	Area (ac)	CN	Description
	1.710	98	Paved parking, HSG A
*	1.790	77	Row crops, straight row, Poor, HSG D
	3.500	87	Weighted Average
	1.790		51.14% Pervious Area
	1.710		48.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
53.2					**Direct Entry,**

Subcatchment 5S: Pre-Developed Watershed A.1 (Offsite Pass-Thru) (3.50 ac)



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Pre-Developed Watershed Runoff Area=36.080 ac 14.77% Impervious Runoff Depth>0.99"
Flow Length=2,201' Tc=43.2 min CN=80 Runoff=25.80 cfs 2.968 af

Subcatchment 5S: Pre-Developed Watershed Runoff Area=3.500 ac 48.86% Impervious Runoff Depth>1.42"
Tc=53.2 min CN=87 Runoff=3.18 cfs 0.415 af

Total Runoff Area = 39.580 ac Runoff Volume = 3.384 af Average Runoff Depth = 1.03"
82.21% Pervious = 32.540 ac 17.79% Impervious = 7.040 ac

Summary for Subcatchment 1S: Pre-Developed Watershed A (36.08 ac)

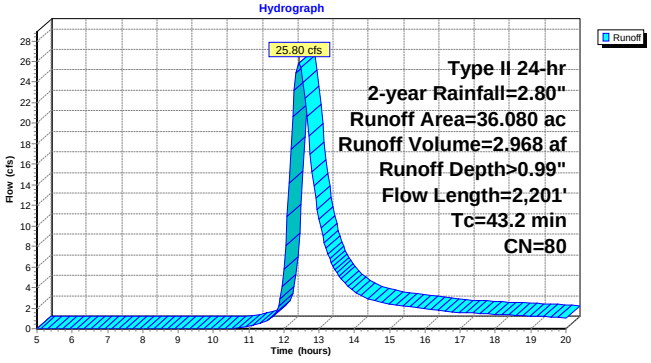
Runoff = 25.80 cfs @ 12.43 hrs, Volume= 2.968 af, Depth> 0.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-year Rainfall=2.80"

	Area (ac)	CN	Description
*	5.000	98	POND
	0.330	98	Paved parking, HSG A
*	30.750	77	Row crops, straight row, Poor, HSG D
	36.080	80	Weighted Average
	30.750		85.23% Pervious Area
	5.330		14.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	100	0.0335	0.41		**Sheet Flow, SHEET FLOW** Cultivated: Residue<=20% n= 0.060 P2= 2.80"
37.2	1,518	0.0057	0.68		**Shallow Concentrated Flow, SHALLOW CONCENTRATED** Cultivated Straight Rows Kv= 9.0 fps
1.9	583	0.0027	5.13	153.76	**Channel Flow, CHANNEL FLOW** Area= 30.0 sf Perim= 17.0' r= 1.76' n= 0.022 Earth, clean & straight
43.2	2,201	Total			

Subcatchment 1S: Pre-Developed Watershed A (36.08 ac)



Summary for Subcatchment 5S: Pre-Developed Watershed A.1 (Offsite Pass-Thru) (3.50 ac)

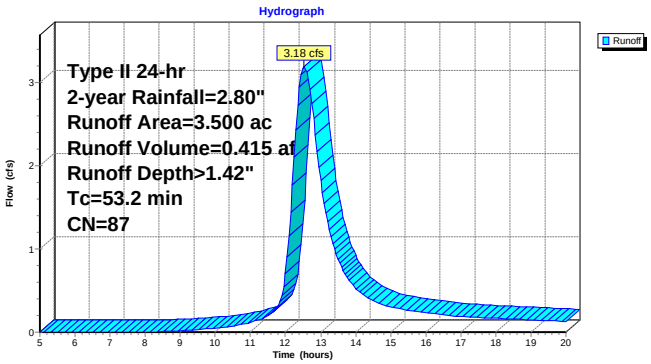
Runoff = 3.18 cfs @ 12.54 hrs, Volume= 0.415 af, Depth> 1.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-year Rainfall=2.80"

	Area (ac)	CN	Description
	1.710	98	Paved parking, HSG A
*	1.790	77	Row crops, straight row, Poor, HSG D
	3.500	87	Weighted Average
	1.790		51.14% Pervious Area
	1.710		48.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
53.2					**Direct Entry,**

Subcatchment 5S: Pre-Developed Watershed A.1 (Offsite Pass-Thru) (3.50 ac)



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Pre-Developed Watershed Runoff Area=36.080 ac 14.77% Impervious Runoff Depth>1.48"
Flow Length=2,201' Tc=43.2 min CN=80 Runoff=39.28 cfs 4.449 af

Subcatchment 5S: Pre-Developed Watershed Runoff Area=3.500 ac 48.86% Impervious Runoff Depth>2.00"
Tc=53.2 min CN=87 Runoff=4.45 cfs 0.582 af

Total Runoff Area = 39.580 ac Runoff Volume = 5.031 af Average Runoff Depth = 1.53"
82.21% Pervious = 32.540 ac 17.79% Impervious = 7.040 ac

Summary for Subcatchment 1S: Pre-Developed Watershed A (36.08 ac)

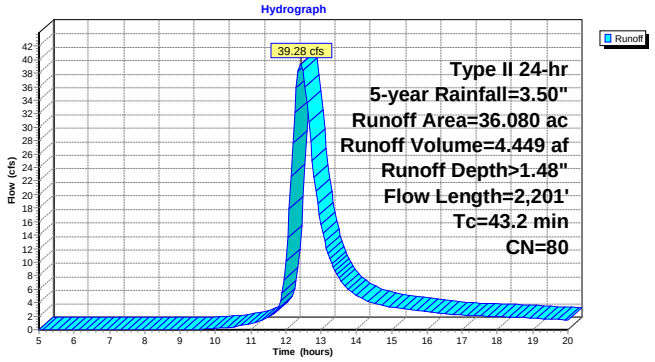
Runoff = 39.28 cfs @ 12.42 hrs, Volume= 4.449 af, Depth> 1.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 5-year Rainfall=3.50"

	Area (ac)	CN	Description
*	5.000	98	POND
	0.330	98	Paved parking, HSG A
*	30.750	77	Row crops, straight row, Poor, HSG D
	36.080	80	Weighted Average
	30.750		85.23% Pervious Area
	5.330		14.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	100	0.0335	0.41		**Sheet Flow, SHEET FLOW** Cultivated: Residue<=20% n= 0.060 P2= 2.80"
37.2	1,518	0.0057	0.68		**Shallow Concentrated Flow, SHALLOW CONCENTRATED** Cultivated Straight Rows Kv= 9.0 fps
1.9	583	0.0027	5.13	153.76	**Channel Flow, CHANNEL FLOW** Area= 30.0 sf Perim= 17.0' r= 1.76' n= 0.022 Earth, clean & straight
43.2	2,201	Total			

Subcatchment 1S: Pre-Developed Watershed A (36.08 ac)



Summary for Subcatchment 5S: Pre-Developed Watershed A.1 (Offsite Pass-Thru) (3.50 ac)

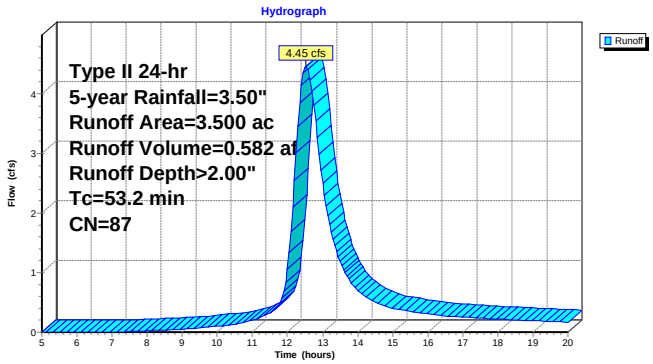
Runoff = 4.45 cfs @ 12.53 hrs, Volume= 0.582 af, Depth> 2.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 5-year Rainfall=3.50"

	Area (ac)	CN	Description
	1.710	98	Paved parking, HSG A
*	1.790	77	Row crops, straight row, Poor, HSG D
	3.500	87	Weighted Average
	1.790		51.14% Pervious Area
	1.710		48.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
53.2					**Direct Entry,**

Subcatchment 5S: Pre-Developed Watershed A.1 (Offsite Pass-Thru) (3.50 ac)



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Pre-Developed Watershed Runoff Area=36.080 ac 14.77% Impervious Runoff Depth>1.85"
Flow Length=2,201' Tc=43.2 min CN=80 Runoff=49.44 cfs 5.577 af

Subcatchment 5S: Pre-Developed Watershed Runoff Area=3.500 ac 48.86% Impervious Runoff Depth>2.42"
Tc=53.2 min CN=87 Runoff=5.38 cfs 0.706 af

Total Runoff Area = 39.580 ac Runoff Volume = 6.283 af Average Runoff Depth = 1.90"
82.21% Pervious = 32.540 ac 17.79% Impervious = 7.040 ac

Summary for Subcatchment 1S: Pre-Developed Watershed A (36.08 ac)

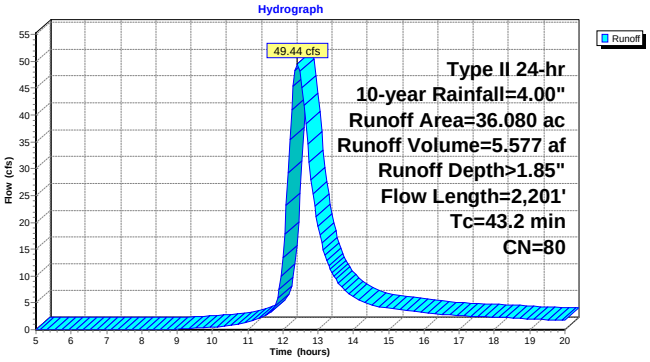
Runoff = 49.44 cfs @ 12.41 hrs, Volume= 5.577 af, Depth> 1.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-year Rainfall=4.00"

	Area (ac)	CN	Description
*	5.000	98	POND
	0.330	98	Paved parking, HSG A
*	30.750	77	Row crops, straight row, Poor, HSG D
	36.080	80	Weighted Average
	30.750		85.23% Pervious Area
	5.330		14.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	100	0.0335	0.41		**Sheet Flow, SHEET FLOW** Cultivated: Residue<=20% n= 0.060 P2= 2.80"
37.2	1,518	0.0057	0.68		**Shallow Concentrated Flow, SHALLOW CONCENTRATED** Cultivated Straight Rows Kv= 9.0 fps
1.9	583	0.0027	5.13	153.76	**Channel Flow, CHANNEL FLOW** Area= 30.0 sf Perim= 17.0' r= 1.76' n= 0.022 Earth, clean & straight
43.2	2,201	Total			

Subcatchment 1S: Pre-Developed Watershed A (36.08 ac)



Summary for Subcatchment 5S: Pre-Developed Watershed A.1 (Offsite Pass-Thru) (3.50 ac)

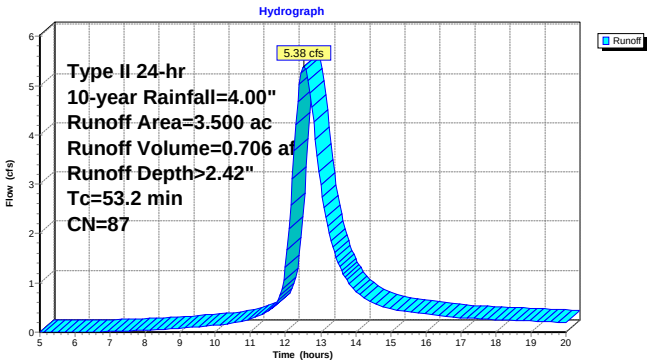
Runoff = 5.38 cfs @ 12.52 hrs, Volume= 0.706 af, Depth> 2.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-year Rainfall=4.00"

	Area (ac)	CN	Description
	1.710	98	Paved parking, HSG A
*	1.790	77	Row crops, straight row, Poor, HSG D
	3.500	87	Weighted Average
	1.790		51.14% Pervious Area
	1.710		48.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
53.2					**Direct Entry,**

Subcatchment 5S: Pre-Developed Watershed A.1 (Offsite Pass-Thru) (3.50 ac)



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Pre-Developed Watershed Runoff Area=36.080 ac 14.77% Impervious Runoff Depth>2.32"
Flow Length=2,201' Tc=43.2 min CN=80 Runoff=62.01 cfs 6.987 af

Subcatchment 5S: Pre-Developed Watershed Runoff Area=3.500 ac 48.86% Impervious Runoff Depth>2.94"
Tc=53.2 min CN=87 Runoff=6.49 cfs 0.857 af

Total Runoff Area = 39.580 ac Runoff Volume = 7.844 af Average Runoff Depth = 2.38"
82.21% Pervious = 32.540 ac 17.79% Impervious = 7.040 ac

Summary for Subcatchment 1S: Pre-Developed Watershed A (36.08 ac)

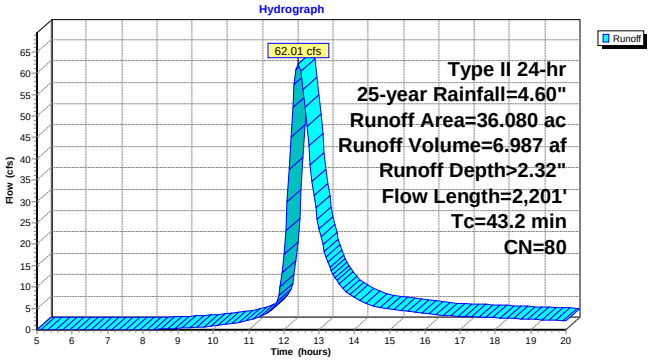
Runoff = 62.01 cfs @ 12.41 hrs, Volume= 6.987 af, Depth> 2.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-year Rainfall=4.60"

	Area (ac)	CN	Description
*	5.000	98	POND
	0.330	98	Paved parking, HSG A
*	30.750	77	Row crops, straight row, Poor, HSG D
	36.080	80	Weighted Average
	30.750		85.23% Pervious Area
	5.330		14.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	100	0.0335	0.41		**Sheet Flow, SHEET FLOW** Cultivated: Residue<=20% n= 0.060 P2= 2.80"
37.2	1,518	0.0057	0.68		**Shallow Concentrated Flow, SHALLOW CONCENTRATED** Cultivated Straight Rows Kv= 9.0 fps
1.9	583	0.0027	5.13	153.76	**Channel Flow, CHANNEL FLOW** Area= 30.0 sf Perim= 17.0' r= 1.76' n= 0.022 Earth, clean & straight
43.2	2,201	Total			

Subcatchment 1S: Pre-Developed Watershed A (36.08 ac)



Summary for Subcatchment 5S: Pre-Developed Watershed A.1 (Offsite Pass-Thru) (3.50 ac)

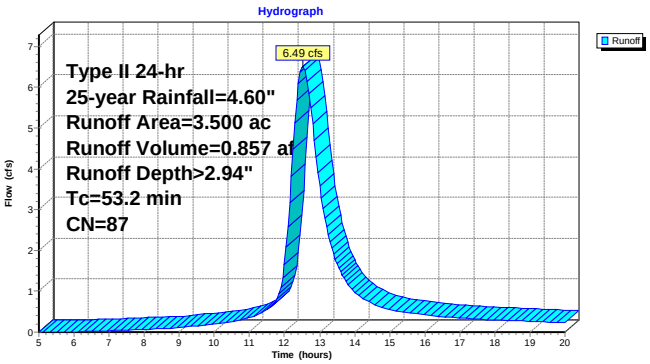
Runoff = 6.49 cfs @ 12.52 hrs, Volume= 0.857 af, Depth> 2.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-year Rainfall=4.60"

	Area (ac)	CN	Description
	1.710	98	Paved parking, HSG A
*	1.790	77	Row crops, straight row, Poor, HSG D
	3.500	87	Weighted Average
	1.790		51.14% Pervious Area
	1.710		48.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
53.2					**Direct Entry,**

Subcatchment 5S: Pre-Developed Watershed A.1 (Offsite Pass-Thru) (3.50 ac)



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Pre-Developed Watershed Runoff Area=36.080 ac 14.77% Impervious Runoff Depth>2.65"
Flow Length=2,201' Tc=43.2 min CN=80 Runoff=70.55 cfs 7.955 af

Subcatchment 5S: Pre-Developed Watershed Runoff Area=3.500 ac 48.86% Impervious Runoff Depth>3.29"
Tc=53.2 min CN=87 Runoff=7.24 cfs 0.959 af

Total Runoff Area = 39.580 ac Runoff Volume = 8.914 af Average Runoff Depth = 2.70"
82.21% Pervious = 32.540 ac 17.79% Impervious = 7.040 ac

Summary for Subcatchment 1S: Pre-Developed Watershed A (36.08 ac)

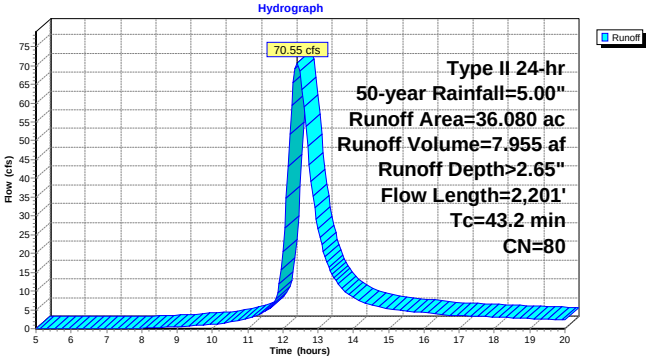
Runoff = 70.55 cfs @ 12.41 hrs, Volume= 7.955 af, Depth> 2.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-year Rainfall=5.00"

	Area (ac)	CN	Description
*	5.000	98	POND
	0.330	98	Paved parking, HSG A
*	30.750	77	Row crops, straight row, Poor, HSG D
	36.080	80	Weighted Average
	30.750		85.23% Pervious Area
	5.330		14.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	100	0.0335	0.41		**Sheet Flow, SHEET FLOW** Cultivated: Residue<=20% n= 0.060 P2= 2.80"
37.2	1,518	0.0057	0.68		**Shallow Concentrated Flow, SHALLOW CONCENTRATED** Cultivated Straight Rows Kv= 9.0 fps
1.9	583	0.0027	5.13	153.76	**Channel Flow, CHANNEL FLOW** Area= 30.0 sf Perim= 17.0' r= 1.76' n= 0.022 Earth, clean & straight
43.2	2,201	Total			

Subcatchment 1S: Pre-Developed Watershed A (36.08 ac)



Summary for Subcatchment 5S: Pre-Developed Watershed A.1 (Offsite Pass-Thru) (3.50 ac)

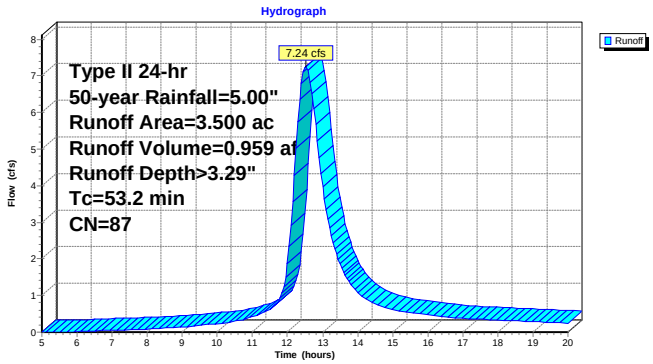
Runoff = 7.24 cfs @ 12.52 hrs, Volume= 0.959 af, Depth> 3.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-year Rainfall=5.00"

	Area (ac)	CN	Description
	1.710	98	Paved parking, HSG A
*	1.790	77	Row crops, straight row, Poor, HSG D
	3.500	87	Weighted Average
	1.790		51.14% Pervious Area
	1.710		48.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
53.2					**Direct Entry,**

Subcatchment 5S: Pre-Developed Watershed A.1 (Offsite Pass-Thru) (3.50 ac)



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Pre-Developed Watershed Runoff Area=36.080 ac 14.77% Impervious Runoff Depth>3.06"
Flow Length=2,201' Tc=43.2 min CN=80 Runoff=81.37 cfs 9.189 af

Subcatchment 5S: Pre-Developed Watershed Runoff Area=3.500 ac 48.86% Impervious Runoff Depth>3.73"
Tc=53.2 min CN=87 Runoff=8.18 cfs 1.088 af

Total Runoff Area = 39.580 ac Runoff Volume = 10.277 af Average Runoff Depth = 3.12"
82.21% Pervious = 32.540 ac 17.79% Impervious = 7.040 ac

Summary for Subcatchment 1S: Pre-Developed Watershed A (36.08 ac)

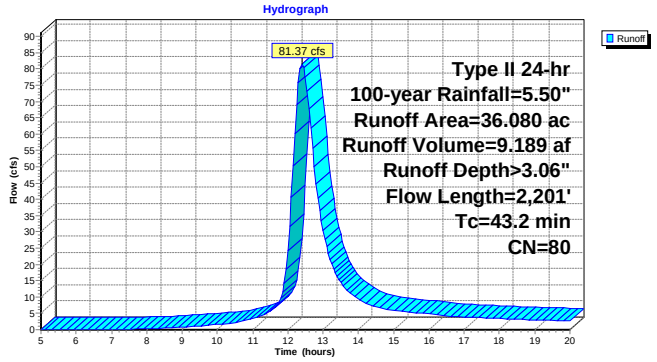
Runoff = 81.37 cfs @ 12.40 hrs, Volume= 9.189 af, Depth> 3.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-year Rainfall=5.50"

	Area (ac)	CN	Description
*	5.000	98	POND
	0.330	98	Paved parking, HSG A
*	30.750	77	Row crops, straight row, Poor, HSG D
	36.080	80	Weighted Average
	30.750		85.23% Pervious Area
	5.330		14.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	100	0.0335	0.41		**Sheet Flow, SHEET FLOW** Cultivated: Residue<=20% n= 0.060 P2= 2.80"
37.2	1,518	0.0057	0.68		**Shallow Concentrated Flow, SHALLOW CONCENTRATED** Cultivated Straight Rows Kv= 9.0 fps
1.9	583	0.0027	5.13	153.76	**Channel Flow, CHANNEL FLOW** Area= 30.0 sf Perim= 17.0' r= 1.76' n= 0.022 Earth, clean & straight
43.2	2,201	Total			

Subcatchment 1S: Pre-Developed Watershed A (36.08 ac)



Summary for Subcatchment 5S: Pre-Developed Watershed A.1 (Offsite Pass-Thru) (3.50 ac)

Runoff = 8.18 cfs @ 12.52 hrs, Volume= 1.088 af, Depth> 3.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-year Rainfall=5.50"

	Area (ac)	CN	Description
	1.710	98	Paved parking, HSG A
*	1.790	77	Row crops, straight row, Poor, HSG D
	3.500	87	Weighted Average
	1.790		51.14% Pervious Area
	1.710		48.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
53.2					**Direct Entry,**

Subcatchment 5S: Pre-Developed Watershed A.1 (Offsite Pass-Thru) (3.50 ac)

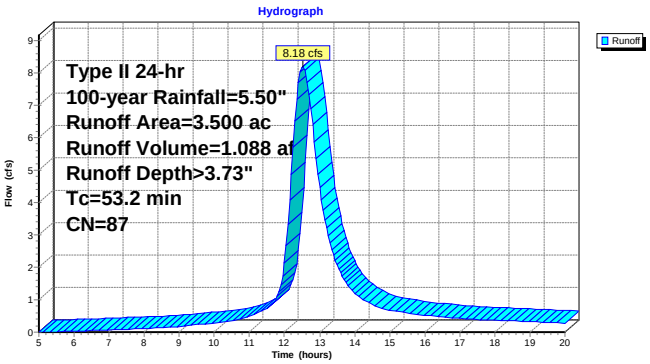
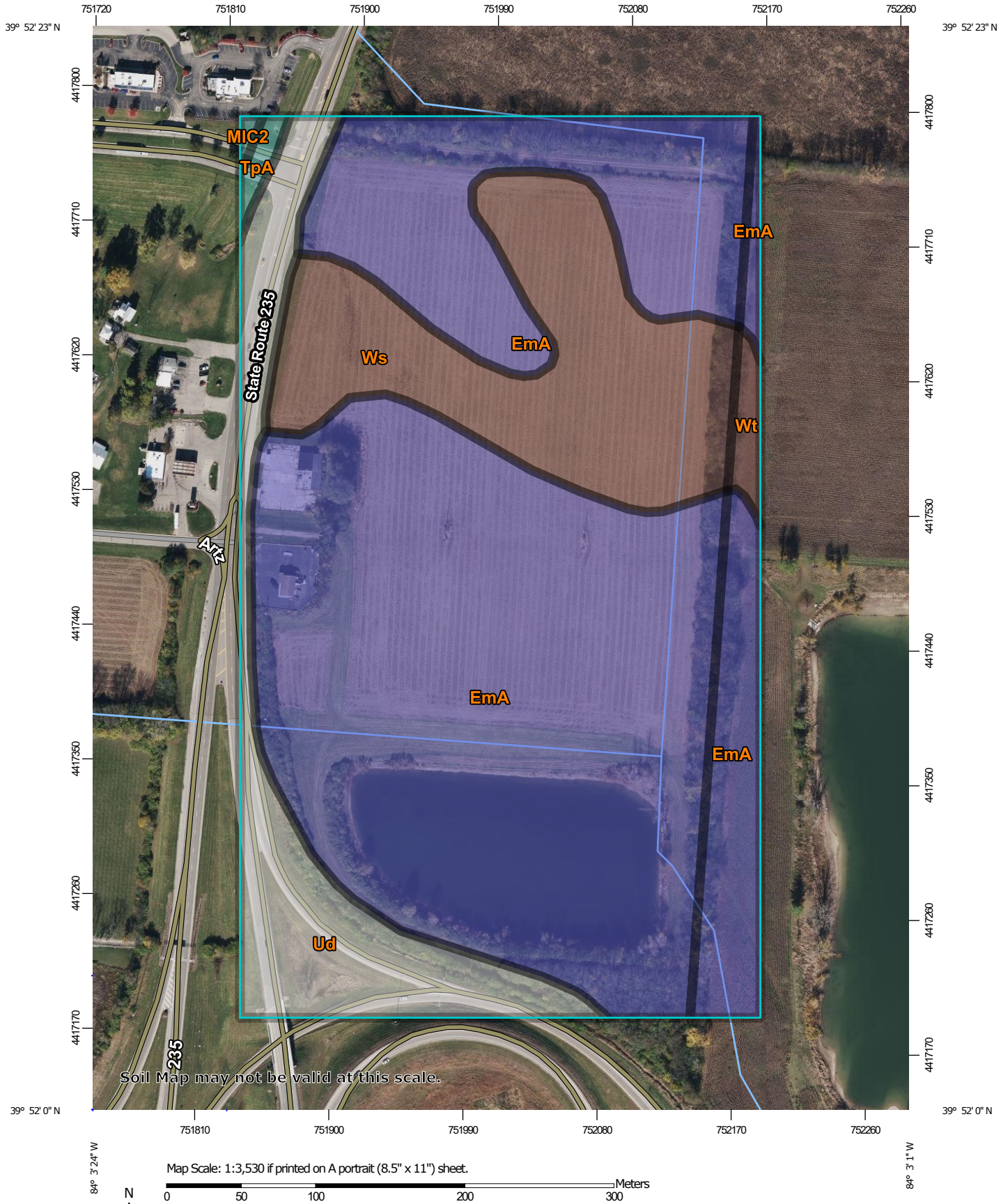


Exhibit C – NRCS Web Soil Survey

Hydrologic Soil Group—Clark County, Ohio, and Montgomery County, Ohio
(Huber Heights)



Map Scale: 1:3,530 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Clark County, Ohio
Survey Area Data: Version 21, Sep 8, 2022

Soil Survey Area: Montgomery County, Ohio
Survey Area Data: Version 21, Sep 9, 2022

Your area of interest (AOI) includes more than one soil survey area. These survey areas may have been mapped at different scales, with a different land use in mind, at different times, or at different levels of detail. This may result in map unit symbols, soil properties, and interpretations that do not completely agree across soil survey area boundaries.

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Oct 9, 2020—Nov 5, 2020

MAP LEGEND

MAP INFORMATION

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
EmA	Eldean silt loam, 0 to 2 percent slopes	B	3.3	6.4%
Wt	Westland silty clay loam, Southern Ohio Till Plain, 0 to 2 percent slopes	B/D	0.5	1.0%
Subtotals for Soil Survey Area			**3.8**	**7.4%**
Totals for Area of Interest			**52.2**	**100.0%**

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
EmA	Eldean silt loam, 0 to 2 percent slopes	B	32.7	62.7%
MlC2	Miamian silt loam, 6 to 12 percent slopes, eroded	C	0.1	0.1%
TpA	Tippecanoe silt loam, 0 to 2 percent slopes	C	0.3	0.5%
Ud	Udorthents		6.2	11.9%
Ws	Westland silty clay loam, Southern Ohio Till Plain, 0 to 2 percent slopes	B/D	9.0	17.3%
Subtotals for Soil Survey Area			**48.3**	**92.6%**
Totals for Area of Interest			**52.2**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

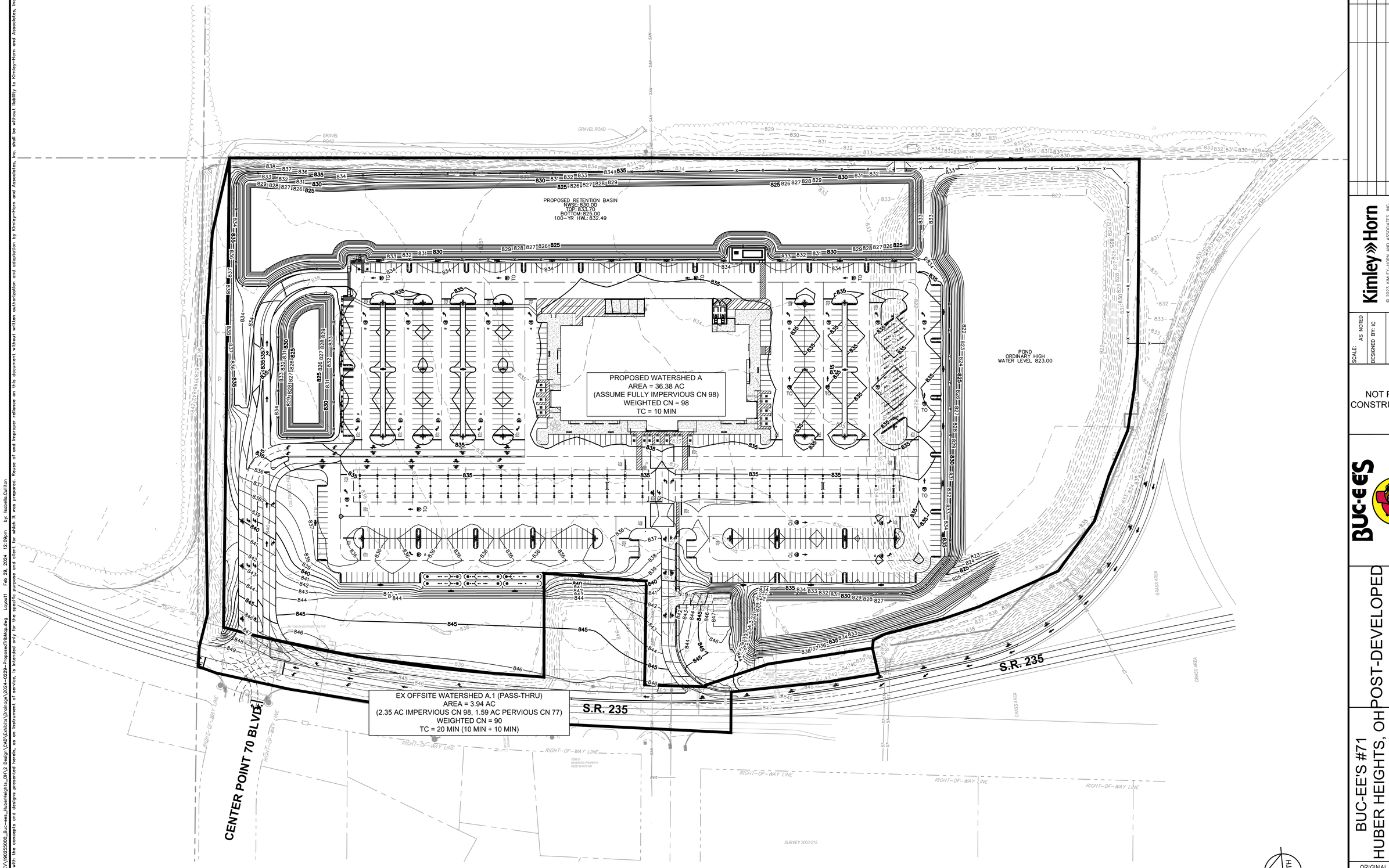
Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

Exhibit D – Post-Developed Tributary Map

Drawing name: K:\CLB_LDEV\190255000_Buc-ees_HuberHeights_OH\2 Design\CAD\Exhibits\Drainage\2024-0229-ProposedTribMap.dwg Layout1 Feb 29, 2024 12:09pm by IsabelleCulliton
This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.



LEGEND

- EXISTING SITE BOUNDARY
- EXISTING WATERSHED BOUNDARY
- EXISTING FLOW PATH
- CHANGE IN SURFACE FLOW CONDITIONS
- 990 EXISTING INDEX CONTOUR
- 988 EXISTING INTERMEDIATE CONTOUR

NORTH

GRAPHIC SCALE IN FEET
0 40 80 160

No.	REVISIONS	DATE	BY

Kimley»Horn

© 2023 KIMLEY-HORN AND ASSOCIATES, INC.
7965 N. HIGH STREET, SUITE 200,
COLUMBUS, OH 43235
PHONE: 614-540-6939
WWW.KIMLEY-HORN.COM

SCALE: AS NOTED
DESIGNED BY: IC
DRAWN BY: MAN
CHECKED BY: AJS

NOT FOR CONSTRUCTION

BUC-EE'S

BUC-EE'S #71
HUBER HEIGHTS, OH POST-DEVELOPED TRIBUTARY MAP

INTERSTATE HIGHWAY 70 & OH-235
HUBER HEIGHTS, OH 45424

ORIGINAL ISSUE: 02/29/2024
KHA PROJECT NO. 190255000
SHEET NUMBER
EX-D

Exhibit E – Critical Storm Calculations



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Pre-Developed Watershed Runoff Area=36.080 ac 14.77% Impervious Runoff Depth>0.79"
Flow Length=2,201' Tc=43.2 min CN=80 Runoff=20.41 cfs 2.381 af

Subcatchment 2S: Post-Developed Runoff Area=36.380 ac 100.00% Impervious Runoff Depth>2.11"
Tc=10.0 min CN=98 Runoff=110.92 cfs 6.394 af

Subcatchment 5S: Pre-Developed Watershed Runoff Area=3.500 ac 48.86% Impervious Runoff Depth>1.19"
Tc=53.2 min CN=87 Runoff=2.65 cfs 0.347 af

Subcatchment 6S: Post-Developed Watershed Runoff Area=3.940 ac 59.64% Impervious Runoff Depth>1.42"
Tc=20.0 min CN=90 Runoff=6.67 cfs 0.465 af

Total Runoff Area = 79.900 ac Runoff Volume = 9.586 af Average Runoff Depth = 1.44"
42.72% Pervious = 34.130 ac 57.28% Impervious = 45.770 ac

Summary for Subcatchment 1S: Pre-Developed Watershed A (36.08 ac)

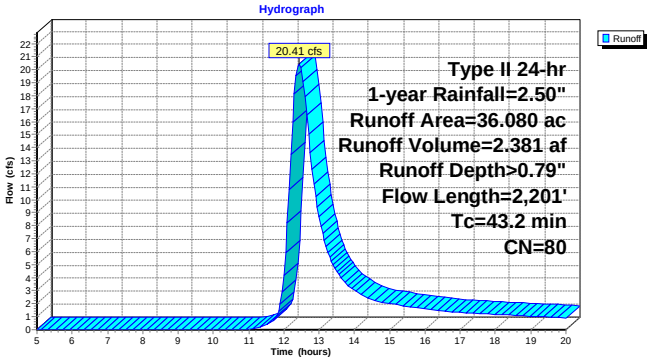
Runoff = 20.41 cfs @ 12.43 hrs, Volume= 2.381 af, Depth> 0.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-year Rainfall=2.50"

	Area (ac)	CN	Description
*	5.000	98	POND
	0.330	98	Paved parking, HSG A
*	30.750	77	Row crops, straight row, Poor, HSG D
	36.080	80	Weighted Average
	30.750		85.23% Pervious Area
	5.330		14.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	100	0.0335	0.41		**Sheet Flow, SHEET FLOW** Cultivated: Residue<=20% n= 0.060 P2= 2.80"
37.2	1,518	0.0057	0.68		**Shallow Concentrated Flow, SHALLOW CONCENTRATED** Cultivated Straight Rows Kv= 9.0 fps
1.9	583	0.0027	5.13	153.76	**Channel Flow, CHANNEL FLOW** Area= 30.0 sf Perim= 17.0' r= 1.76' n= 0.022 Earth, clean & straight
43.2	2,201	Total			

Subcatchment 1S: Pre-Developed Watershed A (36.08 ac)



Summary for Subcatchment 2S: Post-Developed Watershed A (36.38 ac)

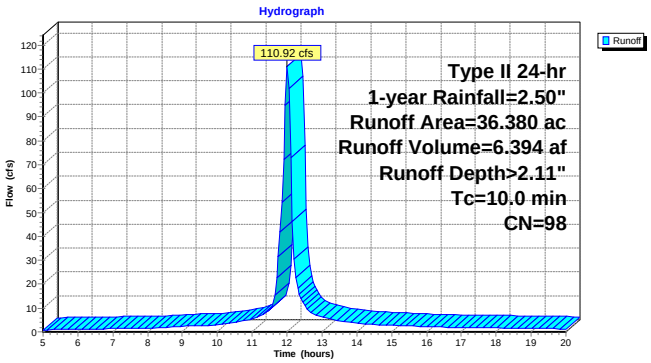
Runoff = 110.92 cfs @ 12.01 hrs, Volume= 6.394 af, Depth> 2.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-year Rainfall=2.50"

	Area (ac)	CN	Description
*	36.380	98	
	36.380		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 2S: Post-Developed Watershed A (36.38 ac)



Summary for Subcatchment 5S: Pre-Developed Watershed A.1 (Offsite Pass-Thru) (3.50 ac)

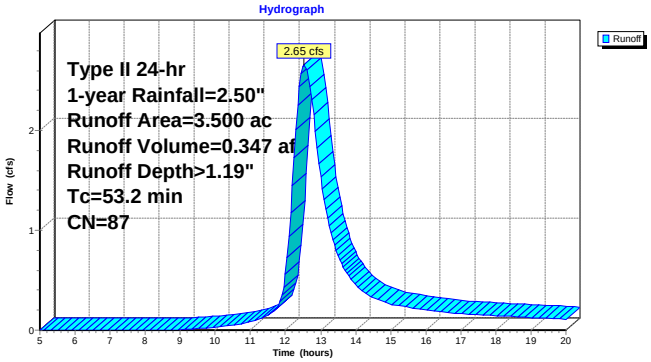
Runoff = 2.65 cfs @ 12.54 hrs, Volume= 0.347 af, Depth> 1.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-year Rainfall=2.50"

	Area (ac)	CN	Description
	1.710	98	Paved parking, HSG A
*	1.790	77	Row crops, straight row, Poor, HSG D
	3.500	87	Weighted Average
	1.790		51.14% Pervious Area
	1.710		48.86% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
53.2					**Direct Entry,**

Subcatchment 5S: Pre-Developed Watershed A.1 (Offsite Pass-Thru) (3.50 ac)



Summary for Subcatchment 6S: Post-Developed Watershed A.1 (Offsite Pass-Thru) (3.94 ac)

Runoff = 6.67 cfs @ 12.12 hrs, Volume= 0.465 af, Depth> 1.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-year Rainfall=2.50"

	Area (ac)	CN	Description
	2.350	98	Paved parking, HSG A
*	1.590	77	Row crops, straight row, Poor, HSG D
	3.940	90	Weighted Average
	1.590		40.36% Pervious Area
	2.350		59.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0					**Direct Entry,**

Subcatchment 6S: Post-Developed Watershed A.1 (Offsite Pass-Thru) (3.94 ac)

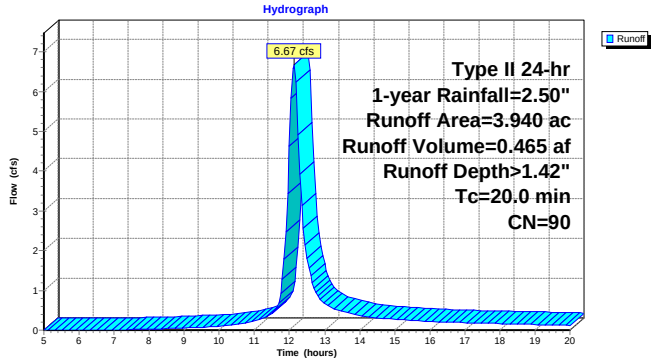
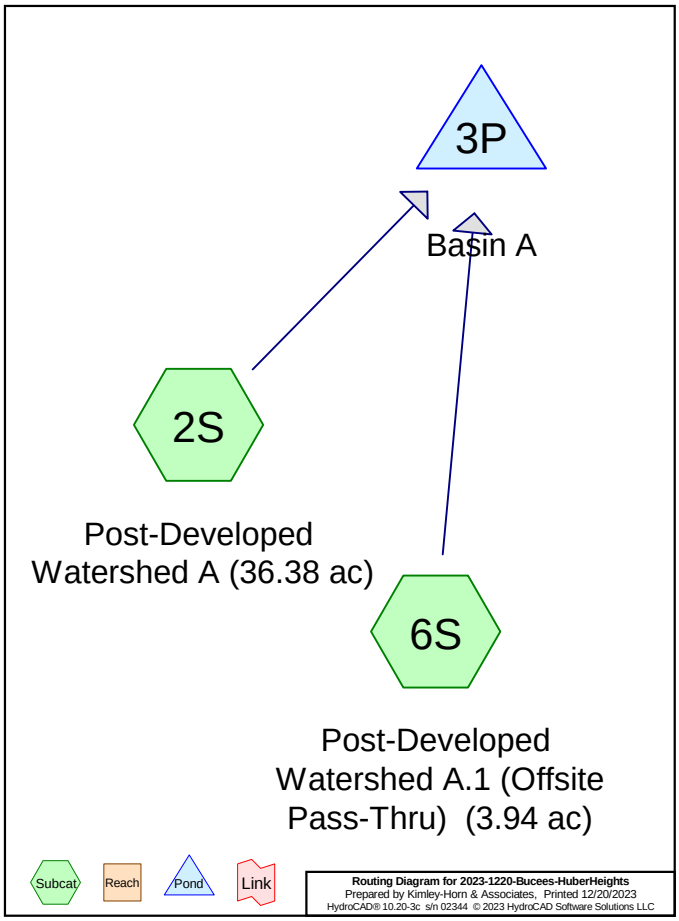


Exhibit F – Post-Developed Release Rates



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 2S: Post-Developed Runoff Area=36.380 ac 100.00% Impervious Runoff Depth>2.11"
Tc=10.0 min CN=98 Runoff=110.92 cfs 6.394 af

Subcatchment 6S: Post-Developed Watershed Runoff Area=3.940 ac 59.64% Impervious Runoff Depth>1.42"
Tc=20.0 min CN=90 Runoff=6.67 cfs 0.465 af

Pond 3P: Basin A Peak Elev=831.13' Storage=231,408 cf Inflow=115.75 cfs 6.858 af
Outflow=2.95 cfs 1.886 af

Summary for Subcatchment 2S: Post-Developed Watershed A (36.38 ac)

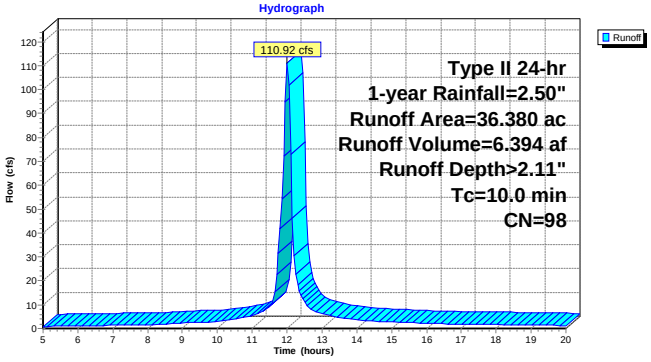
Runoff = 110.92 cfs @ 12.01 hrs, Volume= 6.394 af, Depth> 2.11"
Routed to Pond 3P : Basin A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-year Rainfall=2.50"

	Area (ac)	CN	Description
*	36.380	98	
	36.380		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 2S: Post-Developed Watershed A (36.38 ac)



Summary for Subcatchment 6S: Post-Developed Watershed A.1 (Offsite Pass-Thru) (3.94 ac)

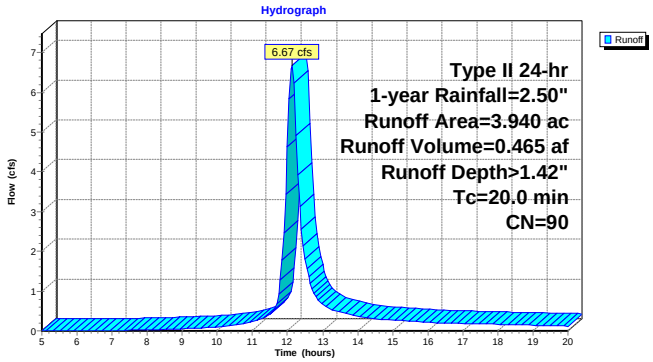
Runoff = 6.67 cfs @ 12.12 hrs, Volume= 0.465 af, Depth> 1.42"
Routed to Pond 3P : Basin A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 1-year Rainfall=2.50"

	Area (ac)	CN	Description
	2.350	98	Paved parking, HSG A
*	1.590	77	Row crops, straight row, Poor, HSG D
	3.940	90	Weighted Average
	1.590		40.36% Pervious Area
	2.350		59.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0					**Direct Entry,**

Subcatchment 6S: Post-Developed Watershed A.1 (Offsite Pass-Thru) (3.94 ac)



Summary for Pond 3P: Basin A

Inflow Area = 40.320 ac, 96.06% Impervious, Inflow Depth > 2.04" for 1-year event
Inflow = 115.75 cfs @ 12.01 hrs, Volume= 6.858 af
Outflow = 2.95 cfs @ 15.22 hrs, Volume= 1.886 af, Atten= 97%, Lag= 192.6 min
Primary = 2.95 cfs @ 15.22 hrs, Volume= 1.886 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 831.13' @ 15.22 hrs Surf.Area= 211,581 sf Storage= 231,408 cf

Plug-Flow detention time= 353.6 min calculated for 1.884 af (27% of inflow)
Center-of-Mass det. time= 215.6 min (957.5 - 741.9)

Volume	Invert	Avail.Storage	Storage Description
#1	830.00'	731,907 cf	**Larger Basin A (Prismatic)** Listed below (Recalc)
#2	830.00'	80,508 cf	**Smaller Basin A (Prismatic)** Listed below (Recalc)
		812,415 cf	Total Available Storage

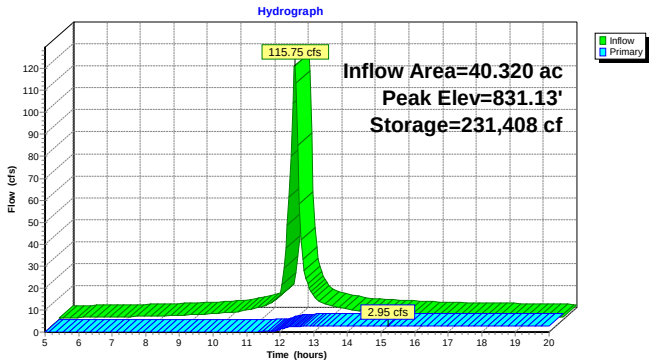
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
830.00	181,218	0	0
831.00	190,143	185,681	185,681
832.00	199,126	194,635	380,315
833.00	208,168	203,647	583,962
833.70	214,532	147,945	731,907

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
830.00	18,158	0	0
831.00	20,056	19,107	19,107
832.00	22,019	21,038	40,145
833.00	24,039	23,029	63,174
833.70	25,487	17,334	80,508

Device	Routing	Invert	Outlet Devices
#1	Primary	830.00'	**18.0" Round Culvert** L= 181.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 830.00' / 829.65' S= 0.0019 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	830.00'	**12.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	831.50'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	833.70'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=2.95 cfs @ 15.22 hrs HW=831.13' (Free Discharge)
└─**1=Culvert** (Barrel Controls 2.95 cfs @ 2.88 fps)
  ├─**2=Orifice/Grate** (Passes 2.95 cfs of 2.99 cfs potential flow)
  ├─**3=Orifice/Grate** (Controls 0.00 cfs)
  └─**4=Orifice/Grate** (Controls 0.00 cfs)

Pond 3P: Basin A



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 2S: Post-Developed Runoff Area=36.380 ac 100.00% Impervious Runoff Depth>2.38"
Tc=10.0 min CN=98 Runoff=124.71 cfs 7.220 af

Subcatchment 6S: Post-Developed Watershed Runoff Area=3.940 ac 59.64% Impervious Runoff Depth>1.67"
Tc=20.0 min CN=90 Runoff=7.82 cfs 0.548 af

Pond 3P: Basin A Peak Elev=831.27' Storage=261,388 cf Inflow=130.42 cfs 7.768 af
Outflow=3.31 cfs 2.174 af

Summary for Subcatchment 2S: Post-Developed Watershed A (36.38 ac)

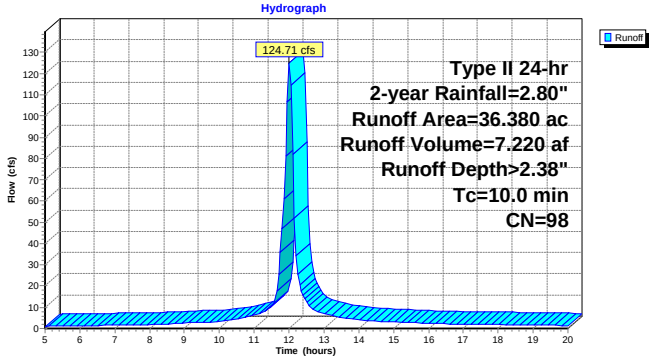
Runoff = 124.71 cfs @ 12.01 hrs, Volume= 7.220 af, Depth> 2.38"
Routed to Pond 3P : Basin A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-year Rainfall=2.80"

	Area (ac)	CN	Description
*	36.380	98	
	36.380		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 2S: Post-Developed Watershed A (36.38 ac)



Summary for Subcatchment 6S: Post-Developed Watershed A.1 (Offsite Pass-Thru) (3.94 ac)

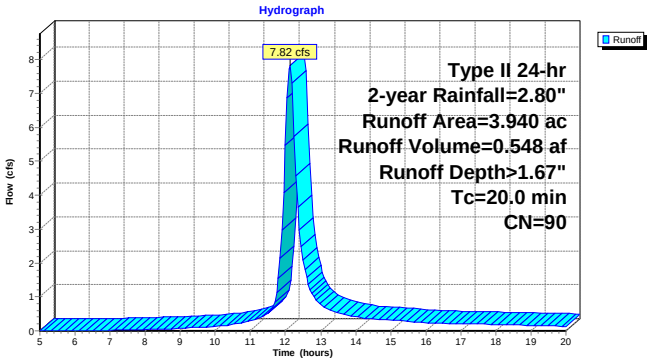
Runoff = 7.82 cfs @ 12.12 hrs, Volume= 0.548 af, Depth> 1.67"
Routed to Pond 3P : Basin A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 2-year Rainfall=2.80"

	Area (ac)	CN	Description
	2.350	98	Paved parking, HSG A
*	1.590	77	Row crops, straight row, Poor, HSG D
	3.940	90	Weighted Average
	1.590		40.36% Pervious Area
	2.350		59.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0					**Direct Entry,**

Subcatchment 6S: Post-Developed Watershed A.1 (Offsite Pass-Thru) (3.94 ac)



Summary for Pond 3P: Basin A

Inflow Area = 40.320 ac, 96.06% Impervious, Inflow Depth > 2.31" for 2-year event
Inflow = 130.42 cfs @ 12.01 hrs, Volume= 7.768 af
Outflow = 3.31 cfs @ 15.22 hrs, Volume= 2.174 af, Atten= 97%, Lag= 192.9 min
Primary = 3.31 cfs @ 15.22 hrs, Volume= 2.174 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 831.27' @ 15.22 hrs Surf.Area= 213,126 sf Storage= 261,388 cf

Plug-Flow detention time= 353.6 min calculated for 2.172 af (28% of inflow)
Center-of-Mass det. time= 215.7 min (956.3 - 740.6)

Volume	Invert	Avail.Storage	Storage Description
#1	830.00'	731,907 cf	**Larger Basin A (Prismatic)** Listed below (Recalc)
#2	830.00'	80,508 cf	**Smaller Basin A (Prismatic)** Listed below (Recalc)
		812,415 cf	Total Available Storage

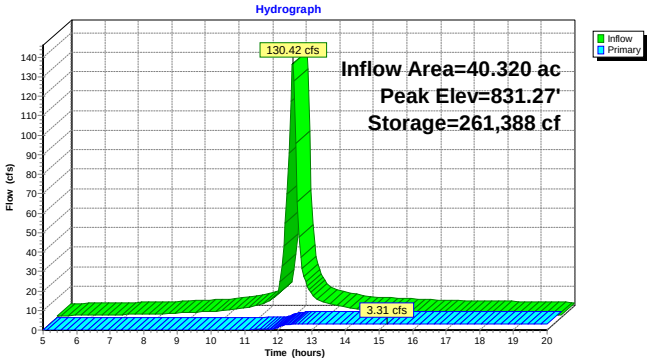
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
830.00	181,218	0	0
831.00	190,143	185,681	185,681
832.00	199,126	194,635	380,315
833.00	208,168	203,647	583,962
833.70	214,532	147,945	731,907

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
830.00	18,158	0	0
831.00	20,056	19,107	19,107
832.00	22,019	21,038	40,145
833.00	24,039	23,029	63,174
833.70	25,487	17,334	80,508

Device	Routing	Invert	Outlet Devices
#1	Primary	830.00'	**18.0" Round Culvert** L= 181.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 830.00' / 829.65' S= 0.0019 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	830.00'	**12.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	831.50'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	833.70'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=3.31 cfs @ 15.22 hrs HW=831.27' (Free Discharge)
└**1=Culvert** (Passes 3.31 cfs of 3.58 cfs potential flow)
├**2=Orifice/Grate** (Orifice Controls 3.31 cfs @ 4.22 fps)
├**3=Orifice/Grate** (Controls 0.00 cfs)
└**4=Orifice/Grate** (Controls 0.00 cfs)

Pond 3P: Basin A



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 2S: Post-Developed Runoff Area=36.380 ac 100.00% Impervious Runoff Depth>3.02"
Tc=10.0 min CN=98 Runoff=156.76 cfs 9.143 af

Subcatchment 6S: Post-Developed Watershed Runoff Area=3.940 ac 59.64% Impervious Runoff Depth>2.28"
Tc=20.0 min CN=90 Runoff=10.54 cfs 0.748 af

Pond 3P: Basin A Peak Elev=831.60' Storage=331,875 cf Inflow=164.58 cfs 9.892 af
Outflow=4.41 cfs 2.792 af

Summary for Subcatchment 2S: Post-Developed Watershed A (36.38 ac)

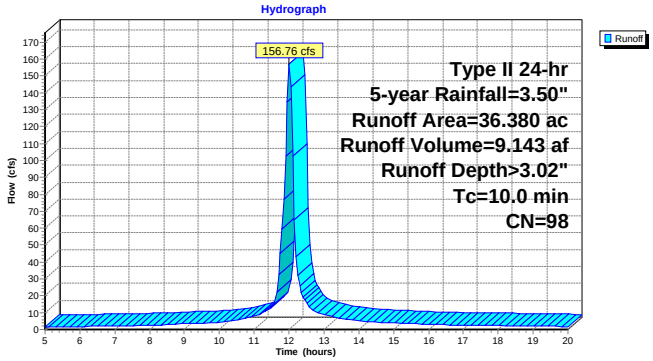
Runoff = 156.76 cfs @ 12.01 hrs, Volume= 9.143 af, Depth> 3.02"
Routed to Pond 3P : Basin A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 5-year Rainfall=3.50"

	Area (ac)	CN	Description
*	36.380	98	
	36.380		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 2S: Post-Developed Watershed A (36.38 ac)



Summary for Subcatchment 6S: Post-Developed Watershed A.1 (Offsite Pass-Thru) (3.94 ac)

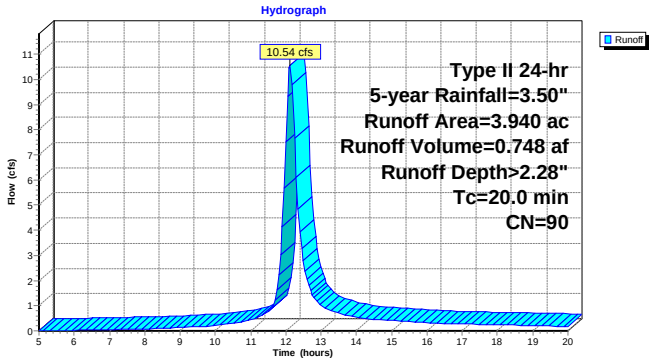
Runoff = 10.54 cfs @ 12.12 hrs, Volume= 0.748 af, Depth> 2.28"
Routed to Pond 3P : Basin A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 5-year Rainfall=3.50"

	Area (ac)	CN	Description
	2.350	98	Paved parking, HSG A
*	1.590	77	Row crops, straight row, Poor, HSG D
	3.940	90	Weighted Average
	1.590		40.36% Pervious Area
	2.350		59.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0					**Direct Entry,**

Subcatchment 6S: Post-Developed Watershed A.1 (Offsite Pass-Thru) (3.94 ac)



Summary for Pond 3P: Basin A

Inflow Area = 40.320 ac, 96.06% Impervious, Inflow Depth > 2.94" for 5-year event
Inflow = 164.58 cfs @ 12.01 hrs, Volume= 9.892 af
Outflow = 4.41 cfs @ 14.97 hrs, Volume= 2.792 af, Atten= 97%, Lag= 177.6 min
Primary = 4.41 cfs @ 14.97 hrs, Volume= 2.792 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 831.60' @ 14.97 hrs Surf.Area= 216,716 sf Storage= 331,875 cf

Plug-Flow detention time= 353.0 min calculated for 2.790 af (28% of inflow)
Center-of-Mass det. time= 212.9 min (951.3 - 738.4)

Volume	Invert	Avail.Storage	Storage Description
#1	830.00'	731,907 cf	**Larger Basin A (Prismatic)** Listed below (Recalc)
#2	830.00'	80,508 cf	**Smaller Basin A (Prismatic)** Listed below (Recalc)
		812,415 cf	Total Available Storage

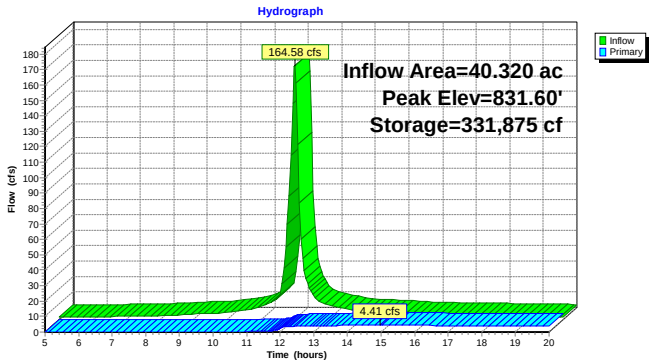
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
830.00	181,218	0	0
831.00	190,143	185,681	185,681
832.00	199,126	194,635	380,315
833.00	208,168	203,647	583,962
833.70	214,532	147,945	731,907

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
830.00	18,158	0	0
831.00	20,056	19,107	19,107
832.00	22,019	21,038	40,145
833.00	24,039	23,029	63,174
833.70	25,487	17,334	80,508

Device	Routing	Invert	Outlet Devices
#1	Primary	830.00'	**18.0" Round Culvert** L= 181.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 830.00' / 829.65' S= 0.0019 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	830.00'	**12.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	831.50'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	833.70'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=4.41 cfs @ 14.97 hrs HW=831.60' (Free Discharge)
↑—**1=Culvert** (Passes 4.41 cfs of 4.98 cfs potential flow)
↑—**2=Orifice/Grate** (Orifice Controls 3.96 cfs @ 5.04 fps)
—**3=Orifice/Grate** (Weir Controls 0.45 cfs @ 1.01 fps)
—**4=Orifice/Grate** (Controls 0.00 cfs)

Pond 3P: Basin A



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 2S: Post-Developed Runoff Area=36.380 ac 100.00% Impervious Runoff Depth>3.47"
Tc=10.0 min CN=98 Runoff=179.60 cfs 10.513 af

Subcatchment 6S: Post-Developed Watershed Runoff Area=3.940 ac 59.64% Impervious Runoff Depth>2.72"
Tc=20.0 min CN=90 Runoff=12.49 cfs 0.894 af

Pond 3P: Basin A Peak Elev=831.80' Storage=375,838 cf Inflow=188.93 cfs 11.407 af
Outflow=5.65 cfs 3.657 af

Summary for Subcatchment 2S: Post-Developed Watershed A (36.38 ac)

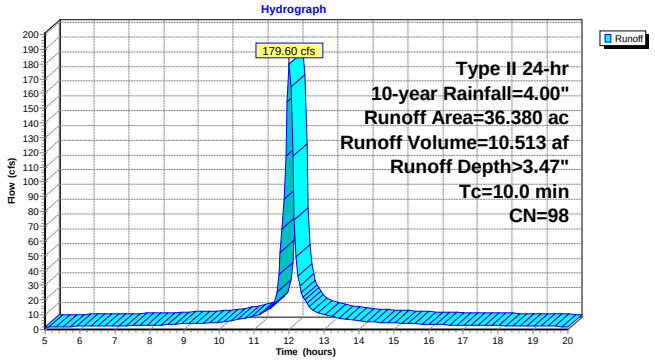
Runoff = 179.60 cfs @ 12.01 hrs, Volume= 10.513 af, Depth> 3.47"
Routed to Pond 3P : Basin A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-year Rainfall=4.00"

	Area (ac)	CN	Description
*	36.380	98	
	36.380		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 2S: Post-Developed Watershed A (36.38 ac)



Summary for Subcatchment 6S: Post-Developed Watershed A.1 (Offsite Pass-Thru) (3.94 ac)

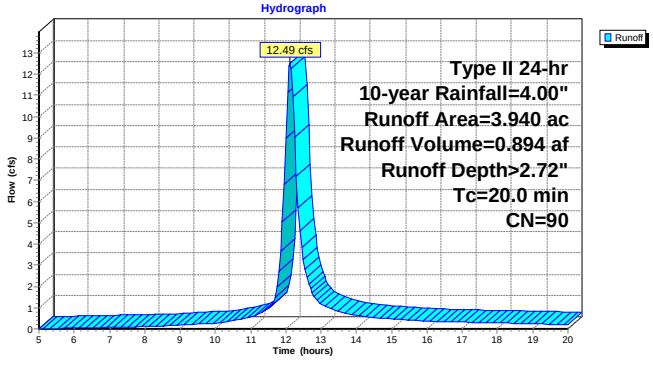
Runoff = 12.49 cfs @ 12.12 hrs, Volume= 0.894 af, Depth> 2.72"
Routed to Pond 3P : Basin A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-year Rainfall=4.00"

	Area (ac)	CN	Description
	2.350	98	Paved parking, HSG A
*	1.590	77	Row crops, straight row, Poor, HSG D
	3.940	90	Weighted Average
	1.590		40.36% Pervious Area
	2.350		59.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0					**Direct Entry,**

Subcatchment 6S: Post-Developed Watershed A.1 (Offsite Pass-Thru) (3.94 ac)



Summary for Pond 3P: Basin A

Inflow Area = 40.320 ac, 96.06% Impervious, Inflow Depth > 3.40" for 10-year event
Inflow = 188.93 cfs @ 12.01 hrs, Volume= 11.407 af
Outflow = 5.65 cfs @ 14.45 hrs, Volume= 3.657 af, Atten= 97%, Lag= 146.3 min
Primary = 5.65 cfs @ 14.45 hrs, Volume= 3.657 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 831.80' @ 14.45 hrs Surf.Area= 218,925 sf Storage= 375,838 cf

Plug-Flow detention time= 340.7 min calculated for 3.641 af (32% of inflow)
Center-of-Mass det. time= 213.1 min (950.4 - 737.2)

Volume	Invert	Avail.Storage	Storage Description
#1	830.00'	731,907 cf	**Larger Basin A (Prismatic)** Listed below (Recalc)
#2	830.00'	80,508 cf	**Smaller Basin A (Prismatic)** Listed below (Recalc)
		812,415 cf	Total Available Storage

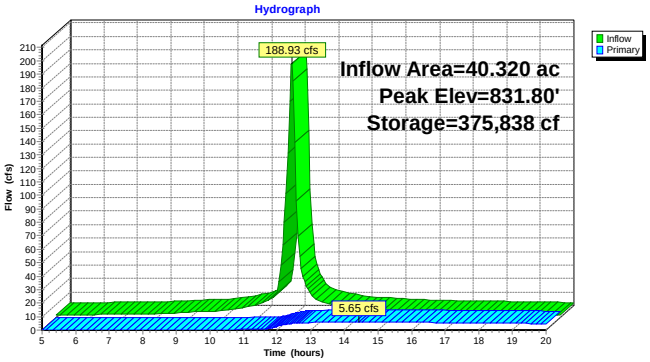
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
830.00	181,218	0	0
831.00	190,143	185,681	185,681
832.00	199,126	194,635	380,315
833.00	208,168	203,647	583,962
833.70	214,532	147,945	731,907

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
830.00	18,158	0	0
831.00	20,056	19,107	19,107
832.00	22,019	21,038	40,145
833.00	24,039	23,029	63,174
833.70	25,487	17,334	80,508

Device	Routing	Invert	Outlet Devices
#1	Primary	830.00'	**18.0" Round Culvert** L= 181.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 830.00' / 829.65' S= 0.0019 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	830.00'	**12.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	831.50'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	833.70'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=5.65 cfs @ 14.45 hrs HW=831.80' (Free Discharge)
└**1=Culvert** (Barrel Controls 5.65 cfs @ 3.38 fps)
└**2=Orifice/Grate** (Passes < 4.31 cfs potential flow)
└**3=Orifice/Grate** (Passes < 2.50 cfs potential flow)
└**4=Orifice/Grate** (Controls 0.00 cfs)

Pond 3P: Basin A



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 2S: Post-Developed Runoff Area=36.380 ac 100.00% Impervious Runoff Depth>4.01"
Tc=10.0 min CN=98 Runoff=206.96 cfs 12.154 af

Subcatchment 6S: Post-Developed Watershed Runoff Area=3.940 ac 59.64% Impervious Runoff Depth>3.26"
Tc=20.0 min CN=90 Runoff=14.82 cfs 1.071 af

Pond 3P: Basin A Peak Elev=832.08' Storage=438,649 cf Inflow=218.11 cfs 13.225 af
Outflow=6.00 cfs 4.034 af

Summary for Subcatchment 2S: Post-Developed Watershed A (36.38 ac)

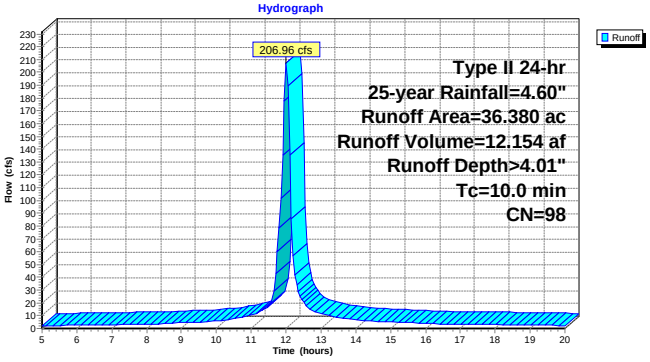
Runoff = 206.96 cfs @ 12.01 hrs, Volume= 12.154 af, Depth> 4.01"
Routed to Pond 3P : Basin A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-year Rainfall=4.60"

	Area (ac)	CN	Description
*	36.380	98	
	36.380		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 2S: Post-Developed Watershed A (36.38 ac)



Summary for Subcatchment 6S: Post-Developed Watershed A.1 (Offsite Pass-Thru) (3.94 ac)

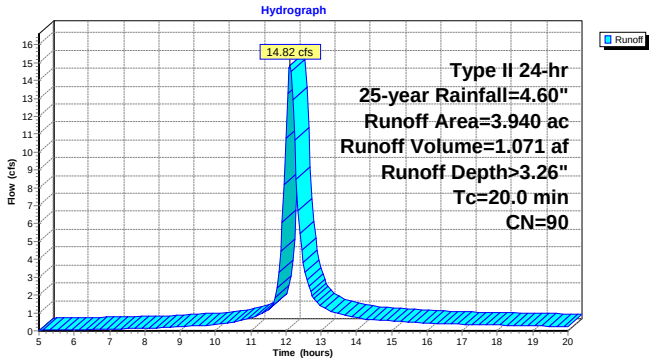
Runoff = 14.82 cfs @ 12.12 hrs, Volume= 1.071 af, Depth> 3.26"
Routed to Pond 3P : Basin A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 25-year Rainfall=4.60"

	Area (ac)	CN	Description
	2.350	98	Paved parking, HSG A
*	1.590	77	Row crops, straight row, Poor, HSG D
	3.940	90	Weighted Average
	1.590		40.36% Pervious Area
	2.350		59.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0					**Direct Entry,**

Subcatchment 6S: Post-Developed Watershed A.1 (Offsite Pass-Thru) (3.94 ac)



Summary for Pond 3P: Basin A

Inflow Area = 40.320 ac, 96.06% Impervious, Inflow Depth > 3.94" for 25-year event
Inflow = 218.11 cfs @ 12.01 hrs, Volume= 13.225 af
Outflow = 6.00 cfs @ 14.84 hrs, Volume= 4.034 af, Atten= 97%, Lag= 169.7 min
Primary = 6.00 cfs @ 14.84 hrs, Volume= 4.034 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 832.08' @ 14.84 hrs Surf.Area= 222,053 sf Storage= 438,649 cf

Plug-Flow detention time= 348.1 min calculated for 4.016 af (30% of inflow)
Center-of-Mass det. time= 214.0 min (950.1 - 736.1)

Volume	Invert	Avail.Storage	Storage Description
#1	830.00'	731,907 cf	**Larger Basin A (Prismatic)** Listed below (Recalc)
#2	830.00'	80,508 cf	**Smaller Basin A (Prismatic)** Listed below (Recalc)
		812,415 cf	Total Available Storage

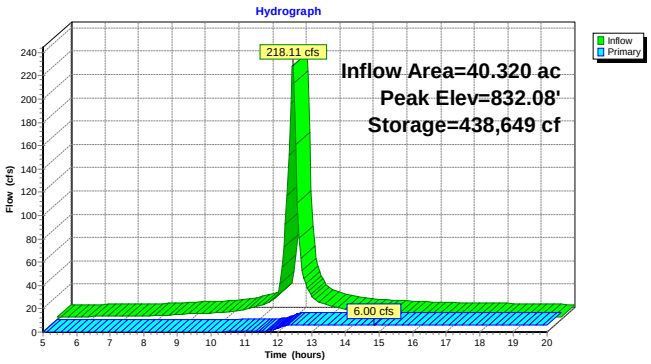
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
830.00	181,218	0	0
831.00	190,143	185,681	185,681
832.00	199,126	194,635	380,315
833.00	208,168	203,647	583,962
833.70	214,532	147,945	731,907

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
830.00	18,158	0	0
831.00	20,056	19,107	19,107
832.00	22,019	21,038	40,145
833.00	24,039	23,029	63,174
833.70	25,487	17,334	80,508

Device	Routing	Invert	Outlet Devices
#1	Primary	830.00'	**18.0" Round Culvert** L= 181.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 830.00' / 829.65' S= 0.0019 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	830.00'	**12.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	831.50'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	833.70'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=6.00 cfs @ 14.84 hrs HW=832.08' (Free Discharge)
└─**1=Culvert** (Barrel Controls 6.00 cfs @ 3.39 fps)
  ├─**2=Orifice/Grate** (Passes < 4.76 cfs potential flow)
  ├─**3=Orifice/Grate** (Passes < 6.49 cfs potential flow)
  └─**4=Orifice/Grate** (Controls 0.00 cfs)

Pond 3P: Basin A



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 2S: Post-Developed Runoff Area=36.380 ac 100.00% Impervious Runoff Depth>4.37"
Tc=10.0 min CN=98 Runoff=225.17 cfs 13.246 af

Subcatchment 6S: Post-Developed Watershed Runoff Area=3.940 ac 59.64% Impervious Runoff Depth>3.62"
Tc=20.0 min CN=90 Runoff=16.38 cfs 1.190 af

Pond 3P: Basin A Peak Elev=832.26' Storage=478,931 cf Inflow=237.55 cfs 14.436 af
Outflow=6.55 cfs 4.372 af

Summary for Subcatchment 2S: Post-Developed Watershed A (36.38 ac)

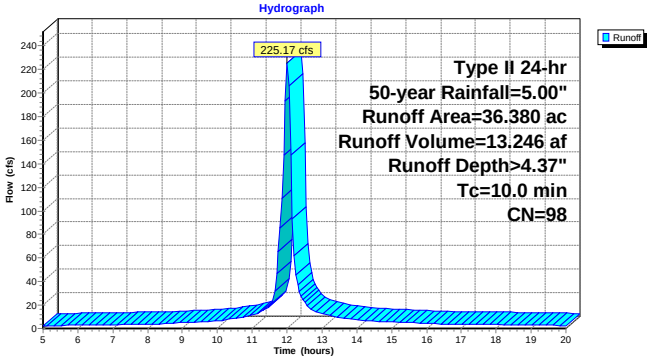
Runoff = 225.17 cfs @ 12.01 hrs, Volume= 13.246 af, Depth> 4.37"
Routed to Pond 3P : Basin A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-year Rainfall=5.00"

	Area (ac)	CN	Description
*	36.380	98	
	36.380		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 2S: Post-Developed Watershed A (36.38 ac)



Summary for Subcatchment 6S: Post-Developed Watershed A.1 (Offsite Pass-Thru) (3.94 ac)

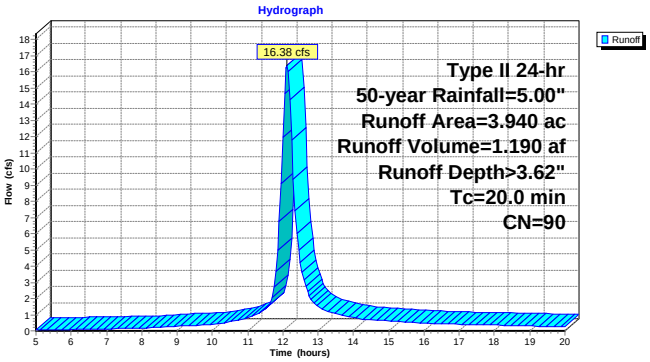
Runoff = 16.38 cfs @ 12.12 hrs, Volume= 1.190 af, Depth> 3.62"
Routed to Pond 3P : Basin A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 50-year Rainfall=5.00"

	Area (ac)	CN	Description
	2.350	98	Paved parking, HSG A
*	1.590	77	Row crops, straight row, Poor, HSG D
	3.940	90	Weighted Average
	1.590		40.36% Pervious Area
	2.350		59.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0					**Direct Entry,**

Subcatchment 6S: Post-Developed Watershed A.1 (Offsite Pass-Thru) (3.94 ac)



Summary for Pond 3P: Basin A

Inflow Area = 40.320 ac, 96.06% Impervious, Inflow Depth > 4.30" for 50-year event
Inflow = 237.55 cfs @ 12.01 hrs, Volume= 14.436 af
Outflow = 6.55 cfs @ 14.82 hrs, Volume= 4.372 af, Atten= 97%, Lag= 168.6 min
Primary = 6.55 cfs @ 14.82 hrs, Volume= 4.372 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 832.26' @ 14.82 hrs Surf.Area= 224,051 sf Storage= 478,931 cf

Plug-Flow detention time= 348.4 min calculated for 4.367 af (30% of inflow)
Center-of-Mass det. time= 212.3 min (947.8 - 735.6)

Volume	Invert	Avail.Storage	Storage Description
#1	830.00'	731,907 cf	**Larger Basin A (Prismatic)** Listed below (Recalc)
#2	830.00'	80,508 cf	**Smaller Basin A (Prismatic)** Listed below (Recalc)
		812,415 cf	Total Available Storage

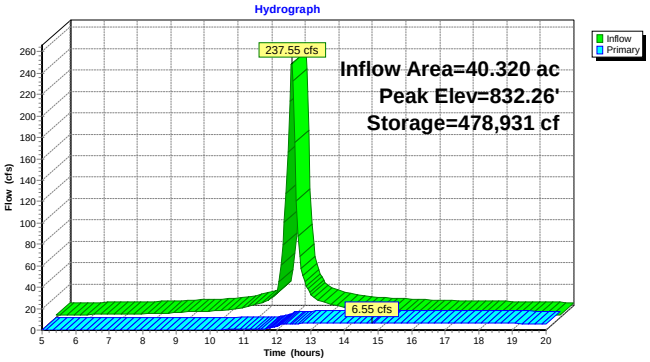
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
830.00	181,218	0	0
831.00	190,143	185,681	185,681
832.00	199,126	194,635	380,315
833.00	208,168	203,647	583,962
833.70	214,532	147,945	731,907

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
830.00	18,158	0	0
831.00	20,056	19,107	19,107
832.00	22,019	21,038	40,145
833.00	24,039	23,029	63,174
833.70	25,487	17,334	80,508

Device	Routing	Invert	Outlet Devices
#1	Primary	830.00'	**18.0" Round Culvert** L= 181.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 830.00' / 829.65' S= 0.0019 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	830.00'	**12.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	831.50'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	833.70'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=6.55 cfs @ 14.82 hrs HW=832.26' (Free Discharge)
└─**1=Culvert** (Barrel Controls 6.55 cfs @ 3.71 fps)
├─**2=Orifice/Grate** (Passes < 5.02 cfs potential flow)
├─**3=Orifice/Grate** (Passes < 7.43 cfs potential flow)
└─**4=Orifice/Grate** (Controls 0.00 cfs)

Pond 3P: Basin A



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 2S: Post-Developed Runoff Area=36.380 ac 100.00% Impervious Runoff Depth>4.82"
Tc=10.0 min CN=98 Runoff=247.93 cfs 14.610 af

Subcatchment 6S: Post-Developed Watershed Runoff Area=3.940 ac 59.64% Impervious Runoff Depth>4.08"
Tc=20.0 min CN=90 Runoff=18.31 cfs 1.338 af

Pond 3P: Basin A Peak Elev=832.49' Storage=529,094 cf Inflow=261.82 cfs 15.948 af
Outflow=7.18 cfs 4.823 af

Summary for Subcatchment 2S: Post-Developed Watershed A (36.38 ac)

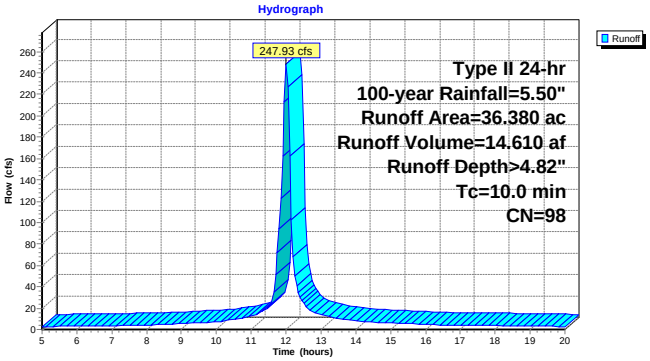
Runoff = 247.93 cfs @ 12.01 hrs, Volume= 14.610 af, Depth> 4.82"
Routed to Pond 3P : Basin A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-year Rainfall=5.50"

	Area (ac)	CN	Description
*	36.380	98	
	36.380		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 2S: Post-Developed Watershed A (36.38 ac)



Summary for Subcatchment 6S: Post-Developed Watershed A.1 (Offsite Pass-Thru) (3.94 ac)

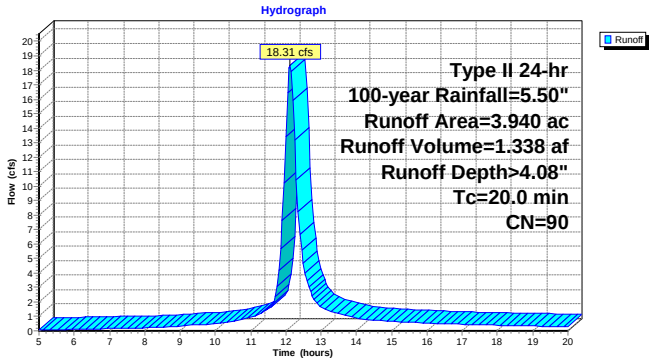
Runoff = 18.31 cfs @ 12.12 hrs, Volume= 1.338 af, Depth> 4.08"
Routed to Pond 3P : Basin A

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-year Rainfall=5.50"

	Area (ac)	CN	Description
	2.350	98	Paved parking, HSG A
*	1.590	77	Row crops, straight row, Poor, HSG D
	3.940	90	Weighted Average
	1.590		40.36% Pervious Area
	2.350		59.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0					**Direct Entry,**

Subcatchment 6S: Post-Developed Watershed A.1 (Offsite Pass-Thru) (3.94 ac)



Summary for Pond 3P: Basin A

Inflow Area = 40.320 ac, 96.06% Impervious, Inflow Depth > 4.75" for 100-year event
Inflow = 261.82 cfs @ 12.01 hrs, Volume= 15.948 af
Outflow = 7.18 cfs @ 14.84 hrs, Volume= 4.823 af, Atten= 97%, Lag= 170.0 min
Primary = 7.18 cfs @ 14.84 hrs, Volume= 4.823 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 832.49' @ 14.84 hrs Surf.Area= 226,514 sf Storage= 529,094 cf

Plug-Flow detention time= 348.9 min calculated for 4.817 af (30% of inflow)
Center-of-Mass det. time= 211.8 min (946.8 - 735.0)

Volume	Invert	Avail.Storage	Storage Description
#1	830.00'	731,907 cf	**Larger Basin A (Prismatic)** Listed below (Recalc)
#2	830.00'	80,508 cf	**Smaller Basin A (Prismatic)** Listed below (Recalc)
		812,415 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
830.00	181,218	0	0
831.00	190,143	185,681	185,681
832.00	199,126	194,635	380,315
833.00	208,168	203,647	583,962
833.70	214,532	147,945	731,907

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
830.00	18,158	0	0
831.00	20,056	19,107	19,107
832.00	22,019	21,038	40,145
833.00	24,039	23,029	63,174
833.70	25,487	17,334	80,508

Device	Routing	Invert	Outlet Devices
#1	Primary	830.00'	**18.0" Round Culvert** L= 181.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 830.00' / 829.65' S= 0.0019 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Device 1	830.00'	**12.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	831.50'	**18.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#4	Device 1	833.70'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=7.18 cfs @ 14.84 hrs HW=832.49' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 7.18 cfs @ 4.06 fps)
↑—**2=Orifice/Grate** (Passes < 5.33 cfs potential flow)
—**3=Orifice/Grate** (Passes < 8.45 cfs potential flow)
—**4=Orifice/Grate** (Controls 0.00 cfs)

Pond 3P: Basin A

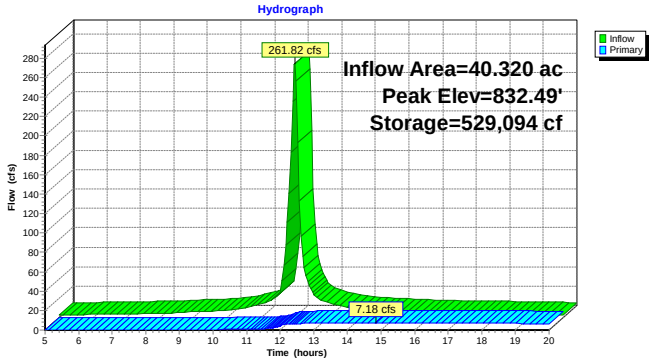
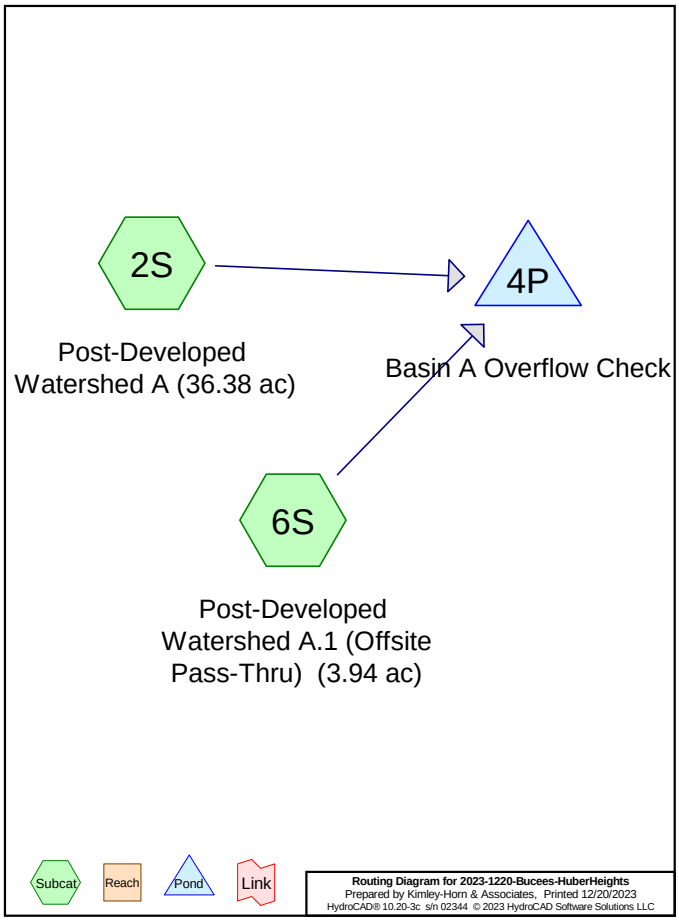


Exhibit G – Overflow Spillway Calculations



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 2S: Post-Developed Runoff Area=36.380 ac 100.00% Impervious Runoff Depth>4.82"
Tc=10.0 min CN=98 Runoff=247.93 cfs 14.610 af

Subcatchment 6S: Post-Developed Watershed Runoff Area=3.940 ac 59.64% Impervious Runoff Depth>4.08"
Tc=20.0 min CN=90 Runoff=18.31 cfs 1.338 af

Pond 4P: Basin A Overflow Check Peak Elev=833.12' Storage=674,618 cf Inflow=261.82 cfs 15.948 af
Outflow=2.73 cfs 0.461 af

Summary for Subcatchment 2S: Post-Developed Watershed A (36.38 ac)

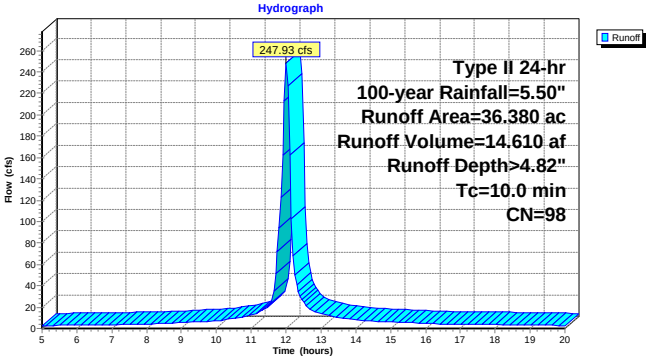
Runoff = 247.93 cfs @ 12.01 hrs, Volume= 14.610 af, Depth> 4.82"
Routed to Pond 4P : Basin A Overflow Check

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-year Rainfall=5.50"

	Area (ac)	CN	Description
*	36.380	98	
	36.380		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Subcatchment 2S: Post-Developed Watershed A (36.38 ac)



Summary for Subcatchment 6S: Post-Developed Watershed A.1 (Offsite Pass-Thru) (3.94 ac)

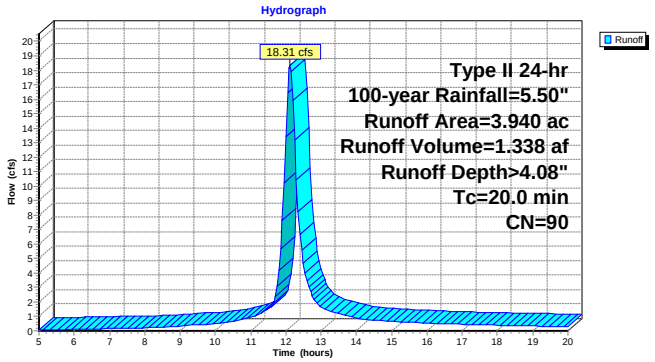
Runoff = 18.31 cfs @ 12.12 hrs, Volume= 1.338 af, Depth> 4.08"
Routed to Pond 4P : Basin A Overflow Check

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100-year Rainfall=5.50"

	Area (ac)	CN	Description
	2.350	98	Paved parking, HSG A
*	1.590	77	Row crops, straight row, Poor, HSG D
	3.940	90	Weighted Average
	1.590		40.36% Pervious Area
	2.350		59.64% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0					**Direct Entry,**

Subcatchment 6S: Post-Developed Watershed A.1 (Offsite Pass-Thru) (3.94 ac)



Summary for Pond 4P: Basin A Overflow Check

Inflow Area = 40.320 ac, 96.06% Impervious, Inflow Depth > 4.75" for 100-year event
Inflow = 261.82 cfs @ 12.01 hrs, Volume= 15.948 af
Outflow = 2.73 cfs @ 20.00 hrs, Volume= 0.461 af, Atten= 99%, Lag= 479.4 min
Primary = 2.73 cfs @ 20.00 hrs, Volume= 0.461 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 833.12' @ 20.00 hrs Surf.Area= 233,524 sf Storage= 674,618 cf

Plug-Flow detention time= 778.4 min calculated for 0.454 af (3% of inflow)
Center-of-Mass det. time= 395.6 min (1,130.6 - 735.0)

Volume	Invert	Avail.Storage	Storage Description
#1	830.00'	731,907 cf	**larger basin A (Prismatic)** Listed below (Recalc)
#2	830.00'	80,508 cf	**Smaller basin A.1 (Prismatic)** Listed below (Recalc)
		812,415 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
830.00	181,218	0	0
831.00	190,143	185,681	185,681
832.00	199,126	194,635	380,315
833.00	208,168	203,647	583,962
833.70	214,532	147,945	731,907

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
830.00	18,158	0	0
831.00	20,056	19,107	19,107
832.00	22,019	21,038	40,145
833.00	24,039	23,029	63,174
833.70	25,487	17,334	80,508

Device	Routing	Invert	Outlet Devices
#1	Primary	833.00'	**Custom Weir/Orifice, Cv= 2.62 (C= 3.28)**
			Head (feet) 0.00 0.70
			Width (feet) 20.00 26.00

Primary OutFlow Max=2.71 cfs @ 20.00 hrs HW=833.12' (Free Discharge)
1=Custom Weir/Orifice (Weir Controls 2.71 cfs @ 1.12 fps)

Pond 4P: Basin A Overflow Check

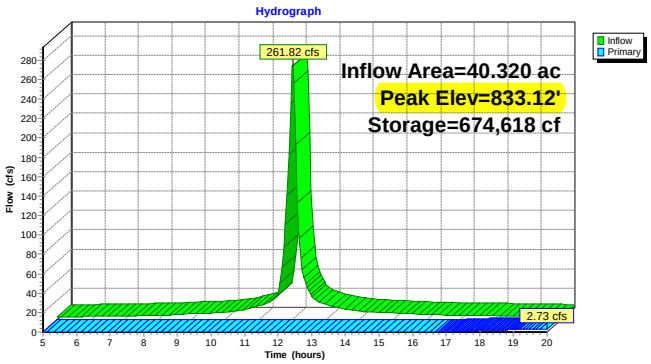


Exhibit H – Water Quality Calculations

Wet Extended Detention Basin WQv Compliance Tool

version 3.1 2018-10-25

Project Summary

Project Name:				
Subwatershed ID/Label:				
Submitted by:				
Date:				
Subwatershed Drainage Area, A_{total} =	40.32	acres	=	1,756,339 ft2
Subwatershed Impervious Area, A_{imp} =	40.32	acres	=	1,756,339 ft2
Imperviousness fraction, i =	1.00			100 %
Water Quality Volume, WQv =	125,139	ft^3	=	2.87 ac-ft

Step 1 - Soil Suitability

Soil Series: | HSG:

Step 2 - Wet ED Basin Volume Requirements

Extended Detention Volume, EDv =	125139	ft^3
Minimum Sediment Storage Volume, $V_{sediment}$ =	25028	ft^3
Minimum Permanent Pool Volume, PPv =	150167	ft^3

Step 3 - Basin Stage-Storage Relationship

	Elevation ft	Area ft^2		Incremental Volume ft^3	Cumulative Volume ft^3
Bottom of Permanent Micropool =	825.00	154027			
	826.00	160836		157,419	157,419
	827.00	167704		164,258	321,677
	828.00	174636		171,158	492,836
	829.00	181630		178,122	670,957
	830.00	199376		190,434	861,391
	831.00	210199		204,764	1,066,155
	832.00	221144		215,648	1,281,803
	833.00	232207		226,653	1,508,456
	833.70	240019		165,272	1,673,728

Step 4 - Outlet Elevations and Storage Volumes

WQ Orifice Invert Elevation =	830.00			
Elevation of Top of EDv =	830.62			
Secondary Outlet Invert Elevation =	831.50			OKAY
WQ Treatment Volume Provided, $V_{treatment}$ =	311,220	ft^3		
Treatment Vol Provided Relative to EDv, $V_{treatment}$/EDv =	2.49		=	249% OKAY
Permanent Pool Volume Provided, PPv =	861,391	ft^3		
Ratio PPv Provided to PPv Required =	5.74		=	574% OKAY

Step 5 - Outlet (Orifice) Sizing

Maximum Hydraulic Head, Hmax =	0.62	ft		
Orifice Coefficient, C =	0.6			
Target (Minimum) Draw-down Time, T_d =	24	hr		
Target Average Discharge, Q_{avg} =	1.45	cfs		
Average Hydraulic Head, H_{avg} =	0.31	ft		
Estimated Orifice Area, $A_{orifice}$ =	77.80	in^2	=	0.540 ft^2
Estimated Orifice Diameter, $D_{orifice}$ =	9.95	in	=	0.83 ft
Design Orifice Diameter, $D_{orifice}$ =	12.00	in	=	1.00 ft
Design Orifice Area, $A_{orifice}$ =	112.37	in^2	=	0.780 ft^2
Time to Completely Drain EDv, T_d =	31	hr	must be ≥ 24 hr	OKAY
Volume Drained in First 8 hr =	53,538	ft^3		
% of EDv =	42.8	%	must be ≤ 50%	OKAY

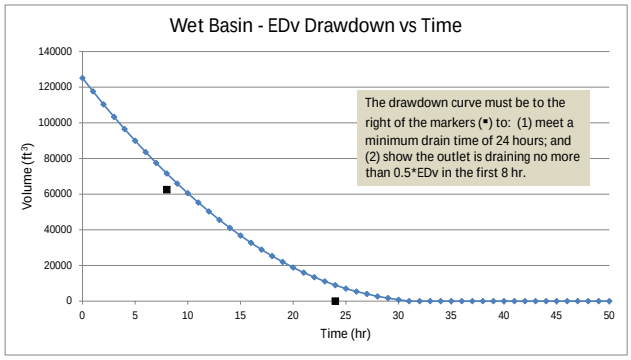


Exhibit I – Skimmer Sizing Calculations

Sediment Basin Sizing and Dewatering Compliance Tool

version 1.1 2020-06-26

Project Summary

Project Name:	Buc-ee's	
Project Location:	Huber Heights, OH	Street address (or street name and nearest intersection), City, state, zip code
Subwatershed ID/Label:		
Project Latitude:		Enter latitude at entrance to site in decimal degrees (format: 40.947544)
Project Longitude:		Enter longitude at entrance to site in decimal degrees (format: -81.465240)
NPDES Permit Applicant:		
Submitted by:		Name of design engineer
Date:		mm/dd/yyyy
Watershed:	Statewide	Select from dropdown which watershed the project is located in, select "Statewide" if not within the Big Darby Creek Watershed

Subwatershed Total Drainage Area, A_{total} =	40.32	acres	= 1,756,339	ft^2
Subwatershed Disturbed Drainage Area, A_{dist} =	40.32	acres	= 1,756,339	ft^2

Report to the nearest 0.01 acre; include any drainage from off-site

All Basin dewatering discharge calculations in these worksheets assume free discharge from the outlet (i.e., no tailwater)

Step 1 - Sediment Basin Volume Requirements

For Statewide Watersheds

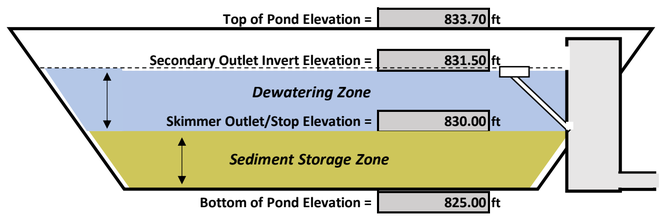
Minimum Sediment Storage Volume, Vsediment =	40320	ft3	=	1,493	yd3	= 0.926	acre-ft
Minimum Dewatering Zone Volume, Vdewatering =	72576	ft3	=	2,688	yd3	= 1.666	acre-ft

Requirement: Minimum Sediment Volume = 1000 ft3/acre of disturbed drainage area
Requirement: Minimum Dewatering Volume = 1800 ft3/acre of total drainage area

Step 2 - Basin Stage-Storage Relationship

	Elevation ft	Area ft^2	Incremental Volume ft^3	Cumulative Volume ft^3
Bottom of Sediment Storage (Pond) =	825.00	154027		
	826.00	160836	157,419	157,419
	827.00	167704	164,258	321,677
IMPORTANT: Must include the exact Skimmer Outlet/Skimmer Stop Elevation and the Secondary Outlet Invert Elevation in the Stage-Storage Table	828.00	174636	171,158	492,836
	829.00	181630	178,122	670,957
	830.00	199376	190,434	861,391
	831.00	210199	204,764	1,066,155
	831.50	215671	106,465	1,172,619
	832.00	221144	109,201	1,281,820
	832.70	228871	157,498	1,439,318
	833.00	232207	69,161	1,508,479
	833.70	240,019	165,272	1,673,750

Basin Schematic



Note: The basin dewatering discharge calculation in this worksheet assumes a free discharge from the outlet (i.e., no tailwater). The skimmer outlet elevation may need to be adjusted upward to account for tailwater as appropriate. Tailwater is common to low gradient ditches or water bodies with prolonged increases in water level

Step 3 - Outlet Elevations and Storage Volumes

Skimmer Outlet Invert/Skimmer Stop Elevation =	830.00	ft	OKAY
Secondary Outlet Invert Elevation =	831.50	ft	OKAY
Provided Sediment Storage Volume =	861,391	ft^3	OKAY
Provided Dewatering Volume =	311,228	ft^3	OKAY

The invert of the Skimmer Outlet/Skimmer Stop (ex. stone pad) corresponds to the top of the sediment storage zone/permanent pool and the bottom of the Dewatering Volume. It cannot be below the bottom of the pond.
The invert elevation for the next available (usually peak discharge or flood control) outlet. This elevation must exceed that of the Skimmer Outlet Invert Elevation and be below the top of the pond.
*Check - The difference between the skimmer outlet invert/skimmer stop elevation and the secondary outlet invert elevation (dewatering zone depth) must not exceed 5ft.

The Sediment Storage Volume must exceed the requirement listed above in Step 1
The Dewatering Volume must exceed the requirement listed above in Step 1

Step 4 - Skimmer-Type Outlet Sizing

Select Skimmer Type or Manufacturer: Faircloth Skimmer

Faircloth Skimmer Sizing Calculator: Click Here For Link to Online Calculator

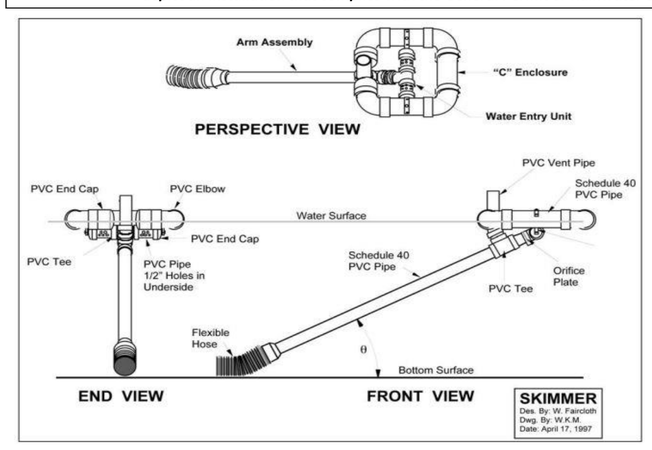
Follow directions on webpage to calculate exact skimmer size and model, include screenshot of results in SWP3. *Note* Input required basin volume, not provided

Orifice Size Selected:	6	in
Dewatering Drawdown Time:	48	hrs

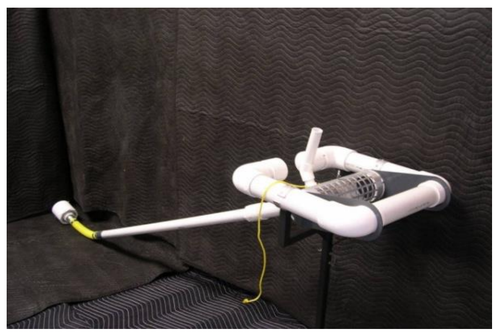
Check to ensure that orifice sizing calculation is done using required, NOT provided dewatering volume
Check that dewatering drawdown time is greater than 2 days and less than 7 days

Example Faircloth Float Spec Sheet

Please note the drawing and image shown below are provided solely to assist with identification of the skimmer type and its associated componants. The drawing and photo below does not necessarily depict an installation that complies with the General Permit or Rainwater & Land Development specification, especially where the sediment storage zone in omitted.



Faircloth Float Photo



CALCULATE FAIRCLOTH SKIMMER® SIZE

Required Basin volume in cubic feet: 72576

The required basin volume is the actual volume you intend to drain, not the provided or total volume which is often larger. If a pool of water is to be maintained between storms, do not include that volume.

Days to Drain: 2

Number of Days to drain is usually determined by local or state regulations. Where there is no requirement 3 days is recommended. Keep in mind the quicker the basin is to drain the larger the skimmer required. In NC, assume 3 days to drain.

SKIMMER SIZE	ORIFICE RADIUS	ORIFICE DIAMETER
6.0 inches	2.5 inches	5.0 inches

Exhibit J – Local Tributary Map

Drawing name: K:\CLB_LDEV\190255000_Buc-ees_HuberHeights_OH\2 Design\CAD\Exhibits\Drainage\2024-0226-LocalTribMap.dwg Layout: Feb 28, 2024 5:42pm by: drew.gilmour
This document, together with the concepts and designs presented herein, as an instrument of service, is intended only for the specific purpose and client for which it was prepared. Reuse of and improper reliance on this document without written authorization and adaptation by Kimley-Horn and Associates, Inc. shall be without liability to Kimley-Horn and Associates, Inc.

PROPOSED RETENTION BASIN
NWSE: 830.00
TOP: 833.70
BOTTOM: 825.00
100-YR HWL: 832.49

EXISTING POND
ORDINARY HIGH
WATER LEVEL 823.00

GRAVEL ROAD

CENTER POINT 70 BLVD

S.R. 235

SURVEY 2003-215

LEGEND

- EXISTING SITE BOUNDARY
- EXISTING WATERSHED BOUNDARY
- EXISTING FLOW PATH
- CHANGE IN SURFACE FLOW CONDITIONS
- 990 — EXISTING INDEX CONTOUR
- 988 — EXISTING INTERMEDIATE CONTOUR

NORTH

GRAPHIC SCALE IN FEET
0 40 80 160

No.	REVISIONS	DATE	BY

Kimley»Horn

© 2023 KIMLEY-HORN AND ASSOCIATES, INC.

7965 N. HIGH STREET, SUITE 200,
COLUMBUS, OH 43235
PHONE: 614-846-0599
WWW.KIMLEY-HORN.COM

SCALE: AS NOTED
DESIGNED BY: IC
DRAWN BY: MAN
CHECKED BY: AJS

NOT FOR CONSTRUCTION

BUC-EE'S

LOCAL TRIBUTARY MAP

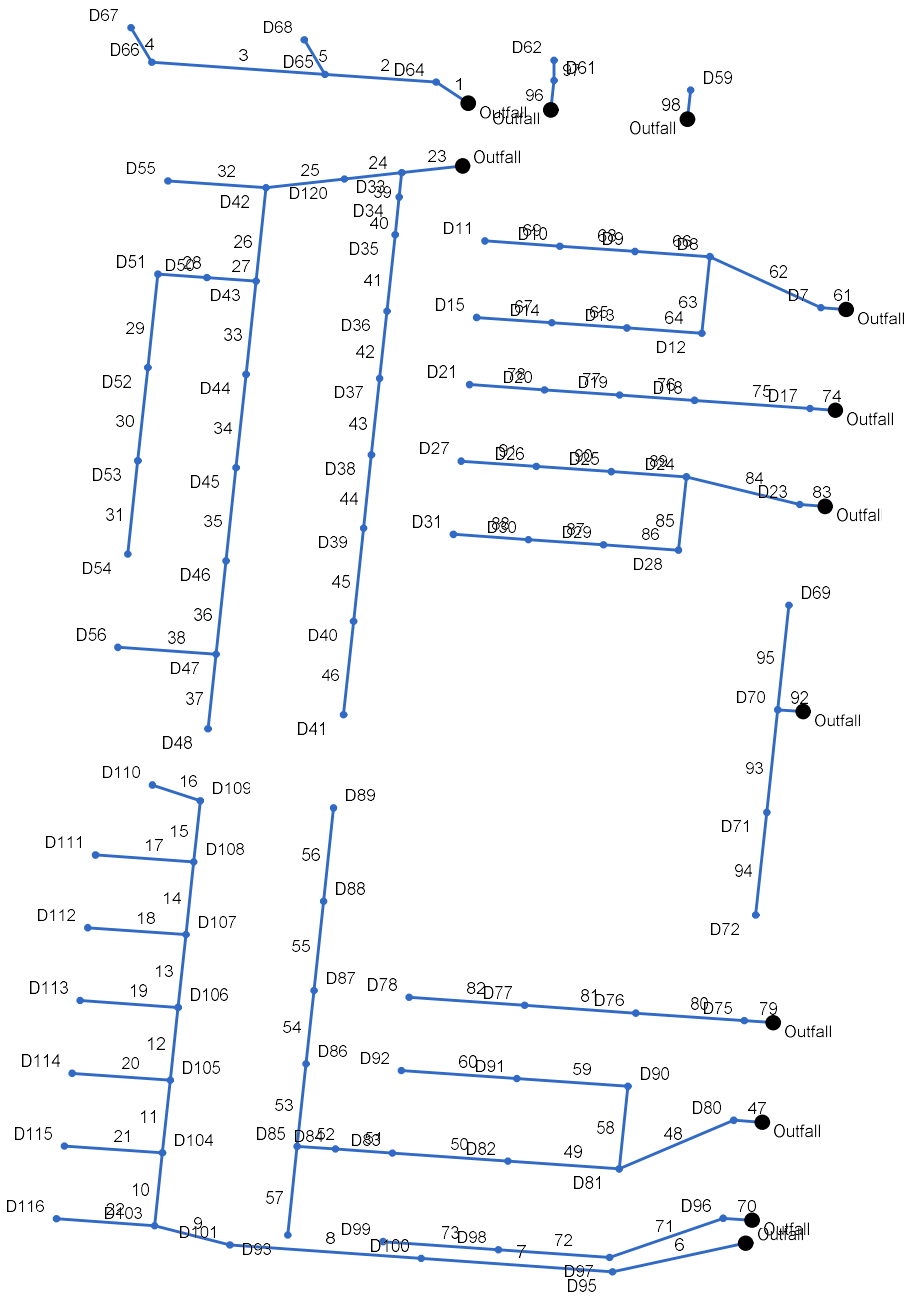
BUC-EE'S - HUBER HEIGHTS

INTERSTATE HIGHWAY 70 & OH-235
HUBER HEIGHTS, OH 45424

ORIGINAL ISSUE: 02/29/2024
KHA PROJECT NO. 190255000
SHEET NUMBER
EX-J

Exhibit K – Storm Sewer Design Calculations

Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: New.stm	Number of lines: 98	Date: 2/27/2024

Storm Sewer Tabulation

10-year capacity

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
98	End	31.204	0.10	0.10	0.90	0.09	0.09	5.0	5.0	7.2	0.65	5.02	2.79	12	1.99	830.00	830.62	830.34	830.96	831.25	834.06	D59 TO D58
97	96	21.675	0.16	0.16	0.90	0.14	0.14	5.0	5.0	7.2	1.04	5.02	3.25	12	1.98	830.63	831.06	831.06	831.49	834.08	834.74	D62 TO D61
96	End	31.454	0.00	0.16	0.00	0.00	0.14	0.0	5.3	7.2	1.03	5.04	3.21	12	2.00	830.00	830.63	830.43	831.06	831.25	834.08	D61 TO D60
95	92	112.094	0.26	0.26	0.90	0.23	0.23	5.0	5.0	7.2	1.69	2.40	2.16	12	0.45	830.11	830.62	831.69	831.94	833.69	833.69	D69 TO D70
94	93	110.000	0.27	0.27	0.90	0.24	0.24	5.0	5.0	7.2	1.76	2.52	2.28	12	0.50	830.66	831.21	831.89	832.13	833.69	833.69	D72 TO D71
93	92	110.000	0.17	0.44	0.90	0.15	0.40	5.0	5.8	7.0	2.77	4.57	2.27	15	0.50	830.11	830.66	831.69	831.88	833.69	833.69	D71 TO D70
92	End	21.927	0.87	1.57	0.90	0.78	1.41	5.0	6.6	6.8	9.60	16.02	4.59	24	0.50	830.00	830.11	831.31	831.33	832.33	833.69	D70 TO D73
91	90	65.000	0.12	0.12	0.90	0.11	0.11	5.0	5.0	7.2	0.78	2.54	1.04	12	0.51	830.07	830.40	831.23	831.26	834.20	834.20	D27 TO D26
90	89	65.000	0.11	0.23	0.90	0.10	0.21	5.0	6.1	6.9	1.44	5.68	0.92	18	0.29	829.88	830.07	831.22	831.23	834.21	834.20	D26 TO D25
89	84	65.000	0.11	0.34	0.90	0.10	0.31	5.0	7.4	6.6	2.02	10.12	0.86	24	0.20	829.75	829.88	831.22	831.22	834.21	834.21	D25 TO D24
88	87	65.000	0.16	0.16	0.90	0.14	0.14	5.0	5.0	7.2	1.04	10.12	0.55	24	0.20	830.17	830.30	831.40	831.40	834.30	834.30	D31 TO D30
87	86	65.000	0.37	0.53	0.90	0.33	0.48	5.0	8.3	6.4	3.05	10.12	1.44	24	0.20	830.04	830.17	831.38	831.40	834.30	834.30	D30 TO D29
86	85	65.000	0.28	0.81	0.90	0.25	0.73	5.0	9.3	6.2	4.51	10.12	1.95	24	0.20	829.91	830.04	831.34	831.37	834.20	834.30	D29 TO D28
85	84	78.500	0.13	0.94	0.90	0.12	0.85	5.0	9.9	6.1	5.12	10.21	2.17	24	0.20	829.75	829.91	831.22	831.26	834.21	834.20	D28 TO D24
84	83	102.181	0.13	1.41	0.90	0.12	1.27	5.0	10.6	5.9	7.51	10.25	3.57	24	0.21	829.54	829.75	830.81	831.02	833.50	834.21	D24 TO D23
83	End	21.927	0.15	1.56	0.90	0.14	1.40	5.0	11.2	5.8	8.15	17.51	3.68	30	0.18	829.50	829.54	830.65	830.70	832.38	833.50	D23 TO D22
82	81	100.000	0.41	0.41	0.90	0.37	0.37	5.0	5.0	7.2	2.67	18.34	1.91	30	0.20	829.93	830.13	830.83	830.88	834.30	835.76	D78 TO D77
81	80	96.286	0.37	0.78	0.90	0.33	0.70	5.0	8.1	6.4	4.53	18.22	2.78	30	0.20	829.74	829.93	830.69	830.81	834.20	834.30	D77 TO D76
80	79	93.997	0.16	0.94	0.90	0.14	0.85	5.0	9.6	6.1	5.17	18.44	2.96	30	0.20	829.55	829.74	830.55	830.67	833.69	834.20	D76 TO D75
79	End	24.927	0.17	1.11	0.90	0.15	1.00	5.0	11.0	5.9	5.85	18.37	3.32	30	0.20	829.50	829.55	830.47	830.52	832.38	833.69	D75 TO D74
78	77	65.000	0.12	0.12	0.90	0.11	0.11	5.0	5.0	7.2	0.78	2.50	2.33	12	0.49	830.57	830.89	831.13	831.26	834.20	834.20	D21 TO D20
77	76	65.000	0.11	0.23	0.90	0.10	0.21	5.0	6.1	6.9	1.44	5.83	2.17	18	0.31	830.37	830.57	831.05	831.11	834.20	834.20	D20 TO D19

Project File: New.stm

Number of lines: 98

Run Date: 2/27/2024

NOTES:Intensity = 88.24 / (Inlet time + 15.50) ^ 0.83; Return period =Yrs. 10 ; c = cir e = ellip b = box

Storm Sewer Tabulation

10-year capacity

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
76	75	65.000	0.11	0.34	0.90	0.10	0.31	5.0	7.4	6.6	2.02	10.12	2.06	24	0.20	830.24	830.37	830.98	831.03	834.20	834.20	D19 TO D18
75	74	100.000	0.13	0.47	0.90	0.12	0.42	5.0	9.0	6.3	2.64	10.12	2.41	24	0.20	830.04	830.24	830.84	830.96	833.50	834.20	D18 TO D17
74	End	21.927	0.15	0.62	0.90	0.14	0.56	5.0	10.8	5.9	3.29	9.66	2.92	24	0.18	830.00	830.04	830.77	830.82	832.33	833.50	D17 TO D16
73	72	100.000	0.19	0.19	0.90	0.17	0.17	5.0	5.0	7.2	1.24	4.70	1.65	18	0.20	830.46	830.66	831.20	831.26	834.45	834.45	D99 TO D98
72	71	96.286	0.20	0.39	0.90	0.18	0.35	5.0	7.4	6.6	2.32	10.31	2.04	24	0.21	830.26	830.46	831.11	831.18	834.45	834.45	D98 TO D97
71	70	106.605	0.18	0.57	0.90	0.16	0.51	5.0	9.4	6.2	3.16	10.04	2.64	24	0.20	830.05	830.26	830.89	831.05	833.69	834.45	D97 TO D96
70	End	24.927	0.14	0.71	0.90	0.13	0.64	5.0	11.0	5.9	3.74	18.37	2.91	30	0.20	830.00	830.05	830.77	830.82	832.88	833.69	D96 TO D121
69	68	65.000	0.12	0.12	0.90	0.11	0.11	5.0	5.0	7.2	0.78	2.50	1.32	12	0.49	830.59	830.91	831.48	831.51	834.20	834.20	D11 TO D10
68	66	65.000	0.11	0.23	0.90	0.10	0.21	5.0	6.1	6.9	1.44	5.83	1.19	18	0.31	830.39	830.59	831.47	831.48	834.20	834.20	D10 TO D9
67	65	65.000	0.12	0.12	0.90	0.11	0.11	5.0	5.0	7.2	0.78	2.54	1.54	12	0.51	830.75	831.08	831.56	831.59	834.20	834.20	D15 TO D14
66	62	65.000	0.11	0.34	0.90	0.10	0.31	5.0	7.4	6.6	2.02	10.12	1.11	24	0.20	830.26	830.39	831.45	831.46	834.20	834.20	D9 TO D8
65	64	65.000	0.11	0.23	0.90	0.10	0.21	5.0	6.1	6.9	1.44	5.68	1.34	18	0.29	830.56	830.75	831.53	831.55	834.20	834.20	D14 TO D13
64	63	65.000	0.11	0.34	0.90	0.10	0.31	5.0	7.4	6.6	2.02	10.12	1.25	24	0.20	830.43	830.56	831.52	831.53	834.20	834.20	D13 TO D12
63	62	82.000	0.13	0.47	0.90	0.12	0.42	5.0	9.0	6.3	2.64	10.30	1.47	24	0.21	830.26	830.43	831.45	831.48	834.20	834.20	D12 TO D8
62	61	110.073	0.13	0.94	0.90	0.12	0.85	5.0	10.4	6.0	5.04	10.11	2.87	24	0.20	830.04	830.26	831.17	831.31	833.50	834.20	D8 TO D7
61	End	21.927	0.16	1.10	0.90	0.14	0.99	5.0	11.4	5.8	5.72	9.66	3.47	24	0.18	830.00	830.04	831.03	831.09	833.42	833.50	D7 TO D6
60	59	100.000	0.16	0.16	0.90	0.14	0.14	5.0	5.0	7.2	1.04	5.75	0.62	18	0.30	830.14	830.44	831.70	831.71	834.45	834.45	D92 TO D91
59	58	96.286	0.17	0.33	0.90	0.15	0.30	5.0	7.8	6.5	1.93	10.05	0.70	24	0.20	829.95	830.14	831.69	831.70	834.45	834.45	D91 TO D90
58	48	88.500	0.15	0.48	0.90	0.14	0.43	5.0	10.2	6.0	2.59	10.20	0.87	24	0.20	829.77	829.95	831.67	831.68	834.45	834.45	D90 TO D81
57	52	95.000	0.21	0.21	0.90	0.19	0.19	5.0	5.0	7.2	1.37	7.46	0.83	18	0.51	830.33	830.81	832.02	832.03	834.30	834.30	D93 TO D85
56	55	100.000	0.69	0.69	0.90	0.62	0.62	5.0	5.0	7.2	4.49	5.75	2.74	18	0.30	830.86	831.16	832.26	832.41	834.30	834.36	D89 TO D88
55	54	95.792	0.21	0.90	0.90	0.19	0.81	5.0	5.7	7.1	5.71	10.34	2.34	24	0.21	830.66	830.86	832.18	832.25	834.30	834.30	D88 TO D87

Project File: New.stm

Number of lines: 98

Run Date: 2/27/2024

NOTES:Intensity = 88.24 / (Inlet time + 15.50) ^ 0.83; Return period =Yrs. 10 ; c = cir e = ellip b = box

Storm Sewer Tabulation

10-year capacity

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
54	53	78.500	0.14	1.04	0.90	0.13	0.94	5.0	6.5	6.8	6.38	9.89	2.44	24	0.19	830.51	830.66	832.11	832.17	834.30	834.30	D87 TO D86
53	52	88.500	0.12	1.16	0.90	0.11	1.04	5.0	7.2	6.7	6.95	10.20	2.53	24	0.20	830.33	830.51	832.02	832.09	834.30	834.30	D86 TO D85
52	51	33.066	0.15	1.52	0.90	0.14	1.37	5.0	7.8	6.5	8.90	18.87	2.69	30	0.21	830.26	830.33	831.88	831.91	834.78	834.30	D85 TO D84
51	50	49.402	0.00	1.52	0.00	0.00	1.37	0.0	8.1	6.4	8.81	17.51	2.59	30	0.18	830.17	830.26	831.84	831.87	834.45	834.78	D84 TO D83
50	49	100.000	0.20	1.72	0.90	0.18	1.55	5.0	8.6	6.3	9.82	18.34	2.74	30	0.20	829.97	830.17	831.76	831.82	834.45	834.45	D83 TO D82
49	48	96.286	0.21	1.93	0.90	0.19	1.74	5.0	9.4	6.2	10.72	18.69	2.79	30	0.21	829.77	829.97	831.67	831.74	834.45	834.45	D82 TO D81
48	47	111.671	0.18	2.59	0.90	0.16	2.33	5.0	11.8	5.7	13.32	18.20	3.75	30	0.20	829.55	829.77	831.28	831.44	833.69	834.45	D81 TO D80
47	End	24.927	0.17	2.76	0.90	0.15	2.48	5.0	12.4	5.6	13.93	18.37	4.37	30	0.20	829.50	829.55	831.04	831.10	832.38	833.69	D80 TO D79
46	45	100.000	0.23	0.23	0.90	0.21	0.21	5.0	5.0	7.2	1.50	4.57	1.22	15	0.50	830.72	831.22	832.59	832.65	834.30	834.34	D41 TO D40
45	44	100.000	0.23	0.46	0.90	0.21	0.41	5.0	6.4	6.9	2.84	5.75	1.61	18	0.30	830.42	830.72	832.51	832.59	834.30	834.30	D40 TO D39
44	43	78.500	0.13	0.59	0.90	0.12	0.53	5.0	7.4	6.6	3.51	10.21	1.12	24	0.20	830.26	830.42	832.49	832.51	834.03	834.30	D39 TO D38
43	42	82.000	0.12	0.71	0.90	0.11	0.64	5.0	8.5	6.4	4.06	9.99	1.29	24	0.20	830.10	830.26	832.46	832.49	834.03	834.03	D38 TO D37
42	41	72.000	0.12	0.83	0.90	0.11	0.75	5.0	9.5	6.1	4.59	9.97	1.46	24	0.19	829.96	830.10	832.43	832.45	834.20	834.03	D37 TO D36
41	40	82.000	0.12	0.95	0.90	0.11	0.86	5.0	10.2	6.0	5.13	18.68	1.05	30	0.21	829.79	829.96	832.41	832.42	834.20	834.20	D36 TO D35
40	39	40.278	0.15	1.10	0.90	0.14	0.99	5.0	11.4	5.8	5.72	18.27	1.17	30	0.20	829.71	829.79	832.40	832.41	834.97	834.20	D35 TO D34
39	23	26.196	0.00	1.10	0.00	0.00	0.99	0.0	11.9	5.7	5.63	17.93	1.15	30	0.19	829.66	829.71	832.39	832.40	834.77	834.97	D34 TO D33
38	36	85.000	0.81	0.81	0.90	0.73	0.73	5.0	5.0	7.2	5.28	22.62	2.00	24	1.00	830.90	831.75	833.09	833.11	835.10	835.49	D56 TO D47
37	36	80.000	0.12	0.12	0.90	0.11	0.11	5.0	5.0	7.2	0.78	10.11	0.25	24	0.20	830.90	831.06	833.09	833.09	835.10	835.20	D48 TO D47
36	35	100.000	0.16	1.09	0.90	0.14	0.98	5.0	10.4	6.0	5.86	13.85	1.49	27	0.20	830.70	830.90	833.02	833.05	835.03	835.10	D47 TO D46
35	34	100.000	0.16	1.25	0.90	0.14	1.13	5.0	11.3	5.8	6.52	18.34	1.35	30	0.20	830.50	830.70	832.99	833.02	835.03	835.03	D46 TO D45
34	33	100.000	0.16	1.41	0.90	0.14	1.27	5.0	12.4	5.6	7.13	18.34	1.45	30	0.20	830.30	830.50	832.96	832.99	835.03	835.03	D45 TO D44
33	26	100.000	0.16	1.57	0.90	0.14	1.41	5.0	13.3	5.5	7.72	18.34	1.57	30	0.20	830.10	830.30	832.92	832.95	835.03	835.03	D44 TO D43

Project File: New.stm

Number of lines: 98

Run Date: 2/27/2024

NOTES:Intensity = 88.24 / (Inlet time + 15.50) ^ 0.83; Return period =Yrs. 10 ; c = cir e = ellip b = box

Storm Sewer Tabulation

10-year capacity

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
32	25	85.000	0.71	0.71	0.90	0.64	0.64	5.0	5.0	7.2	4.63	6.46	4.42	15	1.00	831.47	832.32	832.75	833.19	834.90	835.49	D55 TO D42
31	30	100.000	0.50	0.50	0.90	0.45	0.45	5.0	5.0	7.2	3.26	11.31	1.12	24	0.25	831.25	831.50	833.14	833.16	835.49	835.49	D54 TO D53
30	29	100.000	0.50	1.00	0.90	0.45	0.90	5.0	6.6	6.8	6.12	20.51	1.46	30	0.25	831.00	831.25	833.12	833.13	835.49	835.49	D53 TO D52
29	28	100.000	0.50	1.50	0.90	0.45	1.35	5.0	7.9	6.5	8.76	20.51	1.91	30	0.25	830.75	831.00	833.07	833.11	835.49	835.49	D52 TO D51
28	27	42.500	0.50	2.00	0.90	0.45	1.80	5.0	8.8	6.3	11.33	19.89	2.42	30	0.24	830.65	830.75	832.96	832.98	835.92	835.49	D51 TO D50
27	26	42.500	0.00	2.00	0.00	0.00	1.80	0.0	9.1	6.2	11.22	20.87	2.35	30	0.26	830.54	830.65	832.92	832.94	835.03	835.92	D50 TO D43
26	25	100.000	0.16	3.73	0.90	0.14	3.36	5.0	14.2	5.3	17.89	29.82	2.62	36	0.20	829.90	830.10	832.75	832.81	834.90	835.03	D43 TO D42
25	24	68.215	0.52	4.96	0.90	0.47	4.46	5.0	14.7	5.3	23.44	30.22	3.50	36	0.21	829.76	829.90	832.50	832.56	835.37	834.90	D42 TO D120
24	23	49.939	0.84	5.80	0.90	0.76	5.22	5.0	15.0	5.2	27.20	29.85	4.04	36	0.20	829.66	829.76	832.39	832.46	834.77	835.37	D120 TO D33
23	End	52.990	0.00	6.90	0.00	0.00	6.21	0.0	15.2	5.2	32.20	36.64	5.67	36	0.30	829.50	829.66	831.76	831.90	832.92	834.77	D33 TO D32
22	9	85.000	0.12	0.12	0.90	0.11	0.11	5.0	5.0	7.2	0.78	10.50	0.47	18	1.00	830.54	831.39	832.65	832.66	834.80	834.90	D116 TO D103
21	10	85.000	0.15	0.15	0.90	0.14	0.14	5.0	5.0	7.2	0.98	10.50	0.57	18	1.00	830.69	831.54	832.85	832.85	834.90	834.90	D115 TO D104
20	11	85.000	0.15	0.15	0.90	0.14	0.14	5.0	5.0	7.2	0.98	10.50	0.58	18	1.00	830.85	831.70	833.00	833.01	835.25	835.25	D114 TO D105
19	12	85.000	0.15	0.15	0.90	0.14	0.14	5.0	5.0	7.2	0.98	10.50	0.58	18	1.00	831.01	831.86	833.12	833.12	835.35	835.35	D113 TO D106
18	13	85.000	0.15	0.15	0.90	0.14	0.14	5.0	5.0	7.2	0.98	10.50	0.60	18	1.00	831.16	832.01	833.20	833.21	835.35	835.35	D112 TO D107
17	14	85.000	0.31	0.31	0.90	0.28	0.28	5.0	5.0	7.2	2.02	10.11	0.66	24	0.20	831.32	831.49	833.27	833.28	835.35	835.35	D111 TO D108
16	15	44.509	0.64	0.64	0.90	0.58	0.58	5.0	5.0	7.2	4.17	16.26	3.95	24	0.52	831.64	831.87	832.40	832.59	835.63	835.96	D110 TO D109
15	14	65.498	0.10	0.74	0.90	0.09	0.67	5.0	5.6	7.1	4.71	15.81	2.89	24	0.49	831.32	831.64	833.27	832.40	835.35	835.63	D109 TO D108
14	13	78.000	0.12	1.17	0.90	0.11	1.05	5.0	7.2	6.7	7.00	18.58	1.69	30	0.21	831.16	831.32	833.20	833.23	835.35	835.35	D108 TO D107
13	12	78.000	0.13	1.45	0.90	0.12	1.31	5.0	8.1	6.5	8.42	18.57	1.96	30	0.21	831.00	831.16	833.12	833.14	835.35	835.35	D107 TO D106
12	11	78.000	0.13	1.73	0.90	0.12	1.56	5.0	8.8	6.3	9.80	17.99	2.24	30	0.19	830.85	831.00	833.00	833.04	835.25	835.35	D106 TO D105
11	10	78.000	0.13	2.01	0.90	0.12	1.81	5.0	9.4	6.2	11.16	18.57	2.54	30	0.21	830.69	830.85	832.85	832.89	834.90	835.25	D105 TO D104

Project File: New.stm

Number of lines: 98

Run Date: 2/27/2024

NOTES:Intensity = 88.24 / (Inlet time + 15.50) ^ 0.83; Return period =Yrs. 10 ; c = cir e = ellip b = box

Storm Sewer Tabulation

10-year capacity

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
10	9	78.000	0.13	2.29	0.90	0.12	2.06	5.0	9.9	6.1	12.50	17.99	2.88	30	0.19	830.54	830.69	832.65	832.72	834.80	834.90	D104 TO D103
9	8	68.188	0.18	2.59	0.90	0.16	2.33	5.0	10.4	6.0	13.92	18.58	3.36	30	0.21	830.40	830.54	832.40	832.47	835.24	834.80	D103 TO D101
8	7	165.604	0.65	3.24	0.90	0.59	2.92	5.0	10.7	5.9	17.21	18.31	4.24	30	0.20	830.07	830.40	832.00	832.33	835.20	835.24	D101 TO D100
7	6	165.604	0.00	3.24	0.00	0.00	2.92	0.0	11.4	5.8	16.83	18.31	4.23	30	0.20	829.74	830.07	831.63	831.96	834.64	835.20	D100 TO D95
6	End	118.916	0.00	3.24	0.00	0.00	2.92	0.0	12.2	5.6	16.45	29.96	4.35	36	0.20	829.50	829.74	831.08	831.33	832.92	834.64	D95 TO D94
5	2	40.924	0.39	0.39	0.90	0.35	0.35	5.0	5.0	7.2	2.54	5.84	5.52	12	2.69	833.68	834.78	834.17	835.46	837.21	838.49	D68 TO D65
4	3	40.934	0.11	0.11	0.90	0.10	0.10	5.0	5.0	7.2	0.72	5.65	2.19	12	2.52	837.01	838.04	837.60	838.39	842.08	843.53	D67 TO D66
3	2	150.000	0.19	0.30	0.90	0.17	0.27	5.0	5.7	7.0	1.90	5.63	3.24	12	2.50	833.26	837.01	834.17	837.60	837.21	842.08	D66 TO D65
2	1	96.233	0.12	0.81	0.90	0.11	0.73	5.0	6.8	6.8	4.93	5.62	7.31	12	2.49	830.86	833.26	831.59	834.17	834.00	837.21	D65 TO D64
1	End	35.710	0.62	1.43	0.90	0.56	1.29	5.0	7.0	6.7	8.62	10.54	5.63	18	1.01	830.00	830.36	831.31	831.50	831.79	834.00	D64 TO D63

Project File: New.stm

Number of lines: 98

Run Date: 2/27/2024

NOTES:Intensity = 88.24 / (Inlet time + 15.50) ^ 0.83; Return period =Yrs. 10 ; c = cir e = ellip b = box

Storm Sewer Tabulation

100-year HGL

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
98	End	31.204	0.10	0.10	0.90	0.09	0.09	5.0	5.0	9.8	0.88	5.02	3.42	12	1.99	830.00	830.62	830.34	831.01	831.25	834.06	D59 TO D58
97	96	21.675	0.16	0.16	0.90	0.14	0.14	5.0	5.0	9.8	1.42	5.02	3.58	12	1.98	830.63	831.06	831.13	831.56	834.08	834.74	D62 TO D61
96	End	31.454	0.00	0.16	0.00	0.00	0.14	0.0	5.2	9.8	1.41	5.04	3.96	12	2.00	830.00	830.63	830.43	831.13	831.25	834.08	D61 TO D60
95	92	112.094	0.26	0.26	0.90	0.23	0.23	5.0	5.0	9.8	2.30	2.40	2.93	12	0.45	830.11	830.62	832.01	832.48	833.69	833.69	D69 TO D70
94	93	110.000	0.27	0.27	0.90	0.24	0.24	5.0	5.0	9.8	2.39	2.52	3.04	12	0.50	830.66	831.21	832.42	832.91	833.69	833.69	D72 TO D71
93	92	110.000	0.17	0.44	0.90	0.15	0.40	5.0	5.6	9.6	3.81	4.57	3.11	15	0.50	830.11	830.66	832.01	832.39	833.69	833.69	D71 TO D70
92	End	21.927	0.87	1.57	0.90	0.78	1.41	5.0	6.2	9.4	13.33	16.02	5.89	24	0.50	830.00	830.11	831.31	831.51	832.33	833.69	D70 TO D73
91	90	65.000	0.12	0.12	0.90	0.11	0.11	5.0	5.0	9.8	1.06	2.54	1.35	12	0.51	830.07	830.40	831.78	831.84	834.20	834.20	D27 TO D26
90	89	65.000	0.11	0.23	0.90	0.10	0.21	5.0	5.8	9.6	1.98	5.68	1.12	18	0.29	829.88	830.07	831.76	831.78	834.21	834.20	D26 TO D25
89	84	65.000	0.11	0.34	0.90	0.10	0.31	5.0	6.8	9.3	2.83	10.12	0.91	24	0.20	829.75	829.88	831.75	831.75	834.21	834.21	D25 TO D24
88	87	65.000	0.16	0.16	0.90	0.14	0.14	5.0	5.0	9.8	1.42	10.12	0.49	24	0.20	830.17	830.30	831.99	831.99	834.30	834.30	D31 TO D30
87	86	65.000	0.37	0.53	0.90	0.33	0.48	5.0	7.4	9.1	4.32	10.12	1.42	24	0.20	830.04	830.17	831.96	831.98	834.30	834.30	D30 TO D29
86	85	65.000	0.28	0.81	0.90	0.25	0.73	5.0	8.1	8.8	6.45	10.12	2.07	24	0.20	829.91	830.04	831.91	831.95	834.20	834.30	D29 TO D28
85	84	78.500	0.13	0.94	0.90	0.12	0.85	5.0	8.6	8.7	7.37	10.21	2.37	24	0.20	829.75	829.91	831.75	831.82	834.21	834.20	D28 TO D24
84	83	102.181	0.13	1.41	0.90	0.12	1.27	5.0	9.1	8.6	10.89	10.25	3.68	24	0.21	829.54	829.75	831.32	831.54	833.50	834.21	D24 TO D23
83	End	21.927	0.15	1.56	0.90	0.14	1.40	5.0	9.6	8.5	11.88	17.51	4.93	30	0.18	829.50	829.54	830.65	830.86	832.38	833.50	D23 TO D22
82	81	100.000	0.41	0.41	0.90	0.37	0.37	5.0	5.0	9.8	3.63	18.34	1.94	30	0.20	829.93	830.13	831.03	831.07	834.30	835.76	D78 TO D77
81	80	96.286	0.37	0.78	0.90	0.33	0.70	5.0	7.3	9.1	6.39	18.22	3.02	30	0.20	829.74	829.93	830.89	831.01	834.20	834.30	D77 TO D76
80	79	93.997	0.16	0.94	0.90	0.14	0.85	5.0	8.4	8.8	7.42	18.44	3.41	30	0.20	829.55	829.74	830.71	830.86	833.69	834.20	D76 TO D75
79	End	24.927	0.17	1.11	0.90	0.15	1.00	5.0	9.4	8.5	8.51	18.37	4.42	30	0.20	829.50	829.55	830.47	830.67	832.38	833.69	D75 TO D74
78	77	65.000	0.12	0.12	0.90	0.11	0.11	5.0	5.0	9.8	1.06	2.50	2.32	12	0.49	830.57	830.89	831.27	831.37	834.20	834.20	D21 TO D20
77	76	65.000	0.11	0.23	0.90	0.10	0.21	5.0	5.8	9.6	1.98	5.83	2.24	18	0.31	830.37	830.57	831.20	831.26	834.20	834.20	D20 TO D19

Project File: New.stm

Number of lines: 98

Run Date: 2/27/2024

NOTES:Intensity = 127.16 / (Inlet time + 17.80) ^ 0.82; Return period =Yrs. 100 ; c = cir e = ellip b = box

Storm Sewer Tabulation

100-year HGL

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
76	75	65.000	0.11	0.34	0.90	0.10	0.31	5.0	6.8	9.3	2.83	10.12	2.22	24	0.20	830.24	830.37	831.13	831.18	834.20	834.20	D19 TO D18
75	74	100.000	0.13	0.47	0.90	0.12	0.42	5.0	7.9	8.9	3.77	10.12	2.74	24	0.20	830.04	830.24	830.97	831.11	833.50	834.20	D18 TO D17
74	End	21.927	0.15	0.62	0.90	0.14	0.56	5.0	9.2	8.6	4.77	9.66	3.87	24	0.18	830.00	830.04	830.77	830.95	832.33	833.50	D17 TO D16
73	72	100.000	0.19	0.19	0.90	0.17	0.17	5.0	5.0	9.8	1.68	4.70	1.67	18	0.20	830.46	830.66	831.37	831.43	834.45	834.45	D99 TO D98
72	71	96.286	0.20	0.39	0.90	0.18	0.35	5.0	6.8	9.3	3.25	10.31	2.18	24	0.21	830.26	830.46	831.29	831.36	834.45	834.45	D98 TO D97
71	70	106.605	0.18	0.57	0.90	0.16	0.51	5.0	8.2	8.8	4.52	10.04	2.98	24	0.20	830.05	830.26	831.04	831.21	833.69	834.45	D97 TO D96
70	End	24.927	0.14	0.71	0.90	0.13	0.64	5.0	9.4	8.5	5.44	18.37	3.84	30	0.20	830.00	830.05	830.77	830.94	832.88	833.69	D96 TO D121
69	68	65.000	0.12	0.12	0.90	0.11	0.11	5.0	5.0	9.8	1.06	2.50	1.38	12	0.49	830.59	830.91	831.77	831.82	834.20	834.20	D11 TO D10
68	66	65.000	0.11	0.23	0.90	0.10	0.21	5.0	5.8	9.6	1.98	5.83	1.25	18	0.31	830.39	830.59	831.75	831.76	834.20	834.20	D10 TO D9
67	65	65.000	0.12	0.12	0.90	0.11	0.11	5.0	5.0	9.8	1.06	2.54	1.45	12	0.51	830.75	831.08	831.84	831.89	834.20	834.20	D15 TO D14
66	62	65.000	0.11	0.34	0.90	0.10	0.31	5.0	6.8	9.3	2.83	10.12	1.19	24	0.20	830.26	830.39	831.74	831.75	834.20	834.20	D9 TO D8
65	64	65.000	0.11	0.23	0.90	0.10	0.21	5.0	5.8	9.6	1.98	5.68	1.35	18	0.29	830.56	830.75	831.82	831.84	834.20	834.20	D14 TO D13
64	63	65.000	0.11	0.34	0.90	0.10	0.31	5.0	6.8	9.3	2.83	10.12	1.30	24	0.20	830.43	830.56	831.80	831.82	834.20	834.20	D13 TO D12
63	62	82.000	0.13	0.47	0.90	0.12	0.42	5.0	7.9	8.9	3.77	10.30	1.61	24	0.21	830.26	830.43	831.74	831.76	834.20	834.20	D12 TO D8
62	61	110.073	0.13	0.94	0.90	0.12	0.85	5.0	9.0	8.6	7.29	10.11	3.32	24	0.20	830.04	830.26	831.38	831.56	833.50	834.20	D8 TO D7
61	End	21.927	0.16	1.10	0.90	0.14	0.99	5.0	9.7	8.4	8.35	9.66	4.66	24	0.18	830.00	830.04	831.03	831.25	833.42	833.50	D7 TO D6
60	59	100.000	0.16	0.16	0.90	0.14	0.14	5.0	5.0	9.8	1.42	5.75	0.80	18	0.30	830.14	830.44	832.38	832.40	834.45	834.45	D92 TO D91
59	58	96.286	0.17	0.33	0.90	0.15	0.30	5.0	7.1	9.2	2.72	10.05	0.87	24	0.20	829.95	830.14	832.37	832.38	834.45	834.45	D91 TO D90
58	48	88.500	0.15	0.48	0.90	0.14	0.43	5.0	8.8	8.7	3.74	10.20	1.19	24	0.20	829.77	829.95	832.32	832.35	834.45	834.45	D90 TO D81
57	52	95.000	0.21	0.21	0.90	0.19	0.19	5.0	5.0	9.8	1.86	7.46	1.05	18	0.51	830.33	830.81	832.78	832.81	834.30	834.30	D93 TO D85
56	55	100.000	0.69	0.69	0.90	0.62	0.62	5.0	5.0	9.8	6.11	5.75	3.46	18	0.30	830.86	831.16	833.24	833.58	834.30	834.36	D89 TO D88
55	54	95.792	0.21	0.90	0.90	0.19	0.81	5.0	5.5	9.7	7.83	10.34	2.49	24	0.21	830.66	830.86	833.11	833.22	834.30	834.30	D88 TO D87

Project File: New.stm

Number of lines: 98

Run Date: 2/27/2024

NOTES:Intensity = 127.16 / (Inlet time + 17.80) ^ 0.82; Return period =Yrs. 100 ; c = cir e = ellip b = box

Storm Sewer Tabulation

100-year HGL

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
54	53	78.500	0.14	1.04	0.90	0.13	0.94	5.0	6.1	9.5	8.85	9.89	2.82	24	0.19	830.51	830.66	832.97	833.09	834.30	834.30	D87 TO D86
53	52	88.500	0.12	1.16	0.90	0.11	1.04	5.0	6.6	9.3	9.71	10.20	3.09	24	0.20	830.33	830.51	832.78	832.95	834.30	834.30	D86 TO D85
52	51	33.066	0.15	1.52	0.90	0.14	1.37	5.0	7.1	9.2	12.53	18.87	2.61	30	0.21	830.26	830.33	832.65	832.68	834.78	834.30	D85 TO D84
51	50	49.402	0.00	1.52	0.00	0.00	1.37	0.0	7.3	9.1	12.44	17.51	2.57	30	0.18	830.17	830.26	832.60	832.64	834.45	834.78	D84 TO D83
50	49	100.000	0.20	1.72	0.90	0.18	1.55	5.0	7.6	9.0	13.93	18.34	2.85	30	0.20	829.97	830.17	832.47	832.58	834.45	834.45	D83 TO D82
49	48	96.286	0.21	1.93	0.90	0.19	1.74	5.0	8.2	8.8	15.34	18.69	3.13	30	0.21	829.77	829.97	832.32	832.45	834.45	834.45	D82 TO D81
48	47	111.671	0.18	2.59	0.90	0.16	2.33	5.0	10.0	8.4	19.50	18.20	4.15	30	0.20	829.55	829.77	831.83	832.05	833.69	834.45	D81 TO D80
47	End	24.927	0.17	2.76	0.90	0.15	2.48	5.0	10.4	8.3	20.51	18.37	5.98	30	0.20	829.50	829.55	831.04	831.33	832.38	833.69	D80 TO D79
46	45	100.000	0.23	0.23	0.90	0.21	0.21	5.0	5.0	9.8	2.04	4.57	1.66	15	0.50	830.72	831.22	833.55	833.65	834.30	834.34	D41 TO D40
45	44	100.000	0.23	0.46	0.90	0.21	0.41	5.0	6.0	9.5	3.93	5.75	2.22	18	0.30	830.42	830.72	833.40	833.54	834.30	834.30	D40 TO D39
44	43	78.500	0.13	0.59	0.90	0.12	0.53	5.0	6.7	9.3	4.92	10.21	1.56	24	0.20	830.26	830.42	833.35	833.39	834.03	834.30	D39 TO D38
43	42	82.000	0.12	0.71	0.90	0.11	0.64	5.0	7.6	9.0	5.76	9.99	1.83	24	0.20	830.10	830.26	833.29	833.35	834.03	834.03	D38 TO D37
42	41	72.000	0.12	0.83	0.90	0.11	0.75	5.0	8.3	8.8	6.58	9.97	2.09	24	0.19	829.96	830.10	833.22	833.28	834.20	834.03	D37 TO D36
41	40	82.000	0.12	0.95	0.90	0.11	0.86	5.0	8.8	8.7	7.40	18.68	1.51	30	0.21	829.79	829.96	833.19	833.22	834.20	834.20	D36 TO D35
40	39	40.278	0.15	1.10	0.90	0.14	0.99	5.0	9.7	8.4	8.35	18.27	1.70	30	0.20	829.71	829.79	833.17	833.18	834.97	834.20	D35 TO D34
39	23	26.196	0.00	1.10	0.00	0.00	0.99	0.0	10.1	8.3	8.26	17.93	1.68	30	0.19	829.66	829.71	833.15	833.16	834.77	834.97	D34 TO D33
38	36	85.000	0.81	0.81	0.90	0.73	0.73	5.0	5.0	9.8	7.17	22.62	2.28	24	1.00	830.90	831.75	834.74	834.82	835.10	835.49	D56 TO D47
37	36	80.000	0.12	0.12	0.90	0.11	0.11	5.0	5.0	9.8	1.06	10.11	0.34	24	0.20	830.90	831.06	834.74	834.74	835.10	835.20	D48 TO D47
36	35	100.000	0.16	1.09	0.90	0.14	0.98	5.0	8.9	8.6	8.46	13.85	2.13	27	0.20	830.70	830.90	834.59	834.67	835.03	835.10	D47 TO D46
35	34	100.000	0.16	1.25	0.90	0.14	1.13	5.0	9.6	8.4	9.50	18.34	1.94	30	0.20	830.50	830.70	834.53	834.58	835.03	835.03	D46 TO D45
34	33	100.000	0.16	1.41	0.90	0.14	1.27	5.0	10.4	8.3	10.48	18.34	2.14	30	0.20	830.30	830.50	834.45	834.52	835.03	835.03	D45 TO D44
33	26	100.000	0.16	1.57	0.90	0.14	1.41	5.0	11.1	8.1	11.44	18.34	2.33	30	0.20	830.10	830.30	834.36	834.44	835.03	835.03	D44 TO D43

Project File: New.stm

Number of lines: 98

Run Date: 2/27/2024

NOTES:Intensity = 127.16 / (Inlet time + 17.80) ^ 0.82; Return period =Yrs. 100 ; c = cir e = ellip b = box

Storm Sewer Tabulation

100-year HGL

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
32	25	85.000	0.71	0.71	0.90	0.64	0.64	5.0	5.0	9.8	6.28	6.46	5.12	15	1.00	831.47	832.32	833.98	834.79	834.90	835.49	D55 TO D42
31	30	100.000	0.50	0.50	0.90	0.45	0.45	5.0	5.0	9.8	4.42	11.31	1.41	24	0.25	831.25	831.50	834.84	834.88	835.49	835.49	D54 TO D53
30	29	100.000	0.50	1.00	0.90	0.45	0.90	5.0	6.2	9.4	8.49	20.51	1.73	30	0.25	831.00	831.25	834.79	834.83	835.49	835.49	D53 TO D52
29	28	100.000	0.50	1.50	0.90	0.45	1.35	5.0	7.1	9.1	12.34	20.51	2.51	30	0.25	830.75	831.00	834.69	834.78	835.49	835.49	D52 TO D51
28	27	42.500	0.50	2.00	0.90	0.45	1.80	5.0	7.8	9.0	16.11	19.89	3.28	30	0.24	830.65	830.75	834.45	834.52	835.92	835.49	D51 TO D50
27	26	42.500	0.00	2.00	0.00	0.00	1.80	0.0	8.0	8.9	16.01	20.87	3.26	30	0.26	830.54	830.65	834.36	834.43	835.03	835.92	D50 TO D43
26	25	100.000	0.16	3.73	0.90	0.14	3.36	5.0	11.7	8.0	26.71	29.82	3.78	36	0.20	829.90	830.10	833.98	834.14	834.90	835.03	D43 TO D42
25	24	68.215	0.52	4.96	0.90	0.47	4.46	5.0	12.1	7.9	35.13	30.22	4.97	36	0.21	829.76	829.90	833.42	833.60	835.37	834.90	D42 TO D120
24	23	49.939	0.84	5.80	0.90	0.76	5.22	5.0	12.3	7.8	40.85	29.85	5.78	36	0.20	829.66	829.76	833.15	833.34	834.77	835.37	D120 TO D33
23	End	52.990	0.00	6.90	0.00	0.00	6.21	0.0	12.5	7.8	48.43	36.64	7.86	36	0.30	829.50	829.66	831.76	832.35	832.92	834.77	D33 TO D32
22	9	85.000	0.12	0.12	0.90	0.11	0.11	5.0	5.0	9.8	1.06	10.50	0.60	18	1.00	830.54	831.39	834.03	834.04	834.80	834.90	D116 TO D103
21	10	85.000	0.15	0.15	0.90	0.14	0.14	5.0	5.0	9.8	1.33	10.50	0.75	18	1.00	830.69	831.54	834.39	834.40	834.90	834.90	D115 TO D104
20	11	85.000	0.15	0.15	0.90	0.14	0.14	5.0	5.0	9.8	1.33	10.50	0.75	18	1.00	830.85	831.70	834.67	834.69	835.25	835.25	D114 TO D105
19	12	85.000	0.15	0.15	0.90	0.14	0.14	5.0	5.0	9.8	1.33	10.50	0.75	18	1.00	831.01	831.86	834.89	834.90	835.35	835.35	D113 TO D106
18	13	85.000	0.15	0.15	0.90	0.14	0.14	5.0	5.0	9.8	1.33	10.50	0.75	18	1.00	831.16	832.01	835.05	835.06	835.35	835.35	D112 TO D107
17	14	85.000	0.31	0.31	0.90	0.28	0.28	5.0	5.0	9.8	2.74	10.11	0.87	24	0.20	831.32	831.49	835.15	835.16	835.35	835.35	D111 TO D108
16	15	44.509	0.64	0.64	0.90	0.58	0.58	5.0	5.0	9.8	5.66	16.26	1.80	24	0.52	831.64	831.87	835.27	835.30	835.63	835.96	D110 TO D109
15	14	65.498	0.10	0.74	0.90	0.09	0.67	5.0	5.4	9.7	6.45	15.81	2.05	24	0.49	831.32	831.64	835.15	835.21	835.35	835.63	D109 TO D108
14	13	78.000	0.12	1.17	0.90	0.11	1.05	5.0	6.6	9.3	9.79	18.58	1.99	30	0.21	831.16	831.32	835.05	835.09	835.35	835.35	D108 TO D107
13	12	78.000	0.13	1.45	0.90	0.12	1.31	5.0	7.3	9.1	11.88	18.57	2.42	30	0.21	831.00	831.16	834.89	834.96	835.35	835.35	D107 TO D106
12	11	78.000	0.13	1.73	0.90	0.12	1.56	5.0	7.8	9.0	13.94	17.99	2.84	30	0.19	830.85	831.00	834.67	834.76	835.25	835.35	D106 TO D105
11	10	78.000	0.13	2.01	0.90	0.12	1.81	5.0	8.2	8.8	15.97	18.57	3.25	30	0.21	830.69	830.85	834.39	834.51	834.90	835.25	D105 TO D104

Project File: New.stm

Number of lines: 98

Run Date: 2/27/2024

NOTES:Intensity = 127.16 / (Inlet time + 17.80) ^ 0.82; Return period =Yrs. 100 ; c = cir e = ellip b = box

Storm Sewer Tabulation

100-year HGL

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
10	9	78.000	0.13	2.29	0.90	0.12	2.06	5.0	8.6	8.7	17.98	17.99	3.66	30	0.19	830.54	830.69	834.03	834.18	834.80	834.90	D104 TO D103
9	8	68.188	0.18	2.59	0.90	0.16	2.33	5.0	8.9	8.6	20.12	18.58	4.10	30	0.21	830.40	830.54	833.61	833.78	835.24	834.80	D103 TO D101
8	7	165.604	0.65	3.24	0.90	0.59	2.92	5.0	9.2	8.6	24.97	18.31	5.09	30	0.20	830.07	830.40	832.89	833.51	835.20	835.24	D101 TO D100
7	6	165.604	0.00	3.24	0.00	0.00	2.92	0.0	9.7	8.4	24.58	18.31	5.01	30	0.20	829.74	830.07	832.24	832.84	834.64	835.20	D100 TO D95
6	End	118.916	0.00	3.24	0.00	0.00	2.92	0.0	10.3	8.3	24.19	29.96	5.61	36	0.20	829.50	829.74	831.08	831.74	832.92	834.64	D95 TO D94
5	2	40.924	0.39	0.39	0.90	0.35	0.35	5.0	5.0	9.8	3.45	5.84	4.39	12	2.69	833.68	834.78	836.89	837.28	837.21	838.49	D68 TO D65
4	3	40.934	0.11	0.11	0.90	0.10	0.10	5.0	5.0	9.8	0.97	5.65	2.21	12	2.52	837.01	838.04	837.98	838.45	842.08	843.53	D67 TO D66
3	2	150.000	0.19	0.30	0.90	0.17	0.27	5.0	5.6	9.6	2.60	5.63	3.84	12	2.50	833.26	837.01	836.89	837.72	837.21	842.08	D66 TO D65
2	1	96.233	0.12	0.81	0.90	0.11	0.73	5.0	6.3	9.4	6.85	5.62	8.72	12	2.49	830.86	833.26	832.29	835.85	834.00	837.21	D65 TO D64
1	End	35.710	0.62	1.43	0.90	0.56	1.29	5.0	6.5	9.3	12.02	10.54	7.07	18	1.01	830.00	830.36	831.31	831.85	831.79	834.00	D64 TO D63

Project File: New.stm

Number of lines: 98

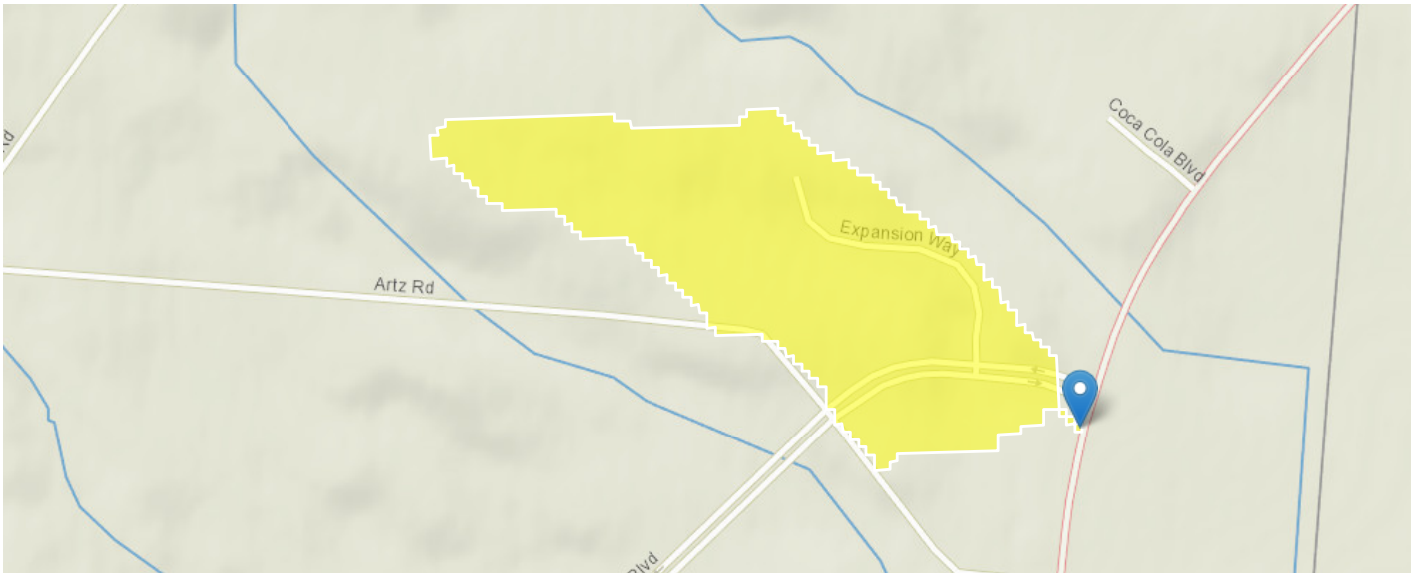
Run Date: 2/27/2024

NOTES:Intensity = 127.16 / (Inlet time + 17.80) ^ 0.82; Return period =Yrs. 100 ; c = cir e = ellip b = box

Exhibit L – StreamStats Delineation for Offsites Flow Analysis

StreamStats Report

Region ID: OH
Workspace ID: OH20230828180844084000
Clicked Point (Latitude, Longitude): 39.87189, -84.05539
Time: 2023-08-28 14:09:13 -0400



Collapse All

Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
CENTROIDX	Basin centroid horizontal (x) location in state plane coordinates	238310.9	meters
CENTROIDY	Basin centroid vertical (y) location in state plane units	4418232.7	meters
CSL1085LFP	Change in elevation divided by length between points 10 and 85 percent of distance along the longest flow path to the basin divide, LFP from 2D grid	86.5	feet per mi
DRNAREA	Area that drains to a point on a stream	0.0663	square miles (42.43 acres)
FOREST	Percentage of area covered by forest	0.53	percent
LAT_CENT	Latitude of Basin Centroid	39.8738	decimal degrees
LC11DEV	Percentage of developed (urban) land from NLCD 2011 classes 21-24	81.2	percent
LC11IMP	Average percentage of impervious area determined from NLCD 2011 impervious dataset	27.4	percent
LC92STOR	Percentage of water bodies and wetlands determined from the NLCD	0	percent
LFPLENGTH	Length of longest flow path	0.63	miles
LONG_CENT	Longitude Basin Centroid	84.0598	decimal degrees
OHREGA	Ohio Region A Indicator	1	dimensionless
OHREGC	Ohio Region C Indicator	0	dimensionless
PRECIPCENT	Mean Annual Precip at Basin Centroid	38.3	inches
STREAM_VARG	Streamflow variability index as defined in WRIR 02-4068, computed from regional grid	0.51	dimensionless

Peak-Flow Statistics

Peak-Flow Statistics Parameters [Peak Flow Full Model Reg A SIR2019 5018]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.0663	square miles	0.04	5989
OHREGC	Ohio Region C Indicator 1 if in C else 0	0	dimensionless	0	1
OHREGA	Ohio Region A Indicator 1 if in A else 0	1	dimensionless	0	1
CSL1085LFP	Stream Slope 10 and 85 Longest Flow Path	86.5	feet per mi	1.53	516
LC92STOR	Percent Storage from NLCD1992	0	percent	0	25.35

Peak-Flow Statistics Flow Report [Peak Flow Full Model Reg A SIR2019 5018]

PIl: Prediction Interval-Lower, PIu: Prediction Interval-Upper, ASEp: Average Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	PIl	PIu	ASEp
50-percent AEP flood	15.4	ft^3/s	8.08	29.3	40.1
20-percent AEP flood	30	ft^3/s	16.4	54.7	37.2
10-percent AEP flood	42.6	ft^3/s	23.2	78.3	37.6
4-percent AEP flood	61.8	ft^3/s	33.4	114	38.1
2-percent AEP flood	78.3	ft^3/s	41.8	147	37.8
1-percent AEP flood	96.5	ft^3/s	50.9	183	39.6
0.2-percent AEP flood	147	ft^3/s	76.5	282	40.3

Peak-Flow Statistics Citations

Koltun, G.F.,2019, Flood-frequency estimates for Ohio streamgages based on data through water year 2015 and techniques for estimating flood-frequency characteristics of rural, unregulated Ohio streams: U.S. Geological Survey Scientific Investigations Report 2019–5018, 25 p. (https://dx.doi.org/10.3133/sir20195018)

Low-Flow Statistics

Low-Flow Statistics Parameters [Low Flow Region A 2012 5138]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.0663	square miles	1	1250
STREAM_VARG	Streamflow Variability Index from Grid	0.51	dimensionless	0.24	1.12

Low-Flow Statistics Disclaimers [Low Flow Region A 2012 5138]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

Low-Flow Statistics Flow Report [Low Flow Region A 2012 5138]

Statistic	Value	Unit
1 Day 10 Year Low Flow	0.00152	ft^3/s
7 Day 10 Year Low Flow	0.00186	ft^3/s
30 Day 10 Year Low Flow	0.00273	ft^3/s
90 Day 10 Year Low Flow	0.00391	ft^3/s

Low-Flow Statistics Citations

Koltun, G.F., and Kula, S.P.,2013, Methods for estimating selected low-flow statistics and development of annual flow-duration statistics for Ohio: U.S. Geological Survey Scientific Investigations Report 2012–5138, 195 p. (http://pubs.usgs.gov/sir/2012/5138/)

Flow-Duration Statistics

Flow-Duration Statistics Parameters [Low Flow Region A 2012 5138]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.0663	square miles	1	1250
STREAM_VARG	Streamflow Variability Index from Grid	0.51	dimensionless	0.24	1.12

Flow-Duration Statistics Disclaimers [Low Flow Region A 2012 5138]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

Flow-Duration Statistics Flow Report [Low Flow Region A 2012 5138]

Statistic	Value	Unit
80 Percent Duration	0.00747	ft^3/s

Flow-Duration Statistics Citations

Koltun, G.F., and Kula, S.P.,2013, Methods for estimating selected low-flow statistics and development of annual flow-duration statistics for Ohio: U.S. Geological Survey Scientific Investigations Report 2012–5138, 195 p. (http://pubs.usgs.gov/sir/2012/5138/)

Annual Flow Statistics

Annual Flow Statistics Parameters [Low Flow LatLE 41.2 wri02 4068]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.0663	square miles	0.12	7422
LAT_CENT	Latitude of Basin Centroid	39.8738	decimal degrees	38.68	41.2
PRECIPCENT	Mean Annual Precip at Basin Centroid	38.3	inches	34	43.2

Annual Flow Statistics Disclaimers [Low Flow LatLE 41.2 wri02 4068]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

Annual Flow Statistics Flow Report [Low Flow LatLE 41.2 wri02 4068]

Statistic	Value	Unit
Mean Annual Flow	0.0649	ft^3/s

Annual Flow Statistics Citations

Koltun, G. F., and Whitehead, M. T.,2002, Techniques for Estimating Selected Streamflow Characteristics of Rural, Unregulated Streams in Ohio: U. S. Geological Survey Water-Resources Investigations Report 02-4068, 50 p (https://pubs.er.usgs.gov/publication/wri024068)

Monthly Flow Statistics

Monthly Flow Statistics Parameters [Low Flow LatLE 41.2 wri02 4068]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.0663	square miles	0.12	7422
LC92STOR	Percent Storage from NLCD1992	0	percent	0	19
PRECIPCENT	Mean Annual Precip at Basin Centroid	38.3	inches	34	43.2
FOREST	Percent Forest	0.53	percent	0	99.1
LAT_CENT	Latitude of Basin Centroid	39.8738	decimal degrees	38.68	41.2
STREAM_VARG	Streamflow Variability Index from Grid	0.51	dimensionless	0.25	1.13

Monthly Flow Statistics Disclaimers [Low Flow LatLE 41.2 wri02 4068]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

Monthly Flow Statistics Flow Report [Low Flow LatLE 41.2 wri02 4068]

Statistic	Value	Unit
January Mean Flow	0.0882	ft^3/s
February Mean Flow	0.117	ft^3/s
March Mean Flow	0.118	ft^3/s
April Mean Flow	0.121	ft^3/s
May Mean Flow	0.0711	ft^3/s
June Mean Flow	0.0514	ft^3/s
July Mean Flow	0.0307	ft^3/s
August Mean Flow	0.0226	ft^3/s
September Mean Flow	0.0103	ft^3/s
October Mean Flow	0.0125	ft^3/s
November Mean Flow	0.0277	ft^3/s
December Mean Flow	0.0562	ft^3/s

Monthly Flow Statistics Citations

Koltun, G. F., and Whitehead, M. T.,2002, Techniques for Estimating Selected Streamflow Characteristics of Rural, Unregulated Streams in Ohio: U. S. Geological Survey Water-Resources Investigations Report 02-4068, 50 p (https://pubs.er.usgs.gov/publication/wri024068)

General Flow Statistics

General Flow Statistics Parameters [Low Flow LatLE 41.2 wri02 4068]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.0663	square miles	0.12	7422
LC92STOR	Percent Storage from NLCD1992	0	percent	0	19
STREAM_VARG	Streamflow Variability Index from Grid	0.51	dimensionless	0.25	1.13
LAT_CENT	Latitude of Basin Centroid	39.8738	decimal degrees	38.68	41.2

General Flow Statistics Disclaimers [Low Flow LatLE 41.2 wri02 4068]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

General Flow Statistics Flow Report [Low Flow LatLE 41.2 wri02 4068]

Statistic	Value	Unit
Harmonic Mean Streamflow	0.00809	ft^3/s

General Flow Statistics Citations

Koltun, G. F., and Whitehead, M. T.,2002, Techniques for Estimating Selected Streamflow Characteristics of Rural, Unregulated Streams in Ohio: U. S. Geological Survey Water-Resources Investigations Report 02-4068, 50 p (https://pubs.er.usgs.gov/publication/wri024068)

Flow Percentile Statistics

Flow Percentile Statistics Parameters [Low Flow LatLE 41.2 wri02 4068]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.0663	square miles	0.12	7422
LC92STOR	Percent Storage from NLCD1992	0	percent	0	19
STREAM_VARG	Streamflow Variability Index from Grid	0.51	dimensionless	0.25	1.13
LAT_CENT	Latitude of Basin Centroid	39.8738	decimal degrees	38.68	41.2
LONG_CENT	Longitude of Basin Centroid	84.0598	decimal degrees	80.53	84.6

Flow Percentile Statistics Disclaimers [Low Flow LatLE 41.2 wri02 4068]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

Flow Percentile Statistics Flow Report [Low Flow LatLE 41.2 wri02 4068]

Statistic	Value	Unit
25th Percentile Flow	0.0228	ft^3/s
50th Percentile Flow Median	0.038	ft^3/s
75th Percentile Flow	0.0684	ft^3/s

Flow Percentile Statistics Citations

Koltun, G. F., and Whitehead, M. T.,2002, Techniques for Estimating Selected Streamflow Characteristics of Rural, Unregulated Streams in Ohio: U. S. Geological Survey Water-Resources Investigations Report 02-4068, 50 p (https://pubs.er.usgs.gov/publication/wri024068)

Bankfull Statistics

Bankfull Statistics Parameters [Interior Plains D Bieger 2015]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.0663	square miles	0.19305	59927.7393

Bankfull Statistics Parameters [Central Lowland P Bieger 2015]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.0663	square miles	0.200772	59927.66594

Bankfull Statistics Parameters [USA Bieger 2015]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.0663	square miles	0.07722	59927.7393

Bankfull Statistics Disclaimers [Interior Plains D Bieger 2015]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

Bankfull Statistics Flow Report [Interior Plains D Bieger 2015]

Statistic	Value	Unit
Bieger_D_channel_width	4.53	ft
Bieger_D_channel_depth	0.891	ft
Bieger_D_channel_cross_sectional_area	6	ft^2

Bankfull Statistics Disclaimers [Central Lowland P Bieger 2015]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

Bankfull Statistics Flow Report [Central Lowland P Bieger 2015]

Statistic	Value	Unit
Bieger_P_channel_width	5.37	ft
Bieger_P_channel_depth	1.17	ft
Bieger_P_channel_cross_sectional_area	5.98	ft^2

Bankfull Statistics Disclaimers [USA Bieger 2015]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

Bankfull Statistics Flow Report [USA Bieger 2015]

Statistic	Value	Unit
Bieger_USA_channel_width	4.76	ft
Bieger_USA_channel_depth	0.676	ft
Bieger_USA_channel_cross_sectional_area	3.95	ft^2

Bankfull Statistics Flow Report [Area-Averaged]

Statistic	Value	Unit
Bieger_D_channel_width	4.53	ft
Bieger_D_channel_depth	0.891	ft
Bieger_D_channel_cross_sectional_area	6	ft^2
Bieger_P_channel_width	5.37	ft
Bieger_P_channel_depth	1.17	ft
Bieger_P_channel_cross_sectional_area	5.98	ft^2

Statistic	Value	Unit
Bieger_USA_channel_width	4.76	ft
Bieger_USA_channel_depth	0.676	ft
Bieger_USA_channel_cross_sectional_area	3.95	ft^2

Bankfull Statistics Citations

Bieger, Katrin; Rathjens, Hendrik; Allen, Peter M.; and Arnold, Jeffrey G.,2015, Development and Evaluation of Bankfull Hydraulic Geometry Relationships for the Physiographic Regions of the United States, Publications from USDA-ARS / UNL Faculty, 17p. (https://digitalcommons.unl.edu/usdaarsfacpub/1515?utm_source=digitalcommons.unl.edu%2Fusdaarsfacpub%2F1515&utm_medium=PDF&utm_campaign=PDFCoverPages)

Probability Statistics

Probability Statistics Parameters [P zero Flow 2012 5138]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.0663	square miles	1	1250
STREAM_VARG	Streamflow Variability Index from Grid	0.51	dimensionless	0.24	1.12

Probability Statistics Disclaimers [P zero Flow 2012 5138]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

Probability Statistics Flow Report [P zero Flow 2012 5138]

Statistic	Value	Unit
Probability zero flow 1Day	0.022	dim
Probability zero flow 7Day	0.00906	dim
Probability zero flow 30Day	0.000349	dim

Probability Statistics Citations

Koltun, G.F., and Kula, S.P.,2013, Methods for estimating selected low-flow statistics and development of annual flow-duration statistics for Ohio: U.S. Geological Survey Scientific Investigations Report 2012–5138, 195 p. (http://pubs.usgs.gov/sir/2012/5138/)

Maximum Probable Flood Statistics

Maximum Probable Flood Statistics Parameters [Crippen Bue Region 6]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	0.0663	square miles	0.1	10000

Maximum Probable Flood Statistics Disclaimers [Crippen Bue Region 6]

One or more of the parameters is outside the suggested range. Estimates were extrapolated with unknown errors.

Maximum Probable Flood Statistics Flow Report [Crippen Bue Region 6]

Statistic	Value	Unit
Maximum Flood Crippen Bue Regional	644	ft^3/s

Maximum Probable Flood Statistics Citations

Crippen, J.R. and Bue, Conrad D.1977, Maximum Floodflows in the Conterminous United States, Geological Survey Water-Supply Paper 1887, 52p. (https://pubs.usgs.gov/wsp/1887/report.pdf)

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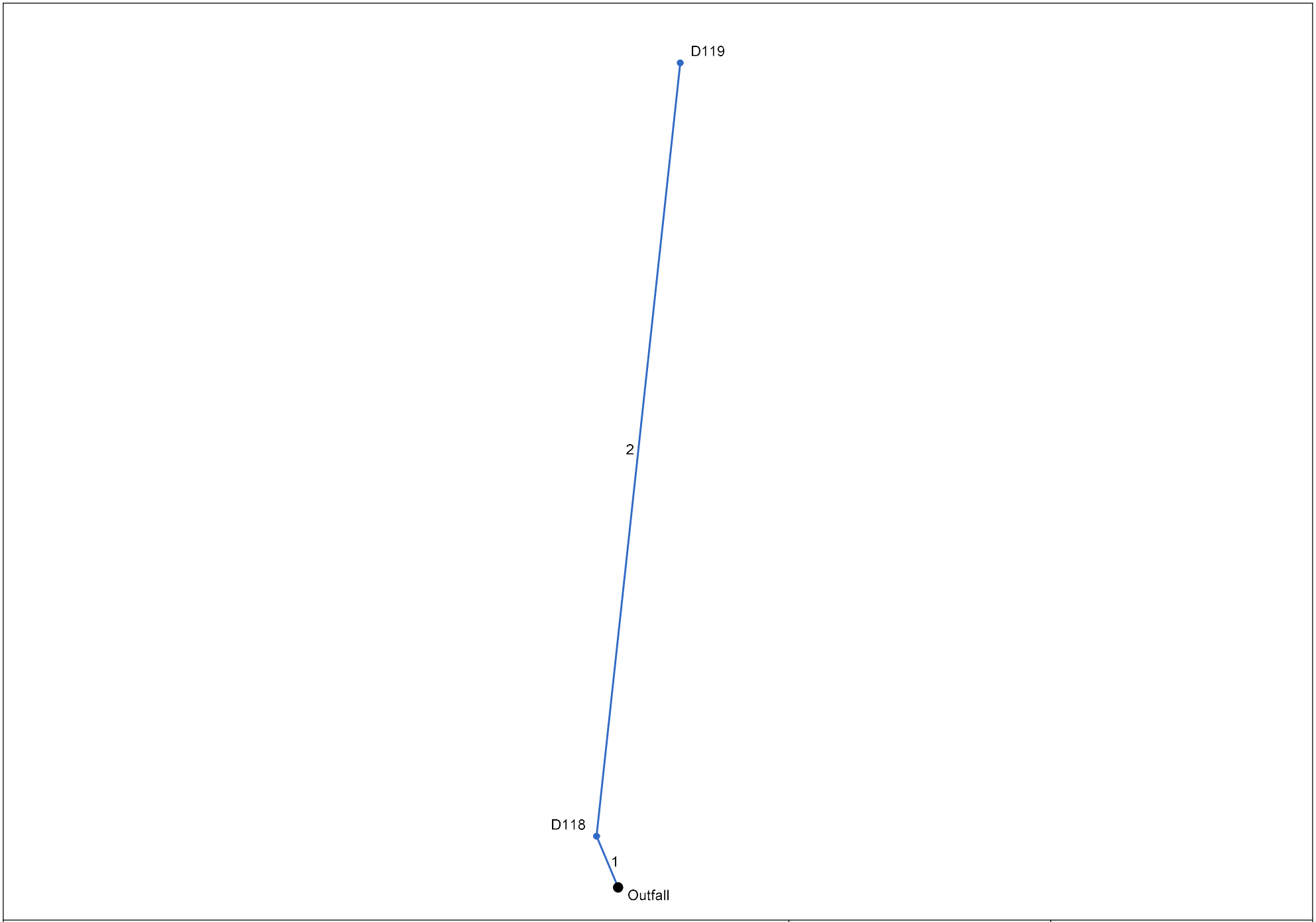
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Application Version: 4.16.1
StreamStats Services Version: 1.2.22
NSS Services Version: 2.2.1

Exhibit M – Offsite Bypass Storm Sizing Calculations

Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: New.stm	Number of lines: 2	Date: 2/29/2024

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	54.430	0.00	0.00	0.00	0.00	0.00	0.0	1.7	0.0	147.0	259.4	8.92	60	0.99	830.00	830.54	834.64	834.01	835.58	845.75	D118 TO D117
2	1	779.334	0.00	0.00	0.00	0.00	0.00	0.0	0.0	0.0	147.0	260.4	10.10	60	1.00	830.54	838.33	834.01	841.80	845.75	846.00	D119 TO D118

Project File: New.stm | Number of lines: 2 | Run Date: 2/29/2024

NOTES:Known Qs only ; c = cir e = ellip b = box

Huber Heights Fire Division

Inspections require two business days advance notice! (OAC)1301:7-7-09(A)(5)

Occupancy Name:	Buc-ee's
Occupancy Address:	8000 State Route 235

Type of Permit:	HHP&D Site Plan
Additional Permits:	Choose an item.
Additional Permits:	Choose an item.

MCBR BLD:	Not Yet Assigned	HH P&D:	
MCBR MEC:		HHFD Plan:	24-171
MCBR ELE:		HHFD Box:	
REVIEWER:	Susong	DATE:	5/7/2024

Fire Department Comments:

The Huber Heights City Code Part 15 Refers to Fire Code Requirements and has adopted by reference OFC and IFC Appendices

These comments are based only on the proposed site work, fire department access and basic fire protection concept at this time. A full plan review of the building systems, fire protection, egress and life safety will need to be conducted once the architectural plans have been submitted for permit. The proposed development will need to meet the requirements of the Ohio Fire Code 2017, Ohio Building Code 2024, and the Huber Heights Codified Ordinance. Based on the drawings provided the following requirements need to be met.

Requirements: (Site Plan)

- The canopy over fuel pumps shall have a clearance of 13 feet 6 inches or higher for fire apparatus clearance. **Ohio Fire Code 503.2.1.**
- Due to the scale on the drawings turn radius are unable to be verified. **Ohio Fire Code 503.2.4. (A drawing shall be provided that shows fire department vehicle access to all points of property, including around fuel pump islands. Contact Huber Heights Fire Division to obtain turn radius information.)**
- Hydrants in multi-family and commercial districts shall be placed not more than 300 feet apart, measured on the main and not more than 400 feet from any opening in any building. All new fire hydrants and any existing fire hydrants that are in need of replacement, shall meet the Huber Heights hydrant standard for this district of two (2), five (5) inch diameter steamer nozzles. These steamer

nozzles shall have a five (5) inch STORTZ quick connection and one steamer shall have a four (4) inch STORTZ connection approved by the Code Official. **Huber Heights Codified Ordinance 1521.06(c). *(*Only four fire hydrants are shown on site plan around the building and spacing exceeds 300 feet. Additional fire hydrants are required. Hydrants shall also be provided in the area of fuel pumps, charging stations and parking lot.*)***

- One fire hydrant shall be provided within 75 feet of the fire department connection for the fire suppression system. **Huber Heights Codified Ordinance 1521.01(e).**
- All new and replaced automatic sprinkler, standpipe, and fire department connections shall be equipped with a four-inch STORTZ connection with a 30 degree turn-down and proper signage. **Huber Heights Codified Ordinance 1521.01(e).**
- Unobstructed access to fire hydrants shall be maintained at all times. The fire department shall not be deterred or hindered from gaining immediate access to fire protection equipment or fire hydrants. **Ohio Fire Code 507.5.4**.
- A 3-foot (914 mm) clear space shall be maintained around the circumference of fire hydrants except as otherwise required or approved. (No trees, bushes, plantings, etc.) **Ohio Fire Code 507.5.5.**

Please reference contact information below for questions or concerns with this document.

Plans reviewed by the Huber Heights Fire Division are reviewed with the intent they comply in **ALL** respects to this code, as prescribed in **SECTION (D) 104.1 of the 2017 Ohio Fire Code**. Any omissions or errors on the plans or in this review do not relieve the applicant of complying with **ALL** applicable requirements of this code. These plans have been reviewed for compliance with the Ohio Fire Code adopted by this jurisdiction. There may be other regulations applicable under local, state, or federal statues and codes, which this department has no authority to enforce and therefore have not been evaluated as part of this plan review.

AI-10058 **9. A.**

Planning Commission

Meeting Date: 05/14/2024

Without objection the minutes of the April 9, 2024, Planning Commission meeting are approved.

Information

Agenda Title

Without objection the minutes of the April 9, 2024, Planning Commission meeting are approved.

Purpose and Background

Attachments

Minutes

Planning Commission
April 9, 2024, Meeting
City of Huber Heights

I. Chair Terry Walton called the meeting to order at approximately 6:00 p.m.

II. Present at the meeting: Mr. Cassity, Mr. Jeffries, Ms. Thomas, Ms. Vargo, and Mr. Walton.

Members absent: None

Staff Present: Aaron K. Sorrell, Interim City Planner, and Geri Hoskins, Planning & Zoning Administrative Secretary.

III. Opening Remarks by the Chairman and Commissioners

None.

IV. Citizens Comments

None.

V. Swearing of Witnesses Mr. Walton explained the proceedings of tonight's meeting and administered the sworn oath to all persons wishing to speak or give testimony regarding items on the agenda. All persons present responded in the affirmative.

VI. Pending Business

None.

VII. New Business

1. **SPECIAL USE - The applicant, THE CITY OF HUBER HEIGHTS, is requesting approval of a Special Use to construct a new 54,000 SF public works facility and associated storage buildings. Property is located at 5001 Taylorsville Road (SU 24-06).**

   Mr. Sorrell stated that the city desires to construct a new public works facility that includes a 54,000 SF main building (offices, storage and maintenance), a fueling center and salt storage barn. The site is zoned I-1 and uses typically inherent to a public works facility require Special Use approval by the Planning Commission. The applicable zoning chapters include 1135 Special Uses; 1156 I-1 Light Industrial and Mixed Uses, and 1181 General Provisions.
   Chapter 1156 lists a number of uses inherent to a public works facility as Special Uses, such as: heavy equipment storage, automobile service stations, yards for material storage. The proposed public works facility will have a fueling island, salt barn storage structure and in-door vehicle parking.
   Most, if not all, vehicles will be stored within the 54,000 SF building to keep them out of the elements and prolong their useful life. The I-1 district provides for industrial uses that have minimal impact on surrounding environments. Staff feels this facility will have minimal impact on surrounding properties because

most storage and repair work will be completed indoors. No significant outdoor storage of materials is planned.
The front façade of the main building is an attractive mix of brick and stone and faces Taylorsville Road. The building sits back nearly 190' from Taylorsville Road and Wildcat Road. Since operations are done indoors, staff feels there will be minimal impact on the area. The area is a mixture of existing industrial, commercial and residential uses. The public works facility should not disturb existing or future neighboring uses. Fuel storage will be underground and salt storage will be within a storage building. The public works facility is being constructed so the city can better serve its residents and stakeholders. This site was designed as a small industrial park but has been vacant for many years. No major environmental, natural or cultural features exist on the site. The site is mainly overgrown vegetation due to years of dormancy. Based on staff's initial review of the plans, the site plan and buildings conform to the requirements of the I-1 Light Industrial District. This includes setbacks, elevations and materials, signs, parking and landscaping. A formal review will occur during the permitting process.

Discussion on repaving of Wildcat, gutters on eastside, address on Taylorsville, underground storage regulations, retention pond to the north, salt barn, truck parking on the hill, and EPA regulations.

Mr. James Phillips asked about the blacktop, water runoff, parking and business hours.
Ms. Cynthia Schwartz asked about the noise in case of emergencies.
Mr. James Masingill stated he is a neighbor to ODOT on Shull Road and they are a good neighbor.

Action

Ms. Thomas moved to approve the request by the applicant THE CITY OF HUBER HEIGHTS, for approval of a Special Use (SU 24-06) in accordance with the recommendation of Staff's Memorandum dated April 5, 2024, and the Planning Commission Decision Record attached thereto.

Seconded by Mr. Jeffries. Roll call showed: YEAS: Ms. Vargo, Mr. Cassity, Ms. Thomas, Mr. Jeffries, and Mr. Walton. NAYS: None. Motion to approve carried 5-0.

2. **REPLAT - The applicants, VICKI HAHN and CHERYL ALDERMAN, are requesting approval of a Replat of an existing duplex condominium to create two new lots so that each lot contains the land and building. Property is located at 5261 and 5263 Coco Drive (RP 24-04).**

Mr. Sorrell stated that the Country View Estates is comprised of mostly duplex condominiums where the building is owned by the homeowner and the land is owned by the condominium association. For reasons lost to time, the Country View Estates condominium association was dissolved or cancelled in 1992.

In order to facilitate future real estate transactions, the applicants wish to replat their property to create two lots whereby the respective land and structures are contained within their respective lots and are respectively wholly owned.
The two applicants have been seeking a resolution to this situation for nearly a year. Technically, each lot will become an existing non-conforming lot because they are each half of the minimum lot area (6,000 SF versus 12,000 SF) and roughly half the front footage required in the R-5 zoning district.
Staff feels the nonconformities created through this land subdivision can be addressed through future zoning text amendments to the R-5 district. At this point, staff believe this subdivision creates a better situation for the owners, than the land being owned by a non-existing condominium association.

Discussion on non-conforming, small lot frontage, approaching other owners, and staff approval.

Action

Ms. Thomas moved to approve the request by the applicants VICKI HAHN and CHERYL ALDERMAN, for approval of a Replat (RP 24-04) in accordance with the recommendation of Staff's Memorandum dated April 4, 2024, and the Planning Commission Decision Record attached thereto.

Seconded by Mr. Jeffries. Roll call showed: YEAS: Ms. Vargo, Mr. Cassity, Ms. Thomas, Mr. Jeffries, and Mr. Walton. NAYS: None. Motion to approve carried 5-0.

3. **REPLAT - The applicant, THE CITY OF HUBER HEIGHTS, is requesting approval of a Replat of 23.7 acres into 2 lots plus right of way to facilitate the construction of a residential development and civic center. Property is located at 6209 Brandt Pike (RP 24-02).**

Mr. Sorrell stated that This application creates two lots and associated right-of-way that will facilitate the construction of the previously approved Authentix residential apartments, Meadows Park Drive (under construction) and the proposed civic center.
This application is the final step required for the redevelopment of the former Marian Meadows shopping center. This replat creates two lots and public right of way.
Lot 1 contains 15.86 acres. The west side of this lot is the site of the planned authentix apartments. This lot will be sold to the developer in the coming months, once this replat is approved and recorded.
Lot 2 contains 4.79 acres. This land is slated to be developed as the new civic center. The proposed replat meets all requirements of the subdivision regulations.

Action

Mr. Cassity moved to approve the request by the applicant THE CITY OF HUBER HEIGHTS, for approval of a Replat (RP 24-02) in accordance with the

recommendation of Staff's Memorandum dated April 4, 2024, and the Planning Commission Decision Record attached thereto.

Seconded by Mr. Jeffries. Roll call showed: YEAS: Ms. Vargo, Mr. Cassity, Ms. Thomas, Mr. Jeffries, and Mr. Walton. NAYS: None. Motion to approve carried 5-0.

4. **BASIC DEVELOPMENT PLAN - The applicant, THE CITY OF HUBER HEIGHTS, is requesting approval of a Basic Development Plan in a PM Planned Mixed Use District for a new 17,725 SF government center. This case was advertised as a combined Basic and Detailed Development Plan review, however, the applicant only seeks Basic Development Plan approval. Property is located at 6151 Brandt Pike (BDP 24-07).**

Mr. Sorrell stated that over the last year or so, the City has been working with LWC to design a new combined governance and senior center. A 17,725 SF building has been designed that would include a new council chambers and associated office space, in addition to a new senior center that contains various community and multi-purpose rooms, a kitchen, and various activity/game rooms. Recently, Sinclair Community College has decided to vacate their leased space near the YMCA, and it has been determined that the new senior center will move to that location. As a result, the internal programming of this new governance center is being reconfigured for additional office space for city staff.
It is important to note that the building envelope, design and placement will not change as a result of this new programming. This only impacts interior wall locations and room sizes. However, this change may impact parking and landscaping, thus we are only seeking Basic Development Plan at this time.
The area zoned PM is approximately 40 acres. The area contains a mixture of residential, institutional and retail uses. This site is located along a well-traveled thoroughfare, surrounded by institutional and retail uses. The building has been designed to compliment the recently constructed Huber Heights Branch Library. Staff does not anticipate this development will create any excessive noise, light or annoyances that will impact surrounding properties. This development will have one vehicular access from Meadows Park Drive. Sidewalks will be provided on Meadows Park Drive as well as walkways to the sidewalk along Brandt Pike. The parking lot is broken up by landscaped islands throughout the parking area. The current parking layout contains 71 spaces including 24 accessible spaces. The number of accessible spaces will likely decrease but will meet ADA standards. The total number overall parking spaces required will be determined by the final programming. The proposal provides for well-landscaped pedestrian access along Brandt Pike and Meadows Park Drive. Additionally, landscaped pathways will connect to the Library's parking area. Additional alternative transportation amenities such as bicycle parking facilities are being explored. Land to the west of the building may be programmed as community open space. A sign package has not yet been developed and will be reviewed as part of the Detailed Development Plan application. No lighting plans have been submitted, however the lighting will meet the zoning code requirements. There are no residential uses adjacent to the subject site. The new street trees will be installed along Meadows Park Drive. The landscaping plan will meet city code. Street trees will be installed along Meadows Park Drive. Trees along

Brandt Pike will be installed in a similar manner as approved for the Library development.

Discussion on current space plan and several conference rooms.

Action

Ms. Thomas moved to approve the request by the applicant THE CITY OF HUBER HEIGHTS, for approval of a Basic Development Plant (BDP 24-07) in accordance with the recommendation of Staff's Memorandum dated April 5, 2024, and the Planning Commission Decision Record attached thereto.

Seconded by Mr. Cassity. Roll call showed: YEAS: Ms. Vargo, Mr. Cassity, Ms. Thomas, Mr. Jeffries, and Mr. Walton. NAYS: None. Motion to approve carried 5-0

5. **DETAILED DEVELOPMENT PLAN - The applicant, 7125 EXECUTIVE BLVD., LLC, is requesting approval of a Detailed Development Plan for a 300 unit market rate multifamily community comprised of a mix of 1, 2, and 3 bedroom units. Property is located at 7125 Executive Blvd. (DDP 24-05).**

Mr. Sorrell stated that the City Planning Commission approved the Basic Development Plan (BDP) for this 300-unit apartment community on April 11, 2023. City Council expressed a desire for a more contemporary look for the residential buildings near Executive Boulevard. As a result of that discussion, RHM revised their site plan to include two larger residential buildings that better transition the commercial area fronting Executive Boulevard to the more traditional residential buildings deeper in the site.

As a result of the site plan and elevation changes, the City Council approved the rezoning and BDP Ordinance on May 8, 2023.

This applicant now seeks Detailed Development Plan (DDP) plan approval of the apartment community based on the revised and approved BDP. The submitted application substantially conforms to the standards and conditions outlined in the BDP application and approved Ordinance.

The approved BDP Ordinance has the following conditions:

1. The permitted uses shall be those outlined in Chapter 1179, excluding:
• Filling stations
• Sweepstakes cafes
• Convenience stores
• Self-storage facilities
• Car washes
• Drive Thru or Drive-Up windows
• Other uses deemed incompatible with a community entertainment district as determined by the Planning Director

2. The applicant will comply will all Fire Code requirements, per the Huber Heights Fire Division.

3. The existing trees and non-invasive vegetation that abut properties along Scatter Root Place and Loblolly Drive shall be preserved and maintained in a healthy manner. Dead or dying trees shall be replaced with species approved by the City.

The applicant has been working with the Fire Department throughout the process. Asle widths and turning radii meet the fire code standards. All fire hydrant locations will comply with fire department requirements.

The existing trees and non-invasive vegetation that abut properties along Scatter Root Place and Loblolly Drive shall be preserved and maintained in a healthy manner. Dead or dying trees shall be replaced with species approved by the City.

The grading necessitates the construction of a low retaining wall along the western edge of the property, south of Loblolly Drive. Grading and constructing this retaining wall will result in the removal of existing vegetation on the subject site along the western edge. Buffering and Screening options are discussed later in this report.

Overall, the site plan within this DDP application is largely consistent with the BDP site plan approved by the City Council.

- Unit count and density are the same (300 units, 18 units / acre)
- Parking count increases from 619 spaces to 633 spaces – 600 are required.
- Approved BDP setbacks: West & South: 20'; North & East: 15'. The north, east and south setbacks conform to the BDP. The west setback varies from 20' to 19.4'.

Architectural characteristics and building elevations were a significant topic of conversation with the City Council. Particularly how buildings relate to Executive Boulevard and the transition from the contemporary design of the commercial/retail frontage to the more traditional residential buildings deeper in the site.

The applicant has adjusted the site plan that improve the aesthetics and enhance the contemporary feel along Executive Boulevard since the application was last reviewed by the Planning Commission. First, the applicant has introduced two 3-story buildings that have a contemporary design between the commercial frontage and the traditionally designed residential area. Secondly, the clubhouse has been moved further south and provides a nice entry focal point. Lastly, the applicant has made changes to the residential garage and entry doors, so the elevation appears less "barn-like". Staff feels all three changes are improvements to the site plan and overall project.

Conformance With Other Zoning Requirements:

Open Space
The PM district requires no less than 25% open space, the site plan indicates approximately 36% open space.

Mechanical / Storage areas
The DDP indicates that all storage and dumpster areas are enclosed and screened according to the zoning code.

Lighting
The overall lighting plan conforms to the zoning code requirements for average illumination of the parking areas and light trespass restrictions. All fixtures are full cutoff and light poles do not exceed 20'.

Staff has requested the applicant lower the wall pack lighting on the west side buildings from 25' to 20' to reduce potential glare to adjacent homes. Specifically, fixtures labeled: C-31, C-47, C-50 & C-40.

<u>If the west walkway remains, staff suggests lowering wall fixtures F-1, 2, 3, 4 from 18' to 10'. If the sidewalk is eliminated, these wall fixtures should also be eliminated. See staff analysis for further discussion about the sidewalk.</u>

Signage
No signage plans were submitted with the DDP application. This is likely because the applicant is still exploring branding ideas.

Parking
Parking is provided through a mixture of internal garages, free-standing garage buildings and surface parking. The surface parking lots are strategically arranged and relatively small compared to other recent residential developments. All surface parking spaces are 10' x 18'.

Landscaping and Screening
The landscaping plan indicates a myriad of tree, shrub, and perennial plantings throughout the site. The landscaping plan indicates approximately 220 new trees, 272 bushes and 133 perennials.

<u>Staff recommends additional shrubs along the west parking areas to screen headlights from adjacent properties.</u>

<u>Staff Analysis</u>
The DDP application significantly conforms with the Basic Development Plan ordinance approved by the City Council. Additionally, the DDP generally conforms to all relevant zoning regulations, including landscaping, lighting, parking, and architectural standards.

At the request of planning staff, the applicant added an 8-foot walkway along the western edge of the site to connect the residential neighborhood to the emerging entertainment district along Executive Boulevard and existing destinations like the Rose Music Center, TJ Chumps, etc. Residents are likely to walk or bike through this development if the pathway is convenient and illuminated.

This connection reduces the distance between a home on Loblolly to TJ Chumps from 1.8 miles to 0.24 miles (1,300 feet). Neighborhood residents will likely walk through this site to get to the entertainment areas; therefore, an intentional connection is important.

However, this walkway limits the amount of landscaping and screening that can be provided between the buildings and the adjacent properties. While not ideal, this walkway could be eliminated, and a smaller sidewalk constructed on the east side of the dog park linking the commercial area to the drive isle.

Mr. Andrew Larussi from RHM Real Estate Group was present. Lengthy discussion on the west side walkway vs. drive isle, retaining wall, police data, gated, lighting on the walking path, sign package, one entrance, parking and round about, 3 phases, market rate, commercial plans, fire department clearance, Loblolly emergency gate, traffic study, and tandem parking.

Mr. Steve Masingill said he liked the development but huge concern is crime, sidewalk access very important, need to connect Executive and Shull, run off, and invasive species like bats.

Ms. Cynthia Schwartz spoke about the parking by clubhouse and sidewalk on Executive.

Action

Ms. Thomas moved to approve the request by the applicant 7125 EXECUTIVE BLVD., LLC, for approval of a Detailed Development Plant (DDP 24-05) in accordance with the recommendation of Staff's Memorandum dated April 4, 2024, as amended and the Planning Commission Decision Record attached thereto.

Seconded by Mr. Jeffries. Roll call showed: YEAS: Mr. Cassity, Ms. Thomas, Mr. Jeffries, and Mr. Walton. NAYS: Ms. Vargo. Motion to approve carried 4-1.

VIII. Additional Business

None

IX. Approval of the Minutes

Without objection, the minutes of the March 12, 2024, Planning Commission meetings are approved.

X. Reports and Calendar Review

Tesla Minor Change
Buc-cee's Basic Development Plan

XI. Upcoming Meetings

May 14, 2024
June 11, 2024

XII. Adjournment

There being no further business to come before the Commission, the meeting was adjourned at approximately 8:46 p.m.

_____ _____

Terry Walton, Chair **Date**

_____ _____

Geri Hoskins, Administrative Secretary **Date**