207 CENTRAL ST SITE PLAN & CONDITIONAL USE PERMIT

SP# 02-26 & CUP# 02-26

STAFF REPORT

February 11, 2026

SITE: 207 Central Street, Map 176/Lot 041,44,45

ZONING: Business (B), General - 1 (G-1)

PURPOSE OF PLAN: to propose a residential and mixed-use development that includes three (3) residential apartment buildings within the south-central portion of the property, and one (1) mixed-use building located on the northern portion of the property.

PLAN UNDER REVIEW:

Meadows Non-Residential Site Plan, SP# 02-26 & CUP# 02-26, Map 76 Lot 041, 44, 45, 207 Central Street, Hudson, NH; prepared by: Verdantas LLC, 176 Newport Road, New London, NH 03257; prepared for: Meadow Properties LLC, 195 R Central St, Hudson, NH 03051; consisting of 43 sheets and general notes 1-11 on Sheet 2; dated August 29, 2025, last revised January 23, 2026.

ATTACHMENTS:

1) Site Plan & CUP Applications received January 16, 2025– Attachment "**A**".
2) Project Narrative – Attachment "**B**".
3) ZBA Granted Variances dated October 24, 2024– Attachment "**C**".
4) Department Review Comments – Attachment "**D**".
5) Stormwater Management Report, prepared by Verdantas, dated January 12, 2026 – Attachment "**E**". (Digital Only)
6) Water Supply Analysis, prepared by Weston & Sampson, dated November 26, 2025. – Attachment "**F**".
7) FEMA Map amendment approval, dated April 8, 2025 – Attachment "**G**".
8) Traffic Impact Study, prepared by Barton & Loguidice, LLC, dated January 20, 2026 – Attachment "**H**". (Digital Only)
9) Site Plan dated August 29, 2025, last revised January 23, 2026.

APPLICATION TRACKING:

- January 16, 2026 – Site plan & CUP applications received.
- February 11, 2026 – Public Hearing scheduled.

COMMENTS & RECOMMENDATIONS:

BACKGROUND

The site is approximately 26.1 acres and is located in the Business (B) and General – One (G-1) zone, and is currently undeveloped. This site is proposed to be serviced by Town water and sewer. Multiple sections of the property are subject to FEMA flood zones, for which a zone change has

been granted (Attachment "**G**"). The site does contain wetlands along the central, north eastern, and eastern portions of the property. The site currently has one curb cut, and is proposed to be serviced by one for the apartments and one for the retail structures, both on Central Street. This site is an Asbestos Disposal Site (Inactive), with capped materials on parts of the site.

DEPARTMENT COMMENTS

Comments have been provided by several departments:

Engineering provided the following comments:

1. Applicant shows parking withing building setback
2. Applicant shall provide a stop bar and pavement markings for pedestrian crossing
3. Applicant shall revise existing plan to show the existing sidewalk along Central Street
4. Applicant shall consider extending the existing sidewalk along Central Street to connect Area 1 with Area 2, which is approximately 320 feet.
5. Applicant shall revise plans to clearly show grading information and elevations on the contours
6. Applicant shall add 4' perimeter chain link fence to all basins over 4 feet in depth.
7. Applicant shall provide information regarding all the proposed basins. How will the prevent groundwater penetration the basins taking in consideration the high-water table.
8. Wet Pond A1 does not appear to indicate a spill way a 171 based on the proposed contours.
9. There is no proposed drainage pipe information or flared end section information.
10. Guardrail shall be added between travel way and ponds over 4 feet.
11. Applicant shall revise the utility plan profile to include drainage features and stations on the plan. Currently the station features are only available on the profile.
12. For residential use, a fire hydrant is required every 800 feet.
13. The plan is missing grading information related to wetland crossings.
14. Plans do not show storage area.
15. The applicant is missing a light plan. The plans don't show light fixture location or the underground electrical features.
16. The applicant does not show erosion control plan including stockpiling areas during construction.
17. The plans don't indicate where curbing is proposed.
18. The plans don't indicate where catch basins are proposed, if any.
19. It is unclear how an oil spill or gas spill can be contained within the paved parking area without curbing or catch basin, taking in consideration the entire project is surrounded by wetlands.
20. The utility note, related to water and sewer for Building A, is inadequate and the applicant needs to provide information related to the existing utilities, including size and condition.
21. Applicant shall revise plans to show fire services and domestic services separated with their own gate valve.
22. It is unclear how left turns to the apartment complex would be possible or not cause and backups on Central Street, without any proposed off-site improvements, taking in

consideration the traffic volumes during peak hours, proximity to the existing traffic light and the bottleneck effect.

DPW provided the following comments:

1. Applicant shall provide a stop bar and pavement markings for pedestrian crossing
2. Applicant shall revise existing plan to show the existing sidewalk along Central Street
3. Applicant shall consider extending the existing sidewalk along Central Street to connect Area 1 with Area 2, which is approximately 320 feet.
4. Applicant shall revise plans to clearly show grading information and elevations on the contours.
5. The plans don't indicate where catch basins are proposed, if any, or how stormwater will exit the roadway with proposed sidewalk.
6. Unclear how left turns to the apartment complex would be possible or not cause delays and/or backups on Central Street, without any proposed off-site improvements, taking in consideration the traffic volumes during peak hours, proximity to the existing traffic light and the bottleneck effect.
7. Plans shall be revised to show ADA compliant sidewalk ramps with warning pads.
8. Plan shall be revised to show existing or proposed curbing.
9. Applicant shall consider a pedestrian crossing on Central St.

Assessing provided the following comments:

Meadow Properties, LLC is the listed owner of 176-041, however, Posey Investments LLC is the owner of 176-044 & 176-045

Fire provided the following comments:

Buildings B,C,D

Please provide the following changes and show the changes on the site plan. Forward to Fire for review.

1. Add a fire hydrant at the entrance to the proposed driveway to buildings B,C,D.
2. Add a fire hydrant inside the proposed driveway at station 5+00.
3. Keep the proposed fire hydrant located and shown on the plan inside the entrance to building B.
4. Add a fire hydrant inside or near the cul-de-sac shown on the left side of building C.
5. Add a fire hydrant on the central street side of the parking lot in front of building D.

Building A

1. Add a fire hydrant inside the entrance to building A on the Central Street side of the parking lot.

Provide a fire apparatus turning plan into and around the site for buildings B,C,D. Forward the plan for Fire review.

Fire hydrants shall not exceed 500 feet between hydrants. These additional fire hydrants are required.

Fire cannot approve the current plans.

Zoning provided the following comments:

Property Location -**197, 197R & 207 Central Street**

Notes: 207 Central

The building is shown as 44 feet in height on Plan AC8. Pursuant to §334-14, *Building Height in Residential Zones*, the maximum permitted building height is 38 feet. Therefore, the proposed building exceeds the allowable height by 6 feet.

Provided that the additional 6–7 feet consist solely of non-habitable space (e.g., roof structure, mechanical space, or architectural features) and does not contain any livable area, the building may be considered compliant. A note clarifying that no habitable space is located within this height differential should be added to the plan.

ZBA Decision – 10-24-24

Variance – (2) Two (Granted)

1. A Variance for a proposed three (3) lot merger into one (1) to allow for two (2) proposed multi-family buildings where multi-family use is not permitted in the General (G) district. The proposed 3-story building (1) is 70 ft. x 100 ft. with 30 units. The proposed 3-story building (2) is 60 ft. x 300 ft. with 70 units
2. A Variance for a proposed three (3) lot merger into one (1) to allow a proposed mixed principal use development with retail commercial uses and multi-family use on the same lot.

Full Comments can be found in **Attachment "D"**.

STORMWATER MANAGEMENT REPORT

As part of the application, a Stormwater Management Report, revised November 20, 2025, has been supplied (Attachment "**E**"). This report concludes that there will be a decrease or no change in the peak rates of stormwater runoff leaving the property at the design point.

WATER SUPPLY ANALYSIS

As part of the application, a Water Supply Analysis has been provided, dated November 26, 2025, has been supplied (Attachment "**F**"). This report concludes that *the Hudson water system would be capable of furnishing the total estimated domestic demand for the development, at a minimum of 35 psi, under all normal conditions of flow*.

TRAFFIC IMPACT LETTER

The applicant has submitted a memo dated January 20, 2026, concluding as follows:

The site approaches are expected to experience some delay during the AM and PM peak hours, ranging from an LOS E with an average delay of 39.7 seconds to an LOS F with an average delay of 70.4 seconds. It is typical for a minor approach entering a high-volume major street at an unsignalized intersection to experience some delay during the peak hours. In our opinion, this is not an unreasonable amount of delay and vehicles should be able to exit safely.

The capacity analysis indicates that the traffic generated by the proposed project will have a minimal impact on the signalized intersection of Central Street and Burnham Road. During the post-development condition, there is minimal change to each movement's average delay, and all movements will continue to operate at LOS D or better.

Pre-development, the intersection is shown to operate at LOS B with 17.2 seconds of average delay, and LOS C with 21.3 seconds of average delay during the AM and PM peak hours. Post-development, the intersection's average delay will increase by approximately one second, increasing to 17.5 and 22.5 seconds.

The full memo may be found in Attachment "**H**".

PEER REVIEW

The first round of peer review is currently underway by Fuss & O'Neill and is not complete at this time.

CONSERVATION COMMISSION

The Conditional Use Permit has been submitted to the Conservation Commission, who is scheduled to have the first hearing for the project on February 9, 2026.

STAFF COMMENTS

Staff notes that while the Zoning Administrator's departmental comments state the proposal is ready for approval with respect to the zoning ordinance, planning staff have determined upon further review that this is not the case. As outlined in Attachment "C", the Zoning Board of Adjustment previously granted two variances for the project: one from **§334-10** to allow mixed uses, and one from **§334-21** to allow a multi-family development within the General (G) zone where such use would otherwise not be permitted. The variance for **§334-21** specifically approved two (2) buildings containing a total of 100 units. The current proposal instead consists of three (3) buildings totaling 108 units. Pursuant to **§334-29 – Extension or enlargement of nonconforming uses**, an additional variance is required to permit the added building and units.

Additionally, the proposal includes a roofline crest of 45 feet 1 inch. Under **§334-14 – Building Height,** the maximum allowable height for a structure (unoccupied protuberances not withstanding) is 38 feet. Height is measured from the average elevation of the finished grade within five feet of the structure to the highest point of the roof, excluding accessory, unoccupied protuberances such as antennas, flagpoles and the like. The applicant has submitted a zoning determination request regarding the height to address zoning concerns; however, no variance application has been received by the Development Services Department at this time.

RECOMMENDATIONS

Pursuant to **§276-14.A&E** planning staff are authorized to determine both application completeness and whether an application is ready for Planning Board review, which formally begins upon acceptance of the plan. The criterion for recommending the acceptance includes compliance with the application checklist and the Land Use Regulations. In this instance, it was subsequently determined that the application does not comply with **§275-6.P,** which requires applications be in compliance with the Zoning Ordinance. Accordingly, staff does not recommend acceptance of the plan at this time due to the issues noted above.

Staff recommends that the board defer the application for a duration suitable to both the board and the applicant to allow time to address outstanding technical review items identified in departmental comments, any forthcoming comments from Fuss & O'Neill, and the zoning issues discussed herein. Alternatively, the board may choose to deny the application if it determines that setting no date certain is more appropriate. No approvals may be granted until written recommendation has been received from the Conservation Commission.

DRAFT MOTIONS:

TO DEFER:

I move to defer the Non-Residential **Site Plan** for the Mixed-Use Development Meadows Non-Residential Site Plan, SP# 02-26, Map 176 Lots 041, 44, 45, 207 Central Street, Hudson, NH.
Motion by: _____Second: _____Carried/Failed: _____

I move to defer the **Conditional Use Permit** for the Mixed-Use Development Meadows Non-Residential Site Plan, CUP# 02-26, Map 176 Lots 041, 44, 45, 207 Central Street, Hudson, NH.
Motion by: _____Second: _____Carried/Failed: _____

TO ACCEPT:

I move to accept the Non-Residential **Site Plan** for the Mixed-Use Development Meadows Non-Residential Site Plan, SP# 02-26, Map 176 Lots 041, 44, 45, 207 Central Street, Hudson, NH.
Motion by: _____Second: _____Carried/Failed: _____

I move to accept the **Conditional Use Permit** for the Mixed-Use Development Meadows Non-Residential Site Plan, CUP# 02-26, Map 176 Lots 041, 44, 45, 207 Central Street, Hudson, NH.
Motion by: _____Second: _____Carried/Failed: _____

TO CONTINUE:

I move to continue the Non-Residential **Site Plan** for the Mixed-Use Development Meadows Non-Residential Site Plan, SP# 02-26, Map 176 Lots 041, 44, 45, 207 Central Street, Hudson, NH, to date certain_____ 2026.
Motion by: _____Second: _____Carried/Failed: _____

I move to continue the **Conditional Use Permit** for the Mixed-Use Development Meadows Non-Residential Site Plan, CUP# 02-26, Map 176 Lots 041, 44, 45, 207 Central Street, Hudson, NH, to date certain_____, 2026.

Motion by: _____Second: _____Carried/Failed: _____

Town of Hudson
12 School Street
Hudson, NH 03501

SITE PLAN APPLICATION

Revised September 2025

The following information must be filed with the Planning Department ***at the time of filing a site plan application***:

1. One (1) original completed application with original signatures.
2. One (1) full plan set *folded* (sheet size: 22" x 34").
3. One (1) original copy of the project narrative.
4. A list of direct abutters and a list of indirect abutters, and two (2) sets of mailing labels for abutter notifications.
5. Site Plan Review Checklist.
6. All of the above application materials, including plans, shall also be submitted in electronic form as a PDF.
7. ***All plans shall be folded*** and all pertinent data shall be attached to the plans with an elastic band or other enclosure.
8. ***Plans requiring third party consultant review*** – Complete submittal must be sent to:
   Fuss & O'Neill
   c/o Steve Reichert, PE
   50 Commercial Street Unit 2S
   Manchester, NH 03101

The following information is required to be filed with the Planning Department ***no later than 10:00 A.M., Tuesday ONE WEEK prior to the scheduled Planning meeting***. ***The purpose of these materials is hardcopy distribution to Planning Board members, not review.***

Any plan revisions that require staff review must be submitted no later than 10:00A.M., Tuesday TWO WEEKS prior to the scheduled Planning meeting. Depending on the complexity of changes, more time may be required for review. Please contact the Town Planner if you have any questions on this matter.

1. Submission of fifteen (15) 11" X 17" plan sets *folded*, revised if applicable.
2. Submission of one (1) full plan set *folded* (sheet size: 22" x 34"), if revised.
3. All of the above application materials, including plans, shall also be submitted in electronic form as a PDF.

Note: Prior to filing an application, it is recommended to schedule an appointment with the Town Planner.

SITE PLAN APPLICATION

Date of Application: 1/14/2026 Tax Map #: 176 Lot #: 41, 44, 45

Site Address: 207 Central Street

Name of Project: The Meadows Mixed Use Development

Zoning District: Business, General General SP#: _____
(For Town Use Only)

Z.B.A. Action: _____

PROPERTY OWNER:	DEVELOPER:
Name: Meadow Properties, LLC	Meadow Properties, LLC
Address: 195 R Central St	195 R Central St
Address: Hudson, NH 03051	Hudson, NH 03051
Telephone # (603) 231-7344	(603) 231-7344
Email: derekmanagement@aol.com	derekmanagement@aol.com
PROJECT ENGINEER:	**SURVEYOR:**
Name: Verdantas, LLC; Formerly Horizons Engineering, Inc.	Verdantas, LLC; Formerly Horizons Engineering, Inc.
Address: 176 Newport Road	176 Newport Road
Address: New London, NH 03257	New London, NH 03257
Telephone # (603) 877-0116	(603) 877-0116
Email: rhudock@verdantas.com	rhudock@verdantas.com

PURPOSE OF PLAN:
Review of proposed mixed use development.

(For Town Use Only)

Routing Date: _____ Deadline Date: _____ Meeting Date: _____

_____ I have no comments _____ I have comments (attach to form)

_____ Title: _____ Date: _____
(Initials)

Department:

Zoning: ___ Engineering: ___ Assessor: ___ Police: ___Fire: ___ DPW: ___ Consultant: ___

SITE DATA SHEET

PLAN NAME: The Meadows Mixed Use Development

PLAN TYPE: SITE PLAN

LEGAL DESCRIPTION: MAP 176 LOT 41, 44, 45

DATE: 1/14/2026

Location by Street:	207 Central Street
Zoning:	Business, General
Proposed Land Use:	Mixed Residential & Commercial
Existing Use:	Undeveloped
Surrounding Land Use(s):	Commercial
Number of Lots Occupied:	0 of 3
Existing Area Covered by Building:	0 SF
Existing Buildings to be removed:	N/A
Proposed Area Covered by Building:	50,100 SF
Open Space Proposed:	1,087,766 SF
Open Space Required:	113,786 SF
Total Area:	S.F.: 1,137,866 Acres: 26.12
Area in Wetland:	509,843 SF Area Steep Slopes: 31,300 SF
Required Lot Size:	43,560 SF
Existing Frontage:	541.46' Combined Frontage
Required Frontage:	150'

Building Setbacks:	Required*	Proposed
Front:	50'	55'
Side:	15'	95'
Rear:	15'	20'

SITE DATA SHEET
(Continued)

Flood Zone Reference: Zone A

Width of Driveways: 24'

Number of Curb Cuts: 2

Proposed Parking Spaces: 278

Required Parking Spaces: 247

Basis of Required Parking (Use): (116 2Br units x 2 spaces/unit)+ (1 guest space/8 units) = 232+15 = 247 spaces

Dates/Case #/Description/Stipulations of ZBA, Conservation Commission, NH Wetlands Board Actions:
(Attach stipulations on separate sheet)

Variance #176-041A, dated 10/24/24 - Granted

Variance #176-041B, dated 10/24/24 - Granted

Wetlands Conditional Use Permit - Pending

Waiver Requests

Town Code Reference:	*Regulation Description:*

(For Town Use Only)

Data Sheets Checked By: _____ Date: _____

SITE PLAN APPLICATION AUTHORIZATION

I hereby apply for *Site Plan* Review and acknowledge I will comply with all of the Ordinances of the Town of Hudson, New Hampshire State Laws, as well as any stipulations of the Planning Board, in development and construction of this project. I understand that if any of the items listed under the *Site Plan* specifications or application form are incomplete, the application will be considered rejected.

Pursuant to RSA 674:1-IV, the owner(s) by the filing of this application as indicated above, hereby given permission for any member of the Hudson Planning Board, the Town Planner, the Town Engineer, and such agents or employees of the Town or other persons as the Planning Board may authorize, to enter upon the property which is the subject of this application at all reasonable times for the purpose of such examinations, surveys, tests and inspections as may be appropriate. The owner(s) release(s) any claim to or right he/she (they) may now or hereafter possess against any of the above individuals as a result of any examinations, surveys, tests and/or inspections conducted on his/her (their) property in connection with this applications.

Signature of Owner: Don Dumont Manager Date: 1/14/26

Print Name of Owner: Don Dumont

- If other than an individual, indicate name of organization and its principal owner, partners, or corporate officers.

Signature of Developer: _____ Date:_____

Print Name of Developer:_____

- The developer/individual in charge must have control over all project work and be available to the Code Enforcement Officer/Building Inspector during the construction phase of the project. The individual in charge of the project must notify the Code Enforcement Officer/Building Inspector within two (2) working days of any change.

WAIVER REQUEST FORM

Name of Subdivision/Site Plan: _____

Street Address: _____

I _____ hereby request that the Planning Board waive the requirements of item _____ of the Hudson Land Use Regulations in reference to a plan presented by _____

_____ (name of surveyor and engineer) dated _____ for property tax map(s) _____ and lot(s) _____ in the Town of Hudson, NH.

As the aforementioned applicant, I, herein, acknowledge that this waiver is requested in accordance with the provisions set forth in RSA 674:36, II (n), i.e., without the Planning Board granting said waiver, it would pose an unnecessary hardship upon me (the applicant), and the granting of this waiver would not be contrary to the spirit and intent of the Land Use Regulations.

Hardship reason(s) for granting this waiver (if additional space is needed please attach the appropriate documentation hereto):

_____

_____

_____

_____

_____

Reason(s) for granting this waiver, relative to not being contrary to the spirit and intent of the Land Use Regulations: (if additional space is needed please attach the appropriate documentation hereto):

_____

_____

_____

_____

_____

Signed:

_____

Applicant or Authorized Agent

SCHEDULE OF FEES

A. REVIEW FEES:

1. **Site Plan Use**	**Project Size/Fee**	
Multi-Family	$105.00/unit for 3-50 units 116 Units $78.50/unit for each additional unit over 50	$ 10,431.00
Commercial/Semi Public/Civic or Recreational	6,160 SF $157.00/1,000 sq. ft. for first 100,000 sq.ft. (bldg. area): $78.50/1,000 sq.ft. thereafter.	$ 967.12
Industrial	$150.00/1,000 sq.ft for first 100,000 sq.ft. (bldg. area); $78.50/1,000 sq.ft thereafter.	$ 0
No Buildings	$30.00 per 1,000 sq.ft. of proposed developed area	$ 0

CONSULTANT REVIEW FEE: (Separate Check)

Total _____ acres @ $600.00 per acre, or $1,250.00, whichever is greater. $_____

This is an estimate for cost of consultant review. The fee is expected to cover the amount. A complex project may require additional funds. A simple project may result in a refund.

LEGAL FEE:

The applicant shall be charged attorney costs billed to the Town for the Town's attorney review of any application plan set documents.

B. POSTAGE:

12	Direct Abutters Applicant, Professionals, etc. as required by RSA 676:4.1.d @$6.08 **(or Current Certified Mail Rate)**	$ 72.96
2	Indirect Abutters (property owners within 200 feet) @$0.78 **(or Current First Class Rate)**	$ 1.56

C. TAX MAP UPDATING FEE: (FLAT FEE) $ 275.00

TOTAL $_____

SCHEDULE OF FEES
(Continued)

(For Town Use)			
AMOUNT RECEIVED: $_____		DATE RECEIVED:	_____
RECEIPT NO.:	_____	RECEIVED BY:	_____

NOTE: fees below apply only upon plan approval, not collected at time of application.

D. RECORDING:

*****The applicant shall be responsible for the recording of the approved plan, and all documents as required by an approval, at the Hillsborough County Registry of Deeds (HCRD), located at 19 Temple Street, Nashua, NH 03061. Additional fees associated with recording can be found at HCRD.*****

E. COST ALLOCATION PROCEDURE AMOUNT CONTRIBUTION AND OTHER IMPACT FEE PAYMENTS:

To be determined by the Planning Board at time of plan approval and shall be paid by the applicant at the time of submittal of the Certificate of Occupancy Permit requests.

*****The applicant shall be responsible for all fees incurred by the town for processing and review of the applicant's application, plan and related materials.*****

TOWN OF HUDSON
SITE PLAN REVIEW CHECKLIST

This checklist is intended to help the applicant and staff to ensure application completeness. Please refer to the regulations on the exact language of each requirement.

Key: Y=Yes P =Pending W=Waiver Request

Relevant Regulations:
§ 276-11.1 General Plan Requirements
§§ 275-8 – 275-9 Site Plan Requirements

	Y	P	W		Notes
1.	☒	☐	☐	- A list of the names and addresses of the owner(s) of the property, the applicant(s), and all abutters as indicated in the office of the Town Assessor records not more than five (5) days prior to the day of filing **[§ 276-11.1.A.]**	
2	☒	☐	☐	- Sets of plans and copies as indicated on application.	
3.	☒	☐	☐	- Scale no smaller than 50 feet to the inch (1" = 50') **[§ 276-11.1.B.(2)]**	
4.	☒	☐	☐	- Title block in the lower right-hand corner of the plan, containing: **[§ 276-11.1.B.(3)]**	
5.	☒	☐	☐	- Title, including the term "site plan" or "subdivision plan"	
6.	☒	☐	☐	- The name for whom the plan was prepared	
7.	☒	☐	☐	- Preparer of the plan	
8.	☒	☐	☐	- The scale(s) of the plan	
9.	☒	☐	☐	- Date of the plan	
10.	☒	☐	☐	- Appropriate revision block	
11.	☐	☒	☐	- Approval block (2"x6") located on the lower left corner of each sheet, with the required language and signature line **[§ 276-11.1.B.(4) & § 289-27.A]**	
12.	☒	☐	☐	- Owner's printed name and address and signature **[§ 276-11.1.B.(6)]**	
13.	☒	☐	☐	- Name and address of all abutting property owners **[§ 276-11.1.B.(7)]**	
14.	☒	☐	☐	- A locus plan at one inch equals 1,000 feet (1" = 1,000') **[§ 276-11.1.B.(8)]**	

(Continue next page)

15. [X] [ ] [ ] - Boundary of the entire parcel held in single ownership with boundary dimensions and bearings **[§ 276-11.1.B.(9)]**
16. [X] [ ] [ ] - Error of closure shown and certified by a licensed land surveyor
17. [X] [ ] [ ] - North point arrow
18. [X] [ ] [ ] - Zoning classification note of the tract and location of the zoning district boundaries if the property is located in two or more zoning district **[§ 276-11.1.B.(10)]**
19. [X] [ ] [ ] - The location of all buildings within 50 feet of the tract **[§ 276-11.1.B.(15)]**
20. [X] [ ] [ ] - The location of roadways, driveways, travel areas or parking areas within 200 feet of the tract, in accordance with **§ 276-11.1.B.(16)**
21. [X] [ ] [ ] - Existing topography at two-foot contour intervals of that portion of the tract being proposed for development from a topographic survey and contours on the remainder of the tract from a reliable plan source **[§ 276-11.1.B.(17)]**
22. [X] [ ] [ ] - Proposed topography at two-foot contour intervals **[§ 276-11.1.B.(18)]**
23. [X] [ ] [ ] - A note identifying the Tax Map and Lot Number of the tract **[§ 276-11.1.B.(19)]**
24. [X] [ ] [ ] - The location of all existing buildings (including size and height), driveways, sidewalks, parking spaces, loading area, open spaces, large trees, open drainage courses, signs, exterior lighting, service areas, easements landscaping and other pertinent items. **[§ 276-11.1.B.(20)]**
25. [X] [ ] [ ] - The location of all proposed construction, buildings, structures, pavement, etc. **[§ 276-11.1.B.(21)]**
26. [ ] [X] [ ] - A green area shown between the right-of-way line and any pavement, gravel or structure meeting the required minimum width **[§ 276-11.1.B.(22)]**
29. [ ] [X] [ ] - Note any pertinent highway projects. **[§ 276-11.1.B.(23)]**

(Continue next page)

TOWN OF HUDSON
SITE PLAN REVIEW CHECKLIST

This checklist is intended to help the applicant and staff to ensure application completeness. Please refer to the regulations on the exact language of each requirement.

Key: Y=Yes P =Pending W=Waiver Request NA=Not Applicable (please explain)

	Y	P	W	NA		Notes
30.	☒	☐	☐		- The location of all building setback lines as required by Chapter 334, Zoning, and setback lines as required by **§ 276-11.1.B.(12)**.	
31.	☒	☐	☐		- The location size and character of all signs or a note* stating "All signs are subject to approval by the Hudson Zoning Administrator prior to installation thereof." [**§ 276-11.1.B.(13)**] *The discrepancy on the note language is correct – reference to the Planning Board in the regulations is outdated.	No signs proposed
32.	☐	☒	☐		- The location, detail and character of all exterior lighting or a note stating: "There will be no exterior lighting." [**§ 276-11.1.B.(14)**]	Exterior Lighting Plan pending
33.	☒	☐	☐	☐	- Required open space, including the calculation showing the requirement is met [**§ 276-11.1.B.(24)**]	Included in application
34.	☒	☐	☐	☐	- Parking space calculation showing and a statement stating the required parking spaces are provided [**§ 275-8.C.(2) & (3)**]	Included in application
35.	☒	☐	☐	☐	- Required dimensions for parking space [**§ 275-8.C.(4)]**	
36.	☒	☐	☐	☐	- Required dimensions for aisle/access drive [**§ 275-8.C.(5)]**	
37.	☒	☐	☐	☐	- Required off-street loading spaces [**§ 275-8.C.(6)]**	
38.	☒	☐	☐	☐	- Required landscaping for the parking lot, including calculation shown the planting requirement is met [**§ 275-8.C.(7)]**	
39.	☒	☐	☐	☐	- Required screening for visual separation of incompatible uses [**§ 275-8.C.(8)]**	
40.	☒	☐	☐	☐	- Handicap accessibility provided in accordance with the latest ADA Regulations [**§ 275-8.C.(11)]**	
41.	☒	☐	☐	☐	- Stormwater Management Plan [**§ 275-9.A]**	
42.	☒	☐	☐	☐	- Traffic Study, if required [**§ 275-9.B]**	
43.	☐	☐	☐	☒	- Noise Study, if required [**§ 275-9.C]**	Noise Study not required

(Continue next page)

TOWN OF HUDSON
SITE PLAN REVIEW CHECKLIST

This checklist is intended to help the applicant and staff to ensure application completeness. Please refer to the regulations on the exact language of each requirement.

Key: Y=Yes P =Pending W=Waiver Request NA=Not Applicable (please explain)

	Y	P	W	NA		Notes
44.	☐	☐	☐	☒	- Fiscal Impact Study, if required [**§ 275-9.D]**	Fiscal Impact Study not required
45.	☒	☐	☐	☐	- Utility Study [**§ 275-9.E]**	Traffic impact study included
46.	☒	☐	☐	☐	- Copies of any proposed or existing easements, covenants, deed restrictions or any other similar document pertinent to the Site Plan [**§ 275-9.F]**	
47.	☒	☐	☐	☐	- A copy of all applicable Town, state, county or federal approvals or applications [**§ 275-9.G]**	
48.	☒	☐	☐	☐	- Environmental Impact Study, if required [**§ 275-9.I]**	Water impact study

(End of checklist)

Town of Hudson
12 School Street
Hudson, NH 03501

CONDITIONAL USE PERMIT APPLICATION: WETLAND CONSERVATION OVERLAY DISTRICT

Revised August 2024

Applications must be received at least 21 days prior to the Planning Board and Conservation Commission meetings at which the application will be heard. ***The following information must be filed to each board.***

CONSERVATION COMMISSION:

1. Ten (10) copies of the completed application, including the project narrative that demonstrates that the proposal meets the conditions of Article IX of the Zoning Ordinance.
2. Ten (10) reduced size plan sets *folded* (sheet size: 11" X 17"). Plans require the stamp of a licensed land surveyor and a certified wetlands scientist. At a minimum, plans must show topography and any wetland within fifty (50) feet of the proposed project.

***Complete Application material should be delivered to the Engineering Department (603)886-6008.**

PLANNING BOARD:

1. One (1) copy of the completed application, including the project narrative that demonstrates that the proposal meets the conditions of Article IX of the Zoning Ordinance.
2. One (1) full size plan set *folded* (sheet size: 22" x 34") and fifteen (15) reduced size plan sets *folded* (sheet size: 11" X 17"). Plans require the stamp of a licensed land surveyor and a certified wetlands scientist. At a minimum, plans must show topography and any wetland within fifty (50) feet of the proposed project.
3. A list of direct abutters and indirect abutters, and two (2) sets of mailing labels for abutter notifications.
4. All of the above application materials, including plans, shall also be submitted in electronic form as a PDF.
5. Check should be made payable to the *Town of Hudson*, and submitted to the Planning Department.

***Complete Application material & check should be delivered to the Planning Department (603)886-6008.**

Revised plans and other application materials must be filed with the Planning Department ***no later than 10:00A.M., Tuesday ONE WEEK prior to the scheduled meeting, as applicable. The purpose of these materials is hardcopy distribution to Planning Board members, not review.***
Any plan revisions that require staff review must be submitted no later than 10:00A.M., Tuesday TWO WEEKS prior to the scheduled Planning meeting. Depending on the complexity of changes, more time may be required for review. Please contact the Town Planner if you have any questions on this matter.

Note: Prior to filing an application, it is recommended to schedule an appointment with the Town Planner and Town Engineer.

CONDITIONAL USE PERMIT APPLICATION

Date of Application: 1/14/2026 Tax Map #: 176 Lot #: 41

Site Address: 207 Central St

Name of Project: The Meadows

Zoning District: Business and General General CUP#: _____
(For Town Use Only)

Z.B.A. Action: _____

PROPERTY OWNER:	DEVELOPER:
Name: Meadows Property LLC	
Address: 195 R Central St Hudson NH 03051	
Address:	
Telephone # 603-231-7344	
Email: derekmanagement@aol.com	
PROJECT ENGINEER or SURVEYOR:	**CERTIFIED WETLANDS SCIENTIST:**
Name: Horizons Engineering	Caitlin Banaszak
Address: 176 Newport Road Suite 8	
Address: New London, NH 03257	
Telephone # 603-877-0116	
Email: rhudock@horizonsengineering.com	

PURPOSE OF PLAN:

The purpose of this plan is to allow encroachments in the wetland buffer.

(For Town Use Only)

Routing Date: _____ Deadline Date: _____ Meeting Date: _____

_____ I have no comments _____ I have comments (attach to form)

_____ Title: _____ Date: _____
(Initials)

Department:

Zoning: ___ Engineering: ___ Assessor: ___ Police: ___Fire: ___ DPW: ___ Consultant: ___

SITE DATA SHEET

PLAN NAME: The Meadows

PLAN TYPE: (Site Plan, Subdivision, or other) Site Plan

LEGAL DESCRIPTION: MAP 176 LOT 41, 44, 45

DATE: 11/14/24

Location by Street: 207 Central St

Zoning: Business and General

Proposed Land Use: Mixed Use with retail and multi family

Existing Use: vacant land

Total Site Area: S.F.: 1,007,542.8 Acres: 23.13

Total Wetland Area (SF): 509,843 SF

Permanent Wetland Impact Area (SF): 3,015 SF

Permanent Wetland Buffer Impact Area (SF): 72,750 SF

Temporary Wetland Impact Area (SF): N/A

Temporary Wetland Buffer Impact Area (SF): 0 SF

Flood Zone Reference: FIRM Panel 33011C-0518D

Proposed Mitigation:

_____

_____

_____

(For Town Use Only)

Data Sheets Checked By: _____ Date: _____

WETLAND CONDITIONAL USE PERMIT CHECKLIST

Yes	No	NA	QUESTIONS/INFORMATION NEEDED	HCC Comments
NARRATIVE REPORT				
			Existing Conditions	
○	X	○	Has a DES Dredge and Fill Permit been issued for any part of this site? If yes, provide number, date, and description.	Future submission
○	X	○	Is there evidence of altered wetlands or surface waters on site?	
X	○	○	All prime and other wetlands in the vicinity, plus any wetlands/watersheds past the immediate vicinity affected by this project	
X	○	○	• Description of each wetland and associated values	
X	○	○	Wetland mapping results – Including the flagging date and technique plus the name, company and qualifications of the wetland scientist	
X	○	○	Was property surveyed? If yes, the date of survey. (Please attach the survey plan)	May & June 2024
			National Wetland Inventory	
X	○	○	• Vegetative cover types	
X	○	○	• Existence of vernal pools and associated habitat	
○	○	X	• Unique geological and cultural features	
○	○	X	• NH Natural Heritage inventory – For list of rare and endangered species, contact the NH Division of Forests and Lands (603)271-3623	Pending
○	○	X	• Wildlife and fauna species, including estimated number and locations (large projects)	
○	○	X	• Public or private wells located within the vicinity	
○	○	X	• Monitoring well(s) located on site	
X	○	○	• Current land use and zoning district	GD / BD - vacant
X	○	○	Photos of existing area (please use color photos)	
			Proposed Project Description	Project in conceptual phase, more information forthcoming with Site Plan submittal.
X	○	○	Entire project and associated activities	
○	X	○	Time table of project and anticipated phasing	Future submission
X	○	○	Land use	
X	○	○	Grading plan	
			Impact to Wetlands and/or Buffers	
○	X	○	• Depending on size and proposed impacts, a report from a biologist may be appropriate	
X	○	○	Removing, filling, dredging, or altering (Area square ft. and locations)	
○	X	○	Intercepting or diverging of ground or surface water (Locations and size)	
○	X	○	• Change in run-off characteristics	
X	○	○	Delineation of drainage area contributing to each discharge point	

Yes	*No*	*NA*	*Questions/Information Needed*	***HCC COMMENTS***
○	☒	○	Estimated water quality characteristics of runoff at each point of discharge for both pre- and post-development	Future submission
○	☒	○	Erosion control practices	Future submission
○	☒	○	• If using rip-rap, attach documentation explaining why other erosion control methods are not feasible	Future submission
○	☒	○	• How storm water runoff will be handled	Future submission
○	○	☒	If backyards or lots include a buffer area, buffer restriction wording shall be included in each deed (A physical marker may be requested to designate buffer boundaries at site)	
			Mitigation	
○	☒	○	Square footage of mitigation – wetland and upland areas	
○	☒	○	Wetland or upland plants identified to replace any losses	
○	☒	○	• Restoration plan for planting and vegetation	
○	○	☒	Conservation easements, including location and aesthetic, wildlife and vegetative values	
○	○	☒	• If easement is on or added to the site(s), a copy of the legal document shall be given to the HCC (HCC conservation easement markers may also be required along the easement)	

CONCEPTUAL SITE PLAN/DRAWING

☒	○	○	Locus map depicting project site and vicinity within approximately ½ mile and also on a larger scale	
☒	○	○	All prime and other wetlands in the vicinity	All wetlands shown are prime
☒	○	○	Wetland(s) impacted (identified as prime or other) and the wetland boundaries with 50', buffer areas highlighted in color	
☒	○	○	Assessor's sheet(s), lot(s), and property account number(s)	
☒	○	○	Existing and proposed structures	
☒	○	○	Square footage listed for temporary and permanent impact	
○	☒	○	Erosion control plan (Suggested: Biodegradable silt fences so area won't be disturbed again and no hay to avoid invasive species)	Future submission
☒	○	○	Topographical map with contours	
☒	○	○	Storm water treatment swales and basins highlighted in color if in buffer area	Future submission
○	☒	○	Conservation and utility easements	Future submission
☒	○	○	Grading plan	
○	☒	○	Culvert, arch, bridge - sizes, material, etc.	Future submission
☒	○	○	Vegetative cover types	
○	○	☒	Vernal pools	
☒	○	○	Existing and proposed stone walls, tree lines, and unusually large, rare or beautiful trees, and other notable site features	

QUESTIONS TO CONSIDER BEFORE SUBMITTING

- Will the increased discharge cause erosion and channelization?
- Is there potential for off-site flooding?
- Does the decreased infiltration in the drainage area cause vegetation stress due to reduced or increased ground water or surface water discharge into wetland?
- Will the nutrients in the runoff increase eutrophication potential in downstream water bodies?
- Do you own any adjacent parcels or easements for roadways across adjacent parcels which could be used for access to avoid a wetland crossing
- Does a wetland crossing occur where it will result in the least amount of alteration to a wetland?
- Is preservation of upland areas adjacent to the impacted wetland a priority?
- Can using an alternative crossing design such as a bridge, retaining wall, etc. decrease the width or area of wetland alteration?
- Does a proposed road crossing of a wetland exceed the minimum width acceptable to the Planning Board and can this be negotiated downwards?
- Have you established that no reasonable alternative access from a public way to an upland is possible?
- Can the parking lot spaces be decreased?
- Is the roadway designed in such a way that does not restrict the flow of water?
- Is additional information needed to assess water quality impacts due to runoff?
- Is there an increase in other pollutants (e.g., heavy metals, turbidity, coli form) from streets and parking lots?
- Is there a need to restrict or prohibit the use of pesticides and fertilizers?
- Is there a need to restrict the use of roadway salting?

Site plan is conceptual for this CUP submission. These points will be taken into consideration with the final design of the project.

CONDITIONAL USE PERMIT APPLICATION AUTHORIZATION

I hereby apply for *Conditional Use Permit* and acknowledge I will comply with all of the Ordinances of the Town of Hudson, New Hampshire State Laws, as well as any stipulations of the Planning Board, in development and construction of this project. I understand that if any of the items listed under the *Conditional Use Permit* specifications or application form are incomplete, the application will be considered rejected.

Pursuant to RSA 674:1-IV, the owner(s) by the filing of this application as indicated above, hereby given permission for any member of the Hudson Planning Board, the Hudson Conservation Commission, the Town Planner, the Town Engineer, and such agents or employees of the Town or other persons as the Planning Board may authorize, to enter upon the property which is the subject of this application at all reasonable times for the purpose of such examinations, surveys, tests and inspections as may be appropriate. The owner(s) release(s) any claim to or right he/she (they) may now or hereafter possess against any of the above individuals as a result of any examinations, surveys, tests and/or inspections conducted on his/her (their) property in connection with this applications.

Signature of Owner: Don Dumont Manager Date: 1/14/26

Print Name of Owner: Don Dumont

- If other than an individual, indicate name of organization and its principal owner, partners, or corporate officers.

Signature of Developer: _____ Date:_____

Print Name of Developer:_____

- The developer/individual in charge must have control over all project work and be available to the Code Enforcement Officer/Building Inspector during the construction phase of the project. The individual in charge of the project must notify the Code Enforcement Officer/Building Inspector within two (2) working days of any change.

SCHEDULE OF FEES

(Fee covers both Conservation Commission & Planning Board)

A. REVIEW FEES:

1. Conditional Use Permit
   $100 Flat Fee $ 100.00

LEGAL FEE:

The applicant shall be charged attorney costs billed to the Town for the Town's attorney review of any application plan set documents.

B. POSTAGE:

12 Direct Abutters Applicant, Professionals, etc. as required by RSA 676:4.1.d @$5.58 **(or Current Certified Mail Rate)** $ 72.96

2 Indirect Abutters (property owners within 200 feet) @$0.73 **(or Current First Class Rate)** $ 1.56

TOTAL $ 174.52

(For Town Use)

AMOUNT RECEIVED: $_____ DATE RECEIVED: _____

RECEIPT NO.: _____ RECEIVED BY: _____

verdantas

Attachment "A"

The Meadows Abutters – Town of Hudson Site Plan Application
Tax Map 176 Lots 41, 44, 45
Central Street, Hudson, NH

Map	Lot	Property Address	Owner	Mailing Address
176	24	204 Central St. Hudson, NH 03051	Keith Tessier	52 Greeley St. Hudson, NH 03051
176	25	208 Central St. Hudson, NH 03051	Hudson Veterinary R.E. LLC	208 Central St. Hudson, NH 03051
176	26	214 Central St. Hudson, NH 03051	Justine Mary Holdings	214 Central Street Hudson, NH 03051
176	27	218 Central St.	Justine Mary Holdings	214 Central Street Hudson, NH 03051
176	28 (Indirect)	222 Central St.	Mario Plante	9 Old Derry Road Hudson, NH 03051
176	29 (Indirect)	224 Central St.	Burger King Company, LLC	5707 Blue Lagoon Dr. Miami, FL 33126
176	42	203 Central St.	203 Central Street Realty, LLC	55 Hazelwood Road Hudson, NH 03051
176	43	201 Central St.	John Robichaud	201 Central Street Hudson, NH 03051
176	46	195 R Central St.	Don-Ray Property, LLC	195 R Central Street Hudson, NH 03051
176	47	195 Central St.	Derek Realty, LLC	195 R Central Street Hudson, NH 03051
176	48	193 Central St.	NSA Property Holdings, LLC	24901 Dana Point Dr. Ste 200 Dana Point, CA 92629
185	40	27 Kimball Hil Rd	Town of Hudson	12 School Street Hudson, NH 03051
Engineer, Surveyor		**Agent**	Verdantas, LLC	34 School Street Littleton, NH 03561 (603) 444-4111

Attachment "A"

176-024-000
TESSIER, KEITH R.
52 GREELEY ST.
HUDSON, NH 03051

176-025-000
HUDSON VETERINARY R.E. LLC
208 CENTRAL STREET
HUDSON, NH 03051

176-026-000
JUSTINE MARY HOLDINGS
214 CENTRAL STREET
HUDSON, NH 03051

176-027-000
JUSTINE MARY HOLDINGS
214 CENTRAL STREET
HUDSON, NH 03051

176-028-000
PLANTE, MARIO, TR
9 OLD DERRY ROAD
HUDSON, NH 03051

176-029-000
BURGER KING COMPANY, LLC
5707 BLUE LAGOON DR.
MIAMI, FL 33126

176-041-000
MEADOWS PROPERTY, LLC
195R CENTRAL ST.
HUDSON, NH 03051

176-042-000
203 CENTRAL STREET REALTY, LLC
55 HAZELWOOD ROAD
HUDSON, NH 03051

176-043-000
ROBICHAUD, JOHN E.
201 CENTRAL ST.
HUDSON, NH 03051

176-044-000
POSEY INVESTMENTS, LLC
195R CENTRAL STREET
HUDSON, NH 03051

176-045-000
POSEY INVESTMENTS LLC
195R CENTRAL ST.
HUDSON, NH 03051

176-046-000
DON-RAY PROPERTY LLC
195R CENTRAL ST.
HUDSON, NH 03051

176-047-000
DEREK REALTY, L.L.C
195R CENTRAL ST
HUDSON, NH 03051

176-048-000
NSA PROPERTY HOLDINGS, LLC
24901 DANA POINT DR. STE 200
DANA POINT, CA 92629

185-040-000
HUDSON, TOWN OF
12 SCHOOL ST.
HUDSON, NH 03051

E- Doc # 220003849 01/21/2022 09:50:22 AM
Book 9581 Page 338 Page 1 of 3
Mary Ann Crowell
Register of Deeds, Hillsborough County
LCHIP HIA657358 25.00
TRANS TAX HI142660 3,375.00

WARRANTY DEED

KNOW ALL MEN BY THESE PRESENTS, THAT **GPR Realty LLC**, a New Hampshire limited liability company, of 22 Abbott Street, Hudson, New Hampshire 03051, for consideration paid grants to **Meadows Property, LLC**, a New Hampshire limited liability company of 195 R Central, Hudson, New Hampshire 03051, with WARRANTY COVENANTS, the following:

A certain tract or parcel of land with the buildings thereon, if any, located at Central Street in the Town of Hudson, County of Hillsborough, and State of New Hampshire, bounded and described as follows:

Beginning on the southerly side of Central Street at the northwest corner of the premises at a point opposite a stone bound set in the street, at land formerly of Joseph Wollen, once of Byron Smith; thence southerly by said Byron Smith land and by land formerly of Perley B. Smith, now or formerly of John Wollen, three hundred (300) feet to a point at the southeast corner of said John Wollen land; thence westerly by said John Wollen's land about four hundred twenty (420) feet to an iron pin at land now or formerly of L. J. & R. M. Pelletier; thence South 29 degrees 30 feet East by said Pelletier's land and by land of R. and A. Pelletier about three hundred twenty-five (325) feet to a point at the northwest corner of land conveyed by Perley B. Smith to William J. Blakely by deed, dated September 14, 1948, recorded in the Hillsborough County Registry of Deeds, Vol. 1200, Page 281; thence North 57 degrees 30 feet East by said Blakely land seventy-five (75) feet to a point; thence South 29 degrees 30 feet East by said Blakely land two hundred eighty (280) feet to a drill hole in a stone in the wall at land formerly of Olivia B. Tonney, now or formerly of Lapham Lands, Inc. (Benson Wild Animal Farm); thence North 57 degrees 30 feet East by wall, fence, wall again, ditch and fence, a total distance of thirteen hundred fourteen and 3/10 (1314.3) feet to a stone bound (all by property of said Lapham Lands, Inc.) at land formerly of Hudson, Pelham and Salem Electric Railway Co., late of Nashua Street Railway, and still later of Massachusetts Northeastern Transportation Co., being now or formerly of said Lapham Lands, Inc.; thence northwesterly by the curve of said Railroad about five hundred ninety-five (595) feet to a point at land formerly of Daniel M. Greeley, later of John Wentworth, and now or formerly of Lapham Lands, Inc.; thence South 60 1/2 degrees West by said Greeley land to the brook; thence northerly by the brook to said Central Street; thence westerly by said Central Street about five hundred thirty-four (534) feet to the point of beginning.

Excepting therefrom a small parcel near the southeast corner thereof, being land formerly of James Emery now believed to be of said Lapham Lands, Inc. and together with a small parcel near the northeast corner of said former Railroad, within said Railroad land, which may have been included in the "Boulanger Lot", so-called, being a triangle never acquired by the Railroad.

Excepting a portion of the property conveyed to John Wollen by Deed dated December 29, 1952 and recorded in the Hillsborough County Registry of Deeds at Book 1344, Page 346.

Most of the boundaries of said premises are shown on a plan entitled "Plan of Land of the Meadows, Inc., L. J. & R. M. Pelletier, A. & M. Pelletier. Evangelia Douris, Perley B. Smith and part of Benson Wild Animal Farm, Central Street, Hudson. N.H. " Scale 1" = 100', dated March, 1955, by Ned Spaulding, C. E. recorded in said Registry as #1144 (C-26).

The above-described property is conveyed subject to the following:

1. Restrictions in Deed from Faith R. Bursey to GPR Realty, LLC, dated October 28, 2002 and recorded in the Hillsborough County Registry of Deeds at Book 6745, Page 1224.

2. Matters appearing on a plan entitled "Plan of Land of the Meadows, Inc., L. J. & R. M. Pelletier, A. & M. Pelletier. Evangelina Douris, Perley B. Smith and part of Benson Wild Animal Farm, Central Street, Hudson. N.H." Scale 1" = 100', dated March, 1955, by Ned Spaulding, C.E. recorded in said Registry as #1144 (C-26)

3. Right-of-way along the Northwesterly side thereof (course #3) granted by Perley B. Smith in his Deed to William J. Blakely, dated September 17, 1949, recorded in said Registry at Book 1200, Page 281, and reserved in said Deed from said Smith, et. al. to said Wollen, dated November 15, 1949, recorded in said Registry at Book 1241, Page 183

4. Consent Decree with the Unites States of America and State of New Hampshire recorded in the Hillsborough County Registry of Deeds at Book 5479, Page 925 and Page 890.

5. Subject to the restrictions contained in the Release Deed from the Town of Hudson to Faith R. Bursey recorded in the Hillsborough County Registry of Deeds at Book 6745, Page 1220.

6. Matters as shown on Plan #14141.

Meaning and intending to convey the same property as conveyed to the within Grantor by Deed from Faith R. Bursey recorded at the Hillsborough County Registry of Deeds at Book 6745, Page 1224.

THIS IS NOT HOMESTEAD PROPERTY.

DATED this 19 day of January, 2022.

GPR Realty, LLC

Steven Middlemiss, Manager

STATE OF FLORIDA
COUNTY OF LEE

The foregoing instrument was acknowledged before me this 19TH day of January, 2022 by Steven Middlemiss, Manager, GPR Realty, LLC, a New Hampshire limited liability company, on behalf of the limited liability company.

CHAND SWROOP KALIA
MY COMMISSION EXPIRES
NOVEMBER 6, 2023
#GG 352737
Bonded thru
Budget Notary Services
NOTARY PUBLIC, STATE OF FLORIDA

Notary Public/Justice of the Peace

Doc # 5006024 Feb 19, 2015 3:01 PM
Book 8729 Page 0399 Page 1 of 2
Register of Deeds, Hillsborough County
Pamela D Caughlin

C/H
HIA298794

Attachment "A"

GRANTEE

STATE OF NEW HAMPSHIRE
DEPARTMENT OF REVENUE ADMINISTRATION
REAL ESTATE TRANSFER TAX
***** Thousand 3 Hundred 74 Dollars
DATE 02/19/2015 HI062914 AMOUNT $ *****374.00
VOID IF ALTERED

WARRANTY DEED
(197 Central Street, Hudson, NH)

Konis Corporation, a New Hampshire corporation, with an address of 121 Central Street, Hudson, Hillsborough County, New Hampshire 03051, for consideration paid, grants to **Posey Investments, LLC**, a New Hampshire limited liability company, with an address of 195R Central Street, Hudson, Hillsborough County, New Hampshire 03051, with WARRANTY COVENANTS, the following described premises:

A certain tract or parcel of land situate in Hudson, in the County of Hillsborough and State of New Hampshire, on the southerly side of Central Street, bounded and described as follows:

Beginning at the northwest corner of the premises herein described and at a stone bound at land now or formerly of L. J. and R. M. Pelletier; thence

1. South 29 degrees, 30 minutes East by said Pelletier land 300 feet, more or less, to an iron pipe; thence

2. At right angles easterly by land now or formerly of the Meadows, Inc., to a point; thence

3. Northerly parallel with the first course of land now or formerly of the Meadows, Inc., about 100 feet to a point; thence

4. Westerly 300 feet, more or less, to a point; thence

5. Northerly parallel with the first course 200 feet to a stake at the highway known as Central Street; thence

6. Westerly by said Central Street 94.2 feet to a point on the easterly side of a 12 foot right-of-way and continuing in the same course across said right-of-way 12 feet to the point of beginning.

There is reserved to William Blakely the right to travel over a 12 foot right-of-way on the westerly side of the above-described premises.

Attachment "A"

The premises are conveyed subject to the following:

1. Consent Decree by and among the United States of America, Johns-Manville Sales Corporation et al dated April 18, 1990 and recorded at Book 5479, Page 890.

2. Notice and Covenants by Konis Corp. (in favor of the United States Environmental Protection Agency et al) dated October 19, 1993 and recorded at Book 5482, Page 1734.

3. Notice (pursuant to RSA 141-E:23) by Konis Corporation of near or even date recorded immediately prior hereto.

By its acceptance of this deed, Posey Investments, LLC agrees to comply with the terms, conditions and requirements of items 1 through 3 immediately listed above.

For title, reference is made to the deed of Stanley Alukonis and Sophie S. Alukonis to Konis Corporation dated August 7, 1995 and recorded at Book 5682, Page 1411 (the last tract described in said deed).

All recording references are to the Hillsborough County Registry of Deeds.

IN WITNESS WHEREOF, Konis Corporation has caused this instrument to be duly executed this 19th day of February, 2015.

Konis Corporation

Witness

By: David Alukonis, President

STATE OF NEW HAMPSHIRE
COUNTY OF HILLSBOROUGH

This instrument was acknowledged before me this 19th day of February, 2015, by David Alukonis, President of Konis Corporation, a New Hampshire corporation, on behalf of the corporation.

Notary Public
My Commission Expires:

J. BRADFORD WESTGATE - NOTARY PUBLIC - STATE OF NEW HAMPSHIRE - MY COMMISSION EXPIRES [illegible] 9, 2017

BOOK 1200 PAGE 281

281

Know All Men by These Presents

That I, Perley B. Smith, of Hudson, in the County of Hillsborough and State of New Hampshire

for and in consideration of the sum of One Dollar and other valuable consideration ~~Dollars~~ to me in hand before the delivery hereof well and truly paid by William J. Blakely, also of said Hudson, in the County of Hillsborough and State of New Hampshire

have remised, released, and forever quit-claimed, and by these presents, do remise, release, and forever quit-claim unto the said William J. Blakely

his heirs and assigns, forever,

A certain tract or parcel of land with the buildings thereon, situated about 1000 feet Southeasterly of Burnham Road and about 812 feet Southerly of Central Street, in said Hudson, being bounded and described as follows:

Beginning at a stake and stones at the Southerly corner of the premises herein conveyed, which is also the Southerly corner of the Perley B. Smith tract, at land formerly of H. C. Brown, now of Animal Farm; thence

1. N 57½° E along the center line of a stone fence by said Farm land, seventy-five (75) feet, more or less, to other land of the grantor; thence

2. N 23½° W along other land of the grantor, two hundred eighty (280) feet, more or less, to still other land of the grantor; thence,

3. Southwesterly, parallel to the first course, along land of the grantor, seventy-five (75) feet, more or less, to land formerly of A. W. Smith, now of Pelletier; thence,

4. Southeasterly, parallel to the second course, along said Pelletier land, two hundred eighty (280) feet, more or less to the point of beginning.

Being a portion of a tract shown as Perley B. Smith land on a Plan of land of Perley B. Smith, resurveyed by H. F. Tupper, May 1945, and being a portion of the premises conveyed to the Grantor by deed of Herbert N. Smith et al., dated November 17, 1916 and recorded in the Hillsborough County Registry of Deeds, Volume 746, page 368.

ALSO GRANTING HEREWITH, from Central Street along the Southwesterly line of said Perley B. Smith land to the premises conveyed herein, a right of way, twelve (12) feet wide.

TO HAVE AND TO HOLD the aforesaid premises, with all the privileges and appurtenances thereunto belonging to him the said Grantee, his heirs and assigns forever. And I do hereby covenant with said Grantee that I will, warrant and defend the said premises to him the said Grantee, his heirs and assigns, against the lawful claims and demands of any person or persons claiming, by, from or under me. And I, Clara E. Smith, wife of said Perley B. Smith, in consideration aforesaid, do hereby release my right of dower in the premises conveyed herein.

And we and each of us do hereby release, discharge, and waive all such rights of exemption from attachment and levy or sale on execution, and such other rights whatsoever in said premises and in each and every part thereof, as our Family Homestead, as are reserved or secured to us, or either of us, by the Statute of the State of New Hampshire, passed July 4, 1851, entitled "An Act to exempt the Homesteads of Families from attachment and levy or sale on execution," or by any other statute or statutes of said State.

IN WITNESS WHEREOF we have hereunto set our hands and seals this seventeenth day of September in the year of our Lord, one thousand nine hundred and forty-eight.

Signed, sealed and delivered in presence of us:

Raymond Rawding

Perley B Smith
Clara E Smith

DOCUMENTARY 50 CENTS 50 DOCUMENTARY 5 CENTS 5

BOOK 1200 PAGE 282

282

State of New Hampshire

Attachment "A"

Hillsborough SS. Sept. 17 A. D., 19 48.

The above named Perley B. Smith and Clara E. Smith acknowledged the above instrument to be their act and deed.

Before me, Alphonse J. Rardoni Justice of the Peace.

HILLSBOROUGH SS: Received and recorded 9-45 A. M., September 20, 1948

Examined by Donat Corriveau Register.

Know All Men by These Presents

That We, Harry Williams and Ula Williams, husband and wife, of Mason, in the County of Hillsborough and State of New Hampshire

in consideration of One thousand Dollars to us paid by the MASON VILLAGE SAVINGS BANK, a corporation duly established under the laws of the United States of America and doing business at Greenville in the County of Hillsborough and State of New Hampshire, the receipt whereof we do hereby acknowledge, have given, granted, bargained, sold and conveyed, and do for our selves and our heirs, by these presents, give, grant, bargain, sell and convey unto the said MASON VILLAGE SAVINGS BANK, its successors and assigns, forever

A certain tract of land situate in said Mason with the buildings thereon, about one half mile north of the center of the town, originally known as the Kinsworthy place containing four acres more or less, and bounded and described as follows:

Beginning at an iron pin in the ground at the highway leading from Pratt to Mason Centre Village, thence easterly on the wall, along land of the grantors, to an iron pin in the ground at land of Arthur Williams, thence southerly on the wall along land of said Williams to an iron pin in the ground at the Glenn Road, so called, thence southwesterly along said Glenn Road to an iron pin in the ground, thence westerly to an iron pin in the ground at the first mentioned highway, thence northerly along said highway to the place of beginning.

These permises conveyed subject to a prior mortgage held by Mason Village Savings. dated May 3, 1948, and recorded in the Hillsborough County Registry of Deeds Vol. 1187 Page 17.

TO HAVE AND TO HOLD the afore-described premises, with all the privileges and appurtenances thereunto belonging to the said grantee, its successors and assigns, to its use and behoof forever. And we do covenant with said grantee, its successors and assigns; that we are lawfully seized in fee of the afore-described premises; that they are free from all incumbrances; except as herein stated that we have good right to sell and convey the same to the said grantee in manner aforesaid; and that we and our heirs will warrant and defend the same premises to the said grantee, its successors and assigns, forever, against the lawful claims and demands of all persons.

And I

in consideration aforesaid, do hereby relinquish right of Dower Curtesy in the before-mentioned premises.

And we, and each of us, hereby release our several rights of Homestead in said premises, under and by virtue of any law of this state.

The debt or demand secured by this mortgage having been paid in full, said mortgage is hereby discharged. Date Apr. 21, 1954. Mason Village Savings Bank Greenville, N.H. J. W. Routhier Treasurer

Hillsboro' ss. Rec'd recorded 8-30 A.M. Apr. 27, 1954 by Examined by Donat Corriveau Register

BOOK 124 PAGE 183

State of New Hampshire
County of Hillsborough

On this, the 21st day of November, 1949, before me, Wilfred A. Laflamme, the undersigned officer, personally appeared Parmela Fleury Gelinas and Romeo A. Gelinas, husband and wife, known to me to be the persons whose names are subscribed to the foregoing instrument and who acknowledged that they executed the same for the purposes therein contained.

In witness whereof, I hereunto set my hand and official seal.

My commission expires:
March 11, 1952.

Wilfred A. Laflamme
Notary Public

NOTARY PUBLIC * WILFRED A. LAFLAMME * NEW HAMPSHIRE

HILLSBOROUGH SS: Received and recorded 8-00 A. M., November 28, 1949

Examined by Donat Brisson Register

Know all Men by these Presents

That We, Perley B. Smith and Clara E. Smith, both of Hudson, County of Hillsborough and State of New Hampshire

for and in consideration of the sum of One Dollar and other Valuable Consideration to us in hand before the delivery hereof, well and truly paid by

John Wollen, also of said Hudson, County and State

the receipt whereof we do hereby acknowledge, have granted, bargained, and sold, and by these presents do give, grant, bargain, sell, alien, enfeoff, convey and confirm unto the said

John Wollen, his heirs and assigns, forever,

All our right, title and interest in and to the following tract of land situated Southerly of Central Street in said Hudson, bounded and described as follows: Beginning at a point three hundred (300) feet Southeasterly of the Southerly line of Central Street at land of Pelletier, formerly land of A. W. Smith, said point being the Southerly corner of land herein retained by the grantors; thence
(1) Northeasterly 705 feet by said Perley B. and Clara Smith land and Wollen land (1109-319) to meadow land formerly of the C. C. Parker Estate (604-262); thence
(2) North 24° East 294 feet by said Parker estate land to the Southerly corner of said Parker estate land and at land formerly of John Gillis, now of the grantors; thence
(3) North 62½° East 45 rods (742.5 feet) along said Parker estate land to land at one time of James Emery, now of Benson's Animal Farm; thence
(4) Southerly 497 feet by said Benson land to a point at land formerly of Herbert C. Brown, now of said Animal Farm; thence
(5) North 57½° East 1227½ feet by said Brown land to land of Bill Blakely; thence
(6) North 23½° West 280 feet by said Blakely land to a point; thence
(7) North 57½° East 75 feet to land formerly of A. W. Smith; thence
(8) North 23½° West 511 feet along A. W. Smith land to point of beginning.

Reserving a twelve (12) foot right of way as it now runs near or along the last mentioned bound for the use of Bill Blakely.

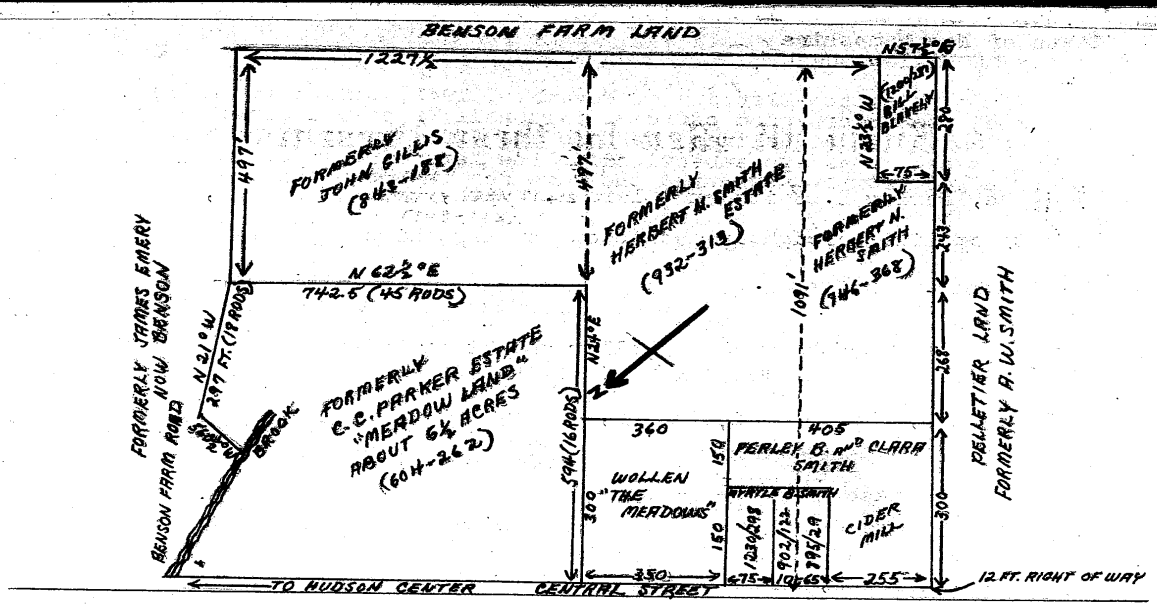
Granting herewith a twelve (12) foot right of way from Central St. along the Westerly side of the three hundred foot deep parcel not conveyed by the grantors, as shown on the sketch which follows herein.

Meaning and intending to convey our interest remaining in and to land formerly of John Gillis (843-188), Herbert N. Smith estate (932-313), and Herbert N. Smith (746-368) as hereintofore described, but not conveying and so retaining for ourselves a parcel of land with the cider mill thereon, 405 feet at back, 255 feet on Central Street and 300 feet deep, except where the Myrtle B. Smith land (895-29, 902-122, 1230-298) lies.

All courses and distances are more or less. The parenthesized references are to Volume and Page in the Hillsborough County Registry of Deeds.

BOOK 1241 PAGE 184

184



THE ABOVE ROUGH SKETCH IS DRAWN IN THE ABSTRACT FROM FRAGMENTARY CLEWS IN OLD DEEDS. IT IS MERELY (1) TO SHOW RELATIONSHIP OF ADJOINING LAND (2) TO SERVE AS A GUIDE IN FOLLOWING THE DESCRIPTION, AND (3) TO SHOW THE INTENT OF THE PARTIES HERETO.

TO HAVE AND TO HOLD the afore-described premises, with all the privileges and appurtenances to the same belonging to him the said Grantee and his heirs and assigns and their only proper use and benefit forever. And we the said Grantors for ourselves and our heirs, executors and administrators, do hereby covenant, grant and agree to and with the said Grantee and his heirs and assigns, that until the delivery hereof we are the lawful owners of the said premises, and we are seized and possessed thereof in our own right in fee simple: and have full power and lawful authority to grant, and convey the same in manner aforesaid; that the said premises are free and clear from all and every incumbrance whatsoever; except

and that we will and our heirs, executors, and administrators shall warrant and defend the same to the said Grantee and his heirs and assigns against the lawful claims and demands of any person or persons whomsoever.

And ~~I~~ we are husband and wife. ~~of said~~ ~~in consideration aforesaid, do hereby relinquish~~ ~~right of~~ ~~in the before~~ ~~mentioned premises~~

And we and each of us do hereby release, discharge, and waive all such rights of exemption from attachment and levy or sale on execution, and such other rights whatsoever in said premises and in each and every part thereof, as our Family Homestead, as are reserved or secured to us, or either of us, by Chapter 214 of the Public Laws of New Hampshire, or by any amendments thereto.

IN WITNESS WHEREOF we have hereunto set our hands and seals this fifteenth day of November, in the year of our Lord, one thousand nine hundred and forty-nine.

Signed, sealed and delivered in the presence of

Alphonse J. Randonis
A. Both.

Perley B Smith
Clara E Smith

STATE OF NEW HAMPSHIRE.

HILLSBOROUGH , SS. November 15, A. D. 1949

Personally appeared the above named Perley B. Smith and Clara E. Smith

and acknowledged the above instrument to be their voluntary act and deed. Before me,

Alphonse J. Randonis *Justice of the Peace.*

HILLSBOROUGH SS: Received and recorded 1-40 P. M., November 28, 1949

Examined by Israel Carriveau Register

Attachment "A"

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF NEW HAMPSHIRE

UNITED STATES OF AMERICA, Plaintiff, and STATE OF NEW HAMPSHIRE, Plaintiff-Intervenor, v. ARTHUR BURSEY, JR.; THOMAS BAKER; STANLEY ALUKONIS and SOPHIE ALUKONIS; RICHARD LANNAN and BRENDA LANNAN; JAMES CHOATE and JOYCE CHOATE; and JOSEPH LEMIEUX and MARIE LEMIEUX, Defendants.	CIVIL ACTION NO. 81-299-D

CONSENT DECREE

WHEREAS, the United States of America, on behalf of the Administrator of the United States Environmental Protection Agency ("Plaintiff" or "United States") filed a complaint against Johns-Manville Sales Corporation, Arthur Bursey, Jr., Thomas Baker, Stanley Alukonis and Sophie Alukonis, Richard Lannan and Brenda Lannan, James Choate and Joyce Choate, and Joseph Lemieux and Marie Lemieux pursuant to Section 106(a) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. § 9606(a), and Section 7003 of the Resource Conservation and Recovery Act, as amended ("RCRA"), 42 U.S.C. § 6973, seeking injunctive relief regarding the cleanup of hazardous asbestos materials at six sites in Hudson, New Hampshire;

243

WHEREAS, the State of New Hampshire ("State") filed a complaint in intervention against Johns-Manville Sales Corporation; Anthony Matarazzo; Arthur Bursey, Jr.; Thomas Baker; Stanley Alukonis; James Choate; and Joseph Lemieux pursuant to the New Hampshire Hazardous Waste Management Act, RSA Ch. 147-A and common law nuisance, seeking civil penalties for violation of RSA 147-A and injunctive relief to remedy an imminent and substantial hazard to the public and the environment posed by the disposal of asbestos wastes at the six sites;

WHEREAS, by warranty deed dated August 22, 1983 Stanley and Sophie Alukonis transferred to Konis Corp., a New Hampshire corporation, a certain parcel of land on the southerly side of Central Street in Hudson, New Hampshire (described more fully in the land records for Hillsborough County at BK-3066,PG 956, Tract I) which parcel is the subject of the allegations in the complaints of the United States and the State of New Hampshire regarding Stanley and Sophie Alukonis;

WHEREAS, the United States has incurred response costs in responding to the release or threat of release of asbestos materials at or in connection with the six sites in Hudson, New Hampshire;

WHEREAS, the United States, the State of New Hampshire and the Defendants recognize, and the court by entering this Decree finds that settlement of this case is practicable and in the public interest;

WHEREAS, the United States, the State and the Defendants agree that settlement of this case without further litigation and without the admission or adjudication of any issue of fact or law is the most appropriate means of resolving this action;

NOW, THEREFORE, it is ORDERED, ADJUDGED AND DECREED as follows:

I. JURISDICTION

A. The complaints of the United States and the State of New Hampshire are hereby amended to include as a party defendant the Konis Corporation. This Court has jurisdiction over the subject matter and the parties to this action. The parties agree not to contest the validity of the Consent Decree in any subsequent proceeding to implement or enforce its terms.

II. PARTIES BOUND

A. This Consent Decree shall apply to and be binding upon the United States, the State and the Defendants, their heirs, agents, and assigns including, with respect to Defendants Choates and Alukonis, any and all successors-in-title and any and all grantees of any interest in their respective properties which are included within the Sites. Each signatory to this Consent Decree represents that he or she is fully authorized to enter into the terms and conditions of this Consent Decree.

III. DEFINITIONS

A. "Sites" shall mean the following parcels of property:

1) property located at 195 Central Street, Hudson, New Hampshire, and transferred to Thomas Baker by warranty deed at BK-2802, PGE-314 in the land records for Hillsborough County;

2) property located at 197 Central Street, Hudson, New Hampshire and transferred by warranty deed at BK-2203, PGE-167 in the land records for Hillsborough County to Stanley and Sophie Alukonis;

3) property located at 4 Virginia Drive, Hudson, New Hampshire, and transferred by warranty deed at BK-3066, PGE-764 in the land records for Hillsborough County to James and Joyce Choate; and

4) property located at 5 Virginia Drive, Hudson, New Hampshire, and transferred by warranty deed at BK-2586, PGE-508 in the land records of Hillsborough County to Joseph and Marie Lemieux.

B. "Response Costs" shall mean all expenses incurred by the United States in connection with the release or threatened release of asbestos or asbestos-contaminated soil at the Sites as of the effective date of this Consent Decree.

C. "Hazardous Substance Superfund" shall mean the Hazardous Substance Superfund as established by Section 517 of the Superfund Revenue Act of 1986, 26 U.S.C. § 9507.

D. "Landowner Defendants" shall mean Defendants James and Joyce Choate, and Defendant Konis Corp.

E. "Past Landowner Defendants" shall mean Defendant Thomas Baker, Defendants Richard and Brenda Lannan, Defendants Joseph and Marie Lemieux, and Defendants Stanley and Sophie Alukonis.

F. Terms not otherwise defined in this section shall have their ordinary meaning unless defined in 42 U.S.C. § 9601, in which case the definition in § 9601 shall control.

IV. ACCESS

A. The Landowner Defendants hereby grant to the United States and the State of New Hampshire, their representatives, contractors, agents, and all other persons performing response actions under their oversight, a right of access to their respective properties which are included within the Sites for the purposes of monitoring performance of response actions at such property.

B. Nothing in this Consent Decree shall in any manner restrict or limit the nature or scope of response actions which may be taken by the United States in exercising its authority under Section 104 of CERCLA, 42 U.S.C. § 9604 or any other law, or the State in exercising its authority under RSA 147-A, RSA 147-B or any other law. In the event that response actions occur

subsequent to the entry of this Consent Decree, the Landowner Defendants recognize that the implementation of such response actions at their respective properties may interfere with the use of their property. The Landowner Defendants agree to cooperate with EPA and the State in the implementation of response actions at their respective properties, and further agree not to interfere with such response actions.

V. INSTITUTIONAL CONTROLS

A. The obligations of the Landowner Defendants with respect to compliance with the Institutional Controls set forth in Appendix II and all other requirements of this Consent Decree shall run with the land and shall be binding upon the Landowner Defendants, any and all successors-in-interest, and any and all grantees of any interest in their respective properties such as easements, rights of entry, etc. ("Grantees"). The Landowner Defendants, any and all successors-in-interest, and any and all Grantees shall take all actions necessary to comply with all applicable Institutional Controls. The Landowner Defendants, any and all successors-in-interest, and any and all Grantees, and their employees, agents or assigns shall be prohibited from causing or permitting the disturbance or modification of any cap or cover at the Sites or of any ground-covering structure or feature currently existing or to be constructed at the Sites, except in accordance with the mechanisms and procedures of the Institutional Controls, or otherwise in accordance with this Consent Decree. The Notice of Institutional Controls and

Institutional Controls are set forth in Appendices I and II, respectively, of this Consent Decree.

B. Within ten (10) days after the entry of this Consent Decree, the Landowner Defendants shall record at the registry of deeds for the County of Hillsborough a Notice of Institutional Controls and related covenants in the form set forth in Appendix I, and the Institutional Controls set forth in Appendix II. Within seven (7) days of such filing, a copy of the filing shall be sent to the State of New Hampshire and the United States at the following addresses:

New Hampshire Department of Environmental Services
Waste Management Division
6 Hazen Drive
Concord, New Hampshire 03301
Attention: Asbestos Waste Site Monitoring

Chief
Environmental Enforcement Section
Land and Natural Resources Division
United States Department of Justice
Post Office Box 7611
Ben Franklin Station
Washington, D.C. 20044

C. All reports and notices required by the Institutional Controls shall be sent to the State of New Hampshire at the following address:

New Hampshire Department of Environmental Services
Waste Management Division
6 Hazen Drive
Concord, New Hampshire 03301
Attention: Asbestos Waste Site Monitoring

VI. DUE CARE

A. Nothing in this Consent Decree shall be construed to relieve the Landowner Defendants of their duty to exercise due care with respect to asbestos materials and/or asbestos contaminated soils at the Sites or their duty to comply with all applicable laws and regulations.

VII. CIVIL PENALTIES

A. In addition to any other remedies, sanctions or penalties that may be available to the United States, the Landowner Defendants may be subject , pursuant to Sections 109 and 122(l) of CERCLA, 42 U.S.C. §§ 9609 and 9622(l), to a civil penalty of up to $25,000 per day for each failure or refusal to comply with any term or condition of this Consent Decree.

VIII. COVENANT NOT TO SUE

A. Subject to the reservation of rights in Section IX of this Consent Decree, the United States covenants not to sue or take any other civil or administrative action against the Defendants for any and all civil liability under Section 107(a) of CERCLA, 42 U.S.C. § 9607(a), Section 106(a) of CERCLA, 42 U.S.C. § 9606(a), and Section 7003 of RCRA, 42 U.S.C. § 6973, for "Covered Matters". Covered Matters shall include and are limited to claims for the reimbursement of response costs incurred as a result of response actions taken by or on behalf of the United States at, or with regard to the Sites, prior to the date of entry of this Consent Decree, and for injunctive relief arising

from releases and threatened releases of asbestos and asbestos contaminated materials at the Sites prior to the entry of this Consent Decree. This covenant-not-to-sue shall take effect with regard to the Landowner Defendants upon the timely filing of the Notice of Institutional Controls and the Institutional Controls as set forth in Section V of this Consent Decree, or the entry of this Consent Decree whichever is later. This covenant-not-to-sue shall take effect with regard to Past Landowner Defendants upon entry of this Consent Decree by the Court.

B. In consideration of the United States' covenant-not-sue in this Section, the Defendants agree not to assert any claims or causes of action against the United States, its contractors or its employees, or the Hazardous Substance Superfund arising out of expenses incurred or payments made pursuant to this Consent Decree, or to seek any other costs or damages, regarding any response actions undertaken at the Sites by the United States, or the State, or their contractors.

C. Subject to the reservation of rights in Section IX of this Consent Decree, the State of New Hampshire covenants not to sue or take any other civil or administrative action against the Defendants for "Covered Matters" under this Consent Decree. Covered Matters shall include and be limited to any and all civil liability for reimbursement of response costs pursuant to Section 107(a) of CERCLA, 42 U.S.C. § 9607(a), New Hampshire RSA 147-A:13, RSA 149-A:17, III or New Hampshire RSA 149-B:10. This

covenant-not-to-sue shall take effect with regard to the Landowner Defendants upon the entry of this Consent Decree by the Court, or the timely filing of the Notice of Institutional Controls set forth in Section V of this Consent Decree, whichever is later. This covenant-not-to-sue shall take effect with regard to the Past Landowner Defendants upon the entry of this Consent Decree by the Court. This covenant-not-to-sue extends only to the Defendants, and not to any other person.

D. In consideration of the State's covenant-not-to-sue in Paragraph C of this Section, the Defendants agree not to assert any claim or cause of action against the State, its contractors, agents or employees, or against the New Hampshire Hazardous Waste Cleanup Fund, arising out of expenses incurred or payments made pursuant to this Consent Decree, or to seek any other costs or damages regarding any response actions taken at the Sites by the United States, the State, or their contractors, employees or agents.

IX. RESERVATION OF RIGHTS

A. Nothing in this Consent Decree is intended to be nor shall it be construed as a release or covenant not to sue for any claim or cause of action, administrative or judicial, at law or in equity, which the United States, including EPA, or the State of New Hampshire, may have against any Defendant for:

a) failure or refusal to provide access, or comply with Institutional Controls, if applicable to such

Defendant, or otherwise comply with any and all terms and conditions of this Consent Decree;

b) any liability resulting from the release or threatened release of any hazardous substance, pollutant, or contaminant other than asbestos by any Defendant at the Sites;

c) any liability resulting from the introduction of any asbestos materials by any Defendant at the Sites after the entry of this Consent Decree;

d) any liability resulting from the release or threatened release of any asbestos materials at or from the Sites occurring subsequent to the entry of this Consent Decree;

e) any liability arising for releases not attributable to the Sites;

f) any liability for the disposal, treatment, or handling of any hazardous substance, pollutant or contaminant, taken from the Sites;

g) any and all criminal liability; or

h) any matters not expressly included in the covenant-not-to-sue set forth in Section VIII of this Consent Decree, including without limitation, any liability for damages to natural resources.

B. Nothing in this Consent Decree is intended as a release from or covenant-not-to-sue for any claim or cause of

action, administrative or judicial, civil or criminal, past or future, in law or in equity, which the United States, including EPA, or the State may have against any person, firm, corporation or other entity not a signatory to this Consent Decree.

C. The United States, the State and Defendants agree that the actions undertaken by the Defendants in accordance with this Consent Decree do not constitute an admission of any liability by any Defendant.

X. CONTRIBUTION PROTECTION

A. Subject to the reservation of rights in Section IX of this Consent Decree, the United States agrees that by entering into and carrying out the terms of this Consent Decree, the Defendants will have resolved their liability to the United States for "Covered Matters", as defined in the covenant-not-to-sue in Section VIII, within the meaning of Section 113(f)(2) of CERCLA, 42 U.S.C. § 9613(f)(2).

B. Subject to the reservation of rights in Section IX of this Consent Decree, the State agrees that by entering into and carrying out the terms of this Consent Decree, Defendants will have resolved their liability to the State for "Covered Matters", as defined in the covenant-not-sue in Section VIII.

XI. PUBLIC COMMENT

A. This Consent Decree shall be lodged with the Court for a period of not less than thirty (30) days for public notice and comment in accordance with 28 C.F.R. § 50.7. The United

States or the State may withdraw or withhold its consent to this Consent Decree if comments received disclose facts or considerations which indicate that this Consent Decree is inappropriate, improper or inadequate. Defendants consent to entry of this Consent Decree without further notice.

XII. EFFECTIVE DATE

A. The effective date of this Consent Decree shall be the date of entry by this Court.

XIII. TERMINATION

A. This decree shall terminate with regard to Defendants Baker, Richard and Brenda Lannan, Stanley and Sophie Alukonis, and Joseph and Marie Lemieux upon entry of this decree, except that Sections VIII, IX and X shall not terminate.

B. This decree shall terminate with regard to Defendants Konis Corp., and James and Joyce Choate upon motion of the United States and the State. The United States and the State shall file a motion to terminate this decree after each of the defendants named above has notified the United States and the State that such defendant has filed the Notice of Institutional Controls, and the Institutional Controls as set forth in Section V of this Consent Decree. Upon order of this Court, this decree shall terminate, except that Sections II, IV, V, VI, VII, VIII, IX and X shall not terminate.

FOR THE UNITED STATES OF AMERICA :

Date: April 18, 1990

Julie Belaga
Regional Administrator
U.S. Environmental Protection Agency - Region I
J.F. Kennedy Federal Bldg.
Room 2203
Boston, Massachusetts 02203

Date: May 31, 1990

Cynthia S. Huber
Land and Natural Resources Division
Environmental Enforcement Section
U.S. Department of Justice
Washington, D.C. 20530

Date: 7-11-90

Richard B. Stewart
Assistant Attorney General
U.S. Department of Justice
Land and Natural Resources Division
Washington, D.C. 20530

Date: April 18, 1990

Assistant Regional Counsel
U.S. EPA - Region I
J.F. Kennedy Federal Building
Boston, Ma. 02203

FOR THE STATE OF NEW HAMPSHIRE:

Date: 10/3/89

Ellen F. McCauley
Attorney

Ellen F. McCauley

(for) John P. Arnold
Attorney General
State of New Hampshire
State House Annex
Concord, N. H. 03301

Date: _____

By: _____

Print Name

FOR DEFENDANT BAKER :

Date: _____

By: _____

Print Name

FOR DEFENDANT STANLEY ALUKONIS :

Date: _____

By: _____

Print Name

FOR DEFENDANT SOPHIE ALUKONIS :

Date: _____

By: _____

Print Name

FOR DEFENDANT RICHARD LANNAN :

Date: _____

By: _____

Print Name

FOR THE STATE OF NEW HAMPSHIRE:

Date: _____

John P. Arnold
Attorney General
State of New Hampshire
State House Annex
Concord, N. H. 03301

Date: _____

By: _____

Print Name

FOR DEFENDANT BAKER :

Date: August 17, 1989

By: _____, HIS ATTORNEY UNDER APPARENT AUTHORITY

DAVID K. PINSONNEAULT
Print Name

FOR DEFENDANT STANLEY ALUKONIS :

Date: _____

By: _____

Print Name

FOR DEFENDANT SOPHIE ALUKONIS :

Date: _____

By: _____

Print Name

FOR DEFENDANT RICHARD LANNAN :

Date: _____

By: _____

Print Name

FOR THE STATE OF NEW HAMPSHIRE:

Date: _____

_____
John P. Arnold
Attorney General
State of New Hampshire
State House Annex
Concord, N. H. 03301

Date: _____

By: _____

Print Name

FOR DEFENDANT BAKER :

Date: _____

By: _____

Print Name

FOR DEFENDANT STANLEY ALUKONIS :

Date: 15 Sept 89

By: Stanley Alukonis
STANLEY ALUKONIS

Print Name

FOR DEFENDANT SOPHIE ALUKONIS :

Date: 15 Sept. 89

By: Sophie Alukonis
Sophie Alukonis

Print Name

FOR DEFENDANT RICHARD LANNAN :

Date: _____

By: _____

Print Name

FOR THE STATE OF NEW HAMPSHIRE:

Date: _____

_____
John P. Arnold
Attorney General
State of New Hampshire
State House Annex
Concord, N. H. 03301

Date: _____

By: _____

_____
Print Name

FOR DEFENDANT BAKER :

Date: _____

By: _____

_____
Print Name

FOR DEFENDANT STANLEY ALUKONIS :

Date: _____

By: _____

_____
Print Name

FOR DEFENDANT SOPHIE ALUKONIS :

Date: _____

By: _____

_____
Print Name

FOR DEFENDANT RICHARD LANNAN :

Date: 9-2-89

By: Richard Q Lannan

Richard Q Lannan
Print Name

FOR DEFENDANT BRENDA LANNAN :

Date: 9-2-89

By: Brenda Lannan
Brenda Lannan
Print Name

FOR DEFENDANT KONIS CORP. :

Date: _____

By: _____
Print Name

Date: _____

By: _____
Print Name

FOR DEFENDANT JAMES CHOATE :

Date: _____

By: _____
Print Name

FOR DEFENDANT JOYCE CHOATE :

Date: _____

By: _____
Print Name

FOR DEFENDANT JOSEPH LEMIEUX :

Date: _____

By: _____
Print Name

FOR DEFENDANT BRENDA LANNAN :

Date: _____ By: _____

Print Name

FOR DEFENDANT KONIS CORP. :

Date: 15 Sept 89 By: _____

DAVID J. DZUKONIS
Print Name

Date: _____ By: _____

Print Name

FOR DEFENDANT JAMES CHOATE :

Date: _____ By: _____

Print Name

FOR DEFENDANT JOYCE CHOATE :

Date: _____ By: _____

Print Name

FOR DEFENDANT JOSEPH LEMIEUX :

Date: _____ By: _____

Print Name

FOR DEFENDANT BRENDA LANNAN :

Date: _____

By: _____

Print Name

FOR DEFENDANT KONIS CORP. :

Date: _____

By: _____

Print Name

Date: _____

By: _____

Print Name

FOR DEFENDANT JAMES CHOATE :

Date: 9/5/89

By: Edward C. Dial Jr.

Edward C. Dial Jr.

Print Name

FOR DEFENDANT JOYCE CHOATE :

Date: 9/5/89

By: Edward C. Dial

Edward C. Dial, Jr.

Print Name

FOR DEFENDANT JOSEPH LEMIEUX :

Date: _____

By: _____

Print Name

FOR DEFENDANT BRENDA LANNAN :

Date: _____ By: _____

Print Name

FOR DEFENDANT KONIS CORP. :

Date: _____ By: _____

Print Name

Date: _____ By: _____

Print Name

FOR DEFENDANT JAMES CHOATE :

Date: _____ By: _____

Print Name

FOR DEFENDANT JOYCE CHOATE :

Date: _____ By: _____

Print Name

FOR DEFENDANT JOSEPH LEMIEUX :

Date: 9/25/89 By: _____

THOMAS J LEONARD Atty

Print Name

C. 81-299-D
Consent Decree

FOR DEFENDANT MARIE LEMIEUX :

Date: 9/25/89

By: [signature]
THOMAS J LEONARD, ATTY
Print Name

Dated and entered on the 31 day of October, 1989.

Steve Pevre
United States District Judge
District of New Hampshire

cc: all parties

Attachment "A"

APPENDIX I

NOTICE AND COVENANTS

GRANTOR:

GRANTEES: UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, AND ITS SUCCESSOR AGENCIES ("EPA"), 401 M Street, S.W. Washington, D.C. 20460

THE STATE OF NEW HAMPSHIRE, BY AND THROUGH THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES AND ITS SUCCESSOR AGENCIES ("STATE"), 6 Hazen Drive, Concord, New Hampshire 03301

PROPERTY ADDRESS:

PROPERTY DESCRIPTION:

DATE:

I. NOTICE OF OBLIGATION TO PROVIDE ACCESS TO PROPERTY.

Grantor hereby gives notice that, in consideration of the obligations and covenants contained in a consent decree entered in the United States District Court for the District of New Hampshire in the case entitled United States and State of New Hampshire v. Johns-Manville Sales Corp.; Anthony Matarazzo and Rose Matarazzo; Arthur Bursey, Jr.; Thomas Baker, Stanley Alukonis and Sophie Alukonis, Richard Lannan and Brenda Lannan; James Choate and Joyce Choate; and Joseph Lemieux and Marie Lemieux, Civil Action No. 81-299-D (the "Consent Decree"), a copy of which has been recorded at the Hillsborough County Registry of Deeds at Book _____, Page _____, Grantor has granted access to the property described above (the "Property"), as more particularly described below.

*** (INCLUDE A LEGAL DESCRIPTION OF THE PROPERTY CONSISTENT WITH NH RSA-478:4-a *****

A. The United States, the State of New Hampshire, and their representatives and contractors shall have access to the Property for the purposes of inspecting and monitoring the Property as specified by the Consent Decree and institutional controls which are set forth in Appendix II of the Consent Decree and are attached hereto ("Institutional Controls").

B. In addition, the United States, the State of New Hampshire, and their contractors and representatives shall have access to the Property for the purposes of conducting any activity authorized by the Comprehensive Environmental Response, Compensation and Liability Act, as amended, 42 U.S.C. § 9601,et seq., (CERCLA), the Resource Conservation and Recovery Act, as amended, 42 U.S.C. § 6901 et seq., (RCRA) or RSA 147-A, as applicable, including but not limited to:

(1) Monitoring all activities required by the Consent Decree;

(2) Verifying any data or information submitted to EPA or the State of New Hampshire relating to the Property or activities occurring on the Property;

(3) Conducting investigations relating to contamination at or near the Property;

(4) Obtaining samples; and

(5) Inspecting and copying records, contracts or other documents required to assess compliance with the Consent Decree.

II. NOTICE OF FURTHER RESTRICTIONS.

Notice is hereby given that, in accordance with the terms of the Consent Decree, the Property is subject to covenants restricting the use of the Property and imposing affirmative obligations on holders of interests in the Property as set forth in the Institutional Controls.

The obligations to implement and comply with the Institutional Controls that are imposed under the Consent Decree shall run with the land and require certain actions and impose obligations on future owners, lessees, and successors-in-title and/or possessors of the property. The Institutional Controls among other things, prohibit or regulate any disturbance of the material covering the asbestos materials existing on the Property and therefore prohibit or regulate, among other things, the construction of buildings, roads, and utilities on areas determined to contain asbestos materials and may prohibit, limit, or regulate the excavation or removal of soils containing asbestos materials.

III. COVENANTS.

Grantor hereby covenants, and the Property is hereby subject to the requirement, that Grantor and his successors and assigns shall:

(1) record such documents which embody the Institutional Controls as set forth in Appendix II of the Consent Decree;

(2) comply with all provisions of the Institutional Controls that are recorded pursuant to Section III(1) above;

(3) provide access to the Property as required under Section IV of the Consent Decree and Section I above.

IV. EFFECT OF COVENANTS, RESTRICTIONS, AND OTHER RIGHTS REFERRED TO OR CONTAINED HEREIN.

The Covenants, Restrictions, and other rights referred to or contained herein run with the land and except as otherwise provided, shall be binding on the Grantor and all persons to whom any interest in the Property, or any portion thereof, is transferred, other than a person who acquires such interest solely to protect a security interest in the Property and who has not exercised any right to enter or possess the Property, and

shall expressly be enforceable by the United States and the State of New Hampshire, or by either one acting singly.

For Grantor's title, see deed of [] dated [], 19[], registered as Document No. [] with the Registry of Deeds for the County of Hillsborough.

Executed as a sealed instrument this _____day of _____, 1989.

GRANTOR:

_____ _____

_____

THE NAME OF EACH PERSON SIGNING THIS DOCUMENT MUST BE PRINTED OR TYPEWRITTEN UNDER THAT PERSON'S SIGNATURE

APPENDIX II

INSTITUTIONAL CONTROLS

I. Activities Which May Disturb Asbestos Cover

A. Any activity which may disturb or disrupt the integrity of the material covering the on-site asbestos is prohibited, unless the proposed activity has received the prior written approval of the New Hampshire Department of Environmental Services, Waste Management Division ("State"). The property owner shall comply with the procedures set forth in paragraphs 1 through 4 of this section whenever activities which may disturb the asbestos cover are contemplated.

1. Major Disturbance Activities

a. Major disturbance activities shall consist of any activity with potential to disturb the integrity of all, or a significant portion of, the asbestos cover. Major disturbance activities shall include, without limitation, the following activities when performed in or near on-site asbestos disposal areas: building construction; modification of existing buildings or structures; digging or excavation activities; septic leach field installation or repairs; any installation, repair or removal of subsurface tanks or structures; construction, expansion, repair or development of public or private access ways such as roads, driveways, parking lots or pedestrian walkways; or the installation, repair or removal of water, sewer, or subsurface public utility service connections.

b. At least 90 days prior to the proposed starting date for any major disturbance activity, the property owner shall

submit to the State a Request for Approval to undertake the proposed activity. The Request for Approval shall include, at a minimum:

i. A description of the proposed activity, including a site plan by a certified professional engineer describing the location of the proposed activity in relation to the property boundaries and to the perimeters of the asbestos cover and asbestos deposit(s) on site;

ii. A site safety and contingency plan which will ensure compliance with all applicable state and federal environmental and public health requirements for activities involving asbestos, and which includes provisions to prevent or minimize disturbance of asbestos materials, to prevent asbestos emissions during the proposed activities, to protect workers and bystanders from asbestos exposure, to implement emergency procedures whenever necessary or appropriate, and to ensure that the asbestos cover is replaced and maintained upon completion of the proposed activities; and

iii. A schedule for the implementation and completion of the proposed activity.

2. Minor Disturbance Activities

a. Minor disturbance activities shall consist of those activities which, in the judgment of the State, may disturb the integrity of a portion of the asbestos cover but, because of their limited depth and area, are likely to result in only minimal disturbance of the cover materials and the underlying

asbestos. Minor disturbance activities may include the installation of fence or mail box posts, garden activities such as flower or vegetable gardening, or the planting of shrubbery and trees.

b. In appropriate circumstances the State may grant prior approval for the seasonal repetition of a proposed minor disturbance activity, such as gardening, and may exempt the property owner from requesting approval each time the activity is to be repeated.

c. At least 30 days prior to the proposed starting date for any minor disturbance activity, the property owner shall submit to the State a Request for Approval to undertake the proposed activity. The Request for Approval shall include, at a minimum:

i. A description of the proposed activity, including its size and location in relation to the property boundaries and to the perimeter of the asbestos cover and asbestos deposit(s) on site;

ii. A general work and safety plan which will ensure compliance with all applicable state and federal environmental and public health requirements, and which includes provisions to prevent or minimize waste disturbance, to prevent asbestos emissions during the proposed activity, to protect workers and bystanders from asbestos exposure, and to ensure that the asbestos cover is replaced and maintained upon completion of the proposed activities;

iii. A schedule for the implementation and completion the proposed activity; and

iv. A statement as to whether the property owner is seeking approval for the seasonal repetition of the proposed activity and, if so, certifying that future repetition of the activity will be confined to the same area, depth, location, and sequence of activities as are proposed in the initial Request for Approval.

3. Approval Of Request

a. The State shall have sole authority to determine whether any proposed activity constitutes a major or minor disturbance activity.

b. Within 120 days after the receipt of any Request for Approval for a proposed disturbance activity pursuant to this Section, the State shall respond by issuing a decision to approve, modify or deny the request with a brief explanation of the reasons therefor.

4. Access

a. At all times during the implementation of any disturbance activity, the property owner shall provide access to the State and its representatives, and to the United States Environmental Protection Agency (EPA) and its representatives, for purposes of project oversight, monitoring of asbestos emissions, or for any other purpose related to the State's or EPA's statutory or regulatory authority or to these Institutional Controls.

II. Site Monitoring and Maintenance

A. Maintenance

The property owner is responsible for implementing routine maintenance activities to ensure that the integrity and effectiveness of the cover material remains stable. These activities shall include:

1. Maintenance of grass cover by regular grass cutting, fertilization and, if necessary, grass seeding;

2. Control of shrubbery or brush growth by regular cutting. In the event that cutting of shrubbery is necessary, roots shall be left undisturbed and the property owner shall not attempt to remove subsurface stump or root material without the prior approval of the State;

3. Control of erosion on sites with stream banks and/or steep grades, including the maintenance of grass or ground cover on banks or grades, and ensuring that runoff and drainage patterns on and around the asbestos cover remain undisturbed; and

4. Ensuring that survey bench marks located on the cover of the property are protected and maintained.

B. Monitoring, Reporting and Access

1. The property owner shall promptly report to the State any indication that the asbestos cover is being disturbed by natural processes or other factors, such as settling, subsidence, or erosion.

2. The property owner shall provide access to the

Site at all reasonable times to the State and its representatives, and to EPA and its representatives, for purposes of monitoring or maintaining the Site, or for undertaking any other activity related to the State's or EPA's statutory or regulatory authority, to these Institutional Controls, or to the terms of the Consent Decree involving the property.

3. The property owner shall report to the State any transfer, subdivision, or change in ownership or interest in regard to all, or any part of, the Site, within 30 days after the effective dates of said transfer.

III. Notice to Subsequent Owners

a. The property owner shall provide notice to all subsequent property owners or successors in interest regarding these Institutional Controls in accordance with the provisions set forth in Appendix I to the Consent Decree settling the claims of the State and the United States in the action captioned United States, et al. v. Arthur Bursey, et al. Civil Action 81-299-D (D.N.H.).

IV. Emergency Procedures

a. In the event of any sudden and unplanned disturbance of the asbestos cover, or in the event of any imminent or existing release of asbestos material at the Site, the landowner shall immediately notify the following State agencies and town emergency response personnel:

New Hampshire Department of Environmental Services
Waste Management Division
6 Hazen Drive
Concord, New Hampshire 03301
(603) 271-2900

New Hampshire Emergency Response
(800) 852-3792

B. The property owner agrees to comply with the directives of the State in regard to emergency procedures, site evaluation, or other measures necessary or appropriate to protect public health of the environment.

IV. Miscellaneous Provisions

A. Compliance With Applicable Law

The Institutional Controls set forth herein are intended to supplement, and not to supersede, other state and federal requirements which may also be applicable to activities involving the on-site asbestos.

B. Submittal of Information to the State

All requests, documents, or information submitted to the State pursuant to these Institutional Controls shall be delivered by hand, or sent by first class mail, postage prepaid, to:

New Hampshire Department of Environmental Services
Waste Management Division
6 Hazen Drive
Concord, New Hampshire 03301
Attention: Asbestos Waste Site Monitoring

C. Submittal of Information to EPA

All requests, documents or information submitted to EPA pursuant to these Institutional Controls shall be delivered by hand, or set by first class mail, postage prepaid, to:

United States Environmental Protection Agency
Region I
John F. Kennedy Federal Building
Boston, Massachusetts 02203
Attention: Asbestos Coordinator

356279 93 OCT 19 AM 11:21 Attachment "A"

NOTICE AND COVENANTS

GRANTOR: KONIS CORP.
121 Central Street
Hudson, New Hampshire 03051

GRANTEES: UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, AND ITS SUCCESSOR AGENCIES ("EPA"), 401 M Street, S.W. Washington, D.C. 20460

THE STATE OF NEW HAMPSHIRE, BY AND THROUGH THE NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES AND ITS SUCCESSOR AGENCIES ("STATE"), 6 Hazen Drive, Concord, New Hampshire 03301

PROPERTY ADDRESS: 197 Central Street, Hudson, New Hampshire 03051

PROPERTY DESCRIPTION: A portion of that property conveyed to the Grantor by Warranty Deed dated August 22, 1983 and recorded at the Hillsborough County Registry of Deeds, Book 3066, Page 0956 (the "Property").

I. NOTICE OF OBLIGATION TO PROVIDE ACCESS TO PROPERTY.

Grantor hereby gives notice that, in consideration of the obligations and covenants contained in a consent decree entered in the United States District Court for the District of New Hampshire in the case entitled United States and State of New Hampshire v. Johns-Manville Sales Corp.; Anthony Matarazzo and Rose Matarazo; Arthur Bursey, Jr.; Thomas Baker, Stanley Alukonis and Sophie Alukonis, Richard Lannan and Brenda Lannan; James Choate and Joyce Choate; and Joseph Lemieux and Marie Lemieux, Civil Action No. 81-299-D between the Grantees and the predecessors in title of the Grantor to the Property, Stanley Alukonis and Sophie Alukonis (the "Consent Decree"), and for other good and valuable consideration, a copy of which has been recorded at the Hillsborough County Registry of Deeds, Grantor has granted access to the Property as more particularly described below:

TRACT I:

A certain tract or parcel of land situate in Hudson, in the County of Hillsborough and State of New Hampshire, on the southerly side of Central Street, bounded and described as follows:

Beginning at the Northwest corner of the premises herein described and at a stone bound at land now or formerly of L.J. and R.M. Pelletier; thence

BK5482PG1734

(1) South 29 degrees, 30 minutes East by said Pelletier land 300 feet, more or less to an iron pipe; thence

(2) At right angles Easterly by land of the Meadows, Inc., to a point; thence

(3) Northerly parallel with the first course by land of the Meadows, Inc., about 100 feet to land of the Grantee; thence

(4) Westerly by land of the Grantee 300 feet more or less to a point; thence

(5) Northerly parallel with the first course 200 feet to a stake at the highway known as Central Street; thence

(6) Westerly by said Central Street 94.2 feet to a point on the Easterly side of a 12 foot right-of-way; and continuing in the same course across said right-of-way 12 feet to the point of beginning.

There is reserved to William Blakeley the right to travel over a 12 foot right-of-way on the Westerly side of the above described premises.

Being the same premises conveyed to Stanley Alukonis et ux by deed of John Wollen dated April 3, 1972 and recorded in Hillsborough County Registry of Deeds in Book 2203, Page 167.

A. The United States, the State of New Hampshire, and their representatives and contractors shall have access to the Property for the purposes of inspecting and monitoring the Property as specified by the institutional controls which are attached hereto and made a part hereof ("Institutional Controls").

B. In addition, the United States, the State of New Hampshire, and their contractors and representatives shall have access to the Property for the purposes of conducting any activity authorized by the Comprehensive Environmental Response, Compensation and Liability Act, as amended, 42 U.S.C. § 9601, et seq., (CERCLA), the Resource Conservation and Recovery Act, as amended, 42 U.S.C. § 6901 et seq., (RCRA) or RSA 147-A, as applicable, including but not limited to:

(1) Monitoring all activities required by the Institutional Controls;

(2) Verifying any data or information submitted to EPA or the State of New Hampshire relating to the Property or activities occurring on the Property;

(3) Conducting investigations relating to contamination at or near the Property;

(4) Obtaining samples; and

(5) Inspecting and copying records, contracts or other documents required to assess compliance with the Institutional Controls.

II. NOTICE OF FURTHER RESTRICTIONS.

Notice is hereby given that the Property is subject to covenants restricting the use of the Property and imposing affirmative obligations on holders of interests in the Property as set forth in the Institutional Controls.

The obligations to implement and comply with the Institutional Controls that are hereby imposed shall run with the land and require certain actions and impose obligations on future owners, lessees, and successors-in-title and/or possessors of the Property. The Institutional Controls among other things, prohibit or regulate any disturbance of the material covering the asbestos materials existing on the Property and therefore prohibit or regulate, among other things, the construction of buildings, roads, and utilities on areas determined to contain asbestos materials and may prohibit, limit, or regulate the excavation or removal of soils containing asbestos materials.

III. COVENANTS.

Grantor hereby covenants, and the Property is hereby subject to the requirement, that Grantor and its successors and assigns shall:

(1) record such documents which embody the Institutional Controls as set forth in the Appendix to this Notice and Covenant;

(2) comply with all provisions of the Institutional Controls that are recorded pursuant to Section III(1) above;

(3) provide access to the Property as required under Section I above.

IV. EFFECT OF COVENANTS, RESTRICTIONS, AND OTHER RIGHTS REFERRED TO OR CONTAINED HEREIN.

The Covenants, Restrictions, and other rights referred to or contained herein run with the land and except as otherwise provided, shall be binding on the Grantor and all persons to whom any interest in the Property, or any portion thereof, is transferred, other than a person who acquires such interest solely to protect a security interest in the Property and who has not exercised any right to enter or possess the Property,

and shall expressly be enforceable by the United States and the State of New Hampshire, or by either one acting singly.

Executed this 19th day of October, 1993.

GRANTOR: KONIS CORP.

Konis Corp.
By: DAVID J. ALUKONIS

STATE OF NEW HAMPSHIRE
COUNTY OF Hillsborough

On this 19th day of October, 1993, before me, the undersigned officer, personally appeared David J. Alukonis, who acknowledged himself/herself to be the President of Konis Corp., and that he/she, as such President, being authorized so to do, executed the foregoing instrument for the purposes therein contained, by signing the name of the corporation by himself as President.

In witness whereof I hereunto set my hand and official seal.

Kathleen M. Sousa
Justice of the Peace/~~Notary Public~~
My commission expires:
KATHLEEN M. SOUSA, Justice of the Peace
My Commission Expires March 17, 1998

APPENDIX

INSTITUTIONAL CONTROLS

I. Activities Which May Disturb Asbestos Cover

A. Any activity which may disturb or disrupt the integrity of the material covering the on-site asbestos is prohibited, unless the proposed activity has received the prior written approval of the New Hampshire Department of Environmental Services, Waste Management Division ("State"). The property owner shall comply with the procedures set forth in paragraphs 1 through 4 of this section whenever activities which may disturb the asbestos cover are contemplated.

1. Major Disturbance Activities

a. Major disturbance activities shall consist of any activity with potential to disturb the integrity of all, or a significant portion of, the asbestos cover. Major disturbance activities shall include, without limitation, the following activities when performed in or near on-site asbestos disposal areas: building construction; modification of existing buildings or structures; digging or excavation activities; septic leach field installation or repairs; any installation, repair or removal of subsurface tanks or structures; construction, expansion, repair or development of public or private access ways such as roads, driveways, parking lots or pedestrian walkways; or the installation, repair or removal of water, sewer, or subsurface public utility service connections.

b. At least 90 days prior to the proposed starting date for any major disturbance activity, the property owner shall

submit to the State a Request for Approval to undertake the proposed activity. The Request for Approval shall include, at a minimum:

i. A description of the proposed activity, including a site plan by a certified professional engineer describing the location of the proposed activity in relation to the property boundaries and to the perimeters of the asbestos cover and asbestos deposit(s) on site;

ii. A site safety and contingency plan which will ensure compliance with all applicable state and federal environmental and public health requirements for activities involving asbestos, and which includes provisions to prevent or minimize disturbance of asbestos materials, to prevent asbestos emissions during the proposed activities, to protect workers and bystanders from asbestos exposure, to implement emergency procedures whenever necessary or appropriate, and to ensure that the asbestos cover is replaced and maintained upon completion of the proposed activities; and

iii. A schedule for the implementation and completion of the proposed activity.

2. Minor Disturbance Activities

a. Minor disturbance activities shall consist of those activities which, in the judgment of the State, may disturb the integrity of a portion of the asbestos cover but, because of their limited depth and area, are likely to result in only minimal disturbance of the cover materials and the underlying

asbestos. Minor disturbance activities may include the installation of fence or mail box posts, garden activities such as flower or vegetable gardening, or the planting of shrubbery and trees.

b. In appropriate circumstances the State may grant prior approval for the seasonal repetition of a proposed minor disturbance activity, such as gardening, and may exempt the property owner from requesting approval each time the activity is to be repeated.

c. At least 30 days prior to the proposed starting date for any minor disturbance activity, the property owner shall submit to the State a Request for Approval to undertake the proposed activity. The Request for Approval shall include, at a minimum:

i. A description of the proposed activity, including its size and location in relation to the property boundaries and to the perimeter of the asbestos cover and asbestos deposit(s) on site;

ii. A general work and safety plan which will ensure compliance with all applicable state and federal environmental and public health requirements, and which includes provisions to prevent or minimize waste disturbance, to prevent asbestos emissions during the proposed activity, to protect workers and bystanders from asbestos exposure, and to ensure that the asbestos cover is replaced and maintained upon completion of the proposed activities;

iii. A schedule for the implementation and completion the proposed activity; and

iv. A statement as to whether the property owner is seeking approval for the seasonal repetition of the proposed activity and, if so, certifying that future repetition of the activity will be confined to the same area, depth, location, and sequence of activities as are proposed in the initial Request for Approval.

3. Approval Of Request

a. The State shall have sole authority to determine whether any proposed activity constitutes a major or minor disturbance activity.

b. Within 120 days after the receipt of any Request for Approval for a proposed disturbance activity pursuant to this Section, the State shall respond by issuing a decision to approve, modify or deny the request with a brief explanation of the reasons therefor.

4. Access

a. At all times during the implementation of any disturbance activity, the property owner shall provide access to the State and its representatives, and to the United States Environmental Protection Agency (EPA) and its representatives, for purposes of project oversight, monitoring of asbestos emissions, or for any other purpose related to the State's or EPA's statutory or regulatory authority or to these Institutional Controls.

II. Site Monitoring and Maintenance

A. Maintenance

The property owner is responsible for implementing routine maintenance activities to ensure that the integrity and effectiveness of the cover material remains stable. These activities shall include:

1. Maintenance of grass cover by regular grass cutting, fertilization and, if necessary, grass seeding;

2. Control of shrubbery or brush growth by regular cutting. In the event that cutting of shrubbery is necessary, roots shall be left undisturbed and the property owner shall not attempt to remove subsurface stump or root material without the prior approval of the State;

3. Control of erosion on sites with stream banks and/or steep grades, including the maintenance of grass or ground cover on banks or grades, and ensuring that runoff and drainage patterns on and around the asbestos cover remain undisturbed; and

4. Ensuring that survey bench marks located on the cover of the property are protected and maintained.

B. Monitoring, Reporting and Access

1. The property owner shall promptly report to the State any indication that the asbestos cover is being disturbed by natural processes or other factors, such as settling, subsidence, or erosion.

2. The property owner shall provide access to the

Site at all reasonable times to the State and its representatives, and to EPA and its representatives, for purposes of monitoring or maintaining the Site, or for undertaking any other activity related to the State's or EPA's statutory or regulatory authority, to these Institutional Controls, or to the terms of the Consent Decree involving the property.

3. The property owner shall report to the State any transfer, subdivision, or change in ownership or interest in regard to all, or any part of, the Site, within 30 days after the effective dates of said transfer.

III. Notice to Subsequent Owners

a. The property owner shall provide notice to all subsequent property owners or successors in interest regarding these Institutional Controls in accordance with the provisions set forth in Appendix I to the Consent Decree settling the claims of the State and the United States in the action captioned United States, et al. v. Arthur Bursey, et al. Civil Action 81-299-D (D.N.H.).

IV. Emergency Procedures

a. In the event of any sudden and unplanned disturbance of the asbestos cover, or in the event of any imminent or existing release of asbestos material at the Site, the landowner shall immediately notify the following State agencies and town emergency response personnel:

New Hampshire Department of Environmental Services
Waste Management Division
6 Hazen Drive
Concord, New Hampshire 03301
(603) 271-2900

New Hampshire Emergency Response
(800) 852-3792

B. The property owner agrees to comply with the directives of the State in regard to emergency procedures, site evaluation, or other measures necessary or appropriate to protect public health of the environment.

IV. Miscellaneous Provisions

A. Compliance With Applicable Law

The Institutional Controls set forth herein are intended to supplement, and not to supersede, other state and federal requirements which may also be applicable to activities involving the on-site asbestos.

B. Submittal of Information to the State

All requests, documents, or information submitted to the State pursuant to these Institutional Controls shall be delivered by hand, or sent by first class mail, postage prepaid, to:

New Hampshire Department of Environmental Services
Waste Management Division
6 Hazen Drive
Concord, New Hampshire 03301
Attention: Asbestos Waste Site Monitoring

C. Submittal of Information to EPA

All requests, documents or information submitted to EPA pursuant to these Institutional Controls shall be delivered by hand, or set by first class mail, postage prepaid, to:

United States Environmental Protection Agency
Region I
John F. Kennedy Federal Building
Boston, Massachusetts 02203
Attention: Asbestos Coordinator

Doc # 3057826 Oct 18, 2013 2:11 PM
Book 8613 Page 2663 Page 1 of 2
Register of Deeds, Hillsborough County
Pamela O Coughlin
C/H
HIA250787

Attachment "A"

John Washbury
99 Pine Hill Road #660
Nashua NH 03063-2133

WARRANTY DEED

KNOW ALL MEN BY THESE PRESENTS, that **BDK Developers**, a New Hampshire General Partnership, of 195R Central Street, Town of Hudson, County of Hillsborough, State of New Hampshire 03051, grants to **Posey Investments LLC**, a New Hampshire limited liability company, having a mailing address of 195R Central Street, Town of Hudson, County of Hillsborough, State of New Hampshire 03051,

WITH WARRANTY COVENANTS,

A certain tract or parcel of land with buildings therein, situated about 1000 feet southeasterly of Burnham Road and about 812 feet of southerly of Central Street, in the Town of Hudson, County of Hillsborough, State of New Hampshire bounded and described as follows:

Beginning at a stake and stones at the southerly corner of the premises herein conveyed which is also the southerly corner of premises formerly of Perley B. Smith, at land formerly of H.C. Brown, now Animal Farm; thence

1. N 57 ½ E along the center line of a stone fence by said Animal Farm land, seventy-five (75) feet, more or less to other land of Wollen, formerly of Perley B. Smith; thence
2. N 23 ½ W along land of Perley B. Smith, two hundred eighty (280) feet, more or less to still other land, formerly of Perley B. Smith; thence
3. Southwesterly. parallel to the first course, along land formerly of Perley B. Smith, seventy-five (75) feet, more or less, to land formerly of A.W. Smith, later of Pelletier; thence
4. Southeasterly. parallel to the second course, along said land formerly of Pelletier, two hundred eighty (280) feet, more or less, to the point of beginning.

Also granting herewith, from Central Street, so-called, along the southwesterly line of said land, formerly of Perley B. Smith, now Wollen, to the premises conveyed herein a right of way, twelve (12) feet wide.

Attachment "A"

Meaning and intending to convey the same premises conveyed by Earl A. Damon to the within Grantor, dated June 17, 1996 and recorded in the Hillsborough County Registry of Deeds at Book 5727, Page 1077 on June 19, 1996.

This transfer is exempt from transfer tax stamps under NH RSA Chapter 78-B:2, IX as a non-contractual transfer.

Executed this 18th day of October, 2013.

BDK Developers

Donald R. Dumont, Authorized Partner

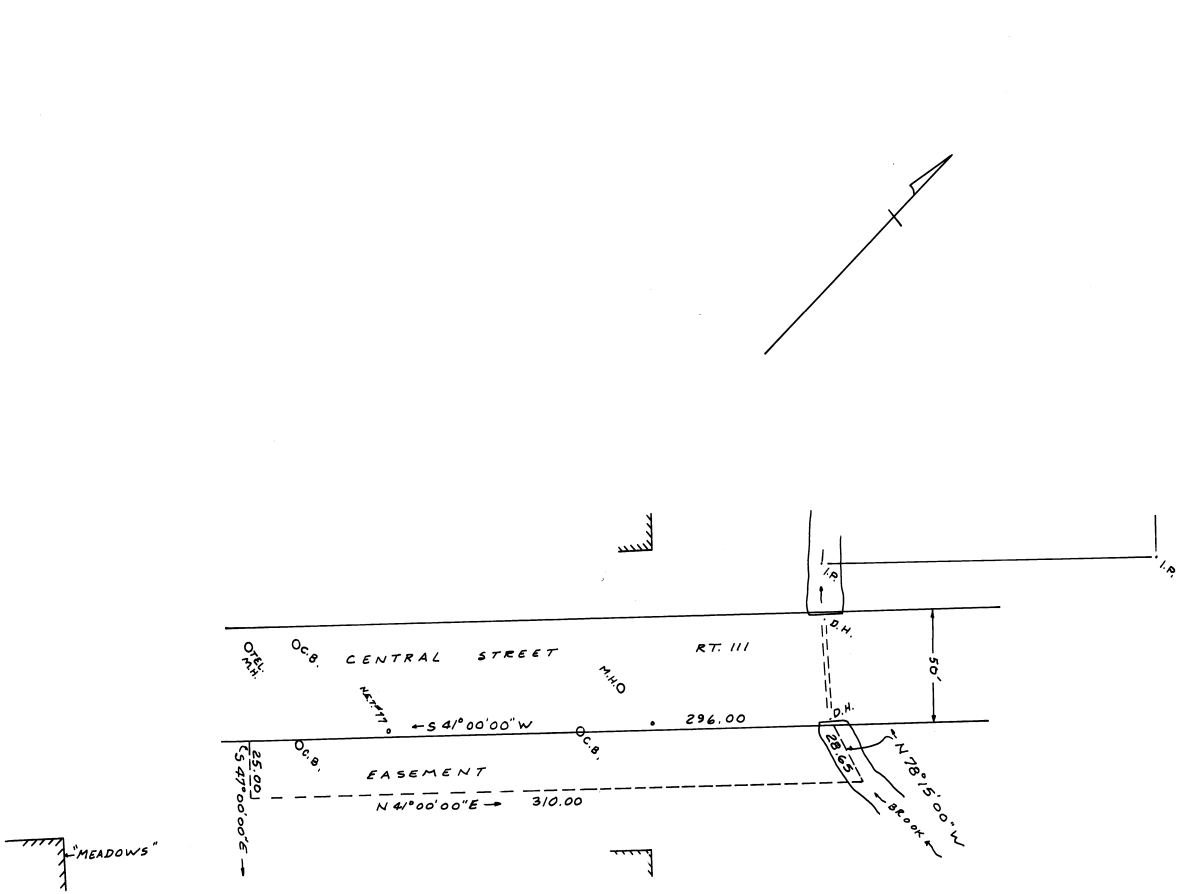
STATE OF NEW HAMPSHIRE
COUNTY OF HILLSBOROUGH

The foregoing instrument was acknowledged before me this 18th day of October, 2013, by Donald R. Dumont, Authorized Partner of **BDK Developers** a New Hampshire General Partnership, on behalf of same.

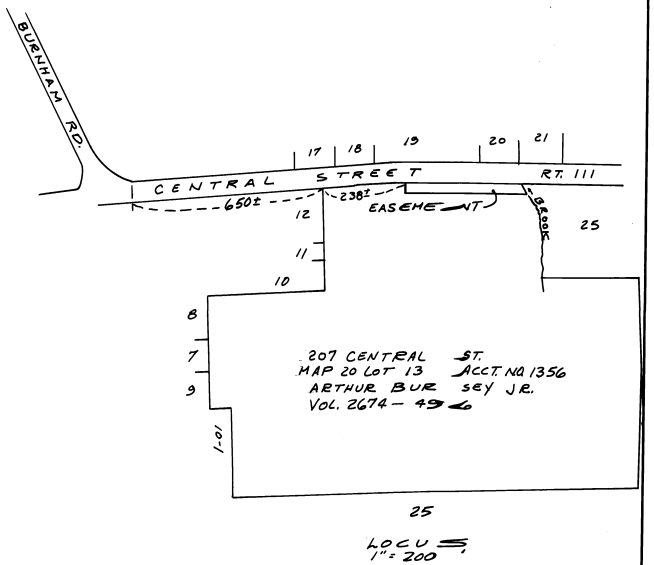
Jessica Rankin, Notary Public
My Commission expires April 15, 2015

JESSICA RANKIN, Notary Public
My Commission Expires April 14, 2015

Attachment "A"



AREA OF EASEMENT = 7,575 #



SUBDIVISION APPROVAL NOT REQUIRED
HUDSON PLANNING BOARD

Bernard Moore — CHAIRMAN — June 10 1981 DATE

Paul L. Whitten — SECRETARY — 6-10-81 DATE

REF PLAN H.C.R.D. # 1144

PLAN OF A 25' WIDE DRAINAGE EASEMENT ON LAND OF ARTHUR BURSEY JR. - 207 CENTRAL ST.

FIELD SURVEY MAY 1981 F.G. SPRAGUE, R. L. S.

SCALE: 1" = 30' DATE: MAY

COMMONWEALTH OF MASSACHUSETTS — FRANK G. SPRAGUE No. 99 — REGISTERED LAND SURVEYOR

Sheet 1 of 1 Sheets

Plan#14141
dwr# 67

#14141 DRG7

Attachment "B"

176 Newport Road
New London, NH 03257
+1 (603) 877-0116

January 14, 2026

Town of Hudson Planning Board
12 School Street
Hudson, NH 03051

Dear Board Members and Abutting Property Owners,

Meadow Properties, LLC is seeking a Site Plan Review from the Town of Hudson for a proposed residential and mixed-use development located at 207 Central Street, Tax Map 176, Lots 41, 44, and 45 in Hudson, NH. The project includes three residential apartment buildings within the south-central portion of the property, and one mixed-use building located on the northern portion along Central Street. Two driveway connections to Central Street are proposed, one for the mixed-used building and the other for the residential area. Adequate parking is provided as outlined in the eclosed application material. It should be noted that the project also includes two proposed "food truck areas," each being at the two proposed driveway connections along Central Street.

The property is currently undeveloped, and the topography is largely flat. Wetlands are present on the central portion of the property and a creek called Merrill Brook runs along the northern portion of the property to an existing culvert at Central Street. The 100-year floodplain (or Special Flood Hazard Area) encroaches onto the property from Merrill Brook and is designated a Zone A. It should be noted that the boundary of the 100-year floodplain was officially amended by FEMA via an approved Letter of Map Amendment (or LOMA). The LOMA approval is included in Section 7, and the project is entirely outside of the 100-year floodplain.

The project includes one area of wetland impacts associated with the drive access crossing through the wetland area. The site was intentionally designed to reduce and avoid wetland impacts to the maximum extent possible. The proposed driveway crossing is at the narrowest section of wetlands, thereby minimizing impacts. Future wetland permitting will be required, and a summary of the wetland impact permitting considerations is included in Section 8.

This Site Plan Application also includes a separate Conditional Use Permit application, which is a request to allow encroachments into the wetland buffer areas. The property is split by two different Zoning Districts and associated wetland buffer distances, with the Business District on the northwestern portion (75 foot buffer) and the General District on the southeastern portion (50' buffer). With the exception of the proposed mixed-use building, all the proposed residential buildings are outside of the wetland buffer. The wetland buffer encroachments are associated with the drive access, parking area, and stormwater treatment areas. The Conditional Use Permit application is included in Section 3.

The stormwater treatment approach includes multiple bioretention basins and is detailed in the stormwater design report (Section 12). It is understood that future DES Alteration of Terrain (AoT) permitting will be required.

Regarding water and sanitary sewer considerations, the proposed residential area will require new water and sanitary sewer main extensions, as shown on the deign plans. The mixed-use building will connect to the mains within Central Street via new services. The water supply was evaluated for domestic and fire flow, and the hydraulic analysis (included in Section 10) indicates adequate supply. For sanitary sewer, it is understood that there is adequate downstream capacity in the existing infrastructure to support the development.

It should also be noted that two previous Town Zoning Variances were granted on October 24, 2024, and copies are included in Section 6. In summary, the variances allow the use of multi-family within the General district and for mixes-use and residential-use on the same parcel. The condition requires a lot merger which will be executed pending final approval.

The project will require future State and Local permitting prior to final approval and project construction. In summary the required permits include.

- Town of Hudson Water & Sewer Connection Permit
- NH DES Alteration of Terrain (AoT) Permit
- NH DES Sewer Connection Permit
- NH DES Wetlands Impact Permit
- NH DOT Driveway Permit
- EPA Construction General Permit

The applicable design plans and permit application will be obtained, and the approval receipt will signify compliance with all applicable design criteria and regulations. At this time, the aforementioned permits have not yet been submitted for review. It is understood that a subsequent Planning Board review may required depending on the permitting review process. Lastly, it is understood that final approval will be conditional pending all required Local, State & Federal permit approvals

Thank you for the opportunity to work with you on this important project for the community. If you have any questions, please let us know.

Ryan Hudock, PE
Project Manager
rhudock@verdantas.com
(603) 877-0116

Attachment "C"

TOWN OF HUDSON

Zoning/Code Enforcement
12 School Street
Hudson, New Hampshire 03051

Chris Sullivan, Zoning Administrator/Code Enforcement Officer
csullivan@hudsonnh.gov · Tel: 603-886-6008 · Fax: 603-594-1142

Property Location **-197, 197R & 207 Central Street**

ZBA Decision – 10-24-24

Variance – (2) Two (Granted)

1) A Variance for a proposed three (3) lot merger into one (1) to allow for two (2) proposed multi-family buildings where multi-family use is not permitted in the General (G) district. The proposed 3-story building (1) is 70 ft. x 100 ft. with 30 units. The proposed 3-story building (2) is 60 ft. x 300 ft. with 70 units

2) A Variance for a proposed three (3) lot merger into one (1) to allow a proposed mixed principal use development with retail commercial uses and multi-family use on the same lot.

Attachment "C"

Notes: 207 Central

The building is shown as 44 feet in height on Plan AC8. Pursuant to §334-14, *Building Height in Residential Zones*, the maximum permitted building height is 38 feet. Therefore, the proposed building exceeds the allowable height by 6 feet.

Provided that the additional 6–7 feet consist solely of non-habitable space (e.g., roof structure, mechanical space, or architectural features) and does not contain any livable area, the building may be considered compliant. A note clarifying that no habitable space is located within this height differential should be added to the plan.

For Registry of Deed use only:

Attachment "C"

FEES:	$ 10.69
SURCHARGE:	$2.00
CASH:	—

#443
Hudson Zoning Board

COPY

Doc # 240040966 12/10/2024 10:26:04 AM
Book 9823 Page 1560 Page 1 of 1
Mary Ann Crowell
Register of Deeds, Hillsborough County

Send recorded copy to:

TOWN OF HUDSON
ZONING BOARD OF ADJUSTMENT
12 School Street, Hudson, New Hampshire 03051

NOTICE OF DECISION

Map 176 Lots 041-000, 044-000 & 045-000, Zone B (Business) & G (General)
Case # 176-041A

ZBA Decision 10/24/2024

VARIANCE – GRANTED

Property Owners: Don Dumont, Mgr., Posey Investments, LLC, 195R Central Street, Hudson, NH 03051
Dillon Dumont, Mgr., Meadows Property, LLC, 195R Central Street, Hudson, NH 03051

Property Location: **197, 197R & 207 Central Street, Hudson, NH 03051**

Action sought: A Variance for a proposed three (3) lot merger into one (1) to allow a proposed mixed principal use development with retail commercial uses and multi-family use on the same lot.

Zoning Ordinance: Article II: General Regulations; §334-10, Mixed or dual use on a lot

Action granted: After consideration of the testimony and recognition that Planning Board review and approval for the lot mergers and Site Plan Review for the development would be required; and after review of the criteria for the granting of a Variance and determining that each of the criteria were satisfied; motion made, seconded and unanimously voted (3:0) to grant the Variance as requested.

NOTES:
(1) All representations of fact or intention made by the applicant during testimony before the Zoning Board of Adjustment relative to the obtaining of this relief shall be considered conditions of this approval, regardless of the fact that such facts or intentions may not have been specifically stated as stipulations of the motion. For details of specific discussion relative to this decision, please consult the public minutes recorded during this hearing.
(2) In accordance with RSA 674:33 and Hudson Town Code §334-82, variances and special exceptions shall be valid if exercised within two (2) years from the date of approval by the Zoning Board of Adjustment. For variances or special exceptions which require subsequent Planning Board review, and which have gained application acceptance within six (6) months of approval by the Zoning Board of Adjustment, the variance or special exception shall be valid for a period of two (2) years after resolution of the Planning Board application.

Tristan Dion, Acting ZBA Chairman — 2024-12-02 Date

Christopher J. Sullivan, Zoning Administrator — 12/2/24 Date

For Registry of Deed use only:

Attachment "C"

Send recorded copy to:

TOWN OF HUDSON
ZONING BOARD OF ADJUSTMENT
12 School Street, Hudson, New Hampshire 03051

NOTICE OF DECISION

Map 176 Lots 041-000, 044-000 & 045-000, Zone B (Business) & G (General)
Case # 176-041B

ZBA Decision 10/24/2024

VARIANCE – GRANTED

Property Owners: Don Dumont, Mgr., Posey Investments, LLC, 195R Central Street, Hudson, NH 03051
Dillon Dumont, Mgr., Meadows Property, LLC, 195R Central Street, Hudson, NH 03051

Property Location: **197, 197R & 207 Central Street, Hudson, NH 03051**

Action sought: A Variance for a proposed three (3) lot merger into one (1) to allow for two (2) proposed multi-family buildings where multi-family use is not permitted in the General (G) district. The proposed 3-story building (1) is 70 ft. x 100 ft. with 30 units. The proposed 3-story building (2) is 60 ft. x 300 ft. with 70 units.

Zoning Ordinance: Article V: Permitted Uses; §334-21, Table of Permitted Principal Uses

Action granted: After consideration of the testimony and recognition that Planning Board review and approval for the lot mergers and Site Plan Review for the development would be required; and after review of the criteria for the granting of a Variance and determining that each of the criteria were satisfied; motion made, seconded and unanimously voted (3:0) to grant the Variance as requested.

NOTES:
(1) All representations of fact or intention made by the applicant during testimony before the Zoning Board of Adjustment relative to the obtaining of this relief shall be considered conditions of this approval, regardless of the fact that such facts or intentions may not have been specifically stated as stipulations of the motion. For details of specific discussion relative to this decision, please consult the public minutes recorded during this hearing.
(2) In accordance with RSA 674:33 and Hudson Town Code §334-82, variances shall be valid if exercised within two (2) years from the date of approval by the Zoning Board of Adjustment. For variances which require subsequent Planning Board review, and which have gained application acceptance within six (6) months of approval by the Zoning Board of Adjustment, the variance shall be valid for a period of two (2) years after resolution of the Planning Board application.

Tristan Dion, Acting ZBA Chairman — Date: 2024-12-02

Christopher J. Sullivan, Zoning Administrator — Date: 12/2/24

Attachment "D"

Planning Board Sign-off

Project Name	SP# 02-26 Meadows	Map/Lot:	176-041-000
Site Address:	107 Central Street	Zone:	Business,General
		Due by:	2/5/26

Project Status		**Ready for Approval**	**Awaiting Revisions**	**Approval with Stipulations**
DEPARTMENT	**INITIAL**			
FUSS & O'NEILL:				
ZONING:	CJS	✔		
ASSESSING:	JM	✔		
ENGINEERING:	EZD		✔	
PUBLIC WORKS:	JT		✔	
FIRE:	DRH		✔	
POLICE:	PMM	✔		

Comments:

ZONING: See Attached
ASSESSING: Meadow Properties, LLC is the listed owner of 176-041, however, Posey Investments LLC is the owner of 176-044 & 176-045
ENGINEERING:See below
PUBLIC WORKS:
FIRE: See comments below
POLICE:

Attachment "D"

Planning Board Sign-off

Project Name	SP# 02-26 Meadows	Map/Lot:	176-041-000
Site Address:	107 Central Street	Zone:	Business,General
		Due by:	2/5/26

Extended Comments:

1. Applicant show parking withing building setback
2. Applicant shall provide a stop bar and pavement markings for pedestrian crossing
3. Applicant shall revise existing plan to show the existing sidewalk along Central Street
4. Applicant shall consider extending the existing sidewalk along Central Street to connect Area 1 with Area 2, which is approximately 320 feet.
5. Applicant shall revise plans to clearly show grading information and elevations on the contours
6. Applicant shall add 4' perimeter chain link fence to all basins over 4 feet in depth.
7. Applicant shall provide information regarding all the proposed basins. How will the prevent groundwater penetration the basins taking in consideration the high water table.
8. Wet Pond A1 does not appear to indicate a spill way a 171 based on the proposed contours.
9. There is no proposed drainage pipe information or flared end section information.
10. Guardrail shall be added between travel way and ponds over 4 feet.
11. Applicant shall revise the utility plan profile to include drainage features and stations on the plan. Currently the station features are only available on the profile.
12. For residential use, a fire hydrant is required every 800 feet.
13. The plan is missing grading information related to wetland crossings.
14. Plans do not show storage area.
15. The applicant is missing a light plan. The plans don't show light fixture location or the underground electrical features.
16. The applicant does not show erosion control plan including stockpiling areas during constriction.
17. The plans don't indicate where curbing is proposed.
18. The plans don't indicate where catch basins are proposed, if any.
19. It is unclear how a oil spill or gas spill can be contained within the paved parking area without curbing or catch basin, taking in consideration the entire project is surrounded by wetlands.
20. The utility note, related to water and sewer for Building A, is inadequate and the applicant needs to provide information related to the existing utilities, including size and condition.
21. Applicant shall revise plans to show fire services and domestic services separated with their own gate valve.
22. It is unclear how left turns to the apartment complex would be possible or not cause and backups on Central Street, without any proposed off-site improvements , taking in consideration the traffic volumes during peak hours, proximity to the existing traffic light and the bottleneck effect.

Attachment "D"

Planning Board Sign-off

Project Name	SP# 02-26 Meadows	Map/Lot:	176-041-000
Site Address:	107 Central Street	Zone:	Business,General
		Due by:	2/5/26

Extended Comments:

1. Applicant shall provide a stop bar and pavement markings for pedestrian crossing
2. Applicant shall revise existing plan to show the existing sidewalk along Central Street
3. Applicant shall consider extending the existing sidewalk along Central Street to connect Area 1 with Area 2, which is approximately 320 feet.
4. Applicant shall revise plans to clearly show grading information and elevations on the contours.
5. The plans don't indicate where catch basins are proposed, if any, or how stormwater will exit the roadway with proposed sidewalk.
6. Unclear how left turns to the apartment complex would be possible or not cause delays and/or backups on Central Street, without any proposed off-site improvements , taking in consideration the traffic volumes during peak hours, proximity to the existing traffic light and the bottleneck effect.
7. Plans shall be revised to show ADA compliant sidewalk ramps with warning pads.
8. Plan shall be revised to show existing or proposed curbing.
9. Applicant shall consider a pedestrian crossing on Central St.

Attachment "D"

Planning Board Sign-off

Project Name	SP# 02-26 Meadows	Map/Lot:	176-041-000
Site Address:	107 Central Street	Zone:	Business,General
		Due by:	2/5/26

Extended Comments:

Buildings B,C,D

Please provide the following changes and show the changes on the site plan. Forward to Fire for review

1) Add a fire hydrant at the entrance to the proposed driveway to buildings B,C,D
2) Add a fire hydrant inside the proposed driveway at station 5+00
3) Keep the proposed fire hydrant located and shown on the plan inside the entrance to building B
4) Add a fire hydrant inside or near the cul-de-sac shown on the left side of building C
5) Add a fire hydrant on the central street side of the parking lot in front of building D

Building A
1) Add a fire hydrant inside the entrance to building A on the Central Street side of the parking lot

Provide a fire apparatus turning plan into and around the site for buildings B,C,D. Forward the plan for Fire review

Fire hydrants shall not exceed 500 feet between hydrants. These additional fire hydrants are required

Fire cannot approve the current plans

176 Newport Road
New London, NH 03257
+1 (603) 877-0116

The Meadows Mixed Use Development – Stormwater Management Narrative

Project Description

Meadow Properties, LLC is applying for a Town of Hudson Site Plan Review on subject property located at 207 Central Street in Hudson, NH. The applicant is planning to construct three (3) residential buildings, as well as one (1) mixed use residential and commercial building with associated access road and parking areas. The proposed development includes 116 residential units, 278 parking spaces, and 195,900 SF (4.5 acres) of impervious area on three existing lots (Map 176, Lots 41, 44, and 45). Best management practices to detain and treat stormwater will be provided with six (6) above-ground stormwater pond practices.

Existing Site Conditions

In the construction area, slopes range from 1% to more than 5%, with most slopes in the construction area less than 3%. The subject parcel, a combination of three lots is bound to the northwest by Central Street, and to the northeast by Benson Trails.

The soil types in the proposed disturbance area (per NRCS Web Soil Survey) are 299-Udorthents, 444 Newfield, and 115 Scarboro. According to NRCS Web Soil Survey, there is no designated soil group assigned to 299-Udorthents. NRCS Web Soil Survey lists the soil groups for 444 Newfield as HSG B and 115 Scarboro as HSG D. The site is mostly grass and woods, with the exception of the existing gravel access and parking areas.

Test pit data is attached to this report in the appendix and test pit locations are shown on the drainage plans contained in this report.

Currently the subject parcel contains roughly 35,700 square feet of impervious cover from an existing parking area.

The site area is modeled using one subcatchment for the existing drainage analysis:

Proposed Site Conditions

The proposed development will create multiple subcatchment areas consisting of impervious surfaces such as pavement, parking areas, and building rooftops. All runoff generated from these impervious areas will be directed to sediment forebays prior to entering the primary stormwater treatment system. Each forebay is designed to provide initial pretreatment by capturing coarse sediments and debris, thereby reducing pollutant loading to downstream facilities.

Following pretreatment, stormwater will discharge into constructed stormwater treatment ponds sized in accordance with the New Hampshire Department of Environmental Services (NHDES) Alteration of Terrain (AoT) rules. These ponds are designed to meet Env-Wq 1500 requirements for water quality treatment, peak flow attenuation, and groundwater recharge where applicable. The treatment train approach—impervious area collection, sediment forebay pretreatment, and stormwater pond treatment—ensures compliance with NHDES AoT standards for pollutant removal and hydrologic performance.

The stormwater management strategy for this project incorporates Best Management Practices (BMPs) that comply with NHDES Alteration of Terrain (AoT) rules and applicable local regulations. Two primary BMPs considered for post-development runoff treatment are wet ponds and bioretention basins. Each provides distinct benefits for water quality improvement, hydrologic control, and environmental enhancement.

Wet ponds maintain a permanent pool of water and are highly effective at removing pollutants through sedimentation and biological uptake. They provide extended detention for stormwater, reducing peak discharge rates and mitigating downstream flooding. Wet ponds also offer aesthetic and ecological benefits by creating aquatic habitats that support biodiversity. These systems are particularly suitable for larger sites where space is available for a permanent pool and where nutrient removal is a priority.

Bioretention basins are shallow, vegetated depressions designed to capture, filter, and infiltrate stormwater runoff. They provide superior water quality treatment by filtering runoff through engineered soil media and vegetation, removing sediments, nutrients, and hydrocarbons. Bioretention systems promote infiltration and groundwater recharge, reduce runoff volume, and moderate stormwater temperature prior to discharge. Their flexibility allows integration into landscaped areas such as parking lot islands and medians, making them ideal for decentralized treatment in urban settings.

While wet ponds excel in nutrient removal and flood control for large drainage areas, bioretention basins offer enhanced infiltration and pollutant filtration at the source, supporting green infrastructure objectives. The selection of BMPs for this project reflects site-specific constraints, regulatory requirements, and the goal of achieving comprehensive stormwater management through a treatment train approach.

Overall, the increase in impervious cover on the site from pre-development to post-Development is 160,200 square feet.

Study Methodology

Runoff and routing calculations have been performed for the watershed areas affected by the proposed development. Times of concentration and runoff curve number calculations have been determined using the method described in the Natural Resource Conservation

Service (NRCS) Technical Release 55, (TR-55). Time of concentration calculations have been amended where the values given by the TR-55 method is less than five minutes. In these cases a standard minimum value of five minutes has been used to keep this parameter within the acceptable working range of the model. Each Tc path and corresponding length and slope is identified in the pre and post development drainage area plan. The TR-20 based HydroCAD (version 10.0) modeling software has been utilized to perform the complex runoff and routing calculations.

Calculation Results

Preface

The stormwater management system for this project has been designed in full accordance with the applicable Town of Hudson, New Hampshire rules and regulations governing drainage, erosion control, and water quality protection. All design elements, including conveyance systems, pretreatment structures, and stormwater treatment facilities, adhere to the standards outlined in the Town's Site Plan Regulations and Subdivision Regulations, as well as any referenced best management practices. This approach ensures that post-development runoff is managed to maintain public safety, protect natural resources, and comply with local and state requirements.

The stormwater analysis included pre vs. post-development conditions in the 2-, 10-, and 50-year storm events. The SCS TR-20 method was used with a Type III 24-hour storm. The Time of Concentration (Tc) is calculated using the Lag Method. One discharge comparison point (**PoA**) were used for comparison of post-development runoff values with those from existing conditions.

Peak Rate (cfs)

Pre-Development			
	2-YR	10-YR	50-YR
POA-01	6.80	17.19	35.64

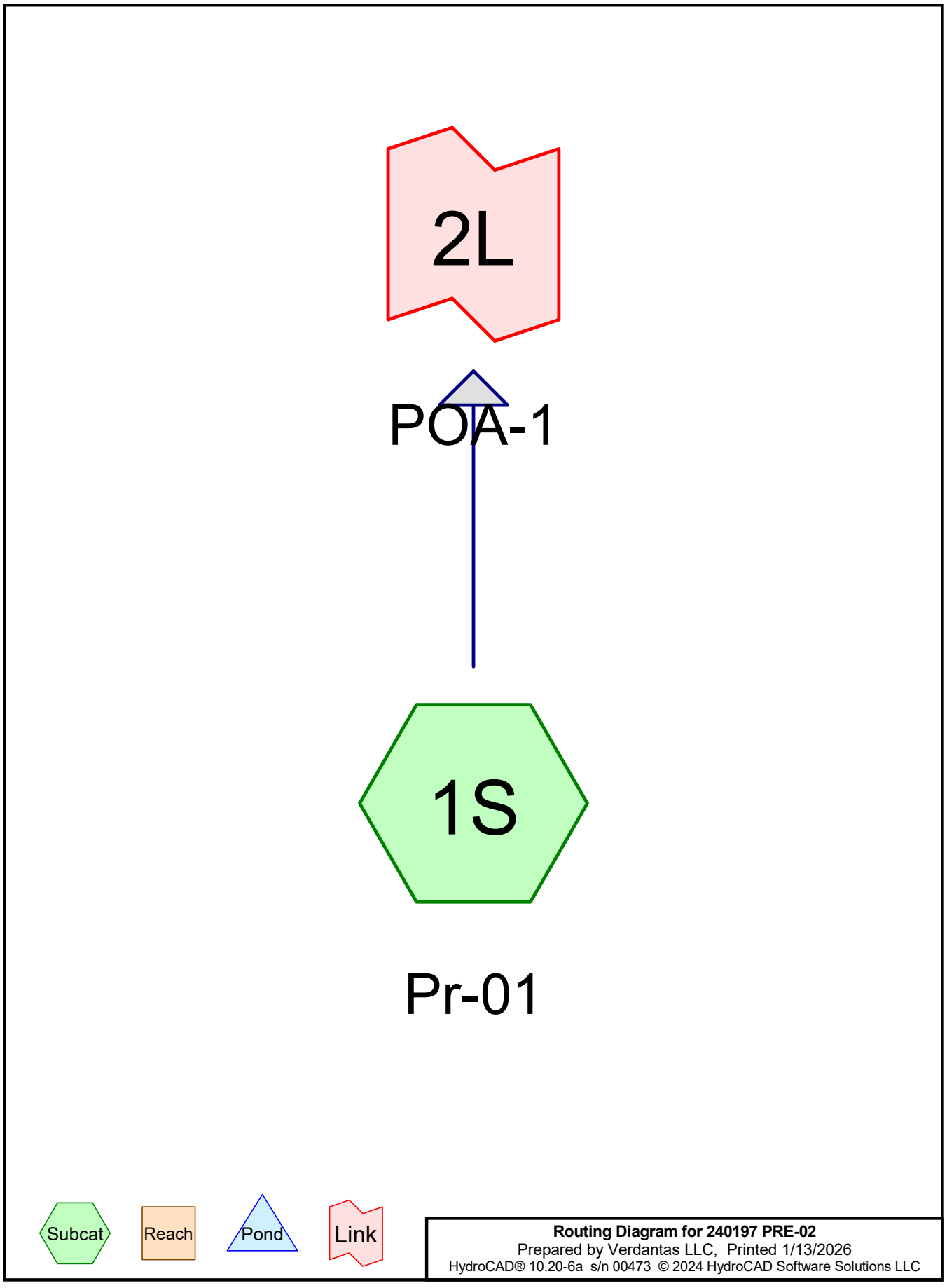
Post-Development			
	2-YR	10-YR	50-YR
POA-01	5.69	14.48	30.81

Summary

There is a reduction in peak flow and volume of stormwater runoff at the analysis point for all the design storm events.

The proposed stormwater management system has been designed to meet the requirements of the NHDES Alteration of Terrain (AoT) program and applicable local regulations. The design employs a treatment train approach incorporating sediment forebays, wet ponds, and bioretention basins to provide comprehensive water quality treatment, peak flow attenuation, and groundwater recharge where feasible. Wet ponds offer effective nutrient removal and flood control for larger drainage areas, while bioretention basins provide localized infiltration and pollutant filtration at the source, supporting green infrastructure objectives. Together, these BMPs ensure that post-development runoff is managed in a manner that protects water resources, maintains hydrologic balance, and complies with Env-Wq 1500 standards and recognized best management practices.

PRE-DEVELOPMENT MODEL OUTPUT



Routing Diagram for 240197 PRE-02
Prepared by Verdantas LLC, Printed 1/13/2026

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	02-Yr	Type III 24-hr		Default	24.00	1	2.95	2
2	10-Yr	Type III 24-hr		Default	24.00	1	4.46	2
3	50-Yr	Type III 24-hr		Default	24.00	1	6.75	2
4	100-Yr	Type III 24-hr		Default	24.00	1	8.08	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.566	74	>75% Grass cover, Good, HSG C (1S)
1.418	98	Paved parking, HSG D (1S)
0.257	98	Roofs, HSG D (1S)
5.224	55	Woods, Good, HSG B (1S)
8.022	70	Woods, Good, HSG C (1S)
12.094	77	Woods, Good, HSG D (1S)
27.582	**72**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
5.224	HSG B	1S
8.588	HSG C	1S
13.769	HSG D	1S
0.000	Other	
27.582		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.566	0.000	0.000	0.566	>75% Grass cover, Good	1S
0.000	0.000	0.000	1.418	0.000	1.418	Paved parking	1S
0.000	0.000	0.000	0.257	0.000	0.257	Roofs	1S
0.000	5.224	8.022	12.094	0.000	25.340	Woods, Good	1S
0.000	**5.224**	**8.588**	**13.769**	**0.000**	**27.582**	**TOTAL AREA**	

Time span=0.00-120.00 hrs, dt=0.01 hrs, 12001 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Pr-01 Runoff Area=1,201,452 sf 6.07% Impervious Runoff Depth=0.78"
Flow Length=1,685' Tc=89.7 min CN=72 Runoff=6.80 cfs 1.789 af

Link 2L: POA-1 Inflow=6.80 cfs 1.789 af
Primary=6.80 cfs 1.789 af

Total Runoff Area = 27.582 ac Runoff Volume = 1.789 af Average Runoff Depth = 0.78"
93.93% Pervious = 25.906 ac 6.07% Impervious = 1.675 ac

Summary for Subcatchment 1S: Pr-01

Runoff = 6.80 cfs @ 13.26 hrs, Volume= 1.789 af, Depth= 0.78"
Routed to Link 2L : POA-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 02-Yr Rainfall=2.95"

	Area (sf)	CN	Description
*	61,760	98	Paved parking, HSG D
	11,210	98	Roofs, HSG D
	24,670	74	>75% Grass cover, Good, HSG C
	227,560	55	Woods, Good, HSG B
	349,445	70	Woods, Good, HSG C
	526,807	77	Woods, Good, HSG D
	1,201,452	72	Weighted Average
	1,128,482		93.93% Pervious Area
	72,970		6.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
34.0	100	0.0070	0.05		**Sheet Flow, Woods-Wetland** Woods: Light underbrush n= 0.400 P2= 2.95"
55.7	1,585	0.0090	0.47		**Shallow Concentrated Flow, SCF-Wetland to Culvert Inlet** Woodland Kv= 5.0 fps
89.7	1,685	Total			

Summary for Link 2L: POA-1

Inflow Area = 27.582 ac, 6.07% Impervious, Inflow Depth = 0.78" for 02-Yr event
Inflow = 6.80 cfs @ 13.26 hrs, Volume= 1.789 af
Primary = 6.80 cfs @ 13.26 hrs, Volume= 1.789 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs

Time span=0.00-120.00 hrs, dt=0.01 hrs, 12001 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Pr-01 Runoff Area=1,201,452 sf 6.07% Impervious Runoff Depth=1.79"
Flow Length=1,685' Tc=89.7 min CN=72 Runoff=17.19 cfs 4.116 af

Link 2L: POA-1 Inflow=17.19 cfs 4.116 af
Primary=17.19 cfs 4.116 af

Total Runoff Area = 27.582 ac Runoff Volume = 4.116 af Average Runoff Depth = 1.79"
93.93% Pervious = 25.906 ac 6.07% Impervious = 1.675 ac

Summary for Subcatchment 1S: Pr-01

Runoff = 17.19 cfs @ 13.26 hrs, Volume= 4.116 af, Depth= 1.79"
Routed to Link 2L : POA-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Yr Rainfall=4.46"

	Area (sf)	CN	Description
*	61,760	98	Paved parking, HSG D
	11,210	98	Roofs, HSG D
	24,670	74	>75% Grass cover, Good, HSG C
	227,560	55	Woods, Good, HSG B
	349,445	70	Woods, Good, HSG C
	526,807	77	Woods, Good, HSG D
	1,201,452	72	Weighted Average
	1,128,482		93.93% Pervious Area
	72,970		6.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
34.0	100	0.0070	0.05		**Sheet Flow, Woods-Wetland** Woods: Light underbrush n= 0.400 P2= 2.95"
55.7	1,585	0.0090	0.47		**Shallow Concentrated Flow, SCF-Wetland to Culvert Inlet** Woodland Kv= 5.0 fps
89.7	1,685	Total			

Summary for Link 2L: POA-1

Inflow Area = 27.582 ac, 6.07% Impervious, Inflow Depth = 1.79" for 10-Yr event
Inflow = 17.19 cfs @ 13.26 hrs, Volume= 4.116 af
Primary = 17.19 cfs @ 13.26 hrs, Volume= 4.116 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs

Time span=0.00-120.00 hrs, dt=0.01 hrs, 12001 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Pr-01 Runoff Area=1,201,452 sf 6.07% Impervious Runoff Depth=3.62"
Flow Length=1,685' Tc=89.7 min CN=72 Runoff=35.64 cfs 8.313 af

Link 2L: POA-1 Inflow=35.64 cfs 8.313 af
Primary=35.64 cfs 8.313 af

Total Runoff Area = 27.582 ac Runoff Volume = 8.313 af Average Runoff Depth = 3.62"
93.93% Pervious = 25.906 ac 6.07% Impervious = 1.675 ac

Summary for Subcatchment 1S: Pr-01

Runoff = 35.64 cfs @ 13.25 hrs, Volume= 8.313 af, Depth= 3.62"
Routed to Link 2L : POA-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-Yr Rainfall=6.75"

	Area (sf)	CN	Description
*	61,760	98	Paved parking, HSG D
	11,210	98	Roofs, HSG D
	24,670	74	>75% Grass cover, Good, HSG C
	227,560	55	Woods, Good, HSG B
	349,445	70	Woods, Good, HSG C
	526,807	77	Woods, Good, HSG D
	1,201,452	72	Weighted Average
	1,128,482		93.93% Pervious Area
	72,970		6.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
34.0	100	0.0070	0.05		**Sheet Flow, Woods-Wetland** Woods: Light underbrush n= 0.400 P2= 2.95"
55.7	1,585	0.0090	0.47		**Shallow Concentrated Flow, SCF-Wetland to Culvert Inlet** Woodland Kv= 5.0 fps
89.7	1,685	Total			

Summary for Link 2L: POA-1

Inflow Area = 27.582 ac, 6.07% Impervious, Inflow Depth = 3.62" for 50-Yr event
Inflow = 35.64 cfs @ 13.25 hrs, Volume= 8.313 af
Primary = 35.64 cfs @ 13.25 hrs, Volume= 8.313 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs

Time span=0.00-120.00 hrs, dt=0.01 hrs, 12001 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Pr-01 Runoff Area=1,201,452 sf 6.07% Impervious Runoff Depth=4.76"
Flow Length=1,685' Tc=89.7 min CN=72 Runoff=47.03 cfs 10.952 af

Link 2L: POA-1 Inflow=47.03 cfs 10.952 af
Primary=47.03 cfs 10.952 af

Total Runoff Area = 27.582 ac Runoff Volume = 10.952 af Average Runoff Depth = 4.76"
93.93% Pervious = 25.906 ac 6.07% Impervious = 1.675 ac

Summary for Subcatchment 1S: Pr-01

Runoff = 47.03 cfs @ 13.25 hrs, Volume= 10.952 af, Depth= 4.76"
Routed to Link 2L : POA-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Yr Rainfall=8.08"

	Area (sf)	CN	Description
*	61,760	98	Paved parking, HSG D
	11,210	98	Roofs, HSG D
	24,670	74	>75% Grass cover, Good, HSG C
	227,560	55	Woods, Good, HSG B
	349,445	70	Woods, Good, HSG C
	526,807	77	Woods, Good, HSG D
	1,201,452	72	Weighted Average
	1,128,482		93.93% Pervious Area
	72,970		6.07% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
34.0	100	0.0070	0.05		**Sheet Flow, Woods-Wetland** Woods: Light underbrush n= 0.400 P2= 2.95"
55.7	1,585	0.0090	0.47		**Shallow Concentrated Flow, SCF-Wetland to Culvert Inlet** Woodland Kv= 5.0 fps
89.7	1,685	Total			

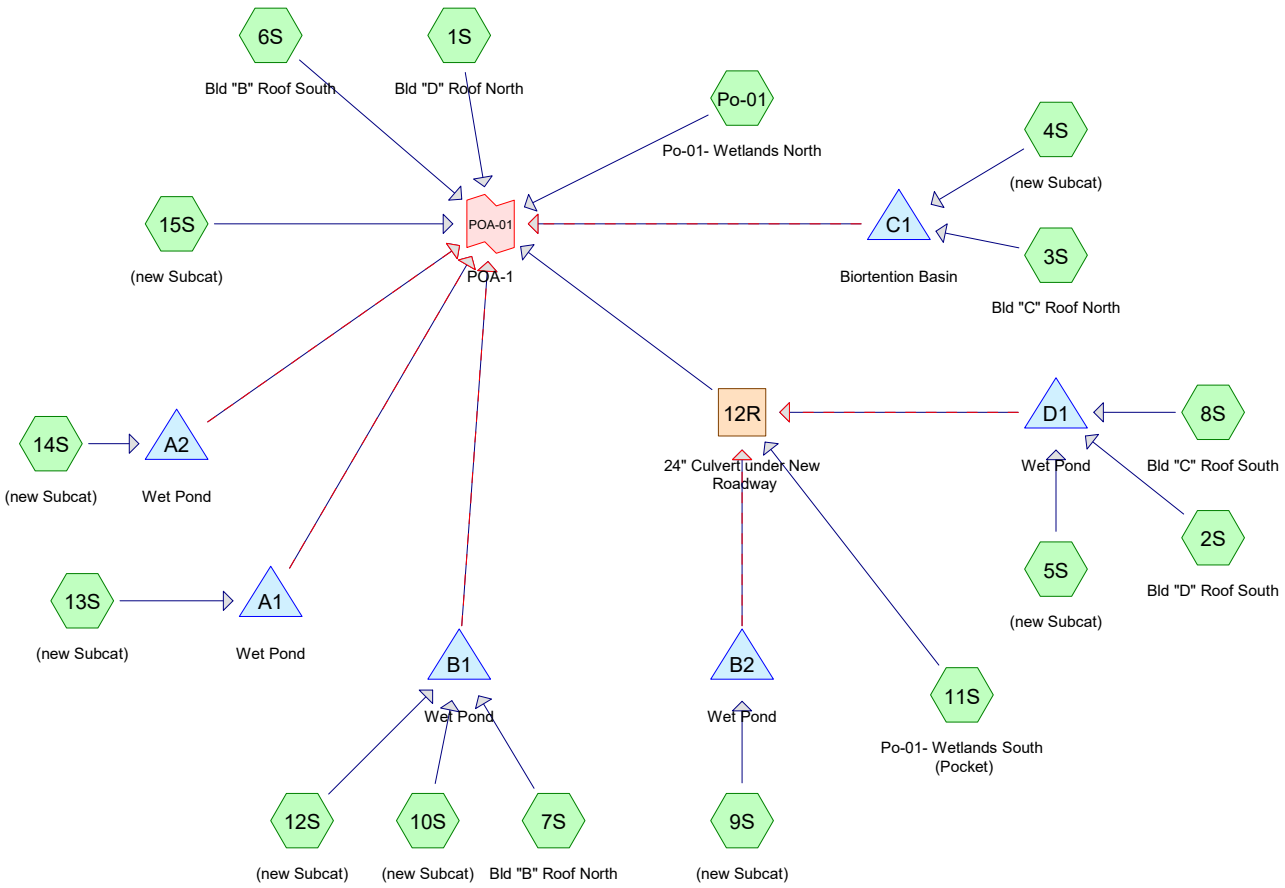
Summary for Link 2L: POA-1

Inflow Area = 27.582 ac, 6.07% Impervious, Inflow Depth = 4.76" for 100-Yr event
Inflow = 47.03 cfs @ 13.25 hrs, Volume= 10.952 af
Primary = 47.03 cfs @ 13.25 hrs, Volume= 10.952 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs

POST-DEVELOPMENT MODEL OUTPUT

Attachment "E"



Subcat Reach Pond Link

Routing Diagram for 240197 POST-02
Prepared by Verdantas LLC, Printed 1/13/2026
HydroCAD® 10.20-6a s/n 00473 © 2024 HydroCAD Software Solutions LLC

Rainfall Events Listing

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	02-Yr	Type III 24-hr		Default	24.00	1	2.95	2
2	10-Yr	Type III 24-hr		Default	24.00	1	4.46	2
3	50-Yr	Type III 24-hr		Default	24.00	1	6.75	2
4	100-Yr	Type III 24-hr		Default	24.00	1	8.08	2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.221	61	>75% Grass cover, Good, HSG B (5S, 9S, 10S, 12S, 15S)
2.210	74	>75% Grass cover, Good, HSG C (4S, 5S, 12S, 13S, 14S)
0.008	78	Meadow, non-grazed, HSG D (4S)
4.268	98	Paved parking, HSG D (4S, 5S, 9S, 10S, 12S, 13S, 14S, 15S, Po-01)
1.388	98	Roofs, HSG D (1S, 2S, 3S, 6S, 7S, 8S, 13S, Po-01)
3.235	55	Woods, Good, HSG B (11S, Po-01)
3.674	70	Woods, Good, HSG C (11S, Po-01)
11.989	77	Woods, Good, HSG D (11S, Po-01)
27.993	**77**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
4.456	HSG B	5S, 9S, 10S, 11S, 12S, 15S, Po-01
5.884	HSG C	4S, 5S, 11S, 12S, 13S, 14S, Po-01
17.654	HSG D	1S, 2S, 3S, 4S, 5S, 6S, 7S, 8S, 9S, 10S, 11S, 12S, 13S, 14S, 15S, Po-01
0.000	Other	
27.993		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	1.221	2.210	0.000	0.000	3.431	>75% Grass cover, Good	4S, 5S, 9S, 10S, 12S, 13S, 14S, 15S
0.000	0.000	0.000	0.008	0.000	0.008	Meadow, non-grazed	4S
0.000	0.000	0.000	4.268	0.000	4.268	Paved parking	4S, 5S, 9S, 10S, 12S, 13S, 14S, 15S, Po-01
0.000	0.000	0.000	1.388	0.000	1.388	Roofs	1S, 2S, 3S, 6S, 7S, 8S, 13S, Po-01
0.000	3.235	3.674	11.989	0.000	18.898	Woods, Good	11S, Po-01
0.000	**4.456**	**5.884**	**17.654**	**0.000**	**27.993**	**TOTAL AREA**	

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	12R	172.50	172.00	50.0	0.0100	0.013	0.0	24.0	0.0	
2	A1	170.50	170.20	30.0	0.0100	0.012	0.0	24.0	0.0	
3	A2	170.50	170.20	30.0	0.0100	0.012	0.0	24.0	0.0	
4	B1	173.50	173.30	20.0	0.0100	0.013	0.0	12.0	0.0	
5	B2	178.00	177.00	50.0	0.0200	0.013	0.0	12.0	0.0	
6	C1	170.20	169.80	40.0	0.0100	0.013	0.0	12.0	0.0	
7	D1	173.00	172.50	50.0	0.0100	0.013	0.0	12.0	0.0	

Time span=0.00-120.00 hrs, dt=0.01 hrs, 12001 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Bld "D" Roof North Runoff Area=8,604 sf 100.00% Impervious Runoff Depth=2.72"
Tc=6.0 min CN=98 Runoff=0.56 cfs 0.045 af

Subcatchment 2S: Bld "D" Roof South Runoff Area=8,625 sf 100.00% Impervious Runoff Depth=2.72"
Tc=6.0 min CN=98 Runoff=0.57 cfs 0.045 af

Subcatchment 3S: Bld "C" Roof North Runoff Area=10,638 sf 100.00% Impervious Runoff Depth=2.72"
Tc=6.0 min CN=98 Runoff=0.70 cfs 0.055 af

Subcatchment 4S: (new Subcat) Runoff Area=52,271 sf 47.83% Impervious Runoff Depth=1.62"
Tc=6.0 min CN=86 Runoff=2.28 cfs 0.162 af

Subcatchment 5S: (new Subcat) Runoff Area=85,116 sf 67.61% Impervious Runoff Depth=1.94"
Tc=6.0 min CN=90 Runoff=4.41 cfs 0.316 af

Subcatchment 6S: Bld "B" Roof South Runoff Area=3,783 sf 100.00% Impervious Runoff Depth=2.72"
Tc=6.0 min CN=98 Runoff=0.25 cfs 0.020 af

Subcatchment 7S: Bld "B" Roof North Runoff Area=3,790 sf 100.00% Impervious Runoff Depth=2.72"
Tc=6.0 min CN=98 Runoff=0.25 cfs 0.020 af

Subcatchment 8S: Bld "C" Roof South Runoff Area=10,638 sf 100.00% Impervious Runoff Depth=2.72"
Tc=6.0 min CN=98 Runoff=0.70 cfs 0.055 af

Subcatchment 9S: (new Subcat) Runoff Area=12,502 sf 48.43% Impervious Runoff Depth=1.15"
Tc=6.0 min CN=79 Runoff=0.38 cfs 0.028 af

Subcatchment 10S: (new Subcat) Runoff Area=42,722 sf 51.56% Impervious Runoff Depth=1.21"
Tc=6.0 min CN=80 Runoff=1.37 cfs 0.099 af

Subcatchment 11S: Po-01- Wetlands Runoff Area=203,962 sf 0.00% Impervious Runoff Depth=0.35"
Flow Length=510' Tc=45.5 min CN=61 Runoff=0.54 cfs 0.135 af

Subcatchment 12S: (new Subcat) Runoff Area=43,088 sf 25.22% Impervious Runoff Depth=0.93"
Tc=6.0 min CN=75 Runoff=1.01 cfs 0.077 af

Subcatchment 13S: (new Subcat) Runoff Area=32,807 sf 70.26% Impervious Runoff Depth=2.02"
Tc=6.0 min CN=91 Runoff=1.77 cfs 0.127 af

Subcatchment 14S: (new Subcat) Runoff Area=38,674 sf 53.93% Impervious Runoff Depth=1.70"
Tc=6.0 min CN=87 Runoff=1.77 cfs 0.125 af

Subcatchment 15S: (new Subcat) Runoff Area=17,920 sf 55.22% Impervious Runoff Depth=1.28"
Tc=6.0 min CN=81 Runoff=0.61 cfs 0.044 af

Subcatchment Po-01: Po-01- Wetlands Runoff Area=644,247 sf 3.88% Impervious Runoff Depth=0.98"
Flow Length=1,685' Tc=89.7 min CN=76 Runoff=4.88 cfs 1.210 af

Reach 12R: 24" Culvert under New Avg. Flow Depth=0.22' Max Vel=3.04 fps Inflow=0.56 cfs 0.288 af
24.0" Round Pipe n=0.013 L=50.0' S=0.0100 '/' Capacity=22.62 cfs Outflow=0.56 cfs 0.288 af

Pond A1: Wet Pond Peak Elev=170.68' Storage=3,273 cf Inflow=1.77 cfs 0.127 af
Primary=0.21 cfs 0.059 af Secondary=0.00 cfs 0.000 af Outflow=0.21 cfs 0.059 af

Pond A2: Wet Pond Peak Elev=170.29' Storage=5,464 cf Inflow=1.77 cfs 0.125 af
Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Pond B1: Wet Pond Peak Elev=173.61' Storage=7,895 cf Inflow=2.63 cfs 0.195 af
Primary=0.04 cfs 0.024 af Secondary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.024 af

Pond B2: Wet Pond Peak Elev=177.74' Storage=1,200 cf Inflow=0.38 cfs 0.028 af
Primary=0.00 cfs 0.000 af Secondary=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Pond C1: Biortention Basin Peak Elev=172.93' Storage=7,813 cf Inflow=2.98 cfs 0.217 af
Primary=0.03 cfs 0.215 af Secondary=0.00 cfs 0.000 af Outflow=0.03 cfs 0.215 af

Pond D1: Wet Pond Peak Elev=173.32' Storage=13,129 cf Inflow=5.67 cfs 0.416 af
Primary=0.26 cfs 0.152 af Secondary=0.00 cfs 0.000 af Outflow=0.26 cfs 0.152 af

Link POA-01: POA-1 Inflow=5.69 cfs 1.903 af
Primary=5.69 cfs 1.903 af

Total Runoff Area = 27.993 ac Runoff Volume = 2.561 af Average Runoff Depth = 1.10"
79.79% Pervious = 22.337 ac 20.21% Impervious = 5.656 ac

Summary for Subcatchment 1S: Bld "D" Roof North

Runoff = 0.56 cfs @ 12.08 hrs, Volume= 0.045 af, Depth= 2.72"
Routed to Link POA-01 : POA-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 02-Yr Rainfall=2.95"

Area (sf)	CN	Description
8,604	98	Roofs, HSG D
8,604		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR-55 MIN**

Summary for Subcatchment 2S: Bld "D" Roof South

Runoff = 0.57 cfs @ 12.08 hrs, Volume= 0.045 af, Depth= 2.72"
Routed to Pond D1 : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 02-Yr Rainfall=2.95"

Area (sf)	CN	Description
8,625	98	Roofs, HSG D
8,625		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR-55 MIN**

Summary for Subcatchment 3S: Bld "C" Roof North

Runoff = 0.70 cfs @ 12.08 hrs, Volume= 0.055 af, Depth= 2.72"
Routed to Pond C1 : Biortention Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 02-Yr Rainfall=2.95"

Area (sf)	CN	Description
10,638	98	Roofs, HSG D
10,638		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR-55 MIN**

Summary for Subcatchment 4S: (new Subcat)

Runoff = 2.28 cfs @ 12.09 hrs, Volume= 0.162 af, Depth= 1.62"
Routed to Pond C1 : Biortention Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 02-Yr Rainfall=2.95"

Area (sf)	CN	Description
26,920	74	>75% Grass cover, Good, HSG C
348	78	Meadow, non-grazed, HSG D
25,003	98	Paved parking, HSG D
52,271	86	Weighted Average
27,268		52.17% Pervious Area
25,003		47.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 5S: (new Subcat)

Runoff = 4.41 cfs @ 12.09 hrs, Volume= 0.316 af, Depth= 1.94"
Routed to Pond D1 : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 02-Yr Rainfall=2.95"

Area (sf)	CN	Description
27,312	74	>75% Grass cover, Good, HSG C
57,543	98	Paved parking, HSG D
261	61	>75% Grass cover, Good, HSG B
85,116	90	Weighted Average
27,573		32.39% Pervious Area
57,543		67.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 6S: Bld "B" Roof South

Runoff = 0.25 cfs @ 12.08 hrs, Volume= 0.020 af, Depth= 2.72"
Routed to Link POA-01 : POA-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 02-Yr Rainfall=2.95"

Area (sf)	CN	Description
3,783	98	Roofs, HSG D
3,783		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR-55 MIN**

Summary for Subcatchment 7S: Bld "B" Roof North

Runoff = 0.25 cfs @ 12.08 hrs, Volume= 0.020 af, Depth= 2.72"
Routed to Pond B1 : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 02-Yr Rainfall=2.95"

Area (sf)	CN	Description
3,790	98	Roofs, HSG D
3,790		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR-55 MIN**

Summary for Subcatchment 8S: Bld "C" Roof South

Runoff = 0.70 cfs @ 12.08 hrs, Volume= 0.055 af, Depth= 2.72"
Routed to Pond D1 : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 02-Yr Rainfall=2.95"

Area (sf)	CN	Description
10,638	98	Roofs, HSG D
10,638		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR-55 MIN**

Summary for Subcatchment 9S: (new Subcat)

Runoff = 0.38 cfs @ 12.09 hrs, Volume= 0.028 af, Depth= 1.15"
Routed to Pond B2 : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 02-Yr Rainfall=2.95"

Area (sf)	CN	Description
6,055	98	Paved parking, HSG D
6,447	61	>75% Grass cover, Good, HSG B
12,502	79	Weighted Average
6,447		51.57% Pervious Area
6,055		48.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 10S: (new Subcat)

Runoff = 1.37 cfs @ 12.09 hrs, Volume= 0.099 af, Depth= 1.21"
Routed to Pond B1 : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 02-Yr Rainfall=2.95"

Area (sf)	CN	Description
22,026	98	Paved parking, HSG D
20,696	61	>75% Grass cover, Good, HSG B
42,722	80	Weighted Average
20,696		48.44% Pervious Area
22,026		51.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 11S: Po-01- Wetlands South (Pocket)

Runoff = 0.54 cfs @ 12.84 hrs, Volume= 0.135 af, Depth= 0.35"
Routed to Reach 12R : 24" Culvert under New Roadway

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 02-Yr Rainfall=2.95"

Area (sf)	CN	Description
138,377	55	Woods, Good, HSG B
28,987	70	Woods, Good, HSG C
36,598	77	Woods, Good, HSG D
203,962	61	Weighted Average
203,962		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.5	100	0.0250	0.08		**Sheet Flow, Woods-Wetland**
					Woods: Light underbrush n= 0.400 P2= 2.95"
25.0	410	0.0030	0.27		**Shallow Concentrated Flow, SCF-Wetland to Culvert Inlet**
					Woodland Kv= 5.0 fps
45.5	510	Total			

Summary for Subcatchment 12S: (new Subcat)

Runoff = 1.01 cfs @ 12.10 hrs, Volume= 0.077 af, Depth= 0.93"
Routed to Pond B1 : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 02-Yr Rainfall=2.95"

Area (sf)	CN	Description
10,866	98	Paved parking, HSG D
17,745	61	>75% Grass cover, Good, HSG B
14,477	74	>75% Grass cover, Good, HSG C
43,088	75	Weighted Average
32,222		74.78% Pervious Area
10,866		25.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 13S: (new Subcat)

Runoff = 1.77 cfs @ 12.09 hrs, Volume= 0.127 af, Depth= 2.02"
Routed to Pond A1 : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 02-Yr Rainfall=2.95"

Area (sf)	CN	Description
15,471	98	Paved parking, HSG D
7,579	98	Roofs, HSG D
9,757	74	>75% Grass cover, Good, HSG C
32,807	91	Weighted Average
9,757		29.74% Pervious Area
23,050		70.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 14S: (new Subcat)

Runoff = 1.77 cfs @ 12.09 hrs, Volume= 0.125 af, Depth= 1.70"
Routed to Pond A2 : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 02-Yr Rainfall=2.95"

Area (sf)	CN	Description
20,858	98	Paved parking, HSG D
17,816	74	>75% Grass cover, Good, HSG C
38,674	87	Weighted Average
17,816		46.07% Pervious Area
20,858		53.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 15S: (new Subcat)

Runoff = 0.61 cfs @ 12.09 hrs, Volume= 0.044 af, Depth= 1.28"
Routed to Link POA-01 : POA-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 02-Yr Rainfall=2.95"

Area (sf)	CN	Description
9,895	98	Paved parking, HSG D
8,025	61	>75% Grass cover, Good, HSG B
17,920	81	Weighted Average
8,025		44.78% Pervious Area
9,895		55.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment Po-01: Po-01- Wetlands North

Runoff = 4.88 cfs @ 13.26 hrs, Volume= 1.210 af, Depth= 0.98"
Routed to Link POA-01 : POA-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 02-Yr Rainfall=2.95"

Area (sf)	CN	Description
18,190	98	Paved parking, HSG D
6,820	98	Roofs, HSG D
2,532	55	Woods, Good, HSG B
131,043	70	Woods, Good, HSG C
485,662	77	Woods, Good, HSG D
644,247	76	Weighted Average
619,237		96.12% Pervious Area
25,010		3.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
34.0	100	0.0070	0.05		**Sheet Flow, Woods-Wetland** Woods: Light underbrush n= 0.400 P2= 2.95"
55.7	1,585	0.0090	0.47		**Shallow Concentrated Flow, SCF-Wetland to Culvert Inlet** Woodland Kv= 5.0 fps
89.7	1,685	Total			

Summary for Reach 12R: 24" Culvert under New Roadway

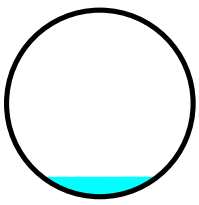
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 7.366 ac, 25.83% Impervious, Inflow Depth > 0.47" for 02-Yr event
Inflow = 0.56 cfs @ 12.89 hrs, Volume= 0.288 af
Outflow = 0.56 cfs @ 12.89 hrs, Volume= 0.288 af, Atten= 0%, Lag= 0.2 min
Routed to Link POA-01 : POA-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 3.04 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 0.88 fps, Avg. Travel Time= 0.9 min

Peak Storage= 9 cf @ 12.89 hrs
Average Depth at Peak Storage= 0.22' , Surface Width= 1.24'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 22.62 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 50.0' Slope= 0.0100 '/'
Inlet Invert= 172.50', Outlet Invert= 172.00'



Summary for Pond A1: Wet Pond

Inflow Area = 0.753 ac, 70.26% Impervious, Inflow Depth = 2.02" for 02-Yr event
Inflow = 1.77 cfs @ 12.09 hrs, Volume= 0.127 af
Outflow = 0.21 cfs @ 12.74 hrs, Volume= 0.059 af, Atten= 88%, Lag= 39.4 min
Primary = 0.21 cfs @ 12.74 hrs, Volume= 0.059 af
Routed to Link POA-01 : POA-1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link POA-01 : POA-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 170.68' @ 12.74 hrs Surf.Area= 3,412 sf Storage= 3,273 cf

Plug-Flow detention time= 292.1 min calculated for 0.059 af (46% of inflow)
Center-of-Mass det. time= 176.7 min (982.3 - 805.6)

Volume	Invert	Avail.Storage	Storage Description
#1	167.00'	2,961 cf	**Permanent Pool (Prismatic)** Listed below (Recalc)
#2	170.50'	1,948 cf	**Storm Event Storage (Prismatic)** Listed below (Recalc)
		4,909 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
167.00	40	0	0
170.50	1,652	2,961	2,961

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
170.50	1,652	0	0
171.50	2,243	1,948	1,948

Device	Routing	Invert	Outlet Devices
#1	Primary	170.50'	**24.0" Round Culvert X 2.00** L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 170.50' / 170.20' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf
#2	Device 1	170.50'	**24.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	171.00'	**24.0" Horiz. Overflow Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	171.25'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=0.21 cfs @ 12.74 hrs HW=170.68' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.21 cfs of 0.41 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.21 cfs @ 1.46 fps)
  └─**3=Overflow Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=167.00' TW=0.00' (Dynamic Tailwater)
└─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond A2: Wet Pond

Inflow Area = 0.888 ac, 53.93% Impervious, Inflow Depth = 1.70" for 02-Yr event
Inflow = 1.77 cfs @ 12.09 hrs, Volume= 0.125 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link POA-01 : POA-1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link POA-01 : POA-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 170.29' @ 24.34 hrs Surf.Area= 2,617 sf Storage= 5,464 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	167.00'	6,034 cf	**Permanent Pool (Prismatic)** Listed below (Recalc)
#2	170.50'	3,094 cf	**Storm Event Storage (Prismatic)** Listed below (Recalc)
		9,128 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
167.00	708	0	0
170.50	2,740	6,034	6,034

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
170.50	2,740	0	0
171.50	3,448	3,094	3,094

Device	Routing	Invert	Outlet Devices
#1	Primary	170.50'	**24.0" Round Culvert** L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 170.50' / 170.20' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf
#2	Device 1	170.50'	**12.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	171.00'	**24.0" Horiz. Overflow Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	171.25'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50

Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68
2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=167.00' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Controls 0.00 cfs)
└─**2=Orifice/Grate** (Controls 0.00 cfs)
└─**3=Overflow Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=167.00' TW=0.00' (Dynamic Tailwater)
└─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond B1: Wet Pond

Inflow Area = 2.057 ac, 40.94% Impervious, Inflow Depth = 1.14" for 02-Yr event
Inflow = 2.63 cfs @ 12.09 hrs, Volume= 0.195 af
Outflow = 0.04 cfs @ 22.70 hrs, Volume= 0.024 af, Atten= 98%, Lag= 636.6 min
Primary = 0.04 cfs @ 22.70 hrs, Volume= 0.024 af
Routed to Link POA-01 : POA-1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link POA-01 : POA-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 173.61' @ 22.70 hrs Surf.Area= 8,198 sf Storage= 7,895 cf

Plug-Flow detention time= 886.8 min calculated for 0.024 af (12% of inflow)
Center-of-Mass det. time= 709.9 min (1,554.5 - 844.7)

Volume	Invert	Avail.Storage	Storage Description
#1	171.00'	7,459 cf	**Permanent Pool (Prismatic)** Listed below (Recalc)
#2	173.50'	10,050 cf	**Storm Event Storage (Prismatic)** Listed below (Recalc)
		17,509 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
171.00	1,920	0	0
173.50	4,047	7,459	7,459

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
173.50	4,047	0	0
175.50	6,003	10,050	10,050

Device	Routing	Invert	Outlet Devices
#1	Primary	173.50'	**12.0" Round Culvert** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 173.50' / 173.30' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	173.50'	**10.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Secondary	175.00'	**10.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50

Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65
2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.04 cfs @ 22.70 hrs HW=173.61' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Barrel Controls 0.04 cfs @ 1.48 fps)
└**2=Orifice/Grate** (Passes 0.04 cfs of 0.05 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=171.00' TW=0.00' (Dynamic Tailwater)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond B2: Wet Pond

Inflow Area = 0.287 ac, 48.43% Impervious, Inflow Depth = 1.15" for 02-Yr event
Inflow = 0.38 cfs @ 12.09 hrs, Volume= 0.028 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 12R : 24" Culvert under New Roadway
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 12R : 24" Culvert under New Roadway

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 177.74' @ 24.34 hrs Surf.Area= 998 sf Storage= 1,200 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	176.00'	1,472 cf	**Permanent Pool (Prismatic)** Listed below (Recalc)
#2	178.00'	2,141 cf	**Storm Event Storage (Prismatic)** Listed below (Recalc)
		3,613 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
176.00	382	0	0
178.00	1,090	1,472	1,472

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
178.00	1,090	0	0
179.50	1,764	2,141	2,141

Device	Routing	Invert	Outlet Devices
#1	Primary	178.00'	**12.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 178.00' / 177.00' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	178.00'	**2.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Secondary	179.00'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68

2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=176.00' TW=172.50' (Dynamic Tailwater)
└**1=Culvert** (Controls 0.00 cfs)
└**2=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=176.00' TW=172.50' (Dynamic Tailwater)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond C1: Biortention Basin

Inflow Area = 1.444 ac, 56.65% Impervious, Inflow Depth = 1.81" for 02-Yr event
Inflow = 2.98 cfs @ 12.09 hrs, Volume= 0.217 af
Outflow = 0.03 cfs @ 23.46 hrs, Volume= 0.215 af, Atten= 99%, Lag= 682.4 min
Primary = 0.03 cfs @ 23.46 hrs, Volume= 0.215 af
Routed to Link POA-01 : POA-1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link POA-01 : POA-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 172.93' @ 23.46 hrs Surf.Area= 15,573 sf Storage= 7,813 cf

Plug-Flow detention time= 2,374.7 min calculated for 0.215 af (99% of inflow)
Center-of-Mass det. time= 2,369.0 min (3,177.8 - 808.8)

Volume	Invert	Avail.Storage	Storage Description
#1	170.20'	988 cf	**Stone Resevoir (Prismatic)** Listed below (Recalc) 2,470 cf Overall x 40.0% Voids
#2	170.70'	2,964 cf	**Filter Media (Prismatic)** Listed below (Recalc) 7,410 cf Overall x 40.0% Voids
#3	172.20'	17,899 cf	**Pond Storage (Prismatic)** Listed below (Recalc)
		21,851 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
170.20	4,940	0	0
170.70	4,940	2,470	2,470

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
170.70	4,940	0	0
172.20	4,940	7,410	7,410

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
172.20	4,940	0	0
175.00	7,845	17,899	17,899

Device	Routing	Invert	Outlet Devices
#1	Primary	170.20'	**12.0" Round Culvert** L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 170.20' / 169.80' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	170.20'	**0.2" Horiz. Underdrain** X 20 rows C= 0.600 Limited to weir flow at low heads
#3	Device 1	174.00'	**24.0" Horiz. Overflow Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	174.50'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=0.03 cfs @ 23.46 hrs HW=172.93' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.03 cfs of 5.54 cfs potential flow)
  ├─**2=Underdrain** (Orifice Controls 0.03 cfs @ 7.95 fps)
  └─**3=Overflow Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=170.20' TW=0.00' (Dynamic Tailwater)
└─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond D1: Wet Pond

Inflow Area = 2.396 ac, 73.58% Impervious, Inflow Depth = 2.08" for 02-Yr event
Inflow = 5.67 cfs @ 12.09 hrs, Volume= 0.416 af
Outflow = 0.26 cfs @ 14.89 hrs, Volume= 0.152 af, Atten= 95%, Lag= 168.2 min
Primary = 0.26 cfs @ 14.89 hrs, Volume= 0.152 af
Routed to Reach 12R : 24" Culvert under New Roadway
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 12R : 24" Culvert under New Roadway

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 173.32' @ 14.89 hrs Surf.Area= 10,417 sf Storage= 13,129 cf

Plug-Flow detention time= 476.2 min calculated for 0.152 af (37% of inflow)
Center-of-Mass det. time= 343.0 min (1,140.6 - 797.6)

Volume	Invert	Avail.Storage	Storage Description
#1	169.00'	11,450 cf	**Permanent Pool (Prismatic)** Listed below (Recalc)
#2	173.00'	24,810 cf	**Storm Event Storage (Prismatic)** Listed below (Recalc)
		36,260 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
169.00	885	0	0
173.00	4,840	11,450	11,450

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
173.00	4,840	0	0
176.00	11,700	24,810	24,810

Device	Routing	Invert	Outlet Devices
#1	Primary	173.00'	**12.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 173.00' / 172.50' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	173.00'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Secondary	175.50'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=0.26 cfs @ 14.89 hrs HW=173.32' TW=172.69' (Dynamic Tailwater)
↑—**1=Culvert** (Passes 0.26 cfs of 0.41 cfs potential flow)
↑—**2=Orifice/Grate** (Orifice Controls 0.26 cfs @ 1.93 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=169.00' TW=172.50' (Dynamic Tailwater)
↑—**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Link POA-01: POA-1

Inflow Area = 27.993 ac, 20.21% Impervious, Inflow Depth > 0.82" for 02-Yr event
Inflow = 5.69 cfs @ 13.26 hrs, Volume= 1.903 af
Primary = 5.69 cfs @ 13.26 hrs, Volume= 1.903 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs

Time span=0.00-120.00 hrs, dt=0.01 hrs, 12001 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Bld "D" Roof North Runoff Area=8,604 sf 100.00% Impervious Runoff Depth=4.22"
Tc=6.0 min CN=98 Runoff=0.86 cfs 0.070 af

Subcatchment 2S: Bld "D" Roof South Runoff Area=8,625 sf 100.00% Impervious Runoff Depth=4.22"
Tc=6.0 min CN=98 Runoff=0.86 cfs 0.070 af

Subcatchment 3S: Bld "C" Roof North Runoff Area=10,638 sf 100.00% Impervious Runoff Depth=4.22"
Tc=6.0 min CN=98 Runoff=1.06 cfs 0.086 af

Subcatchment 4S: (new Subcat) Runoff Area=52,271 sf 47.83% Impervious Runoff Depth=2.97"
Tc=6.0 min CN=86 Runoff=4.14 cfs 0.297 af

Subcatchment 5S: (new Subcat) Runoff Area=85,116 sf 67.61% Impervious Runoff Depth=3.36"
Tc=6.0 min CN=90 Runoff=7.47 cfs 0.547 af

Subcatchment 6S: Bld "B" Roof South Runoff Area=3,783 sf 100.00% Impervious Runoff Depth=4.22"
Tc=6.0 min CN=98 Runoff=0.38 cfs 0.031 af

Subcatchment 7S: Bld "B" Roof North Runoff Area=3,790 sf 100.00% Impervious Runoff Depth=4.22"
Tc=6.0 min CN=98 Runoff=0.38 cfs 0.031 af

Subcatchment 8S: Bld "C" Roof South Runoff Area=10,638 sf 100.00% Impervious Runoff Depth=4.22"
Tc=6.0 min CN=98 Runoff=1.06 cfs 0.086 af

Subcatchment 9S: (new Subcat) Runoff Area=12,502 sf 48.43% Impervious Runoff Depth=2.34"
Tc=6.0 min CN=79 Runoff=0.79 cfs 0.056 af

Subcatchment 10S: (new Subcat) Runoff Area=42,722 sf 51.56% Impervious Runoff Depth=2.43"
Tc=6.0 min CN=80 Runoff=2.79 cfs 0.198 af

Subcatchment 11S: Po-01- Wetlands Runoff Area=203,962 sf 0.00% Impervious Runoff Depth=1.06"
Flow Length=510' Tc=45.5 min CN=61 Runoff=2.32 cfs 0.412 af

Subcatchment 12S: (new Subcat) Runoff Area=43,088 sf 25.22% Impervious Runoff Depth=2.02"
Tc=6.0 min CN=75 Runoff=2.32 cfs 0.166 af

Subcatchment 13S: (new Subcat) Runoff Area=32,807 sf 70.26% Impervious Runoff Depth=3.46"
Tc=6.0 min CN=91 Runoff=2.95 cfs 0.217 af

Subcatchment 14S: (new Subcat) Runoff Area=38,674 sf 53.93% Impervious Runoff Depth=3.06"
Tc=6.0 min CN=87 Runoff=3.15 cfs 0.227 af

Subcatchment 15S: (new Subcat) Runoff Area=17,920 sf 55.22% Impervious Runoff Depth=2.51"
Tc=6.0 min CN=81 Runoff=1.21 cfs 0.086 af

Subcatchment Po-01: Po-01- Wetlands Runoff Area=644,247 sf 3.88% Impervious Runoff Depth=2.10"
Flow Length=1,685' Tc=89.7 min CN=76 Runoff=10.99 cfs 2.586 af

Reach 12R: 24" Culvert under New Avg. Flow Depth=0.51' Max Vel=5.10 fps Inflow=3.21 cfs 0.874 af
24.0" Round Pipe n=0.013 L=50.0' S=0.0100 '/' Capacity=22.62 cfs Outflow=3.21 cfs 0.874 af

Pond A1: Wet Pond Peak Elev=171.04' Storage=3,944 cf Inflow=2.95 cfs 0.217 af
Primary=1.90 cfs 0.149 af Secondary=0.00 cfs 0.000 af Outflow=1.90 cfs 0.149 af

Pond A2: Wet Pond Peak Elev=170.72' Storage=6,645 cf Inflow=3.15 cfs 0.227 af
Primary=0.20 cfs 0.088 af Secondary=0.00 cfs 0.000 af Outflow=0.20 cfs 0.088 af

Pond B1: Wet Pond Peak Elev=173.93' Storage=9,284 cf Inflow=5.50 cfs 0.395 af
Primary=0.62 cfs 0.224 af Secondary=0.00 cfs 0.000 af Outflow=0.62 cfs 0.224 af

Pond B2: Wet Pond Peak Elev=178.20' Storage=1,699 cf Inflow=0.79 cfs 0.056 af
Primary=0.04 cfs 0.022 af Secondary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.022 af

Pond C1: Biortention Basin Peak Elev=174.01' Storage=14,575 cf Inflow=5.20 cfs 0.383 af
Primary=0.05 cfs 0.321 af Secondary=0.00 cfs 0.000 af Outflow=0.05 cfs 0.321 af

Pond D1: Wet Pond Peak Elev=174.14' Storage=18,482 cf Inflow=9.40 cfs 0.702 af
Primary=0.89 cfs 0.439 af Secondary=0.00 cfs 0.000 af Outflow=0.89 cfs 0.439 af

Link POA-01: POA-1 Inflow=14.48 cfs 4.428 af
Primary=14.48 cfs 4.428 af

Total Runoff Area = 27.993 ac Runoff Volume = 5.165 af Average Runoff Depth = 2.21"
79.79% Pervious = 22.337 ac 20.21% Impervious = 5.656 ac

Summary for Subcatchment 1S: Bld "D" Roof North

Runoff = 0.86 cfs @ 12.08 hrs, Volume= 0.070 af, Depth= 4.22"
Routed to Link POA-01 : POA-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Yr Rainfall=4.46"

Area (sf)	CN	Description
8,604	98	Roofs, HSG D
8,604		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR-55 MIN**

Summary for Subcatchment 2S: Bld "D" Roof South

Runoff = 0.86 cfs @ 12.08 hrs, Volume= 0.070 af, Depth= 4.22"
Routed to Pond D1 : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Yr Rainfall=4.46"

Area (sf)	CN	Description
8,625	98	Roofs, HSG D
8,625		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR-55 MIN**

Summary for Subcatchment 3S: Bld "C" Roof North

Runoff = 1.06 cfs @ 12.08 hrs, Volume= 0.086 af, Depth= 4.22"
Routed to Pond C1 : Biortention Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Yr Rainfall=4.46"

Area (sf)	CN	Description
10,638	98	Roofs, HSG D
10,638		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR-55 MIN**

Summary for Subcatchment 4S: (new Subcat)

Runoff = 4.14 cfs @ 12.09 hrs, Volume= 0.297 af, Depth= 2.97"
Routed to Pond C1 : Biortention Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Yr Rainfall=4.46"

Area (sf)	CN	Description
26,920	74	>75% Grass cover, Good, HSG C
348	78	Meadow, non-grazed, HSG D
25,003	98	Paved parking, HSG D
52,271	86	Weighted Average
27,268		52.17% Pervious Area
25,003		47.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 5S: (new Subcat)

Runoff = 7.47 cfs @ 12.09 hrs, Volume= 0.547 af, Depth= 3.36"
Routed to Pond D1 : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Yr Rainfall=4.46"

Area (sf)	CN	Description
27,312	74	>75% Grass cover, Good, HSG C
57,543	98	Paved parking, HSG D
261	61	>75% Grass cover, Good, HSG B
85,116	90	Weighted Average
27,573		32.39% Pervious Area
57,543		67.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 6S: Bld "B" Roof South

Runoff = 0.38 cfs @ 12.08 hrs, Volume= 0.031 af, Depth= 4.22"
Routed to Link POA-01 : POA-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Yr Rainfall=4.46"

Area (sf)	CN	Description
3,783	98	Roofs, HSG D
3,783		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR-55 MIN**

Summary for Subcatchment 7S: Bld "B" Roof North

Runoff = 0.38 cfs @ 12.08 hrs, Volume= 0.031 af, Depth= 4.22"
Routed to Pond B1 : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Yr Rainfall=4.46"

Area (sf)	CN	Description
3,790	98	Roofs, HSG D
3,790		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR-55 MIN**

Summary for Subcatchment 8S: Bld "C" Roof South

Runoff = 1.06 cfs @ 12.08 hrs, Volume= 0.086 af, Depth= 4.22"
Routed to Pond D1 : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Yr Rainfall=4.46"

Area (sf)	CN	Description
10,638	98	Roofs, HSG D
10,638		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR-55 MIN**

Summary for Subcatchment 9S: (new Subcat)

Runoff = 0.79 cfs @ 12.09 hrs, Volume= 0.056 af, Depth= 2.34"
Routed to Pond B2 : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Yr Rainfall=4.46"

Area (sf)	CN	Description
6,055	98	Paved parking, HSG D
6,447	61	>75% Grass cover, Good, HSG B
12,502	79	Weighted Average
6,447		51.57% Pervious Area
6,055		48.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 10S: (new Subcat)

Runoff = 2.79 cfs @ 12.09 hrs, Volume= 0.198 af, Depth= 2.43"
Routed to Pond B1 : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Yr Rainfall=4.46"

Area (sf)	CN	Description
22,026	98	Paved parking, HSG D
20,696	61	>75% Grass cover, Good, HSG B
42,722	80	Weighted Average
20,696		48.44% Pervious Area
22,026		51.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 11S: Po-01- Wetlands South (Pocket)

Runoff = 2.32 cfs @ 12.69 hrs, Volume= 0.412 af, Depth= 1.06"
Routed to Reach 12R : 24" Culvert under New Roadway

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Yr Rainfall=4.46"

Area (sf)	CN	Description
138,377	55	Woods, Good, HSG B
28,987	70	Woods, Good, HSG C
36,598	77	Woods, Good, HSG D
203,962	61	Weighted Average
203,962		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.5	100	0.0250	0.08		**Sheet Flow, Woods-Wetland**
					Woods: Light underbrush n= 0.400 P2= 2.95"
25.0	410	0.0030	0.27		**Shallow Concentrated Flow, SCF-Wetland to Culvert Inlet**
					Woodland Kv= 5.0 fps
45.5	510	Total			

Summary for Subcatchment 12S: (new Subcat)

Runoff = 2.32 cfs @ 12.09 hrs, Volume= 0.166 af, Depth= 2.02"
Routed to Pond B1 : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Yr Rainfall=4.46"

Area (sf)	CN	Description
10,866	98	Paved parking, HSG D
17,745	61	>75% Grass cover, Good, HSG B
14,477	74	>75% Grass cover, Good, HSG C
43,088	75	Weighted Average
32,222		74.78% Pervious Area
10,866		25.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 13S: (new Subcat)

Runoff = 2.95 cfs @ 12.09 hrs, Volume= 0.217 af, Depth= 3.46"
Routed to Pond A1 : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Yr Rainfall=4.46"

Area (sf)	CN	Description
15,471	98	Paved parking, HSG D
7,579	98	Roofs, HSG D
9,757	74	>75% Grass cover, Good, HSG C
32,807	91	Weighted Average
9,757		29.74% Pervious Area
23,050		70.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 14S: (new Subcat)

Runoff = 3.15 cfs @ 12.09 hrs, Volume= 0.227 af, Depth= 3.06"
Routed to Pond A2 : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Yr Rainfall=4.46"

Area (sf)	CN	Description
20,858	98	Paved parking, HSG D
17,816	74	>75% Grass cover, Good, HSG C
38,674	87	Weighted Average
17,816		46.07% Pervious Area
20,858		53.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 15S: (new Subcat)

Runoff = 1.21 cfs @ 12.09 hrs, Volume= 0.086 af, Depth= 2.51"
Routed to Link POA-01 : POA-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Yr Rainfall=4.46"

Area (sf)	CN	Description
9,895	98	Paved parking, HSG D
8,025	61	>75% Grass cover, Good, HSG B
17,920	81	Weighted Average
8,025		44.78% Pervious Area
9,895		55.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment Po-01: Po-01- Wetlands North

Runoff = 10.99 cfs @ 13.25 hrs, Volume= 2.586 af, Depth= 2.10"
Routed to Link POA-01 : POA-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Yr Rainfall=4.46"

Area (sf)	CN	Description
18,190	98	Paved parking, HSG D
6,820	98	Roofs, HSG D
2,532	55	Woods, Good, HSG B
131,043	70	Woods, Good, HSG C
485,662	77	Woods, Good, HSG D
644,247	76	Weighted Average
619,237		96.12% Pervious Area
25,010		3.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
34.0	100	0.0070	0.05		**Sheet Flow, Woods-Wetland** Woods: Light underbrush n= 0.400 P2= 2.95"
55.7	1,585	0.0090	0.47		**Shallow Concentrated Flow, SCF-Wetland to Culvert Inlet** Woodland Kv= 5.0 fps
89.7	1,685	Total			

Summary for Reach 12R: 24" Culvert under New Roadway

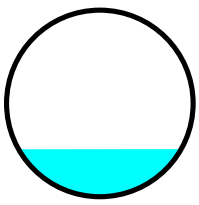
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 7.366 ac, 25.83% Impervious, Inflow Depth = 1.42" for 10-Yr event
Inflow = 3.21 cfs @ 12.70 hrs, Volume= 0.874 af
Outflow = 3.21 cfs @ 12.70 hrs, Volume= 0.874 af, Atten= 0%, Lag= 0.3 min
Routed to Link POA-01 : POA-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 5.10 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 0.98 fps, Avg. Travel Time= 0.9 min

Peak Storage= 31 cf @ 12.70 hrs
Average Depth at Peak Storage= 0.51' , Surface Width= 1.74'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 22.62 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 50.0' Slope= 0.0100 '/'
Inlet Invert= 172.50', Outlet Invert= 172.00'



Summary for Pond A1: Wet Pond

Inflow Area = 0.753 ac, 70.26% Impervious, Inflow Depth = 3.46" for 10-Yr event
Inflow = 2.95 cfs @ 12.09 hrs, Volume= 0.217 af
Outflow = 1.90 cfs @ 12.18 hrs, Volume= 0.149 af, Atten= 35%, Lag= 5.5 min
Primary = 1.90 cfs @ 12.18 hrs, Volume= 0.149 af
Routed to Link POA-01 : POA-1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link POA-01 : POA-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 171.04' @ 12.18 hrs Surf.Area= 3,624 sf Storage= 3,944 cf

Plug-Flow detention time= 187.1 min calculated for 0.149 af (69% of inflow)
Center-of-Mass det. time= 93.3 min (884.0 - 790.6)

Volume	Invert	Avail.Storage	Storage Description
#1	167.00'	2,961 cf	**Permanent Pool (Prismatic)** Listed below (Recalc)
#2	170.50'	1,948 cf	**Storm Event Storage (Prismatic)** Listed below (Recalc)
		4,909 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
167.00	40	0	0
170.50	1,652	2,961	2,961

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
170.50	1,652	0	0
171.50	2,243	1,948	1,948

Device	Routing	Invert	Outlet Devices
#1	Primary	170.50'	**24.0" Round Culvert X 2.00** L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 170.50' / 170.20' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf
#2	Device 1	170.50'	**24.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	171.00'	**24.0" Horiz. Overflow Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	171.25'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=1.90 cfs @ 12.18 hrs HW=171.04' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.90 cfs of 3.18 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 1.72 cfs @ 2.51 fps)
  └─**3=Overflow Grate** (Weir Controls 0.18 cfs @ 0.67 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=167.00' TW=0.00' (Dynamic Tailwater)
└─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond A2: Wet Pond

Inflow Area = 0.888 ac, 53.93% Impervious, Inflow Depth = 3.06" for 10-Yr event
Inflow = 3.15 cfs @ 12.09 hrs, Volume= 0.227 af
Outflow = 0.20 cfs @ 13.83 hrs, Volume= 0.088 af, Atten= 94%, Lag= 104.4 min
Primary = 0.20 cfs @ 13.83 hrs, Volume= 0.088 af
Routed to Link POA-01 : POA-1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link POA-01 : POA-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 170.72' @ 13.83 hrs Surf.Area= 5,634 sf Storage= 6,645 cf

Plug-Flow detention time= 375.1 min calculated for 0.088 af (39% of inflow)
Center-of-Mass det. time= 251.3 min (1,056.8 - 805.5)

Volume	Invert	Avail.Storage	Storage Description
#1	167.00'	6,034 cf	**Permanent Pool (Prismatic)** Listed below (Recalc)
#2	170.50'	3,094 cf	**Storm Event Storage (Prismatic)** Listed below (Recalc)
		9,128 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
167.00	708	0	0
170.50	2,740	6,034	6,034

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
170.50	2,740	0	0
171.50	3,448	3,094	3,094

Device	Routing	Invert	Outlet Devices
#1	Primary	170.50'	**24.0" Round Culvert** L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 170.50' / 170.20' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf
#2	Device 1	170.50'	**12.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	171.00'	**24.0" Horiz. Overflow Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	171.25'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50

Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68
2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=0.20 cfs @ 13.83 hrs HW=170.72' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.20 cfs of 0.29 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.20 cfs @ 1.59 fps)
  └─**3=Overflow Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=167.00' TW=0.00' (Dynamic Tailwater)
└─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond B1: Wet Pond

Inflow Area = 2.057 ac, 40.94% Impervious, Inflow Depth = 2.31" for 10-Yr event
Inflow = 5.50 cfs @ 12.09 hrs, Volume= 0.395 af
Outflow = 0.62 cfs @ 12.91 hrs, Volume= 0.224 af, Atten= 89%, Lag= 49.0 min
Primary = 0.62 cfs @ 12.91 hrs, Volume= 0.224 af
Routed to Link POA-01 : POA-1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link POA-01 : POA-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 173.93' @ 12.91 hrs Surf.Area= 8,513 sf Storage= 9,284 cf

Plug-Flow detention time= 299.9 min calculated for 0.224 af (57% of inflow)
Center-of-Mass det. time= 185.7 min (1,012.3 - 826.6)

Volume	Invert	Avail.Storage	Storage Description
#1	171.00'	7,459 cf	**Permanent Pool (Prismatic)** Listed below (Recalc)
#2	173.50'	10,050 cf	**Storm Event Storage (Prismatic)** Listed below (Recalc)
		17,509 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
171.00	1,920	0	0
173.50	4,047	7,459	7,459

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
173.50	4,047	0	0
175.50	6,003	10,050	10,050

Device	Routing	Invert	Outlet Devices
#1	Primary	173.50'	**12.0" Round Culvert** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 173.50' / 173.30' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	173.50'	**10.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Secondary	175.00'	**10.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50

Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65
2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.62 cfs @ 12.91 hrs HW=173.93' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 0.62 cfs @ 2.83 fps)
└─**2=Orifice/Grate** (Passes 0.62 cfs of 0.63 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=171.00' TW=0.00' (Dynamic Tailwater)
└─**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond B2: Wet Pond

Inflow Area = 0.287 ac, 48.43% Impervious, Inflow Depth = 2.34" for 10-Yr event
Inflow = 0.79 cfs @ 12.09 hrs, Volume= 0.056 af
Outflow = 0.04 cfs @ 15.34 hrs, Volume= 0.022 af, Atten= 95%, Lag= 195.1 min
Primary = 0.04 cfs @ 15.34 hrs, Volume= 0.022 af
Routed to Reach 12R : 24" Culvert under New Roadway
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 12R : 24" Culvert under New Roadway

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 178.20' @ 15.34 hrs Surf.Area= 2,270 sf Storage= 1,699 cf

Plug-Flow detention time= 425.1 min calculated for 0.022 af (40% of inflow)
Center-of-Mass det. time= 301.3 min (1,130.9 - 829.6)

Volume	Invert	Avail.Storage	Storage Description
#1	176.00'	1,472 cf	**Permanent Pool (Prismatic)** Listed below (Recalc)
#2	178.00'	2,141 cf	**Storm Event Storage (Prismatic)** Listed below (Recalc)
		3,613 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
176.00	382	0	0
178.00	1,090	1,472	1,472

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
178.00	1,090	0	0
179.50	1,764	2,141	2,141

Device	Routing	Invert	Outlet Devices
#1	Primary	178.00'	**12.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 178.00' / 177.00' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	178.00'	**2.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Secondary	179.00'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68

2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=0.04 cfs @ 15.34 hrs HW=178.20' TW=172.81' (Dynamic Tailwater)
1=Culvert (Passes 0.04 cfs of 0.17 cfs potential flow)
2=Orifice/Grate (Orifice Controls 0.04 cfs @ 1.64 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=176.00' TW=172.50' (Dynamic Tailwater)
3=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond C1: Biortention Basin

Inflow Area = 1.444 ac, 56.65% Impervious, Inflow Depth = 3.18" for 10-Yr event
Inflow = 5.20 cfs @ 12.09 hrs, Volume= 0.383 af
Outflow = 0.05 cfs @ 23.73 hrs, Volume= 0.321 af, Atten= 99%, Lag= 698.8 min
Primary = 0.05 cfs @ 23.73 hrs, Volume= 0.321 af
Routed to Link POA-01 : POA-1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link POA-01 : POA-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 174.01' @ 23.73 hrs Surf.Area= 16,695 sf Storage= 14,575 cf

Plug-Flow detention time= 2,928.0 min calculated for 0.321 af (84% of inflow)
Center-of-Mass det. time= 2,860.6 min (3,656.3 - 795.6)

Volume	Invert	Avail.Storage	Storage Description
#1	170.20'	988 cf	**Stone Resevoir (Prismatic)** Listed below (Recalc) 2,470 cf Overall x 40.0% Voids
#2	170.70'	2,964 cf	**Filter Media (Prismatic)** Listed below (Recalc) 7,410 cf Overall x 40.0% Voids
#3	172.20'	17,899 cf	**Pond Storage (Prismatic)** Listed below (Recalc)
		21,851 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
170.20	4,940	0	0
170.70	4,940	2,470	2,470

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
170.70	4,940	0	0
172.20	4,940	7,410	7,410

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
172.20	4,940	0	0
175.00	7,845	17,899	17,899

Device	Routing	Invert	Outlet Devices
#1	Primary	170.20'	**12.0" Round Culvert** L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 170.20' / 169.80' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	170.20'	**0.2" Horiz. Underdrain** X 20 rows C= 0.600 Limited to weir flow at low heads
#3	Device 1	174.00'	**24.0" Horiz. Overflow Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	174.50'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=0.05 cfs @ 23.73 hrs HW=174.01' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.05 cfs of 6.80 cfs potential flow)
  ├─**2=Underdrain** (Orifice Controls 0.04 cfs @ 9.40 fps)
  └─**3=Overflow Grate** (Weir Controls 0.01 cfs @ 0.28 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=170.20' TW=0.00' (Dynamic Tailwater)
└─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond D1: Wet Pond

Inflow Area = 2.396 ac, 73.58% Impervious, Inflow Depth = 3.52" for 10-Yr event
Inflow = 9.40 cfs @ 12.08 hrs, Volume= 0.702 af
Outflow = 0.89 cfs @ 12.93 hrs, Volume= 0.439 af, Atten= 90%, Lag= 50.6 min
Primary = 0.89 cfs @ 12.93 hrs, Volume= 0.439 af
Routed to Reach 12R : 24" Culvert under New Roadway
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 12R : 24" Culvert under New Roadway

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 174.14' @ 12.93 hrs Surf.Area= 12,296 sf Storage= 18,482 cf

Plug-Flow detention time= 313.0 min calculated for 0.439 af (62% of inflow)
Center-of-Mass det. time= 211.4 min (996.1 - 784.8)

Volume	Invert	Avail.Storage	Storage Description
#1	169.00'	11,450 cf	**Permanent Pool (Prismatic)** Listed below (Recalc)
#2	173.00'	24,810 cf	**Storm Event Storage (Prismatic)** Listed below (Recalc)
		36,260 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
169.00	885	0	0
173.00	4,840	11,450	11,450

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
173.00	4,840	0	0
176.00	11,700	24,810	24,810

Device	Routing	Invert	Outlet Devices
#1	Primary	173.00'	**12.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 173.00' / 172.50' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	173.00'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Secondary	175.50'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=0.89 cfs @ 12.93 hrs HW=174.14' TW=172.98' (Dynamic Tailwater)
↑—**1=Culvert** (Passes 0.89 cfs of 3.03 cfs potential flow)
↑—**2=Orifice/Grate** (Orifice Controls 0.89 cfs @ 4.55 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=169.00' TW=172.50' (Dynamic Tailwater)
↑—**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Link POA-01: POA-1

Inflow Area = 27.993 ac, 20.21% Impervious, Inflow Depth > 1.90" for 10-Yr event
Inflow = 14.48 cfs @ 13.16 hrs, Volume= 4.428 af
Primary = 14.48 cfs @ 13.16 hrs, Volume= 4.428 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs

Time span=0.00-120.00 hrs, dt=0.01 hrs, 12001 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Bld "D" Roof North Runoff Area=8,604 sf 100.00% Impervious Runoff Depth=6.51"
Tc=6.0 min CN=98 Runoff=1.31 cfs 0.107 af

Subcatchment 2S: Bld "D" Roof South Runoff Area=8,625 sf 100.00% Impervious Runoff Depth=6.51"
Tc=6.0 min CN=98 Runoff=1.31 cfs 0.107 af

Subcatchment 3S: Bld "C" Roof North Runoff Area=10,638 sf 100.00% Impervious Runoff Depth=6.51"
Tc=6.0 min CN=98 Runoff=1.62 cfs 0.133 af

Subcatchment 4S: (new Subcat) Runoff Area=52,271 sf 47.83% Impervious Runoff Depth=5.13"
Tc=6.0 min CN=86 Runoff=6.99 cfs 0.513 af

Subcatchment 5S: (new Subcat) Runoff Area=85,116 sf 67.61% Impervious Runoff Depth=5.58"
Tc=6.0 min CN=90 Runoff=12.08 cfs 0.908 af

Subcatchment 6S: Bld "B" Roof South Runoff Area=3,783 sf 100.00% Impervious Runoff Depth=6.51"
Tc=6.0 min CN=98 Runoff=0.57 cfs 0.047 af

Subcatchment 7S: Bld "B" Roof North Runoff Area=3,790 sf 100.00% Impervious Runoff Depth=6.51"
Tc=6.0 min CN=98 Runoff=0.58 cfs 0.047 af

Subcatchment 8S: Bld "C" Roof South Runoff Area=10,638 sf 100.00% Impervious Runoff Depth=6.51"
Tc=6.0 min CN=98 Runoff=1.62 cfs 0.133 af

Subcatchment 9S: (new Subcat) Runoff Area=12,502 sf 48.43% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=79 Runoff=1.46 cfs 0.104 af

Subcatchment 10S: (new Subcat) Runoff Area=42,722 sf 51.56% Impervious Runoff Depth=4.46"
Tc=6.0 min CN=80 Runoff=5.09 cfs 0.365 af

Subcatchment 11S: Po-01- Wetlands Runoff Area=203,962 sf 0.00% Impervious Runoff Depth=2.52"
Flow Length=510' Tc=45.5 min CN=61 Runoff=6.16 cfs 0.984 af

Subcatchment 12S: (new Subcat) Runoff Area=43,088 sf 25.22% Impervious Runoff Depth=3.93"
Tc=6.0 min CN=75 Runoff=4.56 cfs 0.324 af

Subcatchment 13S: (new Subcat) Runoff Area=32,807 sf 70.26% Impervious Runoff Depth=5.69"
Tc=6.0 min CN=91 Runoff=4.72 cfs 0.357 af

Subcatchment 14S: (new Subcat) Runoff Area=38,674 sf 53.93% Impervious Runoff Depth=5.24"
Tc=6.0 min CN=87 Runoff=5.26 cfs 0.388 af

Subcatchment 15S: (new Subcat) Runoff Area=17,920 sf 55.22% Impervious Runoff Depth=4.57"
Tc=6.0 min CN=81 Runoff=2.18 cfs 0.157 af

Subcatchment Po-01: Po-01- Wetlands Runoff Area=644,247 sf 3.88% Impervious Runoff Depth=4.04"
Flow Length=1,685' Tc=89.7 min CN=76 Runoff=21.36 cfs 4.974 af

Reach 12R: 24" Culvert under New Avg. Flow Depth=0.80' Max Vel=6.50 fps Inflow=7.63 cfs 1.940 af
24.0" Round Pipe n=0.013 L=50.0' S=0.0100 '/' Capacity=22.62 cfs Outflow=7.63 cfs 1.940 af

Pond A1: Wet Pond Peak Elev=171.19' Storage=4,247 cf Inflow=4.72 cfs 0.357 af
Primary=4.48 cfs 0.289 af Secondary=0.00 cfs 0.000 af Outflow=4.48 cfs 0.289 af

Pond A2: Wet Pond Peak Elev=171.16' Storage=7,988 cf Inflow=5.26 cfs 0.388 af
Primary=2.24 cfs 0.249 af Secondary=0.00 cfs 0.000 af Outflow=2.24 cfs 0.249 af

Pond B1: Wet Pond Peak Elev=174.98' Storage=14,499 cf Inflow=10.22 cfs 0.736 af
Primary=2.70 cfs 0.564 af Secondary=0.00 cfs 0.000 af Outflow=2.70 cfs 0.564 af

Pond B2: Wet Pond Peak Elev=178.95' Storage=2,704 cf Inflow=1.46 cfs 0.104 af
Primary=0.10 cfs 0.070 af Secondary=0.00 cfs 0.000 af Outflow=0.10 cfs 0.070 af

Pond C1: Biortention Basin Peak Elev=174.20' Storage=15,923 cf Inflow=8.61 cfs 0.645 af
Primary=1.91 cfs 0.583 af Secondary=0.00 cfs 0.000 af Outflow=1.91 cfs 0.583 af

Pond D1: Wet Pond Peak Elev=175.45' Storage=30,179 cf Inflow=15.01 cfs 1.148 af
Primary=1.40 cfs 0.885 af Secondary=0.00 cfs 0.000 af Outflow=1.40 cfs 0.885 af

Link POA-01: POA-1 Inflow=30.81 cfs 8.910 af
Primary=30.81 cfs 8.910 af

Total Runoff Area = 27.993 ac Runoff Volume = 9.648 af Average Runoff Depth = 4.14"
79.79% Pervious = 22.337 ac 20.21% Impervious = 5.656 ac

Summary for Subcatchment 1S: Bld "D" Roof North

Runoff = 1.31 cfs @ 12.08 hrs, Volume= 0.107 af, Depth= 6.51"
Routed to Link POA-01 : POA-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-Yr Rainfall=6.75"

Area (sf)	CN	Description
8,604	98	Roofs, HSG D
8,604		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR-55 MIN**

Summary for Subcatchment 2S: Bld "D" Roof South

Runoff = 1.31 cfs @ 12.08 hrs, Volume= 0.107 af, Depth= 6.51"
Routed to Pond D1 : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-Yr Rainfall=6.75"

Area (sf)	CN	Description
8,625	98	Roofs, HSG D
8,625		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR-55 MIN**

Summary for Subcatchment 3S: Bld "C" Roof North

Runoff = 1.62 cfs @ 12.08 hrs, Volume= 0.133 af, Depth= 6.51"
Routed to Pond C1 : Biortention Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-Yr Rainfall=6.75"

Area (sf)	CN	Description
10,638	98	Roofs, HSG D
10,638		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR-55 MIN**

Summary for Subcatchment 4S: (new Subcat)

Runoff = 6.99 cfs @ 12.09 hrs, Volume= 0.513 af, Depth= 5.13"
Routed to Pond C1 : Biortention Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-Yr Rainfall=6.75"

Area (sf)	CN	Description
26,920	74	>75% Grass cover, Good, HSG C
348	78	Meadow, non-grazed, HSG D
25,003	98	Paved parking, HSG D
52,271	86	Weighted Average
27,268		52.17% Pervious Area
25,003		47.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 5S: (new Subcat)

Runoff = 12.08 cfs @ 12.08 hrs, Volume= 0.908 af, Depth= 5.58"
Routed to Pond D1 : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-Yr Rainfall=6.75"

Area (sf)	CN	Description
27,312	74	>75% Grass cover, Good, HSG C
57,543	98	Paved parking, HSG D
261	61	>75% Grass cover, Good, HSG B
85,116	90	Weighted Average
27,573		32.39% Pervious Area
57,543		67.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 6S: Bld "B" Roof South

Runoff = 0.57 cfs @ 12.08 hrs, Volume= 0.047 af, Depth= 6.51"
Routed to Link POA-01 : POA-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-Yr Rainfall=6.75"

Area (sf)	CN	Description
3,783	98	Roofs, HSG D
3,783		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR-55 MIN**

Summary for Subcatchment 7S: Bld "B" Roof North

Runoff = 0.58 cfs @ 12.08 hrs, Volume= 0.047 af, Depth= 6.51"
Routed to Pond B1 : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-Yr Rainfall=6.75"

Area (sf)	CN	Description
3,790	98	Roofs, HSG D
3,790		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR-55 MIN**

Summary for Subcatchment 8S: Bld "C" Roof South

Runoff = 1.62 cfs @ 12.08 hrs, Volume= 0.133 af, Depth= 6.51"
Routed to Pond D1 : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-Yr Rainfall=6.75"

Area (sf)	CN	Description
10,638	98	Roofs, HSG D
10,638		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR-55 MIN**

Summary for Subcatchment 9S: (new Subcat)

Runoff = 1.46 cfs @ 12.09 hrs, Volume= 0.104 af, Depth= 4.36"
Routed to Pond B2 : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-Yr Rainfall=6.75"

Area (sf)	CN	Description
6,055	98	Paved parking, HSG D
6,447	61	>75% Grass cover, Good, HSG B
12,502	79	Weighted Average
6,447		51.57% Pervious Area
6,055		48.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 10S: (new Subcat)

Runoff = 5.09 cfs @ 12.09 hrs, Volume= 0.365 af, Depth= 4.46"
Routed to Pond B1 : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-Yr Rainfall=6.75"

Area (sf)	CN	Description
22,026	98	Paved parking, HSG D
20,696	61	>75% Grass cover, Good, HSG B
42,722	80	Weighted Average
20,696		48.44% Pervious Area
22,026		51.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 11S: Po-01- Wetlands South (Pocket)

Runoff = 6.16 cfs @ 12.68 hrs, Volume= 0.984 af, Depth= 2.52"
Routed to Reach 12R : 24" Culvert under New Roadway

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-Yr Rainfall=6.75"

Area (sf)	CN	Description
138,377	55	Woods, Good, HSG B
28,987	70	Woods, Good, HSG C
36,598	77	Woods, Good, HSG D
203,962	61	Weighted Average
203,962		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.5	100	0.0250	0.08		**Sheet Flow, Woods-Wetland**
					Woods: Light underbrush n= 0.400 P2= 2.95"
25.0	410	0.0030	0.27		**Shallow Concentrated Flow, SCF-Wetland to Culvert Inlet**
					Woodland Kv= 5.0 fps
45.5	510	Total			

Summary for Subcatchment 12S: (new Subcat)

Runoff = 4.56 cfs @ 12.09 hrs, Volume= 0.324 af, Depth= 3.93"
Routed to Pond B1 : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-Yr Rainfall=6.75"

Area (sf)	CN	Description
10,866	98	Paved parking, HSG D
17,745	61	>75% Grass cover, Good, HSG B
14,477	74	>75% Grass cover, Good, HSG C
43,088	75	Weighted Average
32,222		74.78% Pervious Area
10,866		25.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 13S: (new Subcat)

Runoff = 4.72 cfs @ 12.08 hrs, Volume= 0.357 af, Depth= 5.69"
Routed to Pond A1 : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-Yr Rainfall=6.75"

Area (sf)	CN	Description
15,471	98	Paved parking, HSG D
7,579	98	Roofs, HSG D
9,757	74	>75% Grass cover, Good, HSG C
32,807	91	Weighted Average
9,757		29.74% Pervious Area
23,050		70.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 14S: (new Subcat)

Runoff = 5.26 cfs @ 12.09 hrs, Volume= 0.388 af, Depth= 5.24"
Routed to Pond A2 : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-Yr Rainfall=6.75"

Area (sf)	CN	Description
20,858	98	Paved parking, HSG D
17,816	74	>75% Grass cover, Good, HSG C
38,674	87	Weighted Average
17,816		46.07% Pervious Area
20,858		53.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 15S: (new Subcat)

Runoff = 2.18 cfs @ 12.09 hrs, Volume= 0.157 af, Depth= 4.57"
Routed to Link POA-01 : POA-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-Yr Rainfall=6.75"

Area (sf)	CN	Description
9,895	98	Paved parking, HSG D
8,025	61	>75% Grass cover, Good, HSG B
17,920	81	Weighted Average
8,025		44.78% Pervious Area
9,895		55.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment Po-01: Po-01- Wetlands North

Runoff = 21.36 cfs @ 13.25 hrs, Volume= 4.974 af, Depth= 4.04"
Routed to Link POA-01 : POA-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 50-Yr Rainfall=6.75"

Area (sf)	CN	Description
18,190	98	Paved parking, HSG D
6,820	98	Roofs, HSG D
2,532	55	Woods, Good, HSG B
131,043	70	Woods, Good, HSG C
485,662	77	Woods, Good, HSG D
644,247	76	Weighted Average
619,237		96.12% Pervious Area
25,010		3.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
34.0	100	0.0070	0.05		**Sheet Flow, Woods-Wetland** Woods: Light underbrush n= 0.400 P2= 2.95"
55.7	1,585	0.0090	0.47		**Shallow Concentrated Flow, SCF-Wetland to Culvert Inlet** Woodland Kv= 5.0 fps
89.7	1,685	Total			

Summary for Reach 12R: 24" Culvert under New Roadway

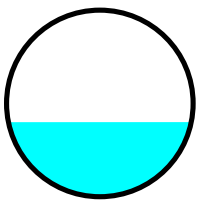
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 7.366 ac, 25.83% Impervious, Inflow Depth = 3.16" for 50-Yr event
Inflow = 7.63 cfs @ 12.68 hrs, Volume= 1.940 af
Outflow = 7.63 cfs @ 12.68 hrs, Volume= 1.940 af, Atten= 0%, Lag= 0.1 min
Routed to Link POA-01 : POA-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 6.50 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.09 fps, Avg. Travel Time= 0.8 min

Peak Storage= 59 cf @ 12.68 hrs
Average Depth at Peak Storage= 0.80' , Surface Width= 1.96'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 22.62 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 50.0' Slope= 0.0100 '/'
Inlet Invert= 172.50', Outlet Invert= 172.00'



Summary for Pond A1: Wet Pond

Inflow Area = 0.753 ac, 70.26% Impervious, Inflow Depth = 5.69" for 50-Yr event
Inflow = 4.72 cfs @ 12.08 hrs, Volume= 0.357 af
Outflow = 4.48 cfs @ 12.11 hrs, Volume= 0.289 af, Atten= 5%, Lag= 1.6 min
Primary = 4.48 cfs @ 12.11 hrs, Volume= 0.289 af
Routed to Link POA-01 : POA-1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link POA-01 : POA-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 171.19' @ 12.11 hrs Surf.Area= 3,713 sf Storage= 4,247 cf

Plug-Flow detention time= 141.4 min calculated for 0.289 af (81% of inflow)
Center-of-Mass det. time= 68.0 min (845.5 - 777.5)

Volume	Invert	Avail.Storage	Storage Description
#1	167.00'	2,961 cf	**Permanent Pool (Prismatic)** Listed below (Recalc)
#2	170.50'	1,948 cf	**Storm Event Storage (Prismatic)** Listed below (Recalc)
		4,909 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
167.00	40	0	0
170.50	1,652	2,961	2,961

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
170.50	1,652	0	0
171.50	2,243	1,948	1,948

Device	Routing	Invert	Outlet Devices
#1	Primary	170.50'	**24.0" Round Culvert X 2.00** L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 170.50' / 170.20' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf
#2	Device 1	170.50'	**24.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	171.00'	**24.0" Horiz. Overflow Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	171.25'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=4.47 cfs @ 12.11 hrs HW=171.19' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 4.47 cfs of 4.91 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 2.74 cfs @ 2.83 fps)
  └─**3=Overflow Grate** (Weir Controls 1.74 cfs @ 1.44 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=167.00' TW=0.00' (Dynamic Tailwater)
└─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond A2: Wet Pond

Inflow Area = 0.888 ac, 53.93% Impervious, Inflow Depth = 5.24" for 50-Yr event
Inflow = 5.26 cfs @ 12.09 hrs, Volume= 0.388 af
Outflow = 2.24 cfs @ 12.28 hrs, Volume= 0.249 af, Atten= 57%, Lag= 11.9 min
Primary = 2.24 cfs @ 12.28 hrs, Volume= 0.249 af
Routed to Link POA-01 : POA-1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link POA-01 : POA-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 171.16' @ 12.28 hrs Surf.Area= 5,945 sf Storage= 7,988 cf

Plug-Flow detention time= 220.0 min calculated for 0.249 af (64% of inflow)
Center-of-Mass det. time= 121.1 min (911.7 - 790.6)

Volume	Invert	Avail.Storage	Storage Description
#1	167.00'	6,034 cf	**Permanent Pool (Prismatic)** Listed below (Recalc)
#2	170.50'	3,094 cf	**Storm Event Storage (Prismatic)** Listed below (Recalc)
		9,128 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
167.00	708	0	0
170.50	2,740	6,034	6,034

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
170.50	2,740	0	0
171.50	3,448	3,094	3,094

Device	Routing	Invert	Outlet Devices
#1	Primary	170.50'	**24.0" Round Culvert** L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 170.50' / 170.20' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf
#2	Device 1	170.50'	**12.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	171.00'	**24.0" Horiz. Overflow Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	171.25'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50

Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68
2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=2.24 cfs @ 12.28 hrs HW=171.16' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 2.24 cfs @ 3.72 fps)
  ├─**2=Orifice/Grate** (Passes < 1.51 cfs potential flow)
  └─**3=Overflow Grate** (Passes < 1.28 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=167.00' TW=0.00' (Dynamic Tailwater)
└─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond B1: Wet Pond

Inflow Area = 2.057 ac, 40.94% Impervious, Inflow Depth = 4.29" for 50-Yr event
Inflow = 10.22 cfs @ 12.09 hrs, Volume= 0.736 af
Outflow = 2.70 cfs @ 12.46 hrs, Volume= 0.564 af, Atten= 74%, Lag= 22.6 min
Primary = 2.70 cfs @ 12.46 hrs, Volume= 0.564 af
Routed to Link POA-01 : POA-1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link POA-01 : POA-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 174.98' @ 12.46 hrs Surf.Area= 9,538 sf Storage= 14,499 cf

Plug-Flow detention time= 188.9 min calculated for 0.564 af (77% of inflow)
Center-of-Mass det. time= 105.0 min (915.4 - 810.4)

Volume	Invert	Avail.Storage	Storage Description
#1	171.00'	7,459 cf	**Permanent Pool (Prismatic)** Listed below (Recalc)
#2	173.50'	10,050 cf	**Storm Event Storage (Prismatic)** Listed below (Recalc)
		17,509 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
171.00	1,920	0	0
173.50	4,047	7,459	7,459

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
173.50	4,047	0	0
175.50	6,003	10,050	10,050

Device	Routing	Invert	Outlet Devices
#1	Primary	173.50'	**12.0" Round Culvert** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 173.50' / 173.30' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	173.50'	**10.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Secondary	175.00'	**10.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50

Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65
2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=2.70 cfs @ 12.46 hrs HW=174.98' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Passes 2.70 cfs of 3.55 cfs potential flow)
└**2=Orifice/Grate** (Orifice Controls 2.70 cfs @ 4.96 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=171.00' TW=0.00' (Dynamic Tailwater)
└**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond B2: Wet Pond

Inflow Area = 0.287 ac, 48.43% Impervious, Inflow Depth = 4.36" for 50-Yr event
Inflow = 1.46 cfs @ 12.09 hrs, Volume= 0.104 af
Outflow = 0.10 cfs @ 13.75 hrs, Volume= 0.070 af, Atten= 93%, Lag= 99.9 min
Primary = 0.10 cfs @ 13.75 hrs, Volume= 0.070 af
Routed to Reach 12R : 24" Culvert under New Roadway
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 12R : 24" Culvert under New Roadway

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 178.95' @ 13.75 hrs Surf.Area= 2,605 sf Storage= 2,704 cf

Plug-Flow detention time= 334.0 min calculated for 0.070 af (68% of inflow)
Center-of-Mass det. time= 237.1 min (1,048.9 - 811.9)

Volume	Invert	Avail.Storage	Storage Description
#1	176.00'	1,472 cf	**Permanent Pool (Prismatic)** Listed below (Recalc)
#2	178.00'	2,141 cf	**Storm Event Storage (Prismatic)** Listed below (Recalc)
		3,613 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
176.00	382	0	0
178.00	1,090	1,472	1,472

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
178.00	1,090	0	0
179.50	1,764	2,141	2,141

Device	Routing	Invert	Outlet Devices
#1	Primary	178.00'	**12.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 178.00' / 177.00' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	178.00'	**2.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Secondary	179.00'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68

2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=0.10 cfs @ 13.75 hrs HW=178.95' TW=173.01' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.10 cfs of 2.55 cfs potential flow)
└─**2=Orifice/Grate** (Orifice Controls 0.10 cfs @ 4.47 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=176.00' TW=172.50' (Dynamic Tailwater)
└─**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond C1: Biortention Basin

Inflow Area = 1.444 ac, 56.65% Impervious, Inflow Depth = 5.36" for 50-Yr event
Inflow = 8.61 cfs @ 12.08 hrs, Volume= 0.645 af
Outflow = 1.91 cfs @ 12.49 hrs, Volume= 0.583 af, Atten= 78%, Lag= 24.4 min
Primary = 1.91 cfs @ 12.49 hrs, Volume= 0.583 af
Routed to Link POA-01 : POA-1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link POA-01 : POA-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 174.20' @ 12.49 hrs Surf.Area= 16,897 sf Storage= 15,923 cf

Plug-Flow detention time= 1,682.7 min calculated for 0.583 af (90% of inflow)
Center-of-Mass det. time= 1,635.1 min (2,418.4 - 783.2)

Volume	Invert	Avail.Storage	Storage Description
#1	170.20'	988 cf	**Stone Resevoir (Prismatic)** Listed below (Recalc) 2,470 cf Overall x 40.0% Voids
#2	170.70'	2,964 cf	**Filter Media (Prismatic)** Listed below (Recalc) 7,410 cf Overall x 40.0% Voids
#3	172.20'	17,899 cf	**Pond Storage (Prismatic)** Listed below (Recalc)
		21,851 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
170.20	4,940	0	0
170.70	4,940	2,470	2,470

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
170.70	4,940	0	0
172.20	4,940	7,410	7,410

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
172.20	4,940	0	0
175.00	7,845	17,899	17,899

Device	Routing	Invert	Outlet Devices
#1	Primary	170.20'	**12.0" Round Culvert** L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 170.20' / 169.80' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	170.20'	**0.2" Horiz. Underdrain** X 20 rows C= 0.600 Limited to weir flow at low heads
#3	Device 1	174.00'	**24.0" Horiz. Overflow Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	174.50'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=1.91 cfs @ 12.49 hrs HW=174.20' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.91 cfs of 7.00 cfs potential flow)
  ├─**2=Underdrain** (Orifice Controls 0.04 cfs @ 9.63 fps)
  └─**3=Overflow Grate** (Weir Controls 1.87 cfs @ 1.47 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=170.20' TW=0.00' (Dynamic Tailwater)
└─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond D1: Wet Pond

Inflow Area = 2.396 ac, 73.58% Impervious, Inflow Depth = 5.75" for 50-Yr event
Inflow = 15.01 cfs @ 12.08 hrs, Volume= 1.148 af
Outflow = 1.40 cfs @ 12.92 hrs, Volume= 0.885 af, Atten= 91%, Lag= 50.3 min
Primary = 1.40 cfs @ 12.92 hrs, Volume= 0.885 af
Routed to Reach 12R : 24" Culvert under New Roadway
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach 12R : 24" Culvert under New Roadway

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 175.45' @ 12.92 hrs Surf.Area= 15,284 sf Storage= 30,179 cf

Plug-Flow detention time= 311.9 min calculated for 0.885 af (77% of inflow)
Center-of-Mass det. time= 230.6 min (1,003.8 - 773.2)

Volume	Invert	Avail.Storage	Storage Description
#1	169.00'	11,450 cf	**Permanent Pool (Prismatic)** Listed below (Recalc)
#2	173.00'	24,810 cf	**Storm Event Storage (Prismatic)** Listed below (Recalc)
		36,260 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
169.00	885	0	0
173.00	4,840	11,450	11,450

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
173.00	4,840	0	0
176.00	11,700	24,810	24,810

Device	Routing	Invert	Outlet Devices
#1	Primary	173.00'	**12.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 173.00' / 172.50' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	173.00'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Secondary	175.50'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=1.40 cfs @ 12.92 hrs HW=175.45' TW=173.23' (Dynamic Tailwater)
└─**1=Culvert** (Passes 1.40 cfs of 5.02 cfs potential flow)
└─**2=Orifice/Grate** (Orifice Controls 1.40 cfs @ 7.14 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=169.00' TW=172.50' (Dynamic Tailwater)
└─**3=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Link POA-01: POA-1

Inflow Area = 27.993 ac, 20.21% Impervious, Inflow Depth > 3.82" for 50-Yr event
Inflow = 30.81 cfs @ 13.05 hrs, Volume= 8.910 af
Primary = 30.81 cfs @ 13.05 hrs, Volume= 8.910 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs

Time span=0.00-120.00 hrs, dt=0.01 hrs, 12001 points x 3
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment 1S: Bld "D" Roof North Runoff Area=8,604 sf 100.00% Impervious Runoff Depth=7.84"
Tc=6.0 min CN=98 Runoff=1.57 cfs 0.129 af

Subcatchment 2S: Bld "D" Roof South Runoff Area=8,625 sf 100.00% Impervious Runoff Depth=7.84"
Tc=6.0 min CN=98 Runoff=1.57 cfs 0.129 af

Subcatchment 3S: Bld "C" Roof North Runoff Area=10,638 sf 100.00% Impervious Runoff Depth=7.84"
Tc=6.0 min CN=98 Runoff=1.94 cfs 0.160 af

Subcatchment 4S: (new Subcat) Runoff Area=52,271 sf 47.83% Impervious Runoff Depth=6.41"
Tc=6.0 min CN=86 Runoff=8.64 cfs 0.641 af

Subcatchment 5S: (new Subcat) Runoff Area=85,116 sf 67.61% Impervious Runoff Depth=6.88"
Tc=6.0 min CN=90 Runoff=14.73 cfs 1.121 af

Subcatchment 6S: Bld "B" Roof South Runoff Area=3,783 sf 100.00% Impervious Runoff Depth=7.84"
Tc=6.0 min CN=98 Runoff=0.69 cfs 0.057 af

Subcatchment 7S: Bld "B" Roof North Runoff Area=3,790 sf 100.00% Impervious Runoff Depth=7.84"
Tc=6.0 min CN=98 Runoff=0.69 cfs 0.057 af

Subcatchment 8S: Bld "C" Roof South Runoff Area=10,638 sf 100.00% Impervious Runoff Depth=7.84"
Tc=6.0 min CN=98 Runoff=1.94 cfs 0.160 af

Subcatchment 9S: (new Subcat) Runoff Area=12,502 sf 48.43% Impervious Runoff Depth=5.58"
Tc=6.0 min CN=79 Runoff=1.85 cfs 0.134 af

Subcatchment 10S: (new Subcat) Runoff Area=42,722 sf 51.56% Impervious Runoff Depth=5.70"
Tc=6.0 min CN=80 Runoff=6.45 cfs 0.466 af

Subcatchment 11S: Po-01- Wetlands Runoff Area=203,962 sf 0.00% Impervious Runoff Depth=3.51"
Flow Length=510' Tc=45.5 min CN=61 Runoff=8.72 cfs 1.368 af

Subcatchment 12S: (new Subcat) Runoff Area=43,088 sf 25.22% Impervious Runoff Depth=5.11"
Tc=6.0 min CN=75 Runoff=5.91 cfs 0.422 af

Subcatchment 13S: (new Subcat) Runoff Area=32,807 sf 70.26% Impervious Runoff Depth=7.00"
Tc=6.0 min CN=91 Runoff=5.73 cfs 0.440 af

Subcatchment 14S: (new Subcat) Runoff Area=38,674 sf 53.93% Impervious Runoff Depth=6.53"
Tc=6.0 min CN=87 Runoff=6.48 cfs 0.483 af

Subcatchment 15S: (new Subcat) Runoff Area=17,920 sf 55.22% Impervious Runoff Depth=5.82"
Tc=6.0 min CN=81 Runoff=2.75 cfs 0.199 af

Subcatchment Po-01: Po-01- Wetlands Runoff Area=644,247 sf 3.88% Impervious Runoff Depth=5.23"
Flow Length=1,685' Tc=89.7 min CN=76 Runoff=27.62 cfs 6.447 af

Reach 12R: 24" Culvert under New Avg. Flow Depth=1.09' Max Vel=7.47 fps Inflow=13.15 cfs 2.614 af
24.0" Round Pipe n=0.013 L=50.0' S=0.0100 '/' Capacity=22.62 cfs Outflow=13.15 cfs 2.614 af

Pond A1: Wet Pond Peak Elev=171.24' Storage=4,343 cf Inflow=5.73 cfs 0.440 af
Primary=5.48 cfs 0.372 af Secondary=0.00 cfs 0.000 af Outflow=5.48 cfs 0.372 af

Pond A2: Wet Pond Peak Elev=171.36' Storage=8,668 cf Inflow=6.48 cfs 0.483 af
Primary=3.61 cfs 0.335 af Secondary=0.95 cfs 0.010 af Outflow=4.56 cfs 0.344 af

Pond B1: Wet Pond Peak Elev=175.27' Storage=16,182 cf Inflow=13.04 cfs 0.944 af
Primary=3.06 cfs 0.690 af Secondary=3.46 cfs 0.082 af Outflow=6.52 cfs 0.773 af

Pond B2: Wet Pond Peak Elev=179.08' Storage=2,909 cf Inflow=1.85 cfs 0.134 af
Primary=0.10 cfs 0.081 af Secondary=0.54 cfs 0.019 af Outflow=0.64 cfs 0.100 af

Pond C1: Biortention Basin Peak Elev=174.35' Storage=16,990 cf Inflow=10.58 cfs 0.800 af
Primary=4.35 cfs 0.739 af Secondary=0.00 cfs 0.000 af Outflow=4.35 cfs 0.739 af

Pond D1: Wet Pond Peak Elev=175.77' Storage=33,602 cf Inflow=18.24 cfs 1.410 af
Primary=1.46 cfs 1.000 af Secondary=3.44 cfs 0.147 af Outflow=4.84 cfs 1.147 af

Link POA-01: POA-1 Inflow=40.24 cfs 11.673 af
Primary=40.24 cfs 11.673 af

Total Runoff Area = 27.993 ac Runoff Volume = 12.411 af Average Runoff Depth = 5.32"
79.79% Pervious = 22.337 ac 20.21% Impervious = 5.656 ac

Summary for Subcatchment 1S: Bld "D" Roof North

Runoff = 1.57 cfs @ 12.08 hrs, Volume= 0.129 af, Depth= 7.84"
Routed to Link POA-01 : POA-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Yr Rainfall=8.08"

Area (sf)	CN	Description
8,604	98	Roofs, HSG D
8,604		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR-55 MIN**

Summary for Subcatchment 2S: Bld "D" Roof South

Runoff = 1.57 cfs @ 12.08 hrs, Volume= 0.129 af, Depth= 7.84"
Routed to Pond D1 : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Yr Rainfall=8.08"

Area (sf)	CN	Description
8,625	98	Roofs, HSG D
8,625		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR-55 MIN**

Summary for Subcatchment 3S: Bld "C" Roof North

Runoff = 1.94 cfs @ 12.08 hrs, Volume= 0.160 af, Depth= 7.84"
Routed to Pond C1 : Biortention Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Yr Rainfall=8.08"

Area (sf)	CN	Description
10,638	98	Roofs, HSG D
10,638		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR-55 MIN**

Summary for Subcatchment 4S: (new Subcat)

Runoff = 8.64 cfs @ 12.08 hrs, Volume= 0.641 af, Depth= 6.41"
Routed to Pond C1 : Biortention Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Yr Rainfall=8.08"

Area (sf)	CN	Description
26,920	74	>75% Grass cover, Good, HSG C
348	78	Meadow, non-grazed, HSG D
25,003	98	Paved parking, HSG D
52,271	86	Weighted Average
27,268		52.17% Pervious Area
25,003		47.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 5S: (new Subcat)

Runoff = 14.73 cfs @ 12.08 hrs, Volume= 1.121 af, Depth= 6.88"
Routed to Pond D1 : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Yr Rainfall=8.08"

Area (sf)	CN	Description
27,312	74	>75% Grass cover, Good, HSG C
57,543	98	Paved parking, HSG D
261	61	>75% Grass cover, Good, HSG B
85,116	90	Weighted Average
27,573		32.39% Pervious Area
57,543		67.61% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 6S: Bld "B" Roof South

Runoff = 0.69 cfs @ 12.08 hrs, Volume= 0.057 af, Depth= 7.84"
Routed to Link POA-01 : POA-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Yr Rainfall=8.08"

Area (sf)	CN	Description
3,783	98	Roofs, HSG D
3,783		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR-55 MIN**

Summary for Subcatchment 7S: Bld "B" Roof North

Runoff = 0.69 cfs @ 12.08 hrs, Volume= 0.057 af, Depth= 7.84"
Routed to Pond B1 : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Yr Rainfall=8.08"

Area (sf)	CN	Description
3,790	98	Roofs, HSG D
3,790		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR-55 MIN**

Summary for Subcatchment 8S: Bld "C" Roof South

Runoff = 1.94 cfs @ 12.08 hrs, Volume= 0.160 af, Depth= 7.84"
Routed to Pond D1 : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Yr Rainfall=8.08"

Area (sf)	CN	Description
10,638	98	Roofs, HSG D
10,638		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, TR-55 MIN**

Summary for Subcatchment 9S: (new Subcat)

Runoff = 1.85 cfs @ 12.09 hrs, Volume= 0.134 af, Depth= 5.58"
Routed to Pond B2 : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Yr Rainfall=8.08"

Area (sf)	CN	Description
6,055	98	Paved parking, HSG D
6,447	61	>75% Grass cover, Good, HSG B
12,502	79	Weighted Average
6,447		51.57% Pervious Area
6,055		48.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 10S: (new Subcat)

Runoff = 6.45 cfs @ 12.09 hrs, Volume= 0.466 af, Depth= 5.70"
Routed to Pond B1 : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Yr Rainfall=8.08"

Area (sf)	CN	Description
22,026	98	Paved parking, HSG D
20,696	61	>75% Grass cover, Good, HSG B
42,722	80	Weighted Average
20,696		48.44% Pervious Area
22,026		51.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 11S: Po-01- Wetlands South (Pocket)

Runoff = 8.72 cfs @ 12.64 hrs, Volume= 1.368 af, Depth= 3.51"
Routed to Reach 12R : 24" Culvert under New Roadway

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Yr Rainfall=8.08"

Area (sf)	CN	Description
138,377	55	Woods, Good, HSG B
28,987	70	Woods, Good, HSG C
36,598	77	Woods, Good, HSG D
203,962	61	Weighted Average
203,962		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.5	100	0.0250	0.08		**Sheet Flow, Woods-Wetland**
					Woods: Light underbrush n= 0.400 P2= 2.95"
25.0	410	0.0030	0.27		**Shallow Concentrated Flow, SCF-Wetland to Culvert Inlet**
					Woodland Kv= 5.0 fps
45.5	510	Total			

Summary for Subcatchment 12S: (new Subcat)

Runoff = 5.91 cfs @ 12.09 hrs, Volume= 0.422 af, Depth= 5.11"
Routed to Pond B1 : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Yr Rainfall=8.08"

Area (sf)	CN	Description
10,866	98	Paved parking, HSG D
17,745	61	>75% Grass cover, Good, HSG B
14,477	74	>75% Grass cover, Good, HSG C
43,088	75	Weighted Average
32,222		74.78% Pervious Area
10,866		25.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 13S: (new Subcat)

Runoff = 5.73 cfs @ 12.08 hrs, Volume= 0.440 af, Depth= 7.00"
Routed to Pond A1 : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Yr Rainfall=8.08"

Area (sf)	CN	Description
15,471	98	Paved parking, HSG D
7,579	98	Roofs, HSG D
9,757	74	>75% Grass cover, Good, HSG C
32,807	91	Weighted Average
9,757		29.74% Pervious Area
23,050		70.26% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 14S: (new Subcat)

Runoff = 6.48 cfs @ 12.08 hrs, Volume= 0.483 af, Depth= 6.53"
Routed to Pond A2 : Wet Pond

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Yr Rainfall=8.08"

Area (sf)	CN	Description
20,858	98	Paved parking, HSG D
17,816	74	>75% Grass cover, Good, HSG C
38,674	87	Weighted Average
17,816		46.07% Pervious Area
20,858		53.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 15S: (new Subcat)

Runoff = 2.75 cfs @ 12.09 hrs, Volume= 0.199 af, Depth= 5.82"
Routed to Link POA-01 : POA-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Yr Rainfall=8.08"

Area (sf)	CN	Description
9,895	98	Paved parking, HSG D
8,025	61	>75% Grass cover, Good, HSG B
17,920	81	Weighted Average
8,025		44.78% Pervious Area
9,895		55.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment Po-01: Po-01- Wetlands North

Runoff = 27.62 cfs @ 13.16 hrs, Volume= 6.447 af, Depth= 5.23"
Routed to Link POA-01 : POA-1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Yr Rainfall=8.08"

Area (sf)	CN	Description
18,190	98	Paved parking, HSG D
6,820	98	Roofs, HSG D
2,532	55	Woods, Good, HSG B
131,043	70	Woods, Good, HSG C
485,662	77	Woods, Good, HSG D
644,247	76	Weighted Average
619,237		96.12% Pervious Area
25,010		3.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
34.0	100	0.0070	0.05		**Sheet Flow, Woods-Wetland** Woods: Light underbrush n= 0.400 P2= 2.95"
55.7	1,585	0.0090	0.47		**Shallow Concentrated Flow, SCF-Wetland to Culvert Inlet** Woodland Kv= 5.0 fps
89.7	1,685	Total			

Summary for Reach 12R: 24" Culvert under New Roadway

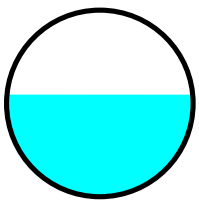
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 7.366 ac, 25.83% Impervious, Inflow Depth = 4.26" for 100-Yr event
Inflow = 13.15 cfs @ 12.53 hrs, Volume= 2.614 af
Outflow = 13.15 cfs @ 12.53 hrs, Volume= 2.614 af, Atten= 0%, Lag= 0.1 min
Routed to Link POA-01 : POA-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs / 3
Max. Velocity= 7.47 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 1.14 fps, Avg. Travel Time= 0.7 min

Peak Storage= 88 cf @ 12.53 hrs
Average Depth at Peak Storage= 1.09' , Surface Width= 1.99'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 22.62 cfs

24.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 50.0' Slope= 0.0100 '/'
Inlet Invert= 172.50', Outlet Invert= 172.00'



Summary for Pond A1: Wet Pond

Inflow Area = 0.753 ac, 70.26% Impervious, Inflow Depth = 7.00" for 100-Yr event
Inflow = 5.73 cfs @ 12.08 hrs, Volume= 0.440 af
Outflow = 5.48 cfs @ 12.11 hrs, Volume= 0.372 af, Atten= 4%, Lag= 1.5 min
Primary = 5.48 cfs @ 12.11 hrs, Volume= 0.372 af
Routed to Link POA-01 : POA-1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link POA-01 : POA-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 171.24' @ 12.11 hrs Surf.Area= 3,741 sf Storage= 4,343 cf

Plug-Flow detention time= 127.0 min calculated for 0.372 af (85% of inflow)
Center-of-Mass det. time= 61.8 min (834.1 - 772.3)

Volume	Invert	Avail.Storage	Storage Description
#1	167.00'	2,961 cf	**Permanent Pool (Prismatic)** Listed below (Recalc)
#2	170.50'	1,948 cf	**Storm Event Storage (Prismatic)** Listed below (Recalc)
		4,909 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
167.00	40	0	0
170.50	1,652	2,961	2,961

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
170.50	1,652	0	0
171.50	2,243	1,948	1,948

Device	Routing	Invert	Outlet Devices
#1	Primary	170.50'	**24.0" Round Culvert X 2.00** L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 170.50' / 170.20' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf
#2	Device 1	170.50'	**24.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	171.00'	**24.0" Horiz. Overflow Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	171.25'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=5.48 cfs @ 12.11 hrs HW=171.24' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 5.48 cfs of 5.50 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 3.08 cfs @ 2.93 fps)
  └─**3=Overflow Grate** (Weir Controls 2.40 cfs @ 1.60 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=167.00' TW=0.00' (Dynamic Tailwater)
└─**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond A2: Wet Pond

Inflow Area = 0.888 ac, 53.93% Impervious, Inflow Depth = 6.53" for 100-Yr event
Inflow = 6.48 cfs @ 12.08 hrs, Volume= 0.483 af
Outflow = 4.56 cfs @ 12.16 hrs, Volume= 0.344 af, Atten= 30%, Lag= 4.7 min
Primary = 3.61 cfs @ 12.16 hrs, Volume= 0.335 af
Routed to Link POA-01 : POA-1
Secondary = 0.95 cfs @ 12.16 hrs, Volume= 0.010 af
Routed to Link POA-01 : POA-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 171.36' @ 12.16 hrs Surf.Area= 6,092 sf Storage= 8,668 cf

Plug-Flow detention time= 190.0 min calculated for 0.344 af (71% of inflow)
Center-of-Mass det. time= 100.3 min (884.9 - 784.7)

Volume	Invert	Avail.Storage	Storage Description
#1	167.00'	6,034 cf	**Permanent Pool (Prismatic)** Listed below (Recalc)
#2	170.50'	3,094 cf	**Storm Event Storage (Prismatic)** Listed below (Recalc)
		9,128 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
167.00	708	0	0
170.50	2,740	6,034	6,034

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
170.50	2,740	0	0
171.50	3,448	3,094	3,094

Device	Routing	Invert	Outlet Devices
#1	Primary	170.50'	**24.0" Round Culvert** L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 170.50' / 170.20' S= 0.0100 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 3.14 sf
#2	Device 1	170.50'	**12.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Device 1	171.00'	**24.0" Horiz. Overflow Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	171.25'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50

Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68
2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=3.61 cfs @ 12.16 hrs HW=171.36' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Barrel Controls 3.61 cfs @ 4.09 fps)
  ├─**2=Orifice/Grate** (Passes < 2.28 cfs potential flow)
  └─**3=Overflow Grate** (Passes < 4.52 cfs potential flow)

Secondary OutFlow Max=0.94 cfs @ 12.16 hrs HW=171.36' TW=0.00' (Dynamic Tailwater)
└─**4=Broad-Crested Rectangular Weir** (Weir Controls 0.94 cfs @ 0.83 fps)

Summary for Pond B1: Wet Pond

Inflow Area = 2.057 ac, 40.94% Impervious, Inflow Depth = 5.51" for 100-Yr event
Inflow = 13.04 cfs @ 12.09 hrs, Volume= 0.944 af
Outflow = 6.52 cfs @ 12.24 hrs, Volume= 0.773 af, Atten= 50%, Lag= 9.0 min
Primary = 3.06 cfs @ 12.24 hrs, Volume= 0.690 af
Routed to Link POA-01 : POA-1
Secondary = 3.46 cfs @ 12.24 hrs, Volume= 0.082 af
Routed to Link POA-01 : POA-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 175.27' @ 12.24 hrs Surf.Area= 9,830 sf Storage= 16,182 cf

Plug-Flow detention time= 161.3 min calculated for 0.773 af (82% of inflow)
Center-of-Mass det. time= 88.9 min (892.7 - 803.8)

Volume	Invert	Avail.Storage	Storage Description
#1	171.00'	7,459 cf	**Permanent Pool (Prismatic)** Listed below (Recalc)
#2	173.50'	10,050 cf	**Storm Event Storage (Prismatic)** Listed below (Recalc)
		17,509 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
171.00	1,920	0	0
173.50	4,047	7,459	7,459

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
173.50	4,047	0	0
175.50	6,003	10,050	10,050

Device	Routing	Invert	Outlet Devices
#1	Primary	173.50'	**12.0" Round Culvert** L= 20.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 173.50' / 173.30' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	173.50'	**10.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Secondary	175.00'	**10.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50

Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65
2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=3.06 cfs @ 12.24 hrs HW=175.27' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 3.06 cfs of 4.27 cfs potential flow)
└─**2=Orifice/Grate** (Orifice Controls 3.06 cfs @ 5.61 fps)

Secondary OutFlow Max=3.45 cfs @ 12.24 hrs HW=175.27' TW=0.00' (Dynamic Tailwater)
└─**3=Broad-Crested Rectangular Weir** (Weir Controls 3.45 cfs @ 1.26 fps)

Summary for Pond B2: Wet Pond

Inflow Area = 0.287 ac, 48.43% Impervious, Inflow Depth = 5.58" for 100-Yr event
Inflow = 1.85 cfs @ 12.09 hrs, Volume= 0.134 af
Outflow = 0.64 cfs @ 12.37 hrs, Volume= 0.100 af, Atten= 65%, Lag= 17.1 min
Primary = 0.10 cfs @ 12.37 hrs, Volume= 0.081 af
Routed to Reach 12R : 24" Culvert under New Roadway
Secondary = 0.54 cfs @ 12.37 hrs, Volume= 0.019 af
Routed to Reach 12R : 24" Culvert under New Roadway

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 179.08' @ 12.37 hrs Surf.Area= 2,665 sf Storage= 2,909 cf

Plug-Flow detention time= 285.7 min calculated for 0.100 af (75% of inflow)
Center-of-Mass det. time= 199.5 min (1,004.3 - 804.8)

Volume	Invert	Avail.Storage	Storage Description
#1	176.00'	1,472 cf	**Permanent Pool (Prismatic)** Listed below (Recalc)
#2	178.00'	2,141 cf	**Storm Event Storage (Prismatic)** Listed below (Recalc)
		3,613 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
176.00	382	0	0
178.00	1,090	1,472	1,472

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
178.00	1,090	0	0
179.50	1,764	2,141	2,141

Device	Routing	Invert	Outlet Devices
#1	Primary	178.00'	**12.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 178.00' / 177.00' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	178.00'	**2.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Secondary	179.00'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68

2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=0.10 cfs @ 12.37 hrs HW=179.08' TW=173.50' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.10 cfs of 2.88 cfs potential flow)
└─**2=Orifice/Grate** (Orifice Controls 0.10 cfs @ 4.80 fps)

Secondary OutFlow Max=0.54 cfs @ 12.37 hrs HW=179.08' TW=173.50' (Dynamic Tailwater)
└─**3=Broad-Crested Rectangular Weir** (Weir Controls 0.54 cfs @ 0.68 fps)

Summary for Pond C1: Biortention Basin

Inflow Area = 1.444 ac, 56.65% Impervious, Inflow Depth = 6.65" for 100-Yr event
Inflow = 10.58 cfs @ 12.08 hrs, Volume= 0.800 af
Outflow = 4.35 cfs @ 12.29 hrs, Volume= 0.739 af, Atten= 59%, Lag= 12.5 min
Primary = 4.35 cfs @ 12.29 hrs, Volume= 0.739 af
Routed to Link POA-01 : POA-1
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Link POA-01 : POA-1

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 174.35' @ 12.29 hrs Surf.Area= 17,053 sf Storage= 16,990 cf

Plug-Flow detention time= 1,343.2 min calculated for 0.738 af (92% of inflow)
Center-of-Mass det. time= 1,303.0 min (2,081.2 - 778.2)

Volume	Invert	Avail.Storage	Storage Description
#1	170.20'	988 cf	**Stone Resevoir (Prismatic)** Listed below (Recalc) 2,470 cf Overall x 40.0% Voids
#2	170.70'	2,964 cf	**Filter Media (Prismatic)** Listed below (Recalc) 7,410 cf Overall x 40.0% Voids
#3	172.20'	17,899 cf	**Pond Storage (Prismatic)** Listed below (Recalc)
		21,851 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
170.20	4,940	0	0
170.70	4,940	2,470	2,470

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
170.70	4,940	0	0
172.20	4,940	7,410	7,410

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
172.20	4,940	0	0
175.00	7,845	17,899	17,899

Device	Routing	Invert	Outlet Devices
#1	Primary	170.20'	**12.0" Round Culvert** L= 40.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 170.20' / 169.80' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	170.20'	**0.2" Horiz. Underdrain** X 20 rows C= 0.600 Limited to weir flow at low heads
#3	Device 1	174.00'	**24.0" Horiz. Overflow Grate** C= 0.600 Limited to weir flow at low heads
#4	Secondary	174.50'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=4.34 cfs @ 12.29 hrs HW=174.35' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Passes 4.34 cfs of 7.16 cfs potential flow)
  ├**2=Underdrain** (Orifice Controls 0.04 cfs @ 9.81 fps)
  └**3=Overflow Grate** (Weir Controls 4.30 cfs @ 1.94 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=170.20' TW=0.00' (Dynamic Tailwater)
└**4=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond D1: Wet Pond

Inflow Area = 2.396 ac, 73.58% Impervious, Inflow Depth = 7.06" for 100-Yr event
Inflow = 18.24 cfs @ 12.08 hrs, Volume= 1.410 af
Outflow = 4.84 cfs @ 12.44 hrs, Volume= 1.147 af, Atten= 73%, Lag= 21.2 min
Primary = 1.46 cfs @ 12.26 hrs, Volume= 1.000 af
Routed to Reach 12R : 24" Culvert under New Roadway
Secondary = 3.44 cfs @ 12.44 hrs, Volume= 0.147 af
Routed to Reach 12R : 24" Culvert under New Roadway

Routing by Dyn-Stor-Ind method, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs / 3
Peak Elev= 175.77' @ 12.44 hrs Surf.Area= 16,008 sf Storage= 33,602 cf

Plug-Flow detention time= 283.8 min calculated for 1.147 af (81% of inflow)
Center-of-Mass det. time= 210.6 min (979.2 - 768.5)

Volume	Invert	Avail.Storage	Storage Description
#1	169.00'	11,450 cf	**Permanent Pool (Prismatic)** Listed below (Recalc)
#2	173.00'	24,810 cf	**Storm Event Storage (Prismatic)** Listed below (Recalc)
		36,260 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
169.00	885	0	0
173.00	4,840	11,450	11,450

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
173.00	4,840	0	0
176.00	11,700	24,810	24,810

Device	Routing	Invert	Outlet Devices
#1	Primary	173.00'	**12.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 173.00' / 172.50' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Device 1	173.00'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#3	Secondary	175.50'	**10.0' long x 3.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 Coef. (English) 2.44 2.58 2.68 2.67 2.65 2.64 2.64 2.68 2.68 2.72 2.81 2.92 2.97 3.07 3.32

Primary OutFlow Max=1.46 cfs @ 12.26 hrs HW=175.64' TW=173.26' (Dynamic Tailwater)
↑—**1=Culvert** (Passes 1.46 cfs of 5.26 cfs potential flow)
↑—**2=Orifice/Grate** (Orifice Controls 1.46 cfs @ 7.42 fps)

Secondary OutFlow Max=3.44 cfs @ 12.44 hrs HW=175.77' TW=173.57' (Dynamic Tailwater)
↑—**3=Broad-Crested Rectangular Weir** (Weir Controls 3.44 cfs @ 1.29 fps)

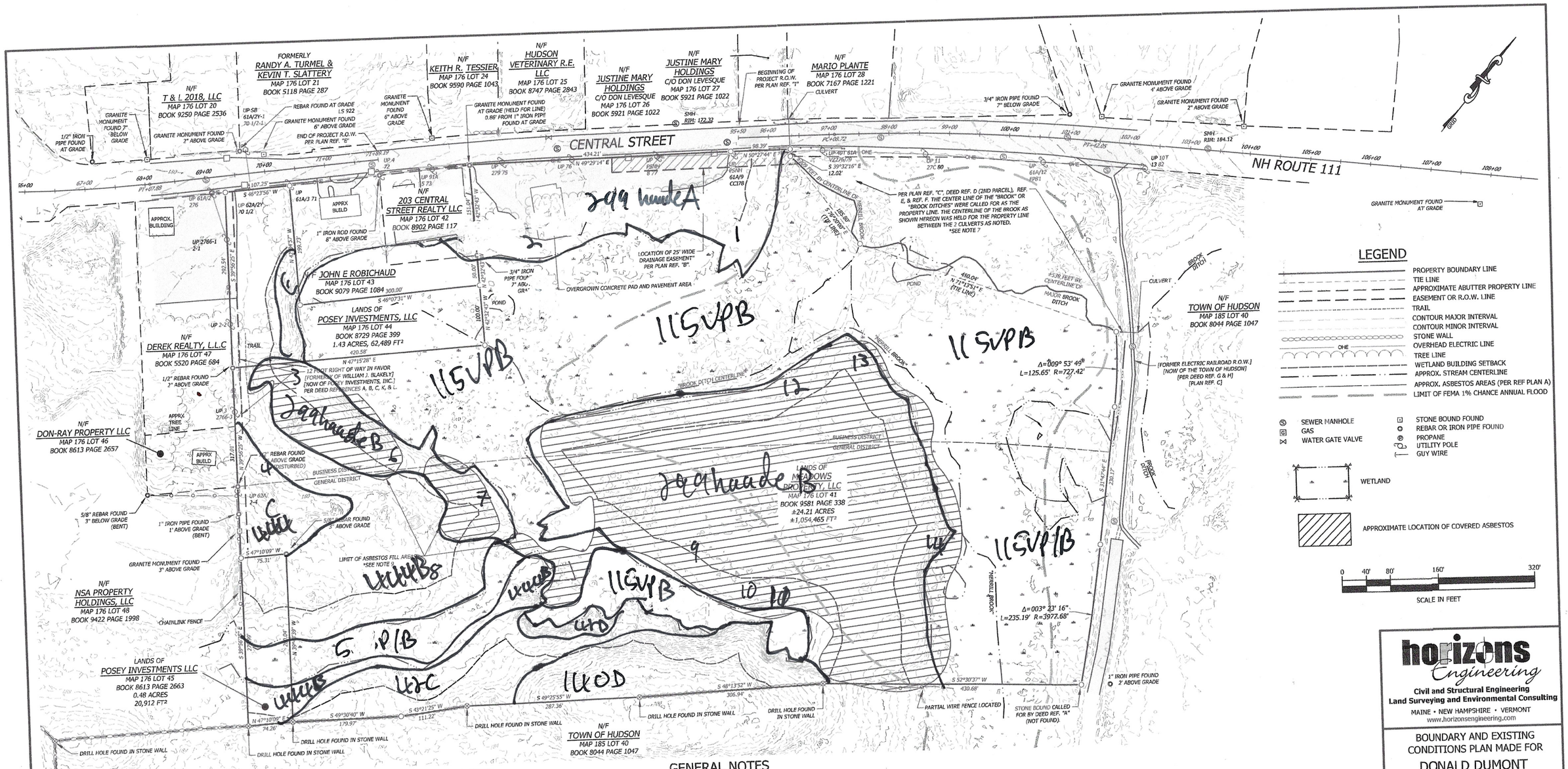
Summary for Link POA-01: POA-1

Inflow Area = 27.993 ac, 20.21% Impervious, Inflow Depth > 5.00" for 100-Yr event
Inflow = 40.24 cfs @ 12.96 hrs, Volume= 11.673 af
Primary = 40.24 cfs @ 12.96 hrs, Volume= 11.673 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-120.00 hrs, dt= 0.01 hrs

SOILS REPORTS

Attachment "E"



REFERENCE DEEDS

A. "KONIS CORPORATION TO POSEY INVESTMENTS, LLC" DATED FEBRUARY 19 2015 AND RECORDED IN THE H.C.R.D. BOOK 8729 PAGE 399.
B. "BDK DEVELOPERS TO POSEY INVESTMENTS, LLC" DATED OCTOBER 18, 2013 AND RECORDED IN THE H.C.R.D. BOOK 8613 PAGE 2663.
C. "GPR REALTY, LLC TO MEADOWS PROPERTY, LLC" DATED JANUARY 9, 2022 AND RECORDED IN THE H.C.R.D. BOOK 9581 PAGE 338.
D. "HENRY C. BROWN TO JOHN T. BENSON & WINNIFRED V. GRIFFIN" DATED NOVEMBER 2, 1934 AND RECORDED IN THE H.C.R.D. BOOK 934 PAGE 558.
E. "BENSON WILD ANIMAL FARM, INC. TO ARTHUR J. PROVENCHER" DATED DECEMBER 30, 1986 AND RECORDED IN THE H.C.R.D BOOK 2858 PAGE 350.
F. "JOSEPH BOULANGER TO JOHN WOLLEN" DATED NOVEMBER 28, 1949 AND RECORDED IN THE H.C.R.D. BOOK 1241 PAGE 177.
G. "LEWIS E. MOORE TO JOHN T. BENSON & WINNIFRED V. GRIFFIN" DATED MAY 13, 1933 AND RECORDED IN THE H.C.R.D. BOOK 943 PAGE 146.
H. "MASSACHUSETTS TRANSPORTATION COMPANY TO JOHN T. BENSON, INC"DATED NOVEMBER 6, 1943 AND RECORDED IN THE H.C.R.D. BOOK 1055 PAGE 138.
I. "UNITED STATES OF AMERICA & STATE OF NEW HAMPSHIRE V. JOHNS-MANVILLE SALES CORPORATION, ET AL." DATED OCTOBER 7, 1993 AND RECORDED IN THE H.C.R.D. BOOK 5479 PAGE 890.
J. "KONIS CORPORATION TO THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY & THE STATE OF NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES" DATED OCTOBER 19, 1993 AND RECORDED IN THE H.C.R.D. BOOK 5482 PAGE 1734.
K. "PERLEY B. SMITH TO WILLIAM J. BLAKELY" DATED SEPTEMBER 17, 1948 AND RECORDED IN THE H.C.R.D BOOK 1200 PAGE 281.
L. "PERLEY B. SMITH & CLARA E. SMITH TO JOHN WOLLEN" DATED NOVEMBER 15, 1949 AND RECORDED IN THE H.C.R.D BOOK 1241 PAGE 183.

REFERENCE PLANS

A. "FIGURE 2 DETAILED SITE PLAN 207 CENTRAL STREET HUDSON, NEW HAMPSHIRE", DATED SEPTEMBER 28 2021, PREPARED BY CREDERE ASSOCIATES LLC, PROJECT NUMBER 21001634, AND ON FILE AT HORIZONS ENGINEERING, INC.
B. "PLAN OF A 25' WIDE EASEMENT ON LAND OF ARTHUR BURSEY JR - 207 CENTRAL STREET", DATED MAY 1981, PREPARED BY FRANK G. SPRAGUE R.L.S., AND RECORDED AT THE H.C.R.D. PLAN BOOK # 14141.
C. "PLAN BENSON'S WILD ANIMAL FARM HUDSON, N.H.", DATED DECEMBER 2, 1943, SCALE: 1"=200', PREPARED BY S. C. CALDWOOD ENGINEER, AND RECORDED AT THE H.C.R.D PLAN BOOK #697.
D. "PLAN OF LAND OF THE MEADOWS, INC.; JOHN WOLLEN,; L. J. B, R. M, PELLETIER,; A. & M. PELLETIER,; EVANGELLIA DOURIS,; PERLEY SMITH AND PART OF THE BENSON WILD ANIMAL FARM", DATED MARCH 1955, PREPARED BY NED SPAULDING C.E., SCALE: 1"=100', AND RECORDED AT THE H.C.R.D. PLAN BOOK # 1144.
E. "R.O.W. PLANS OF PROPOSED FEDERAL AID URBAN SYSTEM, PROJECT M-5229 (003), PROJECT M-5229 (005)", DATED JANUARY 31, 1984, PREPARED BY HOWARD, NEEDLES, TAMMEN & BERGENDOFF, SCALE: 1"=20', N.H. PROJECT FO-2432-B & D, AND RECORDED AT THE H.C.R.D. PLAN BOOK #19222.
F. "OVERALL CONSOLIDATION & SUBDIVISION PLAN LOT 25 MAP 20 LOT 1-1 MAP 21 THURSTON'S LANDING (WEST) BUSH HILL ROAD HUDSON, NH", DATED NOVEMBER 1987, PREPARED BY MAYNARD & PAQUETTE, INC., SCALE: 1"=200', AND RECORDED AT THE H.C.R.D PLAN BOOK #22833.
G. "SEWER EASEMENT PLAN LOT 25 MAP 20 THURSTON'S LANDING CROSS COUNTRY SEWER HUDSON, NH", DATED MAY 1988, PREPARED BY MAYNARD & PAQUETTE, INC., SCALE: 1"=200', AND RECORDED AT THE H.C.R.D PLAN BOOK #22834.
H. "PLAN OF PROPOSED FEDERAL AID SECONDARY PROJECT NO. S28(6)", DATED JANUARY 19, 1960, SCALE: 1"=50', AND RECORDED AT NH DEPARTMENT OF TRANSPORTATION IN PROJECT NUMBER S 3791-B.
I. PLAN OF PROPOSED FEDERAL AID URBAN PROJECT NG-93-5229 (011)", DATED JULY 20, 1984, AND RECORDED AT NH DEPARTMENT OF TRANSPORTATION IN PROJECT NUMBER S-3961.
J. "SITE PLAN - MAP 20/LOT 12 "TIME SQUARE" CENTRAL STREET HUDSON, N.H.", DATED SEPTEMBER 15, 1988, PREPARED BY MAYNARD & PAQUETTE, INC., SCALE: 1"=20', AND RECORDED AT THE H.C.R.D PLAN BOOK #22877.

GENERAL NOTES

1. OWNERS OF RECORD:
   TAX MAP 176 LOT 41 MEADOW PROPERTY, LLC BOOK 9581 PAGE 338
   TAX MAP 176 LOT 44 POSEY INVESTMENTS, LLC BOOK 8729 PAGE 399
   TAX MAP 176 LOT 45 POSEY INVESTMENTS, LLC BOOK 8613 PAGE 2663
2. THIS PLAN IS BASED ON A FIELD SURVEY COMPLETED BY HORIZONS ENGINEERING, INC. IN MAY & JUNE 2024 USING A CARLSON BRX-7 GNSS.
3. THE BEARINGS SHOWN HEREON REFER TO GRID NORTH AND ARE BASED ON THE NEW HAMPSHIRE COORDINATE SYSTEM NAD83. ELEVATIONS ARE BASED ON NAVD88 VERTICAL DATUM.
4. TOPOGRAPHY AS SHOWN HEREON IS BASED UPON BARE EARTH DEM FILES PROVIDED BY THE STATE OF NEW HAMPSHIRE DATED 2012.
5. THE SURVEYED PARCEL IS MAPPED AS LYING PARTIALLY INSIDE OF THE 1% CHANCE ANNUAL FLOOD ZONE A (NO BASE FLOOD ELEVATION DETERMINED) PER FEMA FLOOD MAP NUMBER 33011C0518D DATED SEPTEMBER 25, 2009. THE APPROXIMATE FLOOD ZONE A LIMITS AS SHOWN HEREON ARE BASED UPON INTERPOLATION OF SAID FEMA MAP AND FEMA GIS.
6. ANY UNDERGROUND UTILITIES SHOWN HEREON ARE BASED ON INTERPOLATION OF SURFACE STRUCTURES & RECORD PLANS.
7. AS NOTED HEREON, THE CENTER OF BROOK IS CALLED FOR AS THE BOUNDARY BETWEEN LAND NOW OWNED BY THE TOWN OF HUDSON AND MEADOW PROPERTY, LLC. THE BROOK AND WETLANDS WERE IMPASSABLE AT THE TIME OF FIELD SURVEY. ORTHOIMAGERY DATED APRIL 2018 AND LIDAR DATED 2012 WERE USED TO APPROXIMATE THE CENTERLINES OF MERRILL BROOK AND THE BROOK DITCHES AS SHOWN HEREON.
8. WETLANDS AS SHOWN HEREON WERE DELINEATED BY CAITLIN BANASZAK, CWS OF HORIZONS ENGINEERING, INC. IN MAY 2024 AND LOCATED DURING FIELD SURVEY.
9. PER DEED REFERENCES A, C, I, & J THERE IS COVERED ASBESTOS MATERIAL ON THE SURVEYED PREMISES. THE APPROXIMATE AREAS OF SAID MATERIAL ARE SHOWN PER PLAN REFERENCE A. PER SAID DEED REFERENCES I & J THERE ARE NUMEROUS RESTRICTIONS AND COVENANTS REGARDING SAID MATERIAL AND THE SURVEYED PREMISES.
10. THE WORD "CERTIFY" OR "CERTIFICATION" AS SHOWN AND USED HEREON MEANS COMPLIANCE WITH APPLICABLE LAND SURVEY LAWS AND RULES AND AN EXPRESSION OF PROFESSIONAL OPINION BASED ON THE FACTS OF THE SURVEY, PRINCIPLES OF BOUNDARY RETRACEMENT AND LOCAL STANDARD OF CARE, AND DOES NOT CONSTITUTE A WARRANTY OR GUARANTEE, EXPRESSED OR IMPLIED.
11. PER THE TOWN OF HUDSON ZONING MAP (LAST AMENDED AUGUST 2, 2021) THE SURVEYED PREMISES LIES WITHIN THE GENERAL DISTRICT, BUSINESS DISTRICT, AND WETLANDS CONSERVATION DISTRICT. THE FOLLOWING ARE A LIST OF ZONING REGULATIONS FROM THE TOWN OF HUDSON ZONING ORDINANCE (LAST AMENDED July 28, 2022) WHICH AFFECT THE SURVEYED PREMISES:

-MAXIMUM BUILDING HEIGHT: 38 FEET
-WETLAND BUFFER: 50 FEET
-FRONT BUILDING SETBACK: 50 FEET (ARTERIAL AND COLLECTOR ROADWAYS)
-SIDE/REAR BUILDING SETBACK: 15 FEET (ARTERIAL AND COLLECTOR ROADWAYS)
-MINIMUM LOT FRONTAGE: 150 FEET
-MINIMUM LOT AREA: 43,560 SQ. FT (BUSINESS WITHOUT WATER AND SEWER AND GENERAL), 30,000 SQ. FT. (BUSINESS WITH WATER AND SEWER)

*SEE THE TOWN OF HUDSON ZONING ORDINANCE FOR FURTHER INFORMATION AND APPLICATION

CERTIFICATION:

I HEREBY CERTIFY THAT THIS PLAT IS BASED ON A PRECISION GPS SURVEY AND IS CLASSIFIED URBAN.

I CERTIFY THAT THIS SURVEY PLAT IS NOT A SUBDIVISION PURSUANT TO RSA TITLE LXIV AND THAT THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED AND THAT NO NEW WAYS ARE SHOWN.

ANDREW J. NADEAU, LLS 947 — *DATE* 06/25/2024

DATE OF PRINT
JUNE 26 2024
HORIZONS ENGINEERING

horizons Engineering
Civil and Structural Engineering
Land Surveying and Environmental Consulting
MAINE • NEW HAMPSHIRE • VERMONT
www.horizonsengineering.com

BOUNDARY AND EXISTING CONDITIONS PLAN MADE FOR
DONALD DUMONT
OF LAND OWNED BY
POSEY INVESTMENTS, LLC & MEADOWS PROPERTY, LLC
197 & 207 CENTRAL STREET
HUDSON, HILLSBOROUGH COUNTY, NEW HAMPSHIRE

NO.	DATE	REVISION DESCRIPTION	ENG	DWG

LICENSED PROFESSIONAL LAND SURVEYOR NO. 947 ANDREW J. NADEAU SIGNATURE

DATE:	PROJECT #:
JUNE 2024	240197
SURV'D BY:	DRAWN BY:
NFN/JDN	NJV/DMW
CHECK'D BY:	ARCHIVE #:
NJV/AJN	H-___

SHEET 1 OF 1

Hurley Environmental
AND LAND PLANNING, LLC

SITE-SPECIFIC SOIL SURVEY REPORT
Central Street
Hudson

1. MAPPING STANDARDS

Site-Specific Soil Mapping Standards for New Hampshire and Vermont. SSSNNE Special Publication No. 3, Version 7.0, July 2021. This map product is within the technical standards of the National Cooperative Soil Survey. It is a special product, intended for the submission to NH DES Alteration of Terrain. It was produced by a professional soil scientist and is not a product of the USDA Natural Resource Conservation Service.

Hydrologic Soil Group was determined using SSSNNE Special Publication No. 5.
Scale of soil map:
Approximately 1" equals 80'
Contours:
Intervals of 2 feet

2. DATE SOIL MAP PRODUCED

Date(s) of on-site field work: 12/5/25
Date(s) of test pits: 12/5/25
Test pits recorded by: Luke Hurley, CSS #095

3. GEOGRAPHIC LOCATION AND SIZE OF SITE

City or town where soil mapping was conducted: Hudson
Location: Central Street, Hudson, Map 176, Lot 41
Size of area: approximately 24 acres
Was the map for the entire lot? Yes
The area where the map was created is a wooded parcel with some historical land alteration. The areas of test pits 3,5,6,7 and 9-14 are all located in a portion of the lot that historically contained asbestos. This material was taken out and the area filled very uniformly with loam, thin board material, approximately 2-3 feet of clean sand and then a foot of topsoil. Several trails are present throughout the parcel, as well as several large wetland areas. The site is generally flat and rises up to the south.

4. PURPOSE OF THE SOIL MAP

Was the map prepared to meet the requirement of Alteration of Terrain? Yes
If no, what was the purpose of the map?
Who was the map prepared for? Verdantas

5. SOIL IDENTIFICATION LEGEND

SSSM SYM.	SSS MAP NAME	HISS SYM.	HYDROLOGIC SOIL GRP
299haade	Udorthents	766	Not Assigned
42	Canton	221	B
444	Newfields	321	B
140	Chatfield-Hollis-Canton Complex	228	B
514	Leicester Poorly Drained	521	C

Hurley Environmental
AND LAND PLANNING, LLC

115 Scarboro Very Poorly Drained 611 D

SLOPE PHASE:
0-8% B 8-15% C 15-25% D 25%+ E
299hahdd Udorthents 766 Not Assigned
This map unit represents areas that have been cut and filled to create a large level or nearly level area. These are in the areas of the building and paved areas.
h-Not Determined
a-No natural soil within 60”
a-None
d-Not determined
e-Not determined

42 Canton 221 B
The Canton series consists of very deep, well drained soils formed in a loamy mantle underlain by sandy till. They are on nearly level to very steep moraines, hills, and ridges. Slope ranges from 0 to 45 percent. Saturated hydraulic conductivity is moderately high or high in the solum and high or very high in the substratum. These soils are found in the far south west corner of the site. They are dominated by sandy loam in the upper layers to sand in the C layer. No ESHWT was encountered within 40” and no significant ledge was observed.
Typical Profile
0-4” 10YR3/2, FSL, GR, FR
4-10” 10YR4/4, FSL, GR, FR
10-30” 10YR4/3, FSL, GR, FR
30-60” 2.5Y5/3, S, GR, FR
ESHWT None
Observed Water None
Refusal None

444 Newfields 321 B
The Newfields series consists of very deep, moderately well drained soils formed in a loamy mantle underlain by sandy till on upland hills, moraines, till plains, and mountain side slopes. Saturated hydraulic conductivity is moderately high to very high. The slope ranges from 0 through 25 percent. Thes soils are found in the lower areas of the site with no ledge and rock. They are dominated by fine sandy loam over sand and some gravel in the lower layers. They have ESHWT between 15-40” and no significant ledge within 40 inches.
Typical Profile
0-6” 10YR3/3, FSL, GR, FR
6-16” 10YR4/4, S, GR, FR
16-24” 10YR4/3, FSL, GR, FR
24-40” 2.5Y5/4, LS, Gr, FR, Redox 15%,
40-60” 2.5Y5/3, S, Gr, FR, Redox 15%,
ESHWT 24”
Ledge None

Refusal None

140 Chatfield-Hollis-Canton Complex 228 B

The Chatfield-Hollis-Canton Complex is a series where the three soil types overlap in such a manner throughout the mapped portion where a single series cannot be singled out as a separate unit. This is a dominant series on the site and is found on the higher areas, as well as side slopes.

Chatfield

The Chatfield series consists of well drained soils formed in loamy melt-out till. They are moderately deep to bedrock. They are nearly level to very steep soils on bedrock-controlled hills and ridges. The slope ranges from 0 to 70 percent. Crystalline bedrock is at depths of 50 to 100 cm. Saturated hydraulic conductivity is moderately high or high in the mineral soil. These soils are also found throughout the site on the higher areas and side-slopes.

Hollis

The Hollis series consists of well drained and somewhat excessively drained soils formed in a thin mantle of till. They are shallow to bedrock. They are nearly level to very steep upland soils on bedrock-controlled hills and ridges. The slope ranges from 0 through 60 percent. Saturated hydraulic conductivity is moderately high or high. These soils are found primarily in the higher areas and some side slopes throughout the site. These soils have either exposed ledge or shallow ledge within 20 inches of the soil surface. No ESHWT was observed.

Canton

The Canton series consists of very deep, well drained soils formed in a loamy mantle underlain by sandy till. They are on nearly level to very steep moraines, hills, and ridges. The slope ranges from 0 to 45 percent. Saturated hydraulic conductivity is moderately high or high in the solum and high or very high in the substratum. These soils are found scattered around the parcel in the higher, flatter areas, as well as some of the side slopes. They are dominated by sandy loam in the upper layers to sand in the C layer. No ESHWT was encountered within 40" and no significant ledge was observed.

514 Leicester Poorly Drained 521 C

The Leicester series consists of very deep, poorly drained soils formed in coarse-loamy till. They are nearly level or gently sloping soils in drainageways and low-lying positions on hills. The slope ranges from 0 to 8 percent. Permeability is moderate or moderately rapid in the surface layer and subsoil and moderate to rapid in the substratum. These are the smaller, isolated wetlands on the site, scattered throughout the parcel.

115 Scarboro Very Poorly Drained 611 D

The Scarboro series consists of very deep, very poorly drained soils in sandy glaciofluvial deposits on outwash plains, deltas, and terraces. They are nearly level soils in depressions and low lying areas. The slope ranges from 0 through 3 percent. Saturated hydraulic conductivity is high or very high. These soils are found in the larger wetlands on the site.

Hurley Environmental
AND LAND PLANNING, LLC

6. RESPONSIBLE SOIL SCIENTIST
Name: Luke Hurley
Certified Soil Scientist Number: CSS #095

7. OTHER DISTINGUISHING FEATURES OF SITE
Is the site in a natural condition? A large portion has been excavated and filled.

8. Inclusions
No Inclusions were mapped.

603-583-1745
Hurley Environmental & Land Planning (hurleyelp.com)
PO Box 356
Epsom, NH 03234

Hurley Environmental
AND LAND PLANNING, LLC

Test Pit Report
Luke Hurley, CWS, CSS
12/3/25
Central Street, Hudson

TP1
0-8" 10YR3/3, FSL, GR, FR, Fill
8-14" 10YR5/3, S, GR, FR, Fill, Redox 15%,
14-20" 2.5Y5/2, FSL, GR, FR, Fill, Redox 15%,
20-40" 10YR3/1, FSL, Gr, FR, Redox 15%, Fill
ESHWT 8"
Ledge None
Refusal None

TP2
0-4'Mixed Fill
ESHWT 24"
Ledge None
Refusal None

TP3
0-5'Mixed Fill
ESHWT 24"
Ledge None
Refusal None

TP4
0-6" 10YR3/3, FSL, GR, FR
6-16" 10YR4/4, S, GR, FR, Redox 15%,
16-24" 10YR4/3, FSL, GR, FR, Redox 15%,
24-40" 2.5Y5/4, LS, Gr, FR, Redox 15%,
40-60" 2.5Y5/3, S, Gr, FR, Redox 15%,
ESHWT 24"
Ledge None
Refusal None

TP5
0-12" 10YR3/3, FSL, GR, FR, Fill
12-32" 10YR5/3, S, GR, FR, Fill, Redox 15% @24"
32-50" 10YR3/1, FSL, GR, FR, Fill, Redox 15%,
ESHWT 24"
Ledge None
Refusal None

603-583-1745
Hurley Environmental & Land Planning (hurleyelp.com)
PO Box 356
Epsom, NH 03234

Hurley Environmental
AND LAND PLANNING, LLC

TP6
0-10” 10YR3/3, FSL, GR, FR, Fill
10-40” 10YR5/3, S, GR, FR, Fill, Redox 15% @22”
40-50” 10YR3/1, FSL, GR, FR, Fill, Redox 15%,
ESHWT 22”
Ledge None
Refusal None

TP7
0-6” 10YR3/3, FSL, GR, FR
6-18” 10YR4/4, S, GR, FR
18-30” 10YR4/3, FSL, GR, FR, Redox 15%,
30-40” 2.5Y5/4, LS, Gr, FR, Redox 15%,
40-60” 2.5Y5/3, S, Gr, FR, Redox 15%,
ESHWT 18”
Ledge None
Refusal None

TP8
0-10” 10YR3/2, FSL, GR, FR
10-18” 10YR4/6, FSL, GR, FR, Redox 15%,
18-26” 10YR4/3, FSL, GR, FR, Redox 15%,
26-46” 2.5Y5/3, LS, Gr, FR, Redox 15%,
ESHWT 18”
Ledge None
Refusal None

TP9
0-10” 10YR3/3, FSL, GR, FR, Fill
10-36” 10YR5/3, S, GR, FR, Fill, Redox 15% @24”
36-48” 10YR3/1, FSL, GR, FR, Fill, Redox 15%,
ESHWT 24”
Ledge None
Refusal None

TP10
0-10” 10YR3/3, FSL, GR, FR, Fill
10-36” 10YR5/3, S, GR, FR, Fill, Redox 15% @22”
36-48” 10YR3/1, FSL, GR, FR, Fill, Redox 15%,
ESHWT 22”
Ledge None
Refusal None

Hurley Environmental
AND LAND PLANNING, LLC

TP11
0-15” 10YR3/3, FSL, GR, FR, Fill
15-45” 10YR5/3, S, GR, FR, Fill, Redox 15% @26”
45-60” 10YR3/1, FSL, GR, FR, Fill, Redox 15%,
ESHWT 26”
Ledge None
Refusal None

TP12
0-12” 10YR3/3, FSL, GR, FR, Fill
12-40” 10YR5/3, S, GR, FR, Fill, Redox 15% @20”
40-50” 10YR3/1, FSL, GR, FR, Fill, Redox 15%,
ESHWT 20”
Ledge None
Refusal None

TP13
0-12” 10YR3/3, FSL, GR, FR, Fill
12-40” 10YR5/3, S, GR, FR, Fill, Redox 15% @16”
40-50” 10YR3/1, FSL, GR, FR, Fill, Redox 15%,
ESHWT 20”
Ledge None
Refusal None

TP14
0-16” 10YR3/3, FSL, GR, FR, Fill
16-38” 10YR5/3, S, GR, FR, Fill, Redox 15%
38-50” 10YR3/1, FSL, GR, FR, Fill, Redox 15%,
ESHWT 16”
Ledge None
Refusal None

EXTREME PRECIPITATION TABLE

Extreme Precipitation Tables

Northeast Regional Climate Center

Attachment "E"

Data represents point estimates calculated from partial duration series. All precipitation amounts are displayed in inches.

Metadata for Point	
Smoothing	Yes
State	
Location	
Latitude	42.769 degrees North
Longitude	71.41 degrees West
Elevation	50 feet
Date/Time	Thu Jan 08 2026 11:21:41 GMT-0500 (Eastern Standard Time)

Hudson, NH - Hillsborough County
Type III NRCS Storm Type

Extreme Precipitation Estimates

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.27	0.42	0.52	0.68	0.85	1.07	**1yr**	0.73	1.01	1.24	1.56	1.96	2.47	2.71	**1yr**	2.19	2.61	3.04	3.72	4.33	**1yr**
2yr	0.33	0.51	0.64	0.84	1.05	1.32	**2yr**	0.91	1.21	1.53	1.91	2.37	2.95	3.28	**2yr**	2.61	3.15	3.66	4.38	4.98	**2yr**
5yr	0.39	0.61	0.77	1.03	1.31	1.67	**5yr**	1.13	1.52	1.93	2.42	3.01	3.73	4.18	**5yr**	3.30	4.02	4.64	5.50	6.23	**5yr**
10yr	0.44	0.69	0.88	1.19	1.55	1.99	**10yr**	1.34	1.80	2.32	2.90	3.61	4.46	5.01	**10yr**	3.95	4.82	5.56	6.54	7.37	**10yr**
25yr	0.53	0.83	1.06	1.46	1.94	2.51	**25yr**	1.67	2.25	2.93	3.68	4.58	5.65	6.39	**25yr**	5.00	6.14	7.06	8.22	9.23	**25yr**
50yr	0.59	0.94	1.21	1.70	2.30	3.00	**50yr**	1.98	2.66	3.52	4.43	5.50	6.75	7.68	**50yr**	5.98	7.38	8.46	9.78	10.95	**50yr**
100yr	0.68	1.10	1.41	2.00	2.73	3.58	**100yr**	2.35	3.16	4.20	5.30	6.58	8.08	9.23	**100yr**	7.15	8.88	10.14	11.64	12.98	**100yr**
200yr	0.77	1.26	1.63	2.34	3.24	4.28	**200yr**	2.79	3.75	5.04	6.35	7.89	9.67	11.11	**200yr**	8.56	10.68	12.16	13.85	15.40	**200yr**
500yr	0.93	1.53	1.99	2.90	4.06	5.41	**500yr**	3.51	4.70	6.39	8.08	10.02	12.28	14.19	**500yr**	10.86	13.64	15.47	17.45	19.32	**500yr**

Lower Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.23	0.35	0.43	0.57	0.70	0.81	**1yr**	0.61	0.79	1.07	1.31	1.67	2.25	2.55	**1yr**	1.99	2.45	2.70	3.01	3.77	**1yr**
2yr	0.31	0.49	0.60	0.81	1.00	1.20	**2yr**	0.86	1.17	1.37	1.79	2.30	2.87	3.18	**2yr**	2.54	3.06	3.55	4.26	4.85	**2yr**
5yr	0.36	0.55	0.69	0.94	1.20	1.42	**5yr**	1.04	1.39	1.62	2.11	2.69	3.50	3.84	**5yr**	3.10	3.69	4.25	5.10	5.78	**5yr**
10yr	0.39	0.61	0.75	1.05	1.36	1.61	**10yr**	1.17	1.57	1.83	2.38	3.04	4.05	4.42	**10yr**	3.58	4.25	4.87	5.83	6.58	**10yr**
25yr	0.45	0.68	0.85	1.21	1.59	1.88	**25yr**	1.38	1.84	2.15	2.81	3.53	4.90	5.35	**25yr**	4.33	5.14	5.84	6.98	7.78	**25yr**
50yr	0.49	0.74	0.92	1.33	1.79	2.14	**50yr**	1.54	2.09	2.43	3.19	3.97	5.67	6.19	**50yr**	5.02	5.95	6.72	8.00	8.81	**50yr**
100yr	0.54	0.81	1.01	1.46	2.01	2.42	**100yr**	1.73	2.36	2.76	3.54	4.47	6.21	7.19	**100yr**	5.50	6.91	7.75	9.19	9.97	**100yr**
200yr	0.59	0.89	1.12	1.63	2.27	2.74	**200yr**	1.96	2.68	3.10	4.02	5.07	7.13	8.36	**200yr**	6.31	8.04	8.94	10.56	11.30	**200yr**
500yr	0.67	1.00	1.28	1.86	2.65	3.25	**500yr**	2.29	3.18	3.66	4.76	5.99	8.56	10.28	**500yr**	7.58	9.88	10.81	12.71	13.33	**500yr**

Upper Confidence Limits

	5min	10min	15min	30min	60min	120min		1hr	2hr	3hr	6hr	12hr	24hr	48hr		1day	2day	4day	7day	10day	
1yr	0.31	0.47	0.58	0.78	0.96	1.12	**1yr**	0.83	1.09	1.27	1.65	2.09	2.66	2.87	**1yr**	2.36	2.76	3.42	4.19	4.79	**1yr**
2yr	0.35	0.54	0.67	0.90	1.11	1.31	**2yr**	0.96	1.28	1.49	1.92	2.47	3.07	3.42	**2yr**	2.72	3.29	3.80	4.53	5.18	**2yr**
5yr	0.44	0.67	0.83	1.14	1.45	1.67	**5yr**	1.26	1.63	1.89	2.43	3.05	4.02	4.57	**5yr**	3.56	4.40	5.03	5.95	6.69	**5yr**
10yr	0.53	0.81	1.00	1.40	1.81	2.03	**10yr**	1.56	1.99	2.30	2.91	3.62	4.98	5.71	**10yr**	4.41	5.49	6.25	7.33	8.19	**10yr**
25yr	0.68	1.03	1.29	1.84	2.42	2.63	**25yr**	2.09	2.57	2.97	3.68	4.51	6.61	7.67	**25yr**	5.85	7.37	8.33	9.64	10.74	**25yr**
50yr	0.82	1.25	1.56	2.24	3.02	3.21	**50yr**	2.61	3.14	3.60	4.41	5.34	8.19	9.58	**50yr**	7.25	9.21	10.33	11.86	13.18	**50yr**
100yr	1.01	1.52	1.90	2.75	3.77	3.92	**100yr**	3.26	3.83	4.38	5.38	6.33	10.66	11.96	**100yr**	9.43	11.50	12.82	14.62	16.20	**100yr**
200yr	1.23	1.84	2.34	3.38	4.72	4.78	**200yr**	4.07	4.67	5.32	6.45	7.50	13.31	14.91	**200yr**	11.78	14.34	15.90	18.00	19.93	**200yr**
500yr	1.60	2.38	3.07	4.46	6.34	6.20	**500yr**	5.47	6.06	6.88	8.22	9.38	17.87	19.95	**500yr**	15.81	19.18	21.15	23.72	26.20	**500yr**

Powered by ACIS
Northeast Regional Climate Center

Weston & Sampson

100 International Drive, Suite 152, Portsmouth, NH 03801
tel: 603.431.3937

MEMORANDUM

TO: Don Dumont – Derek Management Company

FROM: Jeffrey Provost, PE – Weston & Sampson

DATE: November 26, 2025

SUBJECT: Developer Review – Proposed Multi-Use Development at 207 Central Street, Hudson, NH

Background

This memorandum outlines Weston & Sampson's review of the proposed multi-use development to be located at 207 Central Street, Hudson, NH. The review was requested by Derek Management Company (DMC) to assist in evaluating the Hudson water system's ability to provide domestic water service and fire flow to the proposed development, and to assess if any additional infrastructure is needed within the town's water system to adequately serve the proposed development.

The Hudson water distribution system hydraulic model was utilized to evaluate the ability of the Hudson water system to serve domestic water and fire supply to the proposed development. Site utility information and information to estimate domestic water supply were provided by DMC. Specifically, utility layout was based upon the utility plan provided by DMC dated September 2025. The proposed development was then incorporated into the hydraulic model to assess the ability of the Hudson water system to meet the water supply needs.

Regulations and Evaluation Criteria

New Hampshire Department of Environmental Services (NHDES) regulations and Ten States Standards were used as the basis for our determination. NHDES regulations require that any public water system must provide 35 pounds per square inch (psi) pressure to all homes, under all normal conditions of flow. Normal conditions include peak hour demands, which usually entail the most severe demand condition that occurs during the hottest summer days.

NHDES and Ten States Standards require that any public water system shall provide 20-psi pressure under fire flow conditions during maximum day domestic demands. For this review, we reviewed the water system's ability to furnish fire flow to the proposed development while maintaining a minimum of 20 psi to the surrounding area and within the proposed development.

Service Area and Model Development

We used the software package Bentley WaterCAD to model the impact of providing water to the proposed development on Hudson's water distribution system. We currently maintain a hydraulic model of the town's distribution system in this software package, making it possible to add the proposed development demands and model its effects on the town's water system.

The following is a summary of the existing conditions in the model and modifications that were incorporated into the model to simulate the expected site conditions and water supply needs:

- The current sources of water for the Hudson water system are the Weinstein well in Litchfield (both the Dame and Ducharme wells are currently offline and were modeled as offline in the modeling runs), and the Taylor Falls interconnection;
- Approximate location and size of water utility piping on the proposed site was incorporated as shown on the utility plan provided by DMC;
- Estimates of total bedrooms and general information about the commercial space for the proposed development were provided by DMC in an email dated November 12, 2025. Please note, the proponent did not define what type of business would occupy the commercial space. However, the site plan calls out a drive-thru and food court areas. If the tenant that occupies the commercial space uses more domestic water than what was estimated with the limited information that was provided, additional assessment of the water system may be warranted in the future.

  With the information provided by the proponent, domestic demand was calculated based on NHDES Env-Dw 405: Design Standards For Small Community Public Water Systems. The maximum day demand was calculated to be 27,800 GPD (19 GPM) based on the furnished information;
- The proposed development will receive its water service from the Hudson Main Service System.

The proponent proposes to connect the development to the Hudson water system at 207 Central Street (adjacent to 208-214 Central Street). An 8-inch water main (connected to the existing 12-inch water main in Central Street) is proposed to serve the residential units in the development located within the 207 Central Street parcel. The proposed commercial building is located along Central Street and as such would tie directly into the existing 12-inch water main in Central Street for domestic and fire service.

Upon incorporating all proposed infrastructure in the model, the following water service conditions for the proponent were analyzed;

1. Determination of the maximum three-hour fire flow that is available at the site while maintaining 20 psi or greater to all points in the Hudson water system (including the proposed development) during a maximum day demand event.
2. Ability of the water system to satisfy all domestic water demands for the proposed development at a minimum of 35 psi, under all normal conditions of flow.

For the first assessment, the model indicates that a fire flow of 1,500 gpm for a three-hour duration is available to all points within the development while maintaining greater than 20 psi residual pressure in the proposed development and to all points in the Hudson water system throughout the three-hour event. Please note that Weston & Sampson did not assess whether 1,500 gpm of fire flow for a three

hour duration meets the required fire flow demand for the proposed development. The proponent should request what the minimum fire flow requirement is from the town.

For the second assessment, the model was utilized to review the ability of the Hudson water system to furnish the estimated domestic demands (19 GPM) to the proposed development during all normal conditions of flow.

From the hydraulic model analysis, it was determined that the Hudson water system would be capable of furnishing the total estimated domestic demand for the development, at a minimum of 35 psi, under all normal conditions of flow.

If you have any questions, please do not hesitate to call me at (603) 431-3937.

Very truly yours,

WESTON & SAMPSON ENGINEERS, INC.

Jeffrey Provost, PE

Team Leader

Date: April 08, 2025 | Case No.: 25-01-0334A | LOMA

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

COMMUNITY AND MAP PANEL INFORMATION		LEGAL PROPERTY DESCRIPTION
COMMUNITY	TOWN OF HUDSON, HILLSBOROUGH COUNTY, NEW HAMPSHIRE	A parcel of land, as described in the Warranty Deed recorded as Document No. 220003849, in Book 9581, Pages 338, 339, and 340, in the Office of the Register of Deeds, Hillsborough County, New Hampshire The portion of property is more particularly described by the following metes and bounds:
	COMMUNITY NO.: 330092	
AFFECTED MAP PANEL	NUMBER: 33011C0518D	
	DATE: 9/25/2009	
FLOODING SOURCE: MERRILL BROOK		APPROXIMATE LATITUDE & LONGITUDE OF PROPERTY:42.768334, -71.409879 SOURCE OF LAT & LONG: LOMA LOGIC DATUM: NAD 83

DETERMINATION

LOT	BLOCK/ SECTION	SUBDIVISION	STREET	OUTCOME WHAT IS REMOVED FROM THE SFHA	FLOOD ZONE	1% ANNUAL CHANCE FLOOD ELEVATION (NAVD 88)	LOWEST ADJACENT GRADE ELEVATION (NAVD 88)	LOWEST LOT ELEVATION (NAVD 88)
--	--	--	207 Central Street	Portion of Property	X (shaded)	--	--	171.9 feet

Special Flood Hazard Area (SFHA) - The SFHA is an area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood).

ADDITIONAL CONSIDERATIONS (Please refer to the appropriate section on Attachment 1 for the additional considerations listed below.)

LEGAL PROPERTY DESCRIPTION PORTIONS REMAIN IN THE SFHA ZONE A

STATE LOCAL CONSIDERATIONS

This document provides the Federal Emergency Management Agency's determination regarding a request for a Letter of Map Amendment for the property described above. Using the information submitted and the effective National Flood Insurance Program (NFIP) map, we have determined that the described portion(s) of the property(ies) is/are not located in the SFHA, an area inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood). This document amends the effective NFIP map to remove the subject property from the SFHA located on the effective NFIP map; therefore, the Federal mandatory flood insurance requirement does not apply. However, the lender has the option to continue the flood insurance requirement to protect its financial risk on the loan.

This determination is based on the flood data presently available. The enclosed documents provide additional information regarding this determination. If you have any questions about this document, please contact the FEMA Mapping and Insurance eXchange (FMIX) toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, LOMC Clearinghouse, 3601 Eisenhower Avenue, Suite 500, Alexandria, VA 22304-6426.

Patrick "Rick" F. Sacbibit, P.E., Branch Chief
Engineering Services Branch
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency

Washington, D.C. 20472

LETTER OF MAP AMENDMENT
DETERMINATION DOCUMENT (REMOVAL)

ATTACHMENT 1 (ADDITIONAL CONSIDERATIONS)

LEGAL PROPERTY DESCRIPTION (CONTINUED)

COMMENCING at the SW corner of said parcel of land, THENCE (12) South 04°02'52" West, 614.85 feet to the Point of Beginning, THENCE (1) North 28°09'45" East, 77.89 feet to a computed point; THENCE (2) North 38°50'10" East, 112.06 feet to a computed point; THENCE (3) North 45°55'53" East, 255.12 feet to a computed point; THENCE (4) North 54°04'19" East, 172.21 feet to a computed point; THENCE (5) South 54°28'45" East, 226.21 feet to a computed point; THENCE (6) South 13°22'34" East, 94.66 feet to a computed point; THENCE (7) South 33°12'00" East, 175.68 feet to a computed point; THENCE (8) South 52°30'37" West, 144.86 feet to a drill hole in stone wall; THENCE (9) South 48°13'52" West, 306.94 feet to a drill hole in stone wall; THENCE (10) North 54°15'39" West, 335.02 feet to a computed point; THENCE (11) North 74°07'52" West, 120.79 feet to the Point of Beginning

PORTIONS OF THE PROPERTY REMAIN IN THE SFHA (This Additional Consideration applies to the preceding 1 Property.)

Portions of this property, but not the subject of the Determination/Comment document, may remain in the Special Flood Hazard Area. Therefore, any future construction or substantial improvement on the property remains subject to Federal, State/Commonwealth, and local regulations for floodplain management.

ZONE A (This Additional Consideration applies to the preceding 1 Property.)

The National Flood Insurance Program map affecting this property depicts a Special Flood Hazard Area that was determined using the best flood hazard data available to FEMA, but without performing a detailed engineering analysis. The flood elevation used to make this determination is based on approximate methods and has not been formalized through the standard process for establishing base flood elevations published in the Flood Insurance Study. This flood elevation is subject to change.

STATE AND LOCAL CONSIDERATIONS (This Additional Consideration applies to all properties in the LOMA DETERMINATION DOCUMENT (REMOVAL))

Please note that this document does not override or supersede any State or local procedural or substantive provisions which may apply to floodplain management requirements associated with amendments to State or local floodplain zoning ordinances, maps, or State or local procedures adopted under the National Flood Insurance Program.

This attachment provides additional information regarding this request. If you have any questions about this attachment, please contact the FEMA Mapping and Insurance eXchange (FMIX) toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, LOMC Clearinghouse, 3601 Eisenhower Avenue, Suite 500, Alexandria, VA 22304-6426.

Patrick "Rick" F. Sacbibit, P.E., Branch Chief
Engineering Services Branch
Federal Insurance and Mitigation Administration

Federal Emergency Management Agency

Washington, D.C. 20472

ADDITIONAL INFORMATION REGARDING LETTERS OF MAP AMENDMENT

When making determinations on requests for Letters of Map Amendment (LOMAs), the Department of omeland Security's Federal Emergency Management Agency (FEMA) bases its determination on the flood hazard information available at the time of the determination. Requesters should be aware that flood conditions may change or new information may be generated that would supersede FEMA's determination. In such cases, the community will be informed by letter.

Requesters also should be aware that removal of a property (parcel of land or structure) from the Special Flood Hazard Area (SFHA) means FEMA has determined the property is not subject to inundation by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood). This does not mean the property is not subject to other flood hazards. The property could be inundated by a flood with a magnitude greater than the base flood or by localized flooding not shown on the effective National Flood Insurance Program (NFIP) map.

The effect of a LOMA is it removes the Federal requirement for the lender to require flood insurance coverage for the property described. The LOMA *is not* a waiver of the condition that the property owner maintain flood insurance coverage for the property. *Only* the lender can waive the flood insurance purchase requirement because the lender imposed the requirement. *The property owner must request and receive a written waiver from the lender before canceling the policy.* The lender may determine, on its own as a business decision, that it wishes to continue the flood insurance requirement to protect its financial risk on the loan.

The LOMA provides FEMA's comment on the mandatory flood insurance requirements of the NFIP as they apply to a particular property. A LOMA is not a building permit, nor should it be construed as such. Any development, new construction, or substantial improvement of a property impacted by a LOMA must comply with all applicable State and local criteria and other Federal criteria.

Even though structures are not located in an SFHA, as mentioned above, they could be flooded by a flooding event with a greater magnitude than the base flood. In fact, more than 25 percent of all claims paid by the NFIP are for policies for structures located outside the SFHA in Zones B, C, X (shaded), or X (unshaded). More than one-fourth of all policies purchased under the NFIP protect structures located in these zones. The risk to structures located outside SFHAs is just not as great as the risk to structures located in SFHAs. Finally, approximately 90 percent of all federally declared disasters are caused by flooding, and homeowners insurance does not provide financial protection from this flooding. Therefore, FEMA encourages the widest possible coverage under the NFIP.

LOMAs are based on minimum criteria established by the NFIP. State, county, and community officials, based on knowledge of local conditions and in the interest of safety, may set higher standards for construction in the SFHA. If a State, county, or community has adopted more restrictive and comprehensive floodplain management criteria, these criteria take precedence over the minimum Federal criteria.

In accordance with regulations adopted by the community when it made application to join the NFIP, letters issued to amend an NFIP map must be attached to the community's official record copy of the map. That map is available for public inspection at the community's official map repository. Therefore, FEMA sends copies of all such letters to the affected community's official map repository.

When a restudy is undertaken, or when a sufficient number of revisions or amendments occur on particular map panels, FEMA initiates the printing and distribution process for the affected panels. FEMA notifies community officials in writing when affected map panels are being physically revised and distributed. In such cases, FEMA attempts to reflect the results of the LOMA on the new map panel. If the results of particular LOMAs cannot be reflected on the new map panel because of scale limitations, FEMA notifies the community in writing and revalidates the LOMAs in that letter. LOMAs revalidated in this way usually will become effective 1 day after the effective date of the revised map.

Federal Emergency Management Agency
Washington, D.C. 20472

April 08, 2025

MR. ANDREW GODFREY
HORIZONS ENGINEERING
176 NEWPORT ROAD
UNIT 8
NEW LONDON, NH 03257

CASE NO.: 25-01-0334A
COMMUNITY: TOWN OF HUDSON,
HILLSBOROUGH COUNTY, NEW HAMPSHIRE
COMMUNITY NO.: 330092

DEAR MR. GODFREY:

This is in reference to a request that the Federal Emergency Management Agency (FEMA) determine if the property described in the enclosed document is located within an identified Special Flood Hazard Area, the area that would be inundated by the flood having a 1-percent chance of being equaled or exceeded in any given year (base flood), on the effective National Flood Insurance Program (NFIP) map. Using the information submitted and the effective NFIP map, our determination is shown on the attached Letter of Map Amendment (LOMA) Determination Document. This determination document provides additional information regarding the effective NFIP map, the legal description of the property and our determination.

Additional documents are enclosed which provide information regarding the subject property and LOMAs. Please see the List of Enclosures below to determine which documents are enclosed. Other attachments specific to this request may be included as referenced in the Determination/Comment document. If you have any questions about this letter or any of the enclosures, please contact the FEMA Map Insurance eXchange (FMIX) toll free at (877) 336-2627 (877-FEMA MAP) or by letter addressed to the Federal Emergency Management Agency, LOMC Clearinghouse, 3601 Eisenhower Avenue, Suite 500, Alexandria, VA 22304-6426.

Sincerely,

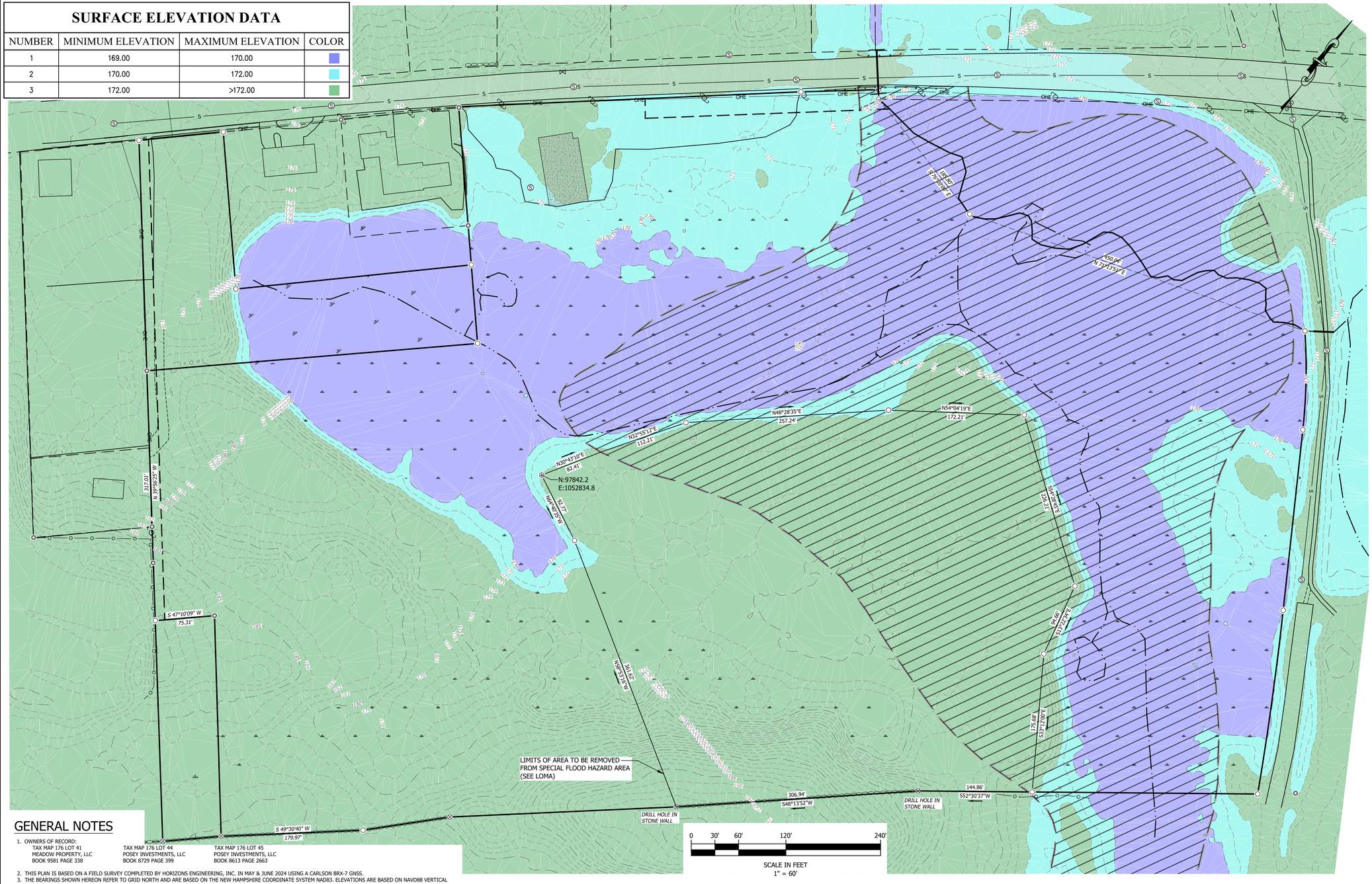
Patrick "Rick" F. Sacbibit, P.E., Branch Chief
Engineering Services Branch
Federal Insurance and Mitigation Administration

LIST OF ENCLOSURES:
LOMA DETERMINATION DOCUMENT (REMOVAL)

cc: State/Commonwealth NFIP Coordinator
Community Map Repository
Region

SURFACE ELEVATION DATA

NUMBER	MINIMUM ELEVATION	MAXIMUM ELEVATION	COLOR
1	169.00	170.00	
2	170.00	172.00	
3	172.00	>172.00	



LEGEND

- PROPERTY LINE
- SETBACK LINE
- MAJOR CONTOUR (10')
- MINOR CONTOUR (2')
- FENCE
- GUARDRAIL
- OVERHEAD ELECTRIC LINE
- STONE WALL
- STREAM
- SEWER LINE
- TREELINE
- WETLAND BUFFER LINE
- STONE BOUND FOUND
- REBAR OR IRON PIPE FOUND
- COMPUTED POINT
- DRILL HOLE
- GAS FILL
- GATE VALVE
- SEWER MANHOLE
- UTILITY POLE
- WETLAND FLAG

APPROXIMATE ZONE A
FEMA FLOODPLAIN

BOUNDARY DESCRIPTION

From a Point of Beginning N:97842.2 E:1052834.8:

THENCE (1) North 30°43'10" East, 82.41 feet to a computed point;

THENCE (2) North 32°55'12" East, 112.21 feet to a computed point;

THENCE (3) North 48°28'35" East, 257.24 feet to a computed point;

THENCE (4) North 54°04'19" East, 172.21 feet to a computed point;

THENCE (5) South 54°28'45" East, 226.21 feet to a computed point;

THENCE (6) South 13°22'34" East, 94.66 feet to a computed point;

THENCE (7) South 33°12'00" East, 175.68 feet to a computed point;

THENCE (8) South 52°30'37" West, 144.86 feet to a drill hole in stone wall;

THENCE (9) South 48°13'52" West, 306.94 feet to a drill hole in stone wall;

THENCE (10) North 58°53'16" West, 361.62 feet to a computed point;

THENCE (11) North 64°40'35" West, 92.77 feet to the Point of Beginning;

Containing 266,919.50 square feet or 6.13 AC., more or less.

GENERAL NOTES

1. OWNERS OF RECORD:
   TAX MAP 176 LOT 41
   MEADOW PROPERTY, LLC
   BOOK 9581 PAGE 338
   TAX MAP 176 LOT 44
   POSEY INVESTMENTS, LLC
   BOOK 8729 PAGE 399
   TAX MAP 176 LOT 45
   POSEY INVESTMENTS, LLC
   BOOK 8613 PAGE 2663
2. THIS PLAN IS BASED ON A FIELD SURVEY COMPLETED BY HORIZONS ENGINEERING, INC. IN MAY & JUNE 2024 USING A CARLSON BRX-7 GNSS.
3. THE BEARINGS SHOWN HEREON REFER TO GRID NORTH AND ARE BASED ON THE NEW HAMPSHIRE COORDINATE SYSTEM NAD83. ELEVATIONS ARE BASED ON NAVD88 VERTICAL DATUM.
4. TOPOGRAPHY AS SHOWN HEREON IS BASED UPON BARE EARTH DEM FILES PROVIDED BY THE STATE OF NEW HAMPSHIRE DATED 2012.
5. THE SURVEYED PARCEL IS MAPPED AS LYING PARTIALLY INSIDE OF THE SPECIAL FLOOD HAZARD AREA (SFHA) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD, ZONE A (NO BASE FLOOD ELEVATION DETERMINED) PER FEMA FLOOD MAP NUMBER 33011C0518D DATED SEPTEMBER 25, 2009. THE APPROXIMATE FLOOD ZONE A LIMITS AS SHOWN HEREON ARE BASED UPON INTERPOLATION OF SAID FEMA MAP AND FEMA GIS.
6. ANY UNDERGROUND UTILITIES SHOWN HEREON ARE BASED ON INTERPOLATION OF SURFACE STRUCTURES & RECORD PLANS.
7. AS NOTED HEREON, THE CENTER OF BROOK IS CALLED FOR AS THE BOUNDARY BETWEEN LAND NOW OWNED BY THE TOWN OF HUDSON AND MEADOW PROPERTY, LLC. THE BROOK AND WETLANDS WERE IMPASSABLE AT THE TIME OF FIELD SURVEY. ORTHOIMAGERY DATED APRIL 2018 AND LIDAR DATED 2012 WERE USED TO APPROXIMATE THE CENTERLINES OF MERRILL BROOK AND THE BROOK DITCHES AS SHOWN HEREON.
8. WETLANDS AS SHOWN HEREON WERE DELINEATED BY CAITLIN BANASZAK, CWS OF HORIZONS ENGINEERING, INC. IN MAY 2024 AND LOCATED DURING FIELD SURVEY.
9. PER DEED REFERENCES A, C, I, & J THERE IS COVERED ASBESTOS MATERIAL ON THE SURVEYED PREMISES. THE APPROXIMATE AREAS OF SAID MATERIAL ARE SHOWN PER PLAN REFERENCE A. PER SAID DEED REFERENCES I & J THERE ARE NUMEROUS RESTRICTIONS AND COVENANTS REGARDING SAID MATERIAL AND THE SURVEYED PREMISES.
10. THE WORD "CERTIFY" OR "CERTIFICATION" AS SHOWN AND USED HEREON MEANS COMPLIANCE WITH APPLICABLE LAND SURVEY LAWS AND RULES AND AN EXPRESSION OF PROFESSIONAL OPINION BASED ON THE FACTS OF THE SURVEY, PRINCIPLES OF BOUNDARY RETRACEMENT AND LOCAL STANDARD OF CARE, AND DOES NOT CONSTITUTE A WARRANTY OR GUARANTEE, EXPRESSED OR IMPLIED.
11. PER THE TOWN OF HUDSON ZONING MAP (LAST AMENDED AUGUST 2, 2021) THE SURVEYED PREMISES LIES WITHIN THE GENERAL DISTRICT, BUSINESS DISTRICT, AND WETLANDS CONSERVATION DISTRICT. THE FOLLOWING ARE A LIST OF ZONING REGULATIONS FROM THE TOWN OF HUDSON ZONING ORDINANCE (LAST AMENDED July 28, 2022) WHICH AFFECT THE SURVEYED PREMISES:

    -MAXIMUM BUILDING HEIGHT: 38 FEET
    -WETLAND BUFFER: 50 FEET
    -FRONT BUILDING SETBACK: 50 FEET (ARTERIAL AND COLLECTOR ROADWAYS)
    -SIDE/REAR BUILDING SETBACK: 15 FEET (ARTERIAL AND COLLECTOR ROADWAYS)
    -MINIMUM LOT FRONTAGE: 150 FEET
    -MINIMUM LOT AREA: 43,560 SQ. FT (BUSINESS WITHOUT WATER AND SEWER AND GENERAL), 30,000 SQ. FT. (BUSINESS WITH WATER AND SEWER)

    *SEE THE TOWN OF HUDSON ZONING ORDINANCE FOR FURTHER INFORMATION AND APPLICATION

CERTIFICATION:

I HEREBY CERTIFY THAT THIS PLAT IS BASED ON A PRECISION GPS SURVEY AND IS CLASSIFIED URBAN PER THE NEW HAMPSHIRE CODE OF ADMINISTRATIVE RULES.

I CERTIFY THAT THIS SURVEY PLAT IS NOT A SUBDIVISION PURSUANT TO RSA 676:18 AND THAT THE LINES OF STREETS AND WAYS SHOWN ARE THOSE OF PUBLIC OR PRIVATE STREETS OR WAYS ALREADY ESTABLISHED AND THAT NO NEW WAYS ARE SHOWN.

Kevin M. Ashe — *03/12/2025*
KEVIN M. ASHE, LLS 902 — *DATE*

DATE OF PRINT
MARCH 14 2025
HORIZONS ENGINEERING

horizons Engineering
Civil and Structural Engineering
Land Surveying and Environmental Consulting
MAINE • NEW HAMPSHIRE • VERMONT
www.horizonsengineering.com

FLOOD PLAIN DELINEATION
PREPARED FOR
DONALD DUMONT
OF LAND OWNED BY
POSEY INVESTMENTS, LLC
& MEADOWS PROPERTY, LLC
197 & 207 CENTRAL STREET
HUDSON, HILLSBOROUGH COUNTY, NEW HAMPSHIRE

NO.	DATE	REVISION DESCRIPTION	ENG	DWG

STATE OF NEW HAMPSHIRE — No. 902 — KEVIN M. ASHE — LICENSED LAND SURVEYOR — SIGNATURE

DATE: MAR. 2025	PROJECT #: 240197
SRVY'D BY: HEI	DRAWN BY: DMW
CHECK'D BY: KMA	ARCHIVE #: H-___

SHEET 1 OF 1

Barton & Loguidice

TRAFFIC IMPACT STUDY

FOR PROPOSED

MIXED-USE DEVELOPMENT

207 Central Street, Hudson

Prepared For: **Verdantas, LLC**
Prepared By: Barton & Loguidice, LLC

January 20, 2026

4667.001.001

TABLE OF CONTENTS

Traffic Impact Study

Mixed-Use Development

207 Central Street, Hudson, NH

Attachment "H"

1 INTRODUCTION

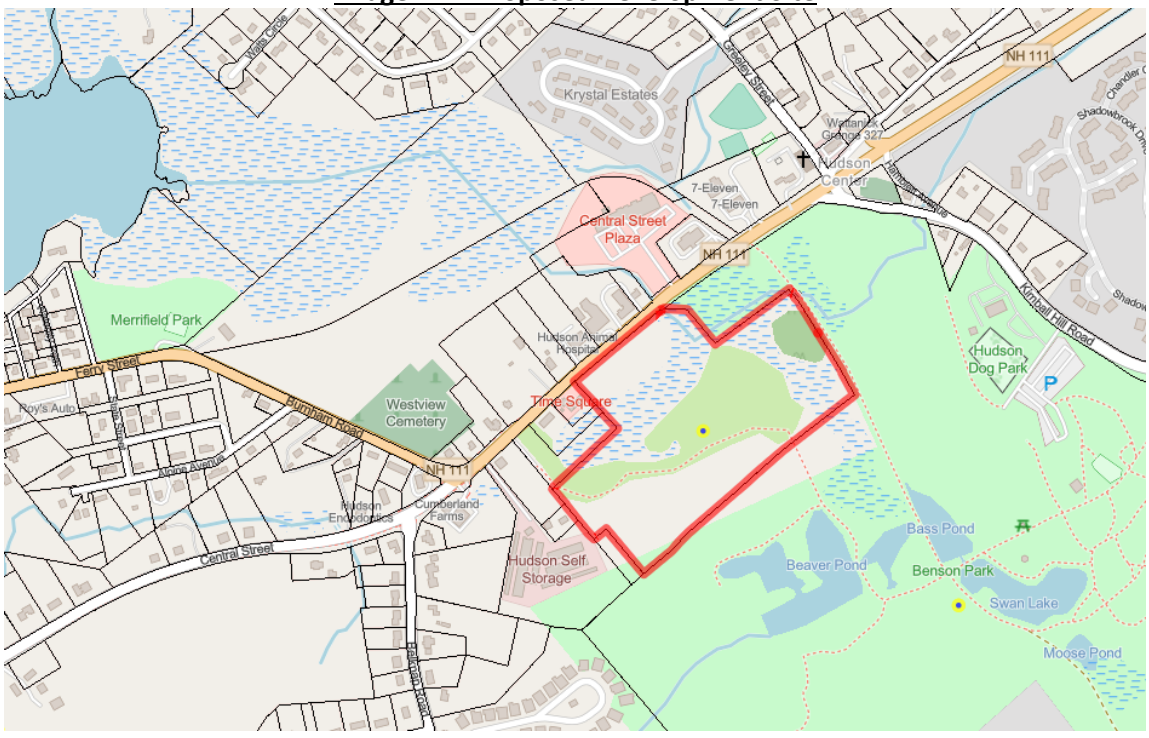
The applicant proposes the development of a mixed-use residential and retail project on the parcel located at 207 Central Street (Route 111) in the town of Hudson. The project proposes a 2-story mixed-use building with 7,000 sf of retail space and 8 residential dwelling units, 2 food truck spaces, a 3-story residential building with 24 dwelling units, a 3-story residential building with 48 dwelling units, and a 3-story residential building with 36 dwelling units. In total, the project proposes 116 residential dwelling units.

Access to the 2-story mixed-use building and one of the food truck spaces will be provided by an existing, freshly paved driveway entrance, which intersects with the southeast side of Central Street, opposite Shattuck Rug & Flooring. The existing entrance will be modified with the development of the project. The 3-story residential buildings will be located towards the rear of the parcel and will be accessed by a proposed driveway entrance that intersects with the southeast side of Central Street, approximately 580 feet from the existing driveway. The second food truck space will also be accessed by the proposed driveway. The development site is outlined in Image 1A below.

The existing development site is currently occupied by a small food truck-style drive-through coffee shop. The shop is anticipated to open in early 2026 and will be vacated in August of 2026 to permit the development of the proposed project. Access to the coffee shop is provided via the existing paved entrance.

The purpose of this traffic impact study is to examine existing traffic conditions at the site's proposed intersections with Central Street and at the nearby intersection of Central Street and Burnham Road; estimate the total number of site trips generated by the project; and determine whether the existing transportation system can safely accommodate the added traffic generated by the project.

Image 1A – Proposed Development Site



Attachment "H"

2 EXISTING CONDITIONS

2.1 Existing Development Site

The existing site is located on the parcel addressed 207 Central Street in the town of Hudson. The existing development site is occupied by a small food truck-style drive-through coffee shop. The shop is anticipated to open in early 2026 and will be vacated in August of 2026 to permit the development of the proposed project. Access to the coffee shop is provided by a freshly paved driveway entrance.

Aside from the coffee shop, the site is occupied by a parking lot with a continuous opening along the frontage of the parcel. This parking lot used to serve a restaurant, which burned down in the 90s. With the development of the project, the width of the existing parking lot entrance will be significantly reduced, leaving only a 24-foot opening.

2.2 Study Intersections

For this traffic study, we have identified the following three intersections as our study intersections:

- Central Street at Burnham Road/Cumberland Farms (Signalized)
- Central Street at the proposed western site entrance (Unsignalized)
- Central Street at the existing eastern site entrance (Unsignalized)

2.3 Existing Traffic Conditions

Turning movement counts, recorded by the Town's Gridsmart traffic signal camera system, were provided by the Town's Engineer for the intersection of Central Street at Burnham Road and Cumberland Farms. The turning movement count, which included 24 hours of traffic data, was recorded on September 24, 2026. This mid-September date was chosen because the area was still experiencing nice summer weather, and school was in session. The turning movement count is attached in *Section A of the appendix*.

A summary of the turning movement counts shows the AM peak hour begins at 7:15 AM, and the PM peak hour begins at 4:45 PM. The peak hour traffic volumes are shown in **Figure 1**, attached in *Section A of the appendix*.

3 BACKGROUND TRAFFIC

3.1 Seasonal Adjustments

Traffic data collected during the month of September requires a seasonal adjustment to reflect the "peak" travel conditions typically found during the summer months of July and August. NHDOT provides adjustment factors for adjusting traffic volumes collected outside of the peak time periods. Central Street (Route 111), within the vicinity of the site, is classified as Group 4 (Urban Highway). In accordance with NHDOT's 2024 Group Data, for September traffic volumes, the adjustment factor to "peak" conditions is 1.02, and the adjustment to "average" conditions is 0.97.

3.2 Future Traffic Growth

The project is expected to be constructed and occupied during 2027. Accordingly, in this traffic study we will analyze traffic conditions during the 2027 build year. To adjust the recorded traffic volumes to the projected build year, we have reviewed NHDOT's AADT volumes recorded on Central Street southwest of Kimball Hill Road. The volumes show that over the past four years, the volumes on Central Street have experienced an average annual increase of 2.63%. The annual adjustment calculations are provided below:

Attachment "H"

- AADT21 = 17,064
- AADT22 = 17,388
- AADT23 = 18,079
- AADT24 = 18,441
  - Annual Increase (21 to 22) =1.90%
  - Annual Increase (22 to 23) =3.97%
  - Annual Increase (23 to 24) =2.00%
    - ➢ Average Annual Increase = 2.63%

Figure 2, attached in *Section A of the appendix*, illustrates the 2027 design hour traffic volumes. This figure has been prepared by applying the seasonal adjustment (1.02) and annual adjustment (2.63% annually) to the 2025 peak hour traffic volumes shown in Figure 1.

3.3 Other Development Traffic

The Hudson Town Planner has been contacted and was requested to identify all pending or approved other development projects whose trips may impact Central Street within the general vicinity of the site. They have confirmed that there are no other development trips within the vicinity of the project at this time.

3.4 2027 Pre-Development Traffic

Because there are no other development trips within the vicinity of the site, the 2027 pre-development traffic volumes do not vary from the 2027 design hour traffic volumes shown in *Figure 2*.

4 PROPOSED CONDITIONS

4.1 Development

The project proposes a 2-story mixed-use building with 7,000 sf of retail space and 8 residential dwelling units, 2 food truck spaces, a 3-story residential building with 24 dwelling units, a 3-story residential building with 48 dwelling units, and a 3-story residential building with 36 dwelling units.

4.2 Site Access

The 2-story mixed-use building and one of the food truck spaces will be located on the front of the site and accessed by an existing driveway entrance which intersects with the southeast side of Central Street opposite Shattuck Rug & Flooring. The 3-story residential buildings will be located towards the rear of the parcel and will be accessed by a proposed driveway entrance that intersects with the southeast side of Central Street, approximately 580 feet from the existing driveway. The second food truck space will also be accessed by the proposed driveway.

4.3 Proposed Site Trip Generation

Daily and peak hour site trip generation estimates have been prepared for the proposed development based on the trip generation tables presented in the 12th Edition of the Institute of Transportation Engineers (ITE) *Trip Generation Manual*. The ITE Manual provides numerous land use codes (LUCs) and the volume of site-generated trips produced by each category.

Trip generation calculations for the proposed residential units were prepared using LUC 220 – Multifamily Housing (Low-Rise). The trip generation calculations for the proposed retail store were prepared using LUC 822 – Strip Retail Plaza (less than 40ksf). The trip generation for the proposed food trucks was determined using LUC 926 – Food Cart Pod. The trip generation plot tables and land use

Attachment "H"

descriptions are attached in *Section A of the appendix*. ITE typically provides two ways to calculate peak hour trip generation. The "average rate" method and the "fitted curve equation" method. In this study, we have used the "fitted curve equation" when $R^2 \geq 0.80$, and the "average rate" when $R^2 < 0.80$. The trip generation calculations are provided below in Tables 1.1 and 1.3:

Table 1.1
ITE Trip Generation Calculations (12th Edition)

Land Use	Multifamily Housing (Low-Rise) Not Close to Rail Transit - LUC 220						
Time Period	**Dwelling Units (X)**	**R^2**	**Fitted Curve Equation/Avg. Rate**	**Trips Generated (T)**	**Distribution Entering / Exiting**	**Enter**	**Exit**
Weekday	116	0.70	6.21	720	50% / 50%	360	360
AM Weekday Peak Hour (Street)	116	0.81	T = 0.35(X) + 12.93	54	24% / 76%	13	41
PM Weekday Peak Hour (Street)	116	0.83	T = 0.48(X) + 7.35	63	62% / 38%	39	24
AM Weekday Peak Hour (Generator)	116	0.84	T = 0.43(X) + 6.30	56	27% / 73%	15	41
PM Weekday Peak Hour (Generator)	116	0.84	T = 0.61(X) + 1.61	72	60% / 40%	43	29

Table 1.2
ITE Trip Generation Calculations (12th Edition)

Land Use	Strip Retail Plaza (<40k) - LUC 822						
Time Period	**Sq. Footage (1k)**	**R^2**	**Fitted Curve Equation/Avg. Rate**	**Trips Generated (T)**	**Distribution Entering / Exiting**	**Enter**	**Exit**
Weekday	7	0.96	T = 42.20(X) + 229.68	525	50% / 50%	263	262
AM Weekday Peak Hour (Street)	7	n/a	3.93	28	55% / 45%	15	13
PM Weekday Peak Hour (Street)	7	0.54	6.29	44	50% / 50%	22	22
AM Weekday Peak Hour (Generator)*	7	n/a	5.40	38	48% / 52%	18	20
PM Weekday Peak Hour (Generator)*	7	n/a	6.27	44	56% / 44%	25	19

*Caution - Small Sample Size.

Table 1.3
ITE Trip Generation Calculations (12th Edition)

Land Use	Food Cart Pod - LUC 926						
Time Period	**Food Carts**	**R^2**	**Fitted Curve Equation/Avg. Rate**	**Trips Generated (T)**	**Distribution Entering / Exiting**	**Enter**	**Exit**
Weekday*	2	n/a	61.60	123	50% / 50%	62	61
AM Weekday Peak Hour (Street)**	2	n/a	6.16	12	50% / 50%	6	6
PM Weekday Peak Hour (Street)***	2	0.97	6.16	12	50% / 50%	6	6
AM Weekday Peak Hour (Generator)*	2	n/a	10.38	21	50% / 50%	11	10
PM Weekday Peak Hour (Generator)	2	0.69	10.38	21	50% / 50%	11	10

*ITE does not provide a weekday rate. Assumed 10 times the PM peak hour.

**ITE does not provide AM peak hour rates. We have assumed them to be similar to the PM peak hour.

***Have used the avg. rate instead of the fitted curve equation due to the y intercept of (-7.59)

Table 1.4, following, combines Tables 1.1, 1.2 and 1.3, summarizing the sites total trip generation:

Table 1.4 ITE Trip Generation Calculations			
Time Period	**Total Trips**	**Enter**	**Exit**
Weekday	1368	685	683
AM Weekday Peak Hour (Street)	94	34	60
PM Weekday Peak Hour (Street)	119	67	52
AM Weekday Peak Hour (Generator)	115	44	71
PM Weekday Peak Hour (Generator)	137	79	58

Table 1.4 shows that the project will generate 94 trips during the AM peak hour of the adjacent street and 119 trips during the PM peak hour of the adjacent street. During the AM and PM peak hours of the generator, the site will produce 115 trips and 137 trips, respectively.

4.4 Residential Trip Distribution

As noted in Section 4.2, the site will be served by two separate driveways. The western driveway will serve 108 residential dwelling units and 1 food truck, and the eastern driveway will serve the retail space, 12 dwelling units and 1 food truck. Accordingly, we have distributed the residential trips, shown in Table 1.1, across both driveways. Approximately 93% of the residential trips will use the westerly driveway, and the remaining 7% will use the easterly driveway. The driveway distribution calculations are shown below in Table 1.5:

Table 1.5 Driveway Distribution Calculations						
Land Use	**Multifamily Housing (Low-Rise) - LUC 220**					
	Western Driveway			**Eastern Driveway**		
Time Period	**Total Trips**	**Enter**	**Exit**	**Total Trips**	**Enter**	**Exit**
Weekday	670	335	335	50	25	25
AM Weekday Peak Hour (Street)	50	12	38	4	1	3
PM Weekday Peak Hour (Street)	59	37	22	4	2	2
AM Weekday Peak Hour (Generator)	52	14	38	4	1	3
PM Weekday Peak Hour (Generator)	67	40	27	5	3	2

4.5 Trip Composition

The ITE Trip Generation Handbook defines three types of trips that may be generated by a retail use: pass-by, primary, and diverted-link. For the purposes of this study, we have determined the trip composition for primary trips and pass-by trips. In this study, we will consider diverted-link trips as primary trips. The food truck trips are assumed to be primary trips.

ITE does not provide pass-by rates for LUC 822; however, they do provide pass-by rates for similar retail uses. See below:

- LUC 814 – Varity Store:
  - Weekday PM Peak Period = 34%
- LUC 816 – Hardware/Paint Store
  - Weekday PM Peak Period = 26%
- LUC 820 – Shopping Center between 150 and 300K

Attachment "H"

  - Weekday PM Peak Period = 29%
- LUC 821 – Shopping Plaza between 40 and 150k
  - Weekday PM Peak Period = 40%

As shown above, the PM peak hour pass-by rates for similar retail uses range from 26% to 34%. To be conservative, we will assume that 25% of the proposed PM peak hour retail trips will be pass-by trips. ITE does not provide pass-by trip data for retail uses during the AM peak hour. We will assume that all AM peak hour trips are primary trips. The trip composition calculations for the retail space are shown below in Table 1.6:

Table 1.6
ITE Trip Composition

Land Use	Strip Retail Plaza (<40k) - LUC 822					
Time Period	Total Trips		Primary Trips		Pass-By Trips	
	Enter	Exit	Enter	Exit	Enter	Exit
AM Weekday Peak Hour (Street)	15	13	15	13	0	0
PM Weekday Peak Hour (Street)	22	22	16	16	6	6

Including the primary trips generated by 1 of the food trucks and the 8 residential units in the multi-use building, Table 1.7, following, shows the trip composition for trips that will be generated by the development accessed by the easterly driveway. All trips generated by the residential units and the food truck located on the westerly driveway will be primary trips.

Table 1.7
ITE Trip Composition for Eastern Driveway

Land Use	LUC 220 and LUC 822					
Time Period	Total Trips		Primary Trips		Pass-By Trips	
	Enter	Exit	Enter	Exit	Enter	Exit
AM Weekday Peak Hour (Street)	19	19	19	19	0	0
PM Weekday Peak Hour (Street)	27	27	21	21	6	6

Table 1.7 shows that the proposed multi-use building, accessed by the eastern driveway, will generate 38 primary trips and 0 pass-by trips in the AM peak hour. In the PM peak hour, it will generate 42 primary trips and 12 pass-by trips.

The data in Table 1.5 show that the 108 residential units accessed by the western driveway will generate 50 primary trips and 59 primary trips during the AM and PM peak hours, respectively. The single food truck will generate 6 trips in both peak hours.

4.6 Trip Assignment

Traffic generated by the proposed development has been assigned through the study intersections based on the existing traffic patterns found on the adjacent roadway, as illustrated in Figure 1.

Figure 3, attached in *Section A of the appendix,* illustrates the site trip assignment.

Attachment "H"

4.7 2027 Post-Development Traffic

The 2027 post-development traffic volumes are provided in **Figure 4**, attached in *Section A of the appendix*. The figure has been prepared by combining the 2027 design hour traffic volumes shown in Figure 2 with the site trip assignment shown in Figure 3.

5 ANALYSES

5.1 Intersection Sight Distance

The 7th edition of the AASHTO *Green Book* recommends the following sight distances at intersections (for vehicles turning left out of the minor street), based on the posted speed limit of the major road:

AASHTO Sight Distance Standards	
Posted Speed Limit	**Stopping Sight Distance**
25 mph	155 ft.
30 mph	200 ft.
35 mph	250 ft.
40 mph	305 ft.
45 mph	360 ft.

Sight distance measurements were recorded from the existing (easterly) and proposed (westerly) driveway entrances, looking both left and right, using the following procedure, as recommended by AASHTO: *Sight distance was measured to and from the point on the centerline of the proposed access that is located 15 feet from the edge of the traveled way. The height of the hypothetical person's view is considered to be 3½ feet above the pavement, and the height of the object being viewed is considered to be 3½ feet above the pavement.* The Central Street count station located northeast of the site shows that the 85th percentile speed on Central Street is 38 mph. Based on the 38 mph 85th percentile speed, the minimum required sight distance is about 305 feet.

Proposed Western Driveway: Our sight distance measurements, looking left and right, indicate that the existing sightlines exceed the requirements. Looking both to the left and right, we measured sightlines exceeding 425 feet. See photos below.

Existing Eastern Driveway: Our sight distance measurements, looking left and right, indicate that the existing sightlines exceed the requirements (with the removal of the temporary realty sign). Looking both to the left and right, we measured sightlines exceeding 400 feet. See photos below.

At both driveways, there were intermittent sight distance obstructions caused by utility poles along Central Street. These obstructions were only minor, and the target could be observed by moving forward or backward.

Attachment "H"

East Driveway Photos:

Looking Right

Looking Left

West Driveway Photos:

Looking Left

Looking Right

Attachment "H"

5.2 Crash Analysis

The Hudson Police Department has provided 3 years of crash data for the section of Central Street fronting the development site, between and including the signalized intersections at Burnham Road and Kimball Hill Road. The crash data, is included in *Section B of the appendix*.

At the intersection of Burnham Road and Central Street, there were 19 identified crashes, with 3 reported injuries. The statistics show that 5 crashes were caused by a failure to yield, and 4 were caused by operator distraction.

On the section of Central Street between the two signalized intersections there were 6 vehicle crashes, which resulted in 7 injuries. The statistics show that 2 crashes involved fixed objects, and two were caused by a failure to yield.

At the intersection of Central Street, Greely Street, and Kimball Hill Road, there were 43 vehicle crashes, 2 animal crashes, and 1 pedestrian crashes. These crashes resulted in 10 injuries. The statistics show that 10 involved operator distraction, 2 were speed related, 2 were caused by a failure to yield, 11 were caused by motorists following too closely, and 1 involved a fixed object.

At the intersection of Central Street and Hamblett Avenue, there were 7 vehicle crashes which resulted in 4 injuries. Two (2) were speed related, 2 involved operator distraction, and 4 were following too close.

5.3 Capacity Analysis

A capacity analysis of the 2027 pre-development and post-development traffic conditions has been performed for the 3 study intersections:

- Central Street at Burnham Road/Cumberland Farms (Signalized)
- Central Street at the proposed western site entrance (Unsignalized)
- Central Street at the existing eastern site entrance (Unsignalized)

Within the capacity analysis, we will review the level of service (LOS) for each movement at the study intersection. LOS is a measurement of the delay experienced by stopped vehicles at an intersection. LOS rankings are similar to the academic grading system, where an "A" is very good with little delay, and an "F" represents very poor conditions. The following chart presents the relationship between delay and LOS for signalized and unsignalized intersections.

Level of Service Criteria for Signalized Intersections		Level of Service Criteria for Unsignalized Intersections	
Level of Service	**Total Control Delay (sec/veh)**	**Level of Service**	**Total Control Delay (sec/veh)**
A	Up to 10.0	A	Up to 10.0
B	10.1 to 20.0	B	10.1 to 15.0
C	20.1 to 35.0	C	15.1 to 25.0
D	35.1 to 55.0	D	25.1 to 35.0
E	55.1 to 80.0	E	35.1 to 50.0
F	Greater Than 80.0	F	Greater Than 50.0

The capacity analysis was performed using Synchro 12 inputs and HCM 6th edition reporting outputs. The reports are included in *Section C of the appendix.* Although the prior analysis shows that turn lanes are

Attachment "H"

warranted at both site driveways, the capacity analysis will be completed without the turn lanes included.

Table 5A, following, summarizes the results of capacity analysis completed for the 2027 pre-development and post-development AM and PM peak hours.

Table 5A
Level of Service Summary

Intersection/Movement	2027 Pre-Development						2027 Post-Development					
	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
	Delay (sec./veh.)	LOS	V/C Ratio	Delay (sec./veh.)	LOS	V/C Ratio	Delay (sec./veh.)	LOS	V/C Ratio	Delay (sec./veh.)	LOS	V/C Ratio
1. Central Street & Western Site Driveway (Unsignalized)												
Central St - NE Thru	-	-	-	-	-	-	0.0	A	-	0.0	A	-
Central St - NE Right	-	-	-	-	-	-	0.0	A	-	0.0	A	-
Site - NW Left/Right	-	-	-	-	-	-	55.5	F	0.391	70.4	F	0.335
Central St - SW Left	-	-	-	-	-	-	9.5	A	0.009	11.0	B	0.031
Central St - SW Thru	-	-	-	-	-	-	0.0	A	-	0.0	A	-
2. Central Street & Burnham Road/Cumberland Farms (Signalized)												
Burnham Rd - SE Left/Thru	27.0	C	0.85	27.0	C	0.87	27.7	C	0.85	29.6	C	0.88
Burnham Rd - SE Right	17.7	B	0.06	16.7	B	0.09	18.0	B	0.06	17.5	B	0.08
Cumberland Farm - NW LTR	51.3	D	0.72	47.5	D	0.79	53.0	D	0.73	49.7	D	0.79
Central St - NE Left	32.9	C	0.16	37.4	D	0.38	34.1	C	0.16	40.2	D	0.39
Central St - NE Thru/Right	13.5	B	0.43	21.6	C	0.77	13.8	B	0.44	22.9	C	0.79
Central St - SW Left	16.4	B	0.03	29.6	C	0.15	16.9	B	0.03	31.9	C	0.15
Central St - SW Thru	20.3	C	0.66	24.8	C	0.68	20.8	C	0.67	25.7	C	0.68
Central St - SW Right	8.1	A	0.62	8.2	A	0.54	8.0	A	0.63	8.0	A	0.54
Overall	***17.2***	***B***	***-***	***21.3***	***C***	***-***	***17.5***	***B***	***-***	***22.5***	***C***	***-***
2. Central Street & Eastern Site Driveway (Unsignalized)												
Central St - NE Thru	-	-	-	-	-	-	0.0	A	-	0.0	A	-
Central St - NE Right	-	-	-	-	-	-	0.0	A	-	0.0	A	-
Site - NW Left/Right	-	-	-	-	-	-	39.7	E	0.167	67.2	F	0.341
Central St - SW Left	-	-	-	-	-	-	9.5	A	0.016	10.8	B	0.021
Central St - SW Thru	-	-	-	-	-	-	0.0	A	-	0.0	A	-

1. Central St at the Western Site Driveway: The capacity analysis indicates that, post-development, the left-turn movement into the site will operate satisfactorily without impeding traffic on Central Street. The left-turn movement into the site will operate with 9 to 11 seconds of average delay. The average delay for the Central Street southwest through movement is shown to be 0 seconds in the AM and PM.

The site approach is expected to experience some delay during the AM and PM peak hours, operating at LOS F, with 55.5 seconds and 70.4 seconds of average delay, respectively. This is not unexpected and it is typical for a minor approach entering a high-volume major street at an unsignalized intersection to experience some delay during the peak hours.

Attachment "H"

2. Central St at Burnham Rd and Cumberland Farms: The capacity analysis shows that the traffic generated by the proposed project will have a minimal impact on the signalized intersection of Central Street and Burnham Road. During the post-development condition, there is minimal change to each movement's average delay, and all movements will continue to operate at LOS D or better.

Pre-development, the intersection is shown to operate at LOS B with 17.2 seconds of average delay, and LOS C with 21.3 seconds of average delay during the AM and PM peak hours. Post-development, the intersections average delay will increase by approximately one second, increasing to 17.5 and 22.5 seconds. In our opinion, this is not an unreasonable amount of delay and vehicles should be able to exit safely.

3. Central St at the Eastern Site Driveway: The capacity analysis shows that the projected traffic conditions at the proposed site driveways will be very similar.

The capacity analysis indicates that, post-development, the left-turn movement into the site will operate satisfactorily without impeding traffic on Central Street. The left-turn movement into the site will operate with an average delay of 9 to 11 seconds. The average delay for the Central Street southwest through movement is shown to be 0 seconds in the AM and PM.

The site approach is expected to experience some delay during the AM and PM peak hours, operating at LOS E and LOS F, with average delays of 39.7 seconds and 67.2 seconds, respectively. It is typical for a minor approach entering a high-volume major street at an unsignalized intersection to experience some delay during the peak hours. In our opinion, this is not an unreasonable amount of delay and vehicles should be able to exit safely.

5.4 Vehicle Queue Analysis

In addition to outputting the vehicle delay, the HCM reports also calculates the 95th percentile vehicle queues for unsignalized intersections, and the 50th percentile vehicle queues at signalized intersections.

The 2027 pre- and post-development vehicle queues determined for the three study intersections are summarized below in Table 5B:

Attachment "H"

Table 5B Vehicle Queue Summary									
Intersection/Movement	Storage Length (ft)	2027 Pre-Development				2027 Post-Development			
		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
		Queue (veh)	Queue (ft)	Queue (veh)	Queue (ft)	Queue (veh)	Queue (ft)	Queue (veh)	Queue (ft)
1. Central Street & Western Site Driveway (Unsignalized)									
Central St - NE Thru	-	-	-	-	-	0	0	0.0	0
Central St - NE Right	-	-	-	-	-	0	0	0.0	0
Site - NW Left/Right	-	-	-	-	-	1.6	40	1.3	32.5
Central St - SW Left	-	-	-	-	-	0	0	0.1	2.5
Central St - SW Thru	-	-	-	-	-	0	0	0.0	0
2. Central Street & Burnham Road/Cumberland Farms (Signalized)									
Burnham Rd - SE Left/Thru	-	6.9	172.5	8.6	215	7.3	182.5	9.9	247.5
Burnham Rd - SE Right	120	0.3	7.5	0.5	12.5	0.3	7.5	0.6	15
Cumberland Farm - NW LTR	-	0.8	20	1.7	42.5	0.9	22.5	1.8	45
Central St - NE Left	105	0.2	5	0.6	15	0.2	5	0.6	15
Central St - NE Thru/Right	-	3.5	87.5	8.0	200	3.7	92.5	9.0	225
Central St - SW Left	210	0.1	2.5	0.5	12.5	0.1	2.5	0.5	12.5
Central St - SW Thru	-	5.5	137.5	5.6	140	5.9	147.5	6.2	155
Central St - SW Right	**220**	**10.2**	**255**	**9.6**	**240**	**11.1**	**277.5**	**10.6**	**265**
2. Central Street & Eastern Site Driveway (Unsignalized)									
Central St - NE Thru	-	-	-	-	-	0	0	0.0	0
Central St - NE Right	-	-	-	-	-	0	0	0.0	0
Site - NW Left/Right	-	-	-	-	-	0.6	15	1.3	32.5
Central St - SW Left	-	-	-	-	-	0	0	0.1	2.5
Central St - SW Thru	-	-	-	-	-	0	0	0.0	0

*The HCM reports provide 50th percentile queues for signalized intersections, and 95th percentile queues for unsignalized intersections.

*The typical vehicle length is assumed to be 25 feet.

1. Central St at the Western Site Driveway: The queueing analysis shows that the 95th percentile vehicle queue on the site approach is approximately 2 car lengths. On the southwest Central Street approach, a very minor vehicle queue of 0.1 cars (2.5 feet) is expected. This queue is not expected to significantly impede through traffic.

2. Central St at Burnham Rd and Cumberland Farms: The queueing analysis shows that all lanes, excluding the southwest right-turn lane, are not exceeded by the 50th percentile vehicle queues. While the 50th percentile vehicle queue does exceed the storage length in the southwest right-turn lane, the average queue in the through lane does not block access to the right-turn lane.

3. Central St at the Eastern Site Driveway: The queueing analysis shows that the projected traffic conditions at the proposed site driveways will be very similar.

Attachment "H"

At the eastern site driveway, the queueing analysis shows that the 95th percentile vehicle queue on the site approach is approximately 1 car length. On the southwest Central Street approach, a very minor vehicle queue of 0.1 cars (2.5 feet) is expected. This queue is not expected to significantly impede through traffic.

6 Recommendations & Conclusions

6.1 Trip Generation

Trip generation estimates were prepared for the proposed project. Our calculations show that the project will generate 94 trips and 119 trips during the AM and PM peak hours of the adjacent street, respectively. During the peak hours of the generator, the site will generate 115 trips and a maximum of 137 trips during the AM and PM peak hours, respectively.

6.2 Intersection Sight Distance

Intersection sight distance measurements were field recorded from the existing driveway entrance, located on the eastern side of the parcel, and from the proposed site driveway, located on the western side of the parcel. Based on an 85th percentile speed of 37 mph, a minimum stopping sight distance of approximately 305 feet is required.

Proposed Western Driveway: Our sight distance measurements, looking left and right, indicate that the existing sightlines exceed the requirements. Looking both to the left and right, we measured sightlines exceeding 425 feet. See photos below.

Existing Eastern Driveway: Our sight distance measurements, looking left and right, indicate that the existing sightlines exceed the requirements (with the removal of the temporary realty sign). Looking both to the left and right, we measured sightlines exceeding 400 feet. See photos below.

At both driveways, there were intermittent sight distance obstructions caused by utility poles along Central Street. These obstructions were only minor, and the target could be observed by moving forward or backward.

6.3 Crash Analysis

The Hudson Police Department has provided 3 years of crash data for the section of Central Street fronting the development site, between and including the signalized intersections at Burnham Road and Kimball Hill Road.

At the intersection of Burnham Road and Central Street, there were 19 identified crashes, with 3 reported injuries. The statistics show that 5 crashes were caused by a failure to yield, and 4 were caused by operator distraction.

On the section of Central Street between the two signalized intersections there were 6 vehicle crashes, which resulted in 7 injuries. The statistics show that 2 crashes involved fixed objects, and two were caused by a failure to yield.

At the intersection of Central Street, Greely Street, and Kimball Hill Road, there were 43 vehicle crashes, 2 animal crashes, and 1 pedestrian crashes. These crashes resulted in 10 injuries. The statistics show that 10 involved operator distraction, 2 were speed related, 2 were caused by a failure to yield, 11 were caused by motorists following too closely, and 1 involved a fixed object.

At the intersection of Central Street and Hamblett Avenue, there were 7 vehicle crashes which resulted in 4 injuries. Two (2) were speed-related, 2 involved operator distraction, and 4 were following too close.

6.4 Capacity Analysis

A capacity analysis was completed for the 2027 pre-development and post-development traffic conditions during the AM and PM peak hours for the three study intersections, which include the two site driveways and the signalized intersection of Central Street, Burnham Road, and Cumberland Farms.

At both site intersections, the capacity analysis shows that, post-development, the left-turn movement into the site driveways will operate satisfactorily without impeding traffic on Central Street. The left-turn movement into the site will operate with an average delay of 9 to 11 seconds. The average delay for the Central Street southwest through movement is shown to be 0 seconds in the AM and PM. Similarly, the analysis indicates that the right-turn movement into the site will not create significant delay for through traffic on Central Street.

The site approaches are expected to experience some delay during the AM and PM peak hours, ranging from an LOS E with an average delay of 39.7 seconds to an LOS F with an average delay of 70.4 seconds. It is typical for a minor approach entering a high-volume major street at an unsignalized intersection to experience some delay during the peak hours. In our opinion, this is not an unreasonable amount of delay and vehicles should be able to exit safely.

The capacity analysis indicates that the traffic generated by the proposed project will have a minimal impact on the signalized intersection of Central Street and Burnham Road. During the post-development condition, there is minimal change to each movement's average delay, and all movements will continue to operate at LOS D or better.

Pre-development, the intersection is shown to operate at LOS B with 17.2 seconds of average delay, and LOS C with 21.3 seconds of average delay during the AM and PM peak hours. Post-development, the intersection's average delay will increase by approximately one second, increasing to 17.5 and 22.5 seconds.

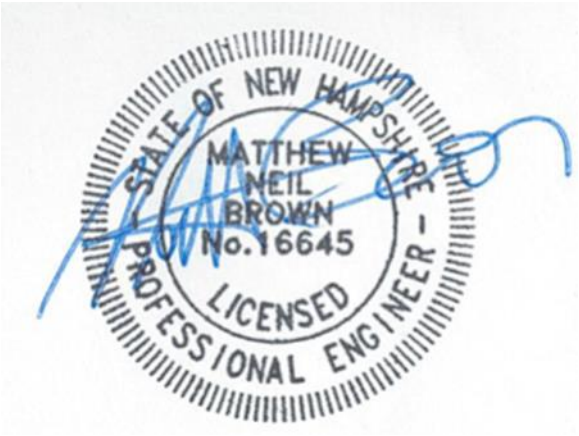
6.5 Vehicle Queue Analysis

A vehicle queuing analysis was completed for the 2027 pre-development and post-development traffic conditions during the AM and PM peak hours for the three study intersections, which include the two site driveways and the signalized intersection of Central Street, Burnham Road, and Cumberland Farms.

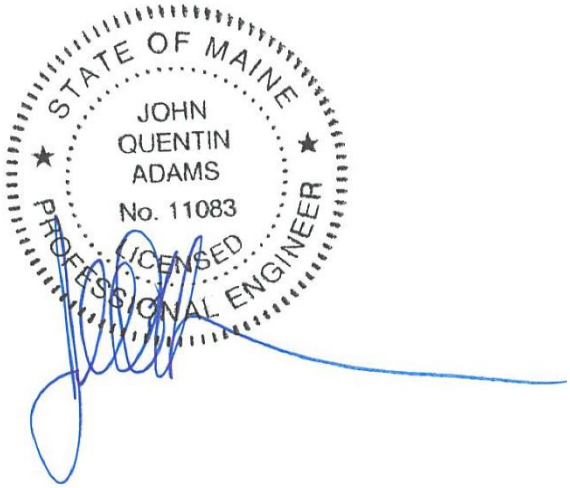
The analysis shows that the site entrances operate satisfactorily from a queuing standpoint. At both entrances, the queueing analysis shows that the 95th percentile vehicle queue on the site approach is approximately 1 to 2 car lengths. On the southwest Central Street approaches, very minor vehicle queues of 0.1 cars (2.5 feet) are expected in the PM peak hour. These queues are not expected to significantly impede through traffic.

At the signalized intersection of Central Street and Burnham Road, the queueing analysis shows that all lanes, excluding the Central Street southwest right-turn lane, are not exceeded by the 50th percentile vehicle queues. While the 50th percentile vehicle queue does exceed the storage length in the southwest right-turn lane, the average queue in the through lane does not block access to the right-turn lane.

Attachment "H"



Matthew N. Brown, P.E.



John Q. Adams, P.E., PTOE
PTOE Certification #2808

Attachment "H"

APPENDIX

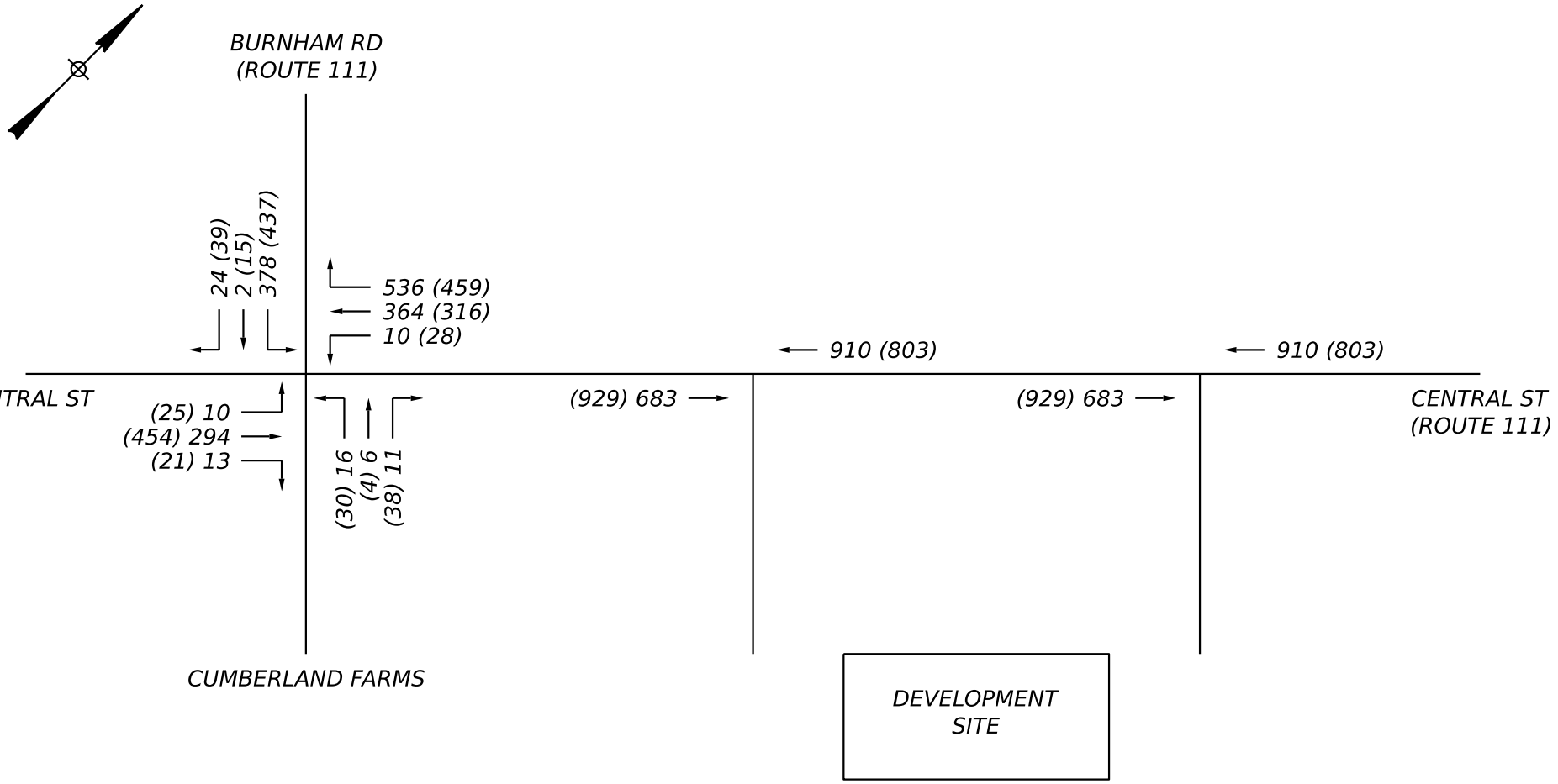
A. TRAFFIC FIGURES, TRAFFIC COUNTS, & TRIP GENERATION TABLES

B. CRASH DATA

C. HCM CAPACITY ANALYSIS REPORTS

APPENDIX A

- TRAFFIC FIGURES
- TRAFFIC COUNTS
- TRIP GENERATION TABLES



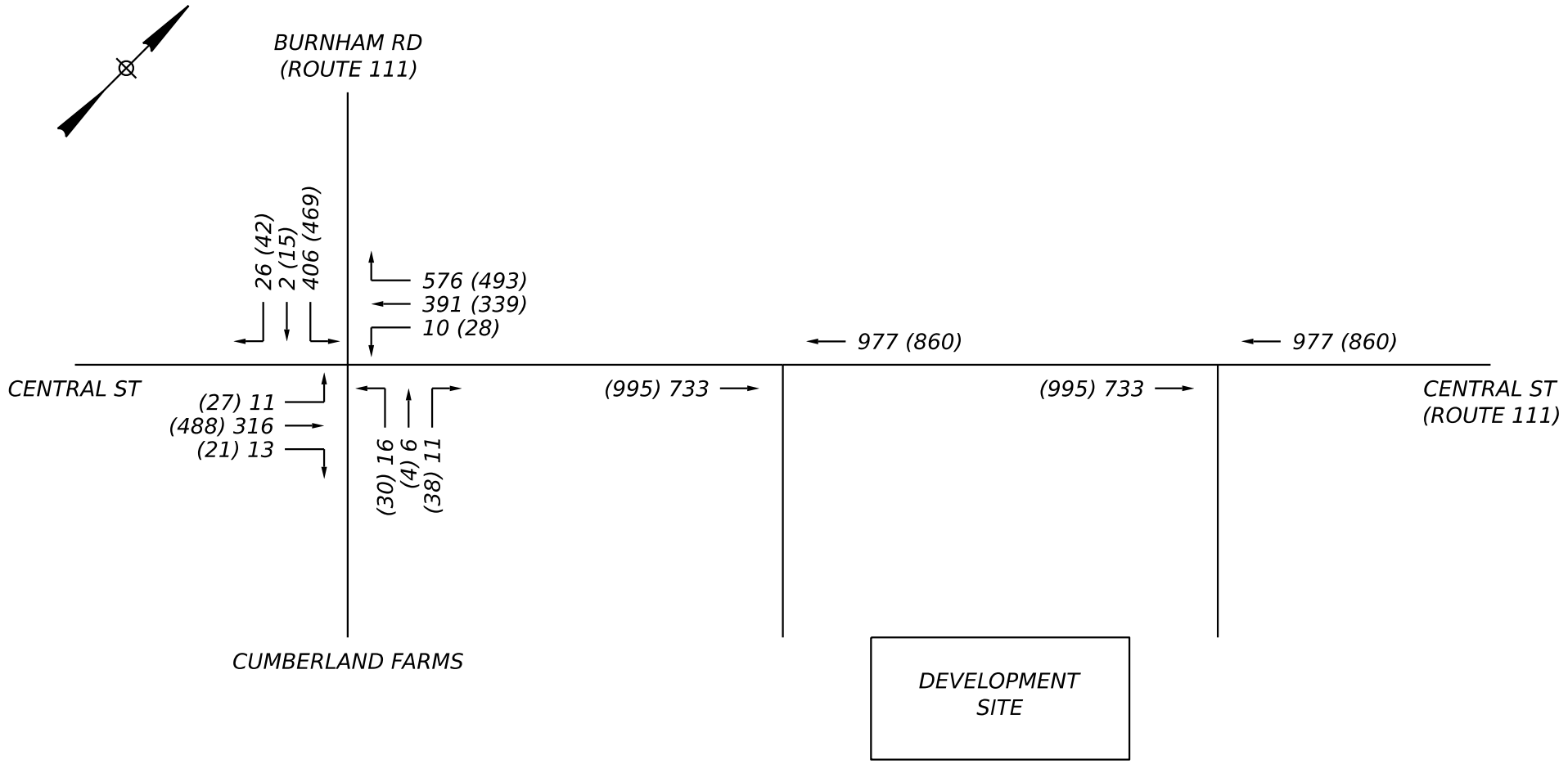
UNADJUSTED 2025 TRAFFIC VOLUMES
FIGURE 1

LEGEND:
XX = AM PEAK HOUR
(XX) = PM PEAK HOUR

MIXED-USE DEVELOPMENT
207 CENTRAL ST, HUDSON, NH
4667.001.001 DATE: JAN., 2026

Barton & Loguidice

Attachment "H"

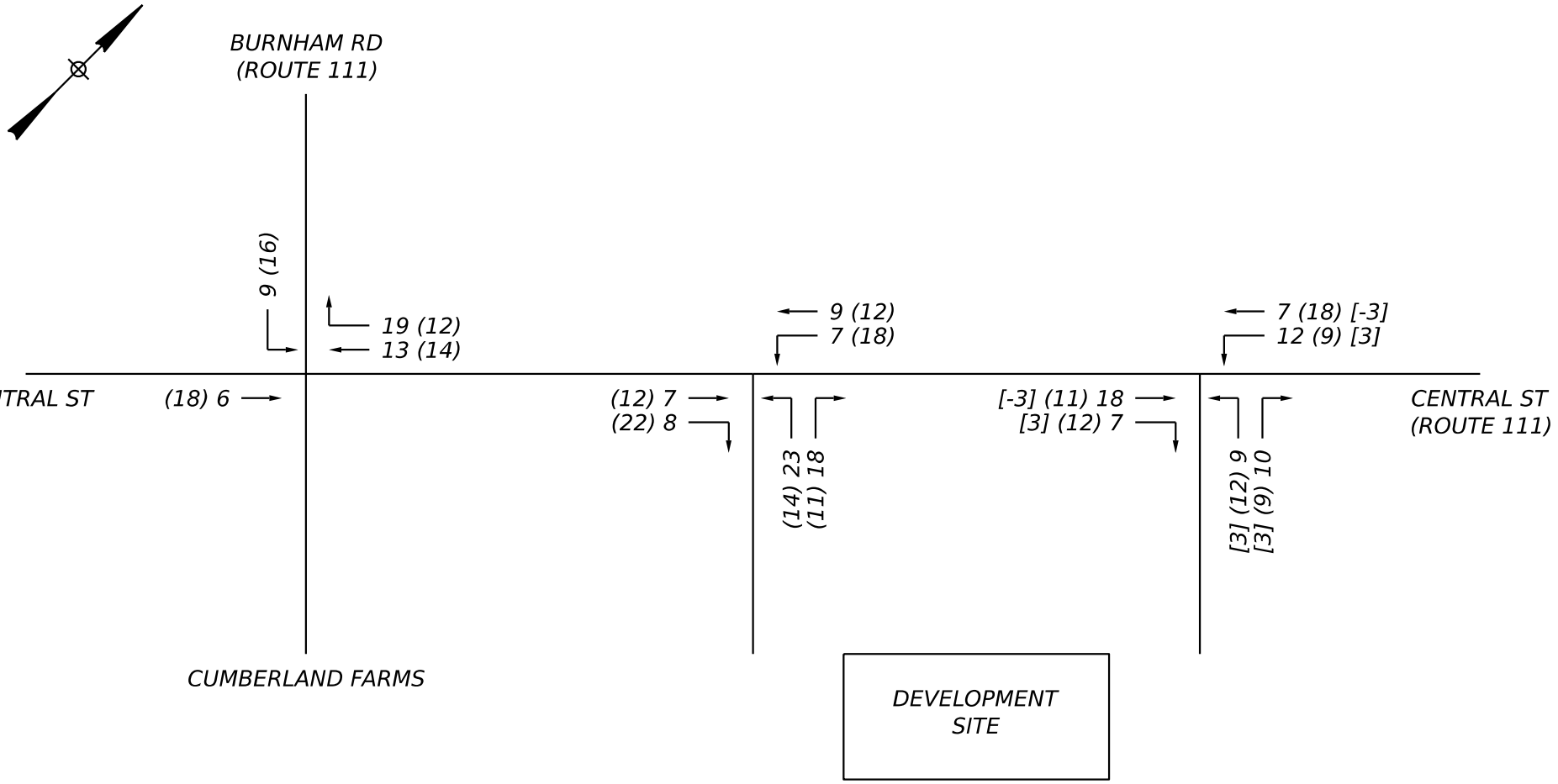


2027 DESIGN HOUR TRAFFIC VOLUMES
FIGURE 2

LEGEND:
XX = AM PEAK HOUR
(XX) = PM PEAK HOUR

MIXED-USE DEVELOPMENT
207 CENTRAL ST, HUDSON, NH
4667.001.001 DATE: JAN., 2026

Barton & Loguidice



SITE TRIP ASSIGNMENT
FIGURE 3

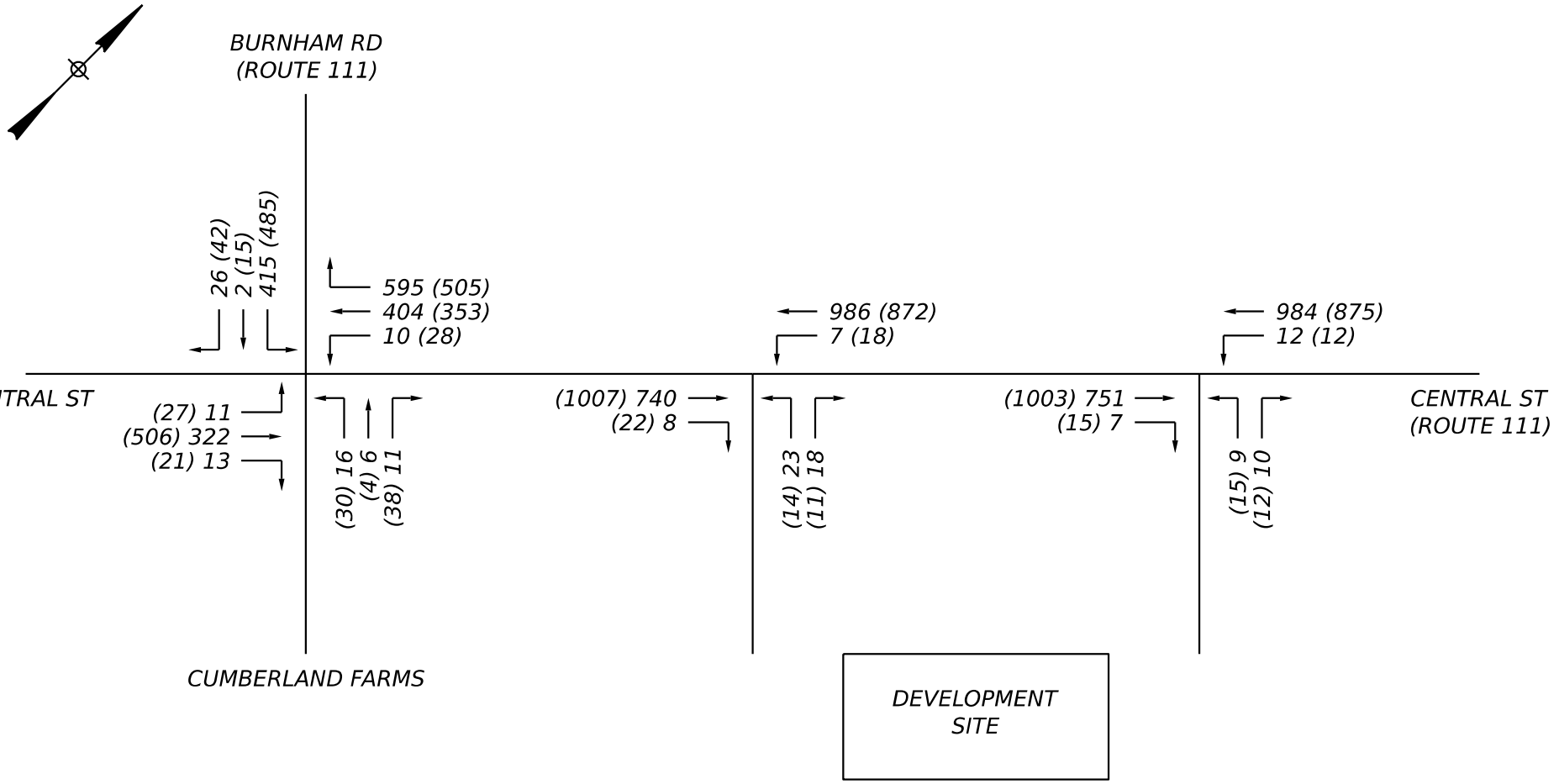
LEGEND:

XX = AM PEAK HOUR (PRIMARY TRIPS)
(XX) = PM PEAK HOUR (PRIMARY TRIPS)
[XX] = PM PEAK HOUR (PASS-BY TRIPS)

MIXED-USE DEVELOPMENT
207 CENTRAL ST, HUDSON, NH

4667.001.001 DATE: JAN., 2026

Barton & Loguidice



2027 POST-DEVELOPMENT TRAFFIC VOLUMES
FIGURE 4

LEGEND:

XX = AM PEAK HOUR

(XX) = PM PEAK HOUR

MIXED-USE DEVELOPMENT

207 CENTRAL ST, HUDSON, NH

4667.001.001 DATE: JAN., 2026

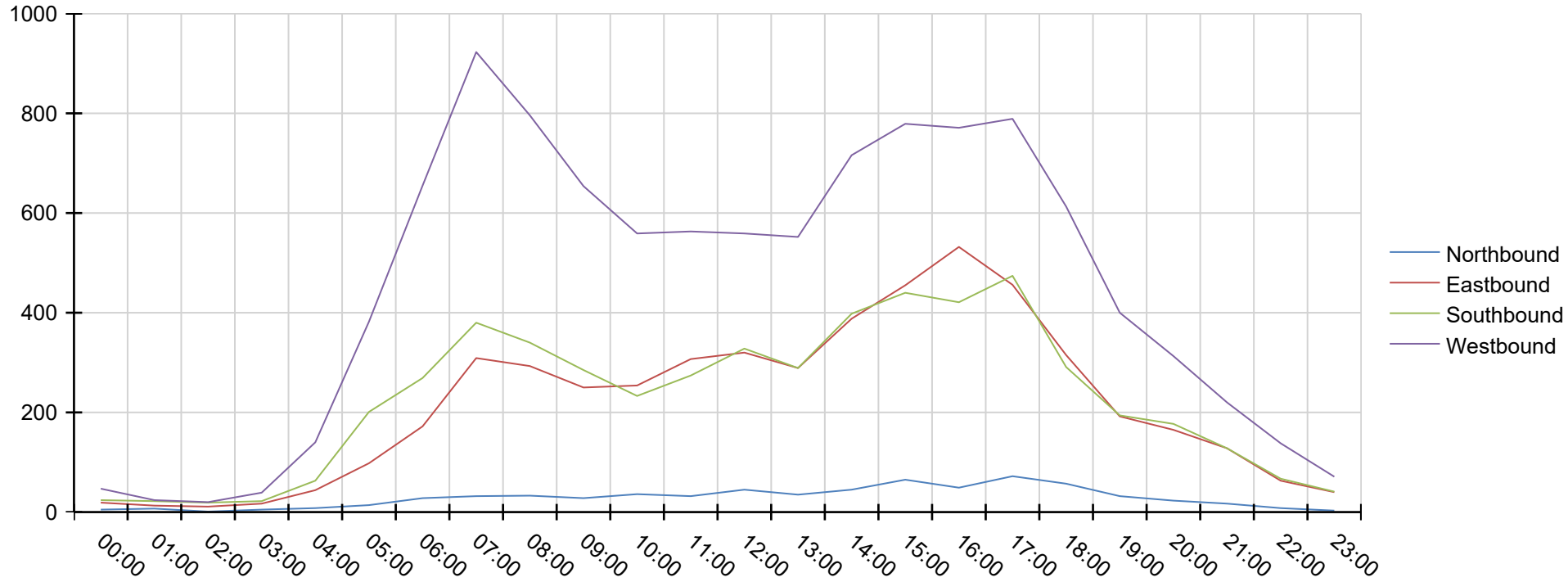
Barton & Loguidice

GRIDSMART®

Turning Movement Counts

Intersection Central & Burnham
Date 9/24/2025

	Right	Through	Left	UTurn	Total
Northbound	292	68	320		680
Eastbound	227	4658	244	1	5130
Southbound	372	304	4703	1	5380
Westbound	6099	4297	320	7	10723
Total	**6990**	**9327**	**5587**	**9**	**21913**



GRIDSMART®

Turning Movement Counts

Intersection Central & Burnham
Date 9/24/2025

	Northbound			Eastbound				Southbound				Westbound			
	R	T	L	R	T	L	U	R	T	L	U	R	T	L	U
00:00	1		4	3	16			1	2	21		27	17	3	
01:00	3		4	3	10			1	5	16		16	7	1	
02:00			1	3	8			1	5	13		14	5	1	
03:00			5	2	14	1		1	5	16		18	21		
04:00	4		4	5	36	3		1	15	47		50	81	9	
05:00	5	2	7	9	87	2		6	33	162		166	191	25	
06:00	12	5	11	10	154	8		12	25	232		341	294	20	
07:00	8	6	18	13	284	12		23	2	355		533	379	11	
08:00	16	2	15	5	275	13		30	6	304		459	322	15	
09:00	9	4	15	4	235	11		21	5	259		384	255	15	
10:00	16	3	17	9	227	18		18	4	211		320	227	11	1
11:00	13	3	16	9	279	19		17	7	250		325	225	13	
12:00	19	5	21	16	289	15		23	6	299		337	207	13	2
13:00	18	4	13	9	265	15		21	6	262		318	223	10	1
14:00	23	4	18	15	351	22		38	8	352		430	269	17	
15:00	34	7	24	19	416	20		40	10	390		453	306	20	
16:00	22	4	23	13	490	29		28	6	387		460	289	21	1
17:00	38	5	29	19	417	20		42	12	420		435	323	29	2
18:00	26	10	21	20	286	9		20	12	258	1	348	244	21	
19:00	10		22	15	169	8		5	40	149		214	157	29	
20:00	5	1	17	10	147	8		14	38	125		187	109	17	
21:00	7	3	7	14	106	7	1	7	27	94		130	80	10	
22:00	1		7	1	59	3			16	51		90	44	4	
23:00	2		1	1	38	1		2	9	30		44	22	5	
Total	**292**	**68**	**320**	**227**	**4658**	**244**	**1**	**372**	**304**	**4703**	**1**	**6099**	**4297**	**320**	**7**

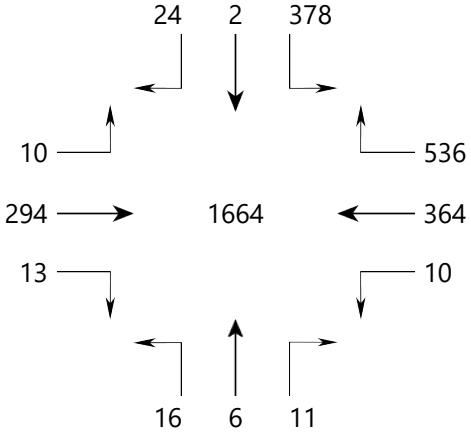
GRIDSMART®

Turning Movement Counts

Intersection Central & Burnham
Date 9/24/2025

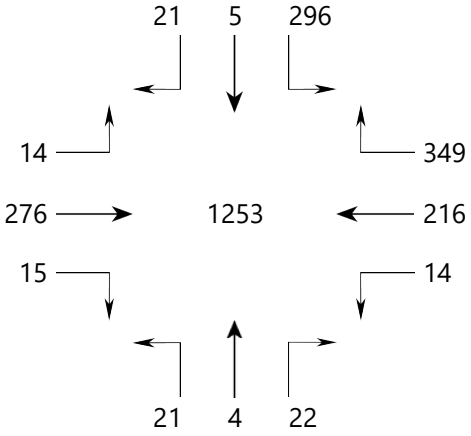
AM PEAK HOUR VOLUME (0:00-10:45)

FROM 07:15 TO 08:15



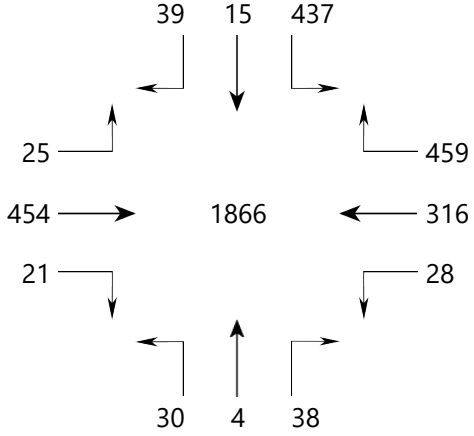
MID-DAY PEAK HOUR VOLUME (11:00-14:00)

FROM 12:15 TO 13:15



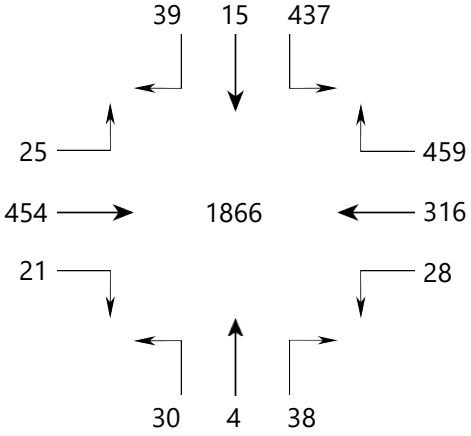
PM PEAK HOUR VOLUME (14:15-23:45)

FROM 16:45 TO 17:45



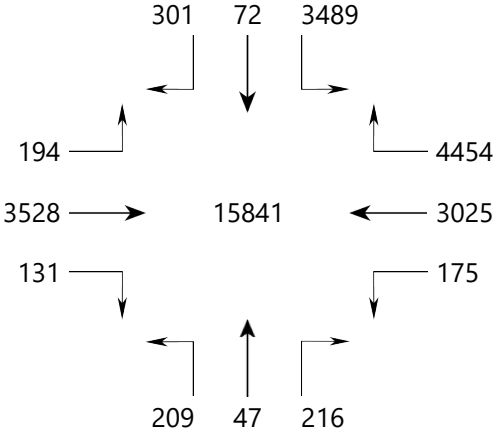
OVERALL PEAK HOUR VOLUME

FROM 16:45 TO 17:45



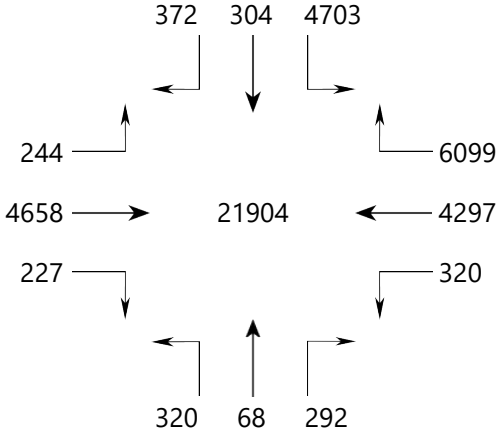
DAYTIME TOTAL VOLUME

FROM 07:00 TO 18:00



SELECTED TIME VOLUME

FROM 00:00 TO 23:59



Land Use: 220
Multifamily Housing (Low-Rise)

Description

Low-rise multifamily housing is a residential building with two or three floors (levels) of residences. Various configurations fit this description, including the following:

- Walk-up apartment or multiplex—access to the individual dwelling units is typically internal to the structure and provided through a shared entry, stairway, and hallway.
- Mansion apartment with several dwelling units within what appears from the outside to be a single-family dwelling unit.
- Stacked townhouse designed to match the external appearance of a townhouse, but which has dwelling units that share both floors and walls and with access through a central entry and stairway.

Land Use Subcategory

Data are presented for two subcategories for this land use: (1) not close to rail transit and (2) close to rail transit. A site is considered close to rail transit if the walking distance between the residential site entrance and the closest rail transit station entrance is ½ mile or less.

Additional Data

For the three sites for which both the number of residents and the number of occupied dwelling units were available, there was an average of 2.72 residents per occupied dwelling unit.

For the two sites for which the numbers of both total dwelling units and occupied dwelling units were available, an average of 96.2 percent of the total dwelling units were occupied.

It is expected that the number of bedrooms and number of residents are likely correlated to the trips generated by a residential site. To assist in future analysis, trip generation studies of all multifamily housing should attempt to obtain information on occupancy rate and on the mix of residential unit sizes (i.e., number of units by number of bedrooms at the site complex).

The sites were surveyed in the 1990s, the 2000s, the 2010s, and the 2020s in Arizona, British Columbia (CAN), California, Delaware, Florida, Illinois, Maine, Massachusetts, Minnesota, New Jersey, New York, Ontario (CAN), Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Utah, and Washington.

Source Numbers

357, 390, 412, 525, 530, 579, 583, 638, 864, 866, 896, 901, 903, 904, 936, 939, 944, 946, 947, 948, 963, 964, 966, 967, 1012, 1013, 1014, 1036, 1047, 1056, 1071, 1076, 1219, 1236, 1265, 1267

Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

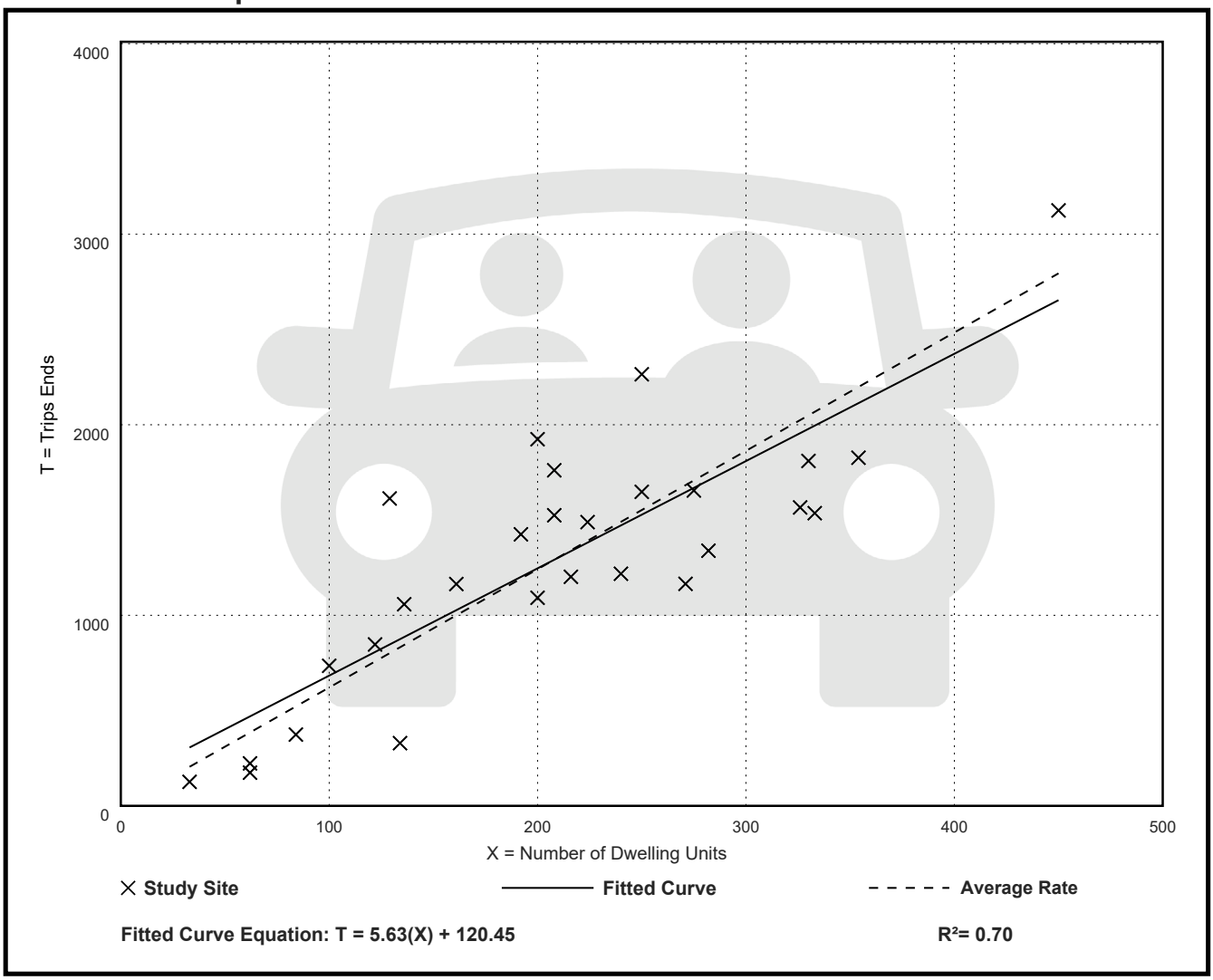
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday**

Setting/Location: **General Urban/Suburban**
Number of Studies: 28
Avg. Num. of Dwelling Units: 208
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
6.21	2.46 - 12.50	1.87

Data Plot and Equation



Fitted Curve Equation: T = 5.63(X) + 120.45

R^2= 0.70

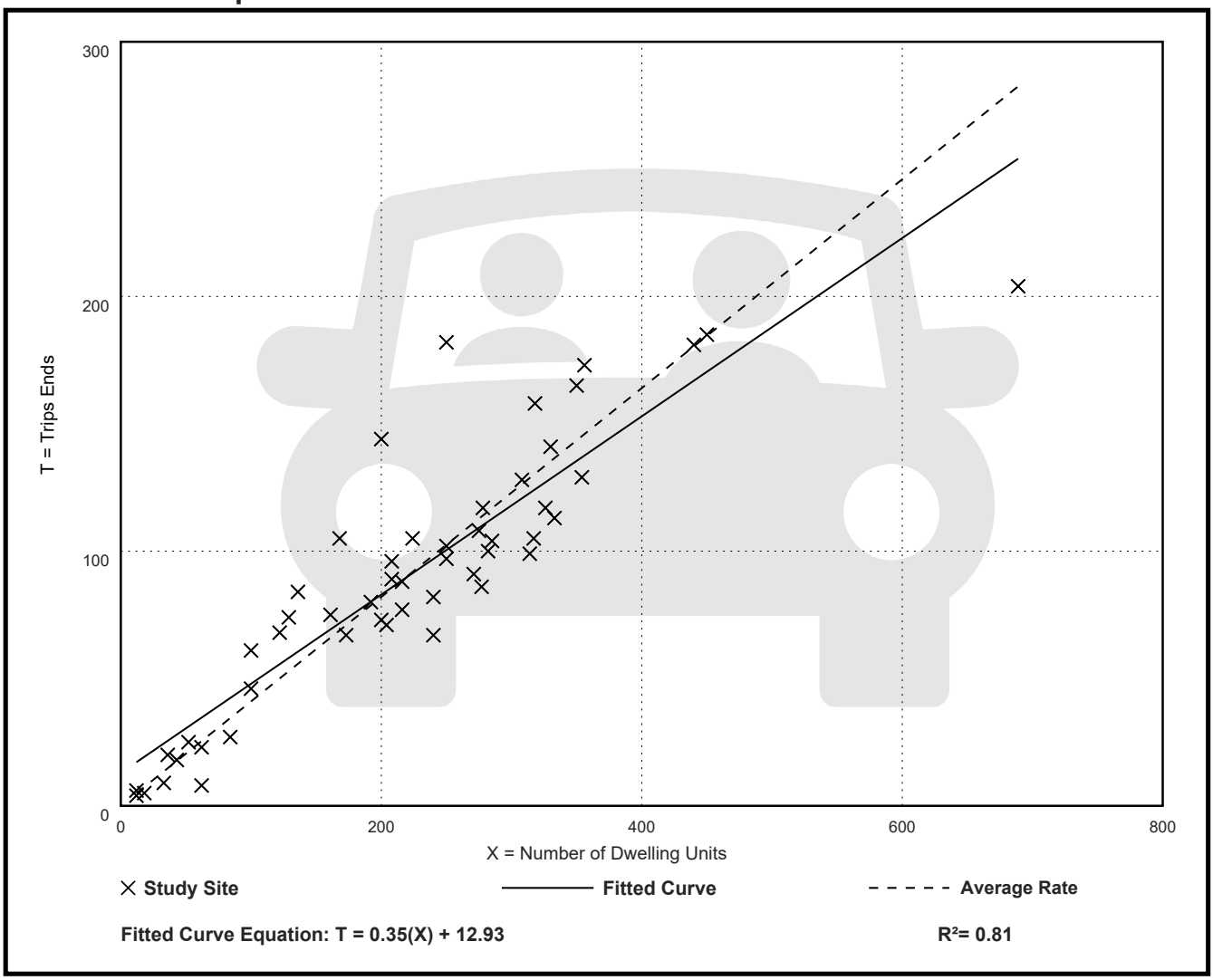
Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

Vehicle Trip Ends vs:	**Dwelling Units**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 7 and 9 a.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	51
Avg. Num. of Dwelling Units:	219
Directional Distribution:	24% entering, 76% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.41	0.13 - 0.73	0.10

Data Plot and Equation



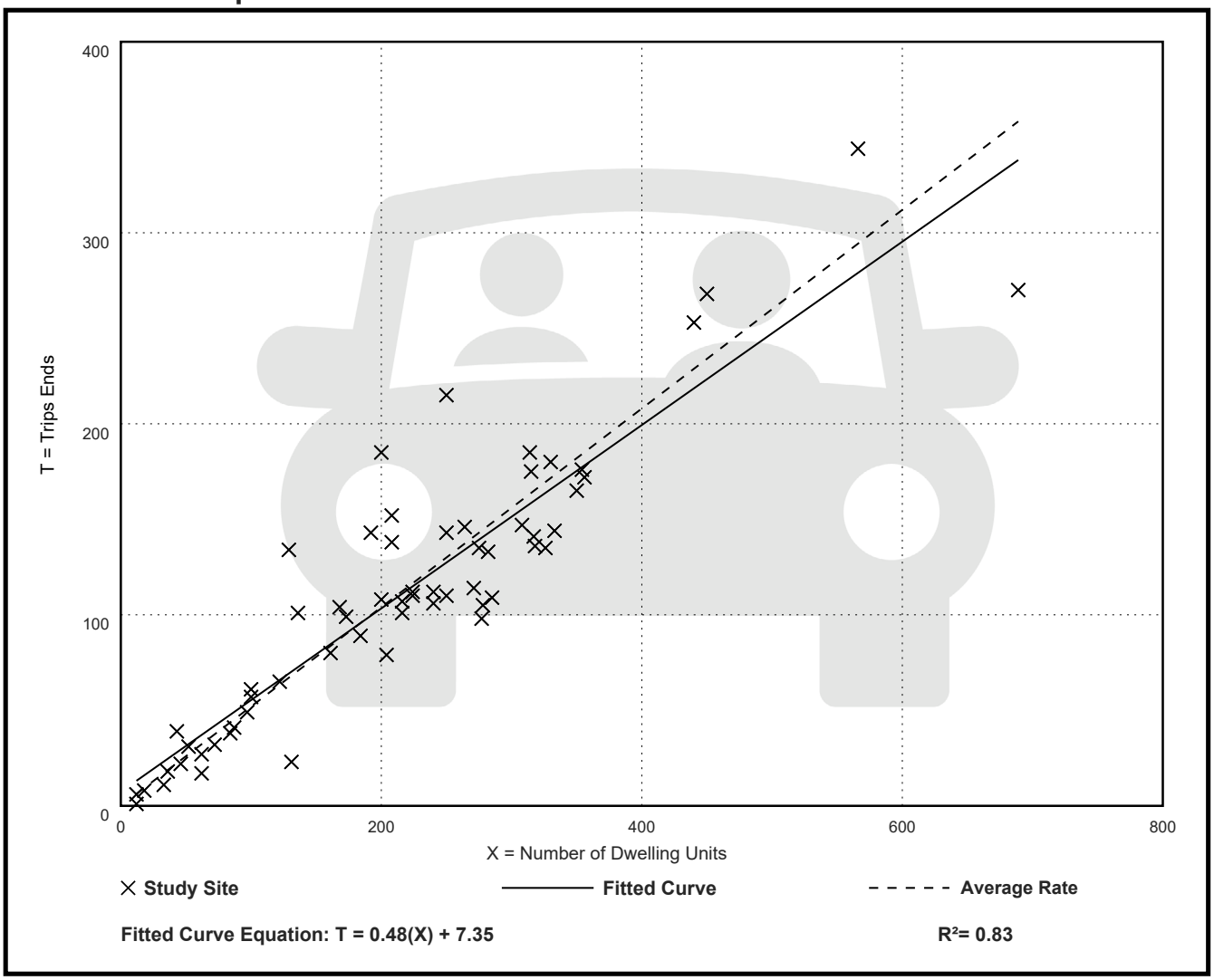
Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 61
Avg. Num. of Dwelling Units: 215
Directional Distribution: 62% entering, 38% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.52	0.08 - 1.04	0.13

Data Plot and Equation



Fitted Curve Equation: T = 0.48(X) + 7.35

R^2= 0.83

Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

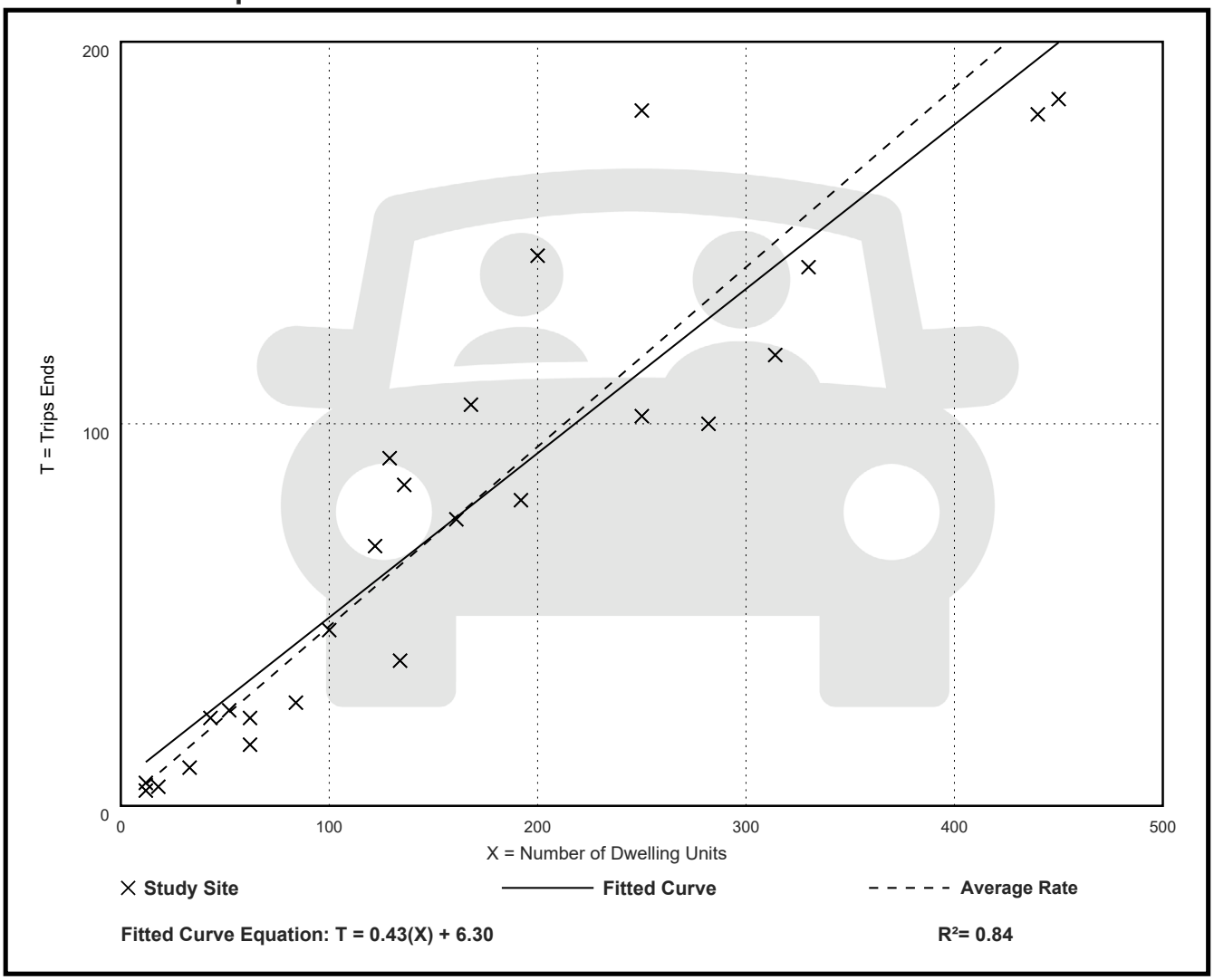
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
AM Peak Hour of Generator

Setting/Location: **General Urban/Suburban**
Number of Studies: 25
Avg. Num. of Dwelling Units: 161
Directional Distribution: 27% entering, 73% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.47	0.26 - 0.73	0.13

Data Plot and Equation



Fitted Curve Equation: T = 0.43(X) + 6.30

R^2= 0.84

Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

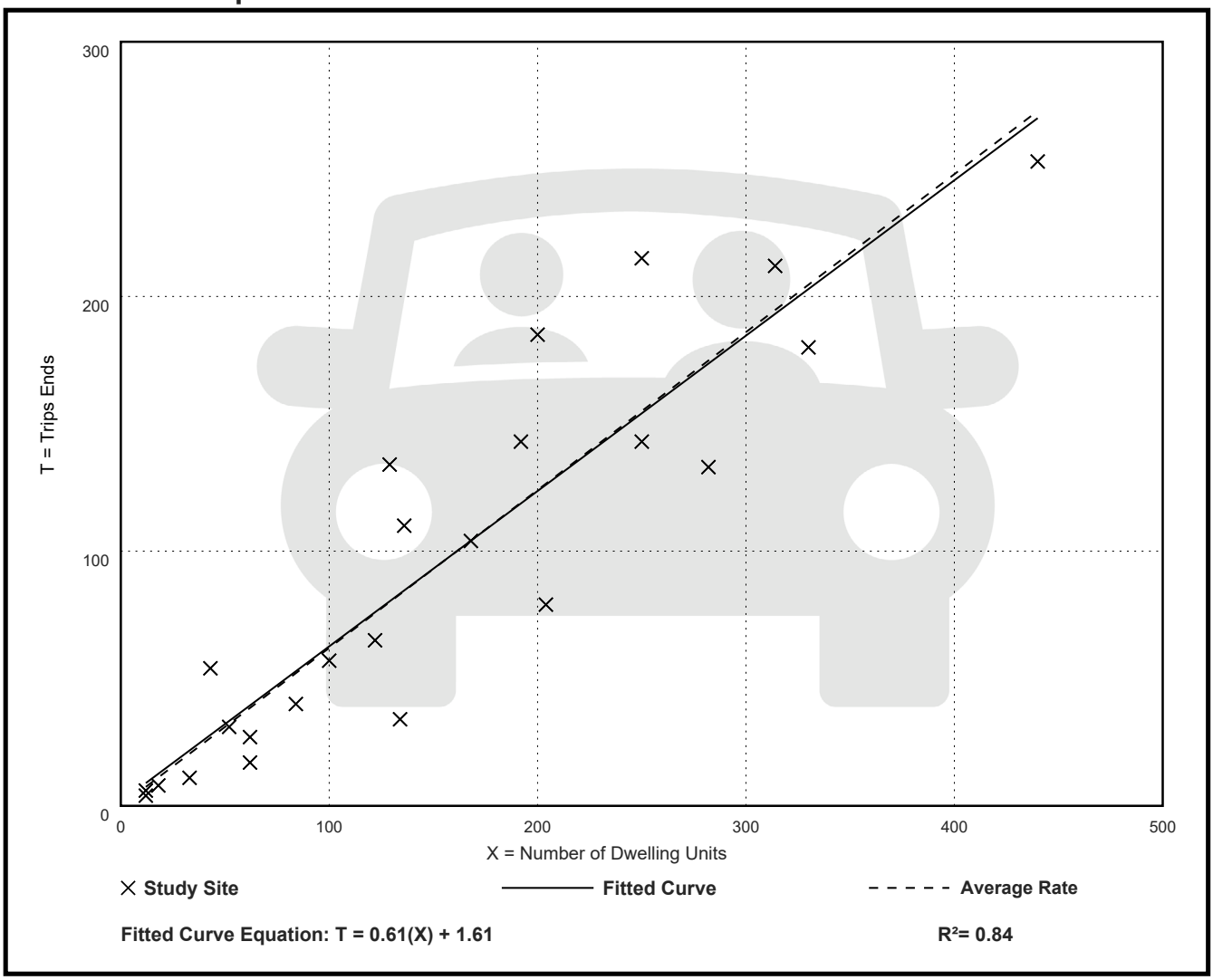
Vehicle Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
PM Peak Hour of Generator

Setting/Location: **General Urban/Suburban**
Number of Studies: 24
Avg. Num. of Dwelling Units: 151
Directional Distribution: 60% entering, 40% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.62	0.25 - 1.26	0.20

Data Plot and Equation



Fitted Curve Equation: T = 0.61(X) + 1.61

R^2= 0.84

Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Saturday**

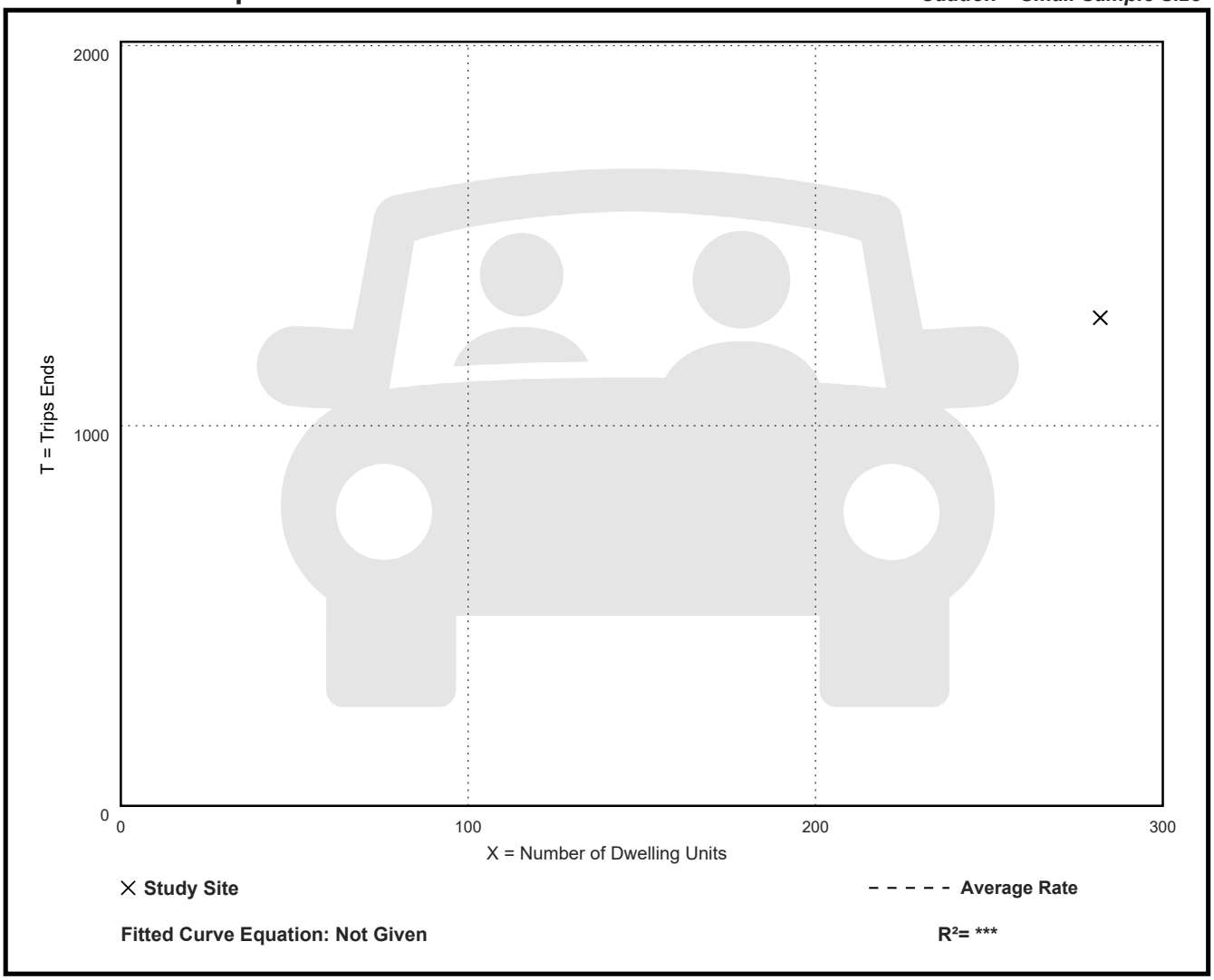
Setting/Location: **General Urban/Suburban**
Number of Studies: 1
Avg. Num. of Dwelling Units: 282
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
4.55	4.55 - 4.55	***

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Not Given

R^2= ***

Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Saturday, Peak Hour of Generator**

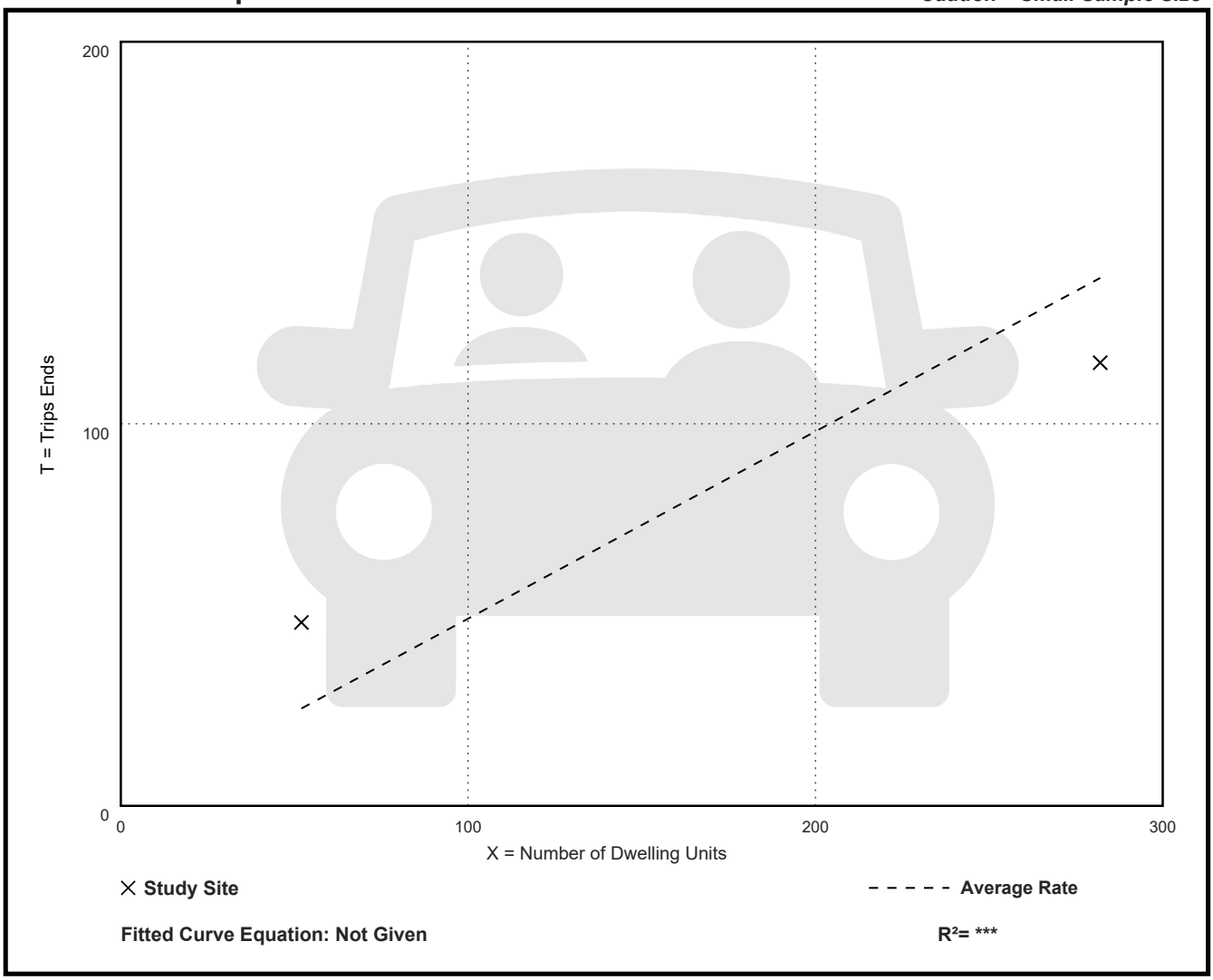
Setting/Location: **General Urban/Suburban**
Number of Studies: 2
Avg. Num. of Dwelling Units: 167
Directional Distribution: 38% entering, 62% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.49	0.41 - 0.92	***

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Not Given

R^2= ***

Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Sunday**

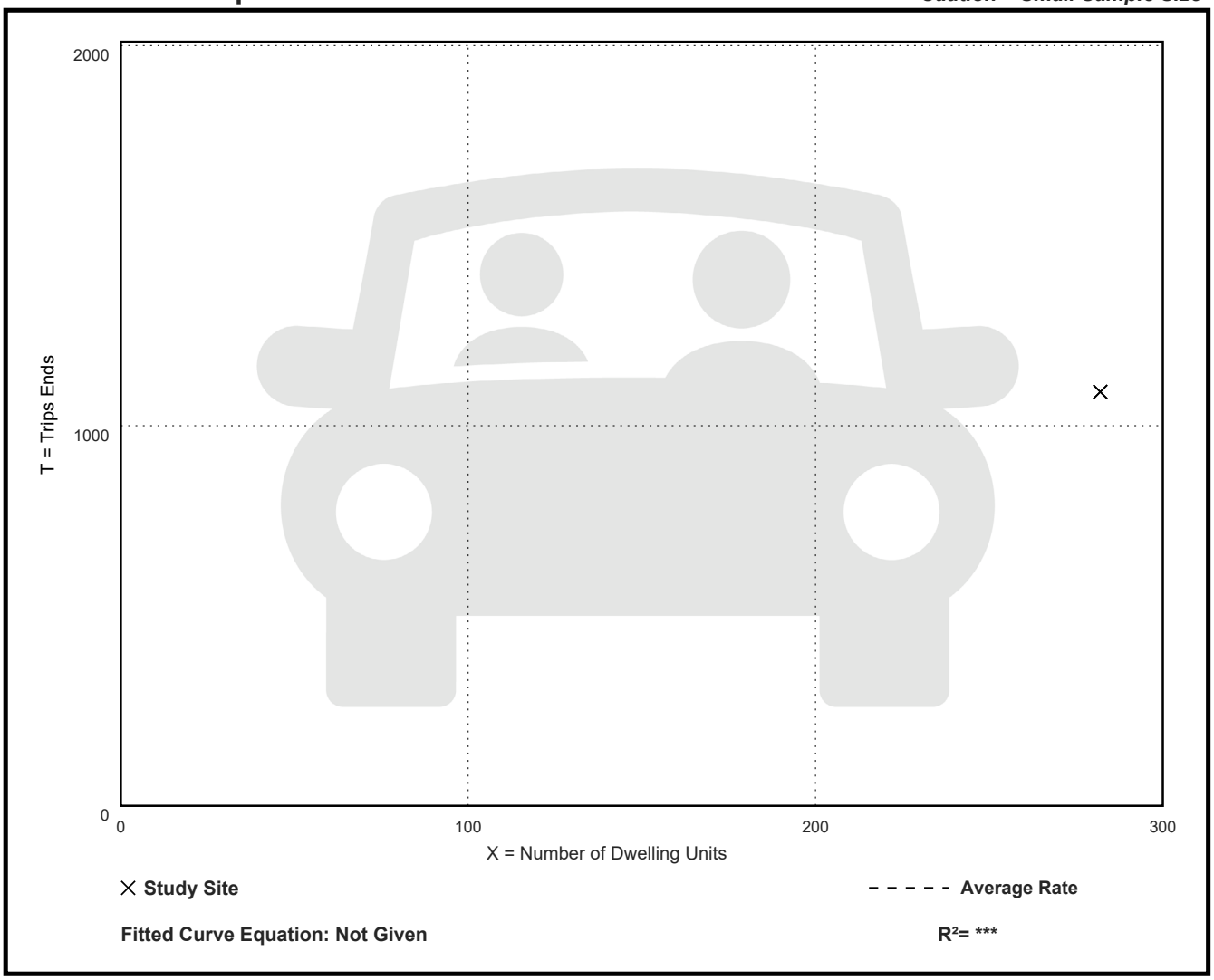
Setting/Location: **General Urban/Suburban**
Number of Studies: 1
Avg. Num. of Dwelling Units: 282
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
3.86	3.86 - 3.86	***

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Not Given

R^2= ***

Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

Vehicle Trip Ends vs: **Dwelling Units**
On a: **Sunday, Peak Hour of Generator**

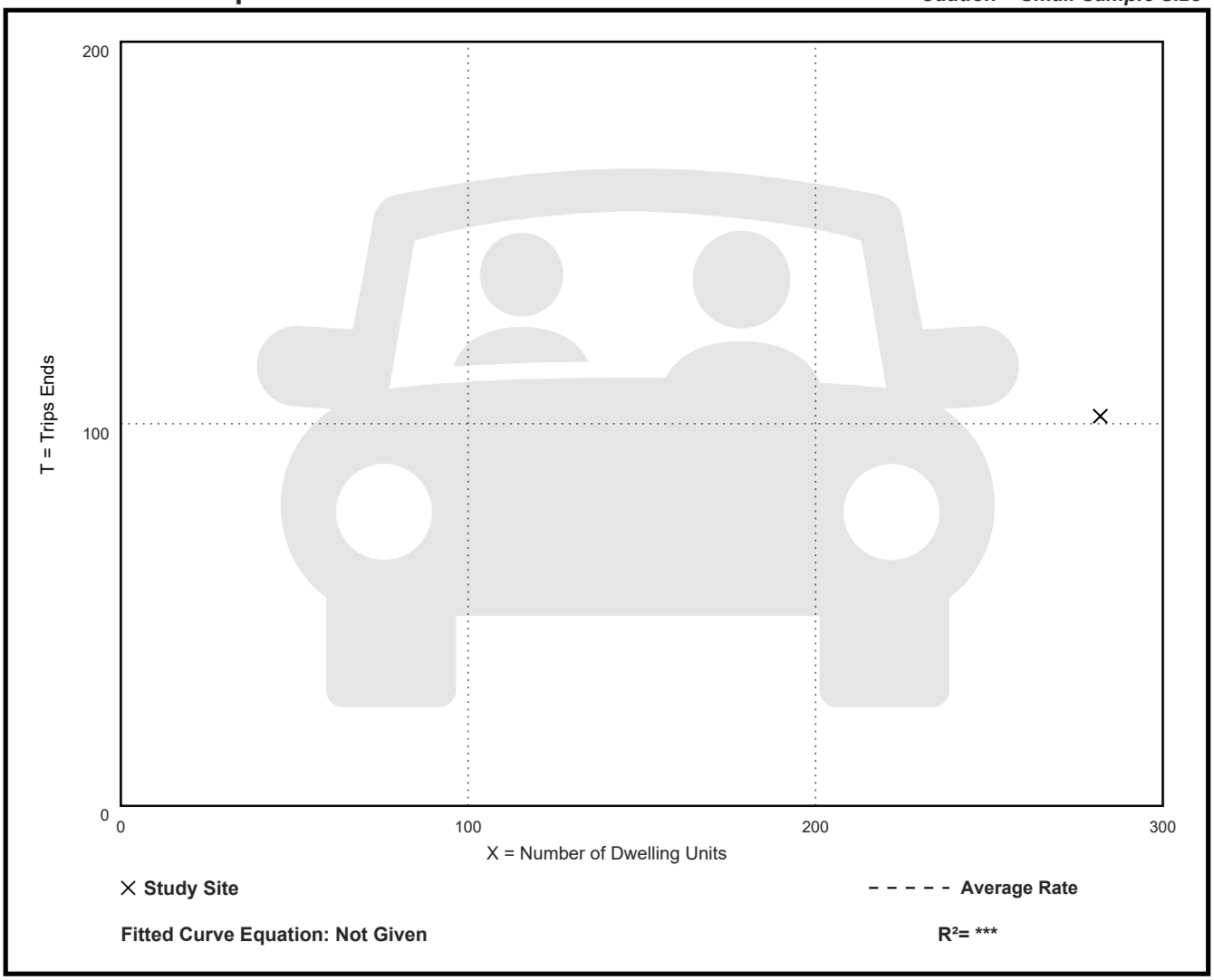
Setting/Location: **General Urban/Suburban**
Number of Studies: 1
Avg. Num. of Dwelling Units: 282
Directional Distribution: Not Available

Vehicle Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.36	0.36 - 0.36	***

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Not Given

R^2= ***

Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

Vehicle Trip Ends vs: **Residents**
On a: **Weekday**

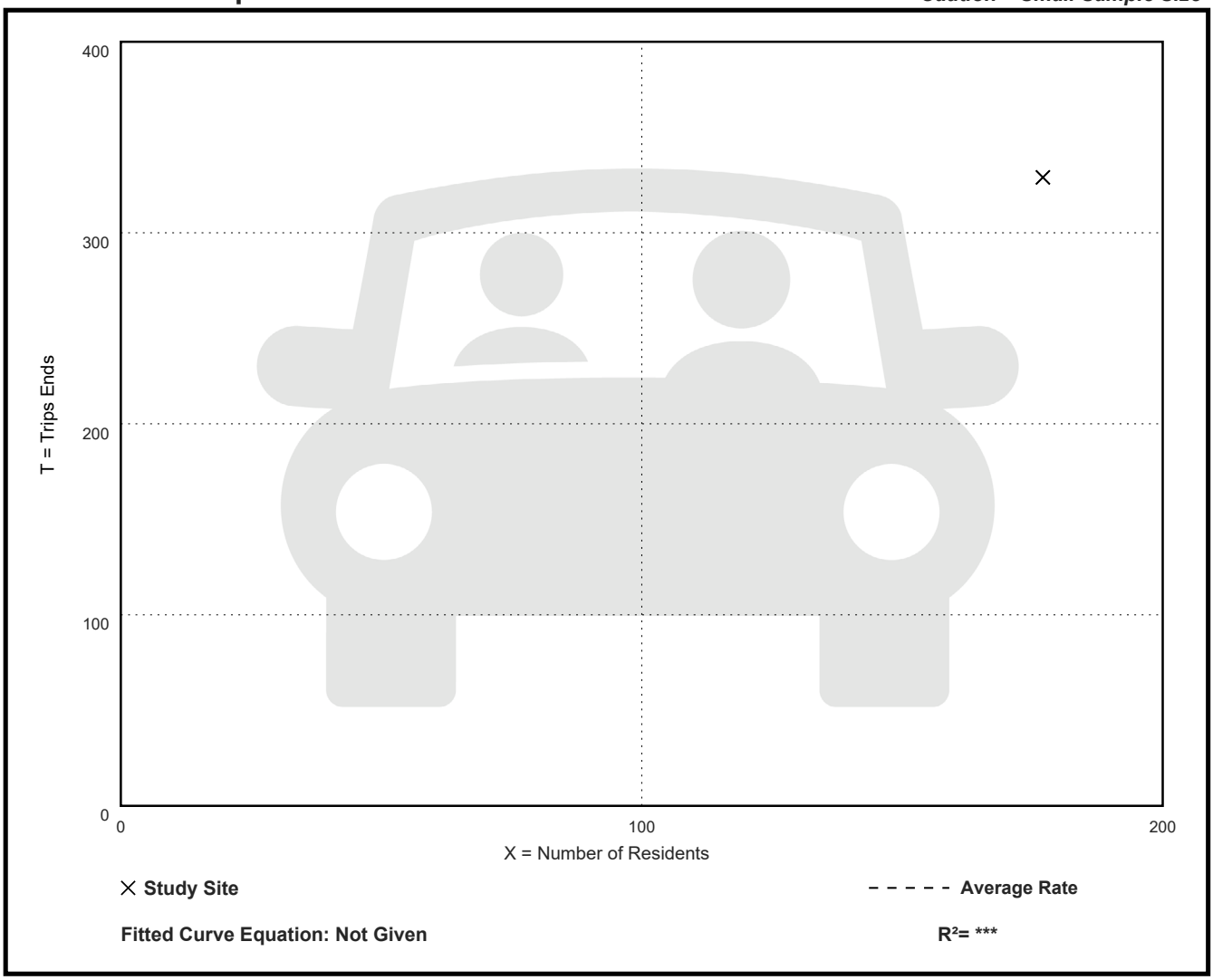
Setting/Location: **General Urban/Suburban**
Number of Studies: 1
Avg. Num. of Residents: 177
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Resident

Average Rate	Range of Rates	Standard Deviation
1.86	1.86 - 1.86	***

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Not Given

R^2= ***

Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

Vehicle Trip Ends vs: **Residents**
On a: **Weekday,**
AM Peak Hour of Generator

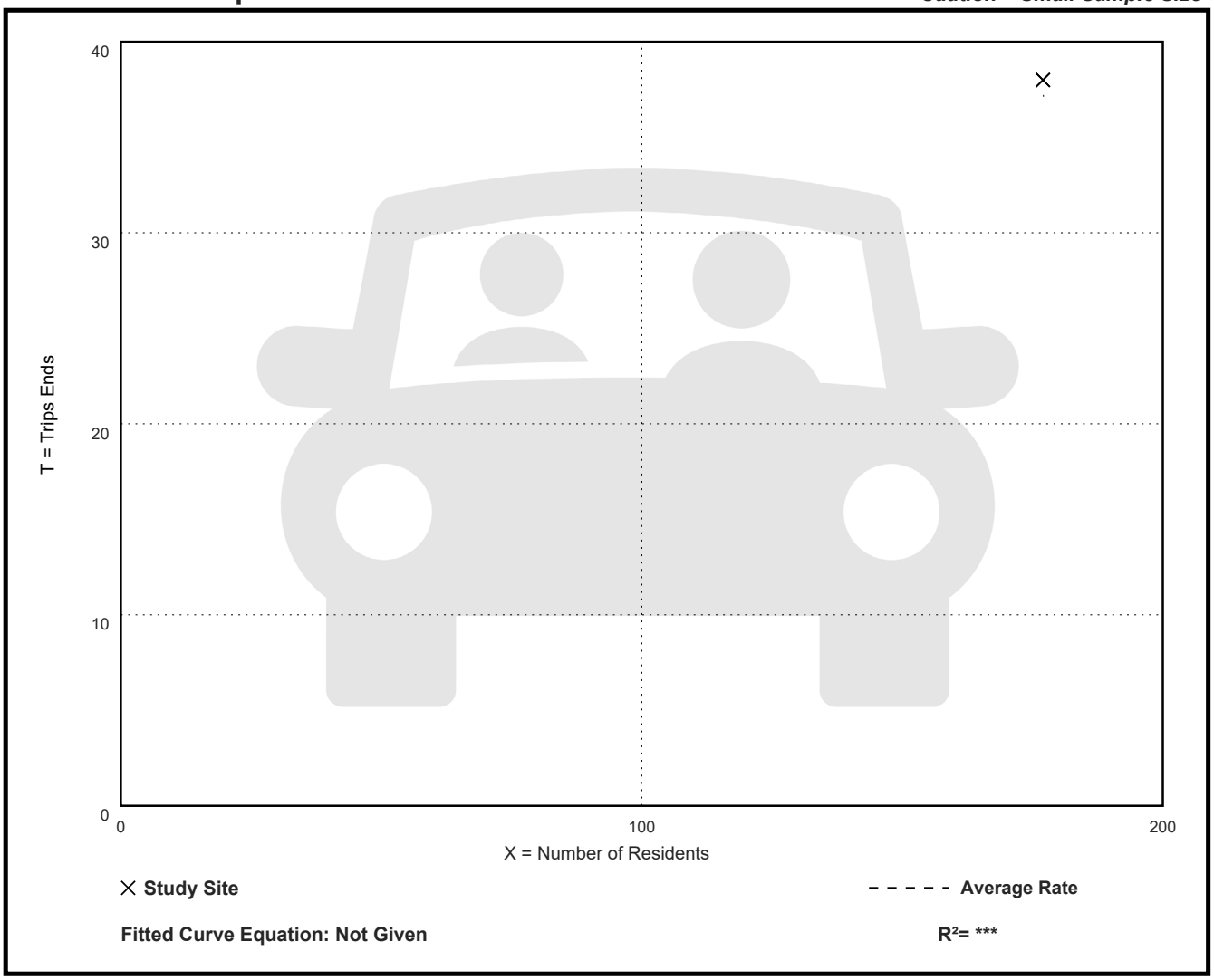
Setting/Location: **General Urban/Suburban**
Number of Studies: 1
Avg. Num. of Residents: 177
Directional Distribution: Not Available

Vehicle Trip Generation per Resident

Average Rate	Range of Rates	Standard Deviation
0.21	0.21 - 0.21	***

Data Plot and Equation

Caution – Small Sample Size



Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

Vehicle Trip Ends vs: **Residents**
On a: **Weekday,**
PM Peak Hour of Generator

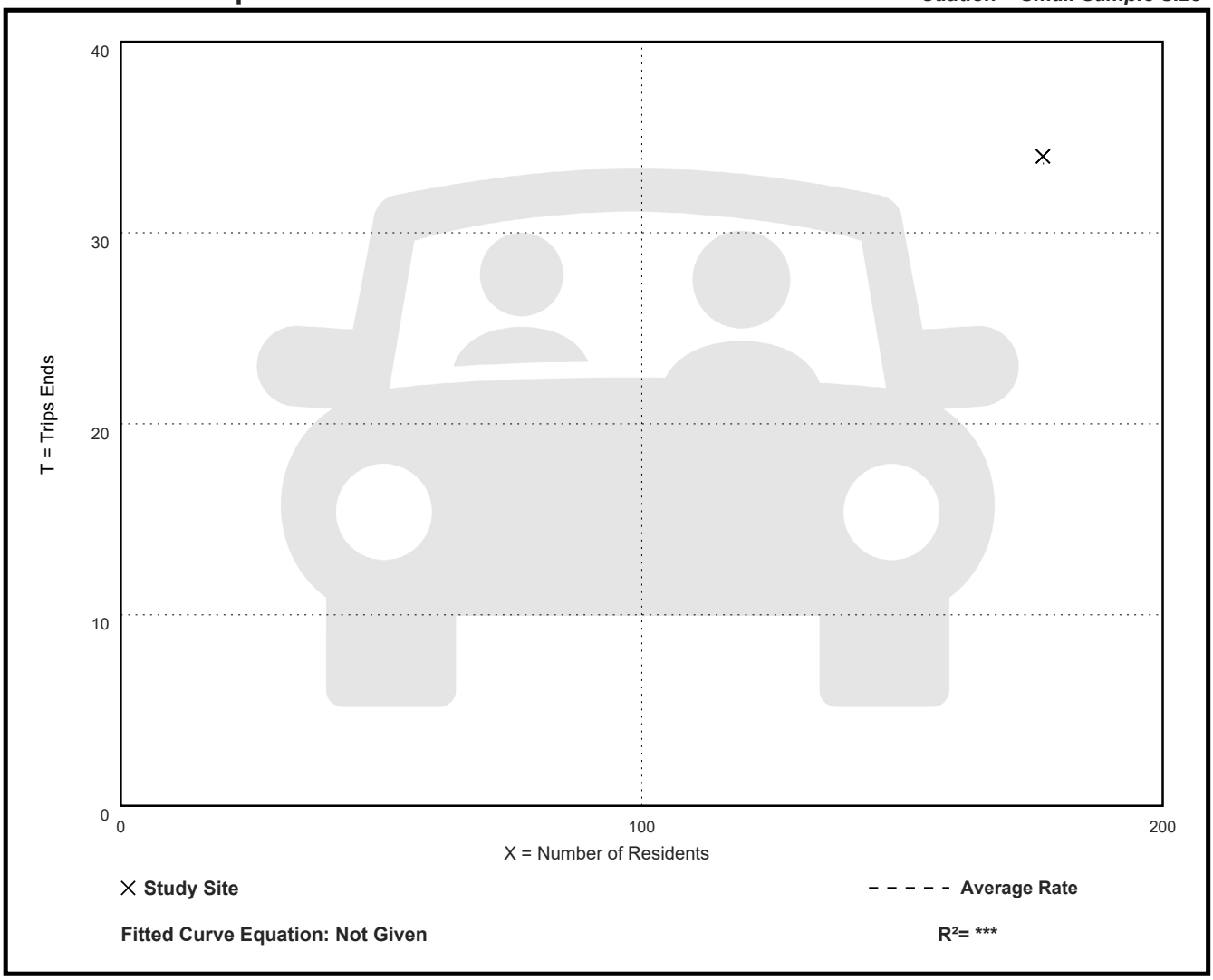
Setting/Location: **General Urban/Suburban**
Number of Studies: 1
Avg. Num. of Residents: 177
Directional Distribution: Not Available

Vehicle Trip Generation per Resident

Average Rate	Range of Rates	Standard Deviation
0.19	0.19 - 0.19	***

Data Plot and Equation

Caution – Small Sample Size



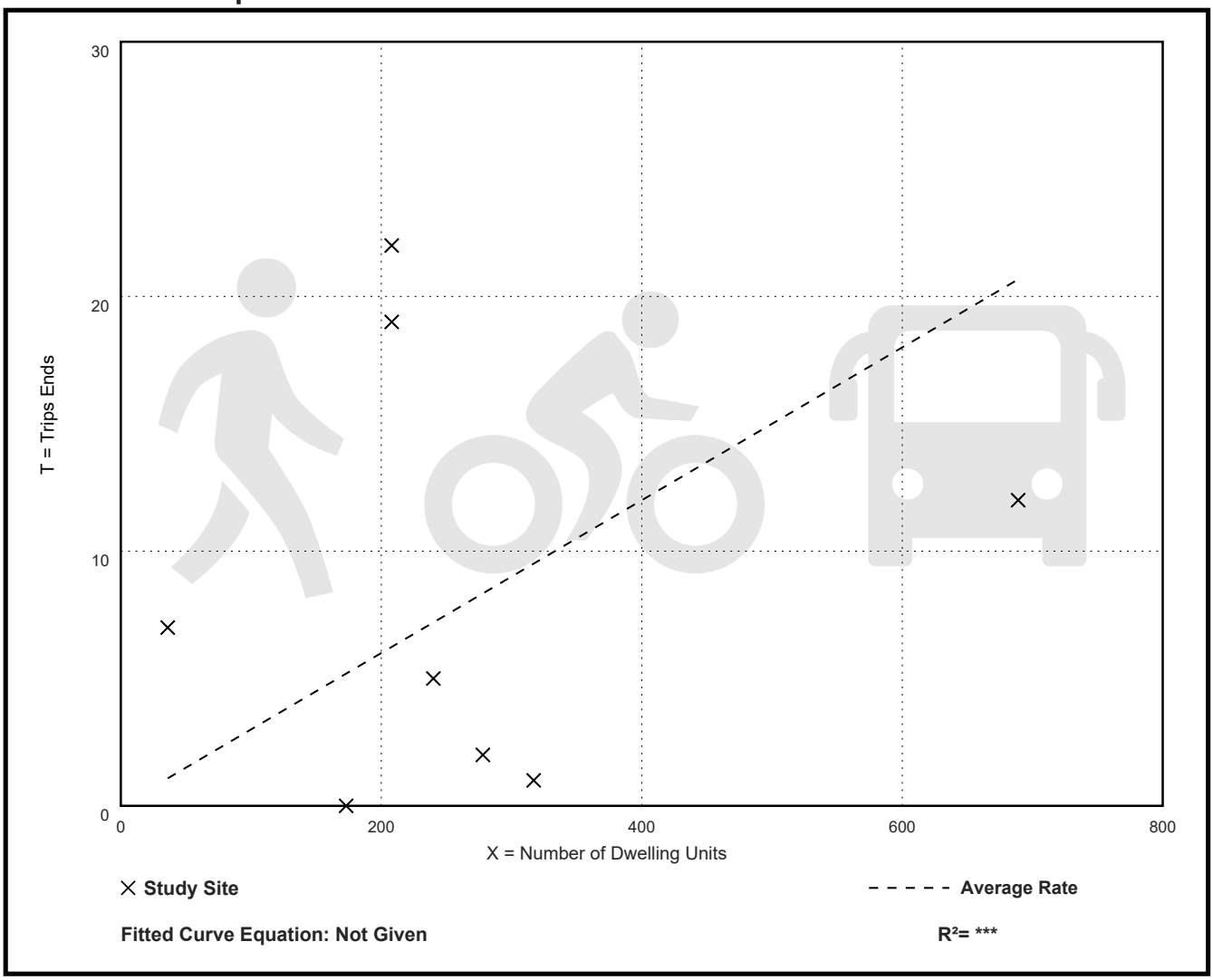
Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

Walk+Bike+Transit Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 8
Avg. Num. of Dwelling Units: 269
Directional Distribution: 57% entering, 43% exiting

Walk+Bike+Transit Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.03	0.00 - 0.19	0.04

Data Plot and Equation



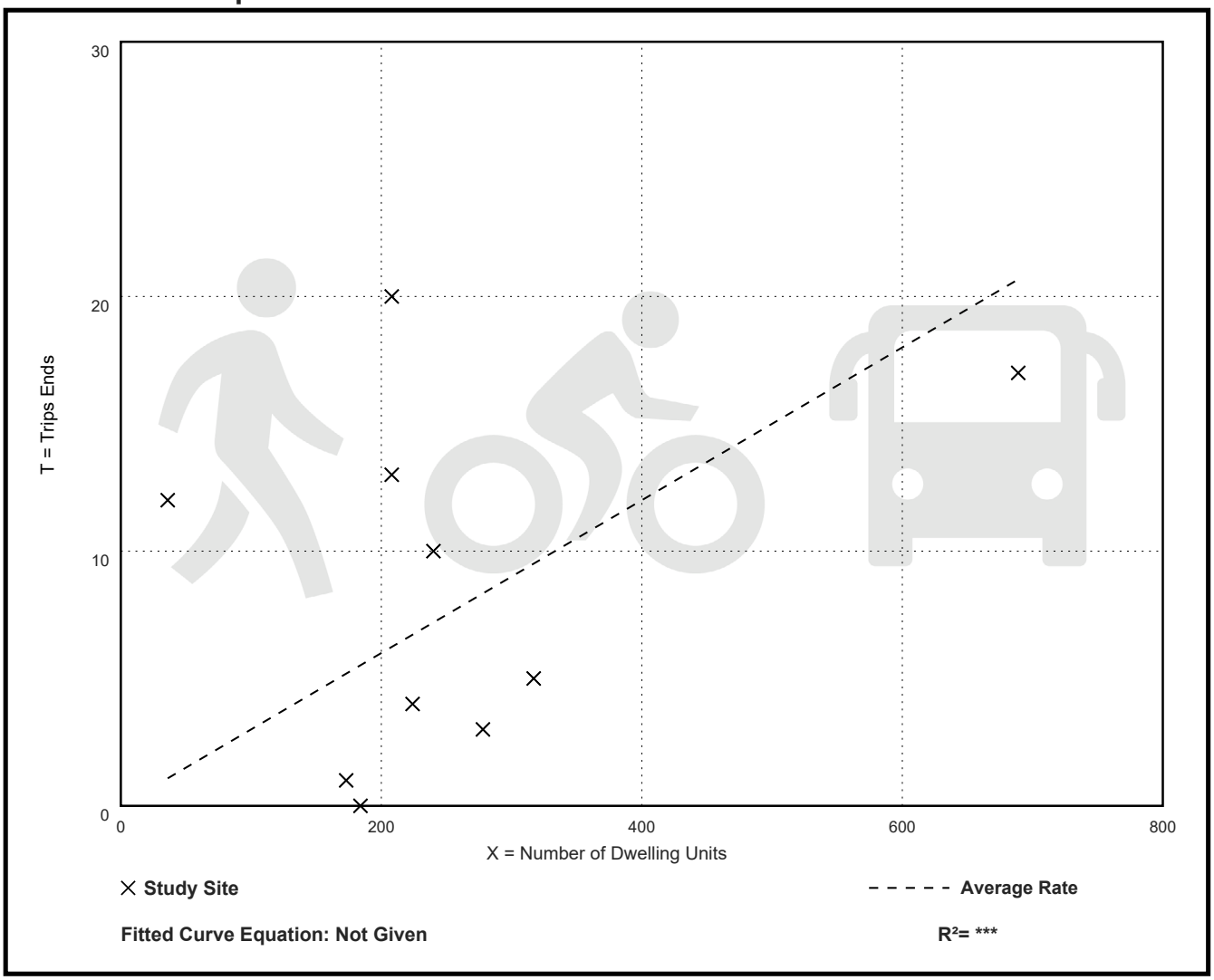
Multifamily Housing (Low-Rise)
Not Close to Rail Transit (220)

Walk+Bike+Transit Trip Ends vs: **Dwelling Units**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 10
Avg. Num. of Dwelling Units: 256
Directional Distribution: 50% entering, 50% exiting

Walk+Bike+Transit Trip Generation per Dwelling Unit

Average Rate	Range of Rates	Standard Deviation
0.03	0.00 - 0.33	0.05

Data Plot and Equation



Land Use: 822
Strip Retail Plaza (<40k)

Description

A strip retail plaza is an integrated group of commercial establishments planned, developed, owned, and managed as a unit. Each study site in this land use has less than 40,000 square feet of gross leasable area (GLA). Because a strip retail plaza is open-air, its GLA is the same as the gross floor area of the building.

The 40,000-square-foot GLA threshold between strip retail plaza and shopping plaza (Land Use 821) was selected based on an examination of the overall shopping center/plaza database. All shopping plazas in the database with a supermarket as their anchor are larger than 40,000 square feet GLA.

Additional Data

The sites were surveyed in the 1990s, the 2000s, the 2010s, and the 2020s in Delaware, Florida, New Jersey, Ontario (CAN), Pennsylvania, South Dakota, Vermont, and Wisconsin.

Users should exercise caution when applying statistics during the AM peak periods, as the sites contained in the database for this land use may or may not contain retail that would generate significant trips during this period (for example, a coffee/donut shop).

Source Numbers

358, 428, 437, 507, 728, 936, 960, 961, 1009, 1219

Strip Retail Plaza (<40k)
(822)

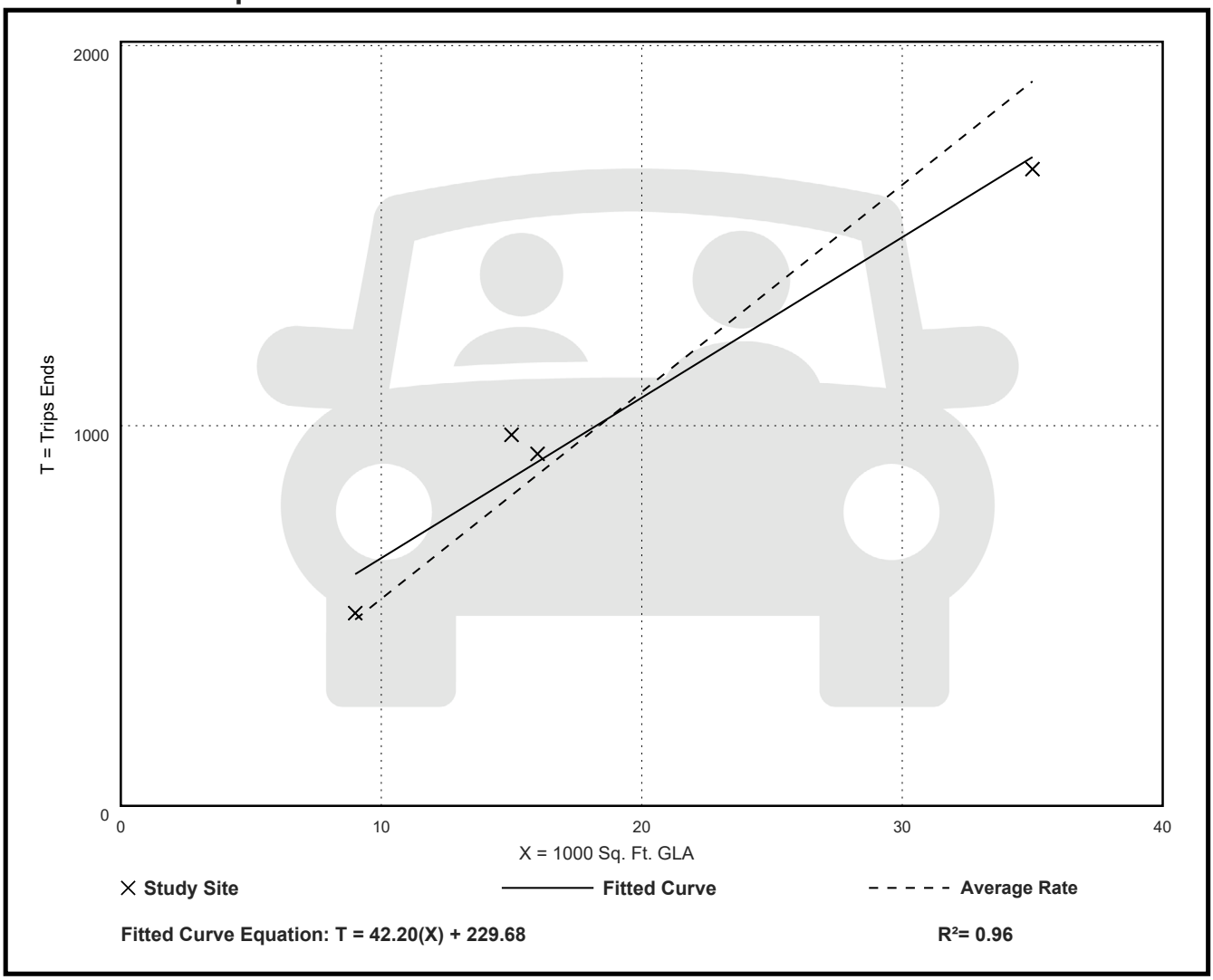
Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
On a: Weekday

Setting/Location: General Urban/Suburban
Number of Studies: 4
Avg. 1000 Sq. Ft. GLA: 19
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
54.45	47.86 - 65.07	7.81

Data Plot and Equation



Fitted Curve Equation: T = 42.20(X) + 229.68

R^2= 0.96

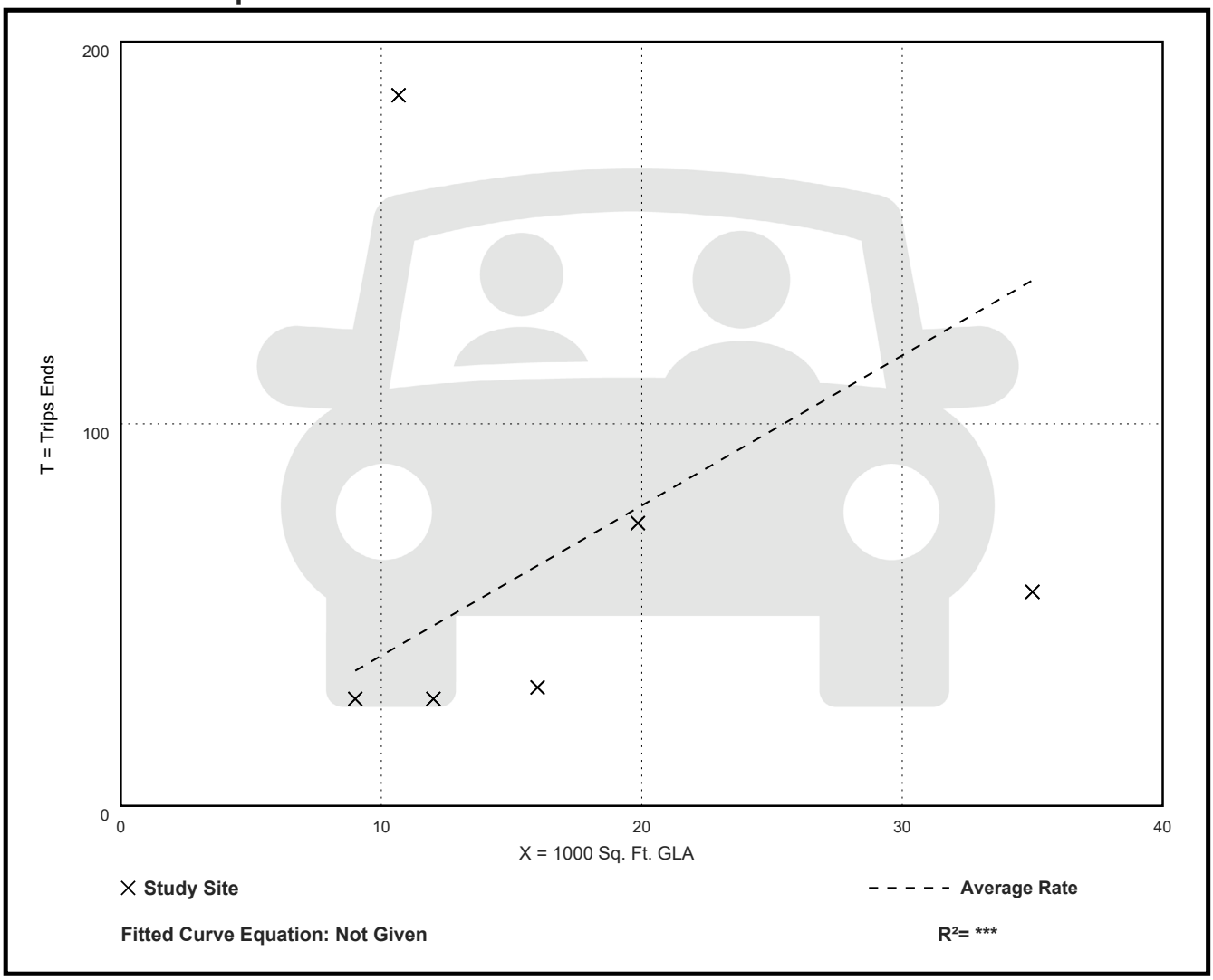
Strip Retail Plaza (<40k)
(822)

Vehicle Trip Ends vs: **1000 Sq. Ft. GLA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 6
Avg. 1000 Sq. Ft. GLA: 17
Directional Distribution: 55% entering, 45% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
3.93	1.60 - 17.44	5.12

Data Plot and Equation



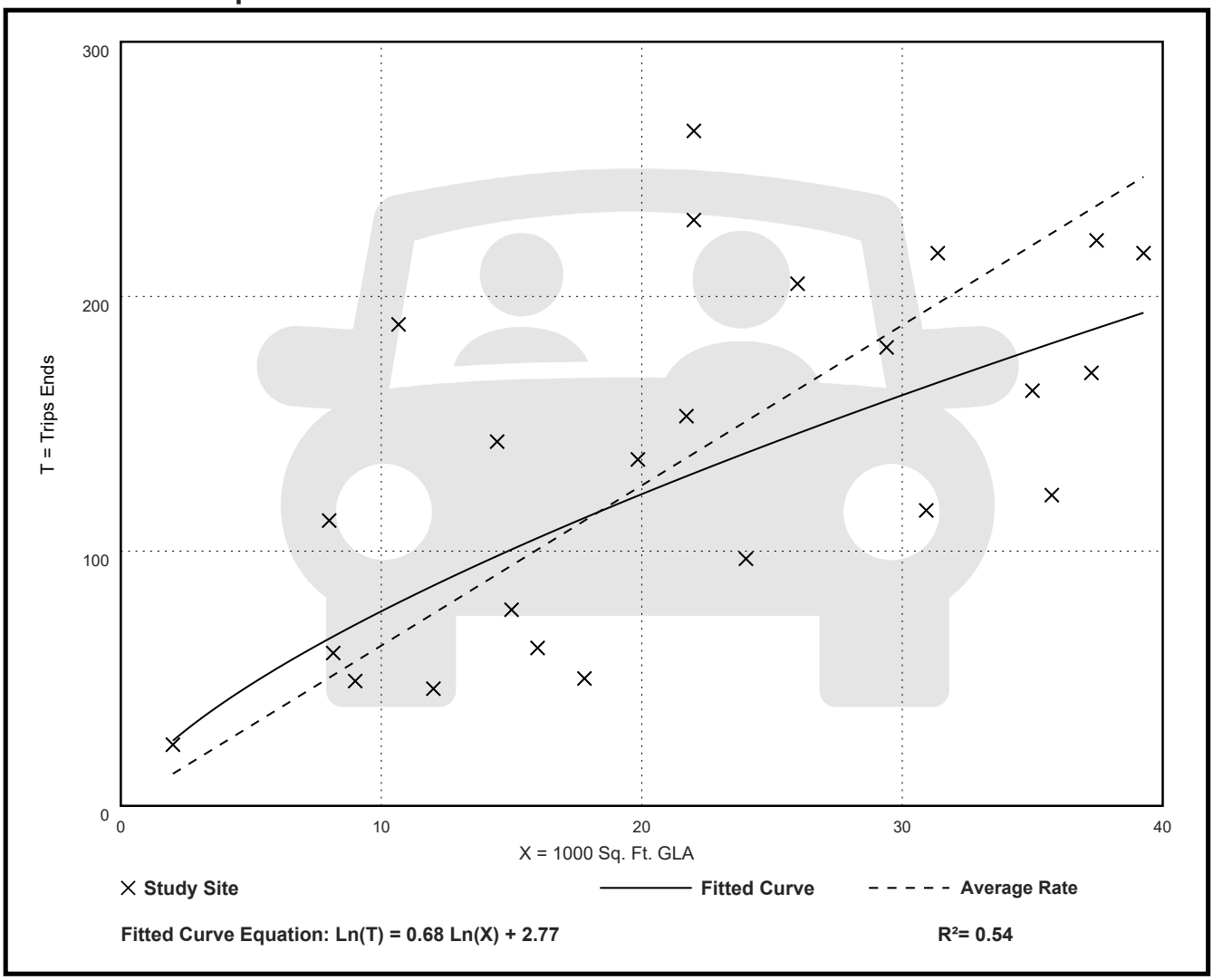
Strip Retail Plaza (<40k)
(822)

Vehicle Trip Ends vs: **1000 Sq. Ft. GLA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 24
Avg. 1000 Sq. Ft. GLA: 22
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
6.29	2.81 - 17.72	3.02

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.68 Ln(X) + 2.77

R^2= 0.54

Strip Retail Plaza (<40k)
(822)

Vehicle Trip Ends vs: **1000 Sq. Ft. GLA**
On a: **Weekday,**
AM Peak Hour of Generator

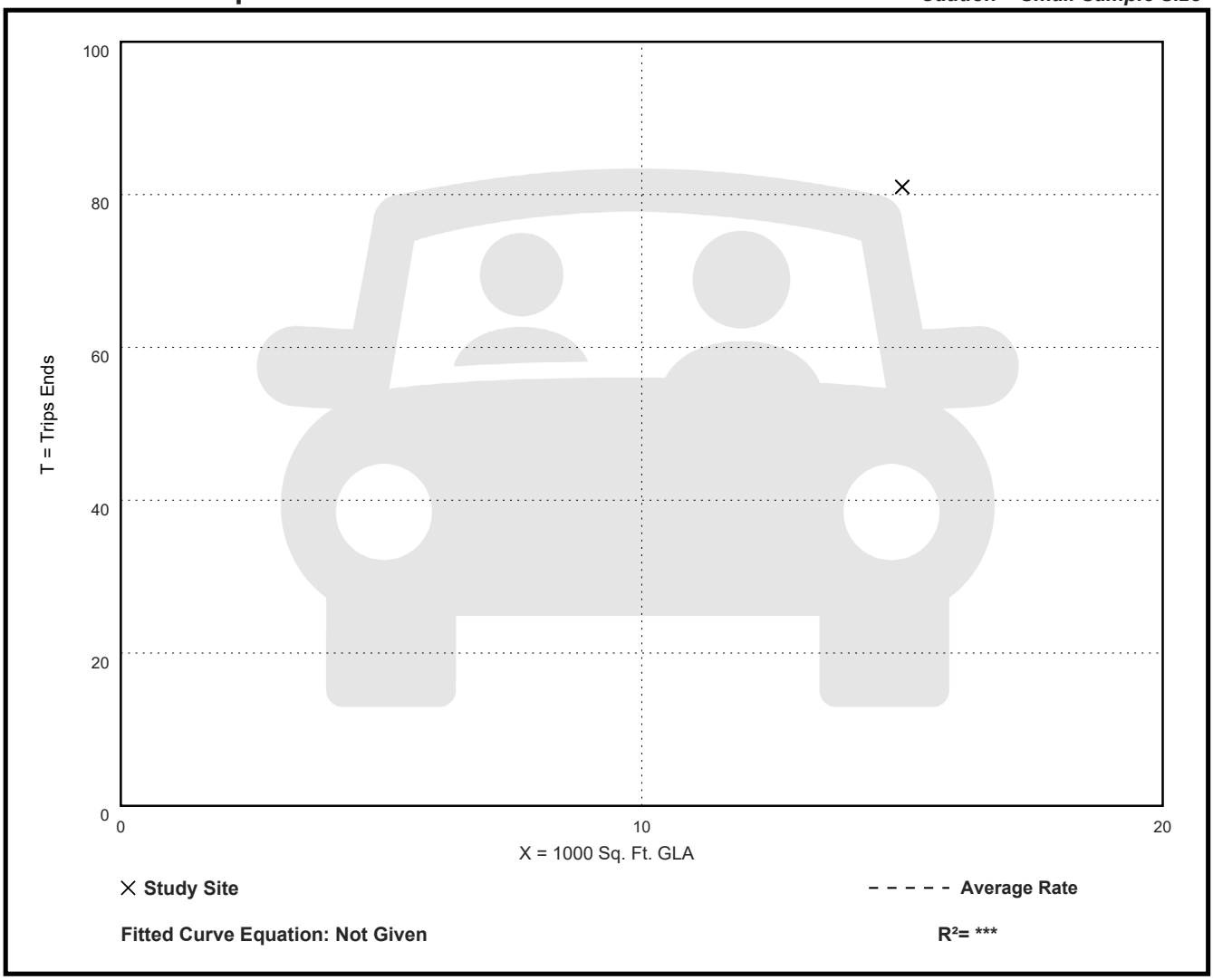
Setting/Location: **General Urban/Suburban**
Number of Studies: 1
Avg. 1000 Sq. Ft. GLA: 15
Directional Distribution: 48% entering, 52% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
5.40	5.40 - 5.40	***

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Not Given

R^2= *

Strip Retail Plaza (<40k)
(822)

Vehicle Trip Ends vs: **1000 Sq. Ft. GLA**
On a: **Weekday,**
PM Peak Hour of Generator

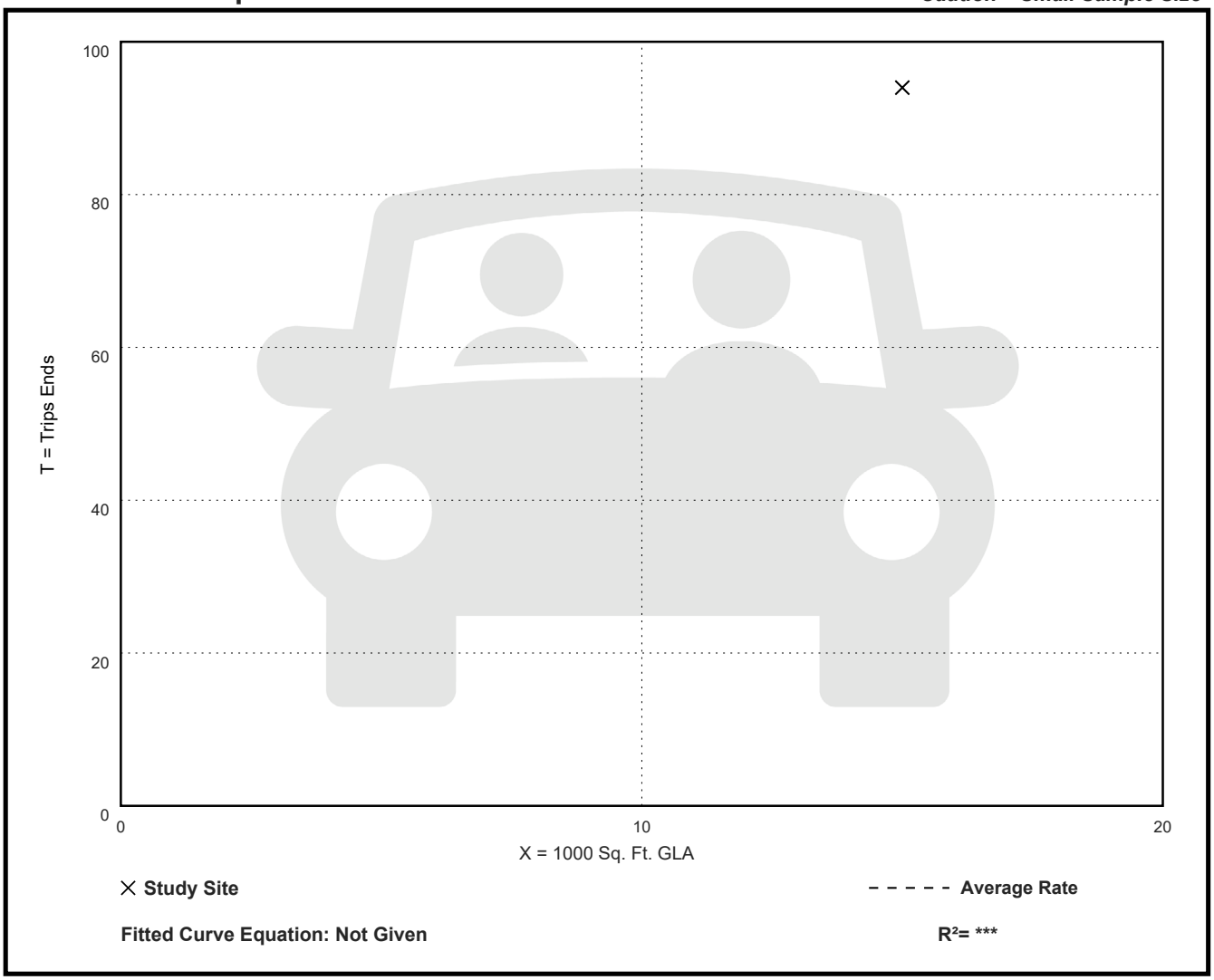
Setting/Location: **General Urban/Suburban**
Number of Studies: 1
Avg. 1000 Sq. Ft. GLA: 15
Directional Distribution: 56% entering, 44% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
6.27	6.27 - 6.27	***

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Not Given

R^2= *

Strip Retail Plaza (<40k)
(822)

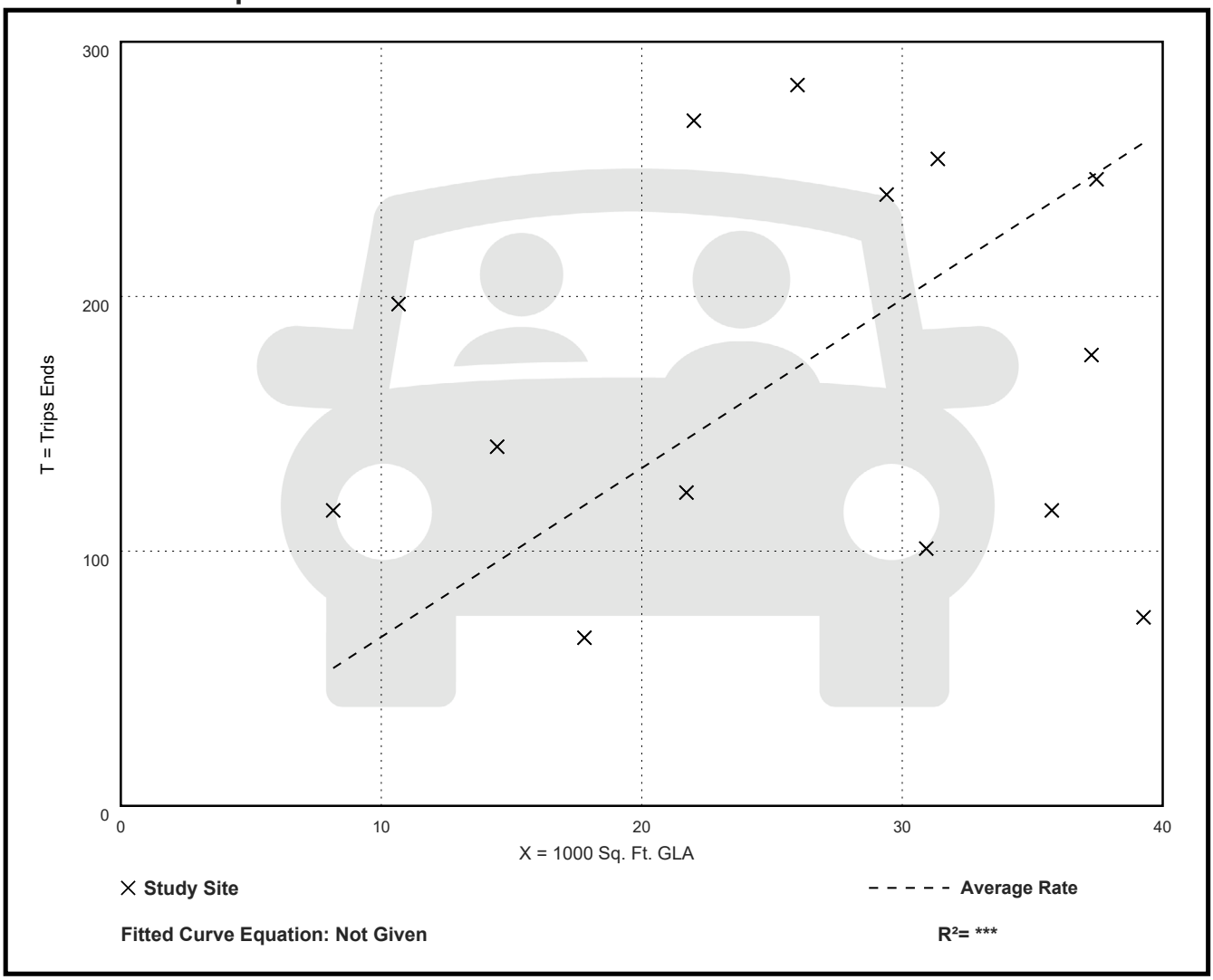
Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
On a: Saturday, Peak Hour of Generator

Setting/Location: General Urban/Suburban
Number of Studies: 14
Avg. 1000 Sq. Ft. GLA: 26
Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
6.63	1.88 - 18.48	3.99

Data Plot and Equation



Fitted Curve Equation: Not Given

R^2= *

Strip Retail Plaza (<40k)
(822)

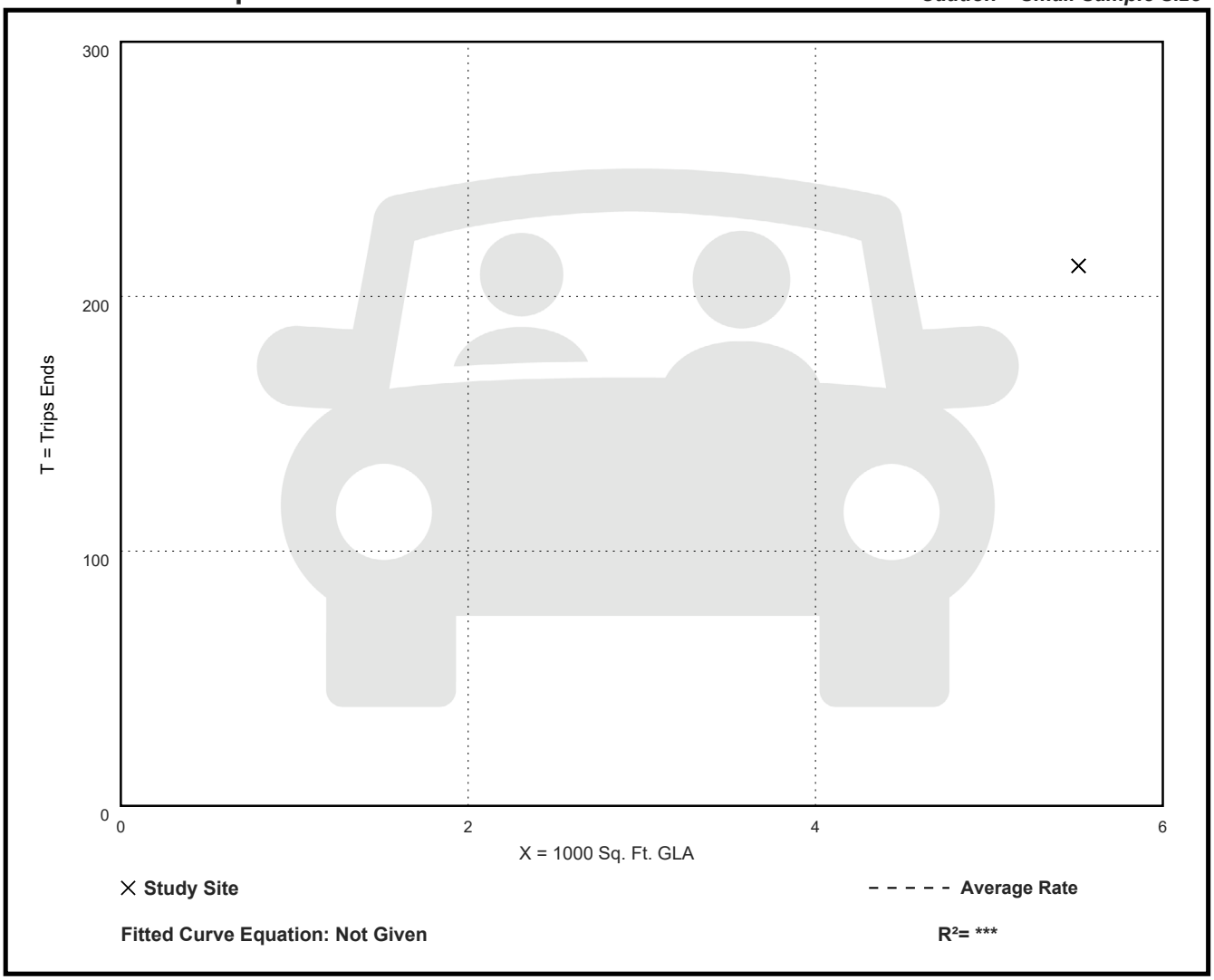
Vehicle Trip Ends vs: **1000 Sq. Ft. GLA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **Rural**
Number of Studies: 1
Avg. 1000 Sq. Ft. GLA: 6
Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
38.44	38.44 - 38.44	***

Data Plot and Equation

Caution – Small Sample Size



Strip Retail Plaza (<40k)
(822)

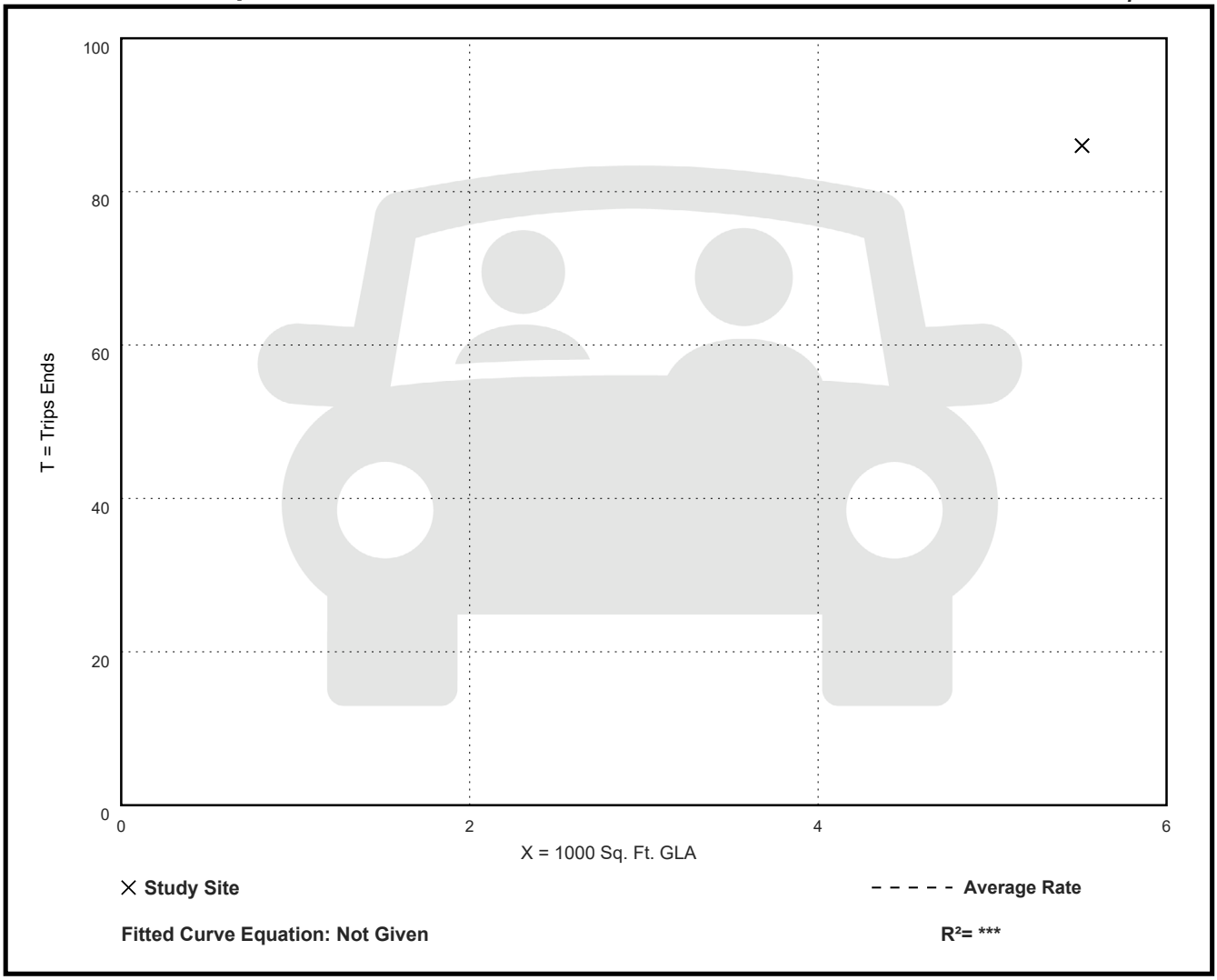
Vehicle Trip Ends vs: **1000 Sq. Ft. GLA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **Rural**
Number of Studies: 1
Avg. 1000 Sq. Ft. GLA: 6
Directional Distribution: 48% entering, 52% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
15.59	15.59 - 15.59	***

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Not Given

R^2= *

Strip Retail Plaza (<40k)
(822)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
On a: Saturday, Peak Hour of Generator

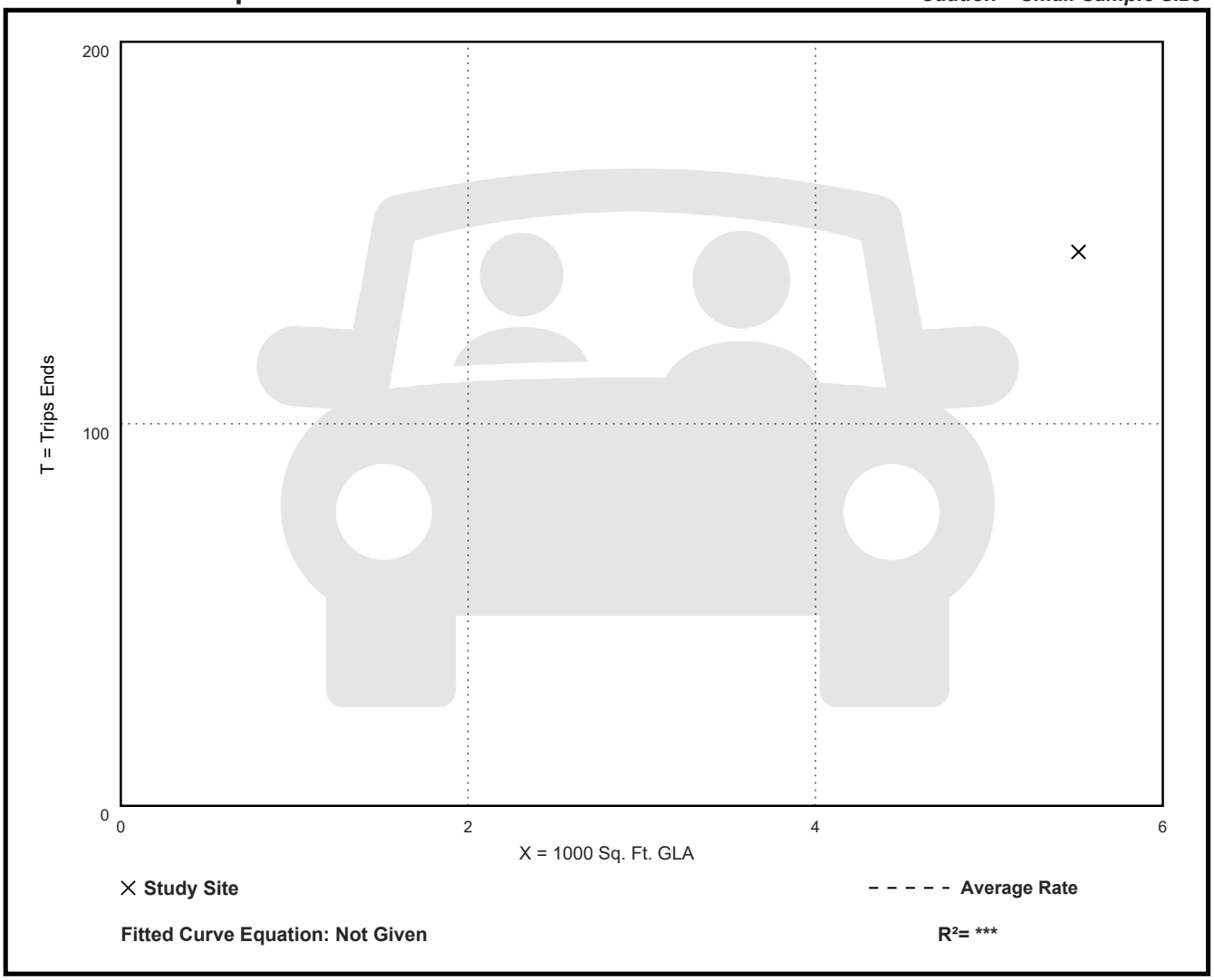
Setting/Location: Rural
Number of Studies: 1
Avg. 1000 Sq. Ft. GLA: 6
Directional Distribution: 48% entering, 52% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
26.29	26.29 - 26.29	***

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Not Given

R^2= *

Land Use: 926
Food Cart Pod

Description

A food cart pod is a group of food carts or food trucks congregated in an established location, such as a parking lot, on a semi-permanent or regular basis. A food cart pod typically operates during both the lunch and dinner timeframes. A food cart pod often includes limited covered seating or a dining area. A food cart pod may also include the sale of alcoholic beverages.

Additional Data

All data was collected in the summer months. Most sites were located along public transit routes, and some were accessible by bike or multi-use paths. The independent variable “food cart” is defined for the purpose of this land use as the number of food carts open at the time of the study.

The sites were surveyed in the 2010s in Oregon.

Source Number

919

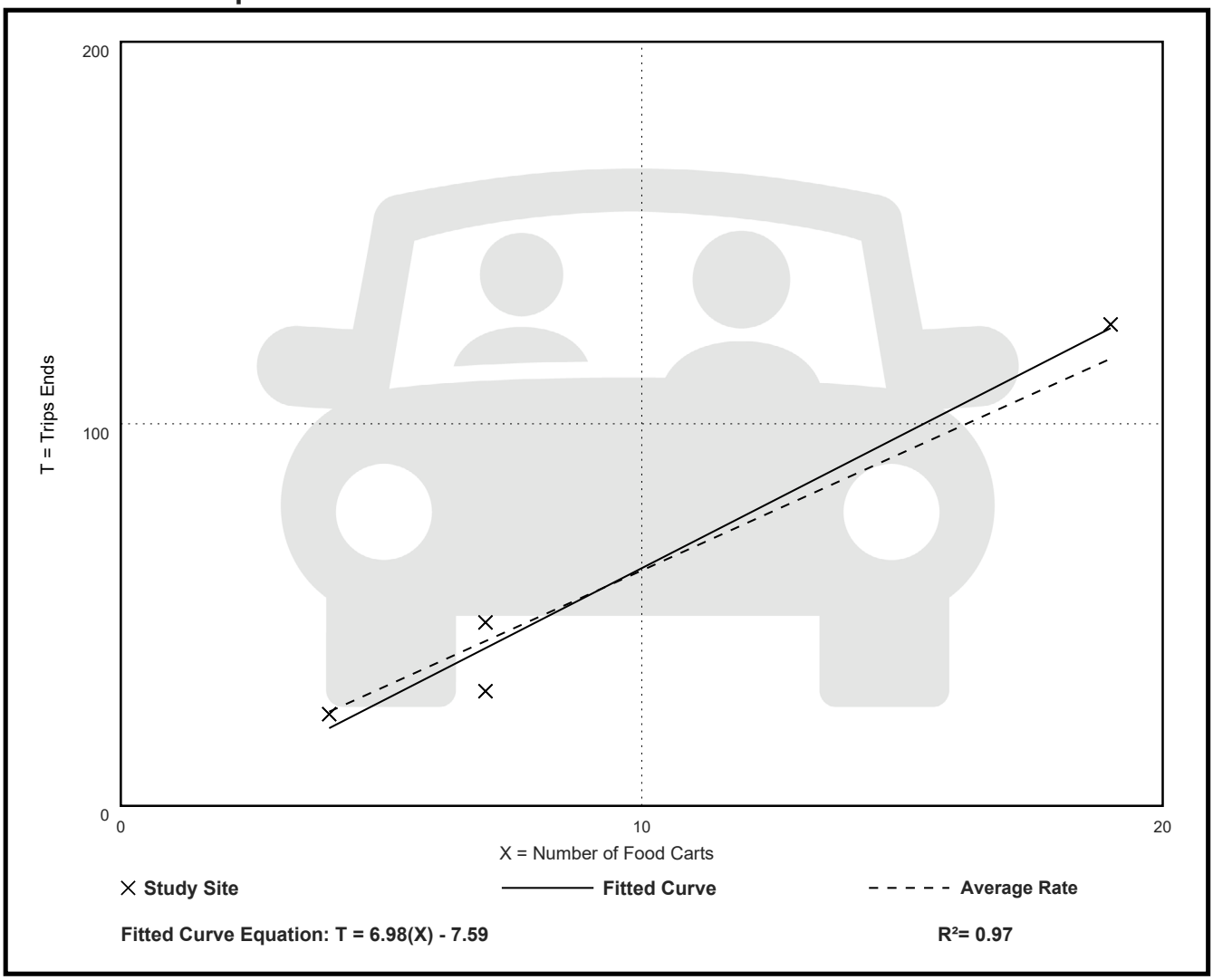
Food Cart Pod
(926)

Vehicle Trip Ends vs: **Food Carts**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 4
Avg. Num. of Food Carts: 9
Directional Distribution: Not Available

Vehicle Trip Generation per Food Cart

Average Rate	Range of Rates	Standard Deviation
6.16	4.29 - 6.86	1.08

Data Plot and Equation



Fitted Curve Equation: T = 6.98(X) - 7.59

R^2= 0.97

Food Cart Pod
(926)

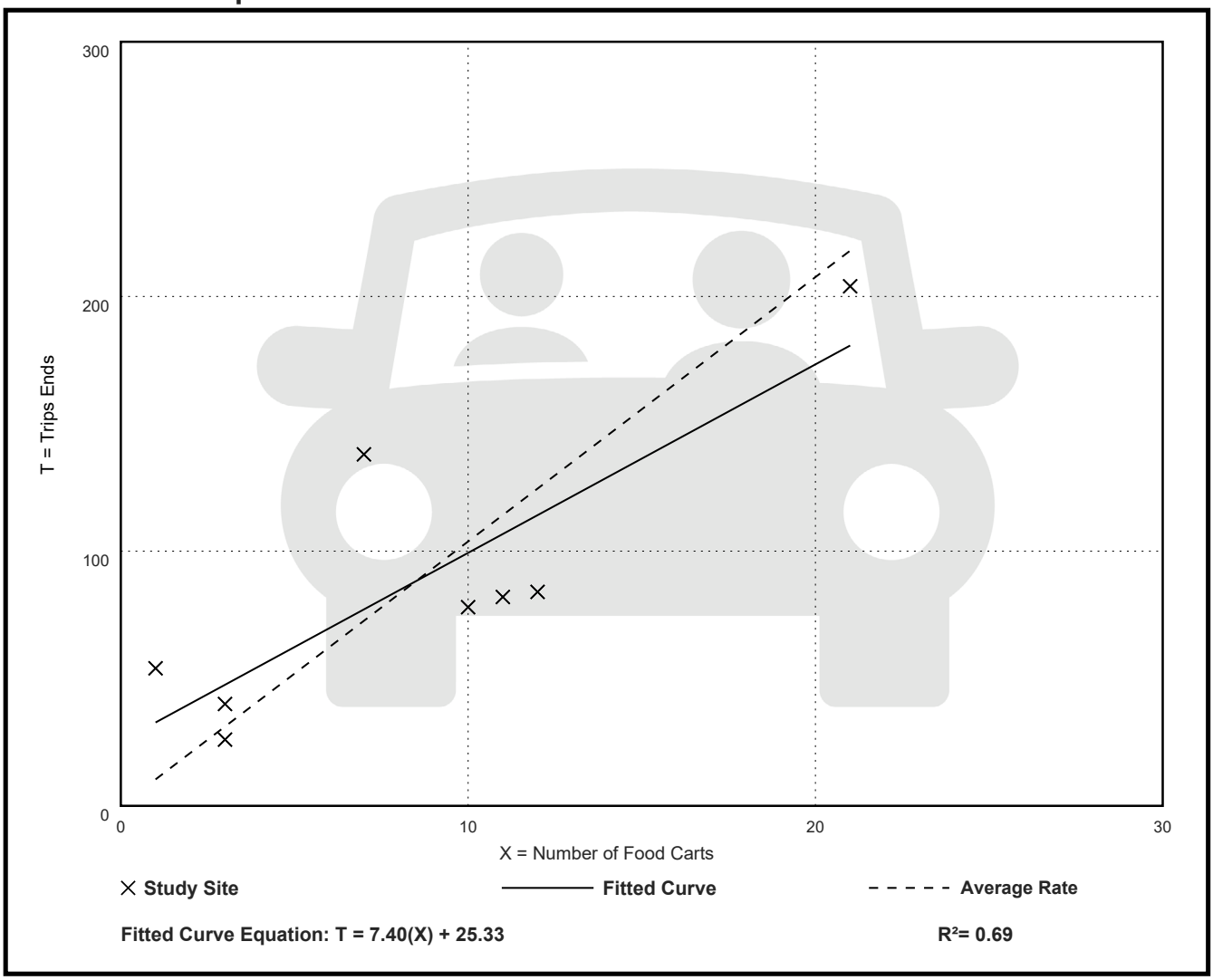
Vehicle Trip Ends vs: **Food Carts**
On a: **Weekday,**
PM Peak Hour of Generator

Setting/Location: **General Urban/Suburban**
Number of Studies: 8
Avg. Num. of Food Carts: 9
Directional Distribution: Not Available

Vehicle Trip Generation per Food Cart

Average Rate	Range of Rates	Standard Deviation
10.38	7.00 - 54.00	6.93

Data Plot and Equation



Fitted Curve Equation: T = 7.40(X) + 25.33

R^2= 0.69

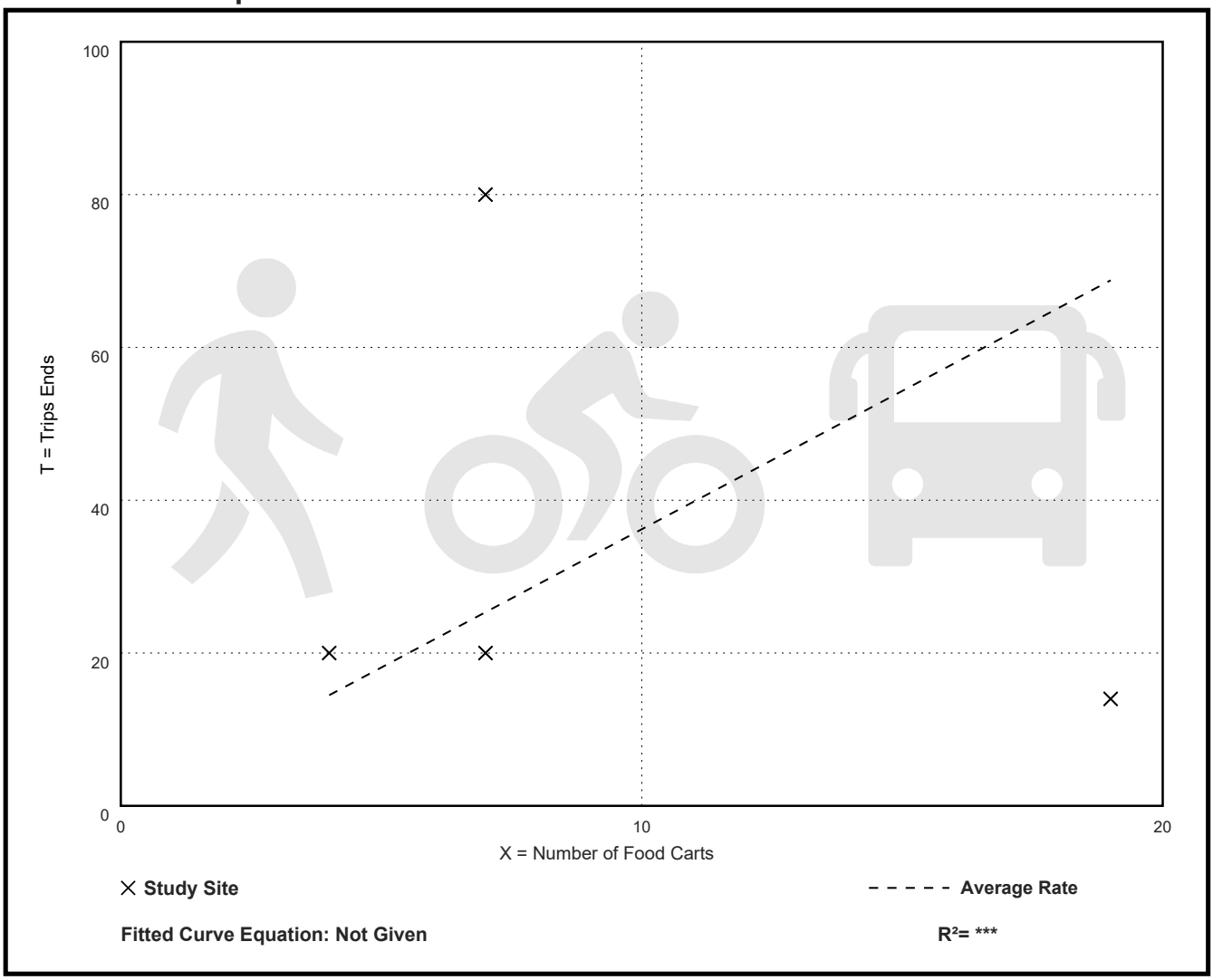
Food Cart Pod
(926)

Walk+Bike+Transit Trip Ends vs:	**Food Carts**
On a:	**Weekday,**
	Peak Hour of Adjacent Street Traffic,
	One Hour Between 4 and 6 p.m.
Setting/Location:	**General Urban/Suburban**
Number of Studies:	4
Avg. Num. of Food Carts:	9
Directional Distribution:	Not Available

Walk+Bike+Transit Trip Generation per Food Cart

Average Rate	Range of Rates	Standard Deviation
3.62	0.74 - 11.43	4.64

Data Plot and Equation



Food Cart Pod
(926)

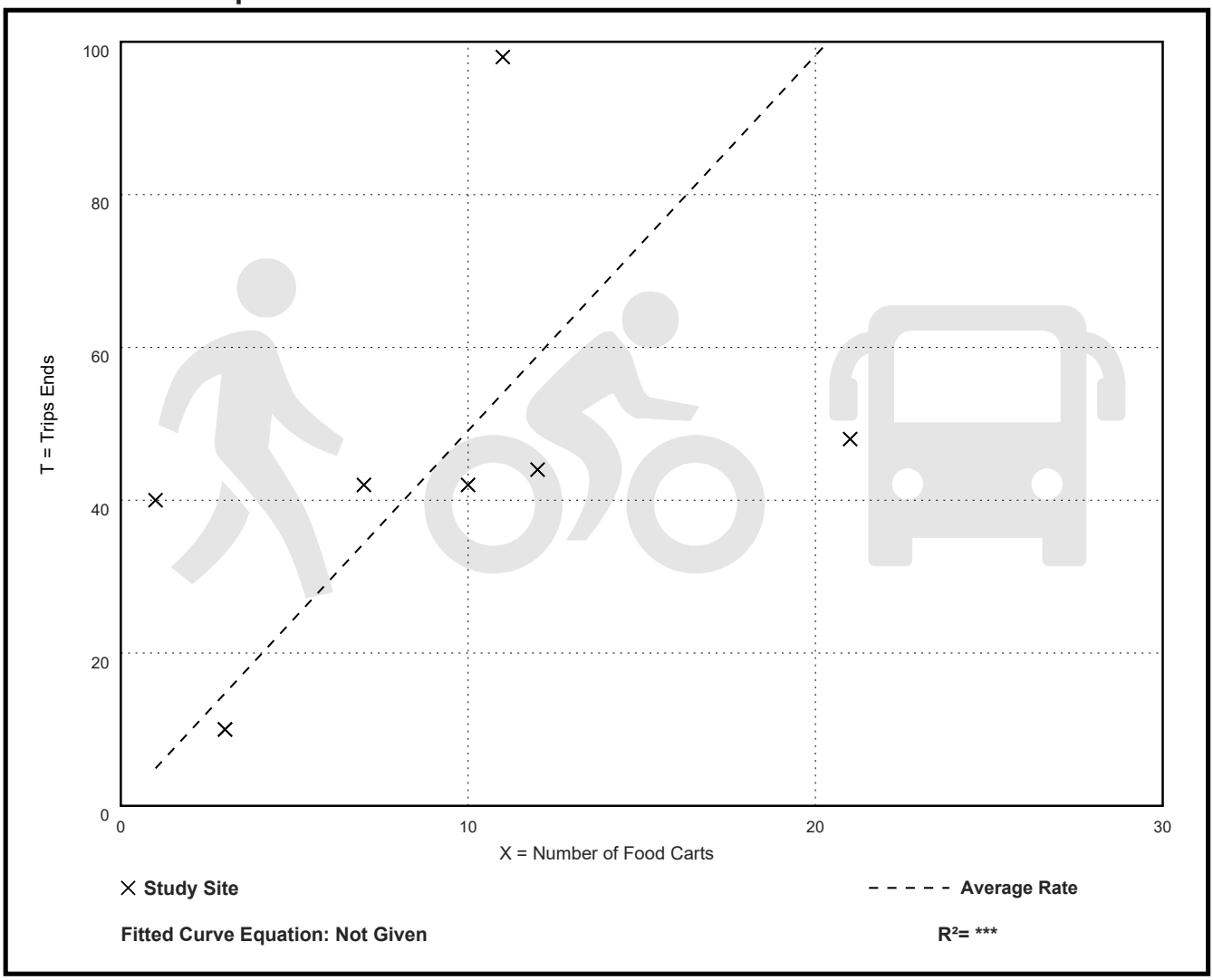
Walk+Bike+Transit Trip Ends vs: **Food Carts**
On a: **Weekday,**
PM Peak Hour of Generator

Setting/Location: **General Urban/Suburban**
Number of Studies: 8
Avg. Num. of Food Carts: 9
Directional Distribution: Not Available

Walk+Bike+Transit Trip Generation per Food Cart

Average Rate	Range of Rates	Standard Deviation
4.91	2.29 - 40.00	5.18

Data Plot and Equation



APPENDIX B

- CRASH DATA

TOWN OF HUDSON Attachment "H"

Police Department

Partners with the Community

1 Constitution Drive, Hudson, New Hampshire 03051
Voice/TTY (603) 886-6011/Crime Line (603) 594-1150/Fax (603) 886-0605

David Cayot
Chief of Police

Captain Patrick Broderick
Operations Bureau

Captain Steven McElhinney
Special Investigations Bureau

Captain Patrick McStravick
Support Services Bureau

Traffic Accident Study January 1, 2022 thru November 30, 2025
Central Street (includes intersections of Burnham Rd, Greeley St, Hamblett and Kimball Hill Rd)

Wason Road Totals:
Accidents: 75
Vehicles: 146
Fatalities: 0
Injuries Reported: 19
Time of Day
1:00 am to 12:00 am: 23
12:00 pm to 11:00 pm: 52
Weather: 8 (conditions other than dry)

Breakdown of statistics

Central St at Burnham Rd:
Accidents: 19 (vehicles only)
Injuries Reported: 3
Time of Day
1:00 am to 12:00 am: 4
12:00 pm to 11:00 pm: 15
Traffic Offenses
Speed Related: 1
Vehicle vs Fixed Object: 2
Operator Distraction: 4
Failure to Yield: 5
Weather: 3

Central St at Greeley St:
Accidents: 26 (vehicles only)
Vehicle vs Pedestrian (1)
Vehicle vs Animal (2)
Injuries Reported: 5
Time of Day
1:00 am to 12:00 am: 8
12:00 pm to 11:00 pm: 18
Traffic Offenses
Speed Related: 2
Operator Distraction: 6

Failure to Yield: 2
Following too closely: 5
Weather: 3

Central St at Hamblett Ave:
Accidents: 7 (vehicles only)
Injuries Reported: 4
Time of Day
1:00 am to 12:00 am: 3
12:00 pm to 11:00 pm: 4
Traffic Offenses
Speed Related: 2
Operator Distraction: 2
Following too Closely: 4
Weather: 0

Central St at Kimball Hill Rd:
Accidents: 17 (vehicles only)
Injuries Reported: 5
Time of Day
1:00 am to 12:00 am:6
12:00 pm to 11:00 pm: 11
Traffic Offenses
Vehicle vs Fixed Object: 1
Operator Distraction: 4
Following too Closely: 6
Weather: 1

Central St (between Burnham and Greeley/Kimball Hill intersections)
Accidents: 6 (vehicles only)
Injuries Reported: 7
Time of Day
1:00 am to 12:00 am: 2
12:00 pm to 11:00 pm: 4
Traffic Offenses
Vehicle vs Fixed Object: 2
Failure to Yield: 2
Weather: 1

Statistics compiled by:
Colleen Jefferson
Colleen Jefferson, Records Clerk
December 10, 2025

Attachment "H"

Motor Vehicle Traffic Accident Study
Central Street
(Burnham, Greeley, Hamblett, Kimball Hill)
1/1/2022to 11/30/2025

YEAR	12:00 AM TO 11:59 AM	12:00 PM TO 11:59 PM	Vehicles Involved	INJURIES	PROP DAMAGE	CITATIONS	WEATHER	FINDINGS
2025								
Kimball Hill	2	2	7	2	2		Dry	Four-way Intersection (1 accident)
								Five-Point Intersection (2 accidents)
								Vehicle vs Pole/Tree/Etc. (1 accident)
								Fall/Jump related (1 vehicle)
								Use of parking lane/zone (1 accident)
Hamblett		1	3		1		Dry	Two way intersection (1 accident)
								Speed related (1 vehicle)
Greeley	3	2	11	1	4	1	Dry	Intersection related (2 accidents)
								Inattentive/careless/distracted operator (1)
								Use of parking lane/zone (1 accident)
								Speed related (1 vehicle)
Burnham	1	2	4	1	3	1	Dry	Intersection related (5 accidents)
								DUI (1 accident)
								Inattentive/careless/distracted operator (1)
								Medical related (1 vehicle)
								Vehicle vs Pole/Tree/Etc. (1 accident)
								Use of parking lane/zone (1 accident)
								Speed related (1 vehicle)
Cental St	2		2	1			Dry	Vehicle vs Pole/Tree/Etc. (2 accident)
2024								
Kimball Hill	2		3		2		Dry	Five-Point Intersection (1 accident)
Hamblett	1	1	4		2		Dry	Five-Point Intersection (1 accident)
Greeley	2	9	17	2			Wet (1)	Intersection related (7 accidents)
								Inattentive/careless/distracted operator (3)
								Vehicle vs Pedestrian (1 accident)
								DUI (1 accident)

Attachment "H"

Motor Vehicle Traffic Accident Study
Central Street
(Burnham, Greeley, Hamblett, Kimball Hill)
1/1/2022to 11/30/2025

								Animal Involvement (2 accidents)
Burnham	2	8	22	1			Wet (1)	Intersection related (5 accidents)
								Failure to Yield Right-of-Way (1 vehicle)
								Inattentive/careless/distracted operator (2)
								Driveway involvement (1 accident)
								Vehicle vs Pole/Tree/Etc. (1 accident)
								Use of parking lane/zone (1 accident)
Central St		3	3				Wet (1)	Use of parking lane/zone (1 accident)
2023								
Kimball Hill	1	6	15	2			Wet (1)	Four-way Intersection (1 accident)
								Five-Point Intersection (4 accidents)
								Following too closely (5 vehicles)
								Failure to Yield Right-of-Way (1 vehicle)
								Inattentive/careless/distracted operator (1)
								Traffic Congestion (1 accident)
Hamblett	1	1	6	2		1	Dry (2)	T-Intersection (2 accidents)
								Speed related (1 vehicle)
								Following too closely (2 vehicles)
								Operation reckless/aggressive (1 vehicle)
								Inattentive/careless/distracted operator (1)
Greeley	1	6	12	1	1		Wet (1)	T-Intersection (1 accident)
								Four-way Intersection (1 accident)
								Five-Point Intersection (1 accident)
								Speed related (1 vehicle)
								Following too closely (3 vehicles)
								Failure to Yield Right-of-Way (2 vehicles)
								Inattentive/careless/distracted operator (1)
								Traffic Congestion (1 accident)
								Ran off Roadway (1 vehicle)
Burnham	1	1	4				Wet (1)	Four-way Intersection (1 accident)
								Failed to Keep Proper Lane (1 vehicle)
								Failure to Yield Right-of-Way (1 vehicle)

Attachment "H"

Motor Vehicle Traffic Accident Study
Central Street
(Burnham, Greeley, Hamblett, Kimball Hill)
1/1/2022to 11/30/2025

							Inattentive/careless/distracted operator (1)
entral St		1	2			Dry	Use of parking lane/zone (1 accident)
							Failure to Yield Right-of-Way (1 vehicle)
2022							
imball Hill	1	3	8	1		Dry (4)	T Intersection (1 accident)
							Five-Point Intersection (1 accident)
							Inattentive/careless/distracted operator (3)
							Following too closely (1 vehicle)
Hamblett	1	1	9	2	1	Dry (2)	Following too closely (2 vehicles)
							Inattentive/careless/distracted operator (1)
Greeley	2	1	6	1		Wet (1)	Five-Point Intersection (1 accident)
							Inattentive/careless/distracted operator (1)
							Following too closely (2 vehicles)
							Traffic Congestion (2 accidents)
Burnham		4	8	1		Wet (1)	Four-way Intersection (2 accidents)
							Failure to Yield Right-of-Way (3 vehicles)
							Failure to keep proper lane (1 vehicle)
Central St							

APPENDIX C

- **HCM CAPACITY ANALYSIS REPORTS**

Intersection	
Int Delay, s/veh	0

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	0	0	733	0	0	977
Future Vol, veh/h	0	0	733	0	0	977
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	797	0	0	1062

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1859	797	0	0	797	0
Stage 1	797	-	-	-	-	-
Stage 2	1062	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	81	387	-	-	825	-
Stage 1	444	-	-	-	-	-
Stage 2	332	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	81	387	-	-	825	-
Mov Cap-2 Maneuver	81	-	-	-	-	-
Stage 1	444	-	-	-	-	-
Stage 2	332	-	-	-	-	-

Approach	NW	NE	SW
HCM Control Delay, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NET	NER	NWLn1	SWL	SWT
Capacity (veh/h)	-	-	-	825	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q (veh)	-	-	-	0	-

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	406	2	26	16	6	11	11	316	13	10	391	576
Future Volume (veh/h)	406	2	26	16	6	11	11	316	13	10	391	576
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	441	2	28	17	7	12	12	343	14	11	425	626
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	520	2	465	24	10	17	77	798	33	427	648	1014
Arrive On Green	0.29	0.29	0.29	0.03	0.03	0.03	0.04	0.45	0.45	0.35	0.35	0.35
Sat Flow, veh/h	1774	8	1585	815	336	575	1781	1784	73	1024	1870	1585
Grp Volume(v), veh/h	443	0	28	36	0	0	12	0	357	11	425	626
Grp Sat Flow(s),veh/h/ln	1782	0	1585	1726	0	0	1781	0	1857	1024	1870	1585
Q Serve(g_s), s	16.2	0.0	0.9	1.4	0.0	0.0	0.5	0.0	9.1	0.5	13.3	16.3
Cycle Q Clear(g_c), s	16.2	0.0	0.9	1.4	0.0	0.0	0.5	0.0	9.1	2.6	13.3	16.3
Prop In Lane	1.00		1.00	0.47		0.33	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	522	0	465	50	0	0	77	0	831	427	648	1014
V/C Ratio(X)	0.85	0.00	0.06	0.72	0.00	0.00	0.16	0.00	0.43	0.03	0.66	0.62
Avail Cap(c_a), veh/h	1155	0	1028	199	0	0	257	0	1579	737	1213	1492
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.1	0.0	17.7	33.4	0.0	0.0	32.0	0.0	13.1	16.4	19.2	7.4
Incr Delay (d2), s/veh	3.9	0.0	0.1	17.8	0.0	0.0	0.9	0.0	0.4	0.0	1.1	0.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.9	0.0	0.3	0.8	0.0	0.0	0.2	0.0	3.5	0.1	5.5	10.2
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	27.0	0.0	17.7	51.3	0.0	0.0	32.9	0.0	13.5	16.4	20.3	8.1
LnGrp LOS	C		B	D			C		B	B	C	A
Approach Vol, veh/h		471			36			369			1062	
Approach Delay, s/veh		26.5			51.3			14.1			13.0	
Approach LOS		C			D			B			B	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		37.1		24.3	7.0	30.1		8.0				
Change Period (Y+Rc), s		6.0		4.0	4.0	6.0		6.0				
Max Green Setting (Gmax), s		59.0		45.0	10.0	45.0		8.0				
Max Q Clear Time (g_c+I1), s		11.1		18.2	2.5	18.3		3.4				
Green Ext Time (p_c), s		1.5		2.1	0.0	5.7		0.0				

Intersection Summary												
HCM 6th Ctrl Delay, s/veh			17.2									
HCM 6th LOS			B									

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	406	2	26	16	6	11	11	316	13	10	391	576
Future Volume (veh/h)	406	2	26	16	6	11	11	316	13	10	391	576
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	441	2	28	17	7	12	12	343	14	11	425	626
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	520	2	465	24	10	17	77	798	33	427	648	1014
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.29	0.29	0.29	0.03	0.03	0.03	0.04	0.45	0.45	0.35	0.35	0.35
Unsig. Movement Delay												
Ln Grp Delay, s/veh	27.0	0.0	17.7	51.3	0.0	0.0	32.9	0.0	13.5	16.4	20.3	8.1
Ln Grp LOS	C		B	D			C		B	B	C	A
Approach Vol, veh/h		471			36			369			1062	
Approach Delay, s/veh		26.5			51.3			14.1			13.0	
Approach LOS		C			D			B			B	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs		2	8	4	5	6		
Case No		4.0	12.0	11.0	2.0	5.3		
Phs Duration (G+Y+Rc), s		37.1	8.0	24.3	7.0	30.1		
Change Period (Y+Rc), s		6.0	6.0	4.0	4.0	6.0		
Max Green (Gmax), s		59.0	8.0	45.0	10.0	45.0		
Max Allow Headway (MAH), s		4.3	4.4	4.4	4.4	4.5		
Max Q Clear (g_c+I1), s		11.1	3.4	18.2	2.5	18.3		
Green Ext Time (g_e), s		1.5	0.0	2.1	0.0	5.7		
Prob of Phs Call (p_c)		1.00	0.50	1.00	1.00	1.00		
Prob of Max Out (p_x)		0.00	0.86	0.00	0.00	0.04		

Left-Turn Movement Data						
Assigned Mvmt			3	7	5	1
Mvmt Sat Flow, veh/h			815	1774	1781	1024

Through Movement Data						
Assigned Mvmt		2	8	4		6
Mvmt Sat Flow, veh/h		1784	336	8		1870

Right-Turn Movement Data						
Assigned Mvmt		12	18	14		16
Mvmt Sat Flow, veh/h		73	575	1585		1585

Left Lane Group Data								
Assigned Mvmt	0	0	3	7	5	1	0	0
Lane Assignment			L+T+R	L+T	L (Prot)	L		

Lanes in Grp	0	0	1	1	1	1	0	0
Grp Vol (v), veh/h	0	0	36	443	12	11	0	0
Grp Sat Flow (s), veh/h/ln	0	0	1726	1782	1781	1024	0	0
Q Serve Time (g_s), s	0.0	0.0	1.4	16.2	0.5	0.5	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	1.4	16.2	0.5	2.6	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	0	0	0	1024	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	0.0	0.0	24.1	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	21.9	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	0.00	0.00	0.47	1.00	1.00	1.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	0	50	522	77	427	0	0
V/C Ratio (X)	0.00	0.00	0.72	0.85	0.16	0.03	0.00	0.00
Avail Cap (c_a), veh/h	0	0	199	1155	257	737	0	0
Upstream Filter (I)	0.00	0.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	33.4	23.1	32.0	16.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	17.8	3.9	0.9	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	51.3	27.0	32.9	16.4	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.6	6.3	0.2	0.1	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.2	0.6	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	0.00	1.00	1.00	1.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.8	6.9	0.2	0.1	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.13	0.29	0.05	0.01	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data								
Assigned Mvmt	0	2	8	4	0	6	0	0
Lane Assignment						T		
Lanes in Grp	0	0	0	0	0	1	0	0
Grp Vol (v), veh/h	0	0	0	0	0	425	0	0
Grp Sat Flow (s), veh/h/ln	0	0	0	0	0	1870	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	13.3	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	13.3	0.0	0.0
Lane Grp Cap (c), veh/h	0	0	0	0	0	648	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.00	0.00	0.66	0.00	0.00
Avail Cap (c_a), veh/h	0	0	0	0	0	1213	0	0
Upstream Filter (I)	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	19.2	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	20.3	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	5.3	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	0.0	0.0	5.5	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.44	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Mvmt	0	12	18	14	0	16	0	0
Lane Assignment		T+R		R		R		
Lanes in Grp	0	1	0	1	0	1	0	0
Grp Vol (v), veh/h	0	357	0	28	0	626	0	0
Grp Sat Flow (s), veh/h/ln	0	1857	0	1585	0	1585	0	0
Q Serve Time (g_s), s	0.0	9.1	0.0	0.9	0.0	16.3	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	9.1	0.0	0.9	0.0	16.3	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	1585.1	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	20.3	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.04	0.33	1.00	0.00	1.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	831	0	465	0	1014	0	0
V/C Ratio (X)	0.00	0.43	0.00	0.06	0.00	0.62	0.00	0.00
Avail Cap (c_a), veh/h	0	1579	0	1028	0	1492	0	0
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	13.1	0.0	17.7	0.0	7.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.4	0.0	0.1	0.0	0.6	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	13.5	0.0	17.7	0.0	8.1	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	3.4	0.0	0.3	0.0	10.1	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	3.5	0.0	0.3	0.0	10.2	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.18	0.00	0.07	0.00	1.18	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	17.2
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	0

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	0	0	733	0	0	977
Future Vol, veh/h	0	0	733	0	0	977
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	797	0	0	1062

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1859	797	0	0	797	0
Stage 1	797	-	-	-	-	-
Stage 2	1062	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	81	387	-	-	825	-
Stage 1	444	-	-	-	-	-
Stage 2	332	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	81	387	-	-	825	-
Mov Cap-2 Maneuver	81	-	-	-	-	-
Stage 1	444	-	-	-	-	-
Stage 2	332	-	-	-	-	-

Approach	NW	NE	SW
HCM Control Delay, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NET	NER	NWLn1	SWL	SWT
Capacity (veh/h)	-	-	-	825	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q (veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	0

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	0	0	995	0	0	861
Future Vol, veh/h	0	0	995	0	0	861
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	1082	0	0	936

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2018	1082	0	0	1082	0
Stage 1	1082	-	-	-	-	-
Stage 2	936	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	64	264	-	-	645	-
Stage 1	325	-	-	-	-	-
Stage 2	382	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	64	264	-	-	645	-
Mov Cap-2 Maneuver	64	-	-	-	-	-
Stage 1	325	-	-	-	-	-
Stage 2	382	-	-	-	-	-

Approach	NW	NE	SW
HCM Control Delay, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NET	NER	NWLn1	SWL	SWT
Capacity (veh/h)	-	-	-	645	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q (veh)	-	-	-	0	-

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	469	15	42	30	4	38	27	488	21	28	339	493
Future Volume (veh/h)	469	15	42	30	4	38	27	488	21	28	339	493
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	510	16	46	33	4	41	29	530	23	30	368	536
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	586	18	537	42	5	52	77	687	30	205	540	994
Arrive On Green	0.34	0.34	0.34	0.06	0.06	0.06	0.04	0.39	0.39	0.29	0.29	0.29
Sat Flow, veh/h	1730	54	1585	709	86	881	1781	1779	77	855	1870	1585
Grp Volume(v), veh/h	526	0	46	78	0	0	29	0	553	30	368	536
Grp Sat Flow(s),veh/h/ln	1784	0	1585	1676	0	0	1781	0	1856	855	1870	1585
Q Serve(g_s), s	20.4	0.0	1.5	3.4	0.0	0.0	1.2	0.0	19.2	2.3	12.9	14.1
Cycle Q Clear(g_c), s	20.4	0.0	1.5	3.4	0.0	0.0	1.2	0.0	19.2	14.4	12.9	14.1
Prop In Lane	0.97		1.00	0.42		0.53	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	604	0	537	99	0	0	77	0	716	205	540	994
V/C Ratio(X)	0.87	0.00	0.09	0.79	0.00	0.00	0.38	0.00	0.77	0.15	0.68	0.54
Avail Cap(c_a), veh/h	1086	0	965	181	0	0	241	0	1482	479	1139	1502
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.9	0.0	16.6	34.3	0.0	0.0	34.4	0.0	19.8	29.3	23.3	7.8
Incr Delay (d2), s/veh	4.0	0.0	0.1	13.2	0.0	0.0	3.0	0.0	1.8	0.3	1.5	0.5
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.6	0.0	0.5	1.7	0.0	0.0	0.6	0.0	8.0	0.5	5.6	9.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	27.0	0.0	16.7	47.5	0.0	0.0	37.4	0.0	21.6	29.6	24.8	8.2
LnGrp LOS	C		B	D			D		C	C	C	A
Approach Vol, veh/h		572			78			582			934	
Approach Delay, s/veh		26.1			47.5			22.4			15.4	
Approach LOS		C			D			C			B	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		34.5		29.0	7.2	27.3		10.3				
Change Period (Y+Rc), s		6.0		4.0	4.0	6.0		6.0				
Max Green Setting (Gmax), s		59.0		45.0	10.0	45.0		8.0				
Max Q Clear Time (g_c+I1), s		21.2		22.4	3.2	16.4		5.4				
Green Ext Time (p_c), s		2.6		2.6	0.0	4.9		0.0				

Intersection Summary												
HCM 6th Ctrl Delay, s/veh			21.3									
HCM 6th LOS			C									

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	469	15	42	30	4	38	27	488	21	28	339	493
Future Volume (veh/h)	469	15	42	30	4	38	27	488	21	28	339	493
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	510	16	46	33	4	41	29	530	23	30	368	536
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	586	18	537	42	5	52	77	687	30	205	540	994
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.34	0.34	0.34	0.06	0.06	0.06	0.04	0.39	0.39	0.29	0.29	0.29
Unsig. Movement Delay												
Ln Grp Delay, s/veh	27.0	0.0	16.7	47.5	0.0	0.0	37.4	0.0	21.6	29.6	24.8	8.2
Ln Grp LOS	C		B	D			D		C	C	C	A
Approach Vol, veh/h		572			78			582			934	
Approach Delay, s/veh		26.1			47.5			22.4			15.4	
Approach LOS		C			D			C			B	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs		2	8	4	5	6		
Case No		4.0	12.0	11.0	2.0	5.3		
Phs Duration (G+Y+Rc), s		34.5	10.3	29.0	7.2	27.3		
Change Period (Y+Rc), s		6.0	6.0	4.0	4.0	6.0		
Max Green (Gmax), s		59.0	8.0	45.0	10.0	45.0		
Max Allow Headway (MAH), s		4.3	4.5	4.4	4.4	4.5		
Max Q Clear (g_c+I1), s		21.2	5.4	22.4	3.2	16.4		
Green Ext Time (g_e), s		2.6	0.0	2.6	0.0	4.9		
Prob of Phs Call (p_c)		1.00	0.80	1.00	1.00	1.00		
Prob of Max Out (p_x)		0.00	1.00	0.00	0.04	0.02		

Left-Turn Movement Data								
Assigned Mvmt			3	7	5	1		
Mvmt Sat Flow, veh/h			709	1730	1781	855		

Through Movement Data								
Assigned Mvmt		2	8	4		6		
Mvmt Sat Flow, veh/h		1779	86	54		1870		

Right-Turn Movement Data								
Assigned Mvmt		12	18	14		16		
Mvmt Sat Flow, veh/h		77	881	1585		1585		

Left Lane Group Data								
Assigned Mvmt	0	0	3	7	5	1	0	0
Lane Assignment			L+T+R	L+T	L (Prot)	L		

Lanes in Grp	0	0	1	1	1	1	0	0
Grp Vol (v), veh/h	0	0	78	526	29	30	0	0
Grp Sat Flow (s), veh/h/ln	0	0	1676	1784	1781	855	0	0
Q Serve Time (g_s), s	0.0	0.0	3.4	20.4	1.2	2.3	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	3.4	20.4	1.2	14.4	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	0	0	0	855	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	0.0	0.0	21.3	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	9.3	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	2.3	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	0.00	0.00	0.42	0.97	1.00	1.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	0	99	604	77	205	0	0
V/C Ratio (X)	0.00	0.00	0.79	0.87	0.38	0.15	0.00	0.00
Avail Cap (c_a), veh/h	0	0	181	1086	241	479	0	0
Upstream Filter (I)	0.00	0.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	34.3	22.9	34.4	29.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	13.2	4.0	3.0	0.3	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	47.5	27.0	37.4	29.6	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	1.3	8.0	0.5	0.5	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.4	0.7	0.1	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	0.00	1.00	1.00	1.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.0	1.7	8.6	0.6	0.5	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.26	0.36	0.14	0.06	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data								
Assigned Mvmt	0	2	8	4	0	6	0	0
Lane Assignment						T		
Lanes in Grp	0	0	0	0	0	1	0	0
Grp Vol (v), veh/h	0	0	0	0	0	368	0	0
Grp Sat Flow (s), veh/h/ln	0	0	0	0	0	1870	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	12.9	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	12.9	0.0	0.0
Lane Grp Cap (c), veh/h	0	0	0	0	0	540	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.00	0.00	0.68	0.00	0.00
Avail Cap (c_a), veh/h	0	0	0	0	0	1139	0	0
Upstream Filter (I)	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	23.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	24.8	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	5.4	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	0.0	0.0	5.6	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.44	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Mvmt	0	12	18	14	0	16	0	0
Lane Assignment		T+R		R		R		
Lanes in Grp	0	1	0	1	0	1	0	0
Grp Vol (v), veh/h	0	553	0	46	0	536	0	0
Grp Sat Flow (s), veh/h/ln	0	1856	0	1585	0	1585	0	0
Q Serve Time (g_s), s	0.0	19.2	0.0	1.5	0.0	14.1	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	19.2	0.0	1.5	0.0	14.1	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	1585.1	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	25.0	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.04	0.53	1.00	0.00	1.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	716	0	537	0	994	0	0
V/C Ratio (X)	0.00	0.77	0.00	0.09	0.00	0.54	0.00	0.00
Avail Cap (c_a), veh/h	0	1482	0	965	0	1502	0	0
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	19.8	0.0	16.6	0.0	7.8	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.8	0.0	0.1	0.0	0.5	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	21.6	0.0	16.7	0.0	8.2	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	7.6	0.0	0.5	0.0	9.5	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.4	0.0	0.0	0.0	0.1	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	8.0	0.0	0.5	0.0	9.6	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.42	0.00	0.11	0.00	1.11	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	21.3
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	0

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	0	0	995	0	0	861
Future Vol, veh/h	0	0	995	0	0	861
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	0	1082	0	0	936

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2018	1082	0	0	1082	0
Stage 1	1082	-	-	-	-	-
Stage 2	936	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	64	264	-	-	645	-
Stage 1	325	-	-	-	-	-
Stage 2	382	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	64	264	-	-	645	-
Mov Cap-2 Maneuver	64	-	-	-	-	-
Stage 1	325	-	-	-	-	-
Stage 2	382	-	-	-	-	-

Approach	NW	NE	SW
HCM Control Delay, s/v	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NET	NER	NWLn1	SWL	SWT
Capacity (veh/h)	-	-	-	645	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s/veh)	-	-	0	0	-
HCM Lane LOS	-	-	A	A	-
HCM 95th %tile Q (veh)	-	-	-	0	-

Intersection	
Int Delay, s/veh	1.3

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	23	18	740	8	7	986
Future Vol, veh/h	23	18	740	8	7	986
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	20	804	9	8	1072

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1897	809	0	0	813	0
Stage 1	809	-	-	-	-	-
Stage 2	1088	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	76	380	-	-	814	-
Stage 1	438	-	-	-	-	-
Stage 2	323	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	74	380	-	-	814	-
Mov Cap-2 Maneuver	74	-	-	-	-	-
Stage 1	438	-	-	-	-	-
Stage 2	315	-	-	-	-	-

Approach	NW	NE	SW
HCM Control Delay, s/v	55.5	0	0.1
HCM LOS	F		

Minor Lane/Major Mvmt	NET	NER	NWLn1	SWL	SWT
Capacity (veh/h)	-	-	114	814	-
HCM Lane V/C Ratio	-	-	0.391	0.009	-
HCM Control Delay (s/veh)	-	-	55.5	9.5	0
HCM Lane LOS	-	-	F	A	A
HCM 95th %tile Q (veh)	-	-	1.6	0	-

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	415	2	26	16	6	11	11	322	13	10	404	595
Future Volume (veh/h)	415	2	26	16	6	11	11	322	13	10	404	595
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	451	2	28	17	7	12	12	350	14	11	439	647
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	528	2	472	23	10	16	75	804	32	423	659	1030
Arrive On Green	0.30	0.30	0.30	0.03	0.03	0.03	0.04	0.45	0.45	0.35	0.35	0.35
Sat Flow, veh/h	1774	8	1585	815	336	575	1781	1786	71	1018	1870	1585
Grp Volume(v), veh/h	453	0	28	36	0	0	12	0	364	11	439	647
Grp Sat Flow(s),veh/h/ln	1782	0	1585	1726	0	0	1781	0	1858	1018	1870	1585
Q Serve(g_s), s	17.1	0.0	0.9	1.5	0.0	0.0	0.5	0.0	9.6	0.5	14.2	17.3
Cycle Q Clear(g_c), s	17.1	0.0	0.9	1.5	0.0	0.0	0.5	0.0	9.6	3.1	14.2	17.3
Prop In Lane	1.00		1.00	0.47		0.33	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	530	0	472	49	0	0	75	0	837	423	659	1030
V/C Ratio(X)	0.85	0.00	0.06	0.73	0.00	0.00	0.16	0.00	0.44	0.03	0.67	0.63
Avail Cap(c_a), veh/h	1120	0	997	193	0	0	249	0	1531	704	1176	1468
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.7	0.0	18.0	34.5	0.0	0.0	33.1	0.0	13.4	16.9	19.6	7.4
Incr Delay (d2), s/veh	4.1	0.0	0.1	18.5	0.0	0.0	1.0	0.0	0.4	0.0	1.2	0.6
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.3	0.0	0.3	0.9	0.0	0.0	0.2	0.0	3.7	0.1	5.9	11.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	27.7	0.0	18.0	53.0	0.0	0.0	34.1	0.0	13.8	16.9	20.8	8.0
LnGrp LOS	C		B	D			C		B	B	C	A
Approach Vol, veh/h		481			36			376			1097	
Approach Delay, s/veh		27.2			53.0			14.5			13.2	
Approach LOS		C			D			B			B	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		38.2		25.3	7.0	31.2		8.0				
Change Period (Y+Rc), s		6.0		4.0	4.0	6.0		6.0				
Max Green Setting (Gmax), s		59.0		45.0	10.0	45.0		8.0				
Max Q Clear Time (g_c+I1), s		11.6		19.1	2.5	19.3		3.5				
Green Ext Time (p_c), s		1.6		2.2	0.0	6.0		0.0				

Intersection Summary												
HCM 6th Ctrl Delay, s/veh			17.5									
HCM 6th LOS			B									

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	415	2	26	16	6	11	11	322	13	10	404	595
Future Volume (veh/h)	415	2	26	16	6	11	11	322	13	10	404	595
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	451	2	28	17	7	12	12	350	14	11	439	647
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	528	2	472	23	10	16	75	804	32	423	659	1030
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.30	0.30	0.30	0.03	0.03	0.03	0.04	0.45	0.45	0.35	0.35	0.35
Unsig. Movement Delay												
Ln Grp Delay, s/veh	27.7	0.0	18.0	53.0	0.0	0.0	34.1	0.0	13.8	16.9	20.8	8.0
Ln Grp LOS	C		B	D			C		B	B	C	A
Approach Vol, veh/h		481			36			376			1097	
Approach Delay, s/veh		27.2			53.0			14.5			13.2	
Approach LOS		C			D			B			B	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs		2	8	4	5	6		
Case No		4.0	12.0	11.0	2.0	5.3		
Phs Duration (G+Y+Rc), s		38.2	8.0	25.3	7.0	31.2		
Change Period (Y+Rc), s		6.0	6.0	4.0	4.0	6.0		
Max Green (Gmax), s		59.0	8.0	45.0	10.0	45.0		
Max Allow Headway (MAH), s		4.3	4.4	4.4	4.4	4.5		
Max Q Clear (g_c+I1), s		11.6	3.5	19.1	2.5	19.3		
Green Ext Time (g_e), s		1.6	0.0	2.2	0.0	6.0		
Prob of Phs Call (p_c)		1.00	0.51	1.00	1.00	1.00		
Prob of Max Out (p_x)		0.00	0.91	0.00	0.00	0.06		

Left-Turn Movement Data								
Assigned Mvmt			3	7	5	1		
Mvmt Sat Flow, veh/h			815	1774	1781	1018		

Through Movement Data								
Assigned Mvmt		2	8	4		6		
Mvmt Sat Flow, veh/h		1786	336	8		1870		

Right-Turn Movement Data								
Assigned Mvmt		12	18	14		16		
Mvmt Sat Flow, veh/h		71	575	1585		1585		

Left Lane Group Data								
Assigned Mvmt	0	0	3	7	5	1	0	0
Lane Assignment			L+T+R	L+T	L (Prot)	L		

Lanes in Grp	0	0	1	1	1	1	0	0
Grp Vol (v), veh/h	0	0	36	453	12	11	0	0
Grp Sat Flow (s), veh/h/ln	0	0	1726	1782	1781	1018	0	0
Q Serve Time (g_s), s	0.0	0.0	1.5	17.1	0.5	0.5	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	1.5	17.1	0.5	3.1	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	0	0	0	1018	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	0.0	0.0	25.2	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	22.6	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	0.00	0.00	0.47	1.00	1.00	1.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	0	49	530	75	423	0	0
V/C Ratio (X)	0.00	0.00	0.73	0.85	0.16	0.03	0.00	0.00
Avail Cap (c_a), veh/h	0	0	193	1120	249	704	0	0
Upstream Filter (I)	0.00	0.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	34.5	23.7	33.1	16.9	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	18.5	4.1	1.0	0.0	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	53.0	27.7	34.1	16.9	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.6	6.7	0.2	0.1	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.3	0.6	0.0	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	0.00	1.00	1.00	1.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.9	7.3	0.2	0.1	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.13	0.31	0.05	0.01	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data								
Assigned Mvmt	0	2	8	4	0	6	0	0
Lane Assignment						T		
Lanes in Grp	0	0	0	0	0	1	0	0
Grp Vol (v), veh/h	0	0	0	0	0	439	0	0
Grp Sat Flow (s), veh/h/ln	0	0	0	0	0	1870	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	14.2	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	14.2	0.0	0.0
Lane Grp Cap (c), veh/h	0	0	0	0	0	659	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.00	0.00	0.67	0.00	0.00
Avail Cap (c_a), veh/h	0	0	0	0	0	1176	0	0
Upstream Filter (I)	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	19.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	20.8	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	5.7	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	0.0	0.0	5.9	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Mvmt	0	12	18	14	0	16	0	0
Lane Assignment		T+R		R		R		
Lanes in Grp	0	1	0	1	0	1	0	0
Grp Vol (v), veh/h	0	364	0	28	0	647	0	0
Grp Sat Flow (s), veh/h/ln	0	1858	0	1585	0	1585	0	0
Q Serve Time (g_s), s	0.0	9.6	0.0	0.9	0.0	17.3	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	9.6	0.0	0.9	0.0	17.3	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	1585.1	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	21.3	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.04	0.33	1.00	0.00	1.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	837	0	472	0	1030	0	0
V/C Ratio (X)	0.00	0.44	0.00	0.06	0.00	0.63	0.00	0.00
Avail Cap (c_a), veh/h	0	1531	0	997	0	1468	0	0
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	13.4	0.0	18.0	0.0	7.4	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.4	0.0	0.1	0.0	0.6	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	13.8	0.0	18.0	0.0	8.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	3.6	0.0	0.3	0.0	10.9	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	3.7	0.0	0.3	0.0	11.1	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.20	0.00	0.07	0.00	1.28	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	17.5
HCM 6th LOS	B

Intersection	
Int Delay, s/veh	0.5

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	9	10	751	7	12	984
Future Vol, veh/h	9	10	751	7	12	984
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	11	816	8	13	1070

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1916	820	0	0	824	0
Stage 1	820	-	-	-	-	-
Stage 2	1096	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	74	375	-	-	806	-
Stage 1	433	-	-	-	-	-
Stage 2	320	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	71	375	-	-	806	-
Mov Cap-2 Maneuver	71	-	-	-	-	-
Stage 1	433	-	-	-	-	-
Stage 2	307	-	-	-	-	-

Approach	NW	NE	SW
HCM Control Delay, s/v	39.7	0	0.1
HCM LOS	E		

Minor Lane/Major Mvmt	NET	NER	NWLn1	SWL	SWT
Capacity (veh/h)	-	-	124	806	-
HCM Lane V/C Ratio	-	-	0.167	0.016	-
HCM Control Delay (s/veh)	-	-	39.7	9.5	0
HCM Lane LOS	-	-	E	A	A
HCM 95th %tile Q (veh)	-	-	0.6	0	-

Intersection	
Int Delay, s/veh	1

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	14	11	1007	22	18	872
Future Vol, veh/h	14	11	1007	22	18	872
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	15	12	1095	24	20	948

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2095	1107	0	0	1119	0
Stage 1	1107	-	-	-	-	-
Stage 2	988	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	57	256	-	-	624	-
Stage 1	316	-	-	-	-	-
Stage 2	361	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	53	256	-	-	624	-
Mov Cap-2 Maneuver	53	-	-	-	-	-
Stage 1	316	-	-	-	-	-
Stage 2	336	-	-	-	-	-

Approach	NW	NE	SW
HCM Control Delay, s/v	70.4	0	0.2
HCM LOS	F		

Minor Lane/Major Mvmt	NET	NER	NWLn1	SWL	SWT
Capacity (veh/h)	-	-	81	624	-
HCM Lane V/C Ratio	-	-	0.335	0.031	-
HCM Control Delay (s/veh)	-	-	70.4	11	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q (veh)	-	-	1.3	0.1	-

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	485	15	42	30	4	38	27	506	21	28	353	505
Future Volume (veh/h)	485	15	42	30	4	38	27	506	21	28	353	505
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	527	16	46	33	4	41	29	550	23	30	384	549
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	598	18	547	42	5	52	74	700	29	194	562	1024
Arrive On Green	0.35	0.35	0.35	0.06	0.06	0.06	0.04	0.39	0.39	0.30	0.30	0.30
Sat Flow, veh/h	1731	53	1585	709	86	881	1781	1782	75	839	1870	1585
Grp Volume(v), veh/h	543	0	46	78	0	0	29	0	573	30	384	549
Grp Sat Flow(s),veh/h/ln	1784	0	1585	1676	0	0	1781	0	1857	839	1870	1585
Q Serve(g_s), s	22.6	0.0	1.5	3.6	0.0	0.0	1.3	0.0	21.4	2.6	14.2	14.8
Cycle Q Clear(g_c), s	22.6	0.0	1.5	3.6	0.0	0.0	1.3	0.0	21.4	16.7	14.2	14.8
Prop In Lane	0.97		1.00	0.42		0.53	1.00		0.04	1.00		1.00
Lane Grp Cap(c), veh/h	616	0	547	99	0	0	74	0	730	194	562	1024
V/C Ratio(X)	0.88	0.00	0.08	0.79	0.00	0.00	0.39	0.00	0.79	0.15	0.68	0.54
Avail Cap(c_a), veh/h	1018	0	905	170	0	0	226	0	1390	420	1068	1452
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.3	0.0	17.4	36.6	0.0	0.0	36.8	0.0	21.0	31.5	24.3	7.6
Incr Delay (d2), s/veh	5.3	0.0	0.1	13.1	0.0	0.0	3.4	0.0	1.9	0.4	1.5	0.4
Initial Q Delay(d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.9	0.0	0.6	1.8	0.0	0.0	0.6	0.0	9.0	0.5	6.2	10.6
Unsig. Movement Delay, s/veh												
LnGrp Delay(d), s/veh	29.6	0.0	17.5	49.7	0.0	0.0	40.2	0.0	22.9	31.9	25.7	8.0
LnGrp LOS	C		B	D			D		C	C	C	A
Approach Vol, veh/h		589			78			602			963	
Approach Delay, s/veh		28.6			49.7			23.8			15.8	
Approach LOS		C			D			C			B	

Timer - Assigned Phs		2		4	5	6		8				
Phs Duration (G+Y+Rc), s		37.0		31.2	7.3	29.7		10.6				
Change Period (Y+Rc), s		6.0		4.0	4.0	6.0		6.0				
Max Green Setting (Gmax), s		59.0		45.0	10.0	45.0		8.0				
Max Q Clear Time (g_c+I1), s		23.4		24.6	3.3	18.7		5.6				
Green Ext Time (p_c), s		2.7		2.6	0.0	5.0		0.0				

Intersection Summary												
HCM 6th Ctrl Delay, s/veh			22.5									
HCM 6th LOS			C									

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (veh/h)	485	15	42	30	4	38	27	506	21	28	353	505
Future Volume (veh/h)	485	15	42	30	4	38	27	506	21	28	353	505
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Lanes Open During Work Zone												
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	527	16	46	33	4	41	29	550	23	30	384	549
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Opposing Right Turn Influence	Yes			Yes			Yes			Yes		
Cap, veh/h	598	18	547	42	5	52	74	700	29	194	562	1024
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Prop Arrive On Green	0.35	0.35	0.35	0.06	0.06	0.06	0.04	0.39	0.39	0.30	0.30	0.30
Unsig. Movement Delay												
Ln Grp Delay, s/veh	29.6	0.0	17.5	49.7	0.0	0.0	40.2	0.0	22.9	31.9	25.7	8.0
Ln Grp LOS	C		B	D			D		C	C	C	A
Approach Vol, veh/h		589			78			602			963	
Approach Delay, s/veh		28.6			49.7			23.8			15.8	
Approach LOS		C			D			C			B	

Timer:	1	2	3	4	5	6	7	8
Assigned Phs		2	8	4	5	6		
Case No		4.0	12.0	11.0	2.0	5.3		
Phs Duration (G+Y+Rc), s		37.0	10.6	31.2	7.3	29.7		
Change Period (Y+Rc), s		6.0	6.0	4.0	4.0	6.0		
Max Green (Gmax), s		59.0	8.0	45.0	10.0	45.0		
Max Allow Headway (MAH), s		4.3	4.5	4.4	4.4	4.5		
Max Q Clear (g_c+I1), s		23.4	5.6	24.6	3.3	18.7		
Green Ext Time (g_e), s		2.7	0.0	2.6	0.0	5.0		
Prob of Phs Call (p_c)		1.00	0.82	1.00	1.00	1.00		
Prob of Max Out (p_x)		0.00	1.00	0.01	0.04	0.03		

Left-Turn Movement Data								
Assigned Mvmt			3	7	5	1		
Mvmt Sat Flow, veh/h			709	1731	1781	839		

Through Movement Data								
Assigned Mvmt		2	8	4		6		
Mvmt Sat Flow, veh/h		1782	86	53		1870		

Right-Turn Movement Data								
Assigned Mvmt		12	18	14		16		
Mvmt Sat Flow, veh/h		75	881	1585		1585		

Left Lane Group Data								
Assigned Mvmt	0	0	3	7	5	1	0	0
Lane Assignment			L+T+R	L+T	L (Prot)	L		

Lanes in Grp	0	0	1	1	1	1	0	0
Grp Vol (v), veh/h	0	0	78	543	29	30	0	0
Grp Sat Flow (s), veh/h/ln	0	0	1676	1784	1781	839	0	0
Q Serve Time (g_s), s	0.0	0.0	3.6	22.6	1.3	2.6	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	3.6	22.6	1.3	16.7	0.0	0.0
Perm LT Sat Flow (s_l), veh/h/ln	0	0	0	0	0	839	0	0
Shared LT Sat Flow (s_sh), veh/h/ln	0	0	0	0	0	0	0	0
Perm LT Eff Green (g_p), s	0.0	0.0	0.0	0.0	0.0	23.7	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	9.6	0.0	0.0
Perm LT Q Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	2.6	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prop LT Inside Lane (P_L)	0.00	0.00	0.42	0.97	1.00	1.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	0	99	616	74	194	0	0
V/C Ratio (X)	0.00	0.00	0.79	0.88	0.39	0.15	0.00	0.00
Avail Cap (c_a), veh/h	0	0	170	1018	226	420	0	0
Upstream Filter (I)	0.00	0.00	1.00	1.00	1.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	36.6	24.3	36.8	31.5	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	13.1	5.3	3.4	0.4	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	49.7	29.6	40.2	31.9	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	1.5	8.9	0.5	0.5	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.4	0.9	0.1	0.0	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	0.00	1.00	1.00	1.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.0	1.8	9.9	0.6	0.5	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.28	0.41	0.15	0.06	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data								
Assigned Mvmt	0	2	8	4	0	6	0	0
Lane Assignment						T		
Lanes in Grp	0	0	0	0	0	1	0	0
Grp Vol (v), veh/h	0	0	0	0	0	384	0	0
Grp Sat Flow (s), veh/h/ln	0	0	0	0	0	1870	0	0
Q Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	14.2	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	14.2	0.0	0.0
Lane Grp Cap (c), veh/h	0	0	0	0	0	562	0	0
V/C Ratio (X)	0.00	0.00	0.00	0.00	0.00	0.68	0.00	0.00
Avail Cap (c_a), veh/h	0	0	0	0	0	1068	0	0
Upstream Filter (I)	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	24.3	0.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	25.7	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0

3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	0.0	0.0	0.0	0.0	6.2	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.49	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Mvmt	0	12	18	14	0	16	0	0
Lane Assignment		T+R		R		R		
Lanes in Grp	0	1	0	1	0	1	0	0
Grp Vol (v), veh/h	0	573	0	46	0	549	0	0
Grp Sat Flow (s), veh/h/ln	0	1857	0	1585	0	1585	0	0
Q Serve Time (g_s), s	0.0	21.4	0.0	1.5	0.0	14.8	0.0	0.0
Cycle Q Clear Time (g_c), s	0.0	21.4	0.0	1.5	0.0	14.8	0.0	0.0
Prot RT Sat Flow (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	1585.1	0.0	0.0
Prot RT Eff Green (g_R), s	0.0	0.0	0.0	0.0	0.0	27.2	0.0	0.0
Prop RT Outside Lane (P_R)	0.00	0.04	0.53	1.00	0.00	1.00	0.00	0.00
Lane Grp Cap (c), veh/h	0	730	0	547	0	1024	0	0
V/C Ratio (X)	0.00	0.79	0.00	0.08	0.00	0.54	0.00	0.00
Avail Cap (c_a), veh/h	0	1390	0	905	0	1452	0	0
Upstream Filter (I)	0.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00
Uniform Delay (d1), s/veh	0.0	21.0	0.0	17.4	0.0	7.6	0.0	0.0
Incr Delay (d2), s/veh	0.0	1.9	0.0	0.1	0.0	0.4	0.0	0.0
Initial Q Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	22.9	0.0	17.5	0.0	8.0	0.0	0.0
1st-Term Q (Q1), veh/ln	0.0	8.6	0.0	0.5	0.0	10.4	0.0	0.0
2nd-Term Q (Q2), veh/ln	0.0	0.4	0.0	0.0	0.0	0.1	0.0	0.0
3rd-Term Q (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q Factor (f_B%)	0.00	1.00	1.00	1.00	0.00	1.00	0.00	0.00
%ile Back of Q (50%), veh/ln	0.0	9.0	0.0	0.6	0.0	10.6	0.0	0.0
%ile Storage Ratio (RQ%)	0.00	0.47	0.00	0.12	0.00	1.22	0.00	0.00
Initial Q (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Q (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Q (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sat Cap (cs), veh/h	0	0	0	0	0	0	0	0
Initial Q Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM 6th Ctrl Delay, s/veh	22.5
HCM 6th LOS	C

Intersection	
Int Delay, s/veh	1

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	15	12	1003	15	12	875
Future Vol, veh/h	15	12	1003	15	12	875
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	13	1090	16	13	951

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2075	1098	0	0	1106	0
Stage 1	1098	-	-	-	-	-
Stage 2	977	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	59	259	-	-	631	-
Stage 1	319	-	-	-	-	-
Stage 2	365	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	56	259	-	-	631	-
Mov Cap-2 Maneuver	56	-	-	-	-	-
Stage 1	319	-	-	-	-	-
Stage 2	349	-	-	-	-	-

Approach	NW	NE	SW
HCM Control Delay, s/v	67.2	0	0.1
HCM LOS	F		

Minor Lane/Major Mvmt	NET	NER	NWLn1	SWL	SWT
Capacity (veh/h)	-	-	86	631	-
HCM Lane V/C Ratio	-	-	0.341	0.021	-
HCM Control Delay (s/veh)	-	-	67.2	10.8	0
HCM Lane LOS	-	-	F	B	A
HCM 95th %tile Q (veh)	-	-	1.3	0.1	-