NOTTINGHAM SQUARE AMENDED SITE PLAN
FAST-FOOD RESTAURANT

SP# 14-25

STAFF REPORT

January 14, 2026

SITE: 142 Lowell Road, Map 204/Lot 073-000

ZONING: Business (B)

PURPOSE OF PLAN: To depict the layout of a proposed fast-food restaurant with drive-thru and the accompanying parking lot modification on the property.

PLAN UNDER REVIEW:

Non-Residential Amended Master Site Plan Nottingham Square Fast-Food Restaurant, SP# 14-25, Map 204; Lot 073-000, 142 Lowell Road, Hudson, New Hampshire; prepared by: Keach-Nordstrom Associates, Inc., 10 Commerce Park North, Suite 3B, Bedford, NH 03110, for: Manuel D. & Kathleen M. Sousa, 46 Lowell Road, Hudson, NH 03051; Consisting of sheets 1-13, with general notes 1-35 on Sheet 1; Dated November 25, 2025.

ATTACHMENTS:

1) Site Plan Application & Waiver Requests – Attachment "**A**".
2) Project Narrative – Attachment "**B**".
3) Department Review Comments – Attachment "**C**".
4) Drainage Memo, prepared by KNA, dated November 25, 2025 Attachment "**D**".
5) Traffic Memo, Prepared by VHB, dated November 13, 2025 – Attachment "**E**". (Digital Only)
6) Peer Review memo, prepared by Fuss & O'Neill, dated December 18, 2025 – Attachment "**F**".
7) CAP Fee Worksheet– Attachment "**G**"
8) Site Plan dated November 25, 2025.

APPLICATION TRACKING:

- November 25, 2025 – Application received.
- January 14, 2026 – Public hearing scheduled.

WAIVERS REQUESTED:

§ 275-8.C.(2) - Parking Calculations
§ 275-8.7(D) – Landscape

COMMENTS & RECOMMENDATIONS:

BACKGROUND

The site is approximately 9.36 acres and is located primarily in the Business (B) zone. The site currently contains a 51,442 sqft shopping center which is proposed to remain. The site is currently served by town water and septic system. No section of the property falls within FEMA designated flood zones. The site contains no wetlands and is largely flat terrain. The site currently can be accessed via Lowell Road at multiple locations.

DEPARTMENT COMMENTS

Fire has provided the following comment:

Add one additional fire hydrant inside the site on the south end of the site for a total of two inside the site. One existing hydrant in front of Luk's and add one inside the south end of the site around Pizza King area. Current conditions are one hydrant inside the site for 56,876sqft of existing building. Adding another 4200sqft totals 61,076sqft. If there is a fire incident, we cannot shut down Lowell Rd to utilize existing fire hydrants across the street near Fox Hollow. Revise the site plan showing the additional fire hydrant.

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

DRAINAGE MEMO

The applicant has provided a drainage memo (Attachment "**D**") prepared by KNA, Dated November 25, 2025. The conclusion outlined that the total impervious surface is being reduced by approximately 815 square-feet, so there will be no or lessened impact to drainage. Engineering is in agreement with this assessment and also notes that the smaller parking area will reduce the amount of salt and sand needed for winter maintenance, which is also an improvement from a stormwater-management standpoint.

TRAFFIC MEMO

The applicant has provided a traffic memo dated November 12, 2025 prepared by VHB. This memo details the change in conditions for the site, and cites signal light timings changes as the primary action item. This may be coordinated with town staff on an ongoing basis to adjust as needed.

PEER REVIEW

A peer review of the project was completed by Fuss & O'Neill, for which the memo dated December 18, 2025 has been provided (Attachment "**E**"). No response letter has been provided by the applicant at this time.

WAIVERS

The applicant is requesting two waivers at this time:

- **§ 275-8.C.(2) - Parking Calculations** to allow for 222 parking spaces where 327 would elsewise be required. The applicant states that maximum parking counts for Fridays and Saturdays totaled 190 and 144 vehicles, well below the provided amount.
- **§ 275-8.7(D) - Landscape** to allow for 69 shrubs where 123 would elsewise be required. The applicant states that the proposed number of shrubs is reasonable based on parking count requirements, and that landscaping for the site is already established by the original site plan.

STAFF COMMENTS

No outstanding comments remain from staff or any department. The applicant will need to coordinate with town staff in regards to intersection signal timing. Staff also notes an added stipulation in reference to the 2006 development agreement to maintain its conditions. The outstanding items within department comments and Peer Review are primarily technical in nature and may be resolved at the staff level.

RECOMMENDATIONS

Staff recommends deliberation and consideration of the site plan and the provided waiver requests, prior to consideration of approval.

DRAFT MOTIONS:

MOTION TO ACCEPT:

I move to accept the site plan application for the Non-residential Amended Site Plan Nottingham Square Fast-Food Restaurant, SP# 14-25, Map 204; Lot 073-000, 142 Lowell Road, Hudson, NH.

Motion by: _____Second: _____Carried/Failed: _____

MOTION TO DEFER:

I move to defer consideration of the site plan application for the Non-residential Amended Site Plan Nottingham Square Fast-Food Restaurant, SP# 14-25, Map 204; Lot 073-000, 142 Lowell Road, Hudson, NH, to date certain: _____, 2025.

Motion by: _____Second: _____Carried/Failed: _____

MOTION TO GRANT A WAIVER:

I move to grant a waiver from **§ 275-8.C.(2) - Parking Calculations** to allow for 222 parking spaces where 327 would elsewise be required, based on the Board's discussion, the testimony of the Applicant's representative, and in accordance with the language included in the submitted Waiver Request Form for said waiver.

Motion by: _____Second: _____Carried/Failed: _____

I move to grant a waiver from **§ 275-8.7(D) - Landscape** to allow for 69 shrubs where 123 would elsewise be required, based on the Board's discussion, the testimony of the Applicant's representative, and in accordance with the language included in the submitted Waiver Request Form for said waiver.

Motion by: _____Second: _____Carried/Failed: _____

MOTION TO CONTINUE:

I move to continue the Non-Residential Amended Site Plan Nottingham Square Fast Food Restaurant Application, SP# 14-25, Map 204; Lot 073-000, 142 Lowell Road, Hudson, NH, to date certain _____, 2025.

Motion by: _____Second: _____Carried/Failed: _____

MOTION TO APPROVE:

Non-residential Amended Site Plan Nottingham Square Fast-Food Restaurant, SP# 14-25, Map 204; Lot 073-000, 142 Lowell Road, Hudson, New Hampshire; prepared by: Keach-Nordstrom Associates, Inc., 10 Commerce Park North, Suite 3B, Bedford, NH 03110, for: Manuel D. & Kathleen M. Sousa, 46 Lowell Road, Hudson, NH 03051; Consisting of sheets 1-13, with general notes 1-35 on Sheet 1; Dated November 25, 2025; and:

That the Planning Board finds that this application complies with the Zoning Ordinance, and with the Land Use Regulations and for the reasons set forth in the written submissions, together with the testimony and factual representations made by the applicant during the public hearing;

Subject to, and revised per, the following stipulations:

1. All stipulations of approval shall be incorporated into the development agreement, which shall be recorded at the HCRD along with the site plan.
2. All improvements shown on the Plan, including notes 1-35, shall be completed in their entirety and at the expense of the Applicant or his/her assigns.
3. Prior to the Planning Board endorsement of the Plan, it shall be subject to final administrative review by Town Planner and Town Engineer.
4. A cost allocation procedure (CAP) amount of $98,112.00 shall be paid prior to issuance of the certificate of occupancy.
5. Construction activities involving the subject lot shall be limited to the hours between 7:00 A.M. and 7:00 P.M., Monday through Saturday. No exterior construction activities shall be allowed on Sundays.
6. Hours of refuse removal shall be exclusive to the hours between 7:00 A.M. and 7:00 P.M., Monday through Friday only.

7. Prior to application for a building permit, the Applicant shall schedule a pre-construction meeting with the Town Engineer.

8. All stipulations in the 2006 Development Agreement recorded at the HCRD as Book 776; Page 0051 shall remain in effect.

Motion by: _____Second: _____Carried/Failed: _____

Attachment "A"

KNA KEACH-NORDSTROM ASSOCIATES, INC.

LETTER OF TRANSMITTAL

DATE: November 25, 2025

PROJECT NO: 06-0404-1A

REFERENCE: Amended Site Plan – Nottingham Square Fast-Food Restaurant

TO: Town of Hudson
12 School Street
Hudson, NH 03051

ATTENTION: Brooke Dubowik, Town Planner

WE ARE SENDING YOU THE FOLLOWING ITEMS:

- ☒ PLANS
- ☐ SPECIFICATIONS
- ☒ COPY OF LETTER
- ☒ APPLICATION
- ☐ CHANGE ORDER
- ☒ REPORT
- ☐ QUALIFICATIONS
- OTHER

THESE ARE TRANSMITTED AS FOLLOWS:

- ☐ FOR APPROVAL
- ☐ FOR YOUR USE
- ☐ AS REQUESTED
- ☒ FOR REVIEW & COMMENT
- ☐ RETURNED FOR CORRECTIONS
- ☐ APPROVED AS NOTED
- ☐ APPROVED AS SUBMITTED

NOTE: One (1) Original Site Plan Application & Checklist, Fee (2 checks), Abutter's List & Two (2) Sets of Labels, One (1) Project Narrative, One (1) Copy of Waiver Requests, One (1) Drainage Memo, One (1) Traffic & Parking Study, One (1) Full Size Plan Set, Fifteen (15) Half Size Plan Sets, and PDF

COPY TO:

SIGNED:

Katherine Cooper

Katherine Cooper, Project Engineer

Attachment "A"

KEACH-NORDSTROM ASSOCIATES, INC.

LETTER OF TRANSMITTAL

DATE: November 25, 2025

PROJECT NO: 06-0404-1A

REFERENCE: Amended Site Plan – Nottingham Square Fast-Food Restaurant

TO: Fuss & O'Neill
50 Commercial Street, Unit 2S
Manchester, NH 03101

ATTENTION: Steve Reichert, PE

WE ARE SENDING YOU THE FOLLOWING ITEMS:

- ☒ PLANS
- ☐ SPECIFICATIONS
- ☐ COPY OF LETTER
- ☐ APPLICATION
- ☐ CHANGE ORDER
- ☒ REPORT
- ☐ QUALIFICATIONS
- OTHER

THESE ARE TRANSMITTED AS FOLLOWS:

- ☐ FOR APPROVAL
- ☐ FOR YOUR USE
- ☐ AS REQUESTED
- ☒ FOR REVIEW & COMMENT
- ☐ RETURNED FOR CORRECTIONS
- ☐ APPROVED AS NOTED
- ☐ APPROVED AS SUBMITTED

NOTE: One (1) Copy of Project Narrative, One (1) Full Size Plan Set, One (1) Copy of Drainage Memo, One (1) Copy of Traffic & Parking Study

COPY TO:

SIGNED:

Katherine Cooper

Katherine Cooper, Project Engineer

KNA KEACH-NORDSTROM ASSOCIATES, INC.

Attachment "A"

November 17, 2025

Town of Hudson
Planning Department
12 School Street
Hudson, New Hampshire 03051

Subject: **Amended Site Plan Application**
Nottingham Square Fast-Food Restaurant
Tax Map 204; Lot 73
142 Lowell Road – Hudson, New Hampshire
KNA Project No. 06-0404-1A

Dear Chairman and Board Members:

The above referenced project is being submitted for approval by the Town of Hudson Planning Board. The project proposes a fast-food restaurant with drive-thru to be located within the existing parking lot and all associated site improvements. The included documents outline the Applicant's request for approval. All required information has been included within the submittal package. Keach Nordstrom Associates, Inc., will be present to further discuss the application at the scheduled hearing.

Enclosed is the following material for your review and approval:

1. One (1) Original Site Plan Application & Checklist
2. Application Fee:
   a. Check #1

Site Plan $157/1,000 SF @4,200 SF	= $659.40
18 Direct Abutters @ $6.08 per	= $109.44
5 Indirect Abutters @ $0.78 per	= $3.90
Tax Map Updating Fee	= $275.00
Total	**= $1,047.74**

   b. Check #2

CR 1.24 acres of disturbed area @ $600 per or $1,250	= $1,250.00
Total	**= $1,250.00**

3. Abutter's List & Two (2) Sets of Labels
4. One (1) Project Narrative
5. One (1) Copy of Waiver Requests
6. One (1) Stormwater Memo
7. One (1) Traffic & Parking Study
8. One (1) Full Size Plan Set (folded)
9. Fifteen (15) Half Size Plan Sets
10. PDF

If you have any questions or comments, please contact me at (603) 627-2881.

Sincerely,

Katherine Cooper

Katherine Cooper
Project Engineer
Keach Nordstrom Associates, Inc.

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: November 17, 2025 Tax Map #: 204 Lot #: 73

Site Address: 142 Lowell Road

Name of Project: Amended Site Plan - Nottingham Square Fast Food Restaurant

Zoning District: Business (B) & Residential 2 (R2) General SP#: _____
(For Town Use Only)

Z.B.A. Action: _____

PROPERTY OWNER:	DEVELOPER:
Name: Manuel & Kathleen Sousa	
Address: 46 Lowell Road	
Address: Hudson, NH 03051	
Telephone # 603-880-7799	
Email: msousa@sousarealtynh.com	
PROJECT ENGINEER:	**SURVEYOR:**
Name: Peter Madsen, PE - KNA	Anthony Basso, LLS - KNA
Address: 10 Commerce Park No., Suite 3	10 Commerce Park No., Suite 3
Address: Bedford, NH 03110	Bedford, NH 03110
Telephone # 603-627-2881	603-627-2881
Email: pmadsen@keachnordstrom.com	abasso@keachnordstrom.com

PURPOSE OF PLAN:

The purpose of the plan is to show the layout of a proposed fast food restaurant with drive-thru and the accompanying parking lot modifications on the property.

(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: Amended Site Plan - Nottingham Square Fast Food Restaurant

PLAN TYPE: SITE PLAN

LEGAL DESCRIPTION: MAP 204 LOT 73

DATE: November 17, 2025

Location by Street:	142 Lowell Road
Zoning:	Business (B) & Residential 2 (R2)
Proposed Land Use:	Fast Food Restaurant w/ Drive-Thru & Retail Shopping Center
Existing Use:	Retail Shopping Center
Surrounding Land Use(s):	Commercial & Residential
Number of Lots Occupied:	One (1)
Existing Area Covered by Building:	56,876 SF
Existing Buildings to be removed:	None
Proposed Area Covered by Building:	4,200 SF + 56,876 SF (existing) = 61,076 SF
Open Space Proposed:	45%
Open Space Required:	35%
Total Area:	S.F.: 407,732 Acres: 9.360
Area in Wetland:	0 Area Steep Slopes: 0
Required Lot Size:	30,000 SF
Existing Frontage:	515.74 FT
Required Frontage:	150 FT

Building Setbacks:	Required*	Proposed
Front:	50 FT	104.39 FT
Side:	15 FT	42.29 FT
Rear:	15 FT	175.77 FT

SITE DATA SHEET
(Continued)

Flood Zone Reference: 33011C0656D - Not in Flood Zone

Width of Driveways: 24 FT

Number of Curb Cuts: Two (2) Existing

Proposed Parking Spaces: 222 Spaces

Required Parking Spaces: 327 Spaces

Basis of Required Parking (Use): 1 Space/100 SF GLA for Fast Food Restaurant w/ Drive-Thru
1 Space/200 SF GLA for Retail Shopping Center

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

Waiver Requests

Town Code Reference:	*Regulation Description:*
Section 275-8.C.(2)	Parking Calculation
Section 275-8.7(D)	Landscape - Shrubs

(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: Manuel D Sousa Date: 11/20/25

Print Name of Owner: Manny Sousa

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

Signature of Developer: Manuel D Sousa Date: 11/20/25

Print Name of Developer: Manny Sousa

- 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: Amended Site Plan - Nottingham Square Fast Food Restaurant

Street Address: 142 Lowell Road

I Manuel Sousa hereby request that the Planning Board waive the requirements of item Section 275-8.C.(2) of the Hudson Land Use Regulations in reference to a plan presented by Keach-Nordstrom Associates, Inc. (name of surveyor and engineer) dated November 17, 2025 for property tax map(s) 204 and lot(s) 73 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):

Refer to Attached Waiver Request

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):

Refer to Attached Waiver Request

Signed: Manuel S Sousa

Applicant or Authorized Agent

WAIVER REQUEST FORM

Name of Subdivision/Site Plan: Amended Site Plan - Nottingham Square Fast Food Restaurant

Street Address: 142 Lowell Road

I Manuel Sousa hereby request that the Planning Board waive the requirements of item Section 275-8.7(D) of the Hudson Land Use Regulations in reference to a plan presented by Keach-Nordstrom Associates, Inc. (name of surveyor and engineer) dated November 17, 2025 for property tax map(s) 204 and lot(s) 73 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):

Refer to Attached Waiver Request

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):

Refer to Attached Waiver Request

Signed: Manuel D Sousa

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 $78.50/unit for each additional unit over 50	$ -
(Commercial)/Semi Public/Civic or Recreational @4,200 SF	$157.00/1,000 sq. ft. for first 100,000 sq.ft. (bldg. area): $78.50/1,000 sq.ft. thereafter.	$ 659.40
Industrial	$150.00/1,000 sq.ft for first 100,000 sq.ft. (bldg. area); $78.50/1,000 sq.ft thereafter.	$ -
No Buildings	$30.00 per 1,000 sq.ft. of proposed developed area	$ -

CONSULTANT REVIEW FEE: (Separate Check)

Disturbed Area
Total 1.24 acres @ $600.00 per acre, or $1,250.00, whichever is greater. $ 1,250.00

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:

18	Direct Abutters Applicant, Professionals, etc. as required by RSA 676:4.1.d @$6.08 **(or Current Certified Mail Rate)**	$ 109.44
5	Indirect Abutters (property owners within 200 feet) @$0.78 **(or Current First Class Rate)**	$ 3.90

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

TOTAL $ Check #1: $1,047.74
Check #2: $1,250.00

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. ☒ ☐ ☐ - Boundary of the entire parcel held in single ownership with boundary dimensions and bearings **[§ 276-11.1.B.(9)]**
16. ☒ ☐ ☐ - Error of closure shown and certified by a licensed land surveyor
17. ☒ ☐ ☐ - North point arrow
18. ☒ ☐ ☐ - 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. ☒ ☐ ☐ - The location of all buildings within 50 feet of the tract **[§ 276-11.1.B.(15)]**
20. ☒ ☐ ☐ - 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. ☒ ☐ ☐ - 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. ☒ ☐ ☐ - Proposed topography at two-foot contour intervals **[§ 276-11.1.B.(18)]**
23. ☒ ☐ ☐ - A note identifying the Tax Map and Lot Number of the tract **[§ 276-11.1.B.(19)]**
24. ☒ ☐ ☐ - 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. ☒ ☐ ☐ - The location of all proposed construction, buildings, structures, pavement, etc. **[§ 276-11.1.B.(21)]**
26. ☒ ☐ ☐ - 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. ☒ ☐ ☐ - 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.	
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)]**	
33.	☒	☐	☐	☐	- Required open space, including the calculation showing the requirement is met **[§ 276-11.1.B.(24)]**	
34.	☐	☐	☒	☐	- Parking space calculation showing and a statement stating the required parking spaces are provided **[§ 275-8.C.(2) & (3)]**	
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]**	

(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**]	
45.	☐	☐	☐	☒	- Utility Study [**§ 275-9.E**]	
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**]	

(End of checklist)

Abutter's List
Amended Site Plan – Nottingham Square Fast-Food Restaurant
Hudson, NH
KNA#06-0404-1A

Tax Map	Lot	Owner/Applicant
204	73	Manuel D. & Kathleen M. Sousa 46 Lowell Road Hudson, NH 03051
Tax Map	**Lot**	**Direct Abutter(s)**
204	3	Monument Construction, LLC 149 Lowell Road Hudson, NH 03051
204	4	Taylor Paige Sullivan & Nicholas Gary St. Jean 145 Lowell Road Hudson, NH 03051
204	5	143 Lowell Road, LLC 4 Paula Circle Hudson, NH 03051
204	6	Fox Hollow Condominium Association c/o Great North Property Management 636 Daniel Webster Highway Merrimack, NH 03054 OFFICERS President Harry Everett Jr. 331 Fox Hollow Drive Hudson, NH 03051 Secretary Linda O'Donnell 604 Fox Hollow Drive Hudson, NH 03051 Treasurer Ann Marie Hilchey 637 Fox Hollow Drive Hudson, NH 03051

Attachment "A"

		Director Dianne Lafond 421 Fox Hollow Drive Hudson, NH 03051
		Director Maureen Petro 925 Fox Hollow Drive Hudson, NH 03051
204	55	Continental Paving, Inc. 1 Continental Drive Londonderry, NH 03053
204	56	Ronnie & Vandeanna Fordham 15 Shelley Drive Hudson, NH 03051
204	57	Gary R. & Maureen E. Bellerose 13 Shelley Drive Hudson, NH 03051
204	58	Matthew & Ashley Benoit 11 Shelley Drive Hudson, NH 03051
204	67	Burns Hill, LLC 30 Temple Street #205 Nashua, NH 03060
204	71	Two Voice Holdings, LLC 132 Hampstead Road Derry, NH 03087
204 204	74-1 74	Richard & Mark Charbonneau 1 Continental Drive Londonderry, NH 03053

Tax Map	**Lot**	**Indirect Abutter(s)**
204	54	John W. & Gail A. Costello Jr. 18 Shelley Drive Hudson, NH 03051

Attachment "A"

204	59-1	Svetlana & Oleg Popenova 9B Shelley Drive Hudson, NH 03051
204	59-2	Maniraj Selladurai & Suchitra Subramanian 9A Shelley Drive Hudson, NH 03051
204	60	Robert & Jenna Younghusband 19 Derry Street Hudson, NH 03051
204	70	Joseph M. Zaccheo, Trustee 134 Lowell Road Hudson Realty Trust 41 Accord Park Drive Norwell, MA 02061

Professionals to be notified:

Engineer/Surveyor
Keach-Nordstrom Associates, Inc.
10 Commerce Park North, Suite 3B
Bedford, NH 03110

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Manuel D. & Kathleen M. Sousa
46 Lowell Road
Hudson, NH 03051

Monument Construction, LLC
149 Lowell Road
Hudson, NH 03051

143 Lowell Road, LLC
4 Paula Circle
Hudson, NH 03051

Fox Hollow Condominium Association
c/o Great North Property Management
636 Daniel Webster Highway
Merrimack, NH 03054

Linda O'Donnell
604 Fox Hollow Drive
Hudson, NH 03051

Ann Marie Hilchey
637 Fox Hollow Drive
Hudson, NH 03051

Maureen Petro
925 Fox Hollow Drive
Hudson, NH 03051

Continental Paving, Inc.
1 Continental Drive
Londonderry, NH 03053

Gary R. & Maureen E. Bellerose
13 Shelley Drive
Hudson, NH 03051

Matthew & Ashley Benoit
11 Shelley Drive
Hudson, NH 03051

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Nicholas Gary St. Jean
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Taylor Paige Sullivan &
Nicholas Gary St. Jean
145 Lowell Road
Hudson, NH 03051

Harry Everett Jr
331 Fox Hollow Drive
Hudson, NH 03051

Harry Everett Jr
331 Fox Hollow Drive
Hudson, NH 03051

Dianne Lafond
421 Fox Hollow Drive
Hudson, NH 03051

Dianne Lafond
421 Fox Hollow Drive
Hudson, NH 03051

Ronnie & Vandeanna Fordham
15 Shelley Drive
Hudson, NH 03051

Ronnie & Vandeanna Fordham
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Nashua, NH 03060

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134 Lowell Road Hudson Realty Trust
41 Accord Park Drive
Norwell, MA 02061

Keach-Nordstrom Associates, Inc.
10 Commerce Park North, Suite 3
Bedford, NH 03110

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Hudson, NH 03051

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Hudson, NH 03051

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KNA KEACH-NORDSTROM ASSOCIATES, INC.

November 25, 2025

Town of Hudson
Planning Department
12 School Street
Hudson, New Hampshire 03051

Subject: **Waiver Requests – Nottingham Square Fast-Food Restaurant**
Tax Map 204; Lot 73
142 Lowell Road – Hudson, New Hampshire
KNA Project No. 06-0404-1A

The Applicant is requesting waivers from the following sections of the Town of Hudson Site Plan Regulations:

1. **Section 275-8.C.(2) Parking Calculations**

   Hardship reason(s) for granting this waiver:
   The parking calculations themselves present a hardship for the Applicant, due to the nature of this type of business. The existing parking lot is shared by all the tenants on the property. For shared uses such as these, traditional parking calculations may not accurately represent the number of required spaces as many patrons entering the site will likely visit multiple units during their time on the property and will not be required to exit and reenter the property between each use.

   Reason(s) for granting this waiver, relative to not being contrary to the spirit and intent of the Land Use Regulations:
   The spirit and intent of this regulation is to provide sufficient off-street parking for the associated use(s) of the subject property. The existing retail center has been operating since 2007 with a variety of different tenants. The large parking lot, which will provide 222 parking spaces post development, is shared among all these tenants. As stated, traditional parking calculations may not accurately represent the actual usage of the parking areas for the existing and proposed shared uses. Currently, parking conditions on site are more than adequate to accommodate the existing tenants as shown in the accompanying "Nottingham Square Traffic Study" prepared by Vanasse Hangen Brustlin, Inc. (VHB). According to the report, final future parking demands on Fridays and Saturdays show a demand of 190 and 144 vehicles respectively. As stated, there are 222 spaces provided after development, which shows that sufficient off-street parking is and will be provided. Therefore, granting this waiver would not be contrary to the spirit and intent of the Town of Hudson Site Plan Regulations.

2. Section 275-8.7(D) Landscape – Shrubs

Hardship reason(s) for granting this waiver:
The Applicant is restricted by the existing conditions of the parcel. The site is fully developed, and the proposed improvements are located entirely within the existing parking lot. While changes are proposed to the parking lot layout for the development, the proposal is not increasing the impervious surface area onsite therefore the landscape calculation is not necessarily accurate for this situation. The Applicant has proposed a reasonable number of shrubs where possible to enhance the existing landscaping in the area of the proposed development.

Reason(s) for granting this waiver, relative to not being contrary to the spirit and intent of the Land Use Regulations:
Shrubs help reduce urban heat island effect and improve aesthetics. The number required is based either on the size of the paved area, or the number of parking spaces. Based on the number of parking spaces, a total of sixty-six (66) shrubs would be required, the (69) shrubs proposed exceed this requirement. However, based on the total paved area, a total of one hundred twenty-three (123) shrubs are required. The property is fully developed with substantial existing landscaping along the frontage and throughout the parking lot. The combination of the existing and proposed landscaping is expected to provide adequate cooling and improve aesthetics of the property. Additionally, while there are changes to the parking lot layout, the proposal is not increasing the impervious surface area onsite. Basing the calculation on paved area, when the area is paved to date, does not seem accurate for this situation. Therefore, granting this waiver would not be contrary to the spirit and intent of the Town of Hudson Site Plan Regulations.

KNA KEACH-NORDSTROM ASSOCIATES, INC.

November 17, 2025

Town of Hudson
Planning Department
12 School Street
Hudson, New Hampshire 03051

Subject: **Amended Site Plan Application**
Nottingham Square Fast-Food Restaurant
Tax Map 204; Lot 73
142 Lowell Road – Hudson, New Hampshire
KNA Project No. 06-0404-1A

PROJECT NARRATIVE

The subject property, located at 142 Lowell Road, is referenced on Hudson Tax Map 204 as Lot 73. The parcel, approximately 9.360-acres (407,732 SF) in total area, is located within Hudson's Business (B) and Residential 2 (R2) Zoning Districts. The lot is fully developed with the existing Nottingham Square Plaza and all associated site appurtenances. The retail plaza contains a variety of uses including Luk's restaurant, Verizon wireless, a floral shop, dance store, pet store, insurance office, nail salon, hair salon, fitness club, UPS store, axe throwing bar, a café, vape shop, physical therapy office, butcher shop, and pizza shop. The parcel is serviced by municipal water and sewer. The property is accessed via two existing curb cuts including the main signalized entrance and the right turn in only driveway off Lowell Road. Surrounding land uses include commercial and residential.

The project proposes a 4,200-SF fast-food restaurant with drive-thru and all accompanying parking lot modifications. The proposal includes the removal of eighty-three (83) existing parking spaces and the addition of forty-one (41) new parking spaces for an overall total of two hundred twenty-two (222) parking spaces on the property. Other site improvements will include utility connections, landscaping, and lighting. Access to the parcel will remain unchanged utilizing the two existing driveways off Lowell Road. Minor changes to the existing stormwater management provisions are proposed.

Planning Board Sign-off

Project Name	SP# 14-25 Nottingham Square	Map/Lot:	204-073-000
Site Address:	46 Lowell Road	Zone:	Business
		Due by:	12/12/25

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

Comments:

ZONING:
ASSESSING:
ENGINEERING:
PUBLIC WORKS:
FIRE: See comments below
POLICE:

Planning Board Sign-off

Project Name	SP# 14-25 Nottingham Square	Map/Lot:	204-073-000
Site Address:	46 Lowell Road	Zone:	Business
		Due by:	12/12/25

Extended Comments:

Add one additional fire hydrant inside the site on the south end of the site for a total of two inside the site. One existing hydrant in front of Luk's and add one inside the south end of the site around Pizza King area. Current conditions are one hydrant inside the site for 56,876sqft of existing building. Adding another 4200sqft totals 61,076sqft. If there is a fire incident, we cannot shut down Lowell Rd to utilize existing fire hydrants across the street near Fox Hollow. Revise the site plan showing the additional fire hydrant

Attachment "D"

KNA KEACH-NORDSTROM ASSOCIATES, INC.

November 25, 2025

Town of Hudson
Planning Department
12 School Street
Hudson, New Hampshire 03051

Subject: **Amended Site Plan Application**
Nottingham Square Fast-Food Restaurant
Tax Map 204; Lot 73
142 Lowell Road – Hudson, New Hampshire
KNA Project No. 06-0404-1A

DRAINAGE MEMORANDUM

The current proposal includes minor alterations to the closed drainage network associated with the construction of the new building and the modifications to the existing parking lot. Two (2) existing catch basins will be removed, and five (5) new drainage structures will be installed to ensure stormwater runoff generated from the redevelopment will be collected appropriately. The existing site features a stormwater management area located behind the existing building. No new stormwater Best Management Practices (BMP's) are proposed as part of the project as the overall impervious area will be reduced by approximately 815-SF. Furthermore, the addition of 4,200-SF of roof area will decrease the amount of parking lot area to be salted/sanded during the winter. As such, the proposed redevelopment will decrease peak runoff rates, reduce the volume of runoff leaving the site, and reduce the amount of Total Suspended Solids (TSS) currently generated. At this time, it is anticipated that the proposed redevelopment will not cause any adverse impacts to the existing stormwater features on site or increase flooding to any abutting properties.

In addition to the proposed stormwater improvements, an Erosion Control Plan is included as part of the amended site plan package to ensure runoff generated during construction is properly addressed. The Erosion Control Plan features temporary inlet protection measures, to be installed within existing and proposed catch basins in the project vicinity, temporary straw bale barriers, to be placed around the limits of work, and a stabilized construction exit, to be installed at the project entrance. These temporary erosion control features, along with the overall reduction in impervious parking lot cover, will ensure that the downstream BMP is protected both during and after construction.

For more information regarding the proposed drainage improvements, please see the "Non-Residential Site Plan, Nottingham Square Fast Food Restaurant" prepared by this office and dated November 25, 2025.

Respectfully,

Peter Madsen, PE
Senior Project Engineer
Keach-Nordstrom Associates, Inc.
10 Commerce Park North, Suite 3
Bedford, NH 03110

Dubowik, Brooke

From: Dhima, Elvis
Sent: Tuesday, November 25, 2025 4:00 PM
To: Dubowik, Brooke
Subject: RE: Nottingham Square Fast-Food Restaurant Amended Site Plan Application

Brooke,

From a drainage standpoint, I'm all set. The proposal shows the overall impervious area will be reduced by 815 SF, which will in turn reduce stormwater runoff.

Additionally, the smaller parking area will reduce the amount of salt and sand needed for winter maintenance, which is also an improvement from a stormwater-management standpoint.

E

TOWN OF HUDSON NH
Elvis Dhima, P.E.
Development Services Director
12 School Street
Hudson, NH 03051
(603) 886-6008

Attachment "E"

Memorandum

To: Manny Sousa
Sousa Realty & Development Co., Inc.
46 Lowell Road
Hudson, NH

Date: November 13th, 2025

Project #: R200230.000

From: Christine Trearchis, P.E., PTOE
TS/TPO Team Leader
Brandon Wall
Traffic Designer

Re: Nottingham Square Traffic Study
Hudson, New Hampshire
Traffic and Parking Assessment

Introduction

Vanasse Hangen Brustlin, Inc. (VHB) has prepared this Traffic Impact Study to summarize the anticipated transportation impacts associated with the proposed fast-food restaurant with a drive-through located on Lowell Road in Hudson, New Hampshire. The proposed development will consist of a 4,200 square foot (SF) fast-food restaurant with a drive-through to be located as an outparcel development in the existing Nottingham Square shopping center. The site location in relation to the surrounding roadway network is shown on Figure 1.

This memorandum includes an evaluation of the existing traffic operations; an assessment of future conditions with and without the change in use; an estimate of projected traffic volumes for proposed fast-food restaurant and its potential impact on future traffic operations in the area. As detailed herein, this evaluation indicates that the proposed Project is expected to have a minor impact on local traffic operations and that the new use can operate effectively with the proposed Site plan. The following memorandum summarizes our findings.

Existing Conditions

The existing condition analysis consists of an inventory of the traffic control, roadway, driveway, and intersection geometry in the study area, and the collection of daily and peak hour traffic volumes.

Study Area

Based on coordination with the Town of Hudson Engineering department, a study area for this evaluation was selected focusing on the roadways and intersections in the immediate vicinity of the Project Site. The following intersection was selected for the review and is highlighted in Figure 1.

› Lowell Road at Fox Hollow Drive / Nottingham Square Driveway – signalized

Nottingham Square is a retail shopping center located at 142 Lowell Road in Hudson, New Hampshire. This development consists of a single-story retail center with multiple storefronts including restaurants, specialty shops, and convenience retailers. The plaza includes a shared surface parking lot with two points of access to Lowell Road; a right-in entrance and a signalized intersection with Lowell Road and Fox Hollow Drive.

Attachment "E"

Not to Scale

Site Location Map

Figure 1

Study Area Roadway

Lowell Road (Route 3A)

Route 3A is a principal north-south arterial highway and acts as a key connector between residential neighborhoods, commercial corridors, and regional destinations. The roadway is typically a multi-lane undivided highway, primarily serving as a connector between Nashua and Litchfield. This road experiences high daily through traffic volumes traveling northbound and southbound during peak morning and evening hours.

Study Area Intersection

Lowell Road (Route 3A) at Fox Hollow Drive / Nottingham Square Driveway

The intersection on Lowell Road at Fox Hollow Drive / Nottingham Square Driveway is a signalized intersection serving Nottingham Square and adjacent residential neighborhoods. The north and south legs of the intersection are along Lowell Road and act as the main line of travel. The east leg is an entrance and exit to the Nottingham Square shopping center, while the west leg is an access to the Fox Hollow Condominiums. Existing pedestrian equipment is located to cross the east and north legs of the signalized intersection.

Traffic Counts

Base traffic conditions at the study area intersection were developed by obtaining turning movement counts (TMCs) on Wednesday, September 24, 2025, and Saturday, September 27, 2025, at the study area intersection. The traffic counts were provided by the Town of Hudson from the GRIDSMART system installed at the signalized intersection for 24 hour periods. The counts were broken down to determine the weekday morning, weekday evening, and Saturday midday peak hour traffic volumes and are shown on Figure 2. The traffic count data is provided in the Appendix.

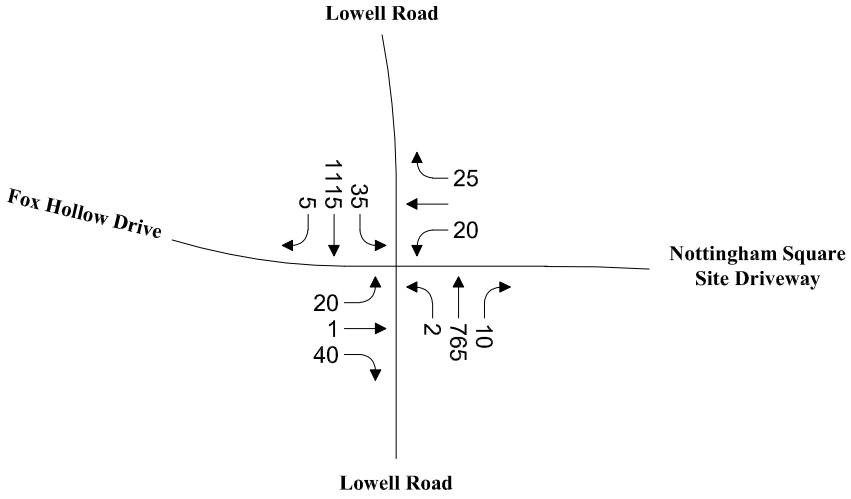
Seasonal Adjustment

Traffic on a given roadway typically fluctuates throughout the year depending on the area and the type of roadway. Based on New Hampshire Department of Transportation (NHDOT) guidelines for the preparation of a traffic study, existing traffic volumes must represent peak-month conditions. Upon review of seasonal adjustment and historical count data provided by NHDOT, traffic volumes in the month of September are approximately 2 percent lower than peak-month volumes.[1] Therefore, the September 2025 traffic counts were increased by 2 percent to represent 2025 peak-hour traffic volumes during peak-month conditions. The NHDOT seasonal adjustment data are provided in the Appendix.

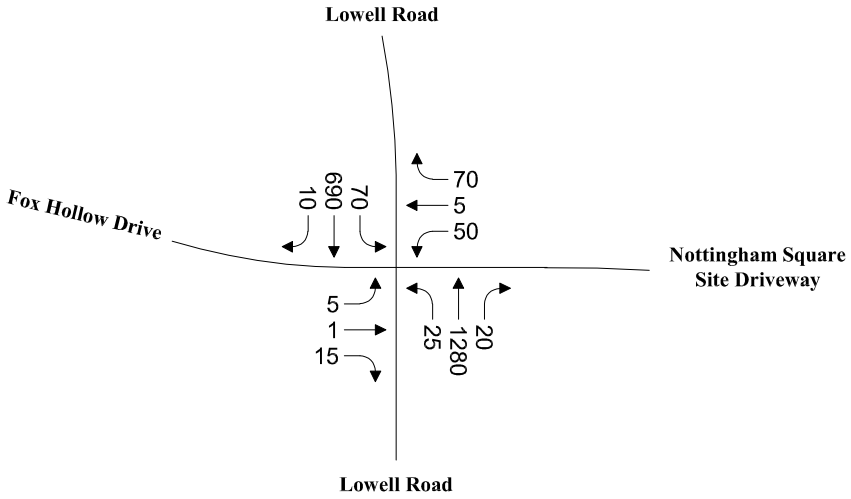
[1] NHDOT Bureau of Traffic, 2024 Group 4 (Urban Highways) Monthly Average Data.

Attachment "E"

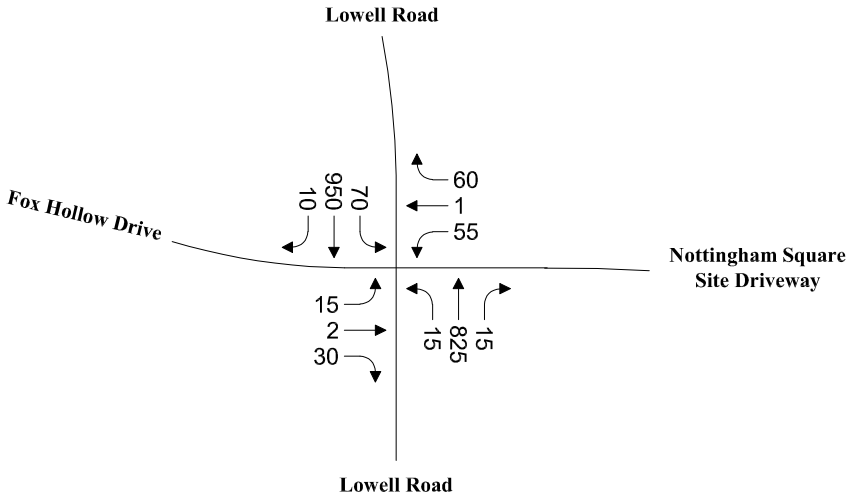
Weekday Morning



Weekday Evening



Saturday Midday



Not to Scale

2025 Existing Conditions
Traffic Volume Networks

Figure 2

Future Conditions Assessment

To determine the impact of the site-generated traffic volumes, future traffic conditions were evaluated. Consistent with NHDOT guidance, two design horizons were used for the evaluation; 2026 and 2036 traffic-volume conditions. Traffic growth on area roadways is a function of the expected land development and changes in demographics. A frequently used procedure is to identify estimated traffic generated by planned developments that would be expected to affect the project study area roadways. An alternative procedure is to estimate an annual percentage increase and apply that increase to study area traffic volumes. For this evaluation, both procedures were used. The following summarizes this traffic forecasting process.

Historical Growth

An annual average traffic-growth percentage was determined based on NHDOT historical traffic-volume data. Based on a review of NHDOT count stations within the Southeast Growth Region (in which the Town of Hudson resides) between 2014 and 2024, traffic volumes have experienced an annual increase of 0.56 percent. Consistent with NHDOT and the Town of Hudson guidance, a minimum of a 1.0 percent compounded annual growth rate was used to account for general population growth and traffic generated by smaller area developments. The NHDOT historical traffic volume data is provided in the Appendix.

Site-Specific Growth

In addition to accounting for background growth, traffic associated with other planned and/or approved developments in the area that could influence traffic at the study locations were considered. Based coordination with the Town of Hudson and consistent with other recently completed traffic studies in the area, the following developments were included within the future traffic volumes as part of this traffic study.

- **Lowell Road and Central Street Commercial Development** – This development is located at the southeast corner of the Lowell Road at Central Street intersection and includes a proposed 10 vehicle fueling position gasoline station and a 4,560 square foot convenience store with a drive-through coffee shop. The traffic volumes associated with the Hudson Logistics Center development were obtained from the traffic study prepared for that project[2] and assigned to the study area roadway network.
- **100 Lowell Road Commercial Building** – This development is located at 100 Lowell Road and includes a proposed 6,855 SF commercial building intended to be used by specialty grade contractors. The traffic volumes associated with this development were obtained from the traffic study prepared for that project[3] and assigned to the study area roadway network.
- **Hudson Logistics Center** – This development is located at 43 Steele Road and is proposed to consist of a 1.4 million square foot single fulfillment center warehouse. The traffic volumes associated with the Hudson Logistics

[2] VHB, Inc. Traffic Impact Study: Lowell Road and Central Street Commercial Development, Hudson, NH. June 2023.
[3] Vanasse & Associates, Inc. Traffic Impact Study: Proposed Commercial Building – 100 Lowell Road (NH Route 3A), Hudson, NH. June 2023.

Center development were obtained from the traffic study prepared for that project[4]. The trips for this background development are provided in the Appendix.

- **Frenette Gardens Subdivision** - This development is located at 65 Central Street and consists of 9 single-family homes. The traffic volumes associated with the Frenette Gardens subdivision occurring within the study area are expected to be reflected in the general background traffic growth rate.
- **Bluebird Self-Storage Facility** – A self-storage facility consisting of 118,200 square feet of development. Traffic volumes associated with this facility occurring within the study area are expected to be reflected in the general background traffic growth rate.

No-Build Traffic Volumes

The 2026 No-Build peak hour traffic volumes were accordingly developed by applying a 1 percent compounded annual traffic growth rate to the 2025 Existing volumes and adding traffic associated with background projects noted above. The 2026 No-Build traffic volumes are shown on Figure 3 for the weekday morning, weekday evening, and Saturday midday peak hours.

The 2036 No-Build peak hour traffic volumes were accordingly developed by applying a 1 percent compounded annual traffic growth rate (or 11.6 percent over 11 years) to the 2025 Existing volumes and adding traffic associated with the background projects. The 2036 No-Build traffic volumes are shown graphically on Figure 4 for the weekday morning, weekday evening, and Saturday midday peak hours.

Build Conditions

For purposes of this traffic study, the proposed development consists of constructing a 4,200 square foot fast-food restaurant with a drive-through window to be located as an outparcel development in the Nottingham Square shopping center. Access to the site shall remain the same as the existing conditions utilizing the intersections of Lowell Road and Fox Hollow Drive / Nottingham Square Driveway and the right-turn entrance only driveway on Lowell Road.

Trip Generation

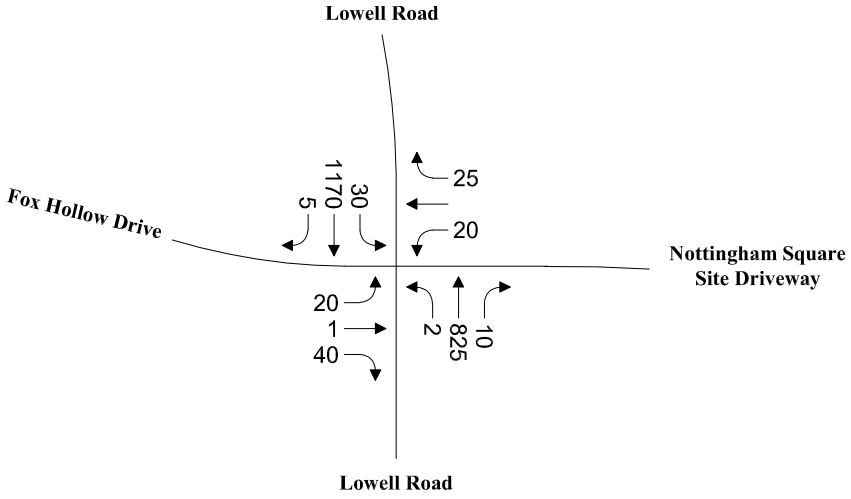
The rate at which any development generates traffic is dependent upon several factors such as size, location, and nature of the use. To estimate the trip-generating characteristics for a new development, traffic projections are typically derived from trip generation rates published in the Institute of Transportation Engineers (ITE) Trip Generation[5] manual. Trip generation estimate was projected using trip generation rates published by the Institute of Transportation Engineers (ITE) Trip Generation, 12th Edition for Land Use Code (LUC) 929 (High-Volume Fast-Food Restaurant). While a specific future tenant for the space is not identified at this time, VHB has utilized the trip generation reflective of a high-volume fast-foot restaurant to ensure that the traffic analysis would accommodate the maximum reasonable traffic volumes for any restaurant use that could ultimately occupy the space.

[4] Langan Engineering & Environmental Services, Inc. Traffic Impact Study: Hudson Logistics Center, 43 Lowell Road, Hudson, NH. September 2022.

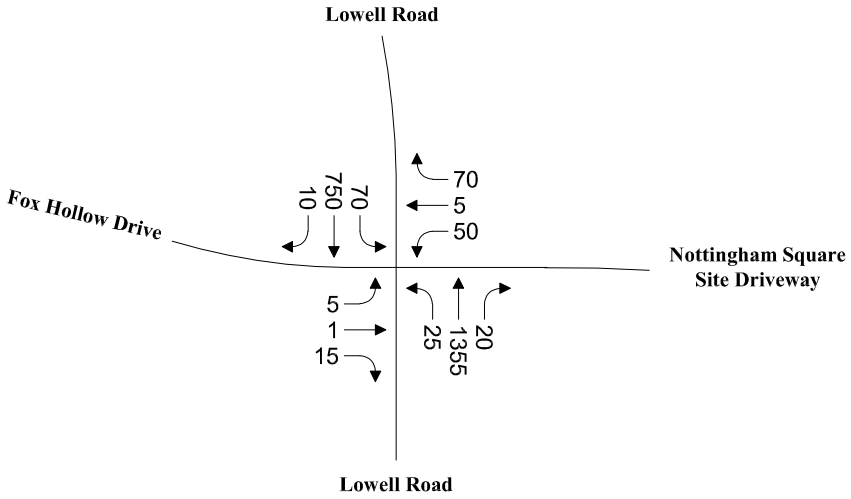
[5] Trip Generation, 10th Edition, Institute of Transportation Engineers, Washington, D.C., 2017

Attachment "E"

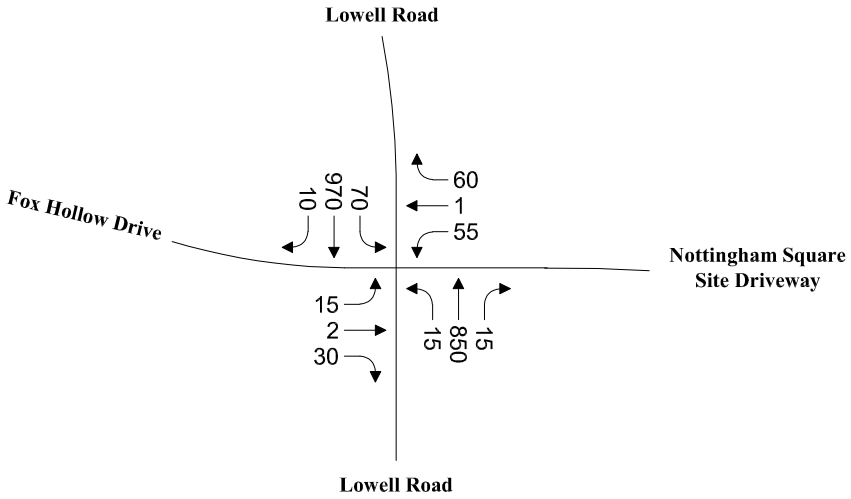
Weekday Morning



Weekday Evening



Saturday Midday



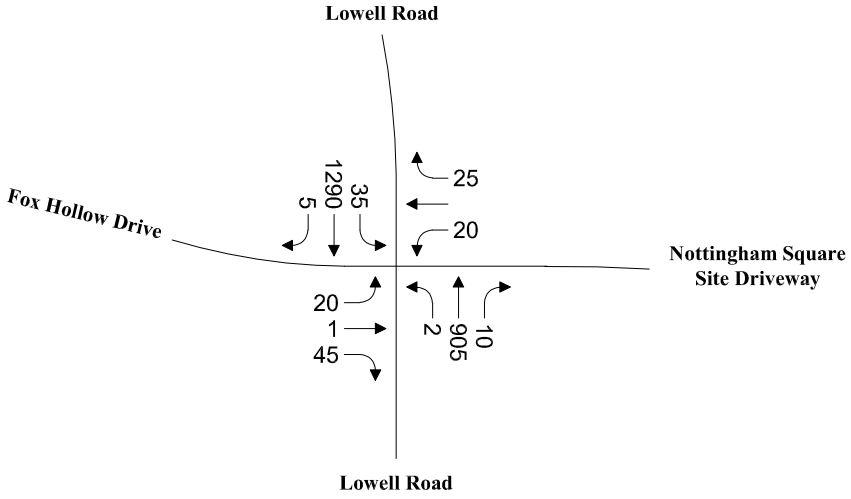
Not to Scale

2026 No-Build Conditions
Traffic Volume Networks

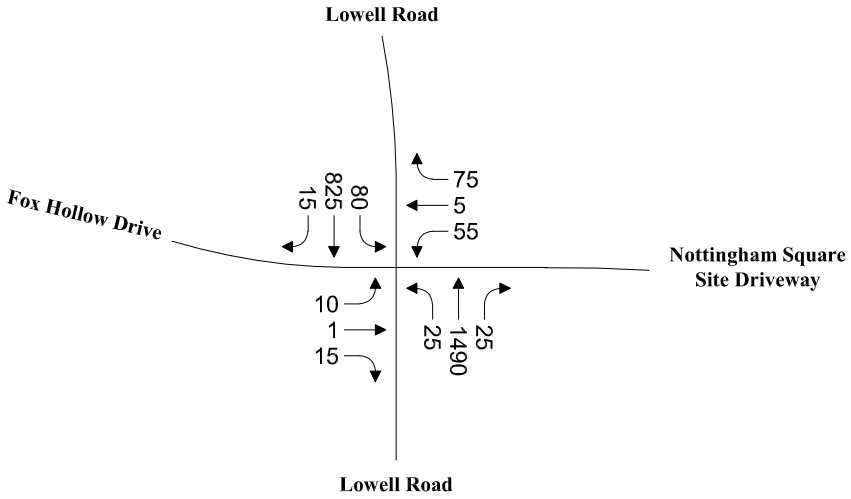
Figure 3

Attachment "E"

Weekday Morning



Weekday Evening



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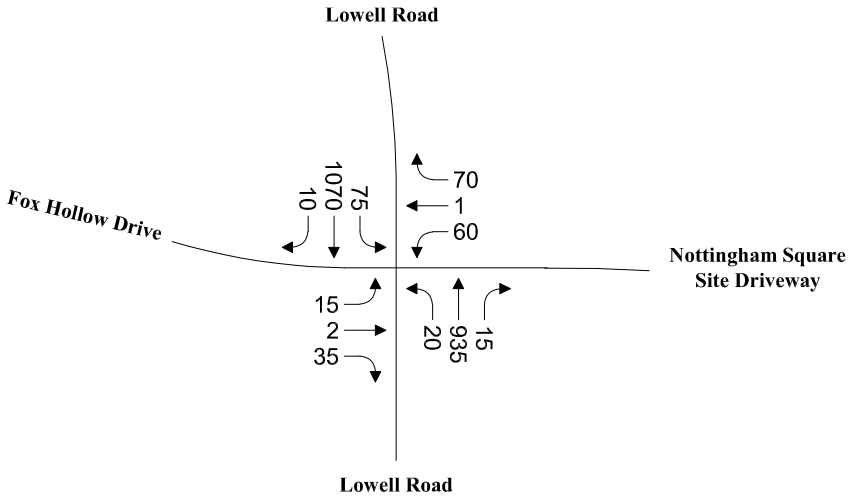


Not to Scale

2036 No-Build Conditions
Traffic Volume Networks

Figure 4

Internal Capture

Given the mixed-use nature of the Project with its location within Nottingham Square, it is expected that there will be shared trips between the shopping plaza and the Project. These shared trips, summarized in Table 2, would not show up as additional new vehicle trips on the surrounding roadway network. An example of this could be a patron of a shop within the plaza also becoming a customer at the Proposed fast-food restaurant without needing to exit the plaza onto Lowell Road. Guidelines provided by the National Cooperative Highway Research Program (NCHRP) for the calculation of internal capture trips were used in the peak hour analysis.

Pass-by Vehicle Trips

Not all of the traffic generated by the Project will be new to the area roadways. For example, a portion of the vehicle-trips generated by the Site will likely be drawn from motorists already on the roadways adjacent to the Site. The primary origin and destination for these trips is elsewhere, and the primary trip will be resumed following the visit to the Site. Based on MassDOT guidelines, ITE recommended pass-by rates were utilized to estimate pass-by trips for the proposed drive-through. ITE recommends pass-by trip adjustment rates of 50 percent for the weekday morning peak hour and 55 percent for the weekday evening peak hour. As ITE does not provide pass-by rates for the Saturday midday peak period, 55 percent was utilized to adjust this period.

Table 1 summarizes the adjustment calculations for the determination of the net-change in trips associated with the Project.

Table 1 Trip Generation Estimates

Time Period	Proposed Fast-Food[a]	Internal Capture Trips[b]	Pass-By Trips[c]	Net New Trips[d]
Weekday Morning Peak Hour				
Enter	57	4	26	27
Exit	57	3	26	23
Total	109	7	52	50
Weekday Evening Peak Hour				
Enter	123	28	50	45
Exit	123	37	50	36
Total	245	65	100	81
Saturday Midday Peak Hour				
Enter	148	26	65	57
Exit	148	34	65	49
Total	296	60	130	106

a Based on ITE LUC 929 (High-Volume Fast-Food Restaurant) for 4,200 square feet

b Internal Capture Source: Bochner, B., K. Hooper, B. Sperry, and R. Dunphy. NCHRP Report 684: Enhancing Internal Trip Capture Estimation for Mixed-Use Developments. Washington, DC: Transportation Research Board, Tables 99 and 100, 2011. 3rd Edition - for the Weekday Morning, Weekday Evening. Weekday Evening internal capture percentages were applied to the Saturday midday.

c According to ITE's Trip Generation Manual, 12th Edition, Land Use Code 934 has pass-by rate of 50% during the weekday morning peak hour and 55% during the weekday evening peak hour - the 55% was applied to the Saturday midday peak period.

d Proposed Fast-Food trips minus projected internal capture and pass-by trips.

As shown in Table 1, the Project is expected to generate net-new vehicular trips as follows: approximately 50 vehicle trips (27 entering / 23 exiting) during the weekday morning peak hour, 81 vehicle trips (45 entering / 36 exiting) during the weekday evening peak hour, and 106 vehicle trips (57 entering / 49 exiting) during the Saturday midday peak hour.

Trip Distribution

The directional distribution of new site trips is dependent on the combination of a number of factors, including existing travel patterns, competing opportunities, and site access routes. The directional distribution of pass-by traffic was determined based on the existing travel patterns observed along Lowell Road adjacent to the site as part of the traffic counts collected in September 2025. Based on the traffic-generation and distribution estimates for the proposed commercial development, the site trips were assigned to the adjacent roadway network. The project generated pass-by trips are shown on Figure 5 and the new trips are represented on Figure 6 for the weekday morning, weekday evening, and Saturday midday peak hours.

Build Traffic Volumes

The project-generated traffic volumes were combined with the No-Build traffic volumes to develop the Build peak-hour traffic-volume networks. The 2026 Build weekday morning, weekday evening, and Saturday midday peak-hour traffic volumes are depicted on Figure 7. The 2036 Build weekday morning, weekday evening, and Saturday midday peak-hour traffic volumes are illustrated on Figure 8.

Capacity and Queue Analysis

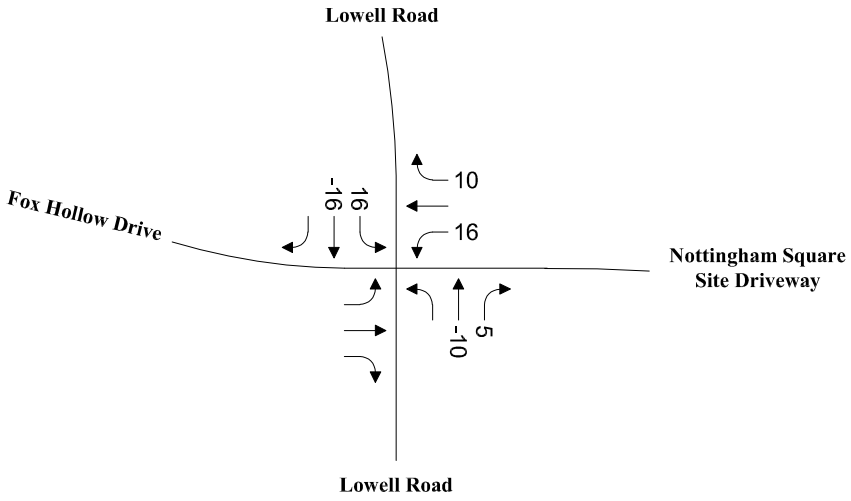
Capacity analyses were performed for the Lowell Road and Fox Hollow Drive / Nottingham Square Driveway intersection with the 2025 Existing traffic volumes during the weekday morning, weekday evening, and Saturday midday peak hours based on the concepts and procedures in the Highway Capacity Manual (HCM) using the *Trafficware Synchro Software* computer program. This software program is an NHDOT approved traffic analysis tool for determining intersection capacity operations. Based on NHDOT guidelines,[6] HCM 2000 methodologies[7] are preferred for signalized intersections. In addition, HCM 6th edition[8] is the NHDOT accepted methodology for unsignalized intersections. Therefore, the HCM 2000 methodologies and procedures have been used to evaluate operations at Lowell Road and Central Street signalized intersection and the HCM 6th edition was used for the unsignalized study area intersections.

The analysis results are categorized in terms of Level of Service (LOS), which describes the qualitative intersection operational conditions based on the calculated average delay per vehicle. The criteria for unsignalized intersections are different than for signalized intersections because drivers expect different performance levels from each type of intersection. The relationship between LOS and delay is summarized in Table 2.

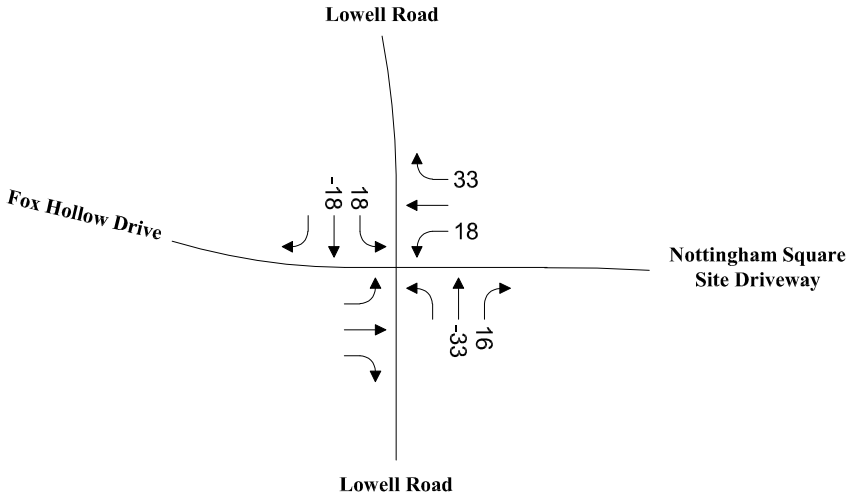
6 New Hampshire Department of Transportation Bureau of Traffic. Synchro Inputs Checklist. 16 Aug. 2021.
7 Transportation Research Board. Highway Capacity Manual. 2000.
8 Transportation Research Board. Highway Capacity Manual. 6th edition.

Attachment "E"

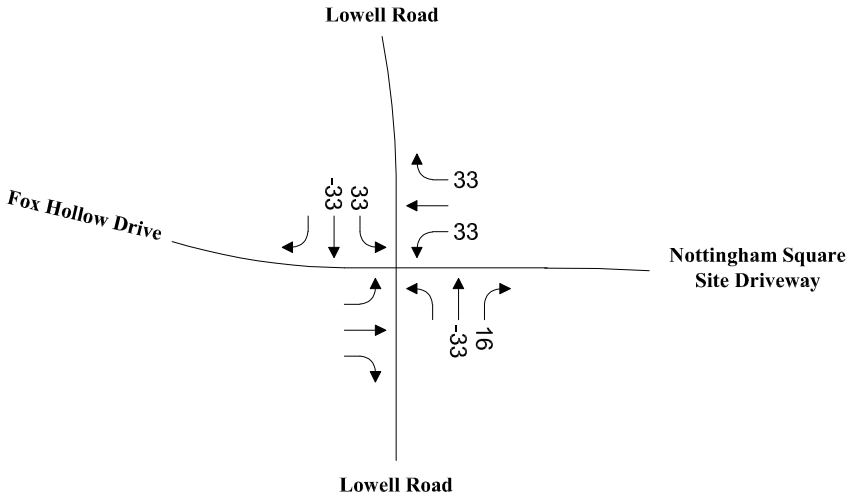
Weekday Morning



Weekday Evening



Saturday Midday



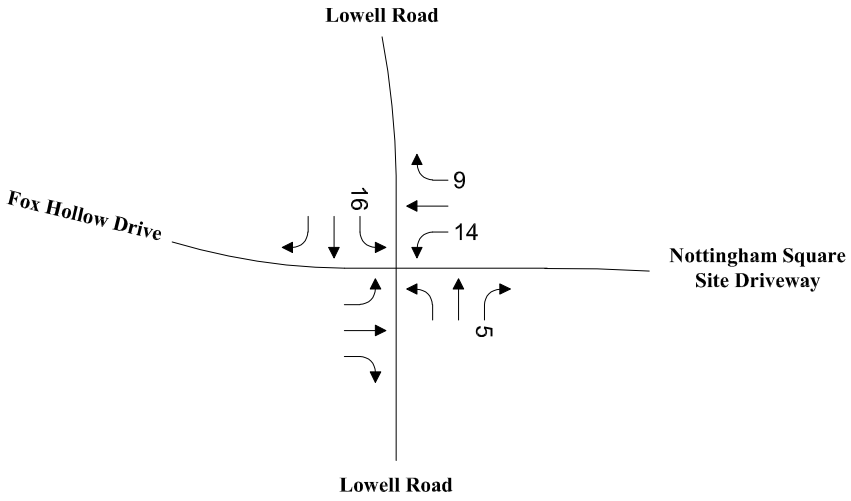
Not to Scale

Pass-By Trips
Traffic Volume Networks

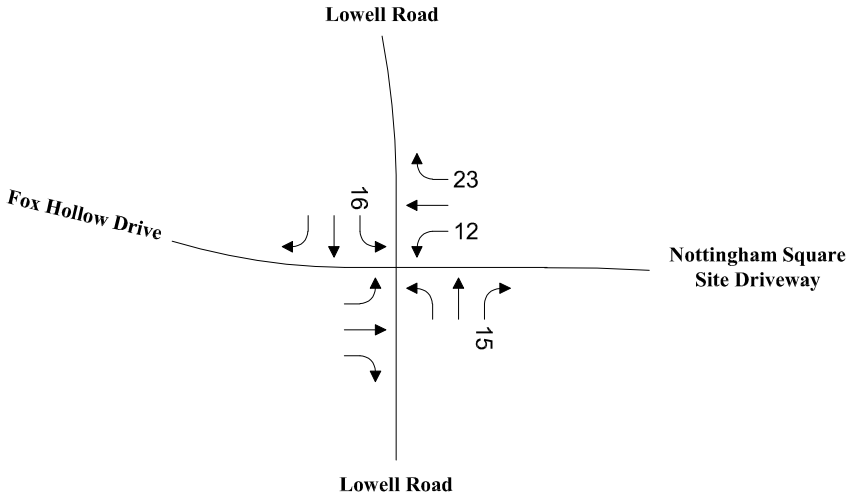
Figure 5

Attachment "E"

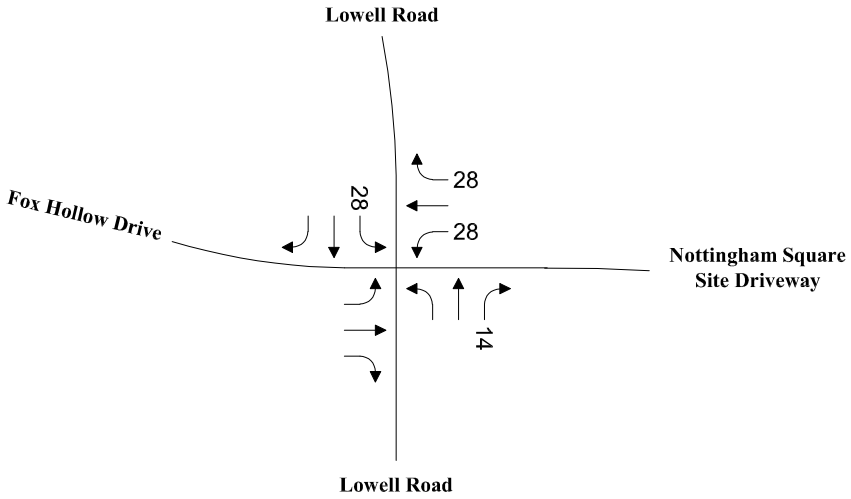
Weekday Morning



Weekday Evening



Saturday Midday



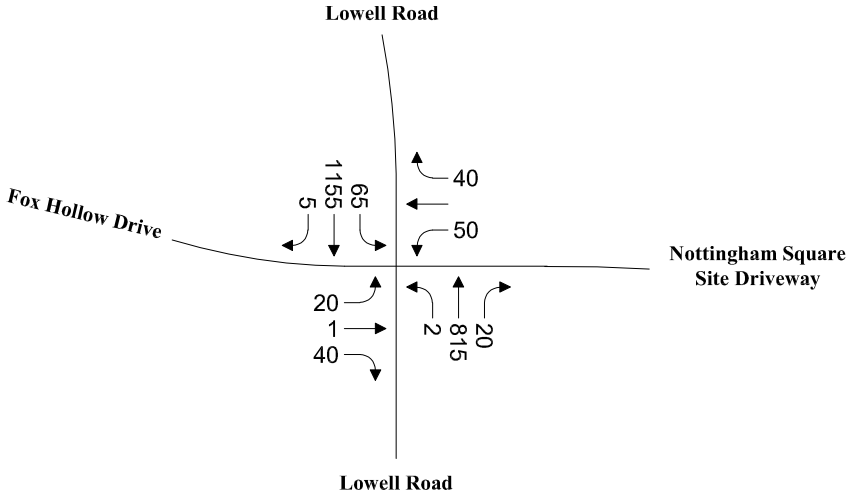
Not to Scale

New Trips
Traffic Volume Networks

Figure 6

Attachment "E"

Weekday Morning



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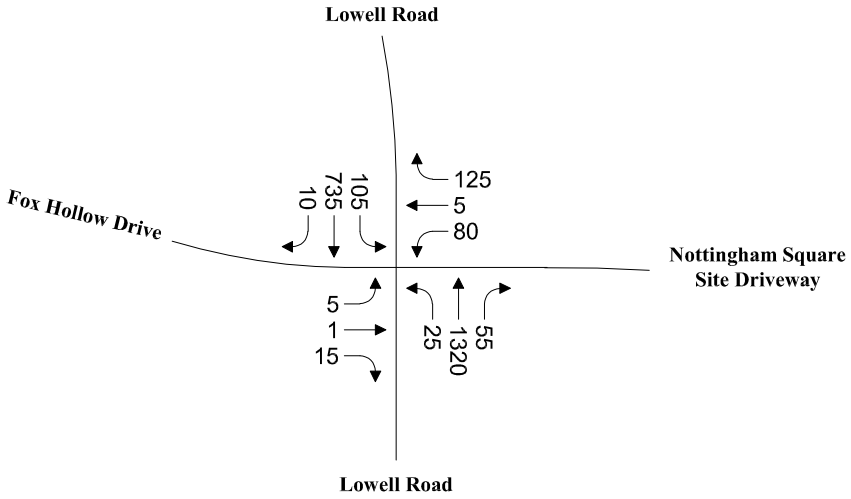

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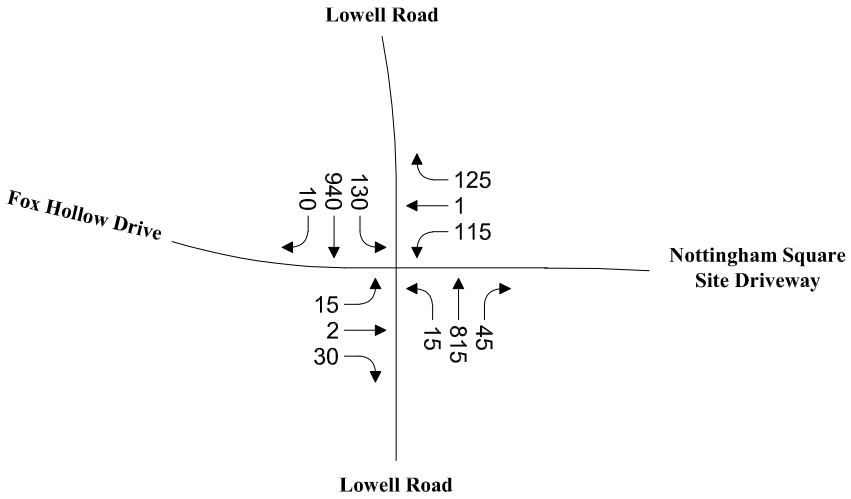


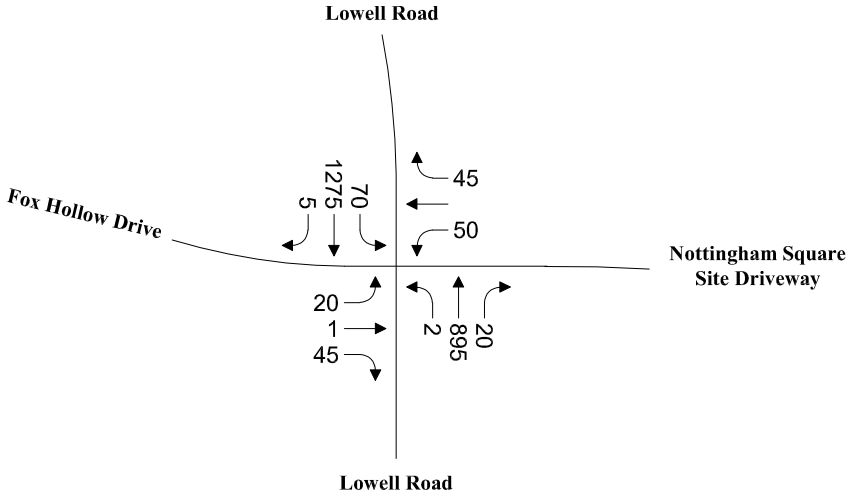
Not to Scale

2026 Build Conditions
Traffic Volume Networks

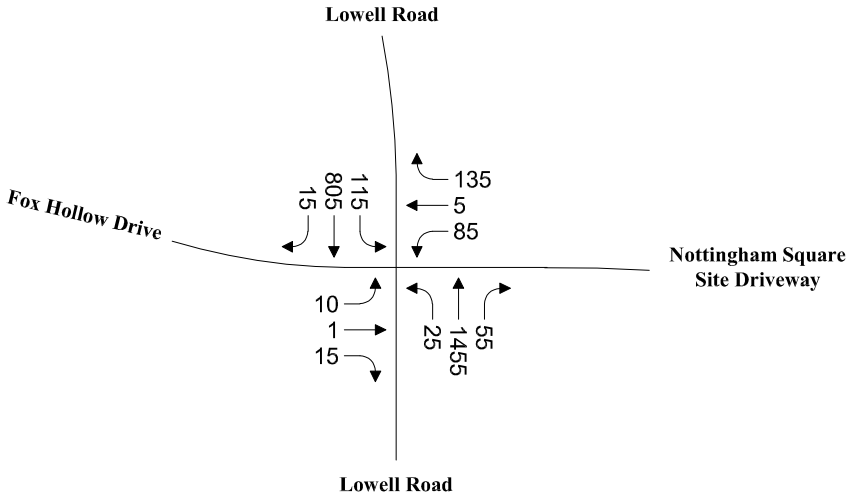
Figure 7

Attachment "E"

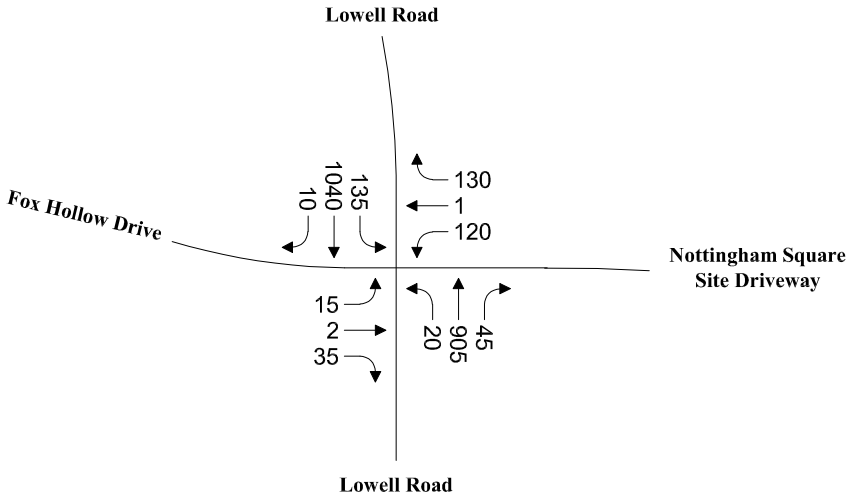
Weekday Morning



Weekday Evening



Saturday Midday



Not to Scale

2036 Build Conditions
Traffic Volume Networks

Figure 8

Table 2 Level of Service Criteria

Level of Service	Unsignalized Intersection Criteria Average Total Delay (Seconds per Vehicle)	Signalized Intersection Criteria Average Total Delay (Seconds per Vehicle)
A	< 10.0	< 10.0
B	10.1 to 15.0	10.1 to 20.0
C	15.1 to 25.0	20.1 to 35.0
D	25.1 to 35.0	35.1 to 55.0
E	35.1 to 50.0	55.1 to 80.0
F	> 50.0	> 80.0

Source: Highway Capacity Manual 2000.

Queue Length Methodology

The study area intersections were also evaluated with respect to vehicle queuing. For signalized intersections, the quantitative measures of vehicle queue length are defined as the 50th and the 95th percentile queues. The 50th percentile queue represents the average queue length during the peak hour and the 95th percentile queue represents the calculated maximum back of queue that has a probability of 5 percent or less of being exceeded during the peak hour.

For unsignalized intersections, the quantitative measure of vehicle queue length is defined as the 95th percentile queue. The 95th percentile queue represents the percentage of time during the peak period being analyzed that the calculated maximum back of queue would be equal to or less than the percentile estimate (i.e., the maximum queue length that would exceed only 5 percent of the time).

Intersection Operational Results

Analyses were performed for the study area intersections to examine operations under 2025 Existing and future traffic volume conditions without the development (2026 and 2036 No-Build) and with the development (2026 and 2036 Build). The comparison of the No-Build and Build intersection operations help to demonstrate a project's impact on the adjacent roadway network. The capacity and queue length analysis results are summarized in Table 3 for all conditions.

Table 3 Capacity Analysis Summary

Intersection/ Peak Hour/Lane Group	2025 Existing Conditions					2026 No-Build Conditions					2026 Build Conditions					2036 No-Build Conditions					2036 Build Conditions				
	v/c	Delay	LOS	50th % Queue	95th % Queue	v/c	Delay	LOS	50th % Queue	95th % Queue	v/c	Delay	LOS	50th % Queue	95th % Queue	v/c	Delay	LOS	50th % Queue	95th % Queue	v/c	Delay	LOS	50th % Queue	95th % Queue
Lowell Road at Fox Hollow Drive / Nottingham Square Driveway																									
Weekday Morning																									
Nottingham Square WB Left/Through	0.26	39	D	9	47	0.29	46	D	12	47	0.62	55	E	33	#100	0.38	62	E	16	52	0.74	89	F	44	#117
Nottingham Square WB Right	0.02	38	D	0	0	0.02	45	D	0	0	0.03	45	D	0	21	0.02	60	E	0	0	0.03	59	E	0	28
Lowell Rd NB Left	0.17	45	D	1	11	0.15	51	D	1	11	0.17	53	E	1	11	0.17	67	E	2	11	0.17	68	E	2	11
Lowell Rd NB Through	0.74	13	B	319	485	0.74	11	B	371	569	0.78	16	B	401	569	0.75	11	B	453	701	0.76	13	B	490	683
Lowell Rd NB Right	0.01	6	A	0	0	0.01	5	A	0	0	0.01	6	A	0	0	0.01	4	A	0	0	0.01	5	A	0	0
Fox Hollow Dr EB Left/Through	0.27	40	D	10	49	0.32	47	D	13	49	0.27	46	D	13	49	0.41	63	E	17	54	0.32	61	E	17	54
Fox Hollow Dr EB Right	0.03	38	D	0	21	0.03	45	D	0	21	0.03	45	D	0	21	0.03	60	E	0	28	0.03	59	E	0	28
Lowell Rd SB Left	0.45	39	D	16	#84	0.44	46	D	18	64	1.00	152	F	~45	#189	0.68	84	F	29	#99	1.39	317	F	~77	#220
Lowell Rd SB Through/Right	0.94	23	C	331	#1115	0.94	22	C	388	#1360	0.94	23	C	465	#1344	0.97	27	C	515	#1723	0.97	29	C	684	#1696
Overall Intersection	*0.91*	*20*	*C*	--	--	*0.92*	*19*	*B*	--	--	*0.95*	*26*	*C*	--	--	*0.96*	*23*	*C*	--	--	*1.01*	*34*	*C*	--	--
Weekday Evening																									
Nottingham Square WB Left/Through	0.76	98	F	60	#133	0.76	98	F	60	#133	1.04	177	F	~98	#222	0.80	107	F	65	#147	1.11	198	F	~108	#234
Nottingham Square WB Right	0.05	66	E	0	54	0.05	66	E	0	54	0.09	66	E	0	71	0.05	66	E	0	55	0.35	68	E	27	#112
Lowell Rd NB Left	0.57	81	F	27	62	0.57	81	F	27	62	0.57	82	F	27	62	0.57	82	F	27	62	0.57	82	F	27	62
Lowell Rd NB Through	1.01	46	D	~1460	#1726	1.07	65	E	~1628	#1894	1.05	59	E	~1550	#1816	1.18	109	F	~1928	#2190	1.16	100	F	~1850	#2114
Lowell Rd NB Right	0.01	5	A	0	0	0.01	5	A	0	0	0.04	5	A	0	11	0.02	5	A	0	0	0.04	5	A	0	11
Fox Hollow Dr EB Left/Through	0.09	66	E	6	23	0.09	66	E	6	23	0.09	66	E	6	23	0.15	67	E	11	34	0.19	67	E	11	34
Fox Hollow Dr EB Right	0.01	66	E	0	0	0.01	66	E	0	0	0.01	66	E	0	0	0.01	66	E	0	0	0.01	66	E	0	0
Lowell Rd SB Left	1.59	412	F	~106	#220	1.59	413	F	~106	#220	2.39	753	F	~184	#320	1.82	506	F	~128	#248	2.61	851	F	~206	#346
Lowell Rd SB Through/Right	0.53	6	A	270	354	0.57	6	A	311	410	0.57	7	A	300	395	0.64	8	A	378	501	0.62	8	A	360	476
Overall Intersection	*1.02*	*47*	*D*	--	--	*1.08*	*57*	*E*	--	--	*1.12*	*76*	*E*	--	--	*1.19*	*85*	*F*	--	--	*1.24*	*103*	*F*	--	--

v/c = volume-to-capacity ratio.
= 95th percentile volume exceeds capacity; queue may be longer.
~ = Volume exceeds capacity, queue is theoretically infinite.
Delay in seconds.
Queue lengths in feet.

Table 3 Capacity Analysis Summary (continued)

Intersection/ Peak Hour/Lane Group	2025 Existing Conditions					2026 No-Build Conditions					2026 Build Conditions					2036 No-Build Conditions					2036 Build Conditions				
	v/c	Delay	LOS	50th % Queue	95th % Queue	v/c	Delay	LOS	50th % Queue	95th % Queue	v/c	Delay	LOS	50th % Queue	95th % Queue	v/c	Delay	LOS	50th % Queue	95th % Queue	v/c	Delay	LOS	50th % Queue	95th % Queue
Lowell Road at Fox Hollow Drive / Nottingham Square Driveway																									
Saturday Midday																									
Nottingham Square WB Left/Through	0.53	44	D	30	#121	0.54	45	D	31	#121	0.85	74	E	64	#244	0.63	58	E	45	#154	1.00	125	F	~94	#291
Nottingham Square WB Right	0.04	40	D	0	48	0.04	41	D	0	48	0.09	36	D	0	62	0.05	48	D	0	54	0.09	43	D	0	67
Lowell Rd NB Left	0.40	49	D	8	41	0.41	50	D	9	41	0.39	46	D	8	37	0.39	55	E	15	52	0.35	50	D	14	49
Lowell Rd NB Through	0.80	18	B	389	544	0.81	19	B	414	578	0.84	22	C	392	547	0.84	19	B	523	702	0.86	23	C	487	665
Lowell Rd NB Right	0.01	7	A	0	0	0.01	7	A	0	0	0.03	8	A	0	8	0.01	6	A	0	0	0.03	8	A	0	8
Fox Hollow Dr EB Left/Through	0.17	41	D	9	43	0.17	42	D	9	43	0.13	37	D	9	39	0.18	49	D	12	47	0.18	43	D	12	43
Fox Hollow Dr EB Right	0.02	40	D	0	7	0.02	41	D	0	7	0.02	36	D	0	8	0.02	48	D	0	14	0.02	42	D	0	14
Lowell Rd SB Left	1.01	1549	F	39	#204	1.03	154	F	41	#203	1.78	436	F	~106	#316	1.28	254	F	~72	#235	2.11	592	F	~157	#369
Lowell Rd SB Through/Right	0.82	14	B	261	698	0.83	14	B	276	737	0.85	18	B	271	705	0.89	19	B	667	947	0.91	22	C	617	893
Overall Intersection	*0.84*	*23*	*C*	--	--	*0.85*	*23*	*C*	--	--	*1.01*	*48*	*D*	--	--	*0.93*	*30*	*C*	--	--	*1.09*	*60*	*E*	--	--

v/c = volume-to-capacity ratio.
= 95th percentile volume exceeds capacity; queue may be longer.
~ = Volume exceeds capacity, queue is theoretically infinite.
Delay in seconds.
Queue lengths in feet.

Lowell Road and Fox Hollow Drive

Under existing conditions, the Lowell Road/Fox Hollow Drive intersection operates at overall acceptable levels of service during all peak periods, with specific movements operating at LOS E and F with long delays and queues. In the morning peak hour, the all individual movements operate at LOS D or better but the Lowell Road southbound through movements experience long queues, consistent with the large volume of vehicles traveling southbound towards the Route 3 ramps. In the evening peak hour, the Lowell Road northbound approach experiences long queues consistent with the reverse evening commute, and the Fox Hollow Drive and Nottingham Square approaches operate at LOS E or F.

Under future conditions in 2026 and 2036, the intersection operations and existing queues will continue to degrade under all future conditions, with or without the proposed project in place. In the future Build conditions, the Nottingham Square Drive approach and Lowell Road southbound left-turn are specific movements that are expected to experience an increase in delay and queues under all peak periods.

The intersection could benefit for a signal timing review and adjustment in the future conditions, both with or without the proposed development. VHB recommends that the Applicant work with the Town to review signal timing adjustments that could be implemented to help improve vehicular flow through the intersection.

Additionally, the northbound approach currently consists of a left-turn lane, through lane, and a right-turn lane. A review of the volume demand and analysis indicates that the intersection could experience a significant improvement in operations for the northbound approach if the pavement markings were adjusted to provide a left-turn lane, through lane, and a shared through/right-turn lane. VHB recommends that the Town consider evaluating and implementing this potential adjustment independently of the proposed development.

Parking Evaluation

This parking assessment delivers a comprehensive evaluation by first assessing existing parking conditions by comparing actual occupancy counts with theoretical parking demands anticipated using the Institute of Transportation Engineers' parking manual. Secondly, it identifies potential impacts on parking that may result from the construction of the fast-food development to determine if the proposed parking supply can adequately accommodate the future parking demand of the site.

Observed Parking Demand

Parking occupancy counts were collected using aerial photography on Friday, October 17th and Saturday, October 18th, 2025. With the use of drones, images of Nottingham Square parking have been captured and utilized for parking demand analysis. These efforts are being used to observe vehicular parking patterns and trends within the study area over the course of a typical day. Images were taken of the parking lot over the course of the day capturing the morning, midday, evening, and night.

The Nottingham Square parking lot has a total of 264 existing parking spaces, which includes 246 parking spaces in the main parking lot and 18 parking spaces in the rear parking lot behind the building, designated for employees and delivery vehicles. There are an additional 7 parking spaces located on the north side of the building that Luk's Bar and Grill is using for outdoor dining tables and are not included in the parking space today. Table 4 presents the observed Nottingham Square parking occupancies.

Table 4 Parking Occupancy Observations

Date / Parking Lot Area	Parking Supply	Parking Occupancy by Time of Day				Peak Occupancy	Time of Peak	Percent Occupied	Peak Excess Capacity
		9 - 10 AM	12 – 1 PM	6 – 7 PM	9 – 10 PM				
October 17th (Friday)									
Rear Lot	18	16	23	19	8	19		106%	-1
Main Lot	246	37	94	111	57	111	6 – 7 PM	45%	135
Total	264	53	117	130	65	130		49%	134
October 18th (Saturday)									
Rear Lot	18	14	15	13	7	15		83%	3
Main Lot	246	32	84	82	55	84	12 – 1 PM	34%	162
Total	264	46	99	95	62	99		36%	165

As shown in Table 4, parking occupancy in both the main and rear lots showed significant variation, with peak usage often in the evening on Friday and midday on Saturday. The rear parking lot, designated for employee parking is often parked at or beyond the number of marked parking spaces. Observations noted that the parallel parking spaces in the rear lot are often parked with vehicles at a 90 degree angle; therefore, more vehicles are able to park than marked spaces. The main parking lot experiences much lower parking usage and regularly demonstrated excess capacity throughout the monitoring periods. Overall, the parking lots are regularly parked at less than 50% of the occupancy and maintains substantial excess capacity of at least 135 parking spaces.

Proposed Parking Impact

To evaluate the parking demand of a 4,200 square foot facility, VHB analyzed results from ITE Parking Generation Manual, a shared parking model, and the existing parking rates documented during parking occupancy counts in October 2025, presented in Table 4.

To understand the additional parking needs for the proposed fast-food restaurant, documents peak parking demands for Land Use Code (LUC): 934 Fast-Food Restaurant with a Drive-Through from the 6th edition of the Parking Generation Manual were utilized. With the ITE suggested parking ratios applied, the 85th percentile peak parking demand for a standalone fast-food restaurant would be approximately 70 parking spaces on a Friday and 51 spaces on a Saturday.

A shared parking model was developed to evaluate the potential parking impact for the proposed fast-food restaurant located within the existing Nottingham Square Plaza. This was accomplished by reviewing the existing shopping plaza parking demands, the projected ITE 85th percentile parking demand rates for a fast-food restaurant, and applying the same internal capture rate applied to the weekday and Saturday trip generation calculations. The resulting projected parking demand of the proposed Site is presented in Table 5, below.

Table 5 Future Parking Demand

	Observed Existing Plaza Demand[a]	Fast-Food Restaurant ITE 85th % Demand[b]	Internal Capture[c]	Final Future Parking Demand
Friday Parking Demand	130	70	10	190
Saturday Parking Demand	99	51	6	144

a Existing observed peak parking demand presented in Table 4.
b Projected parking demand for 4,200 SF fast-food restaurant based on ITE LUC 934 (Fast-Food Restaurant with a Drive-Through) 85th percentile parking rates.
c Internal capture rates based on the peak period trip generation analysis.

As shown Table 5, the projected peak parking demand for the future Nottingham Square with the proposed fast-food restaurant range from 190 parking spaces on a Friday to 144 parking spaces on a Saturday. The proposed future Site Plan accommodates parking spaces for 222[9] vehicles, comprised of 204 parking spaces in the main lot and 18 parking spaces in the rear of the building for employee parking. The projected peak demand remains within the available parking supply, indicating that sufficient parking capacity exists for the proposed fast-food restaurant.

[9] Proposed parking supply as presented in Amended Master Site Plan Nottingham Square Fast-Food Restaurant, prepared by Keach-Nordstrom Associates, Inc, dated November 17, 2025.

Recommendations

While the proposed fast-food restaurant is not projected to impact operations at the study area intersection significantly, VHB recommends the following measures be considered to ensure effective management of parking resources and access following the opening of the proposed restaurant.

- **Opening Period Monitoring** – The restaurant should implement a parking and traffic management plan for the opening period of the restaurant to ensure that drive-through queues and parking are well managed. Staff may be assigned as needed to manage drive-through queues and keep access points clear, especially during anticipated peak demand periods.
- **Site Driveway Adjustments:**
  - Coordinate with the Town of Hudson on the signal timing at Lowell Road at Fox Hill Road intersection to monitor and adjust timings as needed post-occupancy.
- **Site Considerations** – The following site design considerations should be included:
  - Vehicles exiting the Drive-Through should be placed under STOP-sign control, with a painted STOP bar.
  - New sidewalks and crosswalks within the Site should be constructed to provide safe and reliable access to the for pedestrians walking from parking spaces to the restaurant.
  - Landscaping or building features within the Site should be designed to not limit lines of sight for motorists.

Conclusion

The proposed 4,200 square foot fast-food restaurant with a drive-through at Nottingham Square has been evaluated with regard to its anticipated impact on local traffic operations and parking availability. Based on comprehensive analyses of existing and future traffic volumes, intersection capacity, and parking demand, the study finds that the development will result in minor impacts to traffic operations and parking utilization. While certain movements at the Lowell Road/Fox Hollow Drive intersection are projected to experience constrained operations, the primary impacts of the proposed development are on the Nottingham Square Driveway approach, rather than the Lowell Road through movements.

Parking occupancy observations and ITE-based demand projections indicate that the existing and proposed parking supply will sufficiently accommodate peak parking needs. Proactive management measures—including opening period monitoring, enhancements to site access and pedestrian infrastructure, and coordination of signal timing adjustments are recommended to ensure the Site and the adjacent intersection continue to function well.

Attachment "E"

APPENDIX

A – Traffic Volume Data

B – Adjustment Factors (Seasonal)

C – Historical Growth

D – Background Developments

E – Trip Generation

F – Operational Analysis

G – Parking Evaluation

H – Site Plan

A

Traffic Volume Data

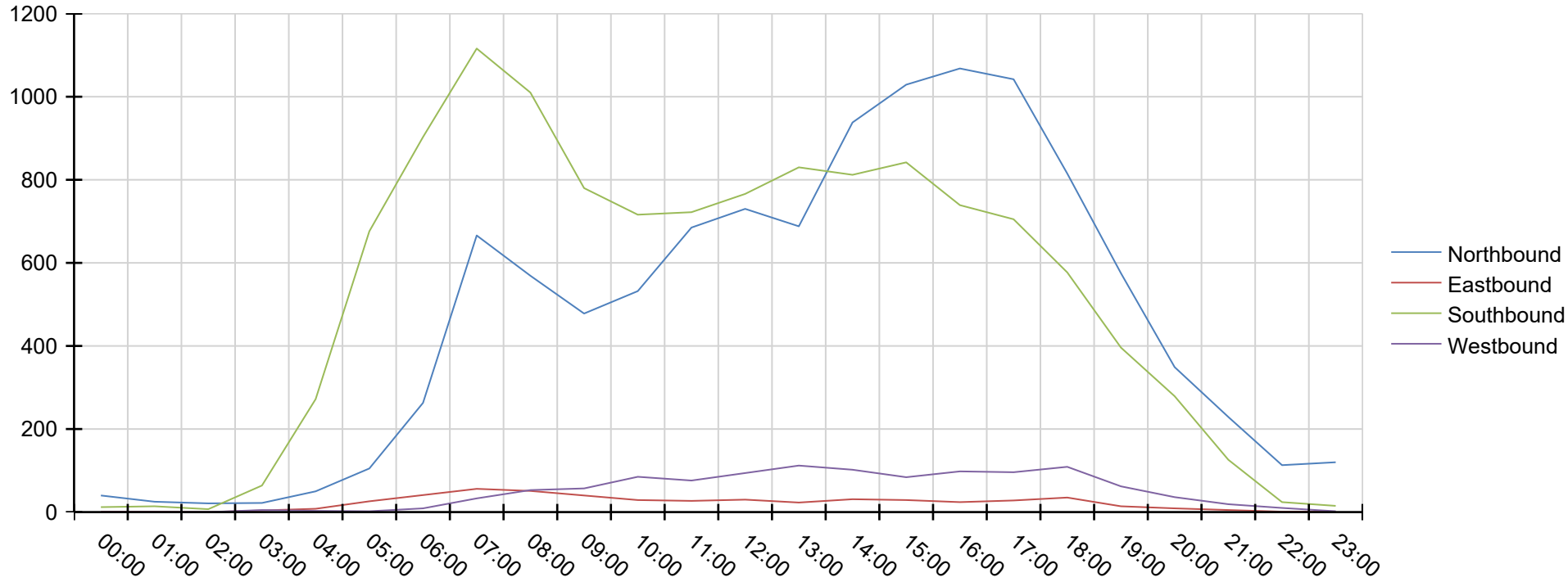
Attachment "E"

GRIDSMART®

Turning Movement Counts

Intersection Lowell & FoxHollow
Date 9/22/2025

	Right	Through	Left	UTurn	Total
Northbound	136	10706	310		11152
Eastbound	331	27	156		514
Southbound	89	11698	613	3	12403
Westbound	685	35	427		1147
Total	**1241**	**22466**	**1506**	**3**	**25216**



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Turning Movement Counts

Intersection Lowell & FoxHollow
Date 9/22/2025

	Northbound			Eastbound			Southbound				Westbound		
	R	T	L	R	T	L	R	T	L	U	R	T	L
00:00		40		1			2	10					
01:00		25		1				14					
02:00		21						7					
03:00		22		2	2		1	63			1	1	3
04:00		50		7		1		268	4			2	1
05:00		102	3	23		3		671	5		1	1	
06:00		259	4	30	1	10	1	889	13		5	1	3
07:00	6	612	48	40	2	14	1	1082	33		19		14
08:00	7	542	20	29	1	21	5	968	37		30	4	19
09:00	6	455	17	29	1	10	1	734	45		34	2	21
10:00	7	507	18	21	2	6	5	660	51		47	2	36
11:00	4	665	16	14	2	11	4	667	50	1	39	4	33
12:00	8	709	13	19	1	10	5	712	49		56	1	37
13:00	7	665	16	16		7	4	771	55		59	2	51
14:00	10	911	17	16	2	13	9	762	41		64	2	36
15:00	24	990	15	15	3	11	10	775	56	1	53	2	29
16:00	25	1013	30	11	3	10	9	668	62		63	4	31
17:00	18	998	26	15	5	8	10	635	59	1	59	1	36
18:00	7	783	25	28		7	9	536	32		72	3	34
19:00	4	553	18	7	2	5	5	382	9		39		23
20:00	2	338	9	4		5	3	271	5		23	1	12
21:00	1	219	9	2		3	3	116	7		14	2	3
22:00		107	6	1			1	23			6		4
23:00		120				1	1	14			1		1
Total	**136**	**10706**	**310**	**331**	**27**	**156**	**89**	**11698**	**613**	**3**	**685**	**35**	**427**

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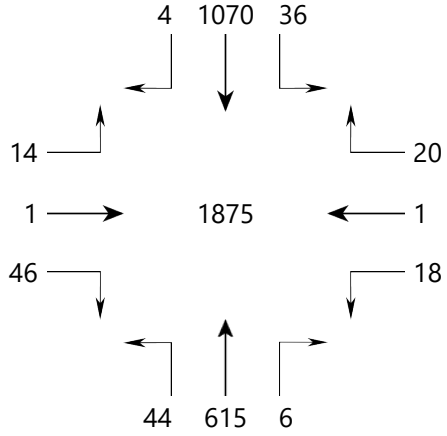
Turning Movement Counts

Intersection Lowell & FoxHollow
Date 9/22/2025

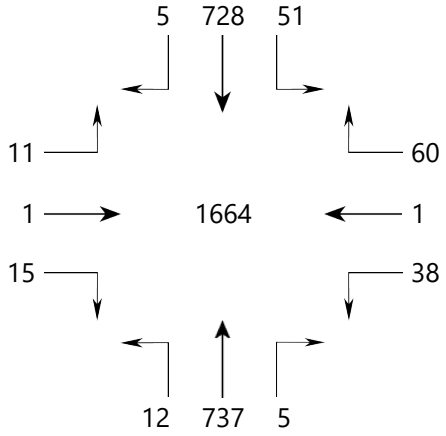
AM PEAK HOUR VOLUME (0:00-10:45)

FROM 07:15 TO 08:15



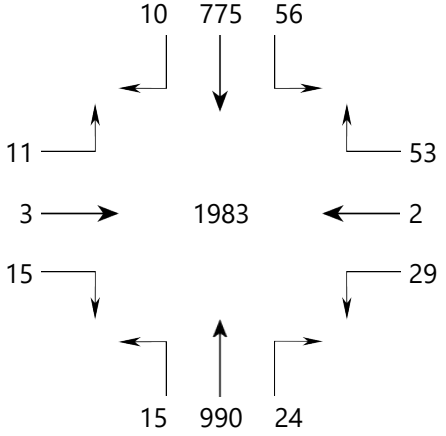
MID-DAY PEAK HOUR VOLUME (11:00-14:00)

FROM 11:45 TO 12:45



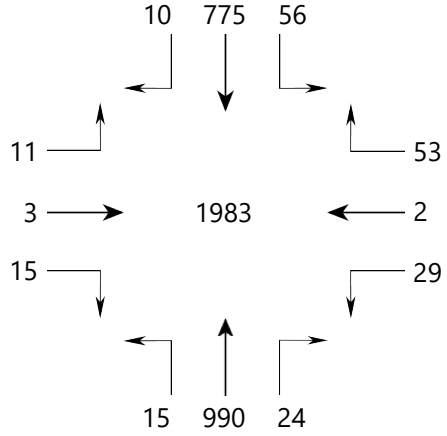
PM PEAK HOUR VOLUME (14:15-23:45)

FROM 15:00 TO 16:00



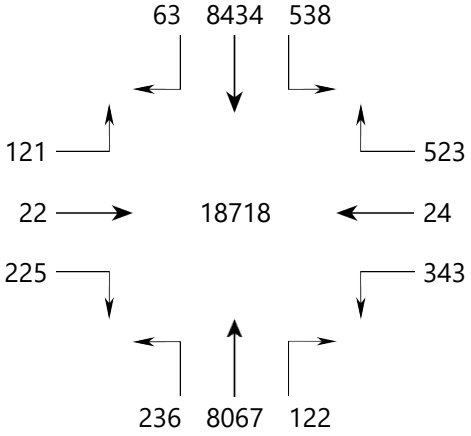
OVERALL PEAK HOUR VOLUME

FROM 15:00 TO 16:00



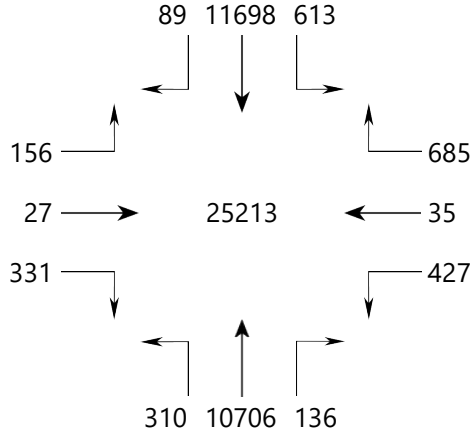
DAYTIME TOTAL VOLUME

FROM 07:00 TO 18:00



SELECTED TIME VOLUME

FROM 00:00 TO 23:59



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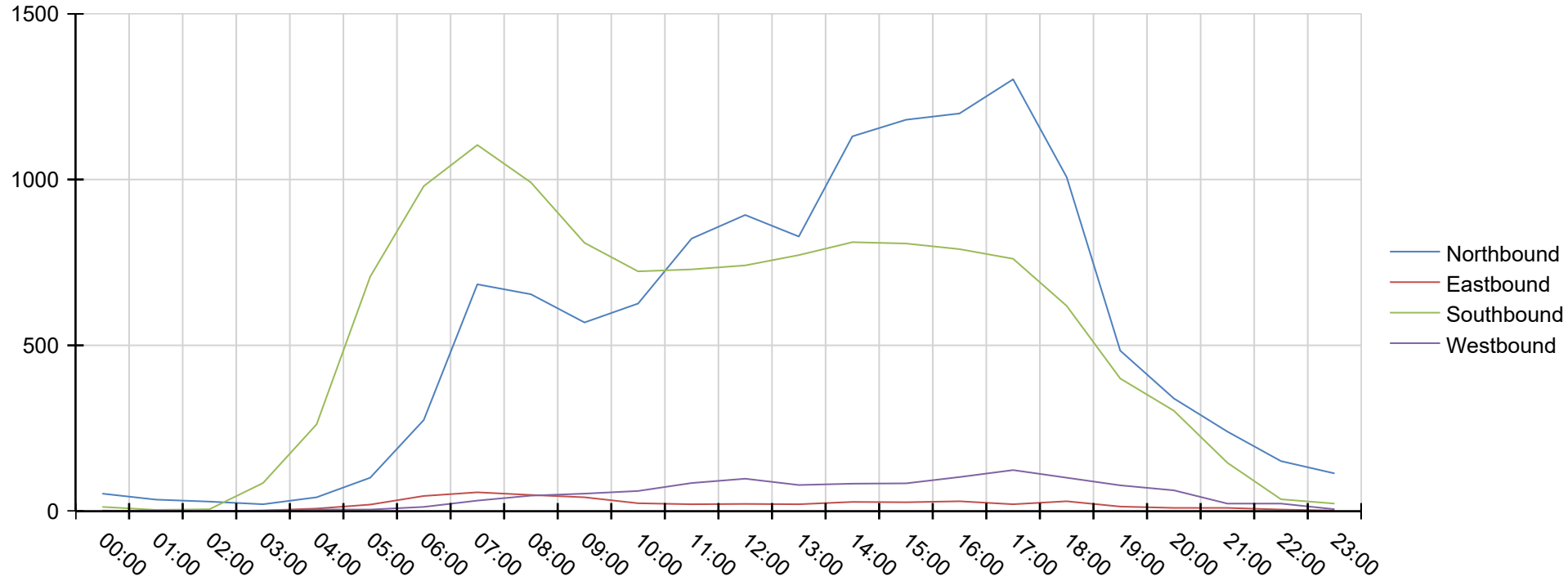
Turning Movement Counts

Intersection Lowell & FoxHollow
Date 9/24/2025

	Right	Through	Left	UTurn	Total
Northbound	168	12382	229		12779
Eastbound	305	24	162		491
Southbound	108	11885	627	2	12622
Westbound	665	42	465		1172
Total	**1246**	**24333**	**1483**	**2**	**27064**



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Turning Movement Counts

Intersection Lowell & FoxHollow
Date 9/24/2025

	Northbound			Eastbound			Southbound				Westbound		
	R	T	L	R	T	L	R	T	L	U	R	T	L
00:00	1	50	2	1		1	2	11					1
01:00		34	1					4			2		
02:00		29						6			1		
03:00	1	20		1	1			81	4		1		1
04:00		42		6		2		261	1		1	2	2
05:00		100	1	16		4	2	697	8		2	1	2
06:00	3	271	1	35		11	3	960	17		10		3
07:00	7	673	4	42	1	14	3	1069	32		19		13
08:00	9	640	5	25	1	23	5	953	33		25	2	20
09:00	8	551	10	28	2	12	7	773	29		27	1	25
10:00	14	602	10	15	3	6	5	678	40		31	2	28
11:00	12	796	14	12	1	8	10	674	45		46	1	38
12:00	12	873	8	11	1	10	1	697	43		53		45
13:00	10	806	12	16		5	2	728	42		40		39
14:00	9	1107	14	17	2	9	13	740	58		44	3	36
15:00	11	1147	22	17		10	3	755	49		46	1	37
16:00	16	1159	24	13	7	10	14	702	74		63	2	38
17:00	22	1257	23	13	1	7	12	676	71	2	69	5	50
18:00	22	962	23	16	3	11	12	557	50		52	7	42
19:00	7	452	25	7	1	6	5	375	20		59	6	13
20:00	2	331	7	3		7	7	290	6		40	7	16
21:00	1	228	11	6		4	1	140	5		15	2	6
22:00		141	10	4		1		36			14		9
23:00	1	111	2	1		1	1	22			5		1
Total	**168**	**12382**	**229**	**305**	**24**	**162**	**108**	**11885**	**627**	**2**	**665**	**42**	**465**

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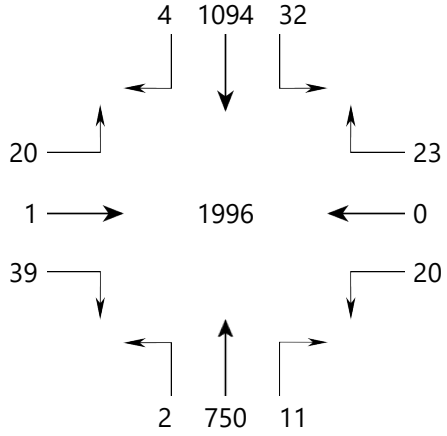
Turning Movement Counts

Intersection Lowell & FoxHollow
Date 9/24/2025

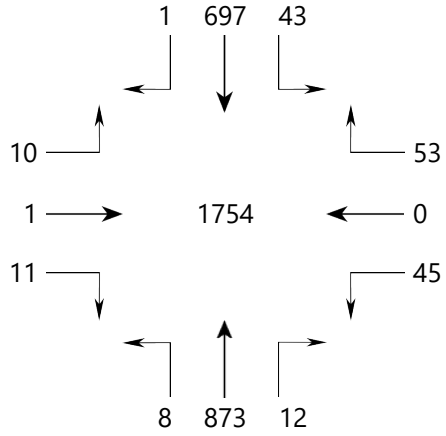
AM PEAK HOUR VOLUME (0:00-10:45)

FROM 07:15 TO 08:15



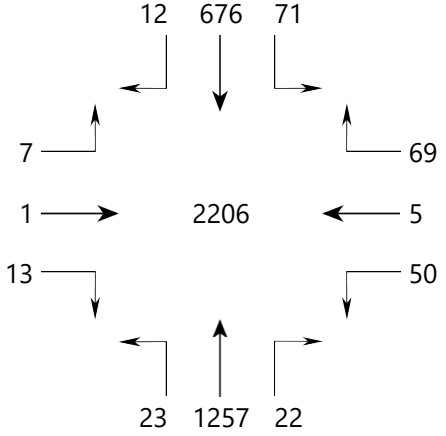
MID-DAY PEAK HOUR VOLUME (11:00-14:00)

FROM 12:00 TO 13:00



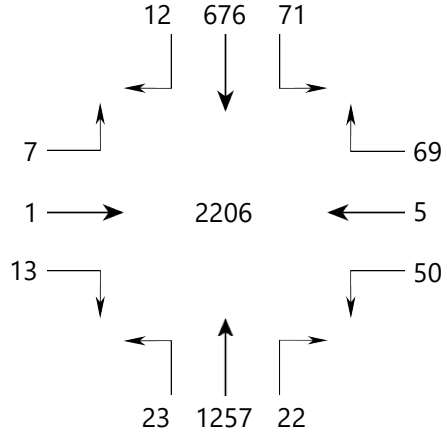
PM PEAK HOUR VOLUME (14:15-23:45)

FROM 17:00 TO 18:00



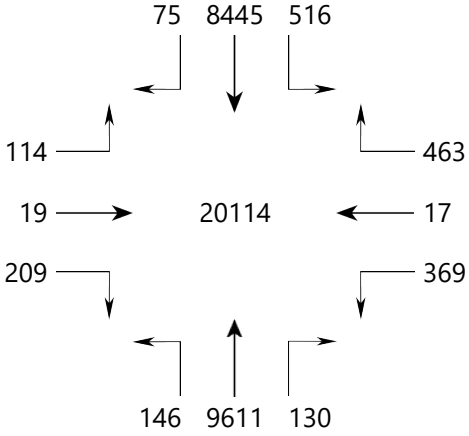
OVERALL PEAK HOUR VOLUME

FROM 17:00 TO 18:00



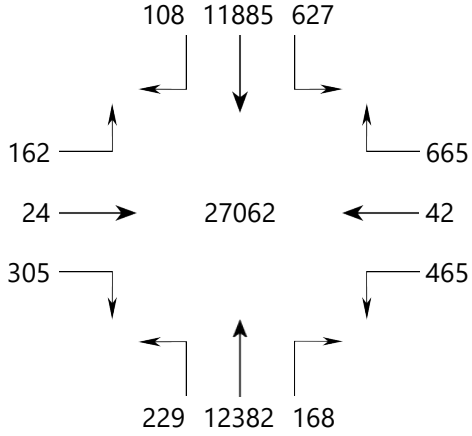
DAYTIME TOTAL VOLUME

FROM 07:00 TO 18:00



SELECTED TIME VOLUME

FROM 00:00 TO 23:59



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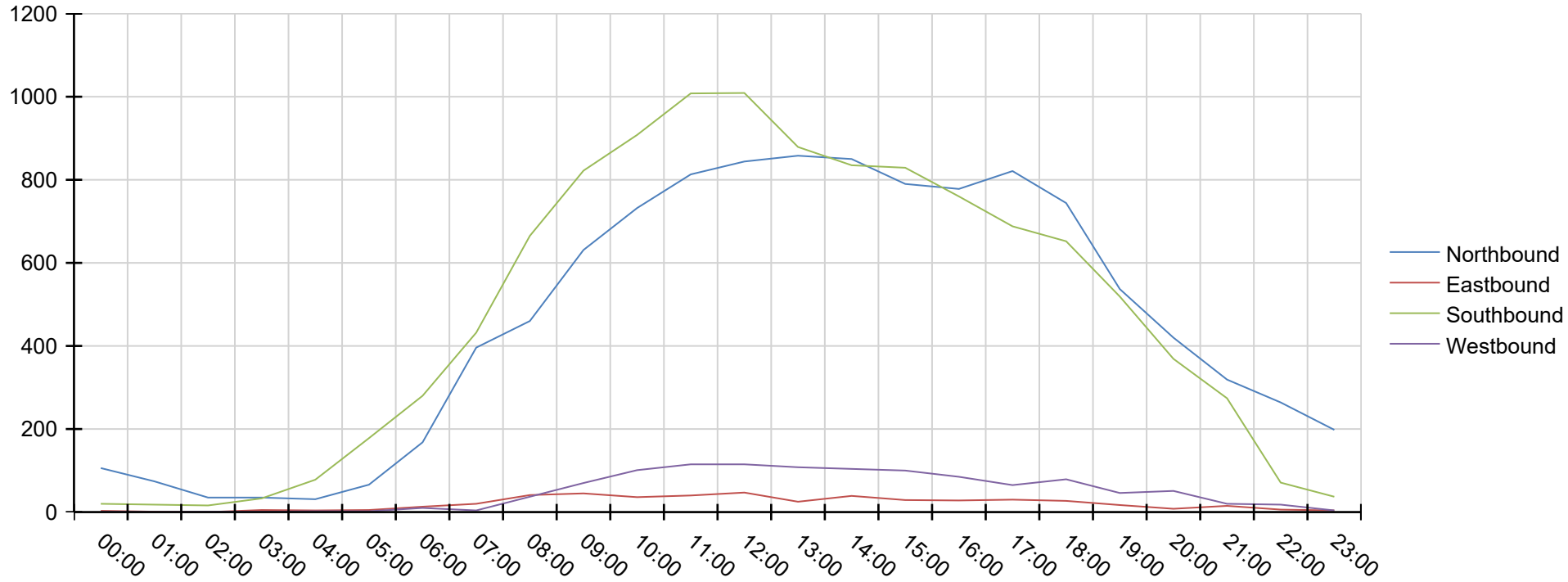
Turning Movement Counts

Intersection Lowell & FoxHollow
Date 9/27/2025

	Right	Through	Left	UTurn	Total
Northbound	128	10557	283	2	10970
Eastbound	320	22	146		488
Southbound	82	10729	567	2	11380
Westbound	608	33	498		1139
Total	**1138**	**21341**	**1494**	**4**	**23977**



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Turning Movement Counts

Intersection Lowell & FoxHollow
Date 9/27/2025

	Northbound				Eastbound				Southbound			Westbound		
	R	T	L	U	R	T	L	R	T	L	U	R	T	L
00:00	1	102	3		2		1	1	19			1		
01:00		74			1			1	17					
02:00		34	1						16			1		
03:00		33	2		4	1			31	2				1
04:00		30	1		3		1		76	2			1	1
05:00		65	1		4		1	1	173	4		1		1
06:00		167	1		11		2		274	6		6		4
07:00		363	33		14	2	4	1	426	5		3		1
08:00	8	445	7		27	2	12	2	620	43		17	2	18
09:00	7	614	10		28		17	6	760	55	1	38	1	31
10:00	13	705	14		23	3	10	3	858	47		53	3	45
11:00	8	787	18		23		17	3	950	55		55	3	57
12:00	15	811	17	1	30	2	15	11	930	68		61	1	53
13:00	7	828	23		16		9	8	818	53		47	2	59
14:00	14	814	21	1	24	3	12	4	786	44	1	58	3	43
15:00	6	772	12		21	2	6	2	773	54		55	2	43
16:00	12	747	19		20	2	6	6	720	34		44	4	37
17:00	11	780	30		19	3	8	11	638	39		39	2	24
18:00	8	711	25		22		5	6	619	27		48	1	30
19:00	8	512	17		11	2	4	2	495	22		31	5	10
20:00	9	400	11		5		3	8	357	4		27	2	22
21:00		311	8		5		10	6	266	2		10	1	9
22:00	1	257	6		3		3		70	1		11		7
23:00		195	3		4				37			2		2
Total	**128**	**10557**	**283**	**2**	**320**	**22**	**146**	**82**	**10729**	**567**	**2**	**608**	**33**	**498**

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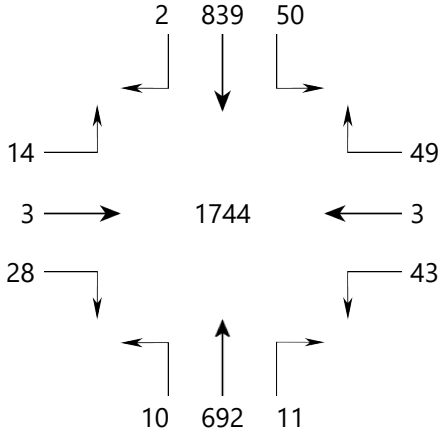
Turning Movement Counts

Intersection Lowell & FoxHollow
Date 9/27/2025

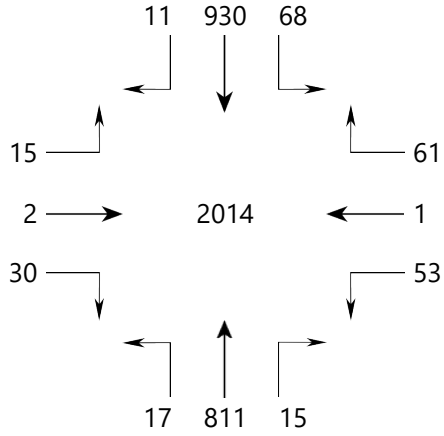
AM PEAK HOUR VOLUME (0:00-10:45)

FROM 09:45 TO 10:45



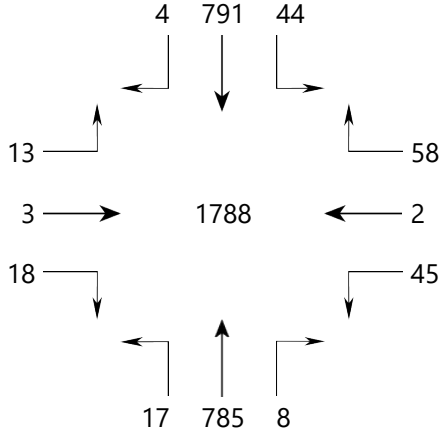
MID-DAY PEAK HOUR VOLUME (11:00-14:00)

FROM 12:00 TO 13:00



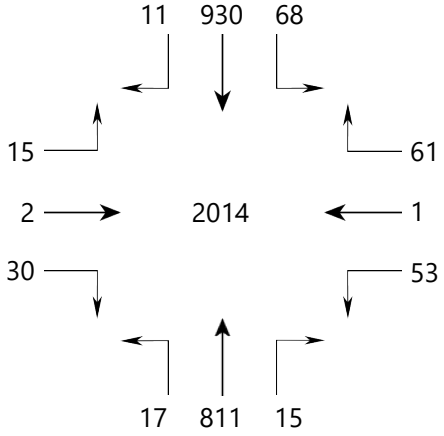
PM PEAK HOUR VOLUME (14:15-23:45)

FROM 14:15 TO 15:15



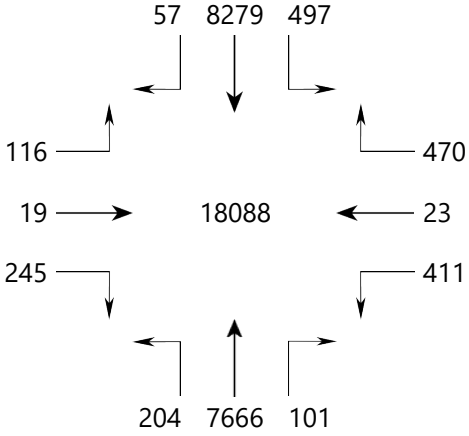
OVERALL PEAK HOUR VOLUME

FROM 12:00 TO 13:00



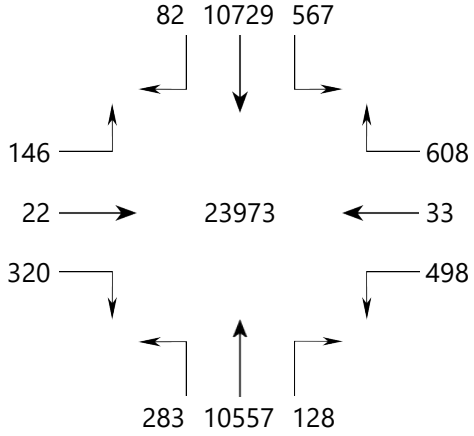
DAYTIME TOTAL VOLUME

FROM 07:00 TO 18:00



SELECTED TIME VOLUME

FROM 00:00 TO 23:59



B

Adjustment Factors (Seasonal)

Attachment "E"

Group 4 Averages: Urban Highways

Month	MADT	Adjustment to Average	Adjustment to Peak
January	14,556	1.04	1.09
February	15,385	0.98	1.03
March	14,276	1.06	1.11
April	14,515	1.04	1.10
May	15,571	0.97	1.02
June	15,918	0.95	1.00
July	15,765	0.96	1.01
August	15,856	0.95	1.00
September	15,571	0.97	1.02
October	15,698	0.96	1.01
November	14,429	1.05	1.10
December	13,960	1.08	1.14

Average ADT: 15,125
Peak ADT: 15,918

GROUP	Station	TOWN	LOCATION
04	02051003	Bow	NH 3A south of Robinson Rd
04	02089001	Chichester	NH 28 (Suncook Valley Rd) north of Bear Hill Rd
04	02091001	Claremont	NH 12/103 east of Vermont SL
04	02125001	Dover	Dover Point Rd south of Thornwood Ln
04	02133021	Durham	US 4 east of NH 108
04	02229022	Hudson	Circumferential Hwy east of Nashua TL
04	02253025	Lebanon	NH 120 1 mile south of Hanover TL (south of Lahaye Dr)
04	02255001	Barrington	NH 125 (Calef Hwy) north of Pinkham Rd
04	02287001	Marlborough	NH 12 at Swanzey TL
04	02297001	Merrimack	US 3 (Daniel Webster Hwy) north of Hilton Dr
04	*02303001*	*Amherst*	*NH 101A at Amherst TL (west of Overlook Dr)*
04	*02315051*	*Hudson*	*NH 111 (Bridge / Ferry St) at Hudson TL*
04	02339001	Newport	NH 10 1 mile south of Croydon TL (north of Corbin Rd)
04	02345001	North Hamptor	US 1 (Lafayette Rd) north of North Rd
04	02445001	Wilton	NH 101 at Wilton TL (west of Old County Farm Rd)
04	*02489001*	*Windham*	*NH 28 at Derry TL (north of Northland Rd)*
04	*62099056*	*Concord*	*NH 106 (Sheep Davis Rd) at Loudon TL (north of Ashby Rd)*
04	*62099059*	*Concord*	*Clinton St Rte: NH 13*
04	*62387052*	*Rindge*	*US 202 at Jaffrey TL (north of County Rd)*
04	62389040	Rochester	Spaulding Tpke N
04	72099278	Concord	US 3 (Fisherville Rd) north of Sewalls Falls Rd
04	82037087	Bedford	New Boston Rd
04	*82101031*	*Conway*	*White Mountain Hwy at Washington St*
04	*82101032*	*Conway*	*Pleasent St*
04	*82101033*	*Conway*	*White Mountain Hwy at Pleasant St*
04	*82169060*	*Gilford*	*Weirs Rd Rte: NH 11B*
04	82197076	Hampton Falls	US 1 (Lafayette Rd) south of Ramp to NH 101
04	*82213067*	*Henniker*	*Rush Rd*
04	*82237075*	*Keene*	*Keene By-Pass Rte: NH 101*
04	82243052	Kingston	NH Route 125 Rte: NH 107
04	82253117	Lebanon	Meriden Rd Rte: NH 120
04	*82253119*	*Lebanon*	*Etna Rd*
04	*82303020*	*Milford*	*NH 101 (Milford Bypass) North of Phelan Rd*
04	*82303066*	*Milford*	*NH 101 (Milford Bypass) East of NH 13*

** denotes Station that is not included in calculation*

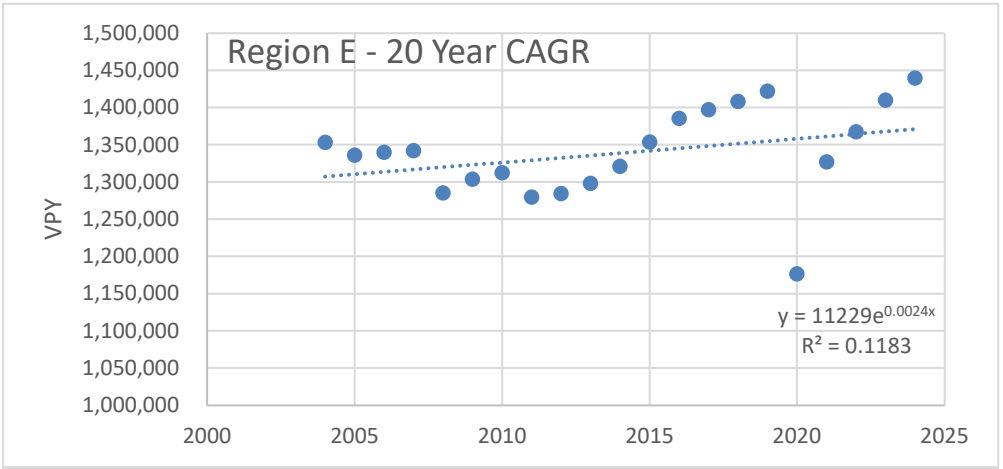
C

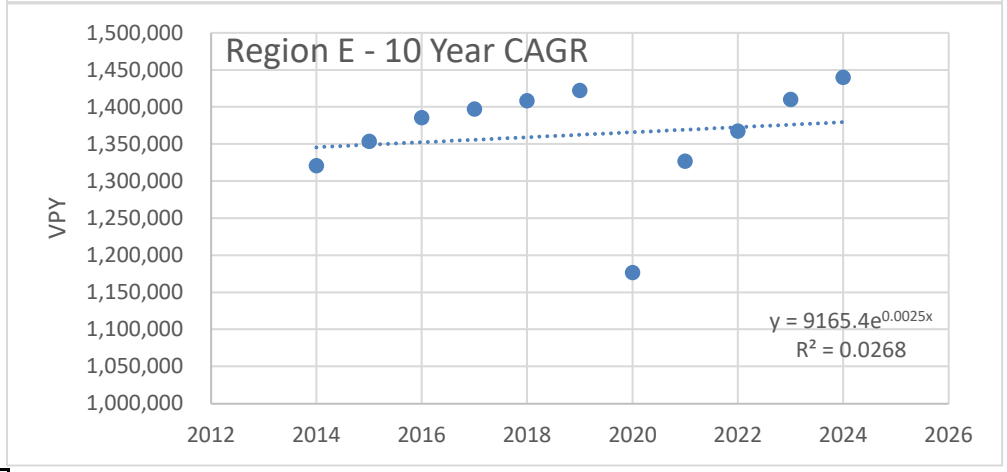
Historical Growth

Attachment "E"

Year	Region E VPY	Annual Change
2004	1,353,263	
2005	1,336,129	-1.27%
2006	1,340,011	0.29%
2007	1,341,995	0.15%
2008	1,285,116	-4.24%
2009	1,303,948	1.47%
2010	1,312,251	0.64%
2011	1,279,824	-2.47%
2012	1,284,314	0.35%
2013	1,298,171	1.08%
2014	1,320,862	1.75%
2015	1,353,486	2.47%
2016	1,385,361	2.36%
2017	1,396,932	0.84%
2018	1,408,237	0.81%
2019	1,422,176	0.99%
2020	1,176,424	-17.28%
2021	1,326,889	12.79%
2022	1,367,310	3.05%
2023	1,409,876	3.11%
2024	1,439,862	2.13%

20 Year CAGR:	0.31%	10 Year CAGR:	0.87%
20 Year EXP:	0.24%	10 Year EXP:	0.25%
20-Average:	0.27%	10-Average:	0.56%



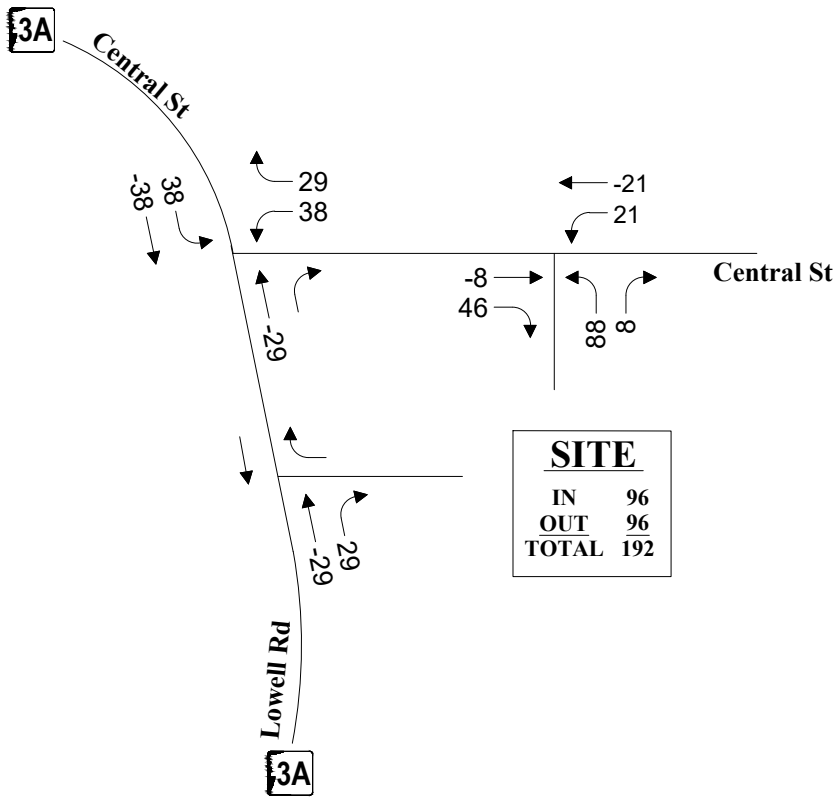


D

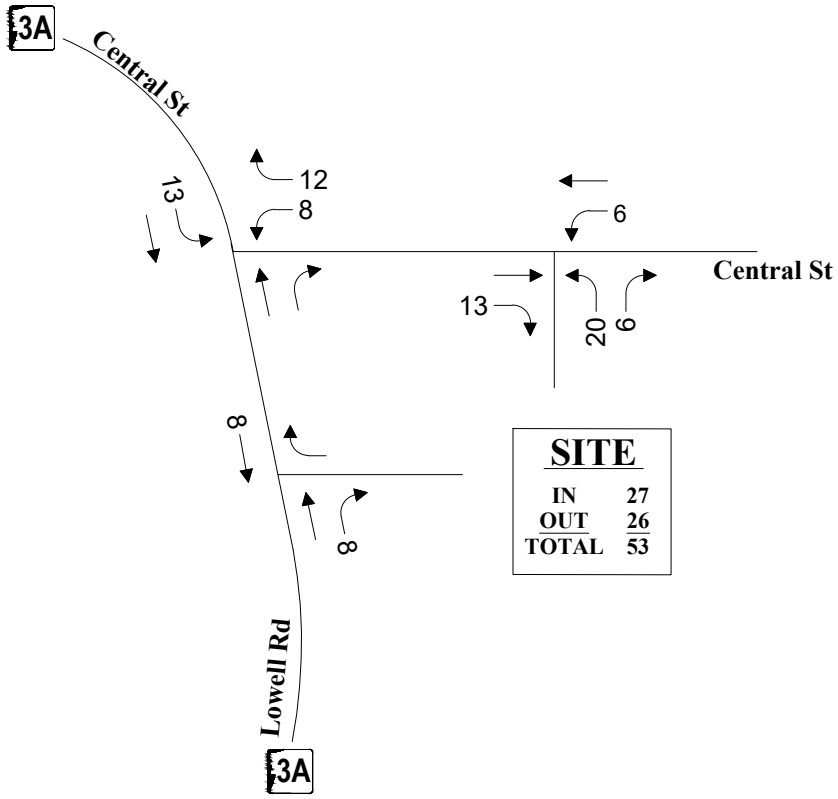
Background Developments

Attachment "E"

Pass-By Trips



New Trips



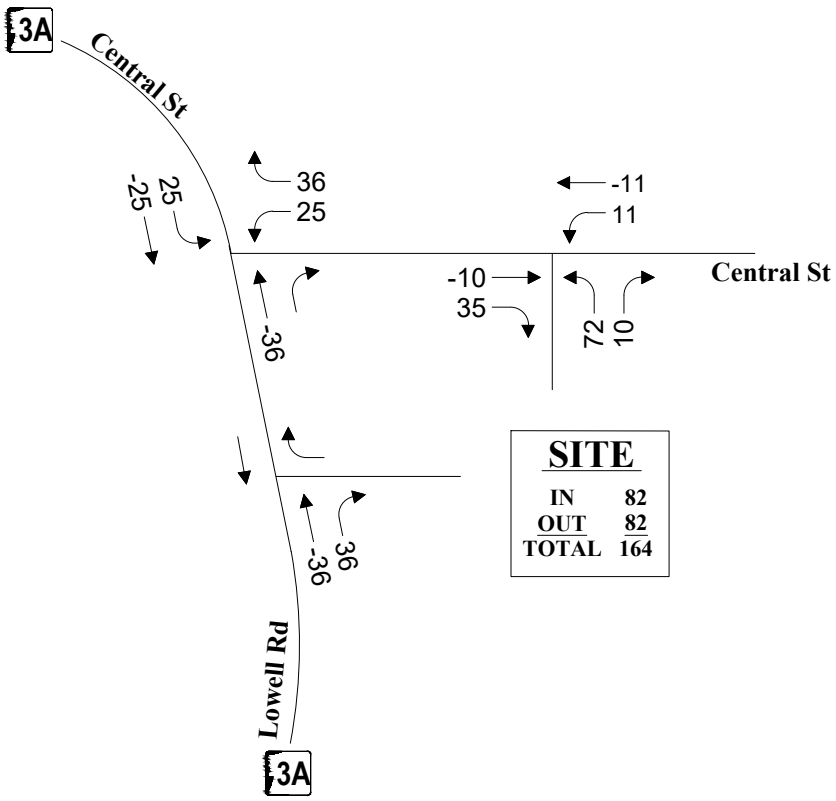
Not to Scale

Weekday Morning
Peak Hour Traffic Volumes

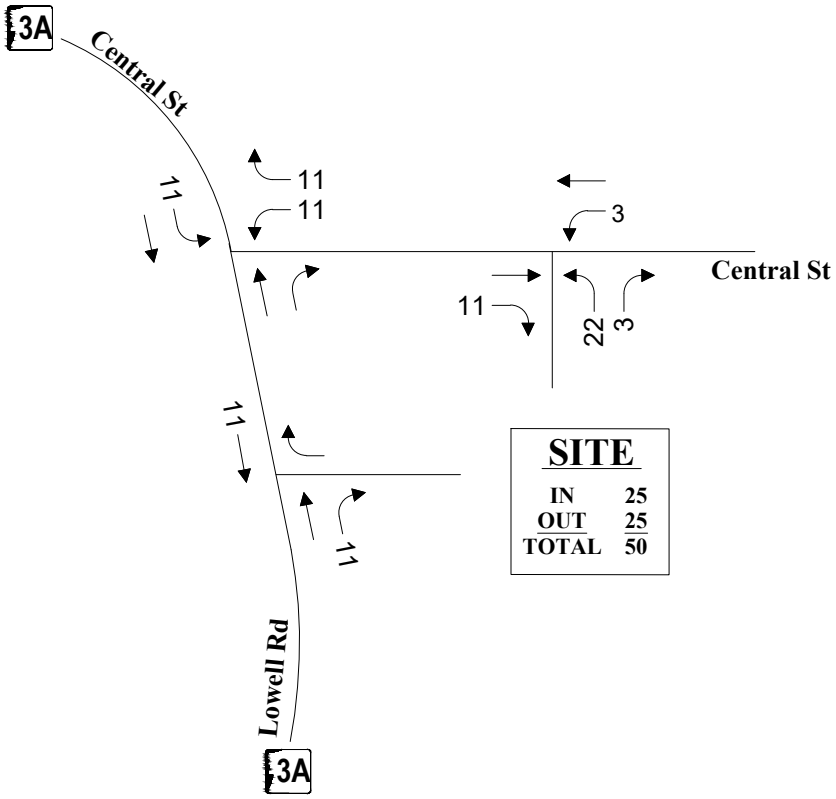
Figure 5

Attachment "E"

Pass-By Trips



New Trips



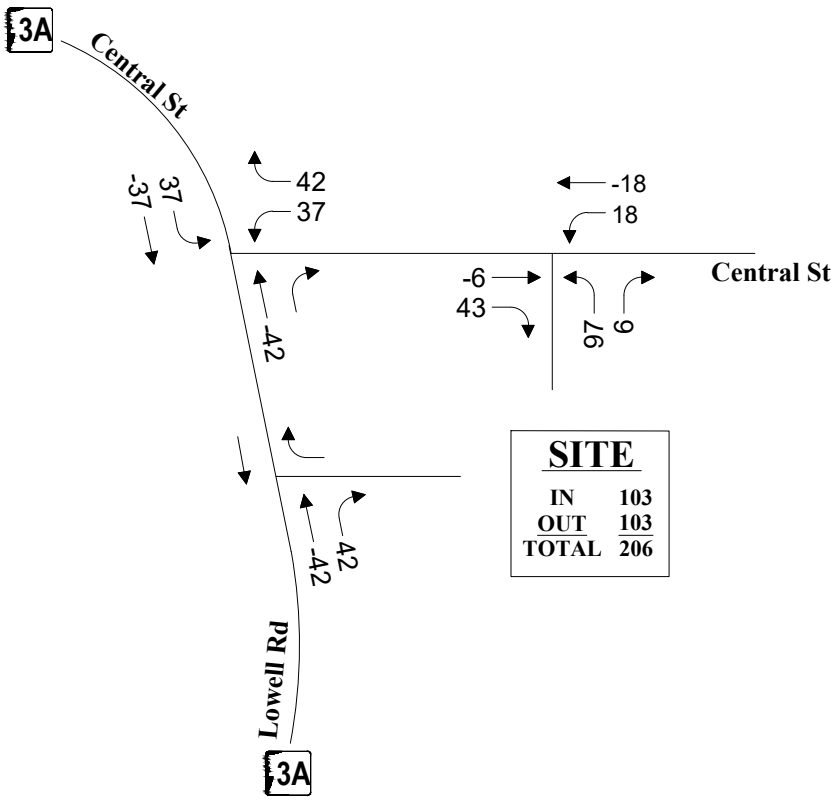
Not to Scale

Weekday Evening
Peak Hour Traffic Volumes

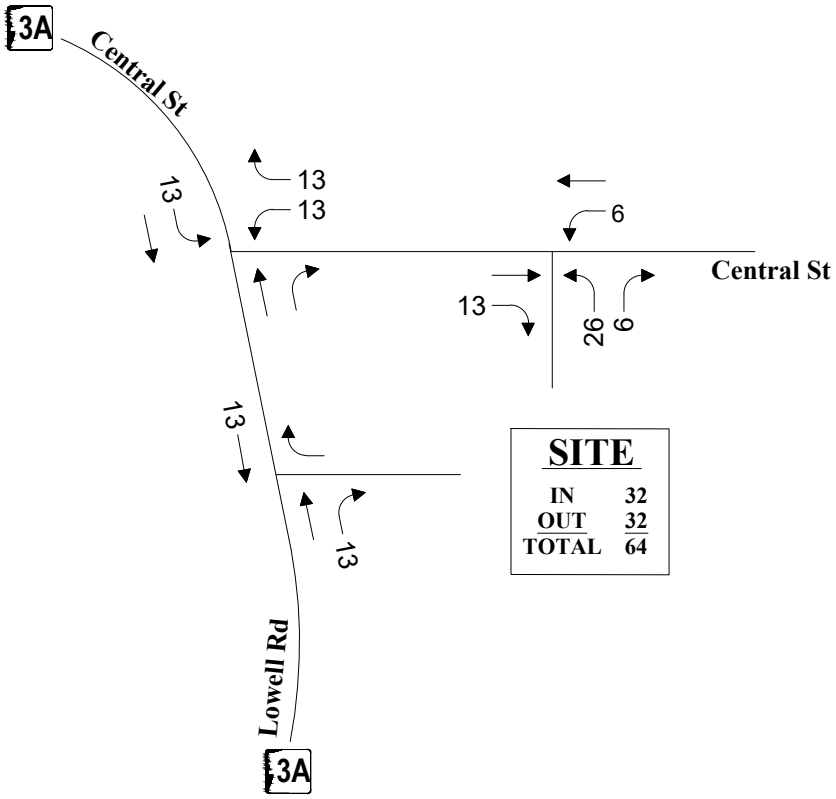
Figure 6

Attachment "E"

Pass-By Trips



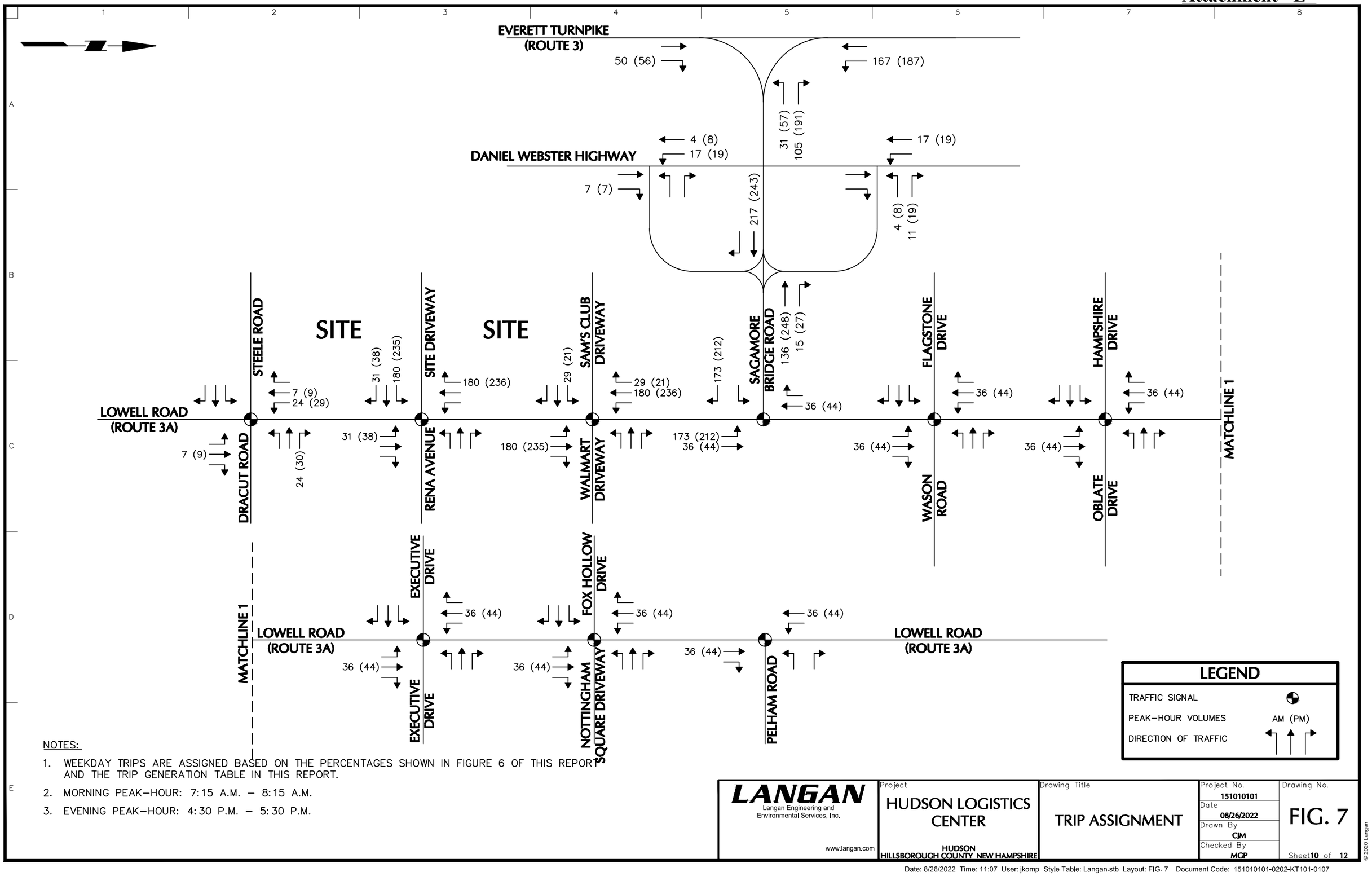
New Trips



Not to Scale

Saturday Midday
Peak Hour Traffic Volumes

Figure 7



LEGEND

TRAFFIC SIGNAL	
PEAK–HOUR VOLUMES	AM (PM)
DIRECTION OF TRAFFIC	

NOTES:

1. WEEKDAY TRIPS ARE ASSIGNED BASED ON THE PERCENTAGES SHOWN IN FIGURE 6 OF THIS REPORT AND THE TRIP GENERATION TABLE IN THIS REPORT.
2. MORNING PEAK–HOUR: 7:15 A.M. – 8:15 A.M.
3. EVENING PEAK–HOUR: 4:30 P.M. – 5:30 P.M.

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Project: HUDSON LOGISTICS CENTER
HUDSON
HILLSBOROUGH COUNTY NEW HAMPSHIRE

Drawing Title: TRIP ASSIGNMENT

Project No. 151010101
Date 08/26/2022
Drawn By CJM
Checked By MGP

Drawing No. FIG. 7
Sheet 10 of 12

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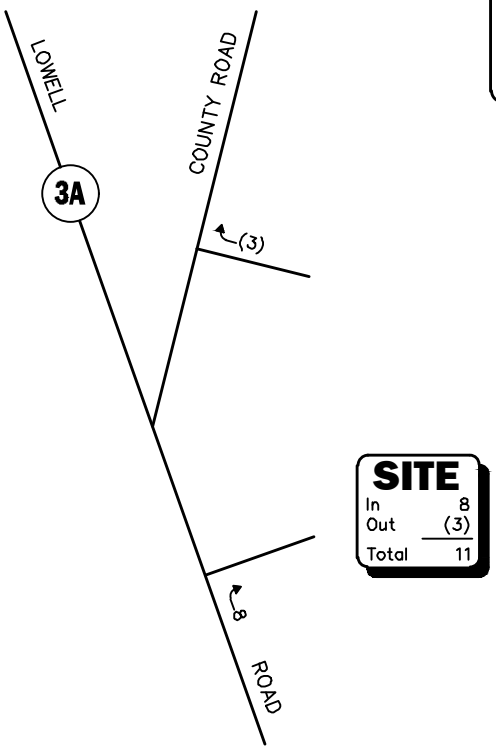
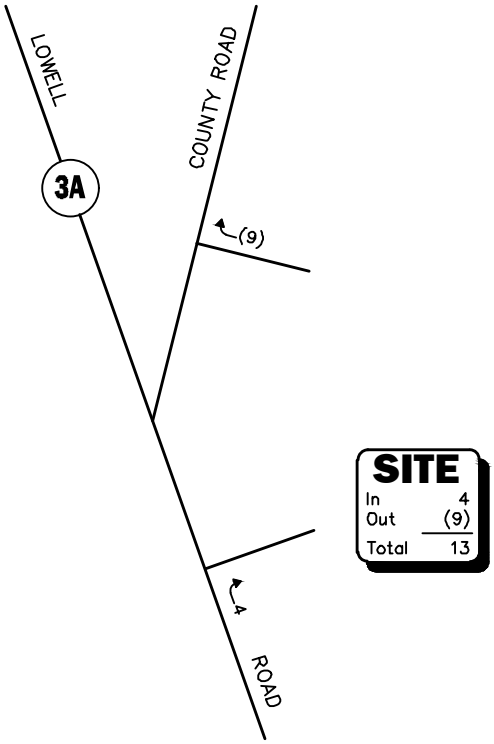
WEEKDAY MORNING PEAK HOUR (7:30 - 8:30 AM)



WEEKDAY EVENING PEAK HOUR (4:15 - 5:15 PM)



Not To Scale

Figure 7

Project-Generated Peak-Month Peak-Hour Traffic Volumes

Vanasse & Associates inc

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R:\9998\Graphics\TIA\August 2024\9998NT1.dwg, 11/25/2024 1:06:27 PM

E

Trip Generation

Attachment "E"

	High-Volume Fast Food LUC 929 4200 SF	Internal Capture	Pass-By	Net Fast-Food	Existing Shopping Plaza LUC 821 56876 SF Counts	Existing Shopping Plaza LUC 821 79% Reduced
Weekday Morning - Adjacent Street			50%			
Enter	57	4	26	27	44	35
Exit	52	3	26	23	43	34
Total	**109**	**7**	**52**	**50**	**87**	**69**
		4%				
Weekday Evening - Adjacent Street			55%			
Enter	123	28	50	45	94	74
Exit	123	37	50	36	124	98
Total	**245**	**65**	**100**	**80**	**218**	**173**
		14%				
Saturday Midday - Peak of Generator			55%			
Enter	148	26	65	57	85	67
Exit	148	34	65	49	115	91
Total	**295**	**60**	**130**	**105**	**200**	**158**
		12%				

Existing Nottingham Square trip genreation counts were reduced for internal capture cacluations to remove existing restaurant uses.

Attachment "E"

ITE TRIP GENERATION WORKSHEET

(12th Edition)

LANDUSE: High-Volume Fast-Food Restaurant
LANDUSE CODE: 929 Independent Variable --- 1,000 Sq. Feet Gross Floor Area
SETTING/LOCATION: General Urban/Suburban
JOB NAME: **FLOOR AREA (KSF):** 4.200
JOB NUMBER:

WEEKDAY

RATES:

	# Studies	R^2	Total Trip Ends Average	Low	High	Independent Variable Range Average	Low	High	Directional Distribution Enter	Exit
DAILY	7	--	653.22	453.05	1045.83	5	5	5	50%	50%
AM PEAK OF GENERATOR	7	--	49.58	19.80	81.74	5	5	5	50%	50%
PM PEAK OF GENERATOR	10	--	70.33	52.80	85.43	5	5	5	50%	50%
AM PEAK (ADJACENT ST)	21	--	26.02	6.80	49.37	5	5	5	52%	48%
PM PEAK (ADJACENT ST)	21	--	58.43	30.97	96.93	5	5	5	50%	50%

TRIPS:

	BY AVERAGE Total	Enter	Exit	BY REGRESSION Total	Enter	Exit
DAILY	2,744	1,372	1,372	--	--	--
AM PEAK (ADJACENT ST)	109	57	52	--	--	--
PM PEAK (ADJACENT ST)	245	123	123	--	--	--

SATURDAY

RATES:

	# Studies	R^2	Total Trip Ends Average	Low	High	Independent Variable Range Average	Low	High	Directional Distribution Enter	Exit
DAILY	--	--	--	--	--	--	--	--	--	--
PEAK OF GENERATOR	10	--	70.33	52.80	85.43	5	5	5	50%	50%

TRIPS:

	BY AVERAGE Total	Enter	Exit	BY REGRESSION Total	Enter	Exit
DAILY	--	--	--	--	--	--
PEAK OF GENERATOR	295	148	148	--	--	--

SUNDAY

RATES:

	# Studies	R^2	Total Trip Ends Average	Low	High	Independent Variable Range Average	Low	High	Directional Distribution Enter	Exit
DAILY	1	--	164.43	164.43	164.43	5	5.0	5.0	50%	50%
PEAK OF GENERATOR	2	--	35.98	32.41	43.20	4	3.0	5.0	55%	45%

TRIPS:

	BY AVERAGE Total	Enter	Exit	BY REGRESSION Total	Enter	Exit
DAILY	--	--	--	--	--	--
PEAK OF GENERATOR	--	--	--	--	--	--

Attachment "E"

ITE TRIP GENERATION WORKSHEET
(12th Edition)

LANDUSE: Shopping Plaza (40-150k) - No Supermarket
LANDUSE CODE: 821 Independent Variable ---
SETTING/LOCATION: General Urban/Suburban
JOB NAME: Boylston Street Development **FLOOR AREA (KSF):** 56.876
JOB NUMBER: 16462.00

WEEKDAY

RATES:

	# Studies	R^2	Total Trip Ends Average	Low	High	Independent Variable Range Average	Low	High	Directional Distribution Enter	Exit
DAILY	6	--	65.38	43.29	91.06	59	45	78	50%	50%
AM PEAK OF GENERATOR	2	--	3.61	3.18	4.07	45	43	47	61%	39%
PM PEAK OF GENERATOR	3	--	5.87	4.44	8.10	59	43	86	53%	47%
AM PEAK (ADJACENT ST)	9	--	1.59	0.29	3.77	67	43	108	62%	38%
PM PEAK (ADJACENT ST)	24	--	4.76	2.55	12.04	79	43	142	49%	51%

TRIPS:

	BY AVERAGE Total	Enter	Exit	BY REGRESSION Total	Enter	Exit
DAILY	3,718	1,859	1,859	--	--	--
AM PEAK OF GENERATOR	205	125	80	--	--	--
PM PEAK OF GENERATOR	334	177	157	--	--	--
AM PEAK (ADJACENT ST)	90	56	34	--	--	--
PM PEAK (ADJACENT ST)	271	133	138	--	--	--

SATURDAY

RATES:

	# Studies	R^2	Total Trip Ends Average	Low	High	Independent Variable Range Average	Low	High	Directional Distribution Enter	Exit
DAILY	--	--	--	--	--	--	--	--	--	--
PEAK OF GENERATOR	5	0.76	5.10	2.38	6.53	64	43	94	52%	48%

TRIPS:

	BY AVERAGE Total	Enter	Exit	BY REGRESSION Total	Enter	Exit
DAILY	--	--	--	--	--	--
PEAK OF GENERATOR	290	151	139	276	143	132

SUNDAY

RATES:

	# Studies	R^2	Total Trip Ends Average	Low	High	Independent Variable Range Average	Low	High	Directional Distribution Enter	Exit
DAILY	--	--	--	--	--	--	--	--	--	--
PEAK OF GENERATOR	--	--	--	--	--	--	--	--	--	--

TRIPS:

	BY AVERAGE Total	Enter	Exit	BY REGRESSION Total	Enter	Exit
DAILY	--	--	--	--	--	--
PEAK OF GENERATOR	--	--	--	--	--	--

Attachment "E"

Vehicle Pass-By Rates by Land Use

Source: ITE *Trip Generation Manual* , 11th Edition

Land Use Code	934
Land Use	Fast-Food Restaurant with Drive-Through Window
Setting	General Urban/Suburban
Time Period	Weekday AM Peak Period
# Data Sites	5
Average Pass-By Rate	50%

Pass-By Characteristics for Individual Sites

GFA (000)	State or Province	Survey Year	# Interviews	Pass-By Trip (%)	Non-Pass-By Trips			Adj Street Peak Hour Volume	Source
					Primary (%)	Diverted (%)	Total (%)		
1.4	Kentucky	1993	—	62	22	16	38	1407	2
3	Kentucky	1993	—	43	14	43	57	2903	2
3.3	--	1996	—	68	—	—	32	—	21
3.6	Kentucky	1993	—	32	47	21	68	437	2
4.2	Indiana	1993	—	46	23	31	54	1049	2

Attachment "E"

Vehicle Pass-By Rates by Land Use

Source: ITE *Trip Generation Manual* , 11th Edition

Land Use Code	934
Land Use	Fast-Food Restaurant with Drive-Through Window
Setting	General Urban/Suburban
Time Period	Weekday PM Peak Period
# Data Sites	11
Average Pass-By Rate	55%

Pass-By Characteristics for Individual Sites

GFA (000)	State or Province	Survey Year	# Interviews	Pass-By Trip (%)	Non-Pass-By Trips			Adj Street Peak Hour Volume	Source
					Primary (%)	Diverted (%)	Total (%)		
1.3	Kentucky	1993	—	68	22	10	32	2055	2
1.9	Kentucky	1993	33	67	24	9	33	2447	2
2.8	Florida	1995	47	66	—	—	34	—	30
2.9	Florida	1996	271	41	41	18	59	—	30
3	Kentucky	1993	—	31	31	38	69	4250	2
3.1	Florida	1995	28	71	—	—	29	—	30
3.1	Florida	1996	29	38	—	—	62	—	30
3.2	Florida	1996	202	40	39	21	60	—	30
3.3	—	1996	—	62	—	—	38	—	21
4.2	Indiana	1993	—	56	25	19	44	1632	2
4.3	Florida	1994	304	62	—	—	38	—	30

Table 6.1 Unconstrained Internal Person Trip Capture Rates for Trip Origins within a Mixed-Use Development

		WEEKDAY	
		AM Peak Hour	PM Peak Hour
From OFFICE	To Retail	28%	20%
	To Restaurant	63%	4%
	To Cinema/Entertainment	0%	0%
	To Residential	1%	2%
	To Hotel	0%	0%
From RETAIL	To Office	29%	2%
	To Restaurant	13%	29%
	To Cinema/Entertainment	0%	4%
	To Residential	14%	26%
	To Hotel	0%	5%
From RESTAURANT	To Office	31%	3%
	To Retail	14%	41%
	To Cinema/Entertainment	0%	8%
	To Residential	4%	18%
	To Hotel	3%	7%
From CINEMA/ENTERTAINMENT	To Office	0%	2%
	To Retail	0%	21%
	To Restaurant	0%	31%
	To Residential	0%	8%
	To Hotel	0%	2%
From RESIDENTIAL	To Office	2%	4%
	To Retail	1%	42%
	To Restaurant	20%	21%
	To Cinema/Entertainment	0%	0%
	To Hotel	0%	3%
From HOTEL	To Office	75%	0%
	To Retail	14%	16%
	To Restaurant	9%	68%
	To Cinema/Entertainment	0%	0%
	To Residential	0%	2%

Source: Bochner, B., K. Hooper, B. Sperry, and R. Dunphy. NCHRP Report 684: *Enhancing Internal Trip Capture Estimation for Mixed-Use Developments.* Washington, DC: Transportation Research Board, Tables 99 and 100, 2011.

Table 6.2 Unconstrained Internal Person Trip Capture Rates for Trip Destinations within a Mixed-Use Development

		Weekday	
		AM Peak Hour	PM Peak Hour
To OFFICE	From Retail	4%	31%
	From Restaurant	14%	30%
	From Cinema/Entertainment	0%	6%
	From Residential	3%	57%
	From Hotel	3%	0%
To RETAIL	From Office	32%	8%
	From Restaurant	8%	50%
	From Cinema/Entertainment	0%	4%
	From Residential	17%	10%
	From Hotel	4%	2%
To RESTAURANT	From Office	23%	2%
	From Retail	50%	29%
	From Cinema/Entertainment	0%	3%
	From Residential	20%	14%
	From Hotel	6%	5%
To CINEMA/ENTERTAINMENT	From Office	0%	1%
	From Retail	0%	26%
	From Restaurant	0%	32%
	From Residential	0%	0%
	From Hotel	0%	0%
To RESIDENTIAL	From Office	0%	4%
	From Retail	2%	46%
	From Restaurant	5%	16%
	From Cinema/Entertainment	0%	4%
	From Hotel	0%	0%
To HOTEL	From Office	0%	0%
	From Retail	0%	17%
	From Restaurant	4%	71%
	From Cinema/Entertainment	0%	1%
	From Residential	0%	12%

Source: Bochner, B., K. Hooper, B. Sperry, and R. Dunphy. NCHRP Report 684: *Enhancing Internal Trip Capture Estimation for Mixed-Use Developments*. Washington, DC: Transportation Research Board, Tables 101 and 102, 2011.

Attachment "E"

SHARED TRIPS [1]

RETAIL - RESTAURANT

WEEKDAY MORNING

RETAIL	%	#	BALANCED	#	%	REST
EXIT ->	13%	34	**4**	57	50%	-> ENT
TER <-	8%	35	**3**	52	14%	<- EXIT

WEEKDAY EVENING

RETAIL	%	#	BALANCED	#	%	REST
EXIT ->	29%	98	**28**	123	29%	-> ENT
TER <-	50%	74	**37**	123	41%	<- EXIT

SATURDAY MIDDAY

RETAIL	%	#	BALANCED	#	%	REST
EXIT ->	29%	91	**26**	148	29%	-> ENTER
TER <-	50%	67	**34**	200	41%	<- EXIT

TOTAL SHARED TRIPS - WEEKDAY MORNING

	ENTER	EXIT	TOTAL
RETAIL	3	4	7
REST	4	3	7

TOTAL SHARED TRIPS - WEEKDAY EVENING

	ENTER	EXIT	TOTAL
RETAIL	37	28	65
REST	28	37	65

TOTAL SHARED TRIPS - SATURDAY MIDDAY

	ENTER	EXIT	TOTAL
RETAIL	34	26	60
REST	26	34	60

Retail trips based on existing trips entering and exiting the plaza.

F

Operational Analysis

Queues

3: Fox Hollow Dr & Lowell Rd

11/12/2025

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	23	44	22	28	2	850	11	39	1245
v/c Ratio	0.18	0.22	0.17	0.14	0.01	0.71	0.01	0.32	0.85
Control Delay	49.9	8.6	49.4	1.5	51.5	16.0	0.0	51.3	15.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.9	8.6	49.4	1.5	51.5	16.0	0.0	51.3	15.1
Queue Length 50th (ft)	10	0	9	0	1	319	0	16	331
Queue Length 95th (ft)	49	21	47	0	11	485	0	#84	#1115
Internal Link Dist (ft)	272		239			409			289
Turn Bay Length (ft)		75		150	250		350	175	
Base Capacity (vph)	210	285	215	285	188	1716	1532	141	1772
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.15	0.10	0.10	0.01	0.50	0.01	0.28	0.70

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
3: Fox Hollow Dr & Lowell Rd

11/12/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	1	40	20	0	25	2	765	10	35	1115	5
Future Volume (vph)	20	1	40	20	0	25	2	765	10	35	1115	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.95	1.00		0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1778	1583		1770	1583	1770	1776	1583	1770	1826	
Flt Permitted		0.78	1.00		0.80	1.00	1.00	1.00	1.00	0.53	1.00	
Satd. Flow (perm)		1458	1583		1490	1583	1863	1776	1583	980	1826	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	22	1	44	22	0	28	2	850	11	39	1239	6
RTOR Reduction (vph)	0	0	41	0	0	26	0	0	4	0	0	0
Lane Group Flow (vph)	0	23	3	0	22	2	2	850	7	39	1245	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	7%	2%	2%	4%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	custom	NA	Perm	custom	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8		8	4		4	1		6	5		
Actuated Green, G (s)		5.0	5.0		5.0	5.0	0.6	55.5	55.5	7.6	62.5	
Effective Green, g (s)		5.0	5.0		5.0	5.0	0.6	55.5	55.5	7.6	62.5	
Actuated g/C Ratio		0.06	0.06		0.06	0.06	0.01	0.64	0.64	0.09	0.73	
Clearance Time (s)		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		1.5	1.5		1.5	1.5	1.0	1.5	1.5	1.5	1.5	
Lane Grp Cap (vph)		84	91		86	91	12	1144	1020	86	1325	
v/s Ratio Prot								0.48			c0.68	
v/s Ratio Perm		c0.02	0.00		0.01	0.00	0.00		0.00	c0.04		
v/c Ratio		0.27	0.03		0.26	0.02	0.17	0.74	0.01	0.45	0.94	
Uniform Delay, d1		38.8	38.3		38.8	38.2	42.5	10.4	5.5	37.3	10.2	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.6	0.0		0.6	0.0	2.4	2.3	0.0	1.4	12.6	
Delay (s)		39.5	38.3		39.3	38.3	44.9	12.8	5.5	38.7	22.8	
Level of Service		D	D		D	D	D	B	A	D	C	
Approach Delay (s)		38.7			38.7			12.7			23.3	
Approach LOS		D			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	20.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	86.1	Sum of lost time (s)	18.0
Intersection Capacity Utilization	82.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Queues

3: Fox Hollow Dr & Lowell Rd

11/12/2025

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	7	17	62	78	28	1422	22	78	778
v/c Ratio	0.10	0.11	0.74	0.46	0.37	1.02	0.02	1.56	0.52
Control Delay	67.8	1.6	112.2	22.3	82.0	48.5	0.1	367.8	7.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.8	1.6	112.2	22.3	82.0	48.5	0.1	367.8	7.2
Queue Length 50th (ft)	6	0	60	0	27	~1460	0	~106	270
Queue Length 95th (ft)	23	0	#133	54	62	#1726	0	#220	354
Internal Link Dist (ft)	272		239			409			289
Turn Bay Length (ft)		75		150	250		350	175	
Base Capacity (vph)	91	169	94	180	84	1394	1201	50	1496
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.10	0.66	0.43	0.33	1.02	0.02	1.56	0.52

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
3: Fox Hollow Dr & Lowell Rd

11/12/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	1	15	50	5	70	25	1280	20	70	690	10
Future Volume (vph)	5	1	15	50	5	70	25	1280	20	70	690	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.96	1.00		0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1786	1583		1782	1583	1770	1863	1583	1770	1859	
Flt Permitted		0.72	1.00		0.74	1.00	0.95	1.00	1.00	0.40	1.00	
Satd. Flow (perm)		1341	1583		1382	1583	1774	1863	1583	745	1859	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	6	1	17	56	6	78	28	1422	22	78	767	11
RTOR Reduction (vph)	0	0	16	0	0	73	0	0	5	0	0	0
Lane Group Flow (vph)	0	7	1	0	62	5	28	1422	17	78	778	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	custom	NA	Perm	custom	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8		8	4		4	1		6	5		
Actuated Green, G (s)		8.9	8.9		8.9	8.9	4.2	112.5	112.5	10.0	118.3	
Effective Green, g (s)		8.9	8.9		8.9	8.9	4.2	112.5	112.5	10.0	118.3	
Actuated g/C Ratio		0.06	0.06		0.06	0.06	0.03	0.75	0.75	0.07	0.79	
Clearance Time (s)		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		1.5	1.5		1.5	1.5	1.0	1.5	1.5	1.5	1.5	
Lane Grp Cap (vph)		79	94		82	94	49	1402	1192	49	1472	
v/s Ratio Prot								c0.76			c0.42	
v/s Ratio Perm		0.01	0.00		c0.04	0.00	0.02		0.01	c0.10		
v/c Ratio		0.09	0.01		0.76	0.05	0.57	1.01	0.01	1.59	0.53	
Uniform Delay, d1		66.4	66.1		69.2	66.3	71.7	18.5	4.6	69.7	5.6	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.2	0.0		29.1	0.1	9.6	27.6	0.0	343.0	0.2	
Delay (s)		66.6	66.1		98.2	66.3	81.3	46.1	4.6	412.7	5.7	
Level of Service		E	E		F	E	F	D	A	F	A	
Approach Delay (s)		66.3			80.5			46.1			42.8	
Approach LOS		E			F			D			D	

Intersection Summary			
HCM 2000 Control Delay	47.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	149.4	Sum of lost time (s)	18.0
Intersection Capacity Utilization	90.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Queues
3: Fox Hollow Dr & Lowell Rd

11/12/2025

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	19	33	62	67	17	917	17	78	1067
v/c Ratio	0.17	0.17	0.51	0.33	0.14	0.83	0.02	0.99	0.79
Control Delay	51.7	3.6	61.8	17.8	53.5	22.1	0.1	144.5	14.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.7	3.6	61.8	17.8	53.5	22.1	0.1	144.5	14.7
Queue Length 50th (ft)	9	0	30	0	8	389	0	39	261
Queue Length 95th (ft)	43	7	#121	48	41	544	0	#204	698
Internal Link Dist (ft)	272		239			409			289
Turn Bay Length (ft)		75		150	250		350	175	
Base Capacity (vph)	149	238	151	239	148	1794	1527	79	1798
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.14	0.41	0.28	0.11	0.51	0.01	0.99	0.59

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
3: Fox Hollow Dr & Lowell Rd

11/12/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	2	30	55	1	60	15	825	15	70	950	10
Future Volume (vph)	15	2	30	55	1	60	15	825	15	70	950	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.96	1.00		0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1783	1583		1775	1583	1770	1863	1583	1770	1860	
Flt Permitted		0.70	1.00		0.72	1.00	1.00	1.00	1.00	0.38	1.00	
Satd. Flow (perm)		1312	1583		1333	1583	1863	1863	1583	703	1860	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	17	2	33	61	1	67	17	917	17	78	1056	11
RTOR Reduction (vph)	0	0	30	0	0	61	0	0	7	0	0	0
Lane Group Flow (vph)	0	19	3	0	62	6	17	917	10	78	1067	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	custom	NA	Perm	custom	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8		8	4		4	1		6	5		
Actuated Green, G (s)		8.4	8.4		8.4	8.4	2.2	59.1	59.1	10.6	67.5	
Effective Green, g (s)		8.4	8.4		8.4	8.4	2.2	59.1	59.1	10.6	67.5	
Actuated g/C Ratio		0.09	0.09		0.09	0.09	0.02	0.61	0.61	0.11	0.70	
Clearance Time (s)		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		1.5	1.5		1.5	1.5	1.0	1.5	1.5	1.5	1.5	
Lane Grp Cap (vph)		114	138		116	138	42	1145	973	77	1306	
v/s Ratio Prot								0.49			c0.57	
v/s Ratio Perm		0.01	0.00		c0.05	0.00	0.01		0.01	c0.11		
v/c Ratio		0.17	0.02		0.53	0.04	0.40	0.80	0.01	1.01	0.82	
Uniform Delay, d1		40.6	40.1		42.0	40.2	46.3	14.0	7.2	42.8	10.0	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.3	0.0		2.4	0.0	2.3	3.9	0.0	106.2	3.9	
Delay (s)		40.9	40.1		44.3	40.2	48.6	17.9	7.2	148.9	13.8	
Level of Service		D	D		D	D	D	B	A	F	B	
Approach Delay (s)		40.4			42.2			18.3			23.0	
Approach LOS		D			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	22.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	96.1	Sum of lost time (s)	18.0
Intersection Capacity Utilization	77.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Queues

3: Fox Hollow Dr & Lowell Rd

11/12/2025

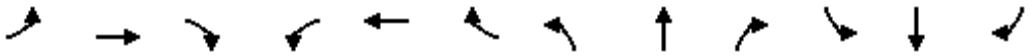
Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	23	44	22	28	2	917	11	33	1306
v/c Ratio	0.21	0.25	0.20	0.16	0.02	0.71	0.01	0.32	0.86
Control Delay	57.2	9.3	56.9	1.9	57.5	14.5	0.0	59.4	15.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.2	9.3	56.9	1.9	57.5	14.5	0.0	59.4	15.3
Queue Length 50th (ft)	13	0	12	0	1	371	0	18	388
Queue Length 95th (ft)	49	21	47	0	11	569	0	64	#1360
Internal Link Dist (ft)	272		239			409			289
Turn Bay Length (ft)		75		150	250		350	175	
Base Capacity (vph)	179	249	183	249	157	1689	1509	128	1753
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.18	0.12	0.11	0.01	0.54	0.01	0.26	0.75

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
3: Fox Hollow Dr & Lowell Rd

11/12/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	1	40	20	0	25	2	825	10	30	1170	5
Future Volume (vph)	20	1	40	20	0	25	2	825	10	30	1170	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.95	1.00		0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1778	1583		1770	1583	1770	1776	1583	1770	1826	
Flt Permitted		0.80	1.00		0.82	1.00	1.00	1.00	1.00	0.57	1.00	
Satd. Flow (perm)		1488	1583		1521	1583	1863	1776	1583	1064	1826	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	22	1	44	22	0	28	2	917	11	33	1300	6
RTOR Reduction (vph)	0	0	42	0	0	27	0	0	3	0	0	0
Lane Group Flow (vph)	0	23	2	0	22	1	2	917	8	33	1306	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	7%	2%	2%	4%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	custom	NA	Perm	custom	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8		8	4		4	1		6	5		
Actuated Green, G (s)		4.9	4.9		4.9	4.9	0.7	69.4	69.4	7.0	75.7	
Effective Green, g (s)		4.9	4.9		4.9	4.9	0.7	69.4	69.4	7.0	75.7	
Actuated g/C Ratio		0.05	0.05		0.05	0.05	0.01	0.70	0.70	0.07	0.76	
Clearance Time (s)		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		1.5	1.5		1.5	1.5	1.0	1.5	1.5	1.5	1.5	
Lane Grp Cap (vph)		73	78		75	78	13	1241	1106	75	1392	
v/s Ratio Prot								0.52			c0.72	
v/s Ratio Perm		c0.02	0.00		0.01	0.00	0.00		0.00	c0.03		
v/c Ratio		0.32	0.03		0.29	0.02	0.15	0.74	0.01	0.44	0.94	
Uniform Delay, d1		45.6	44.9		45.5	44.9	49.0	9.3	4.5	44.3	9.8	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.9	0.1		0.8	0.0	2.0	2.0	0.0	1.5	12.0	
Delay (s)		46.5	45.0		46.3	44.9	51.0	11.3	4.5	45.8	21.8	
Level of Service		D	D		D	D	D	B	A	D	C	
Approach Delay (s)		45.5			45.6			11.3			22.4	
Approach LOS		D			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	19.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	99.3	Sum of lost time (s)	18.0
Intersection Capacity Utilization	85.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Queues
3: Fox Hollow Dr & Lowell Rd

11/12/2025

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	7	17	62	78	28	1506	22	78	844
v/c Ratio	0.10	0.11	0.74	0.46	0.37	1.08	0.02	1.56	0.56
Control Delay	67.8	1.6	112.2	22.3	82.0	69.0	0.1	367.8	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.8	1.6	112.2	22.3	82.0	69.0	0.1	367.8	7.8
Queue Length 50th (ft)	6	0	60	0	27	~1628	0	~106	311
Queue Length 95th (ft)	23	0	#133	54	62	#1894	0	#220	410
Internal Link Dist (ft)	272		239			409			289
Turn Bay Length (ft)		75		150	250		350	175	
Base Capacity (vph)	91	169	94	180	84	1394	1201	50	1496
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.10	0.66	0.43	0.33	1.08	0.02	1.56	0.56

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
3: Fox Hollow Dr & Lowell Rd

11/12/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	1	15	50	5	70	25	1355	20	70	750	10
Future Volume (vph)	5	1	15	50	5	70	25	1355	20	70	750	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.96	1.00		0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1786	1583		1782	1583	1770	1863	1583	1770	1859	
Flt Permitted		0.72	1.00		0.74	1.00	0.95	1.00	1.00	0.40	1.00	
Satd. Flow (perm)		1341	1583		1382	1583	1774	1863	1583	745	1859	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	6	1	17	56	6	78	28	1506	22	78	833	11
RTOR Reduction (vph)	0	0	16	0	0	73	0	0	5	0	0	0
Lane Group Flow (vph)	0	7	1	0	62	5	28	1506	17	78	844	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	custom	NA	Perm	custom	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8		8	4		4	1		6	5		
Actuated Green, G (s)		8.9	8.9		8.9	8.9	4.2	112.5	112.5	10.0	118.3	
Effective Green, g (s)		8.9	8.9		8.9	8.9	4.2	112.5	112.5	10.0	118.3	
Actuated g/C Ratio		0.06	0.06		0.06	0.06	0.03	0.75	0.75	0.07	0.79	
Clearance Time (s)		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		1.5	1.5		1.5	1.5	1.0	1.5	1.5	1.5	1.5	
Lane Grp Cap (vph)		79	94		82	94	49	1402	1192	49	1472	
v/s Ratio Prot								c0.81			c0.45	
v/s Ratio Perm		0.01	0.00		c0.04	0.00	0.02		0.01	c0.10		
v/c Ratio		0.09	0.01		0.76	0.05	0.57	1.07	0.01	1.59	0.57	
Uniform Delay, d1		66.4	66.1		69.2	66.3	71.7	18.5	4.6	69.7	5.9	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.2	0.0		29.1	0.1	9.6	46.7	0.0	343.0	0.3	
Delay (s)		66.6	66.1		98.2	66.3	81.3	65.1	4.6	412.7	6.3	
Level of Service		E	E		F	E	F	E	A	F	A	
Approach Delay (s)		66.3			80.5			64.6			40.7	
Approach LOS		E			F			E			D	

Intersection Summary			
HCM 2000 Control Delay	57.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	149.4	Sum of lost time (s)	18.0
Intersection Capacity Utilization	94.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Queues
3: Fox Hollow Dr & Lowell Rd

11/12/2025

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	19	33	62	67	17	944	17	78	1089
v/c Ratio	0.18	0.17	0.52	0.33	0.15	0.85	0.02	0.99	0.80
Control Delay	52.6	3.7	63.4	18.0	54.3	22.7	0.0	148.3	15.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	52.6	3.7	63.4	18.0	54.3	22.7	0.0	148.3	15.1
Queue Length 50th (ft)	9	0	31	0	9	414	0	41	276
Queue Length 95th (ft)	43	7	#121	48	41	578	0	#203	737
Internal Link Dist (ft)	272		239			409			289
Turn Bay Length (ft)		75		150	250		350	175	
Base Capacity (vph)	146	235	148	235	145	1794	1527	79	1798
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.14	0.42	0.29	0.12	0.53	0.01	0.99	0.61

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
3: Fox Hollow Dr & Lowell Rd

11/12/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	2	30	55	1	60	15	850	15	70	970	10
Future Volume (vph)	15	2	30	55	1	60	15	850	15	70	970	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.96	1.00		0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1783	1583		1775	1583	1770	1863	1583	1770	1860	
Flt Permitted		0.70	1.00		0.72	1.00	1.00	1.00	1.00	0.38	1.00	
Satd. Flow (perm)		1312	1583		1333	1583	1863	1863	1583	710	1860	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	17	2	33	61	1	67	17	944	17	78	1078	11
RTOR Reduction (vph)	0	0	30	0	0	61	0	0	6	0	0	0
Lane Group Flow (vph)	0	19	3	0	62	6	17	944	11	78	1089	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	custom	NA	Perm	custom	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8		8	4		4	1		6	5		
Actuated Green, G (s)		8.5	8.5		8.5	8.5	2.2	61.0	61.0	10.5	69.3	
Effective Green, g (s)		8.5	8.5		8.5	8.5	2.2	61.0	61.0	10.5	69.3	
Actuated g/C Ratio		0.09	0.09		0.09	0.09	0.02	0.62	0.62	0.11	0.71	
Clearance Time (s)		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		1.5	1.5		1.5	1.5	1.0	1.5	1.5	1.5	1.5	
Lane Grp Cap (vph)		113	137		115	137	41	1159	985	76	1315	
v/s Ratio Prot								0.51			c0.59	
v/s Ratio Perm		0.01	0.00		c0.05	0.00	0.01		0.01	c0.11		
v/c Ratio		0.17	0.02		0.54	0.04	0.41	0.81	0.01	1.03	0.83	
Uniform Delay, d1		41.5	40.9		42.9	41.0	47.3	14.2	7.0	43.8	10.1	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.3	0.0		2.4	0.0	2.5	4.3	0.0	110.7	4.2	
Delay (s)		41.7	41.0		45.3	41.1	49.7	18.4	7.0	154.4	14.4	
Level of Service		D	D		D	D	D	B	A	F	B	
Approach Delay (s)		41.2			43.1			18.8			23.7	
Approach LOS		D			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	23.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	98.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	77.9%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Queues

3: Fox Hollow Dr & Lowell Rd

11/12/2025

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	23	44	56	44	2	906	22	72	1289
v/c Ratio	0.20	0.22	0.46	0.22	0.02	0.81	0.02	0.95	0.86
Control Delay	56.3	8.5	64.2	8.5	58.5	19.5	0.1	141.7	16.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.3	8.5	64.2	8.5	58.5	19.5	0.1	141.7	16.6
Queue Length 50th (ft)	13	0	33	0	1	401	0	~45	465
Queue Length 95th (ft)	49	21	#100	21	11	569	0	#189	#1344
Internal Link Dist (ft)	272		239			409			289
Turn Bay Length (ft)		75		150	250		350	175	
Base Capacity (vph)	146	237	156	237	147	1679	1500	76	1743
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.19	0.36	0.19	0.01	0.54	0.01	0.95	0.74

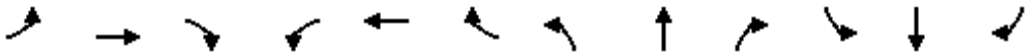
Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
3: Fox Hollow Dr & Lowell Rd

11/12/2025



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	1	40	50	0	40	2	815	20	65	1155	5
Future Volume (vph)	20	1	40	50	0	40	2	815	20	65	1155	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.95	1.00		0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1778	1583		1770	1583	1770	1776	1583	1770	1826	
Flt Permitted		0.69	1.00		0.74	1.00	1.00	1.00	1.00	0.36	1.00	
Satd. Flow (perm)		1293	1583		1383	1583	1863	1776	1583	677	1826	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	22	1	44	56	0	44	2	906	22	72	1283	6
RTOR Reduction (vph)	0	0	41	0	0	41	0	0	8	0	0	0
Lane Group Flow (vph)	0	23	3	0	56	3	2	906	14	72	1289	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	7%	2%	2%	4%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	custom	NA	Perm	custom	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8		8	4		4	1		6	5		
Actuated Green, G (s)		6.8	6.8		6.8	6.8	0.7	67.1	67.1	11.0	77.4	
Effective Green, g (s)		6.8	6.8		6.8	6.8	0.7	67.1	67.1	11.0	77.4	
Actuated g/C Ratio		0.07	0.07		0.07	0.07	0.01	0.65	0.65	0.11	0.75	
Clearance Time (s)		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		1.5	1.5		1.5	1.5	1.0	1.5	1.5	1.5	1.5	
Lane Grp Cap (vph)		85	104		91	104	12	1158	1032	72	1373	
v/s Ratio Prot								0.51			c0.71	
v/s Ratio Perm		0.02	0.00		c0.04	0.00	0.00		0.01	c0.11		
v/c Ratio		0.27	0.03		0.62	0.03	0.17	0.78	0.01	1.00	0.94	
Uniform Delay, d1		45.7	45.0		46.8	45.0	50.8	12.7	6.3	46.0	10.8	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.6	0.0		8.4	0.0	2.4	3.2	0.0	106.1	12.2	
Delay (s)		46.3	45.0		55.2	45.0	53.2	16.0	6.3	152.0	22.9	
Level of Service		D	D		E	D	D	B	A	F	C	
Approach Delay (s)		45.5			50.7			15.8			29.8	
Approach LOS		D			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	25.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	102.9	Sum of lost time (s)	18.0
Intersection Capacity Utilization	84.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Queues

3: Fox Hollow Dr & Lowell Rd

11/12/2025

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	7	17	95	139	28	1467	61	117	828
v/c Ratio	0.11	0.11	1.03	0.59	0.37	1.06	0.05	2.34	0.56
Control Delay	68.5	1.6	167.6	20.6	82.4	62.0	1.1	687.7	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.5	1.6	167.6	20.6	82.4	62.0	1.1	687.7	7.9
Queue Length 50th (ft)	6	0	~98	0	27	~1550	0	~184	300
Queue Length 95th (ft)	23	0	#222	71	62	#1816	11	#320	395
Internal Link Dist (ft)	272		239			409			289
Turn Bay Length (ft)		75		150	250		350	175	
Base Capacity (vph)	83	168	92	236	83	1384	1193	50	1484
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.10	1.03	0.59	0.34	1.06	0.05	2.34	0.56

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
3: Fox Hollow Dr & Lowell Rd

11/12/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	1	15	80	5	125	25	1320	55	105	735	10
Future Volume (vph)	5	1	15	80	5	125	25	1320	55	105	735	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.96	1.00		0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1786	1583		1779	1583	1770	1863	1583	1770	1859	
Flt Permitted		0.66	1.00		0.73	1.00	0.95	1.00	1.00	0.40	1.00	
Satd. Flow (perm)		1234	1583		1369	1583	1774	1863	1583	745	1859	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	6	1	17	89	6	139	28	1467	61	117	817	11
RTOR Reduction (vph)	0	0	16	0	0	130	0	0	15	0	0	0
Lane Group Flow (vph)	0	7	1	0	95	9	28	1467	46	117	828	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	custom	NA	Perm	custom	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8		8	4		4	1		6	5		
Actuated Green, G (s)		10.0	10.0		10.0	10.0	4.2	112.4	112.4	10.0	118.2	
Effective Green, g (s)		10.0	10.0		10.0	10.0	4.2	112.4	112.4	10.0	118.2	
Actuated g/C Ratio		0.07	0.07		0.07	0.07	0.03	0.75	0.75	0.07	0.79	
Clearance Time (s)		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		1.5	1.5		1.5	1.5	1.0	1.5	1.5	1.5	1.5	
Lane Grp Cap (vph)		82	105		91	105	49	1392	1183	49	1460	
v/s Ratio Prot								c0.79			c0.45	
v/s Ratio Perm		0.01	0.00		c0.07	0.01	0.02		0.03	c0.16		
v/c Ratio		0.09	0.01		1.04	0.09	0.57	1.05	0.04	2.39	0.57	
Uniform Delay, d1		65.9	65.6		70.2	65.9	72.2	19.0	4.9	70.2	6.2	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.2	0.0		106.8	0.1	9.6	39.7	0.0	682.3	0.3	
Delay (s)		66.1	65.6		177.0	66.1	81.8	58.7	4.9	752.5	6.5	
Level of Service		E	E		F	E	F	E	A	F	A	
Approach Delay (s)		65.7			111.1			57.0			98.9	
Approach LOS		E			F			E			F	

Intersection Summary			
HCM 2000 Control Delay	76.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	150.4	Sum of lost time (s)	18.0
Intersection Capacity Utilization	101.7%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Queues

3: Fox Hollow Dr & Lowell Rd

11/12/2025

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	19	33	129	139	17	906	50	144	1055
v/c Ratio	0.17	0.16	0.82	0.45	0.14	0.88	0.06	1.69	0.82
Control Delay	47.5	4.1	80.9	13.6	49.3	27.3	1.2	390.0	17.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.5	4.1	80.9	13.6	49.3	27.3	1.2	390.0	17.1
Queue Length 50th (ft)	9	0	64	0	8	392	0	~106	271
Queue Length 95th (ft)	39	8	#244	62	37	547	8	#316	705
Internal Link Dist (ft)	272		239			409			289
Turn Bay Length (ft)		75		150	250		350	175	
Base Capacity (vph)	147	245	157	309	154	1835	1560	85	1840
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.13	0.82	0.45	0.11	0.49	0.03	1.69	0.57

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
3: Fox Hollow Dr & Lowell Rd

11/12/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	2	30	115	1	125	15	815	45	130	940	10
Future Volume (vph)	15	2	30	115	1	125	15	815	45	130	940	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.96	1.00		0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1783	1583		1775	1583	1770	1863	1583	1770	1860	
Flt Permitted		0.67	1.00		0.71	1.00	1.00	1.00	1.00	0.38	1.00	
Satd. Flow (perm)		1244	1583		1330	1583	1863	1863	1583	716	1860	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	17	2	33	128	1	139	17	906	50	144	1044	11
RTOR Reduction (vph)	0	0	29	0	0	123	0	0	21	0	0	0
Lane Group Flow (vph)	0	19	4	0	129	16	17	906	29	144	1055	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	custom	NA	Perm	custom	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8		8	4		4	1		6	5		
Actuated Green, G (s)		10.4	10.4		10.4	10.4	2.2	52.7	52.7	10.4	60.9	
Effective Green, g (s)		10.4	10.4		10.4	10.4	2.2	52.7	52.7	10.4	60.9	
Actuated g/C Ratio		0.11	0.11		0.11	0.11	0.02	0.58	0.58	0.11	0.67	
Clearance Time (s)		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		1.5	1.5		1.5	1.5	1.0	1.5	1.5	1.5	1.5	
Lane Grp Cap (vph)		141	179		151	179	44	1073	911	81	1237	
v/s Ratio Prot								0.49			c0.57	
v/s Ratio Perm		0.02	0.00		c0.10	0.01	0.01		0.02	c0.20		
v/c Ratio		0.13	0.02		0.85	0.09	0.39	0.84	0.03	1.78	0.85	
Uniform Delay, d1		36.5	36.0		39.8	36.3	44.0	16.0	8.4	40.5	11.8	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.2	0.0		33.7	0.1	2.0	6.0	0.0	395.0	5.7	
Delay (s)		36.7	36.0		73.5	36.4	46.0	22.0	8.4	435.6	17.5	
Level of Service		D	D		E	D	D	C	A	F	B	
Approach Delay (s)		36.3			54.3			21.7			67.7	
Approach LOS		D			D			C			E	

Intersection Summary			
HCM 2000 Control Delay	47.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	91.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	82.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Queues
3: Fox Hollow Dr & Lowell Rd

11/12/2025

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	23	50	22	28	2	1006	11	39	1439
v/c Ratio	0.33	0.34	0.31	0.19	0.03	0.73	0.01	0.57	0.91
Control Delay	72.0	15.1	70.3	3.0	64.0	14.0	0.0	88.1	19.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.0	15.1	70.3	3.0	64.0	14.0	0.0	88.1	19.4
Queue Length 50th (ft)	17	0	16	0	2	453	0	29	575
Queue Length 95th (ft)	54	28	52	0	11	701	0	#99	#1723
Internal Link Dist (ft)	272		239			409			289
Turn Bay Length (ft)		75		150	250		350	175	
Base Capacity (vph)	108	188	112	188	105	1612	1443	75	1696
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.27	0.20	0.15	0.02	0.62	0.01	0.52	0.85

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
3: Fox Hollow Dr & Lowell Rd

11/12/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	1	45	20	0	25	2	905	10	35	1290	5
Future Volume (vph)	20	1	45	20	0	25	2	905	10	35	1290	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.95	1.00		0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1778	1583		1770	1583	1770	1776	1583	1770	1826	
Flt Permitted		0.72	1.00		0.74	1.00	1.00	1.00	1.00	0.50	1.00	
Satd. Flow (perm)		1340	1583		1383	1583	1863	1776	1583	931	1826	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	22	1	50	22	0	28	2	1006	11	39	1433	6
RTOR Reduction (vph)	0	0	48	0	0	27	0	0	3	0	0	0
Lane Group Flow (vph)	0	23	2	0	22	1	2	1006	8	39	1439	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	7%	2%	2%	4%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	custom	NA	Perm	custom	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8		8	4		4	1		6	5		
Actuated Green, G (s)		5.5	5.5		5.5	5.5	0.9	99.1	99.1	8.0	106.2	
Effective Green, g (s)		5.5	5.5		5.5	5.5	0.9	99.1	99.1	8.0	106.2	
Actuated g/C Ratio		0.04	0.04		0.04	0.04	0.01	0.76	0.76	0.06	0.81	
Clearance Time (s)		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		1.5	1.5		1.5	1.5	1.0	1.5	1.5	1.5	1.5	
Lane Grp Cap (vph)		56	66		58	66	12	1347	1201	57	1484	
v/s Ratio Prot								0.57			c0.79	
v/s Ratio Perm		c0.02	0.00		0.02	0.00	0.00		0.01	c0.04		
v/c Ratio		0.41	0.03		0.38	0.02	0.17	0.75	0.01	0.68	0.97	
Uniform Delay, d1		61.0	60.0		60.9	60.0	64.5	8.8	3.8	60.1	10.8	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		1.8	0.1		1.5	0.0	2.4	2.0	0.0	23.7	16.4	
Delay (s)		62.8	60.1		62.4	60.0	66.9	10.8	3.8	83.8	27.1	
Level of Service		E	E		E	E	E	B	A	F	C	
Approach Delay (s)		60.9			61.1			10.8			28.6	
Approach LOS		E			E			B			C	

Intersection Summary			
HCM 2000 Control Delay	23.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	130.6	Sum of lost time (s)	18.0
Intersection Capacity Utilization	91.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Queues

3: Fox Hollow Dr & Lowell Rd

11/12/2025

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	12	17	67	83	28	1656	28	89	934
v/c Ratio	0.17	0.11	0.79	0.47	0.37	1.19	0.02	1.78	0.63
Control Delay	71.1	1.6	118.0	21.9	82.2	114.2	0.0	452.8	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.1	1.6	118.0	21.9	82.2	114.2	0.0	452.8	9.0
Queue Length 50th (ft)	11	0	65	0	27	~1928	0	~128	378
Queue Length 95th (ft)	34	0	#147	55	62	#2190	0	#248	501
Internal Link Dist (ft)	272		239			409			289
Turn Bay Length (ft)		75		150	250		350	175	
Base Capacity (vph)	87	169	93	184	83	1391	1199	50	1491
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.10	0.72	0.45	0.34	1.19	0.02	1.78	0.63

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
3: Fox Hollow Dr & Lowell Rd

11/12/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	1	15	55	5	75	25	1490	25	80	825	15
Future Volume (vph)	10	1	15	55	5	75	25	1490	25	80	825	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.96	1.00		0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1781	1583		1782	1583	1770	1863	1583	1770	1858	
Flt Permitted		0.70	1.00		0.74	1.00	0.95	1.00	1.00	0.40	1.00	
Satd. Flow (perm)		1296	1583		1372	1583	1774	1863	1583	745	1858	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	11	1	17	61	6	83	28	1656	28	89	917	17
RTOR Reduction (vph)	0	0	16	0	0	78	0	0	7	0	0	0
Lane Group Flow (vph)	0	12	1	0	67	5	28	1656	21	89	934	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	custom	NA	Perm	custom	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8		8	4		4	1		6	5		
Actuated Green, G (s)		9.2	9.2		9.2	9.2	4.2	112.5	112.5	10.0	118.3	
Effective Green, g (s)		9.2	9.2		9.2	9.2	4.2	112.5	112.5	10.0	118.3	
Actuated g/C Ratio		0.06	0.06		0.06	0.06	0.03	0.75	0.75	0.07	0.79	
Clearance Time (s)		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		1.5	1.5		1.5	1.5	1.0	1.5	1.5	1.5	1.5	
Lane Grp Cap (vph)		79	97		84	97	49	1400	1189	49	1468	
v/s Ratio Prot								c0.89			c0.50	
v/s Ratio Perm		0.01	0.00		c0.05	0.00	0.02		0.01	c0.12		
v/c Ratio		0.15	0.01		0.80	0.05	0.57	1.18	0.02	1.82	0.64	
Uniform Delay, d1		66.6	66.0		69.3	66.1	71.9	18.6	4.7	69.8	6.6	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.3	0.0		37.2	0.1	9.6	89.9	0.0	436.2	0.7	
Delay (s)		66.9	66.0		106.5	66.2	81.5	108.5	4.7	506.0	7.3	
Level of Service		E	E		F	E	F	F	A	F	A	
Approach Delay (s)		66.4			84.2			106.4			50.7	
Approach LOS		E			F			F			D	

Intersection Summary			
HCM 2000 Control Delay	85.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	149.7	Sum of lost time (s)	18.0
Intersection Capacity Utilization	102.2%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Queues
3: Fox Hollow Dr & Lowell Rd

11/12/2025

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	19	39	68	78	22	1039	17	83	1200
v/c Ratio	0.18	0.21	0.62	0.39	0.21	0.86	0.02	1.24	0.87
Control Delay	62.8	6.6	80.3	19.6	65.7	22.5	0.0	233.7	20.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.8	6.6	80.3	19.6	65.7	22.5	0.0	233.7	20.0
Queue Length 50th (ft)	12	0	45	0	15	523	0	~72	667
Queue Length 95th (ft)	47	14	#154	54	52	702	0	#235	947
Internal Link Dist (ft)	272		239			409			289
Turn Bay Length (ft)		75		150	250		350	175	
Base Capacity (vph)	124	211	127	221	124	1698	1449	67	1712
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.18	0.54	0.35	0.18	0.61	0.01	1.24	0.70

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
3: Fox Hollow Dr & Lowell Rd

11/12/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	2	35	60	1	70	20	935	15	75	1070	10
Future Volume (vph)	15	2	35	60	1	70	20	935	15	75	1070	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.96	1.00		0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1783	1583		1775	1583	1770	1863	1583	1770	1860	
Flt Permitted		0.70	1.00		0.72	1.00	1.00	1.00	1.00	0.38	1.00	
Satd. Flow (perm)		1304	1583		1333	1583	1863	1863	1583	703	1860	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	17	2	39	67	1	78	22	1039	17	83	1189	11
RTOR Reduction (vph)	0	0	36	0	0	72	0	0	6	0	0	0
Lane Group Flow (vph)	0	19	3	0	68	6	22	1039	11	83	1200	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	custom	NA	Perm	custom	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8		8	4		4	1		6	5		
Actuated Green, G (s)		9.2	9.2		9.2	9.2	3.5	75.2	75.2	10.6	82.3	
Effective Green, g (s)		9.2	9.2		9.2	9.2	3.5	75.2	75.2	10.6	82.3	
Actuated g/C Ratio		0.08	0.08		0.08	0.08	0.03	0.67	0.67	0.09	0.73	
Clearance Time (s)		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		1.5	1.5		1.5	1.5	1.0	1.5	1.5	1.5	1.5	
Lane Grp Cap (vph)		106	128		108	128	57	1239	1053	65	1354	
v/s Ratio Prot								0.56			c0.64	
v/s Ratio Perm		0.01	0.00		c0.05	0.00	0.01		0.01	c0.12		
v/c Ratio		0.18	0.02		0.63	0.05	0.39	0.84	0.01	1.28	0.89	
Uniform Delay, d1		48.4	47.8		50.3	47.9	53.7	14.3	6.4	51.2	11.8	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.3	0.0		8.0	0.1	1.6	4.9	0.0	203.0	7.1	
Delay (s)		48.7	47.8		58.3	47.9	55.3	19.2	6.4	254.2	18.9	
Level of Service		D	D		E	D	E	B	A	F	B	
Approach Delay (s)		48.1			52.7			19.7			34.1	
Approach LOS		D			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	29.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	113.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	82.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Queues

3: Fox Hollow Dr & Lowell Rd

11/12/2025

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	23	50	56	50	2	994	22	78	1423
v/c Ratio	0.27	0.30	0.62	0.30	0.03	0.77	0.02	1.34	0.92
Control Delay	66.7	13.2	86.9	13.2	64.5	16.4	0.1	276.8	20.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.7	13.2	86.9	13.2	64.5	16.4	0.1	276.8	20.7
Queue Length 50th (ft)	17	0	43	0	2	490	0	~77	684
Queue Length 95th (ft)	54	28	#117	28	11	683	0	#220	#1696
Internal Link Dist (ft)	272		239			409			289
Turn Bay Length (ft)		75		150	250		350	175	
Base Capacity (vph)	103	187	110	187	104	1559	1397	58	1671
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.27	0.51	0.27	0.02	0.64	0.02	1.34	0.85

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
3: Fox Hollow Dr & Lowell Rd

11/12/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	1	45	50	0	45	2	895	20	70	1275	5
Future Volume (vph)	20	1	45	50	0	45	2	895	20	70	1275	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.95	1.00		0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1778	1583		1770	1583	1770	1776	1583	1770	1826	
Flt Permitted		0.69	1.00		0.74	1.00	1.00	1.00	1.00	0.40	1.00	
Satd. Flow (perm)		1293	1583		1383	1583	1863	1776	1583	738	1826	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	22	1	50	56	0	50	2	994	22	78	1417	6
RTOR Reduction (vph)	0	0	47	0	0	47	0	0	6	0	0	0
Lane Group Flow (vph)	0	23	3	0	56	3	2	994	16	78	1423	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	7%	2%	2%	4%	2%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	custom	NA	Perm	custom	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8		8	4		4	1		6	5		
Actuated Green, G (s)		7.3	7.3		7.3	7.3	0.9	97.0	97.0	10.1	106.2	
Effective Green, g (s)		7.3	7.3		7.3	7.3	0.9	97.0	97.0	10.1	106.2	
Actuated g/C Ratio		0.06	0.06		0.06	0.06	0.01	0.73	0.73	0.08	0.80	
Clearance Time (s)		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		1.5	1.5		1.5	1.5	1.0	1.5	1.5	1.5	1.5	
Lane Grp Cap (vph)		71	87		76	87	12	1301	1159	56	1464	
v/s Ratio Prot								0.56			c0.78	
v/s Ratio Perm		0.02	0.00		c0.04	0.00	0.00		0.01	c0.11		
v/c Ratio		0.32	0.03		0.74	0.03	0.17	0.76	0.01	1.39	0.97	
Uniform Delay, d1		60.2	59.2		61.6	59.2	65.4	10.7	4.8	61.2	11.8	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		1.0	0.1		27.0	0.1	2.4	2.5	0.0	255.6	17.1	
Delay (s)		61.1	59.3		88.6	59.3	67.8	13.2	4.8	316.8	28.9	
Level of Service		E	E		F	E	E	B	A	F	C	
Approach Delay (s)		59.9			74.8			13.1			43.8	
Approach LOS		E			E			B			D	

Intersection Summary			
HCM 2000 Control Delay	33.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	132.4	Sum of lost time (s)	18.0
Intersection Capacity Utilization	90.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Queues

3: Fox Hollow Dr & Lowell Rd

11/12/2025

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	12	17	100	150	28	1617	61	128	911
v/c Ratio	0.23	0.11	1.10	0.68	0.37	1.17	0.05	2.56	0.61
Control Delay	76.5	1.6	184.1	33.7	82.4	105.2	1.1	781.6	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	76.5	1.6	184.1	33.7	82.4	105.2	1.1	781.6	8.9
Queue Length 50th (ft)	11	0	~108	27	27	~1850	0	~206	360
Queue Length 95th (ft)	34	0	#234	#112	62	#2114	11	#346	476
Internal Link Dist (ft)	272		239			409			289
Turn Bay Length (ft)		75		150	250		350	175	
Base Capacity (vph)	65	168	91	219	83	1384	1193	50	1483
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.10	1.10	0.68	0.34	1.17	0.05	2.56	0.61

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
3: Fox Hollow Dr & Lowell Rd

11/12/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	1	15	85	5	135	25	1455	55	115	805	15
Future Volume (vph)	10	1	15	85	5	135	25	1455	55	115	805	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.96	1.00		0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1781	1583		1779	1583	1770	1863	1583	1770	1858	
Flt Permitted		0.52	1.00		0.73	1.00	0.95	1.00	1.00	0.40	1.00	
Satd. Flow (perm)		971	1583		1360	1583	1774	1863	1583	745	1858	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	11	1	17	94	6	150	28	1617	61	128	894	17
RTOR Reduction (vph)	0	0	16	0	0	113	0	0	15	0	0	0
Lane Group Flow (vph)	0	12	1	0	100	37	28	1617	46	128	911	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	custom	NA	Perm	custom	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8		8	4		4	1		6	5		
Actuated Green, G (s)		10.0	10.0		10.0	10.0	4.2	112.4	112.4	10.0	118.2	
Effective Green, g (s)		10.0	10.0		10.0	10.0	4.2	112.4	112.4	10.0	118.2	
Actuated g/C Ratio		0.07	0.07		0.07	0.07	0.03	0.75	0.75	0.07	0.79	
Clearance Time (s)		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		1.5	1.5		1.5	1.5	1.0	1.5	1.5	1.5	1.5	
Lane Grp Cap (vph)		64	105		90	105	49	1392	1183	49	1460	
v/s Ratio Prot								c0.87			c0.49	
v/s Ratio Perm		0.01	0.00		c0.07	0.02	0.02		0.03	c0.17		
v/c Ratio		0.19	0.01		1.11	0.35	0.57	1.16	0.04	2.61	0.62	
Uniform Delay, d1		66.4	65.6		70.2	67.1	72.2	19.0	4.9	70.2	6.8	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.5	0.0		128.1	0.7	9.6	81.1	0.0	780.8	0.6	
Delay (s)		66.9	65.6		198.3	67.9	81.8	100.1	4.9	851.0	7.4	
Level of Service		E	E		F	E	F	F	A	F	A	
Approach Delay (s)		66.1			120.0			96.4			111.3	
Approach LOS		E			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	103.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.24		
Actuated Cycle Length (s)	150.4	Sum of lost time (s)	18.0
Intersection Capacity Utilization	109.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Queues

3: Fox Hollow Dr & Lowell Rd

11/12/2025

Lane Group	EBT	EBR	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	19	39	134	144	22	1006	50	150	1167
v/c Ratio	0.20	0.19	0.98	0.49	0.20	0.89	0.05	2.05	0.89
Control Delay	57.8	6.4	122.3	15.5	58.8	26.2	0.9	547.2	22.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.8	6.4	122.3	15.5	58.8	26.2	0.9	547.2	22.4
Queue Length 50th (ft)	12	0	~94	0	14	487	0	~157	617
Queue Length 95th (ft)	43	14	#291	67	49	665	8	#369	893
Internal Link Dist (ft)	272		239			409			289
Turn Bay Length (ft)		75		150	250		350	175	
Base Capacity (vph)	108	222	137	292	134	1770	1507	73	1786
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.18	0.98	0.49	0.16	0.57	0.03	2.05	0.65

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
3: Fox Hollow Dr & Lowell Rd

11/12/2025

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	2	35	120	1	130	20	905	45	135	1040	10
Future Volume (vph)	15	2	35	120	1	130	20	905	45	135	1040	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.96	1.00		0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1783	1583		1775	1583	1770	1863	1583	1770	1860	
Flt Permitted		0.57	1.00		0.71	1.00	1.00	1.00	1.00	0.38	1.00	
Satd. Flow (perm)		1056	1583		1330	1583	1863	1863	1583	710	1860	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	17	2	39	133	1	144	22	1006	50	150	1156	11
RTOR Reduction (vph)	0	0	35	0	0	129	0	0	19	0	0	0
Lane Group Flow (vph)	0	19	4	0	134	15	22	1006	31	150	1167	0
Turn Type	Perm	NA	Perm	Perm	NA	Perm	custom	NA	Perm	custom	NA	
Protected Phases		8			4			6			2	
Permitted Phases	8		8	4		4	1		6	5		
Actuated Green, G (s)		10.5	10.5		10.5	10.5	3.5	65.0	65.0	10.5	72.0	
Effective Green, g (s)		10.5	10.5		10.5	10.5	3.5	65.0	65.0	10.5	72.0	
Actuated g/C Ratio		0.10	0.10		0.10	0.10	0.03	0.62	0.62	0.10	0.69	
Clearance Time (s)		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		1.5	1.5		1.5	1.5	1.0	1.5	1.5	1.5	1.5	
Lane Grp Cap (vph)		106	159		134	159	62	1164	989	71	1287	
v/s Ratio Prot								0.54			c0.63	
v/s Ratio Perm		0.02	0.00		c0.10	0.01	0.01		0.02	c0.21		
v/c Ratio		0.18	0.02		1.00	0.09	0.35	0.86	0.03	2.11	0.91	
Uniform Delay, d1		42.8	42.1		46.8	42.4	49.1	15.9	7.5	46.8	13.2	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.3	0.0		77.7	0.1	1.3	6.6	0.0	544.9	9.1	
Delay (s)		43.1	42.2		124.5	42.5	50.4	22.5	7.5	591.7	22.4	
Level of Service		D	D		F	D	D	C	A	F	C	
Approach Delay (s)		42.5			82.0			22.4			87.2	
Approach LOS		D			F			C			F	

Intersection Summary			
HCM 2000 Control Delay	60.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	104.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	87.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Attachment "E"

G

Parking Evaluation

Attachment "E"

Nottingham Square

Existing Parking Calculations

Existing Plaza	Size	Site Count	Ave ITE Rate	Ave ITE Demand	Peak ITE Rate	Peak ITE Demand
Weekday	56,876	n/a	3.11	177	5.24	298
Friday	56,876	130	2.43	138	2.99	170
Saturday	56,876	99	2.4	137	3.83	218

Existing Parking Demand

Attachment "E"

Nottingham Square - ITE Parking Generation Manual (6th Edition)

Fast-Food Resturant with Drive-Through
Building area: **4.2 ksf**

Weekday		# studies	Average Size	Size range	Average Rate	85th % Rate	Average Demand	85th % Demand
Existing Parking Demand	1 ksf GLA	28	3.7	2.0-6.2	7.5	10.2	32	43
Friday		**# studies**	**Average Size**	**Size range**	**Average Rate**			
General Urban/Suburban	1 ksf GLA	11	4.0	2.25 - 6.0	9.6	16.6	40	70
Saturady		**# studies**	**Average Size**	**Size range**	**Average Rate**			
General Urban/Suburban	1 ksf GLA	17	3.9	1.8 - 6.2	8.4	12.2	35	51

Attachment "E"

Nottingham Square Parking Demand

			85th Percentile Friday Demand			Total Supply
Land use	ITE Land Use Code (LUC)	# units/area	Peak Demand (unadjusted)	Internal shared*	Peak Demand (Adjusted)	
Fast-Food Restaurant	LUC 934 (Fast-Food Restaurant w/Drive-Through)[b]	4,000	70	14.0%	60	
Retail	LUC 821 (Shopping Plaza)[c]	56,876	130	0.0%	130	
Total:			**130.0**		**190**	**222**

* Vehicular mode split and captured trip percentage based on Project Traffic Impact & Access Study.

b Suburban location data.

c Existing Parking Demand

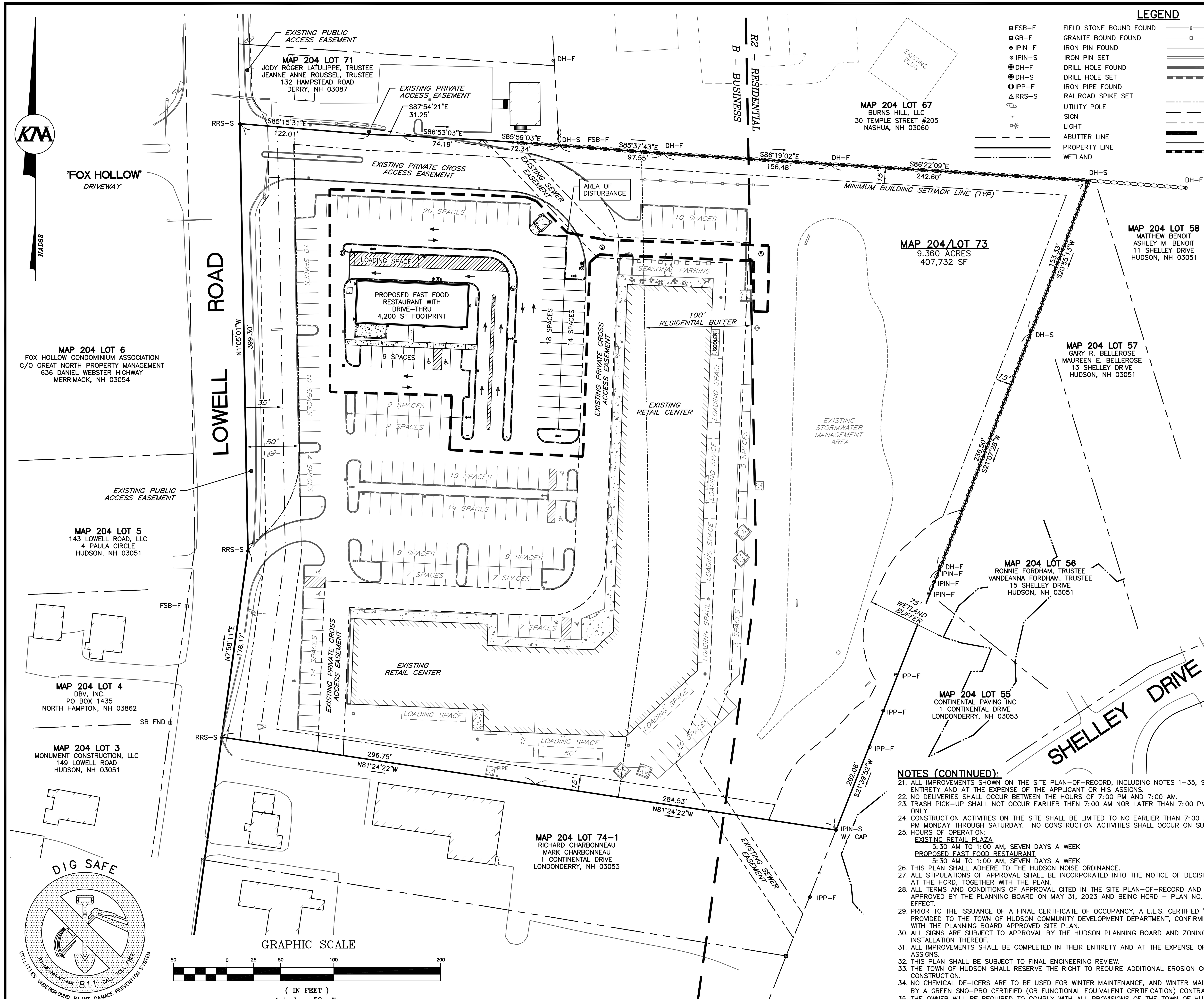
			85th Percentile Saturday Demand			Total Supply
Land use	ITE Land Use Code (LUC)	# units/area	Peak Demand (unadjusted)	Internal shared*	Peak Demand (Adjusted)	
Fast-Food Restaurant	LUC 934 (Fast-Food Restaurant w/Drive-Through)[b]	4,000	51	12.0%	45	
Retail	LUC 821 (Shopping Plaza)[c]	56,876	99	0.0%	99	
Total:			**99**		**144**	**222**

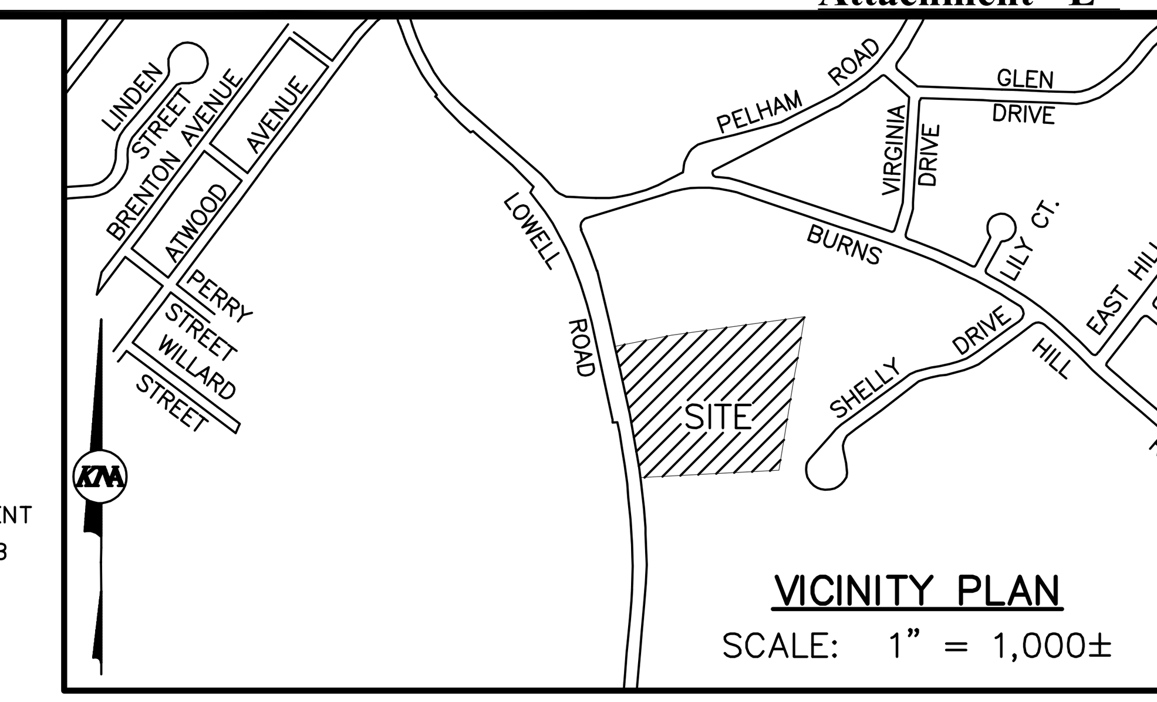
Attachment "E"

H

Site Plan

Attachment "E"





REFERENCE PLANS:

1. MAP 204, LOT 73, CONSOLIDATION AND LOT LINE RELOCATION PLAN – LOWELL ROAD, HUDSON, NEW HAMPSHIRE, DATED: APRIL 21, 2006, OWNERS OF RECORD: MANUEL E. & KATHLEEN SOUSA, RICHARD H. CHARBONNEAU AND MARK CHARBONNEAU SCALE: 1"=50' RECORDED: HCRD PLAN NO. 35059
2. "AMENDED MASTER PLAN, NOTTINGHAM SQUARE SITE PLAN", MAP 204; LOT 73, LOWELL ROAD, HUDSON, NEW HAMPSHIRE, DATED: MAY 1, 2023, REVISED: JUNE 12, 2023, OWNER OF RECORD: MANUEL D. & KATHLEEN SOUSA, SCALE: 1"=50' RECORDED: HCRD PLAN NO. 41892

NOTES:

1. THE PURPOSE OF THIS PLAN IS TO SHOW THE LAYOUT OF A PROPOSED FAST FOOD RESTAURANT WITH DRIVE–THRU AND THE ACCOMPANYING PARKING LOT MODIFICATIONS ON MAP 204 LOT 73 IN HUDSON, NEW HAMPSHIRE AND NO OTHER PURPOSE.
2. MAP 204 LOT 73 INDICATES TOWN OF HUDSON, NEW HAMPSHIRE TAX ASSESSOR'S MAP AND LOT NUMBER.
3. AREA OF PARCEL = 407,732 SF OR 9.360 ACRES
4. THE SUBJECT PARCEL IS LOCATED WITHIN THE BUSINESS (B) AND RESIDENTIAL 2 (R2) ZONING DISTRICTS AND IS SUBJECT TO THE FOLLOWING DIMENSIONAL REQUIREMENTS:

TABLE OF ZONING REQUIREMENTS

DESCRIPTION	REQUIRED	EXISTING	PROPOSED
MINIMUM LOT SIZE	30,000 SF	407,732 SF	407,732 SF
MINIMUM LOT FRONTAGE	150 FT	515.74 FT	515.74 FT
FRONT YARD SETBACK	50 FT	107.31 FT	104.39 FT
SIDE YARD SETBACK	15 FT	42.29 FT	42.29 FT
REAR YARD SETBACK	15 FT	175.77 FT	175.77 FT
MAXIMUM BUILDING HEIGHT	50 FT	14 FT	23 FT
OPEN SPACE	35%	44.8%	45.0%

5. BOUNDARY AND TOPOGRAPHIC INFORMATION SHOWN HEREON IS BASED ON A FIELD SURVEY PERFORMED BY THIS OFFICE DURING APRIL 2006 AND VERIFIED DURING APRIL 2025.
6. HORIZONTAL DATUM IS NAD83. VERTICAL DATUM IS NAVD88. BOTH DATUMS WERE OBTAINED THROUGH GPS METHODS UTILIZING NHDOT DISK #229–0420.
7. EXAMINATION OF THE FEDERAL EMERGENCY MANAGEMENT AGENCY (FEMA) FLOOD INSURANCE RATE MAPS (FIRM) FOR THE TOWN OF HUDSON, NEW HAMPSHIRE, HILLSBOROUGH COUNTY, MAP NUMBER 33011C0556D, PANEL NUMBER 517 OF 701 AND MAP NUMBER 33011C0519D, PANEL NUMBER 656 OF 701, EFFECTIVE DATE SEPTEMBER 25, 2009, INDICATE THAT NO PORTION OF THE SUBJECT PARCEL IS LOCATED IN A DESIGNATED FLOOD ZONE.
8. THE LOT IS SERVICED BY MUNICIPAL WATER AND SEWER.
9. THE LOCATION OF ANY UNDERGROUND UTILITY INFORMATION SHOWN ON THIS PLAN IS APPROXIMATE. KEACH–NORDSTROM ASSOCIATES, INC. MAKES NO CLAIM TO THE ACCURACY OR COMPLETENESS OF UTILITIES SHOWN. PRIOR TO ANY EXCAVATION ON SITE THE CONTRACTOR OR OWNER SHALL CONTACT DIG SAFE AT 811.
10. EASEMENTS, RIGHTS AND RESTRICTIONS SHOWN OR IDENTIFIED HEREON ARE THOSE FOUND DURING RESEARCH AT THE HILLSBOROUGH COUNTY REGISTRY OF DEEDS. OTHER EASEMENTS, RIGHTS AND RESTRICTIONS MAY EXIST WHICH A TITLE EXAMINATION OF THE SUBJECT PREMISES MAY DETERMINE.
11. PARKING CALCULATIONS:
    EXISTING PARKING = 264 EXISTING SPACES
    REQUIRED PARKING
    FAST FOOD RESTAURANT WITH DRIVE–THRU @ 1 SPACE/100 SF OF GROSS LEASABLE AREA X 4,200 SF = 42 SPACES
    RETAIL SHOPPING CENTER 1 SPACE/200 SF OF GROSS LEASABLE AREA X 56,876 SF = 285 SPACES
    TOTAL REQUIRED = 285 + 42 = 327 SPACES
    PROVIDED PARKING
    264 EXISTING SPACES – 83 REMOVED SPACES + 41 PROPOSED SPACES = 222 SPACES (INCLUDES 8 HC SPACES)
12. LOADING SPACE CALCULATIONS:
    EXISTING RETAIL PLAZA
    1 SPACE/5,000 SF OF GROSS FLOOR AREA @ 5,000 SF OF GFA = 1 SPACE
    1 ADDITIONAL SPACE/EVERY ADDITIONAL 10,000 SF OF GFA @ 51,876 SF = 5.2 OR 6 LOADING SPACES
    REQUIRED LOADING SPACES = 1 SPACE + 6 SPACES = 7 SPACES
    PROPOSED RESTAURANT
    1 SPACE/5,000 SF OF GROSS FLOOR AREA @ 4,200 SF = 1 SPACE
    TOTAL REQUIRED LOADING SPACES
    7 SPACES + 1 SPACE = 8 SPACES
    PROVIDED LOADING SPACES = 7 EXISTING SPACES + 1 PROPOSED SPACE = 8 LOADING SPACES
13. PERMITS REQUIRED:

	STATUS	PERMIT NUMBER
–NHDES SEWER CONNECTION PERMIT	PENDING	N/A
–NPDES NOTICE OF INTENT	REQUIRED PRIOR TO CONSTRUCTION	N/A

14. THE FOLLOWING WAIVER WAS GRANTED BY THE SPECIAL REVIEW COMMITTEE OF THE HUDSON PLANNING BOARD ON MAY 31, 2023:
    –SECTION 275–8.C.(2) TO, ON A SEASONAL BASIS, ALLOW A TOTAL OF 262 PARKING SPACES WHERE 279 PARKING SPACES WERE REQUIRED.
15. THE FOLLOWING WAIVER IS REQUESTED FROM THE SITE PLAN REGULATIONS:
    –SECTION 275–8.C.(2) TO ALLOW A TOTAL OF 222 PARKING SPACES WHERE 327 PARKING SPACES ARE REQUIRED.
16. SITE IMPROVEMENTS DEPICTED ON THE PLAN SHALL CONFORM WITH 2010 TITLE III OF THE AMERICANS WITH DISABILITIES ACT WITH REGARD TO DIMENSION AND GRADE.
17. IT SHALL BE UNLAWFUL TO MODIFY, CHANGE, OR ALTER ANY STRUCTURE OR USE SHOWN ON THIS SITE PLAN IN ANYWAY WHATSOEVER, OR CONVERT OR ALTER ANY STRUCTURE OR USE SHOWN ON THIS SITE PLAN, OR CHANGE THE ABOVE USE INDICATED ON THE PLAN WITHOUT RECEIVING APPROVAL FROM THE TOWN OF HUDSON PLANNING BOARD.
18. SITE LIGHTING SHALL BE AS SHOWN ON THE PLAN, DIRECTED ONTO SITE, AND SHALL CONFORM WITH ALL APPLICABLE TOWN OF HUDSON ZONING REGULATIONS.
19. PLOWED SNOW FROM THE FACILITIES, DRIVEWAY, PARKING LOTS AND SIDEWALK SHALL BE STORED IN THE DESIGNATED AREAS SHOWN IN THIS PLAN SET. NO SNOW MAY BE PLOWED OR STORED ON THE ABUTTING PARCELS. WHEN THE SNOW STORAGE AREAS ARE AT CAPACITY, SUBSEQUENT SNOW SHALL BE HAULED OFF–SITE AND DISPOSED OF IN AN ENVIRONMENTALLY SOUND FASHION AND IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL REGULATIONS.
20. THE APPLICANT'S ENGINEER AND/OR CONTRACTOR SHALL CONTACT THE TOWN OF HUDSON TO SCHEDULE A PRE–CONSTRUCTION MEETING, WHICH WILL BE HELD WITH STAFF PRIOR TO STARTING CONSTRUCTION.

NOTES (CONTINUED):

21. ALL IMPROVEMENTS SHOWN ON THE SITE PLAN–OF–RECORD, INCLUDING NOTES 1–35, SHALL BE COMPLETED IN THEIR ENTIRETY AND AT THE EXPENSE OF THE APPLICANT OR HIS ASSIGNS.
22. NO DELIVERIES SHALL OCCUR BETWEEN THE HOURS OF 7:00 PM AND 7:00 AM.
23. TRASH PICK–UP SHALL NOT OCCUR EARLIER THEN 7:00 AM NOR LATER THAN 7:00 PM, MONDAY THROUGH FRIDAY ONLY.
24. CONSTRUCTION ACTIVITIES ON THE SITE SHALL BE LIMITED TO NO EARLIER THAN 7:00 AM AND NO LATER THAN 5:00 PM MONDAY THROUGH SATURDAY. NO CONSTRUCTION ACTIVITIES SHALL OCCUR ON SUNDAYS.
25. HOURS OF OPERATION:
    EXISTING RETAIL PLAZA
    5:30 AM TO 1:00 AM, SEVEN DAYS A WEEK
    PROPOSED FAST FOOD RESTAURANT
    5:30 AM TO 1:00 AM, SEVEN DAYS A WEEK
26. THIS PLAN SHALL ADHERE TO THE HUDSON NOISE ORDINANCE.
27. ALL STIPULATIONS OF APPROVAL SHALL BE INCORPORATED INTO THE NOTICE OF DECISION, WHICH SHALL BE RECORDED AT THE HCRD, TOGETHER WITH THE PLAN.
28. ALL TERMS AND CONDITIONS OF APPROVAL CITED IN THE SITE PLAN–OF–RECORD AND DEVELOPMENT AGREEMENT, AS APPROVED BY THE PLANNING BOARD ON MAY 31, 2023 AND BEING HCRD – PLAN NO. 41892, SHALL REMAIN IN EFFECT.
29. PRIOR TO THE ISSUANCE OF A FINAL CERTIFICATE OF OCCUPANCY, A L.L.S. CERTIFIED "AS–BUILT" SITE PLAN SHALL BE PROVIDED TO THE TOWN OF HUDSON COMMUNITY DEVELOPMENT DEPARTMENT, CONFIRMING THAT THE SITE CONFORMS WITH THE PLANNING BOARD APPROVED SITE PLAN.
30. ALL SIGNS ARE SUBJECT TO APPROVAL BY THE HUDSON PLANNING BOARD AND ZONING ADMINISTRATOR PRIOR TO INSTALLATION THEREOF.
31. ALL IMPROVEMENTS SHALL BE COMPLETED IN THEIR ENTIRETY AND AT THE EXPENSE OF THE APPLICANT OR HIS ASSIGNS.
32. THIS PLAN SHALL BE SUBJECT TO FINAL ENGINEERING REVIEW.
33. THE TOWN OF HUDSON SHALL RESERVE THE RIGHT TO REQUIRE ADDITIONAL EROSION CONTROL MEASURES DURING CONSTRUCTION.
34. NO CHEMICAL DE–ICERS ARE TO BE USED FOR WINTER MAINTENANCE, AND WINTER MAINTENANCE SHALL BE PERFORMED BY A GREEN SNO–PRO CERTIFIED (OR FUNCTIONAL EQUIVALENT CERTIFICATION) CONTRACTOR.
35. THE OWNER WILL BE REQUIRED TO COMPLY WITH ALL PROVISIONS OF THE TOWN OF HUDSON'S MS4 PERMIT, INCLUDING BUT NOT LIMITED TO ANNUAL REPORTING REQUIREMENTS, CONSTRUCTION SITE STORMWATER RUNOFF CONTROL, AND RECORD KEEPING REQUIREMENTS.

AMENDED MASTER SITE PLAN
NOTTINGHAM SQUARE FAST FOOD RESTAURANT

MAP 204; LOT 73
142 LOWELL ROAD
HUDSON, NEW HAMPSHIRE
HILLSBOROUGH COUNTY

OWNER/APPLICANT:
MANUEL D. SOUSA
KATHLEEN M. SOUSA
46 LOWELL ROAD
HUDSON, N.H. 03051

KNA KEACH–NORDSTROM ASSOCIATES, INC.
Civil Engineering Land Surveying Landscape Architecture
10 Commerce Park North, Suite 3B, Bedford, NH 03110 Phone (603) 627–2881

PURSUANT TO THE SITE REVIEW REGULATIONS OF THE HUDSON PLANNING BOARD, THE SITE PLAN APPROVAL GRANTED HEREIN EXPIRES TWO YEARS FROM DATE OF APPROVAL

APPROVED BY THE HUDSON, NH PLANNING BOARD
DATE OF MEETING: ____________

____________ SIGNATURE DATE: ____________

____________ SIGNATURE DATE: ____________

SITE PLANS ARE VALID FOR TWO YEARS FROM THE DATE OF PLANNING BOARD MEETING FINAL APPROVAL. FINAL APPROVAL COMMENCES AT THE PLANNING BOARD MEETING DATE AT WHICH THE PLAN RECEIVES FINAL APPROVAL.

NPDES NOTE

THIS PROJECT DISTURBS IN EXCESS OF 1–ACRE OF LAND. THEREFORE IT WILL BE REQUIRED TO OBTAIN NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT COVERAGE AS ISSUED BY THE ENVIRONMENTAL PROTECTION AGENCY (EPA). THE OWNER/DEVELOPER AND "OPERATOR" (GENERAL CONTRACTOR) SHALL EACH BE REQUIRED TO PREPARE AND SUBMIT A NOTICE OF INTENT (NOI) TO THE EPA PRIOR TO THE START OF CONSTRUCTION AND SHALL BE RESPONSIBLE FOR THE PREPARATION AND IMPLEMENTATION OF A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) MEETING THE REQUIREMENTS OF THE CURRENT CONSTRUCTION GENERAL PERMIT.

OWNER OF MAP 204 LOT 73

SIGNATURE: ____________
MANUEL D. SOUSA

DATE: ____________

SURVEYOR'S CERTIFICATION:

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR THOSE UNDER MY DIRECT SUPERVISION. FURTHER, THAT THIS PLAN IS BASED ON AN ACTUAL FIELD SURVEY MADE ON THE GROUND BY THIS OFFICE DURING APRIL 2006 AND VERIFIED DURING APRIL 2025. SAID SURVEY HAS AN ERROR OF CLOSURE BETTER THAN ONE PART IN TEN THOUSAND (1:10,000).

____________ LICENSED LAND SURVEYOR ____________ DATE

REVISIONS

No.	DATE	DESCRIPTION	BY

DATE: NOVEMBER 17, 2025 | SCALE: 1" = 50'
PROJECT NO: 06–0404–1A | SHEET 1 OF 13

Attachment "F"
FUSS & O'NEILL

MEMORANDUM

TO: File

FROM: Steven W. Reichert, PE

DATE: December 18, 2025

RE: Town of Hudson Planning Board Review
Nottingham Square Restaurant Site Plan, 142 Lowell Road
Tax Map 204, Lot 73; Acct. #1350-735
Fuss & O'Neill Reference No. 20030249.259

The following list itemizes the set of documents reviewed related to the Nottingham Square Restaurant Site Plan project located at 142 Lowell Road in Hudson, New Hampshire.

- Emails between the Town of Hudson and Fuss & O'Neill between November 24 and December 10, 2025.

- Letter of Transmittal from Keach-Nordstrom, Inc. to Fuss & O'Neill, dated and received November 25, 2025, including the following:
  1. Copy of letter of transmittal from Keach-Nordstrom, Inc. to the Town of Hudson, dated November 25 ,2025.
  2. Copy of letter from Keach-Nordstrom, Inc. to the Town of Huson, dated November 17, 2025.
  3. Copy of *Site Plan Application*, dated November 17, 2025.
  4. Copy of *Wavier Request Forms*, not dated.
  5. Copy of *Town of Hudson Site Plan Review Checklist*, not dated.
  6. Copy of *Abutter's List*, not dated.
  7. Copy of Project Narrative, prepared by Keach-Nordstrom, Inc., dated November 17, 2025.
  8. Copy of *Waiver Request* Letter, from Keach-Nordstrom, Inc. to the Town of Hudson, dated November 25, 2025.
  9. Copy of Drainage Memorandum, prepared by Keach-Nordstrom, Inc., dated November 26, 2025.
  10. Copy of *Nottingham Square Traffic Study*, prepared by VHB, dated November 13, 2025.
  11. Copy of *Non-Residential Site Plan, Nottingham Square Fast Food Restaurant, Map 204, Lot 73, 142 Lowell Road, Hudson, New Hampshire*, prepared by Keach-Nordstrom, Inc., dated November 25, 2025, with no revisions noted, including the following:
      a. Cover Sheet.
      b. *Amended Master Site Plan,* Sheet 1 of 13.
      c. *Existing Conditions Plan,* Sheet 2 of 13.
      d. *Removals/Demolition Plan,* Sheet 3 of 13.
      e. *Non-Residential Site Plan,* Sheet 4 of 13.
      f. *Grading & Drainage Plan,* Sheet 5 of 13.
      g. *Utility Plan,* Sheet 6 of 13.
      h. *Erosion Control Plan,* Sheet 7 of 13.
      i. *Landscape Plan,* Sheet 8 of 13.
      j. *Lighting Plan,* Sheet 9 of 13.

k. *Construction Details,* Sheets 11 through 13 of 13.
l. Exterior Elevations*,* prepared by Warrenstreet, dated October 23, 2025.
m. Exterior Perspectives*,* prepared by Warrenstreet, dated October 23, 2025.
n. Floor Plan*,* prepared by Warrenstreet, dated October 23, 2025.

SWR:elc

cc: Brooke Dubowik – Town of Hudson
Town of Hudson Engineering Division – File

TOWN OF HUDSON

Planning Department

12 School Street · Hudson, New Hampshire 03051 · Tel: 603-886-6008 · Fax: 603-594-1142

CAP FEE WORKSHEET - 2025

Date: 01/14/2026 **Zone #** 2 **Map/Lot:** 228-007-000
256 Lowell Road

Project Name: Nottingham Square Amended Site Plan

Proposed ITE Use #1: Fast Food Restaurant

Proposed Building Area (square footage): 9,500 sq. ft.

CAP FEES: (ONE CHECK NEEDED)

1.	**(Account)**	**($23.26 x 4,200 sq. ft.)**	
	2070-702	**Traffic Improvement (Zone 2)**	**$ 98,112.00**
		Total CAP Fee	**$ 98,112.00**

***** This CAP Fee amount is based on the 2025 CAP FEE ASSESSMENT *****

CAP FEE to be paid prior to Certificate of Occupancy application.

Check should be made payable to the Town of Hudson

Thank you,

Brooke Dubowik

Planning Administrative Aide II